

evertz

2005/2006 Catalogo

A sezioni distinte

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e per Categorie Prodotti

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P R O F E S S I O N A L

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CWDM & DWDM Wavelength Ordering Information

CWDM Transmitter Ordering Options - 20nm Channel Grid - Based on ITU G.694.2

Laser Ordering Number (xx)	Wavelength (nm)	Transmitter Module (Example)
27	1270	7707EO27
29	1290	7707EO29
31	1310	7707EO31
33	1330	7707EO33
35	1350	7707EO35
37	1370	7707EO37
43	1430	7707EO43
45	1450	7707EO45
47	1470	7707EO47
49	1490	7707EO49
51	1510	7707EO51
53	1530	7707EO53
55	1550	7707EO55
57	1570	7707EO57
59	1590	7707EO59
61	1610	7707EO61

DWDM Transmitter Ordering Options - 100GHz/0.8nm Channel Grid - Based on ITU G.69

Laser Ordering Number (Dyyy)	ITU Channel Number	Frequency (GHz)	Wavelength	Transmitter Module (Example)
D200	20	192,000	1561.42	Contact Factory
D210	21	192,100	1560.61	Contact Factory
D220	22	192,200	1559.79	Contact Factory
D230	23	192,300	1558.98	Contact Factory
D240	24	192,400	1558.17	Contact Factory
D250	25	192,500	1557.36	7707EOD250
D260	26	192,600	1556.55	7707EOD260
D270	27	192,700	1555.75	7707EOD270
D280	28	192,800	1554.94	7707EOD280
D290	29	192,900	1554.13	7707EOD290
D300	30	193,000	1553.33	7707EOD300
D310	31	193,100	1552.52	7707EOD310
D320	32	193,200	1551.72	7707EOD320
D330	33	193,300	1550.92	7707EOD330
D340	34	193,400	1550.12	7707EOD340
D350	35	193,500	1549.32	7707EOD350
D360	36	193,600	1548.51	7707EOD360
D370	37	193,700	1547.72	7707EOD370
D380	38	193,800	1546.92	7707EOD380
D390	39	193,900	1546.12	7707EOD390
D400	40	194,000	1545.32	7707EOD400
D410	41	194,100	1544.53	Contact Factory
D420	42	194,200	1543.73	Contact Factory
D430	43	194,300	1542.94	Contact Factory
D440	44	194,400	1542.14	Contact Factory
D450	45	194,500	1541.35	Contact Factory
D460	46	194,600	1540.56	Contact Factory
D470	47	194,700	1539.77	Contact Factory
D480	48	194,800	1538.98	Contact Factory
D490	49	194,900	1538.19	Contact Factory
D500	50	195,000	1537.40	Contact Factory
D510	51	195,100	1536.61	Contact Factory
D520	52	195,200	1535.82	Contact Factory
D530	53	195,300	1535.04	Contact Factory
D540	54	195,400	1534.24	Contact Factory
D550	55	195,500	1533.47	Contact Factory
D560	56	195,600	1532.68	Contact Factory
D570	57	195,700	1531.90	Contact Factory
D580	58	195,800	1531.12	Contact Factory
D590	59	195,900	1530.33	Contact Factory
D600	60	196,000	1529.55	Contact Factory

Combo HD & SD Digital Auto Signal 2x1 Change Over

Model 500ACO2-HD/SD



The Evertz 500ACO2-HD/SD dual SDI Autochangeover is designed to provide extension to the 5600ACO for HD or SD SDI, or DVB-ASI. The unit can also be operated as a standalone changeover unit with two independent 2X1 switchers. The 500ACO uses latching relays to ensure maximum reliability and minimal disruption in the event of any failure.

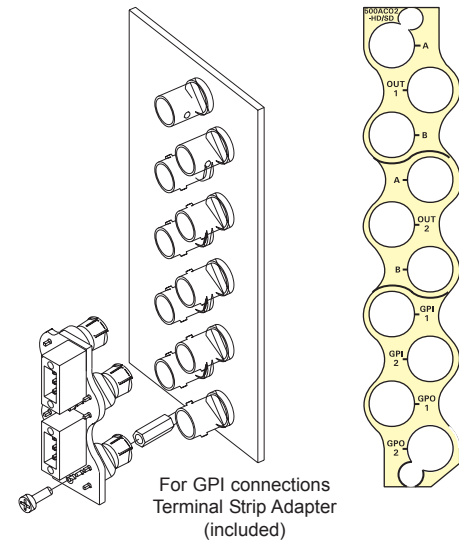
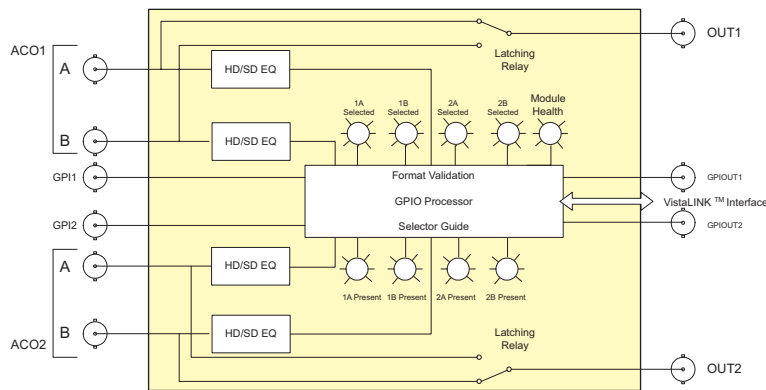
The 500ACO2-HD/SD is housed in the 500FR **exponent** Frame that will hold up to 16 modules.

Features

- Auto detection of signal standard
- Four modes of operation
 - Auto changeover - two standalone auto changeovers
 - Manual DIP switch control - two independently controlled 2x1 switchers
 - GPI Control - two independently GPI controlled 2x1 switchers
 - ACO Extension - slave unit of the 5600ACO (requires 5600ACO firmware version 1.2 or higher)

- Fully hot-swappable from front of frame with no BNC disconnect required
- Tally output on Frame Status bus upon loss of input signal for quality monitoring
- VistaLINK® -capable for remote monitoring via SNMP (using VistaLINK® PRO) when installed in 500FR frame with 500FC VistaLINK® Frame Controller

500ACO2-HD/SD Block Diagram



Specifications

Serial Video Input:

Standards:	SMPTE 292M, SMPTE 259M A, B, C, D (143 to 540 Mb/s) or DVB-ASI
Connector:	4 BNC per IEC 60169-8 Amendment 2
Maximum Cable Length:	100m of Belden 1694A or equivalent cable combined input and output
Return Loss:	10 dB up to 1.5 Gb/s

Serial Video Outputs:

Number of Outputs:	2 passive relay outputs
Connector:	BNC per IEC 60169-8 Amendment 2
Maximum Cable Length:	100m of Belden 1694A or equivalent cable combined input and output
DC Offset:	0V \pm 0.5V
Return Loss:	10 dB up to 1.5 Gb/s

AES Input:

Standard:	AES-1992
Number of Inputs:	1
Connector:	3 pin removable terminal strip
Level:	2V to 7V p-p
Coupling:	Transformer
Impedance:	1100
Return Loss:	> 14dB 100kHz to 6MHz
Equalization:	Automatic to 300m with Belden 1800B (or equivalent) @ 48kHz AES signal
Sampling Frequency:	32kHz, 44.1kHz, 48kHz and 96kHz

AES Output

Type:	Balanced AES reclocked
Number of Outputs:	4
Connector:	3 pin removable terminal strip (screwdown adapter module included)
Level:	5V p-p
Impedance:	1100
Return Loss:	> 30dB 100kHz to 6MHz

General Purpose Inputs and Outputs:

Type:	
Inputs:	Opto-isolated input with internal pull-up to + 5Volts.
Outputs:	Normally 10k internal pull-up to + 5Volts. Ground to rear panel when relay is in active position.
Connector:	Two 3 pin terminal blocks with one ground each.
Signal Level:	+5V nominal

Physical:

Number of slots:	1
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Electrical:

Voltage:	+12VDC
Power:	6 Watts
EMI/RFI:	Complies with FCC Part 15 Class A EU EMC Directive

Ordering Information:

500ACO2-HD/SD	Combo HD & SD Digital Auto Signal Change Over
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Enclosures:

500FR	exponent Compact High Density Distribution Frame
S501FR	Standalone enclosure

Analog Video Distribution Amplifier

500ADA



The 500ADA Analog Distribution Amplifier is a general purpose amplifier for distributing 75 Ω analog signals. The 500ADA features one balanced input with nine outputs.

The 500ADA has been designed to distribute a wide range of analog video signals. It can also distribute other pulses and signals that do not exceed 2Vp-p.

The 500ADA is housed in the 3RU 500FR *exponent* frame that will hold up to 16 modules.

Features

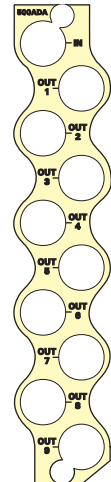
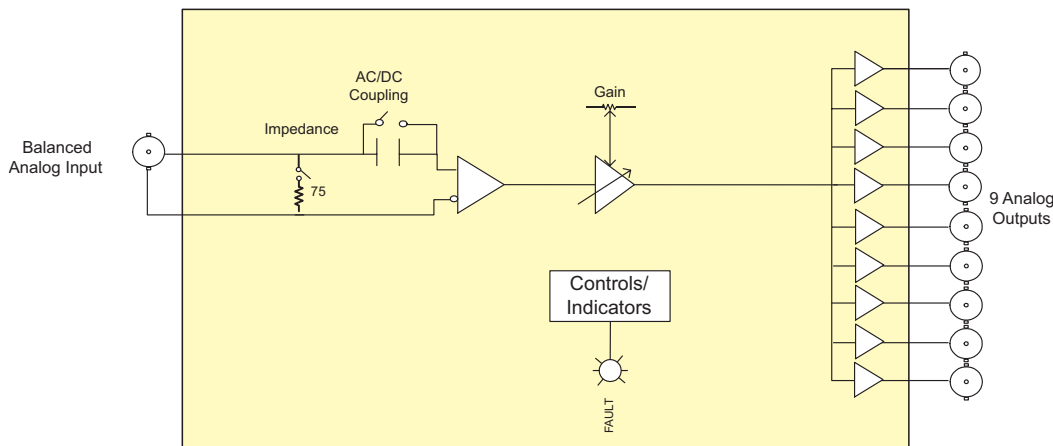
- 75 Ω or high impedance input (jumper selectable)
- High common mode range and common mode rejection ratio (CMRR)
- Gain control
- Jumper selectable AC or DC coupling
- Looping feature with external "T" connector
- Consistent input impedance if card power is lost

Card Edge LEDs:

- Module status/Local Fault
- Power supply status

- VistaLINK[®] -capable for remote monitoring via SNMP (using VistaLINK[™] PRO) when installed in 500FR frame with 500FC VistaLINK[®] Frame Controller

500ADA Block Diagram



Specifications

Analog Video Input:

Standards:	Any analog video format, up to 2Vp-p and 30MHz bandwidth
Connector:	1 BNC per IEC 60169-8 Amendment 2
Common mode range:	>6Vp-p
CMRR:	>70dB to 1kHz
Signal amplitude:	2.5Vp-p max
Impedance:	75 Ω terminated, 35k Ω Hi-Z (jumper selectable)
Coupling:	AC or DC (jumper selectable)
Return loss:	>40dB to 10MHz, >30dB to 30MHz

Analog Video Outputs:

Number of Outputs:	9 Per Card
Connector:	BNC per IEC 60169-8 Amendment 2
Output impedance:	75 Ω
Gain control range:	\pm 5dB
Freq. Response:	<+/-0.05dB (to 5.5MHz)
Differential Gain:	<0.17 %
Differential Phase:	< 0.19°
C/L gain inequality:	<+/-0.1%

C/L Delay:

Output isolation:	<+/-2ns
Output return loss:	42dB to 10MHz, 32dB to 30MHz
Noise performance:	>40dB to 30MHz
	<-78dB RMS NTC7 weighting
	<-70dB RMS 15kHz to 5.5MHz

Electrical:

Voltage:	+12VDC
Power:	1.2 Watts
EMI/RFI:	Complies with FCC Part 15 Class A, EU EMC Directive

Physical:

Number of Slots:	1
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Ordering Information:

500ADA	Analog Video Distribution Amplifier (1 x 9)
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Enclosures:

500FR	<i>exponent</i> Compact High Density Distribution Frame
S501FR	Standalone enclosure

Analog Audio Distribution Amplifier

500ADA-AUD



The 500ADA-AUD Analog Audio Distribution Amplifier is a general purpose 1x4 amplifier for distributing analog audio signals.

The 500ADA-AUD can be operated with either differential or single ended inputs and offers a wide range of gain adjustment to handle a wide variety of input signals.

The 500ADA-AUD is housed in the 500FR *exponent* frame that will hold up to 16 modules.

Features

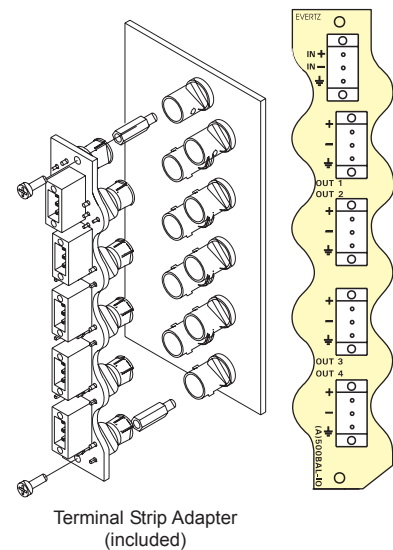
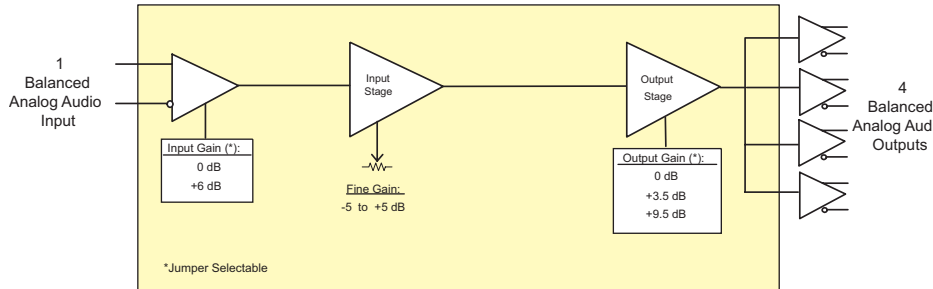
- Differential and single ended input (automatic single ended to differential conversion)
- High impedance inputs
- Low impedance outputs
- Wide gain adjustment range
- High common mode range and common mode rejection ratio
- Very high SNR
- Very low THD+N

Card Edge LEDs:

- Module status/Local Fault
- Power supply status

- VistaLINK® -capable for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK® Frame Controller

500ADA-AUD Block Diagram



Specifications

Analog Audio Input:

Standards:	Any analog audio signal
Number of inputs:	1 (Balanced or Single ended)
Connectors:	3 pin removable terminal strips
Input step gain:	0 dB or +6 dB (configurable with jumpers)
Fine gain control:	-5 to +5 dB (card edge pot adjustable)
Maximum input level:	
0 dB input gain	+34 dBu
+6 dB input gain	+28 dBu
Common mode rejection:	> 105 dB @ 60 Hz
Common mode range:	
0 dB input gain:	> ± 22 V
+6 dB input gain:	> ± 7 V
Input impedance:	
0 dB input gain:	44 kW
+6 dB input gain:	26 kW

Analog Audio Outputs:

Number of Outputs:	4
Connectors:	3 pin removable terminal strips
Output step gain:	0, 3.5 or 9.5 dB (configurable with jumpers)

Max. output level:	+28 dBu across hi-impedance load +24 dBu into 600 Ω load
Output impedance:	66 Ω
Freq. Response:	+/-0.03 dB 20 Hz to 20 kHz
THD+ Noise:	0.001% 20 Hz to 20 kHz @ 28 dBu, unweighted RMS
Output Isolation:	> 100 dB @ 1 kHz, 100 dB @ 20 kHz

Electrical:

Voltage:	+ 12VDC
Power:	6 Watts

Physical:

Number of slots:	1
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Ordering Information:

500ADA-AUD	Analog Audio Distribution Amplifier (1 x 4)
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Enclosures:

500FR	<i>exponent</i> Compact High Density Distribution Frame
S501FR	Standalone enclosure

Analog Video Distribution Amplifier with Cable Equalization



500ADA-EQ

The 500ADA-EQ Analog Distribution Amplifier is a general purpose amplifier for distributing 75 Ω analog video signals.

The 500ADA-EQ features one balanced equalized input with nine unbalanced outputs. The 500ADA-EQ amplifier has been designed to distribute a wide range of analog video signals. It can also distribute other pulses and signals that are less than 2Vp-p.

The 500ADA-EQ is housed in the 3RU 500FR **exponent** frame that will hold up to 16 modules.

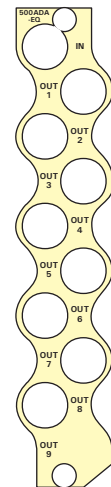
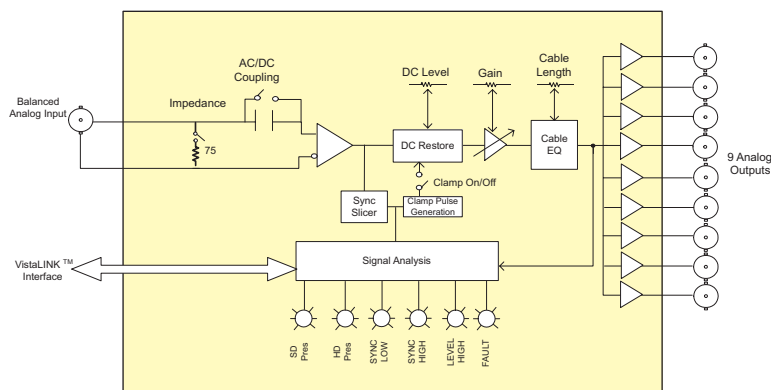
Features

- 75 Ω or high impedance input (jumper selectable)
- High common mode range and common mode rejection ratio (CMRR)
- Gain control
- Jumper selectable AC or DC coupling
- Jumper selectable fast or slow back porch clamp
- DC level control when clamp is enabled
- Cable equalizer adjustment range: 0 to 300m of 8281 or 1694
- Looping feature with external "T" connector
- Consistent input impedance if card power is lost

Card Edge LEDs:

- Module status/Local Fault
- Power supply status
- EQ Warning
- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

500ADA-EQ Block Diagram



Specifications

Analog Video Input:

Standards:	Any analog video format, up to 2Vp-p and 30MHz bandwidth
Connector:	1 BNC per IEC 60169-8 Amendment 2
Common mode range:	>6Vp-p
CMRR:	>70dB to 1kHz
Signal amplitude:	2.5Vp-p max
Cable equalizer:	0 to 300m of Belden 8281 or 1694 cable
Impedance:	75 Ω terminated, 35k Ω Hi-Z (jumper selectable)
Coupling:	AC or DC (jumper selectable)
Return loss:	> 40dB to 10MHz, >30dB to 30MHz
Clamp range:	>+/- 600mV
Fast clamp attenuation of 60Hz:	>36dB

Analog Video Outputs:

Number of Outputs:	9 Per Card
Connector:	BNC per IEC 60169-8 Amendment 2
Output impedance:	75 Ω
Gain control range:	\pm 5dB
DC Level:	< +/- 100mV (with DC Coupling active and back porch clamp disabled) < +/- 200mV (with back porch clamp enabled)
DC Level Control range:	< +/- 200mV (with back porch clamp enabled)
Freq. Response:	< \pm 0.05dB no equalization < \pm 0.09dB for 5 to 100m Belden 8281 or 1694A (to 5.5MHz) < \pm 0.15dB for 100 to 300m Belden 8281 or 1694A (to 5.5MHz)
Differential Gain:	<0.17 % 0 to 300m

Differential Phase:

C/L gain inequality:	<+/- 0.1% for all cable lengths
C/L Delay:	<+/- 2ns
Output isolation:	>42dB to 10MHz, >32 dB to 30MHz
Output return loss:	>40dB to 30MHz
Noise performance:	<-78dB RMS NTC7 weighting, <-70dB RMS 15kHz to 5.5MHz

Electrical:

Voltage:	+12VDC
Power:	1.2 Watts
EMI/RFI:	Complies with FCC Part 15 Class A EU EMC Directive

Physical:

Number of Slots:	1
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Ordering Information:

500ADA-EQ	Analog Video Distribution Amplifier with Cable Equalization (1 x 9)
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Enclosure:

500FR	Compact High Density Distribution Frame
S501FR	Standalone enclosure

exponent

Word Clock Distribution Amplifier (1x9)

500ADA-W

The 500ADA-W is a SDIF-2 Word Clock distribution amplifier. The input can be configured to be high impedance or terminated to 75Ω. The 500ADA-W provides continuous voltage gain adjust from -6dB to +6dB. The module supports a maximum output signal of 5V.

The 500ADA-W is housed in the 3RU 500FR *exponent* frame that will hold up to 16 modules.

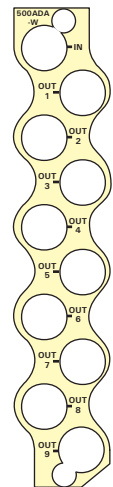
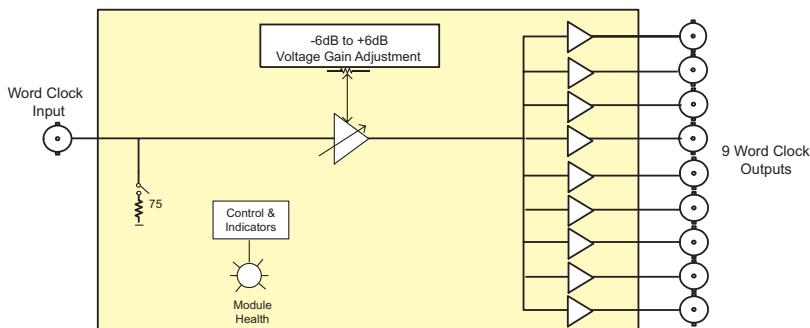
Features

- Jumper selectable 75Ω or high impedance (1kΩ typical) input
- DA has voltage gain adjustment range from -6dB to +6dB
- Outputs can drive into 75Ω loads

Card Edge LEDs:

- Module status/Local Fault
- Power supply status

500ADA-W Block Diagram



Specifications

Word Clock Input:

Standard:	SDIF-2 Word Clock
Level:	0 to 5V (terminated or unterminated)
Connector:	BNC per IEC 60169-8 Amendment 2
Impedance:	Selectable 75Ω or high impedance (1kΩ typical)

Word Clock Outputs:

Number of outputs:	9 BNC per IEC 60169-8 Amendment 2
Output impedance:	75Ω
Maximum Output levels:	5V into 75Ω load 10V into high impedance load
Minimum Output Level:	0V
Voltage Gain Range:	-6dB to +6dB
Frequency range:	28 kHz - 50kHz

Electrical:

Voltage:	+12VDC
Power:	1.2 Watts
EMI/RFI:	Complies with FCC Part 15 Class A, EU EMC Directive

Physical:

Number of Slots:	1
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Ordering Information:

500ADA-W	Word Clock Distribution Amplifier (1x9)
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Enclosures:

500FR	<i>exponent</i> Compact High Density Distribution Frame Standalone enclosure
S501FR	

Unbalanced AES Audio DAC & Distribution Amplifier

Model 500AMDA-AESU



The 500AMDA-AESU is a five output reclocking and auto equalizing AES Audio DAC & Distribution Amplifier for unbalanced 75Ω AES signals. It is also a high quality 24-bit audio DAC. The 500AMDA-AESU automatically equalizes up to 1000m of Belden 1694A coax and provides reclocked outputs. The 500AMDA-AESU also converts AES/EBU digital signal to 2 balanced analog audio outputs. The input sample rates supported are 32kHz, 44.1kHz and 48kHz. Analog audio output levels may be set individually from the front panel.

Level control is provided via a card edge toggle. The full scale digital signal can be calibrated to produce analog peak levels ranging from 12dBu to 24.8dBu with 0.1dB resolution. The 500AMDA-AESU card edge LED indicators provide quick and accurate assessment of the incoming signal integrity. Balanced analog audio is provided via a terminal strip adapter.

The 500AMDA-AESU is housed in the 3RU 500FR **exponent** frame that will hold up to 16 modules.

Features

- 24-bit, high-quality D/A conversion
- 44.1kHz, 32kHz and 48kHz sampling rates supported
- 0dBFS programmable from 12dBu to 24.8dBu
- Support for 2 channels of balanced analog audio (1 AES/EBU)

Inputs:

- SMPTE 276M standard for AES audio on 75Ω coax
- EQ and reclock provide extended cable length compensation (>1000m)

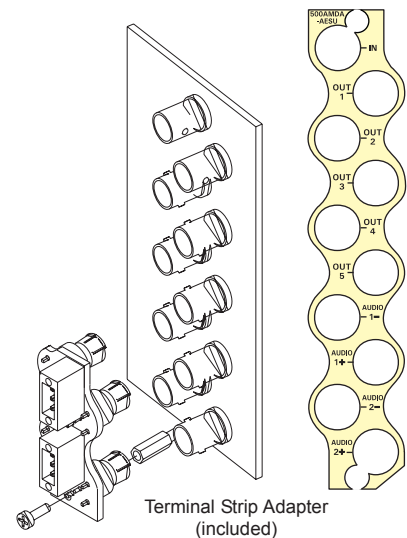
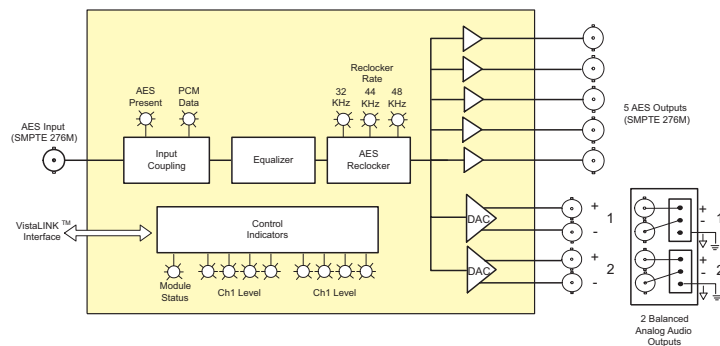
Outputs:

- Five 75Ω coax outputs
- 2 balanced analog audio outputs

Card Edge LEDs:

- Module Health Status
 - AES signal present
 - Detected AES sample rate
 - PCM versus non-PCM data
 - Audio level bargraph with ballistics
- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

500AMDA-AESU Block Diagram



Specifications

AES Audio Input:

Number of Inputs: 1
Standard: SMPTE 276M, unbalanced AES
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 0.1 to 2.5 Vp-p
Equalization: >1000m @ 48kHz with 1 Vp-p drive and Belden 1694A or equivalent coax cable
Resolution: 24 bits
Sample Rate: 32, 44.1, 48 kHz; ± 100 ppm
Input Impedance: 75Ω, AC-coupled
Return Loss: > 25 dB, 100 kHz to 6.0 MHz
BNC Grounding: AC-coupled (for 60 Hz ground loop current protection)

AES Audio Outputs:

Number of Outputs: 5
Standard: SMPTE 276M, unbalanced AES
Connectors: BNC per IEC 60169-8 Amendment 2
Sample Rate: Same as input
Impedance: 75Ω unbalanced
Return Loss: > 25 dB, 100 kHz to 6.0 MHz

Analog Audio Outputs:

Number of Outputs: 2
Type: Balanced analog audio
Connector: Two 3 pin removable terminal strips on BNC adapter panel
Output Impedance: 66Ω
Output Load: 600Ω or high impedance (10 kΩ)
Signal Level: 0dB FS => +12 to +24.8 dBu into 10 kΩ load (user settable)

DC Offset: $< \pm 30$ mV
Frequency Response: $< \pm 0.05$ dB (20Hz to 20kHz)
Dynamic Range: 24 bits
THD+N: < -100 dB RMS @ 1kHz, with 24dBu output
SNR: > 110 dB RMS (20Hz to 20kHz), "A" weighted
Inter-Channel Phase Error: $< \pm 1^\circ$ (20Hz to 20kHz)
Crosstalk Isolation: > 110 dB RMS (20Hz to 20kHz), unweighted
Digital to Analog Delay: 0.95m sec

Electrical:

Voltage: + 12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

500AMDA-AESU Unbalanced AES Audio DAC & Distribution Amplifier (5 AES out & 2 balanced analog out)

Enclosure:

500FR Compact High Density Distribution Frame
S501FR Standalone enclosure

exponent

Compact High Density Distribution Frame
Standalone enclosure

SDI Dual Reclocking Distribution Amplifier (2 1x4 SDI DA's in 3RU Rack Space)

Model 500DA2Q



The Evertz 500DA2Q Reclocking Distribution Amplifier provides the highest density DA in the industry allowing up to 32 SDI distribution amplifiers in a 3RU rack space. It provides inexpensive distribution of your SMPTE 259M (143 to 360 Mb/s), SMPTE 344M (540Mb/s), or SMPTE 310M (19.4 Mb/s) signals. The 500DA2Q features two auto-equalized inputs and can be configured either as a single DA with eight reclocked outputs or as two separate DAs with four outputs each. In the case of dual operation, each DA can be individually set via jumpers for either SMPTE 259M/344M or SMPTE 310M reclocking.

The 500DA2Q is housed in the 500FR *exponent* frame that will hold up to 16 modules.

Features

- Normal mode for SMPTE 259M (143-360 Mb/s), SMPTE 344M (540Mb/s) or DVB-ASI signals - autodetects correct bit rate
- Jumper selectable mode for SMPTE 310M (19.4 Mb/s) signals
- Configurable as 1 DA with 8 outputs or 2 DAs with 4 outputs each
- Fully hot-swappable from front of frame with no BNC disconnect required
- Independent isolated output drivers to ensure no cross channel loading effects (i.e. no need to terminate unused outputs)
- Module health and 2 x 4 Mode status LEDs
- Reclocker(s) Locked, Cable Length Warning and Video Standard LEDs for each DA channel
- Tally output on Frame Status bus upon loss of input signal

Card Edge LEDs:

- Module Health Status
- 2x4 mode operation
- Reclocker rate (detection)
- Reclocker Locked
- Max. Equalization Warning

Inputs:

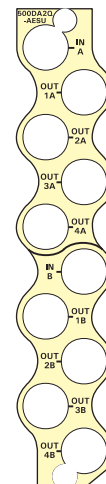
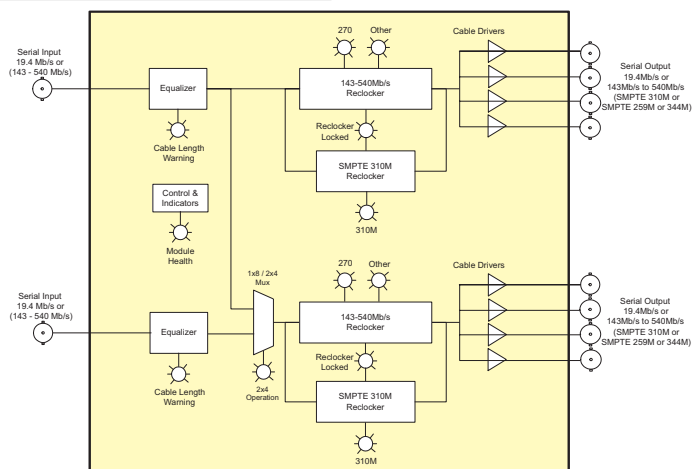
- 2 inputs
- SMPTE 259M (143 to 360Mb/s), SMPTE 344M (540Mb/s), DVB-ASI or SMPTE 310M (19.4Mb/s)
- Return loss > 15dB up to 540Mb/s
- 300m auto eq. at 270Mb/s (Belden 8281)
- 210m auto eq. at 540Mb/s (Belden 8281)

Outputs:

- 4 reclocked outputs per input
- Return loss > 15dB up to 540Mb/s
- Jitter < 0.2UI

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

500DA2Q Block Diagram



Specifications

Serial Video Input: Standards

- Reclocked:** SMPTE 259M (143 to 360 Mb/s)
SMPTE 344M (540 Mb/s), SMPTE 310M (19.4 Mb/s) DVB-ASI
Any SDI signal in the 143Mb/s to 540 Mb/s range
- Non-reclocked:** Any SDI signal in the 143Mb/s to 540 Mb/s range
- Connectors:** 2 BNC per IEC 60169-8 Amendment 2
- Equalization:** Automatic to 400m @ 270 Mb/s with Belden 1694A or equivalent cable (325m in mixed HD-SDI/SD-SDI frame applications)
- Return Loss:** > 15 dB up to 270 Mb/s

Serial Video Output:

- Number of Outputs** (mode set by jumper)
- 2 x 4 Mode:** 4 reclocked from each input
- 1 x 8 Mode:** 8 reclocked from Input A (1)
- Connector:** BNC per IEC 60169-8 Amendment 2
- Signal Level:** 800mV nominal
- DC Offset:** 0V ±0.5V
- Rise and Fall Time:** 740ps nominal
- Overshoot:** < 10% of amplitude
- Return Loss:** > 15 dB up to 270 Mb/s
- Jitter:** < 0.2 UI

Physical:

Number of slots: 1

Electrical:

- Voltage:** + 12V DC
- Power:** 6 Watts
- EMI/RFI:** Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

500DA2Q SDI Dual Reclocking Distribution Amplifier (2 - 1 x 4)

Enclosure:

- 500FR** *exponent* Compact High Density Distribution Frame
- S501FR** Standalone enclosure

Dual Unbalanced AES Audio Distribution Amplifier

Model 500DA2Q-AESU



The 500DA2Q-AESU provides an economical method of distribution for your AES digital audio signals. The DA's feature two auto-equalized inputs with four re-clocked outputs each. The module can also be configured for one input with eight relocked outputs for applications where a larger numbers of outputs is required.

The 500DA2Q-AESU is housed in the 500FR **exponent** frame that will hold up to 16 modules.

Features

- Supports SMPTE 276M standard for AES audio on 75Ω coax
- 2 independent distribution amplifiers with 4 relocked outputs provides jitter reduction
- Can be configured as one 8 output distribution amplifier
- Automatic equalization provides extended cable length capabilities
- Card edge indicators for PLL out of lock, parity error or bi-phase coding errors
- Tally output of input error conditions

Card Edge LEDs:

- Module Health Status
- Error LED indication for input PLL out of lock, parity error or biphas coding error
- Reclocker locked

Inputs:

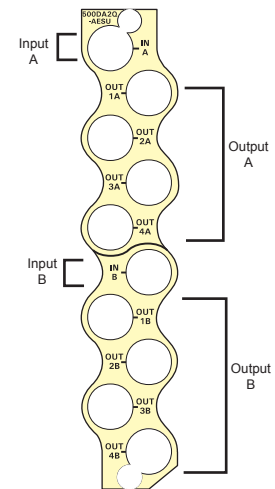
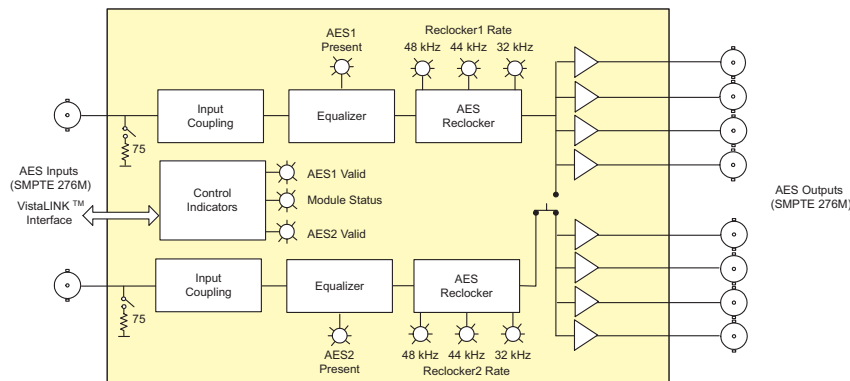
- 2 inputs
- SMPTE 276M standard for AES audio on 75Ω coax
- EQ and reclock provide extended cable length compensation (>1500m)
- Transformer coupled 75Ω unbalanced input

Outputs:

- 4 relocked outputs per input

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

500DA2Q-AESU Block Diagram



Specifications

AES Audio Inputs:

Number of Inputs: 2
Standard: SMPTE 276M, single ended AES
Connectors: BNC per IEC 60169-8 Amendment 2
Coupling: Transformer
Signal Level: 1V p-p ±0.1V
Equalization: Automatic 1500m @48kHz with Belden 1694A or equivalent cable
Impedance: 75Ω
Return Loss: >25 dB 100 kHz to 6 MHz
Sampling Rate: 32 kHz, 44.1 kHz, 48 kHz and 96 kHz

AES Audio Outputs:

Number of Outputs: 4 relocked outputs per input (normal)
8 outputs from input 1 (jumper selectable)
Standard: SMPTE 276M, single ended AES
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V p-p ±0.1V
Impedance: 75Ω unbalanced
Return Loss: >25 dB 100 kHz to 6 MHz

Electrical:

Voltage: + 12VDC
Power: 1.2 Watts

Physical:

Number of slots: 1

Ordering Information:

500DA2Q-AESU SDI Dual Reclocking Distribution Amplifier (2 - 1 x 4)

Enclosure:

500FR
S501FR

exponent

Compact High Density Distribution Frame
Standalone enclosure

Combo HD/SD SDI Dual Reclocking Distribution Amplifier (32 1x4 DA's in 3RU Rack Space)



Model 500DA2Q-HD

The Evertz 500DA2Q-HD Dual HD Reclocking Distribution Amplifier provides the highest density DA in the industry allowing up to 32 HD or SDI Distribution amplifiers in a 3RU rack space. It provides inexpensive distribution of your SMPTE 292M (1.5 Gb/s), SMPTE 259M (143 to 360 Mb/s), SMPTE 344M (540 Mb/s), DVB-ASI or SMPTE 310M (19.4 Mb/s) or any other SDI signal within the 143 Mb/s to 1.5 Gb/s range. The 500DA2Q-HD features two auto-equalized inputs and can be configured either as a single DA with eight reclocked outputs or as two separate DAs with four outputs each. In the case of dual operation, each DA can be individually set via jumpers for either reclocking or non-reclocking.

The 500DA2Q-HD is housed in the 500FR **exponent** frame that will hold up to 16 modules.

Features

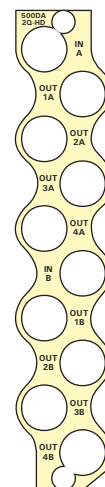
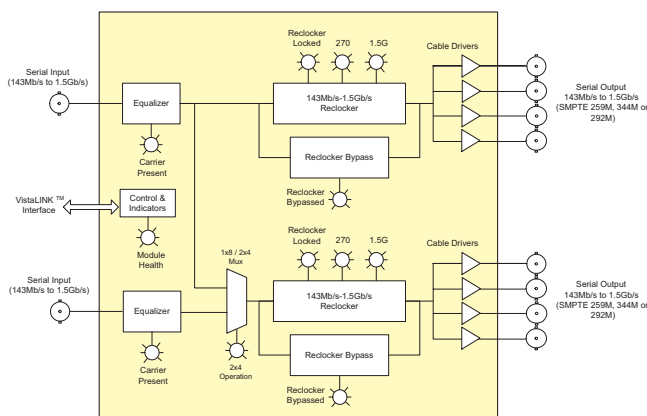
- Normal mode for SMPTE 292M (1.5 Gb/s) SMPTE 259M (143 - 360 Mb/s) or SMPTE 344M (540 Mb/s) signals - autodetects correct bit rate
 - Jumper selectable mode for DVB-ASI
 - Jumper selectable non-reclock mode for SMPTE 310M (19.4Mb/s) signals or any other SDI signal within the 143 Mb/s to 1.5 Gb/s range
 - Configurable as 1 DA with 8 outputs or 2 DAs with 4 outputs each
 - Fully hot-swappable from front of frame with no BNC disconnect required
 - Independent isolated output drivers to ensure no cross channel loading effects (i.e. no need to terminate unused outputs)
 - Module health and 2 x 4 Mode Status LEDs
 - Reclocker(s) Locked, Carrier Present and Video Standard LEDs for each DA channel
 - Tally output on Frame Status bus upon loss of input signal
 - Reclocker Locked
 - Carrier Present
- Inputs:**
- 2 inputs
 - SMPTE 292M (1.5 Gb/s), SMPTE 259M (143 to 360Mb/s), SMPTE 344M (540Mb/s), DVB-ASI or SMPTE 310M(19.4Mb/s)
 - Auto equalization to 100m Input A, 90m Input B(Belden 1694) @1.5Gb/s
- Outputs:**
- 4 reclocked outputs per input
 - Jitter < 0.2UI

• VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

Card Edge LEDs:

- Module Health Status
- 2x4 mode operation
- Reclocker rate detection

500DA2Q-HD Block Diagram



Specifications

Serial Video Input:

Standards

Reclocked:

SMPTE 292M (1.5 Gb/s). SMPTE 259M (143 to 360 Mb/s), SMPTE 344M (540 Mb/s), DVB-ASI SMPTE 310M (19.4 Mb/s)

Non-reclocked:

Any SDI signal in the 143Mb/s to 1.5 Gb/s range 2 BNC per IEC 60169-8 Amendment 2

Connectors:

Equalization:

Input A:

Automatic to 100m @1.5Gb/s with Belden 1694A or equivalent cable

Input B:

Automatic to 90m @1.5Gb/s with Belden 1694A or equivalent cable

Return Loss:

>10 dB up to 1.5 Gb/s

Serial Video Outputs:

Number of Outputs:

2 x 4 Mode:

(mode set by jumper)
4 reclocked from each input
Reclockers can be bypassed separately for each input
8 reclocked from Input A (1)
Reclockers can be bypassed

1 x 8 Mode:

BNC per IEC 60169-8 Amendment 2
800mV nominal

Connector:

Signal Level:

DC Offset:

0V ±0.5V

Rise and Fall Time:

200ps nominal

Overshoot:

<10% of amplitude

Return Loss:

>10 dB up to 1.5 Gb/s

Jitter:

< 0.2 UI

Electrical:

Voltage:

+ 12VDC

Power:

6 Watts

EMI/RFI:

Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Number of slots:

1

Ordering Information:

500DA2Q-HD

Combo HD/SD SDI Dual Reclocking Distribution Amplifier (2 - 1 x 4)

Enclosure:

500FR

S501FR

exponent

Compact High Density Distribution Frame
Standalone enclosure

SDI Reclocking Distribution Amplifier

Model 500DA



The Evertz 500DA Reclocking Distribution Amplifier provides inexpensive distribution of your SMPTE 310M and SMPTE 259M serial digital video signal at rates of 19.4 Mb/s and 143 Mb/s to 540 Mb/s. Ideal in applications where a large quantity of outputs are required, the DA features an auto-equalized input with nine isolated reclocked outputs.

The 500DA has been designed for use as a SMPTE 310M (19.4 Mb/s), DVB-ASI or SMPTE 259M distribution product. SMPTE 310M support is selected by setting a rate select jumper.

The 500DA is housed in the 3RU 500FR **exponent** frame that will hold up to 16 modules.

Features

- Normal mode for SMPTE 259M (143 to 540 Mb/s) or DVB-ASI signals - autodetects correct bitrate
- Jumper Selectable mode for SMPTE 310M (19.4 Mb/s)
- Fully hot-swappable from front of frame with no BNC disconnect required
- Independent isolated output drivers to ensure no cross channel loading effects (i.e. no need to terminate unused outputs)
- Outputs maintain polarity from input to output for DVB-ASI applications
- Tally output on Frame Status bus upon loss of input signal for quality monitoring

Input:

- SMPTE 259M A, B, C, D (143 Mb/s to 540Mb/s), DVB-ASI, SMPTE 310M (19.4 Mb/s) (jumper selectable)
- Return loss > 15dB up to 540Mb/s
- 440m auto eq. at 270Mb/s (Belden 1694A)
- 380m auto eq. at 270Mb/s (Belden 1694A) with HD SDI modules within 500FR

Outputs:

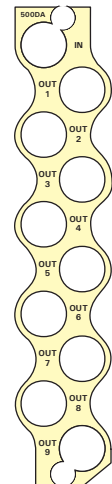
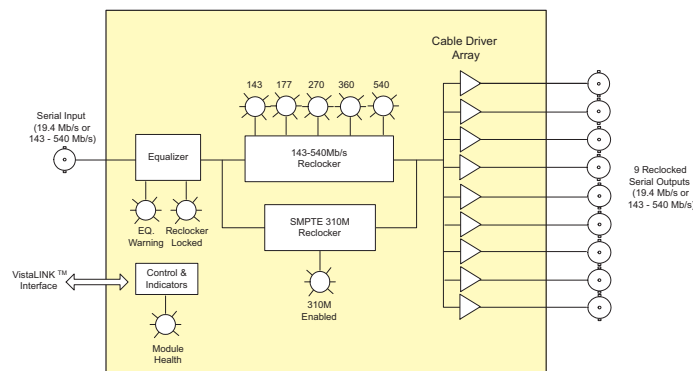
- 9 reclocked outputs
- Return loss > 15dB up to 540Mb/s
- Wideband jitter <0.2 UI

Card Edge LEDs:

- Reclocker rate (6 LEDs)
- Reclocker Locked
- Max. Equalization Warning
- 310M Reclocker Enable
- Module Health Status

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

500DA Block Diagram



Specifications

Serial Video Input:

Standard:

259 Mode

SMPTE 259M A, B, C, D (143 to 540Mb/s) or DVB-ASI

310 Mode

SMPTE 310M (19.4Mb/s)

Connector:

BNC per IEC 60169-8 Amendment 2

Equalization:

Automatic to 440m @ 270Mb/s with Belden 1694A
Automatic to 380m @ 270Mb/s
Belden 1694A with HD SDI modules within 500FR

Return Loss:

> 15dB up to 540Mb/s

Serial Video Output:

Number of Outputs:

9 Reclocked

Connector:

BNC per IEC 60169-8 Amendment 2

Signal Level:

800mV nominal

DC Offset:

0V ± 0.5V

Rise and Fall Time:

470ps nominal

Overshoot:

<10% of amplitude

Return Loss:

>15 dB up to 540Mb/s

Wideband Jitter:

<0.2 UI

Physical:

Number of Slots:

1

Electrical:

Voltage:

+12VDC

Power:

6 Watts

EMI/RFI:

Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

500DA

SDI Reclocking DA - (1 x 9)

Enclosures:

500FR

exponent

Compact High Density Distribution Frame

S501FR

Standalone enclosure

Balanced AES Audio Distribution Amplifier

Model 500DA-AESB



The 500DA-AESB is a four output reclocking and auto equalizing DA for balanced 110 Ω AES signals. The DA automatically equalizes up to 300m of Belden 1800B cable and provides reclocked outputs with sampling frequencies of 32kHz, 44.1kHz, 48kHz and 96kHz.

The 500DA-AESB card edge LED indicators provide quick and accurate assessment of the incoming signal integrity.

The 500DA-AESB is housed in the 3RU 500FR *exponent* frame that will hold up to 16 modules.

Features

- Data reclocking provides jitter reduction

Inputs:

- AES3-1992 standard for AES audio on 110 Ω twisted pair cable
- EQ and reclock provide extended cable length compensation (>300m)
- Transformer coupled 110 Ω balanced input

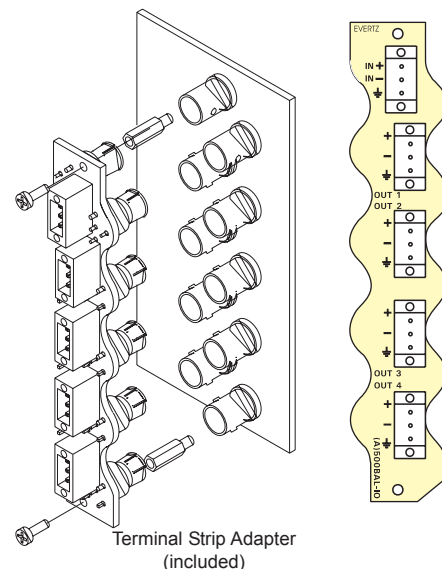
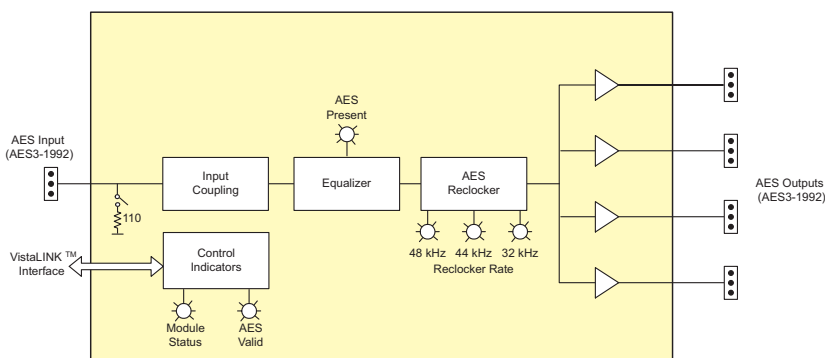
Outputs:

- Four 110 Ω balanced

Card Edge LEDs:

- Module Health Status
- Error LED indication for input PLL out of lock, parity error or biphas coding error
- Reclocked locked
- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

500DA-AESB Block Diagram



Specifications

AES Input:

Standard:	AES3-1992
Number of Inputs:	1
Connector:	3 pin removable terminal strip
Input Level:	2 to 7V p-p
Coupling:	Transformer
Input Impedance:	110 Ω
Return Loss:	>14dB 100kHz to 6MHz
Equalization:	Automatic to 300m with Belden 1800B (or equivalent) @ 48kHz AES signal
Sampling Frequency:	32kHz, 44.1kHz, 48kHz and 96kHz

AES Output:

Number of Outputs:	4 Balanced AES reclocked
Connector:	3 pin removable terminal strip (screwdown adapter module included)
Output Level:	5V p-p
Output Impedance:	110 Ω
Return Loss:	>30dB 100kHz to 6MHz

Physical:

Number of Slots:	1
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Electrical:

Voltage:	+12VDC
Power:	5 Watts
EMI/RFI:	Complies with FCC Part 15 Class A EU EMC Directive

Ordering Information:

500DA-AESB	Balanced AES Audio Distribution Amplifier (1x4)
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Enclosure:

500FR	<i>exponent</i> Compact High Density Distribution Frame
S501FR	Standalone enclosure

Unbalanced AES Audio Distribution Amplifier

Model 500DA-AESU



The 500DA-AESU is a nine output reclocking and auto equalizing DA for unbalanced 75Ω AES signals. The DA automatically equalizes up to 1500m of Belden 1694A coax and provides reclocked outputs with sampling frequencies of 32kHz, 44.1kHz, 48kHz and 96kHz.

The 500DA-AESU card edge LED indicators provide quick and accurate assessment of the incoming signal integrity.

The 500DA-AESU is housed in the 3RU 500FR *exponent* frame that will hold up to 16 modules.

Features

- Data reclocking provides jitter reduction

Inputs:

- SMPTE 276M standard for AES audio on 75Ω coax
- EQ and reclock provide extended cable length compensation (>1500m)
- Transformer coupled 75Ω unbalanced input

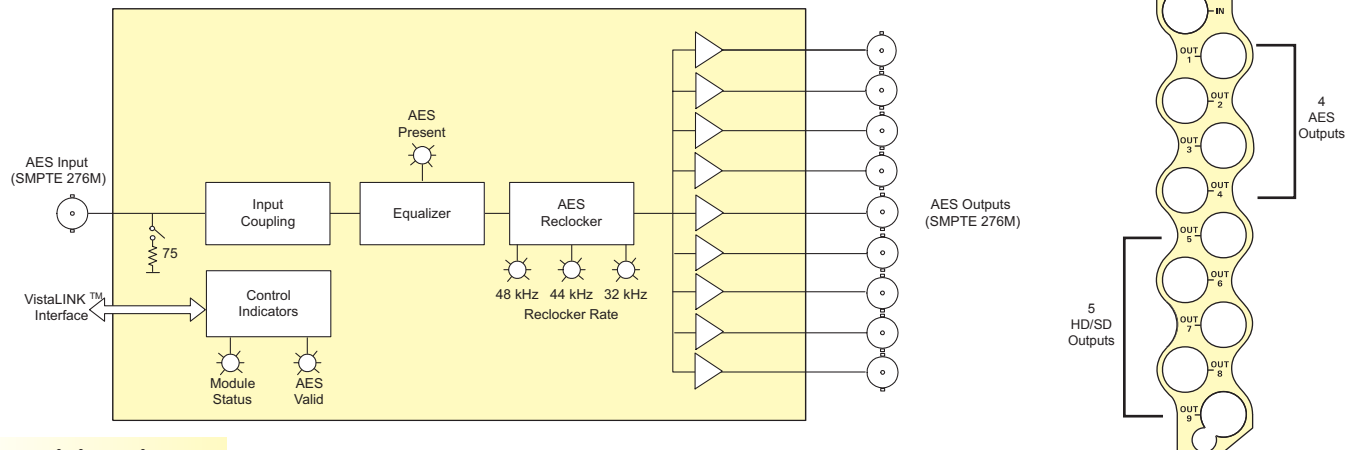
Outputs:

- Nine 75Ω coax outputs

Card Edge LEDs:

- Module Health Status
- Error LED indication for input PLL out of lock, parity error or biphas coding error
- Reclocker locked
- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

500DA-AESU Block Diagram



Specifications

AES Input:

Standard: SMPTE 276M
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Input Level: 1V p-p
Coupling: Transformer
Input Impedance: 75Ω
Return Loss: >25dB 100kHz to 6MHz
Equalization: Automatic to 1500m with Belden 1694A (or equivalent) @ 48kHz AES signal
Sampling Frequency: 32kHz, 44.1kHz, 48kHz and 96kHz

AES Output:

Number of Outputs: 9 Unbalanced AES
Connector: BNC per IEC 60169-8 Amendment 2
Output Level: 1V p-p
Output Impedance: 75Ω
Return Loss: >25dB 100kHz to 6MHz

Physical:

Number of Slots: 1

Electrical:

Voltage: +12VDC
Power: 5 Watts
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

500DA-AESU Unbalanced AES Audio Distribution Amplifier (1x9)

Enclosure:

500FR *exponent*
S501FR Compact High Density Distribution Frame
Standalone enclosure

Combo HD/SD SDI Reclocking Distribution Amplifier

Model 500DA-HD/500DA-HD-L



The Evertz 500DA-HD and 500DA-HD-L Reclocking Distribution Amplifiers provide reliable distribution of your HD and SD SDI video signal at rates of 1.5 Gb/s and 143Mb/s to 540Mb/s. They both feature an auto-equalized input with eight serial outputs. The outputs can also be configured to be optionally re-clocked or not.

When inserted into a 500FR-L (Compact High Density Distribution Frame with Loop Thru), the 500DA-HD-L allows a single HD SDI input signal to be distributed up to 96 serial outputs, by looping up to 12 modules.

They have been designed for use as a SMPTE 292M (1.5 Gb/s), DVB-ASI, SMPTE 259M, or SMPTE 310M distribution product.

The 500DA-HD DA's are housed in the 3RU 500FR **exponent** frame that will hold up to 16 modules and the 500DA-HD-L DA's are housed in the 3RU 500FR-L **exponent** frame..

Features

- Fully hot-swappable from front of frame with no BNC disconnect required
- Tally output on Frame Status bus upon loss of input signal for quality monitoring

Inputs:

- Auto detects SMPTE 259M (143 to 540Mb/s), SMPTE 292M(1.5 Gb/s) signals or DVB-ASI signals

Outputs:

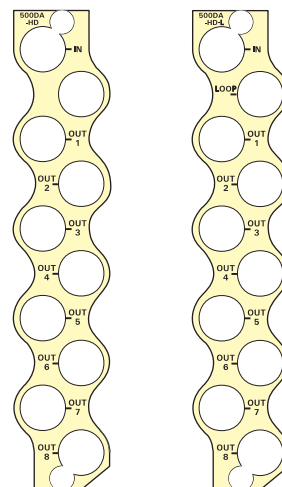
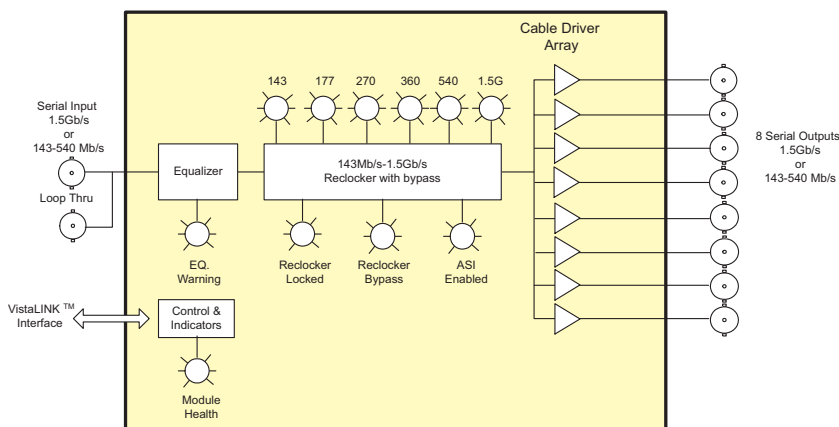
- Independent isolated output drivers to ensure no cross channel loading effects (i.e. no need to terminate unused outputs)

Card Edge LEDs:

- Module Health Status
- Max. Equalization Warning
- Reclocker Locked
- Bitrate Indication

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

500DA-HD Block Diagram



Specifications

Serial Video Input: Standard:

SMPTE 292M, SMPTE 259M-A, B, C, D (143 to 540Mb/s), SMPTE 310M or DVB-ASI

Connector:

BNC per IEC 60169-8 Amendment 2 Automatic to 350m @ 270Mb/s, 110m @1.5Gb/s with Belden 1694 (or equivalent)

Return Loss:

> 15dB up to 1.0 Gb/s
> 10dB up to 1.5 Gb/s

Serial Video Outputs:

Number of Outputs:

8 Reclocked

Connector:

BNC per IEC 60169-8 Amendment 2

Signal Level:

800mV nominal

DC Offset:

0V ±0.5V

Rise and Fall Time:

200ps nominal

Overshoot:

< 10% of amplitude

Return Loss:

> 15dB to 1.0 Gb/s
> 10db up to 1.5 Gb/s

Wideband Jitter:

< 0.2 UI

Physical:

Number of Slots:

1

Electrical:

Voltage:

+ 12V DC

Power:

5 Watts

EMI/RFI:

Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

500DA-HD

Combo HD/SD SDI Reclocking
Distribution Amplifier (1 x 8)

500DA-HD-L

Combo HD/SD SDI Reclocking
Distribution Amplifier (1 x 8) with Loop Thru

Enclosure:

500FR

exponent

Compact High Density Distribution Frame
Compact High Density Distribution Frame with
Loop Thru (500DA-HD-L only)
Standalopne enclosure

500FR-L

S501FR

HD Downconverter & Distribution Amplifier

Model 500DCDA-HD



The 500DCDA-HD is a reclocking high definition serial digital video distribution amplifier and a high quality downconverter for 1.5 Gb/s HDTV signals. It can also function as a monitoring distribution amplifier for standard definition 270Mb/s signals. The 500DCDA-HD provides 5 reclocked DA outputs and 4 downconverted SDI or composite analog NTSC/PAL outputs (selectable). The 500DCDA-HD accepts all the popular international SMPTE 292M video formats. When the 500DCDA-HD down converts 1080p/23.98sF input video to 525i/59.94 with a 3:2 pulldown, the 3:2 pulldown cadence can be free running or locked to embedded RP188 time code.

The 500DCDA-HD has color space conversion from ITU rec. 709 to ITU rec. 601, and will provide various down converted formats such as 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze. Full 10 bit processing is provided throughout the signal path to achieve excellent downconversion quality. The module allows for selectable horizontal and vertical filters to control picture sharpness. It also de-embeds two groups of audio and re-embeds the audio on the SDI output in time with the video. All parameters may be controlled by use of the on screen display menu.

The 500DCDA-HD has a closed caption monitoring capability that decodes EIA-608 or EIA-708 captions that have been encoded into the VANC data space of an HD video input, or EIA-608 captions from a SD video input.

The 500DCDA-HD provides card edge LEDs to indicate signal present, cable length warning and audio groups present. The 500DCDA-HD occupies one card slot in the 500FR **exponent** frame that will hold up to 16 modules.

Features

- Serial digital 1.5 Gb/s HD input per SMPTE 292M
- Supports most international standards including 1080i/60, 1080i/59.94, 1080i/50, 1080p/24, 1080p/23.98, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94, 480p/60, and 480p/59.94
- Will also accept 270Mb/s SD input SDI per SMPTE 259M in a pass through mode - auto senses HD or SD inputs
- 5 Reclocked DA outputs (HD if HD inputs applied, SD if SD inputs applied)
- 4 Selectable SDI or Composite Outputs (downconverted from HD if HD input applied), (from reclocked SD if SD input applied)
- High quality HD -> SD down conversion
- Supports 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze aspect ratio conversions.
- 1080p/23.98sF conversion to 525i/59.94 with 3:2 pulldown sequence
- HD to SD colour space conversion (ITU rec. 709 to ITU rec. 601)
- On screen display used to configure the operating modes
- De-embeds Audio from HD video and embeds into standard definition SDI video (2 groups)
- Decodes and displays EIA-608 or EIA-708 captions from incoming video
- Moves ANC data (e.g. captioning, timecode) from HD video to standard definition SDI video
- On Screen aspect ratio marker
- Card Edge LEDs for signal presence, equalization warning, audio groups present, module status

• VistaLINK™ - enabled offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK™ is available when modules are used with the 3RU 500FR-C frame and a 500FC VistaLINK™ Frame Controller module in slot 1 of the frame using the Evertz VistaLINK™ PRO or other third party SNMP manager software

Frame Controller

Model 500FC Frame Controller



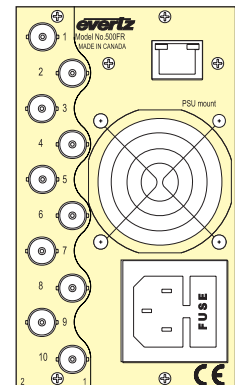
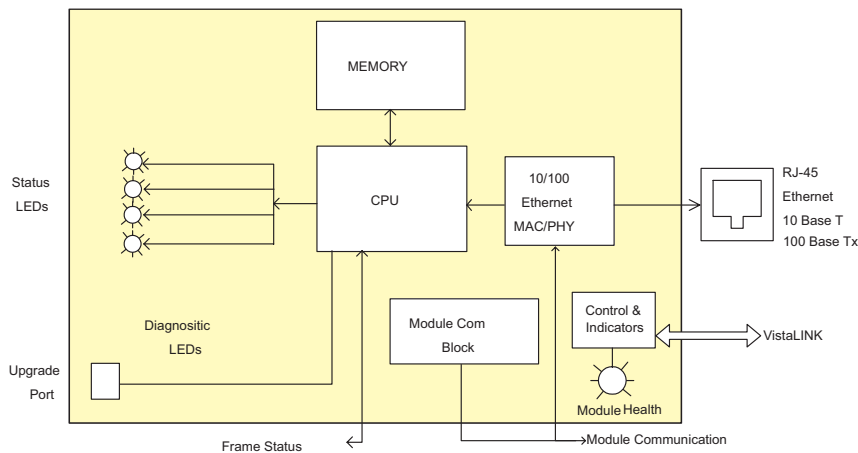
The 500FC VistaLINK™ Frame Controller card provides a single point of access to communicate with VistaLINK™-enabled 500 series modules. The 500FC VistaLINK™ Frame Controller provides a 10Base-T/100Base-TX Ethernet port and communication is facilitated through the use of Simple Network Management Protocol (SNMP). The 500FC VistaLINK™ Frame Controller handles all SNMP communications between the frame (500FR) and the network manager (NMS), and serves as a gateway to individual cards in the frame.

The 500FC is a TRUE SNMP Agent. No external intermediate translator application servers or PC based protocol translators are required. This means you attach the 500FR directly to your Ethernet/SNMP Network.

Features

- Complies with IEEE 802.3 100Base-TX and 10Base-T Ethernet standards
- 100 Mbps Fast Ethernet or 10 Mbps Ethernet data transfer, selected by auto-negotiation
- Full duplex or half-duplex operation, selected by auto negotiation
- RJ-45 connector for network cable connection
- Front panel LEDs indicate module status
- Rear panel LEDs indicate Ethernet link, activity and speed
- Provides frame/chassis status information through enabled hardware via SNMP (using VistaLINK™ PRO) including power supply status, frame status, card insertion/removal counters, 500FC software version number, LED control
- Comprehensive signal and status monitoring through SNMP and VistaLINK™ -enabled capability

Model 500FC Block Diagram



Specifications

Ethernet:

Network Type: Fast Ethernet 100 Base-TX IEEE 802.3u standard for 100 Mbps baseband CSMA/CD local area network
Ethernet 10 Base-T IEEE 802.3 standard for 10 Mbps baseband CSMA/CD local area network

Connector: RJ-45

Electrical:

Voltage: + 12VDC
Power: 7 Watts
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC directive

Physical:

Number of slots: 1 - occupies slot 1 of the 500FR Frame

Ordering Information:

500FC Frame Controller

Enclosure:

500FR

exponent

Compact High Density Distribution Frame

Frame Controller/Reclocking DA



Model 500FC-DA Frame Controller/Reclocking DA

The 500FC-DA Frame Controller with Distribution Amplifier card provides a single point of access to communicate with VistaLINK™-enabled 500 series of cards. The 500FC-DA provides a 10Base-T/100Base-TX Ethernet port and communication is facilitated through the use of Simple Network Management Protocol (SNMP). The 500FC-DA handles all SNMP communications between the frame (500FR) and the network manager (NMS), and serves as a gateway to individual cards in the frame. The 500FC-DA also provides an RS-232 serial port at the card edge to set up the network addresses.

In addition the 500FC-DA provides an on board reclocking distribution amplifier for HDTV and serial digital video signal at rates of 1.5 Gb/s and 143 Mb/s to 540 Mb/s. The DA features an auto-equalized input with eight reclocked outputs and has been designed for use as a SMPTE 292M (1.5 Gb/s), DVB-ASI or SMPTE 259M distribution product.

Features

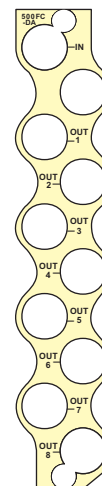
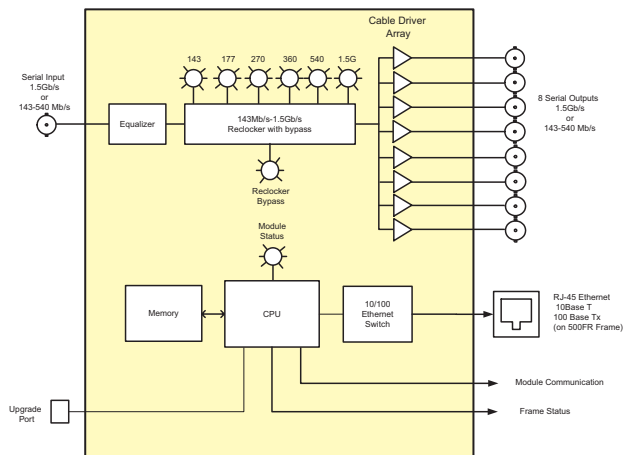
Frame Controller Features:

- Complies with IEEE 802.3 100Base-TX and 10Base-T Ethernet standards
- 100 Mbps Fast Ethernet or 10 Mbps Ethernet data transfer, selected by auto-negotiation
- Full duplex or half-duplex operation, selected by auto negotiation
- RJ-45 connector for network cable connection
- Card edge RS-232 serial control port for configuration
- Front panel LEDs indicate module fault
- Rear panel LEDs indicate Ethernet link, activity and speed
- Provides frame/chassis status information through enabled hardware via VistaLINK™ including frame status, card insertion/removal counters, and 500FC-DA software version number

DA Features:

- Normal mode for SMPTE 259M (143 to 540 Mb/s) or SMPTE 292M (1.5 Gb/s) signals - autodetects correct bit rate
- Configurable for DVB-ASI and Non-Reclock mode using VistaLINK™ control
- Fully hot-swappable from front of frame with no BNC disconnect required
- Independent isolated output drivers to ensure no cross channel loading effects (i.e. no need to terminate unused outputs)

Model 500FC/DA Block Diagram



Specifications

Serial Video Inputs:

Standards: SMPTE 292M, SMPTE 259M A, B, C, D (143 to 540 Mb/s) or DVB-ASI
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 350m @ 270Mb/s, 140m @ 1.5Gb/s with Belden 1694A (or equivalent)
Return Loss: > 15 dB up to 1.0 Gb/s, > 10 dB up to 1.5 Gb/s

Serial Video Outputs:

Number of Outputs: 8 Reclocked
Connector: BNC per 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15 dB up to 1.0 Gb/s
> 12 dB up to 1.5 Gb/s
Wide Band Jitter: < 0.2 UI

Ethernet:

Network Type: Fast Ethernet 100 Base-TX IEEE 802.3u standard for 100 Mbps baseband CSMA/CD local area network
Ethernet 10 Base-T IEEE 802.3 standard for 10 Mbps baseband CSMA/CD local area network
Connector: RJ-45

Serial Communications:

Standard: RS-232
Connector: 9 Pin Female D connector on upgrade breakout cable (provided with 500FR)
Baud Rate: 57600
Format: 8 bits, no parity, 2 stop bits, no flow control

Electrical:

Voltage: + 12VDC
Power: 5.5 Watts
EMI/RFI: Complies with FCC Part 15 Class A and EU EMC directive

Physical:

Number of slots: 1 (must be in slot 1 of 500FR)

Ordering Information:

500FC-DA Frame Controller/Reclocking DA

Enclosure:

500FR

exponent

Compact High Density Distribution Frame

exPonent

Compact High Density Distribution Frame

Model 500FR/500FR-L



Specifications

Electrical:	
AC Mains Input:	Auto ranging, 100 to 240 VAC, 50/60 Hz
Maximum Power Dissipation:	160 W
Fuses:	3 amp, 250 Volt time delay 5x20mm - 2 per power supply
Power Supply Configuration:	External power supply adapter
Physical:	
Dimensions:	19"W x 5.25"H x 9.25"D
Module Capacity:	16 single slot modules
Weight:	32 lbs. (14.5 Kg) (Full)
Certification:	
Safety:	ETL Listed Complies with CE Safety Directive Complies with FCC part 15, Class A EU EMC Directive
EMC:	

Status Indicators: PSU status LED,
Local Error/Failure LED

Tally Output Connector: 4 pin terminal, relay N/O,
N/C for status/fault alarm

Temperature: 0 - 40° C optimal performance
0 - 50° C operating

Ordering Information:	exPonent
500FR	Compact High Density Distribution Frame
500FR-L	Compact High Density Distribution Frame with Loop Thru

Accessories:

+5PS	Redundant power supply option for 500FR
500PS	Additional power supply for 500FR

Model S501FR



S501FR

Electrical:	
Voltage:	12VDC Nominal Auto ranging, 100 to 240VAC power adapter
Power:	10 W
Fuse:	Internal self resetting fuse
Connector:	2.5 mm DC power jack
Certification:	
Safety:	ETL Listed Complies with EU Safety Directive Complies with FCC part 15, Class A Complies with EU EMC Directives
EMC:	

S501FR-RP

Physical:	
Dimensions:	4.9"W x 1.2"H x 10.5"D (124mm W x 30mm H x 267mm D)
Module Capacity:	1 single slot
Weight:	1 lb

Ordering Information:	exPonent
S501FR	Standalone Compact High Density Distribution Frame

Accessories:

S501FR-RP	Rackmount panel mounts 3, S501FR enclosures in 1RU rack space (Includes two blank panels for unfilled slots)
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exPonent

Compact High Density Distribution Frame

An Industry Comparison

(based on 6RU of Rack Space)

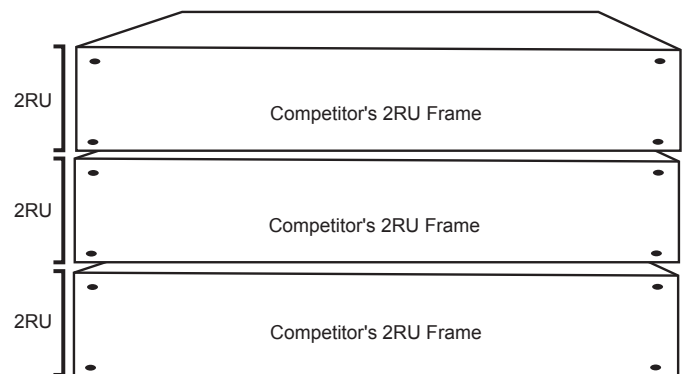
Evertz *exPonent* DA Frame



Total Number of Output BNC'S per 6RU= 288

VS

Competitor's DA Frame



Total Number of Output BNC'S per 6RU=240-270
(Depending on manufacturer)

NOTES:

- 1) ***exPonent*** achieves the highest density with 288 BNC outputs (per 6RU)
- 2) ***exPonent*** uses less power supplies thus less points of failure (per 6RU)
- 3) ***exPonent*** provides a direct connection to an SNMP network. Some competitive pseudo SNMP solutions require intermediate application servers or protocol translators which add latency, single point of failure issues, cost and complexity

Compact High Density Analog Looping Distribution Frame

500FR-L-A

exponent

500FR-L-A Supported Modules:

500ADA-EQ	Analog Video Distribution Amplifier with Cable Equalization
500ADA-EQ-L	Analog Video Distribution Amplifier with Cable Equalization and Loop Thru

Contact Evertz sales representative for updated list of supported modules

Specifications

Electrical :

AC Mains Input: Auto ranging, 100 to 240 VAC, 50/60 Hz

Maximum Operating Current: 2.6 A (@ 120 VAC), 1.4 A (@ 240 VAC)

Maximum Power Consumption: 200 W

Maximum Module Load: 160 W (10 W per slot)

Power Supply Configuration: Dual, redundant, separate AC inlets

Connector: IEC 60320 - 1 per power supply

Fuses: 4 amp, 250 volt time delay 5 x 20 mm.

- 2 per power supply

Safety: CSA Listed to CSA C22.2 No. 60065-03, UL 60065-03

IEC 60065-(2001-12) 7th Edition
Complies with CE Low voltage Directive 93/68/EEC

EMC: Complies with FCC part 15, class A.

Complies with EU EMC directive 89/336/EEC

Status Indicators: PSU status LED

Local Error/Failure LED

Tally Output Connector: 4 pin terminal, relay N/O, N/C for status/fault alarm, 2 A, 125 VDC max

Temperature: 0 - 40°C

Physical:

Height: 5.25" (133 mm)

Width: 19" (483 mm)

Depth: 9.5" (368 mm)

Module Capacity: 16 slots

Weight: Approx 17 lbs (7.7 Kg) with 2 power supplies, no slots occupied
Approx. 32 lbs. (14.5 Kg) with 2 power supplies all slots occupied

Certification:

Safety: CSA Listed

Complies with CE Safety Directive

EMC: Complies with FCC part 15, Class A
EU EMC Directive

Signal Connections:

BNC per IEC 60169-8 Amendment 2
(10 BNC per slot)

Status Indicators:

PSU status LED
Local Error/Failure LED

Tally Output Connector:

4 pin terminal, relay N/O,
N/C for status/fault alarm

Temperature:

0 - 40° C optimal performance
0 - 50° C operating

Ordering Information: **500FR-L-A**

exponent
Compact High Density Distribution
Frame with Loop Thru (Analog)

Accessories: **+5PS**

Redundant power supply option for
500FR



evertz

SDI Monitoring Reclocking Distribution Amplifier

Model 500VMDA



The Evertz 500VMDA Reclocking Distribution Amplifier provides inexpensive distribution and monitoring of your SMPTE 259M (270MB/s) serial digital video signal. The DA features an auto-equalized input with nine outputs that can be selected as either SDI or composite analog. The 500VMDA in conjunction with the 500DCDA-HD gives an upgrade path to monitoring future HD SDI signals without having to re-wire your installation.

The 500VMDA is housed in the 500FR *exponent* frame that will hold up to 16 modules.

Features

- Fully hot-swappable from front of frame with no BNC disconnect required
- Tally output on Frame Status bus upon loss of input signal

Output:

- 9 outputs selectable as SDI or composite analog (NTSC/PAL)
- Independent isolated output drivers to ensure no cross channel leading effects (i.e. no need to terminate unused outputs)
- Selectable NTSC pedestal on/off

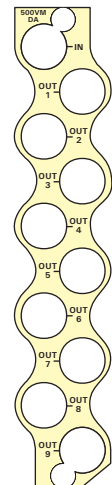
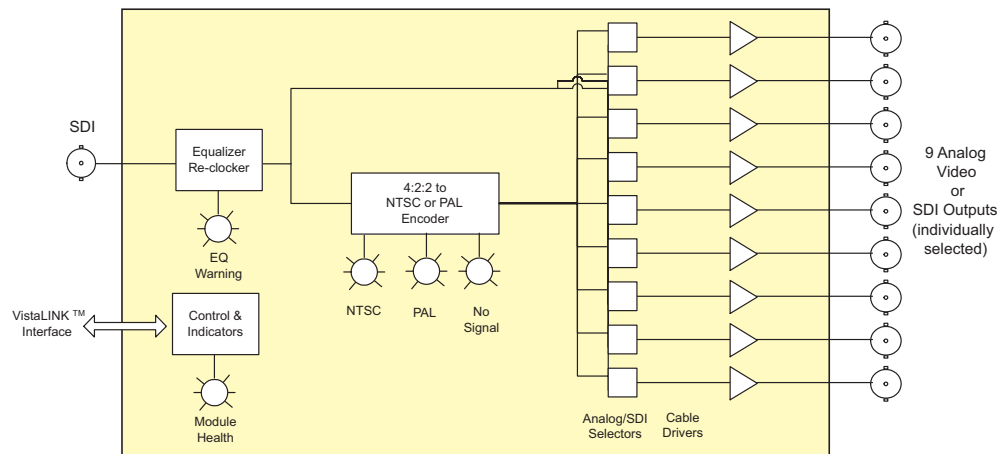
Input:

- Supports SMPTE 259 (270Mb/s) video

Card Edge LEDs:

- Reclocker Locked
- Max. Equalization Warning
- Module Health Status
- Video present, cable length warning and video standard LEDs
- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

500VMDA Block Diagram



Specifications

Serial Video Input:

Standards: SMPTE 259M-C (270 Mb/s) 525 or 625 line.
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 430m @ 270 Mb/s with Belden 1694A or equivalent cable (340m with HD-SDI modules within 500FR frame)
Return Loss: > 15 dB up to 270 Mb/s

Serial Video Output:

Number of Outputs: Up to 9 reclocked outputs (jumper selectable)
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 470ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15 dB up to 270 Mb/s
Wide Band Jitter: < 0.2 UI

Analog Video Output: (User selectable as additional SDI Outputs)

Number of Outputs: Up to 9 (jumper selectable)
Standards: NTSC, SMPTE 170M if input is 525i/59.94
PAL-B ITY 624-4 if input is 625i/50

Connectors:

Signal Level: BNC per IEC 60169-8 Amendment 2
DC Offset: 1 V p-p nominal
Return Loss: 0V \pm 0.1V
> 35 dB up to 5 MHz

Electrical:

Voltage: +12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information

500VMDA SDI Monitoring Reclocking Distribution Amplifier

Enclosure:

500FR *exponent*
S501FR Compact High Density Distribution Frame
Standalone enclosure

Aspect Ratio Converter

Model 510ARC



The 510ARC Aspect Ratio Converter is a dual standard (525/625) serial digital 270Mb/s high quality motion adaptive video aspect ratio converter designed for use in Television production facilities, DBS satellite operations, Outside broadcast vans/trucks, MSO Cable facilities, Production and post-production facility.

With full 10 bit processing, the 510ARC converts any aspect ratio picture input to any other aspect ratio picture output maintaining excellent image quality.

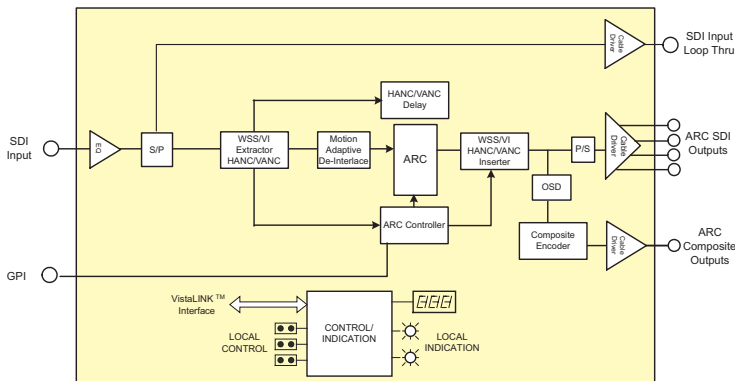
The 510ARC supports input side Wide Screen Signaling (WSS) and Video Index (VI) handling to automatically steer aspect ratio conversion. The module also supports full WSS and VI insertion capability on the output side, along with transfer of all HANC and VANC from the input to the output.

The 510ARC can be configured and controlled from Evertz SNMP control system via VistaLINK™ PRO, 9000NCP, Card Edge, or GPI.

Features

- Any aspect ratio to any aspect ratio, with standard support for 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze aspect ratio conversions
- Flexible ARC control: Slave to incoming WSS/VI, Fixed Output WSS/VI, GPI, Remote SNMP configuration
- Motion adaptive de-interlace for exceptional vertical resolution
- High quality 10-bit video processing
- Full VI and WSS input handling and output insertion
- Full VANC and HANC transfer from input to output
- Continuously variable ARC with cut or smooth transitioning between resize configurations
- 16 User presets for storing custom module configurations
- GPI input for recall of a module configuration
- Auto detecting 525 or 625 SD video (SMPTE 259M) inputs with a loop-through output
- On screen display
- Card Edge Control and LEDs for signal presence, equalization warning, audio groups present, and module status
- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

Model 510ARC Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M
Connector: 1 BNC per IEC 60169-8 Amendment 2
Input Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694A or equivalent cable
Return Loss: >15dB up to 270MHz

Active Loop Output:

Standard: SMPTE 259M
Connector: 1 BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Rise and Fall Time: 750ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB up to 270MHz
Jitter: < 0.2 UI

ARC Outputs:

Standard: SMPTE 259M
Number of Outputs: 4 Per module
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Rise and Fall Time: 750ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB up to 270MHz
Jitter: < 0.2 UI

Composite Outputs:

Standards: Analog composite NTSC (SMPTE 170M) or PAL (ITU-R BT 470)
Number of Outputs: Up to 4 Per Card (jumper selectable)
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 1 V p-p nominal
DC Offset: 0V $\pm 0.1V$
Return Loss: >35dB up to 5 MHz
Impedance: 75 Ω

GPI Input:

Number of Inputs: 1 BNC closure to ground
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: Inactive: Floating or TTL level, Active: Closure to Ground

Electrical:

Voltage: +12VDC
Power: 10 Watts
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

510ARC SD Aspect ratio converter

Enclosures:

500FR
S501FR

exponent

Compact High Density Distribution Frame
Standalone enclosure

SD Audio De-embedder

Model 520AD4



The 520AD4 Audio De-embedder extracts embedded audio from 2 specified groups as defined by SMPTE 272M in a 270Mb/s serial SDTV video signal.

Several optional processing steps can be applied to the input audio before it is embedded. If needed, the 4 stereo AES input channels can be processed by 4 on-board sample rate converters (SRC's). The SRC's can be configured to automatically respect Dolby E & Dolby Digital adding to ease of use & flexibility. The 8 discrete audio channels can be re-arranged in any arbitrary manner with on-board 8 x 8 router. The audio channels may be optionally and independently delayed up to 3 seconds.

This device also handles the Dolby E Metadata. Metadata is optionally embedded in VANC for downstream devices.

VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

Features

- Fast locking AES receivers
- Configurable or automatic SRC's on AES inputs
- Headphone jack with monitoring stereo channel
- Card edge display for status & audio channel peak levels bargraphs
- Audio channel router (8 x 8)

Controls:

- Audio group selection
- Audio channel selection

Inputs:

- SMPTE 259M
- 4 Channel AES (unbalanced)
- 1 BNC for Dolby metadata (RS422/485)

Outputs:

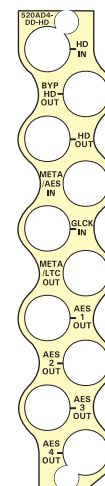
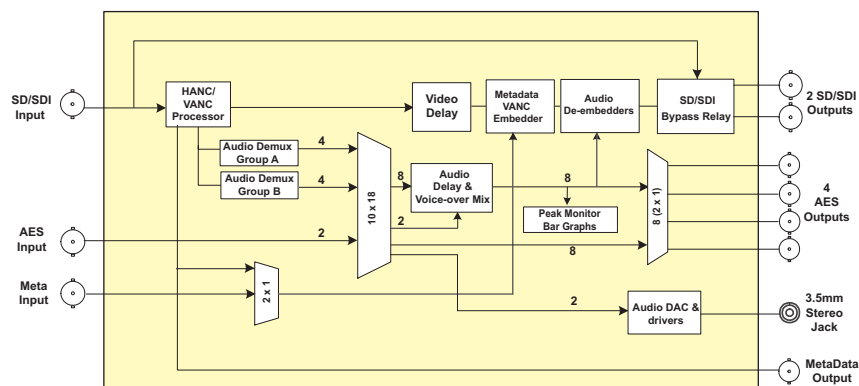
- 4 processed outputs
- Program output bypass relay protected

Card Edge LED's:

- Module Status
- Video Signal presence
- AES input presence/errors

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

Model 520AD4 Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C (270 Mb/s) 525 or 625 line component
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic >200m @ 270Mb/s with Belden 8281 (or equivalent), 25m with bypass relay installed

Processed Serial Video Output:

Standard: Same as input or user controlled
Number of Outputs: 4
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: Per standard
Overshoot: <10% of amplitude
Wide Band Jitter: <0.2 UI

AES Input:

Standard: SMPTE 276M
Number of Inputs: 4
Connector: BNC per IEC 60169-8 Amendment 2
Input Level: 0.1 to 2.5 Vp-p
Input Impedance: 75Ω
Return Loss: >25dB 100kHz to 6MHz
Equalization: Automatic to 1000m with Belden 1694A (or equivalent) @ 48kHz AES signal
Sample Rate: 48kHz ± 100ppm

Metadata Input:

Type: DOLBY E Metadata
Connector: 1 BNC per IEC 60169-8 Amendment 2
Baud Rate: 115,200 baud

System Performance:

Embedding Latency: 600µs nominal
Audio Delay Range: 0 to 3 seconds

Electrical:

Voltage: +12V DC
Power: 10 Watts
EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

520AD4 SD Audio De-embedder with 4 unbalanced AES inputs (2 audio groups)

Enclosures:

500FR Compact High Density Distribution Frame
S501FR Standalone enclosure

exponent

Compact High Density Distribution Frame
Standalone enclosure

HD/SD Audio De-embedder

Model 520AD4-HD



The 520AD4-HD Audio De-embedder extracts embedded audio from 2 specified groups as defined by SMPTE 299M from a 1.5 Gb/s serial HDTV or as defined by SMPTE 272M from a 270Mb/s serial SDTV video signal.

Up to 8 selected channels may be de-embedded and directed to 4 AES outputs. Video output may be optionally delayed up to 7 frames to alleviate any lip sync system issues. The selected channels may be delayed up to 3 sec. mixed with selected voice-over input and re-embedded.

This device also handles the Dolby E Metadata. Metadata is optionally de-embedded from VANC and can be provided as an output for downstream devices (i.e. Dolby E or Dolby AC3 Encoders etc.). Dolby E metadata may be de-embedded, processed externally and re-embedded on the same card.

VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

The 520AD4-HD is housed in the 3RU 500FR **exponent** frame that will hold up to 16 modules.

Features

- Flexible embedded audio channels router
- Voice-over processor
- Adjustable video delay (up to 7 frames) and audio delay (3 seconds)
- Headphone jack with monitoring stereo channel
- Card edge display for status & audio channel peak levels bargraphs
- VANC decode and output of Dolby Metadata
- Dolby Metadata input & VANC embedder

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

Controls:

- Audio group selection
- Audio channel selection

Inputs:

- SMPTE 292M - (1.5Gb/s serial digital), or SMPTE 259M
- AES input (for voice-over or direct embedding)
- Dolby Metadata input

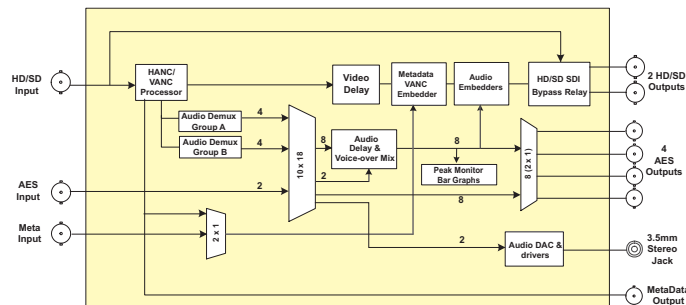
Outputs:

- 2 processed HD outputs (1 is relay protected)
- 1 BNC Dolby Metadata output (RS422/485)
- 4 AES de-embedded outputs

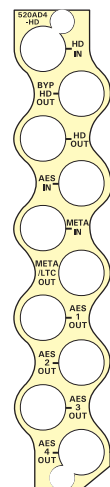
Card Edge LED's:

- Module Status
- Video Signal presence
- Selected audio group presence/errors
- AES signal presence

Model 520AD4-HD Block Diagram



Numbers refer to discrete audio channels



Specifications

Serial Video Input:

Standard: SMPTE 292M, (1080i/60, 1080i/59.94, 1080i/50, 1080p/30(sF), 1080p/29.97(sF), 1080p/25(sF), 1080/24(sF), 1080/23.98(sF), 720p/60, 720p/59.94, 1035i/60, 1035i/59.94
SMPTE 259M-C (270 Mb/s) 525 or 625 line component
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 100m @ 1.5Gb/s with Belden 1694 (or equivalent), 25m with bypass relay active

Processed Serial Video Output:

Standard: Same as input or user controlled
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: Per standard
Overshoot: <10% of amplitude
Wide Band Jitter: <0.2 UI

Metadata Input/Output:

Type: Dolby E Metadata
Connector: *1 BNC per IEC 60169-8 Amendment 2
(*BNC to DB9 dongles are provided)
Baud Rate: 115,200 baud

AES Audio Input:

Standard: SMPTE 276M single ended AES
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Input Level: 0.1 to 2.5 Vp-p (5 Vp-p tolerant)
Input Impedance: 75Ω
Return Loss: >25dB 100kHz to 6MHz with external termination
Equalization: Automatic to 1000m with Belden 1694A (or equivalent) @ 48kHz AES signal
Sample Rate: 48kHz ± 100ppm

AES Audio Output:

Standard: SMPTE 276M, single ended AES
Number of Outputs: 4
Connector: BNC per IEC 60169-8 Amendment 2
Sample Rate: 48kHz
Impedance: 75Ω
Resolution: Up to 24-bit

System Performance:

De-embedding Latency: 600µs nominal
Additional Audio Delay: 0 to 3 seconds (user programmable)
Additional Video Delay: 0 to 7 frames (user programmable)

Electrical:

Voltage: +12V DC
Power: 10 Watts
EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

520AD4-HD HD/SD Audio De-embedder with 4 unbalanced AES outputs (2 audio groups)

Enclosures:
500FR
S501FR

exponent
Compact High Density Distribution Frame
Standalone enclosure

HD/SD Audio De-embedder

Model 520AD8-HD



The 520AD8-HD Audio De-embedder extracts embedded audio from all 4 groups as defined by SMPTE 299M from a 1.5 Gb/s serial HDTV or as defined by SMPTE 272M from a 270Mb/s serial SDTV video signal. Up to 16 selected channels may be de-embedded and directed to 8 AES outputs.

This device also handles the Dolby E Metadata. Metadata is optionally de-embedded from VANC and can be provided as an output for downstream devices (i.e. Dolby E or Dolby AC3 Encoders etc.).

VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

The 520AD8-HD is housed in the 3RU 500FR *exponent* frame that will hold up to 16 modules.

Features

- Flexible de-embedded audio channels router (16 x 16)
- Headphone jack with monitoring stereo channel
- Card edge display for status & audio channel peak levels bargraphs
- VANC decode and output of Dolby Metadata

Controls:

- Audio channel routing selection

Inputs:

- SMPTE 292M - (1.5Gb/s serial digital), or SMPTE 259M

Outputs:

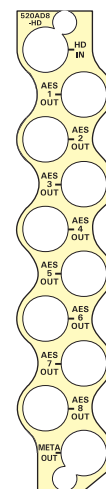
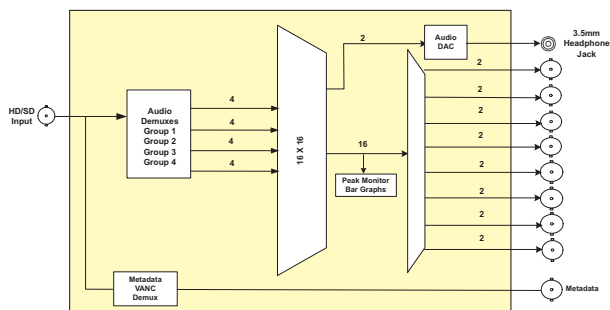
- 1 BNC Dolby Metadata output (RS422/485)
- 8 AES de-embedded outputs

Card Edge LED's:

- Module Status
- Video Signal presence
- Selected audio group presence/errors

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

Model 520AD8-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M, (1080i/60, 1080i/59.94, 1080i/50, 1080p/30(sF), 1080p/29.97(sF), 1080p/25(sF), 1080/24(sF), 1080/23.98(sF), 720p/60, 720p/59.94, 1035i/60, 1035i/59.94
SMPTE 259M-C (270 Mb/s) 525 or 625 linecomponent

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic 100m @ 1.5Gb/s with Belden 1694 (or equivalent)

Metadata Output:

Type: Dolby E Metadata

Connector: *1 BNC per IEC 60169-8 Amendment 2 (*BNC to DB9 dongles are provided)

Baud Rate: 115,200 baud

AES Audio Output:

Standard: SMPTE 276M, single ended AES

Number of Outputs: 8

Connector: BNC per IEC 60169-8 Amendment 2

Sample Rate: 48kHz

Impedance: 75Ω

Resolution: Up to 24-bit

System Performance:

De-embedding

Latency: 600μs nominal

Electrical:

Voltage: +12V DC

Power: 10 Watts

EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

520AD8-HD HD/SD Audio De-embedder with 8 unbalanced AES outputs (4 audio groups)

Enclosures:

500FR Compact High Density Distribution Frame

S501FR Standalone enclosure

exponent

Model 520AE4



The 520AE4 Audio Embedder embeds 4 stereo AES channels into 2 specified groups as defined by SMPTE 272M in a 270Mb/s serial SDTV video signal.

Several optional processing steps can be applied to the input audio before it is embedded. If needed, the 4 stereo AES input channels can be processed by 4 on-board sample rate converters (SRC's). The SRC's can be configured to automatically respect Dolby E & Dolby Digital adding to ease of use & flexibility. The 8 discrete audio channels can be re-arranged in any arbitrary manner with on-board 8 x 8 router. The audio channels may be optionally and independently delayed up to 3 seconds.

This device also handles the Dolby E Metadata. Metadata is optionally embedded in VANC for downstream devices.

VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

Features

- Fast locking AES receivers
- Configurable or automatic SRC's on AES inputs
- Headphone jack with monitoring stereo channel
- Card edge display for status & audio channel peak levels bargraphs
- Audio channel router (8 x 8)

Controls:

- Audio group selection
- Audio channel selection

Inputs:

- SMPTE 259M
- 4 Channel AES (unbalanced)
- 1 BNC for Dolby metadata (RS422/485)

Outputs:

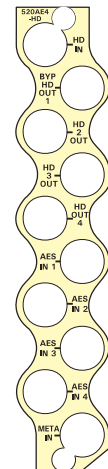
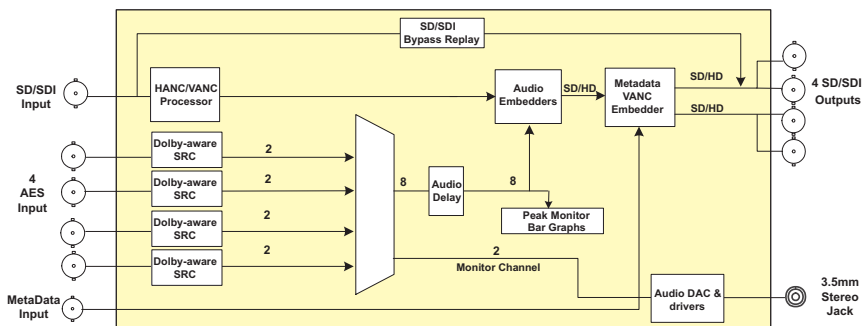
- 4 processed outputs
- Program output bypass relay protected

Card Edge LED's:

- Module Status
- Video Signal presence
- AES input presence/errors

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

Model 520AE4 Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C (270 Mb/s) 525 or 625 line component
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic >200m @ 270Mb/s with Belden 8281 (or equivalent), 25m with bypass relay installed

Processed Serial Video Output:

Standard: Same as input or user controlled
Number of Outputs: 4
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: Per standard
Overshoot: <10% of amplitude
Wide Band Jitter: <0.2 UI

AES Input:

Standard: SMPTE 276M
Number of Inputs: 4
Connector: BNC per IEC 60169-8 Amendment 2
Input Level: 0.1 to 2.5 Vp-p
Input Impedance: 75Ω
Return Loss: >25dB 100kHz to 6MHz
Equalization: Automatic to 1000m with Belden 1694A (or equivalent) @ 48kHz AES signal
Sample Rate: 48kHz ± 100ppm

Metadata Input:

Type: DOLBY E Metadata
Connector: 1 BNC per IEC 60169-8 Amendment 2
Baud Rate: 115,200 baud

System Performance:

Embedding Latency: 600μs nominal
Audio Delay Range: 0 to 3 seconds

Electrical:

Voltage: +12V DC
Power: 10 Watts
EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

520AE4 SD Audio Embedder with 4 unbalanced AES inputs (2 audio groups)

Enclosures:

500FR Compact High Density Distribution Frame
S501FR Standalone enclosure

exponent

Model 520AE4-HD



The 520AE4-HD Audio Embedder embeds 4 stereo AES channels into 2 specified groups as defined by SMPTE 299M in a 1.5 Gb/s serial HDTV or as defined by SMPTE 272M in a 270Mb/s serial SDTV video signal.

Several optional processing steps can be applied to the input audio before it is embedded. If needed, the 4 stereo AES input channels can be processed by 4 on-board sample rate converters (SRC's). The SRC's can be configured to automatically respect Dolby E & Dolby Digital adding to ease of use & flexibility. The 8 discrete audio channels can be re-arranged in any arbitrary manner with on-board 8 x 8 router. The audio channels may be optionally and independently delayed up to 3 seconds.

This device also handles the Dolby E Metadata. Metadata is optionally embedded in VANC for downstream devices.

VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

Features

- Fast locking AES receivers
- Configurable or automatic SRC's on AES inputs
- Headphone jack with monitoring stereo channel
- Card edge display for status & audio channel peak levels bargraphs
- Audio channel router (8 x 8)

Controls:

- Audio group selection
- Audio channel selection

Inputs:

- SMPTE 292M - (1.5Gb/s serial digital), or SMPTE 259M
- 4 Channel AES (unbalanced)
- 1 BNC for Dolby metadata (RS422/485)

Outputs:

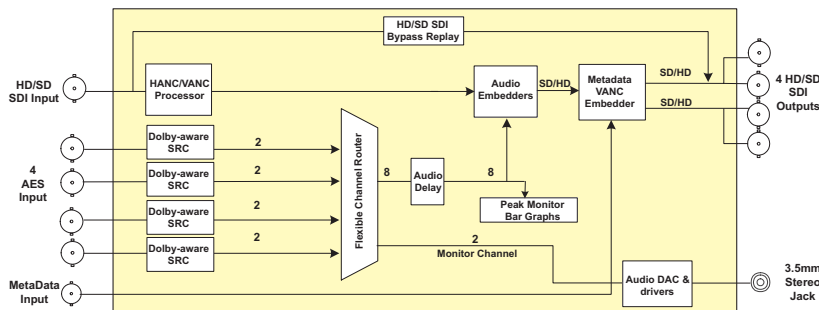
- 4 processed HD outputs
- Program output bypass relay protected

Card Edge LED's:

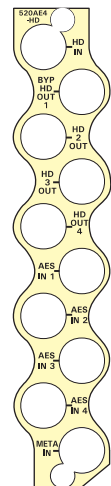
- Module Status
- Video Signal presence
- AES input presence/errors

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

Model 520AE4-HD Block Diagram



Numbers refer to discrete audio channels



Specifications

Serial Video Input:

Standard: SMPTE 292M, (1080i/60, 1080i/59.94, 1080i/50, 1080p/30(sF), 1080p/29.97(sF), 1080p/25(sF), 1080/24(sF), 1080/23.98(sF), 720p/60, 720p/59.94, 1035i/60, 1035i/59.94

Connector: SMPTE 259M-C (270 Mb/s) 525 or 625 line component

Equalization: BNC per IEC 60169-8 Amendment 2

Automatic 100m @ 1.5Gb/s with Belden 1694A (or equivalent), 25m with bypass relay installed

Processed Serial Video Output:

Standard: Same as input or user controlled

Number of Outputs: 4

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V ±0.5V

Rise and Fall Time: Per standard

Overshoot: <10% of amplitude

Wide Band Jitter: <0.2 UI

AES Input:

Standard: SMPTE 276M

Number of Inputs: 4

Connector: BNC per IEC 60169-8 Amendment 2

Input Level: 0.1 to 2.5 Vp-p

Input Impedance: 75Ω

Return Loss: >25dB 100kHz to 6MHz

Equalization: Automatic to 1000m with Belden 1694A (or equivalent) @ 48kHz AES signal

Sample Rate: 48kHz ± 100ppm

Metadata Input:

Type: DOLBY E Metadata

Connector: 1 BNC per IEC 60169-8 Amendment 2

Baud Rate: 115,200 baud

System Performance:

Embedding Latency: 600µs nominal

Audio Delay Range: 0 to 3 seconds

Electrical:

Voltage: +12V DC

Power: 10 Watts

EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

520AE4-HD HD/SD Audio Embedder with 4 unbalanced AES inputs (2 audio groups)

Enclosures:

500FR

S501FR

exponent

Compact High Density Distribution Frame
Standalone enclosure

Model 520AE8-HD



The 520AE8-HD Audio Embedder embeds 8 stereo AES channels into 4 groups as defined by SMPTE 299M in a 1.5 Gb/s serial HDTV or as defined by SMPTE 272M in a 270Mb/s serial SDTV video signal.

This device also handles the Dolby E Metadata. Metadata maybe input instead of the last AES channel and optionally embedded in VANC for downstream devices.

VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

Features

- Fast locking AES receivers
- Headphone jack with monitoring stereo channel
- Card edge display for status & audio channel peak levels bargraphs
- Dolby-aware SRC (sample rate converters)
- Flexible audio channel router (16 x 16)

Controls:

- Audio channel selection
- Embedded group enable/disable

Inputs:

- SMPTE 292M - (1.5Gb/s serial digital), or SMPTE 259M
- 8 Channel AES (unbalanced)
- Dolby metadata (RS422/485)

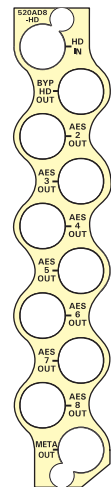
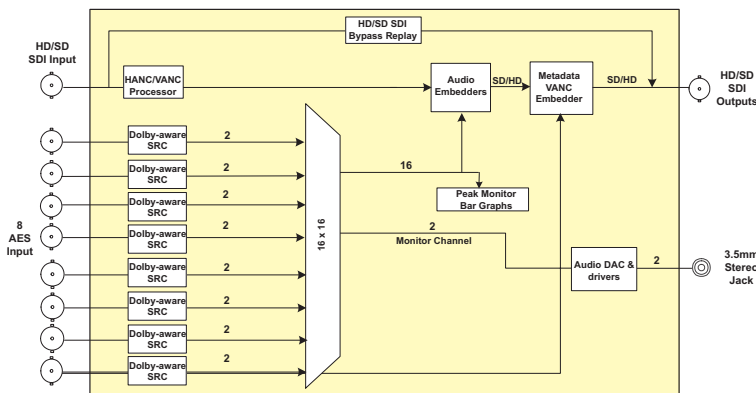
Outputs:

- Program output bypass relay protected
- 1 processed HD output

Card Edge LED's:

- Module Status
- Video Signal presence
- AES input presence/errors
- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

Model 520AE8-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M, (1080i/60, 1080i/59.94, 1080i/50, 1080p/30(sF), 1080p/29.97(sF), 1080p/25(sF), 1080/24(sF), 1080/23.98(sF), 720p/60, 720p/59.94, 1035i/60, 1035i/59.94
SMPTE 259M-C (270 Mb/s) 525 or 625 line component
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 100m @ 1.5Gb/s with Belden 1694A (or equivalent), 25m with bypass relay installed

Processed Serial Video Output:

Standard: Same as input or user controlled
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: Per standard
Overshoot: <10% of amplitude
Wide Band Jitter: <0.2 UI

AES Input:

Standard: SMPTE 276M
Number of Inputs: 8
Connector: BNC per IEC 60169-8 Amendment 2
Input Level: 0.1 to 2.5 Vp-p
Input Impedance: 75Ω
Return Loss: >25dB 100kHz to 6MHz
Equalization: Automatic to 1000m with Belden 1694A (or equivalent) @ 48kHz AES signal
Sample Rate: 48kHz ± 100ppm

Metadata Input/Output:

Type: DOLBY E Metadata
Connector: 1 BNC per IEC 60169-8 Amendment 2
Baud Rate: 115,200 baud

System Performance:

Embedding Latency: 600µs nominal

Electrical:

Voltage: +12V DC
Power: 10 Watts
EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

520AE8-HD HD/SD Audio Embedder with 8 unbalanced AES inputs (4 audio groups)

Enclosures:

500FR Compact High Density Distribution Frame
S501FR Standalone enclosure

exponent

HD/SD Audio De-embedder & Dolby E/AC-3 Decoder & Re-embedder

Model 520AD4-DD-HD



The 520AD4-DD-HD Audio De-embedder and Dolby Decoder & Re-embedder extracts embedded audio from 2 specified groups as defined by SMPTE 299M from a 1.5 Gb/s serial HDTV or as defined by SMPTE 272M from a 270Mb/s serial SDTV video signal.

One selected channel is processed by the on-card Dolby Decoder. If the channel contains Dolby E or Dolby Digital (AC3), it will yield up to 8 additional discrete audio channels and the associated Dolby E metadata. Up to 8 selected channels may be optionally delayed up to 3 seconds and re-embedded into the output video and/or directed to 4 AES outputs. Video output may be optionally delayed up to 7 frames to help with lip sync. If PCM audio is embedded, the device acts as a simple 2 group audio de-embedder.

This device also handles the Dolby E Metadata. Metadata is optionally embedded in VANC and can be provided as an output for downstream devices (i.e. Dolby Encoders, Multichannel Audio Tool, etc.). Dolby-E is capable of carrying LTC data embedded within its stream. It can be selected as an output, instead of metadata.

For lip sync cohesion and ease of editing, Dolby-E data is organized in blocks with lengths matching the associated video frame. The decoder will match the beginning of each output block with the start of video, as provided with the genlock input. Additional delay can be dialed up by the user, up to 3 secs. An extra AES input is provided that can be configured as a backup channel, in the event the primary is lost, or as a voice-over source. This input can be re-configured as a metadata input which can be embedded in VANC, instead of the metadata coming from Dolby Decoder.

VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

The 520AD4-DD-HD is housed in the 3RU 500FR **exponent** frame that will hold up to 16 modules.

Features

- Automatic switchover to backup audio source on loss of selected Dolby stream
- Adjustable video delay to match Dolby decoder audio delay (up to 7 frames)
- Headphone jack with monitoring stereo down-mix
- Dolby Metadata is embedded in HD VANC for downstream device decoding (refer to 520AD4-HD brochure)
- Secondary AES input with backup, voice-over or Dolby E/AC3 content
- Card edge display for Dolby decoder status & audio channel peak levels bargraphs
- Flexible audio channel router

Controls:

- Audio group selection
- Audio channel selection

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

Inputs:

- Program output bypass relay protected
- SMPTE 292M - (1.5Gb/s serial digital), or SMPTE 259M
- Genlock NTSC-M, PAL-B, any tri-level
- AES input for backup/voice-over source
- Metadata input

Outputs:

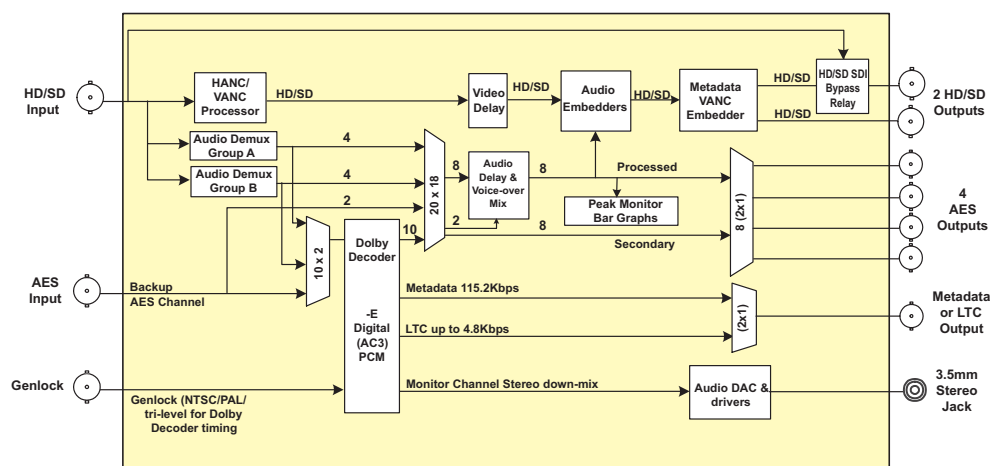
- 2 processed HD outputs (1 protected with bypass relay)
- 4 AES de-embedded and processed outputs
- 1 BNC configurable as LTC or Dolby metadata (RS422/485)

Card Edge LED's:

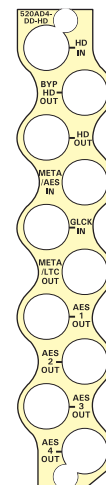
- Module Status
- Video Signal presence
- Selected audio group presence/errors
- Dolby decoder processing status
- Genlock health/compatibility
- AES signal presence

HD/SD Audio De-embedder & Dolby E/AC-3 Decoder & Re-embedder

Model 520AD4-DD-HD Block Diagram



Numbers refer to discrete audio channels



Specifications

Serial Video Input:

Standard: SMPTE 292M, (1080i/60, 1080i/59.94, 1080i/50, 1080p/30(sF), 1080p/29.97(sF), 1080p/25(sF), 1080/24(sF), 1080/23.98(sF), 720p/60, 720p/59.94, 1035i/60, 1035i/59.94)
SMPTE 259M-C (270 Mb/s) 525 or 625 line component

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic 100m @ 1.5Gb/s with Belden 1694A (or equivalent), 25m with bypass relay active

Processed Serial Video Output:

Standard: Same as input or user controlled

Number of Outputs: 2

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: Per standard

Overshoot: <10% of amplitude

Wide Band Jitter: <0.2 UI

Metadata Input/Output:

Type: Dolby E Metadata

Connector: *1 BNC per IEC 60169-8 Amendment 2 (*BNC to DB9 dongles are provided)

Baud Rate: 115,200 baud

AES Audio Input:

Standard: SMPTE 276M

Number of Inputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Input Level: 0.1 to 2.5 Vp-p (5Vp-p tolerant)

Input Impedance: 75 Ω

Return Loss: >25dB 100kHz to 6MHz

Equalization: Automatic to 1000m with Belden 1694A (or equivalent) @ 48kHz AES signal

Sample Rate: 48kHz \pm 100ppm

AES Audio Output:

Standard: SMPTE 276M, single ended AES

Number of Outputs: 4

Connector: BNC per IEC 60169-8 Amendment 2

Sample Rate: 48kHz

Impedance: 75 Ω

Resolution: Up to 24-bit

Genlock Input:

Type: NTSC, PAL, black or any tri-level, all autodetect

Connector: 1 BNC per IEC 60169-8 Amendment 2

Impedance: hi-Z or 75 Ω (jumper configurable)

Return Loss: >40dB to 10MHz

System Performance:

AC3 Decode Delay: 32ms nominal

Dolby E Decode Delay: 1 frame nominal

De-embedding Latency: 600 μ s nominal

Additional Audio Delay: 0 to 3 seconds (user programmable)

Additional Video Delay: 0 to 7 frames (user programmable)

Electrical:

Voltage: +12V DC

Power: 10 Watts

EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

520AD4-DD-HD HD/SD Audio De-embedder & Dolby E/AC-3 Decoder & Re-embedder

Enclosures:

500FR
S501FR

Exponent

Compact High Density Distribution Frame
Standalone enclosure

Unbalanced AES Word Clock Extractor Audio Distribution Amplifier



520DARS-W

The 520DARS-W provides a compact method of extracting word clock from your AES digital audio reference signals. The 520DARS-W features one auto-equalized input with 4 word clock outputs and 5 reclocked AES audio outputs.

The 520DARS-W can be used in conjunction with the 5600MSC Master Clock/SPG system

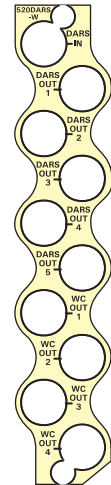
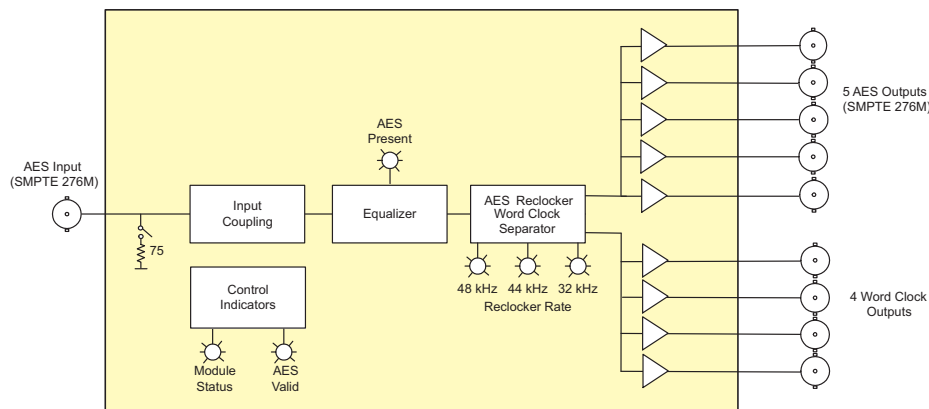
The 520DARS-W is housed in the 500FR **exponent** Frame that will hold up to 16 modules.

Features

- Supports AES audio over 75Ω coax (SMPTE 276M)
- 4 word clock outputs (AES11-2003)
- 5 reclocked AES outputs provides jitter reduction (SMPTE 276M)
- Automatic equalization provides extended cable length capabilities
- High impedance or 75Ω termination on input (jumper selectable)
- Card edge indicators for AES present, reclocker rate, and AES validity bit
- Tally output of input error conditions

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

520DARS-W Block Diagram



Specifications

AES Input:
Standard: SMPTE 276M
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Input Level: 1V p-p
Coupling: Transformer
Input Impedance: 75Ω
Return Loss: >25dB 100kHz to 6MHz
Equalization: Automatic to 1500m with Belden 1694A (or equivalent) @ 48kHz AES signal
Sampling Frequency: 32kHz, 44.1kHz, 48kHz and 96kHz

AES Output:
Number of Outputs: 5 Unbalanced AES
Connector: BNC per IEC 60169-8 Amendment 2
Output Level: 1V p-p
Output Impedance: 75Ω
Return Loss: >25dB 100kHz to 6MHz

Word Clock Outputs:
Standard: AES11-2003
Number of Outputs: 4
Connectors: BNC per IEC 169-8
Signal Level: 5Vpp square wave (0-5V) ±0.5V

Physical:
Number of Slots: 1

Electrical:
Voltage: +12VDC
Power: 5 Watts
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:
520DARS-W Unbalanced AES Word Clock Extractor Audio Distribution Amplifier (1x9)

Enclosure:
500FR **exponent**
S501FR Compact High Density Distribution Frame
Standalone enclosure

Dolby E Decoder

520DD-AESU



The 520DD-AESU is a professional Dolby audio decoder that automatically detects Dolby-E, Dolby Digital (AC3), and PCM streams in the AES input, and translates them to PCM (linear) audio. Up to 8 discrete audio channels may be contained in 1 AES stream when encoded as Dolby-E, yielding up to 4 AES PCM outputs.

So that the multi-channel outputs in PCM form can be re-assembled back into Dolby-E or Dolby Digital further downstream, an additional output with metadata is provided. It contains information about the assumed inter-channel relationships (whether they are 5.1, or 4 stereo pairs, etc.), their expected dialogue levels, etc.

Dolby-E is capable of carrying LTC data embedded within its stream. It can be selected as an output, instead of metadata.

For lipsync cohesion and ease of editing, Dolby-E data is organized in blocks with lengths matching associated video frame. The decoder will match the beginning of each output block with the start of video, as provided with the genlock input. Additional delay can be dialed up by the user, up to 3 seconds. Reference video frame rate must match that assumed by the Dolby-E stream. An extra AES input is provided that can be configured as a backup channel, in the event the primary is lost, or as a voice-over source. VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

Features

- Headphone jack with monitoring stereo down-mix
- Secondary AES input with backup contents or voice-over
- Card edge display for Dolby decoder status & audio channel peak levels bargraphs
- Adjustable delay up to 3 seconds

Inputs:

- 2 AES (SMPTE 276M standard version on coax) with Dolby-E, Dolby Digital or PCM (autodetect)
- Video genlock - composite black or tri-level (autodetects)
- Genlock input for lip-sync management, Dolby E style

Outputs:

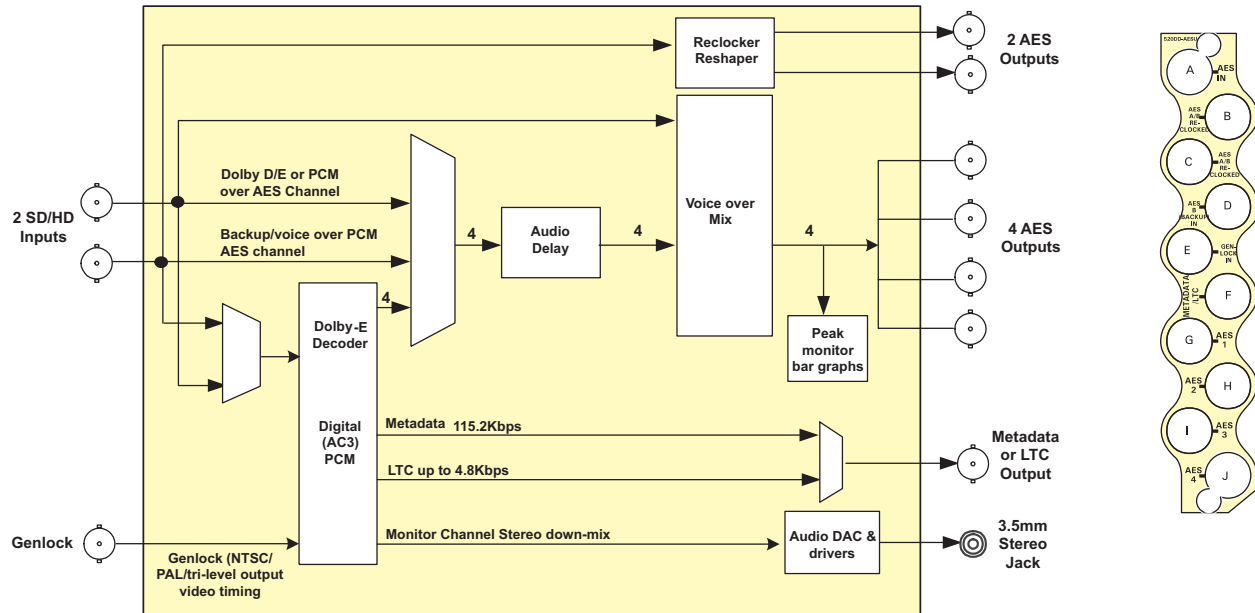
- 2 outputs with reclocked AES input
- 4 AES (SMPTE 276M) output with decoded PCM audio
- Metadata or LTC

Card Edge LED's:

- Module status
- Selected AES input health
- Dolby decoder processing status
- Genlock health

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

520DD-AESU Block Diagram



Specifications

AES Audio Input:

Number of Inputs: 2 (program, backup)
Standard: SMPTE 276M, unbalanced AES
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 0.1 to 2.5 Vp-p
Equalization: Auto >1000m with 1 Vp-p drive and Belden 1694A or equivalent coax cable
Resolution: 24 bits
Sample Rate: 48 kHz; ± 100 ppm
Input Impedance: 75 Ω
Return Loss: > 25 dB, 100 kHz to 6.0 MHz

AES Audio Outputs:

Number of Outputs: 6 (2 reclocked & 4 PCM decodes)
Standard: SMPTE 276M, unbalanced AES
Connectors: BNC per IEC 60169-8 Amendment 2
Sample Rate: 48kHz
Impedance: 75 Ω unbalanced
Return Loss: > 25 dB, 100 kHz to 6.0 MHz

Genlock Input:

Type: NTSC or PAL colour black 1V p-p composite bi-level sync (525 line or 625 line)
Connector: 1 BNC per IEC 60169-8 Amendment 2
Impedance: hi-Z or 75 jumper configurable
Return Loss: >40dB to 10MHz

Metadata Output:

Number of Outputs: 1
Standard: Contents per Dolby
Connector: BNC per IEC 60169-8 Amendment 2 (shared with LTC output as per user selection)
Signal Level: < $\pm 3V$ @ 1k Ω load
Output Impedance: 50 Ω , DC coupled
Load Impedance: 50 Ω , up to hi-Z
Rise Times: 200ns

LTC Output:

Number of Outputs: 1
Standard: SMPTE 12M
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: Adjustable from 0.5 to 4.0Vp-p @1k Ω load
Output Impedance: 50 Ω
Rise Times: 40 $\mu s \pm 10\mu s$

Headphone Audio Outputs:

Number of Outputs: 1
Type: Stereo 3.5mm jack
Output Load: 32 Ω
Signal Level: 100mW max, soft adjustable over 40dB range
THD+N: 1%
SNR: 90dB RMS, "A" weighted

Electrical:

Voltage: + 12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15 Class A
 EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

520DD-AESU Dolby E Decoder

Enclosures:

500FR Compact High Density Distribution Frame
S501FR Standalone enclosure

exponent



So that the multi-channel outputs in PCM form can be re-assembled back into Dolby-E or Dolby® Digital further downstream, an additional output with metadata is provided. It contains information about the assumed inter-channel relationships (whether they are 5.1, or 4 stereo pairs, etc.), their expected dialogue levels, etc.

For lipsync cohesion and ease of editing, Dolby-E data is organized in blocks with lengths matching associated video frame. The decoder will match the beginning of each output block with the start of video, as provided with the genlock input. Additional delay can be dialed up by the user, up to 3 seconds. Reference video frame rate must match that assumed by the Dolby-E stream. An extra AES input is provided that can be configured as a backup channel, in the event the primary is lost, or as a voice-over source.

Features

- Headphone jack with monitoring stereo down-mix
- Secondary AES input with backup contents or voice-over
- Card edge display for Dolby® decoder status & audio channel peak levels bargraphs
- Adjustable audio delay up to 3 seconds, independent for all 8 channels
- VistaLINK® - capable for remote monitoring via SNMP (using VistaLINK® PRO) when installed in 500FR frame with 500FC VistaLINK® Frame Controller

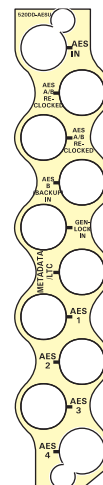
- 2 outputs with reshaped AES input
- 4 AES (SMPTE 276M) output with decoded PCM audio
- Metadata or LTC
- Available ProLogic downmix

- Module status
- AES input health
- Dolby® decoder processing status
- Genlock health

- 1 Unbalanced AES (SMPTE 276M standard version on coax) with Dolby-E, Dolby® Digital or PCM (autodetect)
- 1 Unbalanced AES (SMPTE 276M standard version on coax) with voice over PCM
- Video genlock - composite black or tri-level (autodetects) for lip-sync management, Dolby E style

The diagram illustrates the internal architecture of the VistaLINK interface. It features several input and output ports and a central processing area.

- Inputs:**
 - AES (Program) and AES (Backup):** Two stereo inputs at the top left.
 - Genlock:** A single input at the bottom left.
- Processing Area (Yellow Background):**
 - Dolby Decoder:** Receives Genlock and outputs to a switch.
 - Switch:** Routes signals between the AES inputs and the Dolby Decoder. It has two outputs: a 2-channel output to a Reshaper and a 4-channel output to an Audio Delay.
 - Audio Delay:** Delays the 4-channel signal before it enters the Voice over Mix.
 - Voice over Mix:** Combines the delayed 4-channel signal with the 2-channel signal from the Reshaper. It has a 4-channel output to the AES outputs and a 'Monitor Channel Stereo down-mix' output to the Audio DAC & drivers.
 - Reshaper:** Processes the 2-channel signal from the switch.
 - Peak monitor bar graphs:** Receives a 4-channel signal from the Voice over Mix.
 - Audio DAC & drivers:** Converts the stereo down-mix signal to an analog format for the 3.5mm Headphone Jack.
 - Metadata Output:** Receives 'Metadata 115.2 kbps' and 'LTC up to 4.8Kbps' signals from the Dolby Decoder.
 - Control/Indication:** Connected to the VistaLINK Interface and Card Status.
- Outputs:**
 - 2 AES Outputs:** Two stereo outputs at the top right.
 - 4 AES Outputs:** Four stereo outputs in the middle right.
 - 3.5mm Headphone Jack:** An analog output at the bottom right.
 - Metadata or LTC Output:** A single output at the bottom right.



Specifications

AES Audio Input:

Number of Inputs: 2 (program, backup)
Standard: SMPTE 276M, unbalanced AES
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 0.1 to 2.5 Vp-p
Equalization: Auto >1000m with 1 Vp-p drive and Belden 1694A or equivalent coax cable
Resolution: 24 bits
Sample Rate: 48 kHz; ± 100 ppm
Input Impedance: 75 Ω
Return Loss: > 25 dB, 100 kHz to 6.0 MHz

AES Audio Outputs:

Number of Outputs: 6 (2 reclocked & 4 PCM decodes)
Standard: SMPTE 276M, unbalanced AES
Connectors: BNC per IEC 60169-8 Amendment 2
Sample Rate: 48kHz
Impedance: 75 Ω unbalanced
Return Loss: > 25 dB, 100 kHz to 6.0 MHz

Genlock Input:

Type: NTSC or PAL colour black sync (525 line or 625 line) or HD tri-level
Connector: 1 BNC per IEC 60169-8 Amendment 2
Impedance: hi-Z or 75 jumper configurable
Return Loss: >40dB to 10MHz

Metadata Output:

Number of Outputs: 1
Type: Dolby® Metadata SMPTE RDD6
Connector: BNC per IEC 60169-8 Amendment 2 (shared with LTC output as per user selection)
Signal Level: < $\pm 3V$ @ 4k Ω load
Output Impedance: 50 Ω , DC coupled
Rise Times: 200ns

LTC Output:

Number of Outputs: 1
Standard: SMPTE 12M
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: Adjustable from 0.5 to 4.0Vp-p @1k Ω load
Output Impedance: 50 Ω
Rise Times: 40 $\mu s \pm 10\mu s$

Headphone Audio Outputs:

Number of Outputs: 1
Type: Stereo 3.5mm jack
Output Load: 32 Ω +
Signal Level: 100mW max, soft adjustable over 40dB range
THD+N: 1%
SNR: 90dB RMS, "A" weighted

Electrical:

Voltage: + 12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15 Class A EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

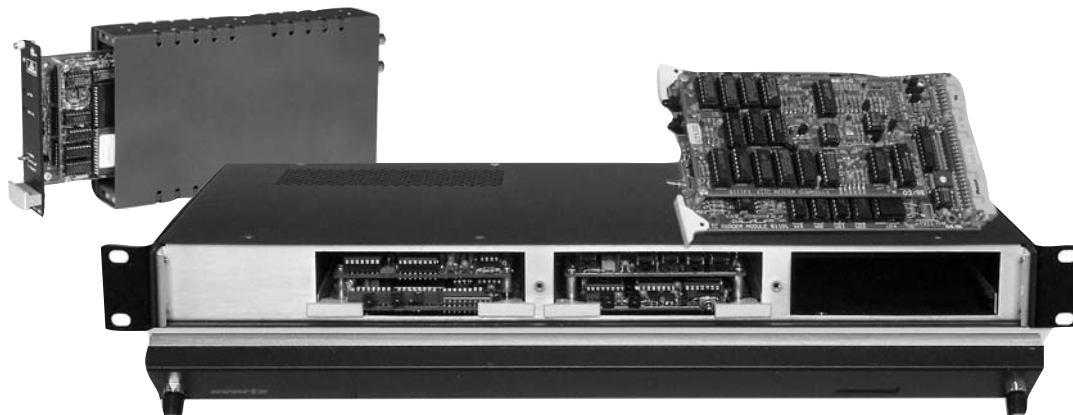
520DD-AESU Dolby E Decoder

Enclosures:

500FR Compact High Density Distribution Frame
S501FR Standalone enclosure

VITC Timecode Generator/Translator

Model 621



The EV-BLOC 621 module is a full featured vertical interval time code (VITC) generator. Easily accessible DIP switches are used to preset parameters such as VITC line numbers, 2, 4, or 8 field locking, drop frame and source ID code. An optional LTC reader sub-module upgrades the 621 to an LTC to VITC translator. Remote control inputs permit generator reset/start, user bit transfer and tally control (used for ON AIR indication in source ID applications). In addition, 6 uncommitted inputs are available for remote control of downstream equipment via the video path.

Features

- VITC Generator: 4/8 field color frames, resettable to 00:00:00:00 or jam-synced to longitudinal time code (LTR option)
- Can be synchronized to a common time code generator to accommodate isolated video sources. User bits may be transferred from the common generator or preset locally, using easily accessible DIP switches
- User bits in each module can be encoded to uniquely identify its video source. The time code bits can be set to zero, for cameras etc., or jam-synced to time-coded sources such as VTR's
- Six control inputs can be utilized to control VTR's etc. via the program video path
- Special dual standard LTC to VITC Translator for use with 4025TR (No color framing, Source ID or GPIs)

Specifications:

Video:

Input: 1V p-p Hi-Z loop
Connectors: 2 BNC per IEC 60169-8 Amendment 2
Output: Composite video 1V p-p
Differential Gain: < 0.5%
Differential Phase: < 0.5°
Frequency Response: ± 0.5dB to 5MHz

Longitudinal Code Reader (LTC Option):

Standard: SMPTE 12M
Input: -20 dBm to +12dBm, 1/4" stereo phone jack
Speed: 1/30 to 70 times play speed forward and reverse (machine dependent)

Physical:

Dimensions: 3.94"H x 6.3"L x 1.4"W
(100mm H x 160mm L x 33mm W)

Ordering Information: VITC Timecode Generator/Translator

X = N for NTSC or P for PAL (Please specify when ordering)

Standard units generate VITC in vertical interval only:
Lines 6 to 21 for PAL, 10 to 20 for NTSC

(Modules for mounting in the 1RU frames)

EJ621x:	VITC Generator & Source ID Encoder
EJ621x-LTR:	LTC to VITC Translator & Source ID Encoder
S621x:	Standalone VITC Generator & Source ID Encoder
S621x-LTR:	Standalone LTC to VITC Translator & Source ID Encoder

Ordering Options:

+MPEG MPEG option generates VITC in active picture lines : 10 to 25 for PAL, 14 to 24 for NTSC

Enclosure:

4600T-3P: 1RU Frame - parallel I/O (3 modules max) with power supply

Model 622

The EV-BLOC 622 module is a vertical interval time code reader and longitudinal time code generator in one slim euro-card package containing features not found anywhere else. When used as a translator from VITC to LTC, a unique soft locking scheme assures error free play speed code regardless of speed variations of the code being read. If the VTR is bumped in and out of sync by an editor or synchronizer, the translated LTC framing follows gradually without missing a beat. The 622 reader contains all the necessary video processing circuits and therefore requires no external signals other than the video signal containing the VITC.

Features

- Reads vertical interval time code from about 20 times play speed down to still frame, providing time and user data out as LTC and multiplexed parallel BCD. An optional video inserter (VCG) keys the data into the picture
- VITC to LTC translator for use with LTC only editing equipment or readers
- User bits encoded with a special code from an EV-BLOC EJ621 module are displayed as unique source identification using the optional VCG
- Six grounding output switches respond to specific user bit codes from a 621 encoder to (remotely) control a variety of devices via the program video path or off tape

Specifications:

Video:

Input:	Composite video 1v p-p High impedance bridging input loop 2 BNC per IEC 60169-8 Amendment 2 connectors
Output:	Composite video 1v p-p 2 BNC per IEC 60169-8 Amendment 2 connectors
Differential Gain:	< 0.5%
Differential Phase:	< 0.5°
Frequency Response:	± 0.5dB to 5MHz

Vertical Interval Code Reader:

Input:	Composite video with SMPTE 12M VITC
Speed:	Still frame to more than 20 times play speed forward and reverse (machine dependent)

LTC Translator:

Output:	Play speed regenerated SMPTE 12M LTC phase-locked to video input at play speed level 0dBm, 1/4" stereo phone jack
Modes:	Individual lines, pair of lines, range of lines, auto (first valid line of code)

Video Character Generator (VCG option):

Input:	Composite video from VITC reader
Output:	Composite video with high resolution white characters keyed in. Switchable black background or edging, 2 sizes, 15 positions on raster
Parallel I/O:	Multiplexed digit-wide BCD data out to drive displays or parallel computer interfaces, or 6 open collector switches activated by user bits
Physical:	
Dimensions:	3.94"H x 6.3"L x 1.4"W (100mm H x 160mm L x 33mm W)

Ordering Information: VITC Timecode Reader/Translator

X = N for NTSC or P for PAL (Please specify when ordering)
Standard units reads VITC in vertical interval only:
Lines 6 to 21 for PAL, 10 to 20 for NTSC

(Modules for mounting in the 1RU frames)

EJ622x:	VITC to LTC Translator
EJ622x-VCG:	VITC to LTC Translator with VCG & Source ID Decoder
S622x:	VITC to LTC Translator
S622x-VCG:	VITC to LTC Translator with VCG & Source ID Decoder

Ordering Options:

+MPEG	MPEG option reads VITC in active picture lines : 10 to 25 for PAL, 14 to 24 for NTSC
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Enclosure:

4600T-3P:	1RU Frame - parallel I/O (3 modules max) with power supply
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LTC Reader, Phase Restorer

Model 623

The EV-BLOC 623 module contains a full speed (1/30 to 70 times play) longitudinal time code (LTC) reader, an LTC translator/phase restorer and an RS-232 serial interface. Installing the optional plug-in VITC sub-module, gives the reader tremendous additional capabilities. It can now read VITC at speeds from still frame to an excess of 20 times play speed.

The front panel mode switch allows the LTC/VITC reader pair to operate in either an LTC or VITC only mode or in an automatic switchover mode. The powerful firmware automatically selects valid code from either source and provides accurate time code reading from still frame to 70 times play speed.

Features

- Reads vertical interval time code from about 20 times play speed down to still frame, providing time and user bits out as LTC
- Reads LTC up to 70x play speed
- VITC to LTC translator for use with LTC only editing equipment or readers
- RS-232 interface for sending time code to a PC

Specifications:

Longitudinal Code Reader:

Standard: SMPTE 12M
Input: -20 dBm to +12dBm, 1/4" stereo phone jack
Speed: 1/30 to 70 times play speed forward and reverse (machine dependent)

Vertical Interval Code Reader (623-VIR):

Input: Composite video with SMPTE 12M VITC
Speed: Still frame to more than 20 times play speed
Modes: Individual lines, pair of lines, range of lines, auto (first valid line of code) forward and reverse (machine dependent)

LTC Translator:

Output: Play speed regenerated SMPTE/EBU LTC phase-locked to video input at play speed
Level: Level 0dBm, 1/4" stereo phone jack

Serial Remote Control:

RS-232/RS-422 9 pin "D" connector
Computer access to all functions including Reader Time and User Bit data

Ordering Information:LTC Reader, Phase Restorer

X = N for NTSC or P for PAL (Please specify when ordering)
(Modules for mounting in the 1RU frames)

EJ623x:	LTC/VITC Reader Translator
EJ623x-VIR:	LTC/VITC Reader Translator with VITC Submodule
S623x:	Standalone LTC/VITC Reader Translator
S623x-VIR:	Standalone LTC/VITC Reader with VITC Submodule

Enclosure:

4600T-3S: 1RU Frame - serial I/O (3 modules max) with power supply

Data Digital Display

Model 1200DD & 1201DD



1200DD



1201DD

The 1200DD & 1201DD are LED digital clocks with 7-segment-digits display. They may operate as a timecode-reading clock or as a digital SMPTE/EBU serial timecode reader, simply displaying the input timecode.

In addition to SMPTE/EBU timecode, the 1200DD & 1201DD can operate on the internal quartz time base. This multi-way reference capability allows easy integration into new or existing clock systems.

The 1200DD & 1201DD are rack mountable. The 1200DD face has 2.25" tall digits and the 1201DD has 1.00" tall digits which may display HH:MM:SS AM/PM or HH:MM:SS FF, depending on the control settings. The brightness of the digital LEDs are adjustable.

Clock installation is simple when one of the time sources is available. Apply power, connect time and the clock takes care of the rest, instantly setting to the correct time. If time source fails, the colons flash twice per second to signal its absence and the clock automatically switches to the pre-selected secondary reference. Any time discrepancy on return of timecode is instantly corrected. This also applies to timecode changes such as Standard Time to Daylight Saving Time.

Both clocks may be preset to display an offset from local time. This local offset allows the display of any or all time zones at one location. This offset is user-programmable from -12 hours to +12 hours.

When no source of timecode is available, the 1200DD & 1201DD may be configured as timecode generators, using their internal quartz crystal. When used as a generator, they can both drive multiple high impedance, timecode-reading devices.

If AC power is lost, they maintain time internally via a crystal oscillator. Self-setting to this time will occur if no input time source is available on power up.

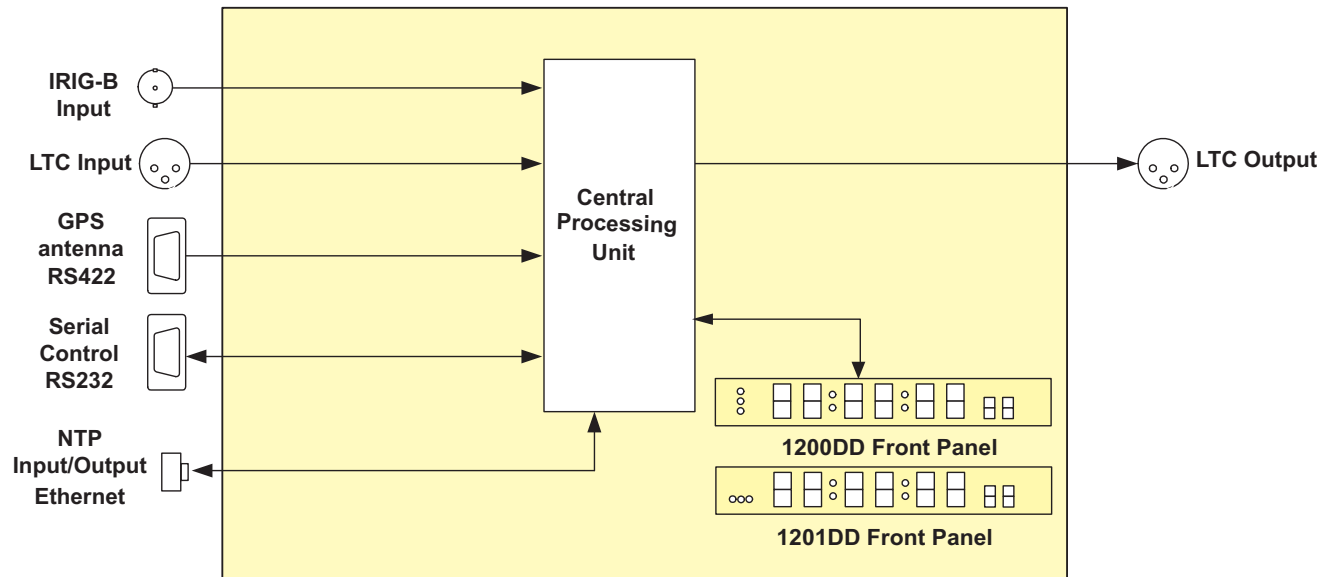
The rear panel input connectors for timecode and output are XLR connectors.

When operating with no time source, the clock can be accurately set by means of three miniature pushbuttons on the front panel. One of the buttons selects the manual set mode. The other two buttons change the time display in appropriate increments. These buttons may also be used to program a local offset from timecode.

Features

- Completely self-setting with SMPTE/EBU timecode input or battery back-up
- Built-in quartz time base oscillator with battery back-up
- May be operated as a timecode reader for use with countdowns
- Digital display is user-selectable between HH:MM:SS, 12/24 hour, HH:MM:SS FF and date
- May be configured as a timecode generator to drive other clocks
- LED brightness is adjustable
- Runs on 50/60 Hz, 115/230 VAC power line
- User-programmable time offsets
- Rack mount

Model 1200DD & 1201DD Block Diagram



Specifications

Linear Time Code Input:

Standard: SMPTE 12M
Impedance: Hi-Z, balanced
Connector: 3 pin female XLR
Level: 4Vp-p, ± 8 dB

Linear Time Code Output:

Standard: SMPTE 12M
Impedance: Lo-Z, balanced
Level: 2Vp-p nominal unloaded
Connector: 3 pin male XLR

Serial Port:

Connector: Female DB-9
Level: RS-232
Baud Rate: 57.6 kBaud
Format: 8 data bits, no parity, 2 stop bits

Free Run Accuracy

Internal: Crystal, ± 50 seconds/month
Battery Backup: Crystal, ± 50 seconds/month, 0-50°C

Electrical:

Power: Auto ranging 100 to 240 VAC 50/60 Hz 15 VA
Safety: ETL Listed
 Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
 EU EMC Directive

Physical:

Dimensions

1200DD 17.25" W x 3.5" H x 2.75" D
 (438 mm W x 89 mm H x 70 mm D)
1201DD 17.25" W x 1.75" H x 2.70" D
 (438 mm W x 45 mm H x 69 mm D)

Controls:

Front: 3 pushbuttons
Rear: Serial port com.
Local Offset: Any amount, user selectable

Ordering Information:

1200DD 2RU Rack-mount Digital Display
1201DD 1RU Rack-mount Digital Display

Analog Clock Display

Model 1212 & 1216

The models 1212 and 1216 multifunction analog clock displays can act as a slave clock display or as a self contained pre-settable master clock.

Features

- SMPTE/EBU timecode input
- Three motors for quiet operation and rapid hand setting
- Addressable slave clocks with programmable time offsets
- Automatic Daylight Saving time adjustment
- Single cable distribution for both power and timecode
- Low voltage (12V) operation
- Master or Slave operation with battery backed up clock
- Sweep or Step second hand movement
- Optional Illumination
- Two sizes 12" or 16"



The introduction of Evertz analog time displays takes master and slave clock technology to new levels of convenience and excellence. The clocks are microprocessor controlled and employ separate direct drive motors for each hand. This means that, as well as being able to set the time almost instantaneously, the new displays are also silent in operation. The hands of the clocks can be programmed to move in sweep mode or in steps.

Each slave clock can be programmed for automatic daylight saving time adjustment, as well as for any time zone offset using a laptop computer. It is then only necessary to supply the clock system with Universal Coordinated Time (UTC) from the master clock. Daylight saving time changes will be automatic, as will adjustments for different time zones.

Each clock can be used as a master or slave clock. When used as a master, it generates timecode for distribution to other slave clocks. In fact, any clock in the chain can generate timecode as soon as it loses timecode input from the master. The system is therefore extremely robust and reliable.

The problems of power distribution have also been considerably simplified. With other clock products, it is necessary to install power outlets wherever clocks are to be located. With the Evertz system slave clocks are powered from a single feed that distributes both power and modulated timecode. The power is introduced at one of the 1212 slave clocks and from there it is distributed to the other downstream clocks. If the system is large, power can be introduced at multiple convenient slave clock locations.

Internal crystal oscillators ensure that the clocks will continue to operate in the absence of input timecode. Internal battery back-up ensures that each clock will continue to keep time in the absence of timecode and power. When power resumes, the hands will immediately reset to the correct time.

Evertz slave clocks are offered in two sizes. Backlighting is available for all models.

Specifications

Specifications:

Time Code:

Standard: SMPTE 12M

Connectors: Screw terminal block

Input Level: 1 V p-p nominal

Input Impedance: 40 k Ω nominal

Output Level

Powered: 2 V p-p with 11 VDC nominal offset to drive downstream slave clocks

Non-Powered: Looped through from input

Serial Control:

Standard: RS-232-C

Baud: 2400

Format: 8-bits, 1 Stop Bit, no flow control

Connector: Female 9 pin D

Function: Control commands for setting time zone offset, daylight saving time, and operational modes. Commands sent to downstream slave clocks over time code user bits.

Time Keeping:

Accuracy: 1 second per day free running on internal crystal oscillator.

Battery: 3V Lithium

Time Zone Offset: Set from DIP switches or serial command
0 to 23.5 hours in 1/2 hour increments

Switches/Controls:

Pushbutton and toggle switch for setting time manually

8 DIP switches:

- set sweep/step motion
- set default time code rate when no incoming time code
- set timecode offset or allow software control of time offset

Electrical:

Power: Auto ranging 115/230 VAC 50/60 Hz 30 VA or 12 VDC from upstream powered clocks

Safety: ETL Listed

Complies with EU safety directive

EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

Physical

Dimensions:

Model 1212 13" W x 13" H x 2.5" D
(330 mm W x 330 mm H x 64 mm D)

Model 1216 17" W x 17" H x 2.5" D
(432 mm W x 432 mm H x 64 mm D)

Weight:

Model 1212 6.5 lb. (2.9 Kg)

Model 1216 10.5 lb. (4.75 Kg)

Ordering Information:

1212 12" diameter analog clock display

1216 16" diameter analog clock display

1212L 12" diameter analog clock display with back lighting

1216L 16" diameter analog clock display with back lighting

Digital Clock Display

The model 1275A is a multifunction time of day display, that can act as a slave to a master clock system or as a self contained, presettable clock.

Model 1275A



Sixty bright rectangular LEDs are mounted in a circular arrangement simulating an analog second hand. Twelve individual round LEDs indicate the hour. In addition, the hours, minutes and seconds are displayed in digital format.

As a slave display the unit will read SMPTE/EBU time code. The user can program time zone offsets from the incoming code. The DQS-B6 code format can be ordered as a special order.

As a standalone clock, it can be programmed to operate in either 12 or 24 hour mode. Two unobtrusive front panel push buttons allow presetting and accurate synchronization to a standard time source.

An eight-position DIP switch permits user selection of four different operating and display modes and the time zone offset.

Beautifully finished with black wood trim the 1275A is ideally suited for studio, lobby, board room or office mounting.

Specifications

Functional:

- Code input:** SMPTE/EBU Time code
20k Ω balanced or unbalanced
DQS-B6 available on special order
- Accuracy:** Approximately 1 second per week on internal crystal oscillator
- Time zone:** +/- 12 hours. Offset from SMPTE/EBU code input (1 hour increments)

Electrical:

- Power:**
- 1275A-110:** 115V 60Hz 15VA
- 1275A-220:** 220V 50Hz 15VA
- Safety:** ETL Listed
- EMI/RFI:** Complies with EU safety directive
Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

- Dimensions:** 9.6" W x 9.6" H x 2.125" D
(244mm W x 244mm H x 54mm D)
1" (25mm) diameter hole in rear panel to accommodate electrical conduit
- Weight:** 4.4lb

Ordering Information:

- 1275A-110** Digital Clock Display 115V/60Hz
- 1275A-220** Digital Clock Display 220V/50Hz
- For DQS-B6** Order 1275A-xxx-DQS

SDI Miniature Optical Transmitter

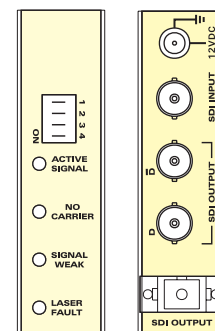
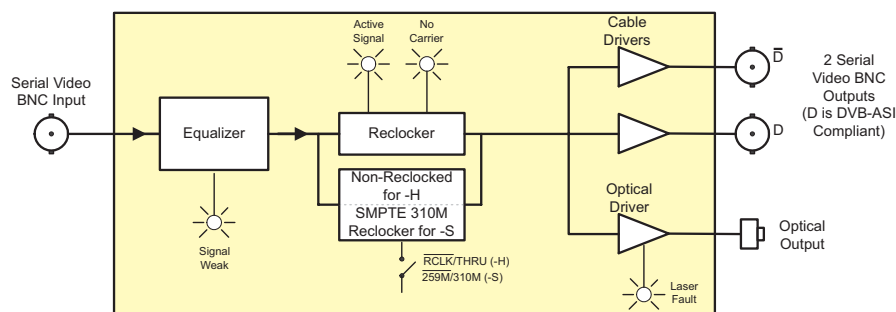
19.4Mb/s or 143-540Mb/s

Model 2405EO

Features

- Reclocking for all for SDTV video rates including SMPTE 259M (143Mb/s-360Mb/s), SMPTE 310M (19.4Mb/s), SMPTE 344M(540Mb/s), M2S and DVB-ASI (270Mb/s)
- Available in 1310nm, 1550nm and up to sixteen different CWDM wavelengths (ITU-T G.694.2 compliant)
- Automatic laser shutdown on absence of input signal for extended laser life
- Supports single-mode and multi-mode fiber optic cable
- Immunity to video Pathological signals
- Long reach transmission capability
- Rugged, small form factor enclosure
- Low Power, +12 VDC operation

2405EO Block Diagram



Specifications

Standards: SMPTE 259M (A, B, C, D), SMPTE 297M, SMPTE 310M, SMPTE 344M, M2S, & DVB-ASI

Serial Video BNC Input:

Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 300m @ 270Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15dB up to 540MHz

Serial Video BNC Output:

Number of Outputs: 2 (1 output DVB-ASI/M2S compliant)
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise, Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15dB up to 540MHz
Wideband Jitter: < 0.2 UI

Optical Output:

Number of Outputs: 1
Connector: SC/PC, ST/PC, FC/PC Female
Return Loss: > 14 dB
Rise, Fall Time: 400-700ps
Jitter: < 0.2UI
Optical Power:
1310nm FP: -7dBm \pm 1dBm
1550nm DFB: 0 dBm \pm 1dBm
CWDM DFB: 0 dBm \pm 1dBm

Physical:

Dimensions: With Flanges: 6"L x 4"W x 1"H
(152mm L x 114mm W x 25mm H)
Weight: 0.5 lbs (0.28Kg)

Electrical:

Voltage: +12V DC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

2405EO3F SDI Miniature Optical Transmitter 1310nm FP, Laser
2405EO5D SDI Miniature Optical Transmitter 1550nm DFB Laser

For CWDM, please refer to the end of the fiber section for ordering information:

2405EOxx SDI Miniature Optical Transmitter CWDM DFB Laser

All 2405 modules include power supply

Ordering Options

Fiber Connector must be specified at time of order
Eg: Model + SC

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

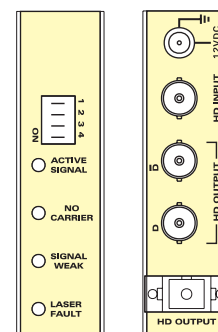
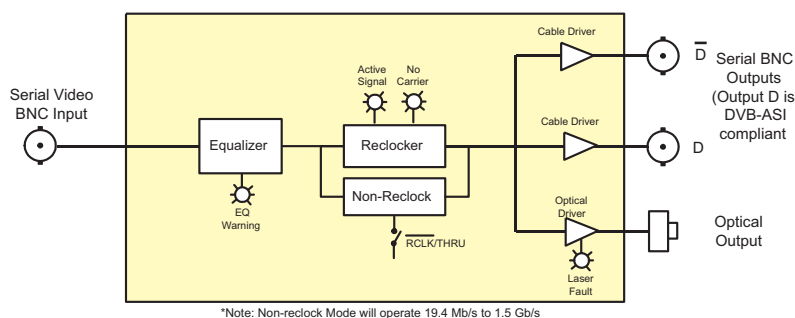
HDTV Miniature Optical Transmitter, 19.4Mb to 1.5Gb/s

Model 2405EO-HD

Features

- Operation from 19.4Mb/s to 1.5Gb/s
 - Reclocking for SMPTE 292M (1.485Gb/s)
 - Non-reclocking for all other rates from 19.4 Mb/s to 1.5Gb/s including SMPTE 259M, SMPTE 305M, SMPTE 310M, M2S, DVB-ASI
- Available in 1310nm, 1550nm and up to sixteen different CWDM wavelengths (ITU-T G.694.2 compliant)
- Automatic laser shutdown on absence of input signal for extended laser life
- Supports single-mode and multi-mode fiber optic cable
- Immunity to video Pathological signals
- Rugged, small form factor enclosure
- Low Power, +12 VDC operation

2405EO-HD Block Diagram



Specifications

Standards: SMPTE 292M, 259M, 297M, 310M, M2S, DVB-ASI, and any bi-level Telecom/Datacom signal from 19.4Mb/s to 1.5Gb/s

Serial Video BNC Input:

Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 125m @ 1.485Gb/s with Belden 1694A (or equivalent)
Return Loss: > 15dB up to 1.485GHz

Serial Video BNC Output:

Number of Outputs: 2 (1 output DVB-ASI/M2S compliant)
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise, Fall Time: 270ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15dB up to 1.485GHz
Wideband Jitter: < 0.2 UI

Optical Output:

Number of Outputs: 1
Connector: SC/PC, ST/PC, FC/PC Female Housing
Return Loss: > 14 dB
Rise, Fall Time: 200ps nominal
Jitter: < 0.2UI reclocked
Nominal Wavelength:
Standard: 1310nm, 1550nm
CWDM: 1270nm - 1610nm (See Ordering Information)

Optical Power:

1310nm FP: -7dBm \pm 1dBm
1310nm/1550nm DFB: 0 dBm \pm 1dBm
CWDM DFB: 0 dBm \pm 1dBm

Physical:

Dimensions: With Flanges: 6"L x 4"W x 1"H
(152mm L x 114mm W x 25mm H)
Weight: 0.5 lbs (0.28Kg)

Electrical:

Voltage: +12V DC
Power: 6 Watts
Safety: Complies with EU Safety Directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

2405EO3F-HD HD Miniature Optical Transmitter 1310nm, FP Laser
2405EO3D-HD HD Miniature Optical Transmitter 1310nm, DFB Laser
2405EO5D-HD HD Miniature Optical Transmitter 1550nm, DFB Laser

For CWDM, please refer to the end of the fiber section for ordering information
2405EOxx-HD HD Miniature Optical Transmitter CWDM DFB Laser

All 2405 modules include power supply

Ordering Options

Fiber Connector must be specified at time of order
Eg: Model + SC

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

SDI Miniature Optical Receiver

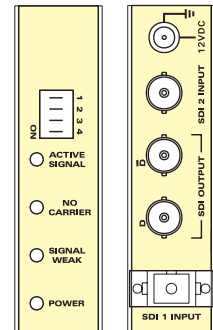
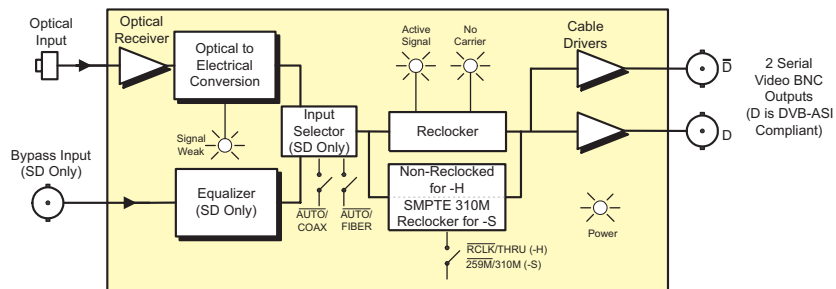
19.4Mb/s or 143-540Mb/s

Model 2405OE

Features

- Reclocking for all SDTV video rates including SMPTE 259M (143Mb/s-540Mb/s), SMPTE 310M (19.4Mb/s), SMPTE 344M(540Mb/s), M2S and DVB-ASI (270Mb/s)
- Automatic signal failure switching for optical input
- Immunity to video Pathological signals
- Supports multi-mode and single-mode fiber
- High optical input sensitivity
- Rugged, small form factor enclosure
- Low Power, +12 VDC operation

2405OE Block Diagram



Specifications

Standards: SMPTE 259M (A, B, C, D), SMPTE 297M, SMPTE 310M, SMPTE 344M, M2S, DVB-ASI

Serial Video BNC Input:

Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 300m @ 270Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15dB up to 540MHz

Optical Input:

Number of Inputs: 1
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: 0dBm
Optical Sensitivity: -32 dBm
Connector: SC/PC, ST/PC, FC/PC Female Housing

Serial Video BNC Output:

Number of Outputs: 2 (1 output DVB-ASI/M2S compliant)
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise, Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15dB up to 540MHz
Wideband Jitter: < 0.2 UI

Physical:

Dimensions: With Flanges: 6"L x 4"W x 1"H (152mm L x 114mm W x 25mm H)
Weight: 0.5 lbs (0.28Kg)

Electrical:

Voltage: +12V DC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15 Class A EU EMC Directive

Ordering Information:

2405OE SDI Miniature Optical Receiver, 19.4Mb/s or 143-540Mb/s

All 2405 modules include power supply

Ordering Options

Fiber Connector must be specified at time of order
Eg: Model + SC

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC	Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC	Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC	Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC	Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC	Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC	Single mode fiber cable, 10m, ST/PC male termination

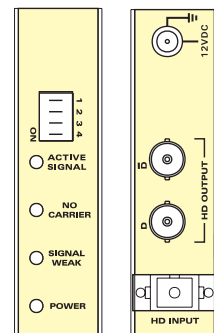
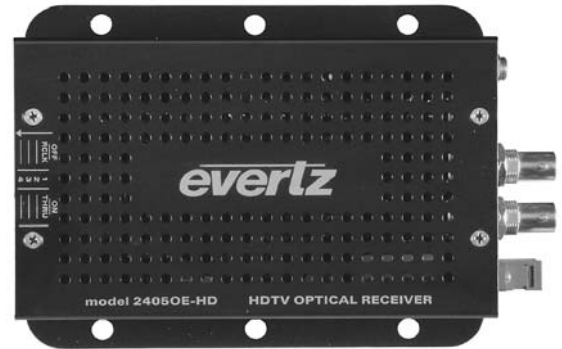
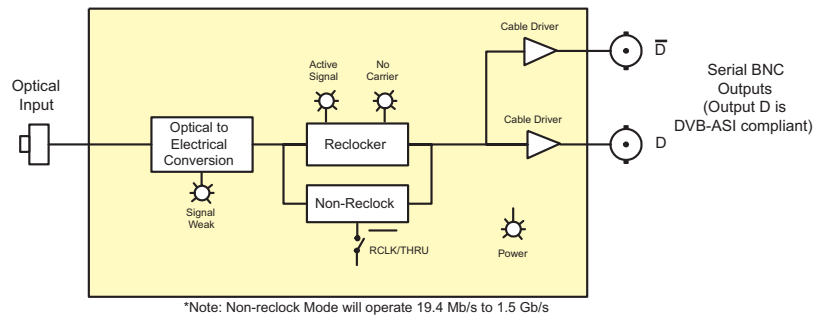
HDTV Miniature Optical Receiver, 19.4Mb/s to 1.5Gb/s

Model 2405OE-HD

Features

- Operation from 19.4Mb/s to 1.5Gb/s
 - Reclocking for SMPTE 292M (1.485Gb/s)
 - Non-reclocking for all other rates from 19.4Mb/s to 1.5Gb/s including SMPTE 259M, SMPTE 305M, SMPTE 310M, M2S, DVB-ASI
- Immunity to video Pathological signals
- Supports single-mode and multi-mode fiber optic cable
- Rugged, small form factor enclosure
- Low Power, +12 VDC operation

2405OE-HD Block Diagram



Specifications

Standards: SMPTE 292M, 259M, 297M, 310M, M2S, DVB-ASI, and any bi-level Telecom/Datacom signal from 19.4Mb/s to 1.5Gb/s

Optical Input:
Number of Inputs: 1
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: -1dBm
Optical Sensitivity: -23dBm
Connector: SC/PC, ST/PC, FC/PC Female Housing

Serial Video BNC Outputs:
Number of Outputs: 2 (1 output DVB-ASI/M2S compliant)
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise, Fall Time: 270ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15dB up to 1.485GHz
Wideband Jitter: < 0.2 UI

Physical:
Dimensions: With Flanges: 6"L x 4"W x 1"H (152mm L x 114mm W x 25mm H)
Weight: 0.5 lbs (0.28Kg)

Electrical:
Voltage: +12V DC
Power: 6 Watts
Safety: Complies with EU Safety Directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

2405OE-HD: HD Miniature Optical Receiver, 19.4Mb/s to 1.5Gb/s

All 2405 modules include power supply

Ordering Options

Fiber Connector must be specified at time of order
Eg: Model + SC

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC	Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC	Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC	Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC	Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC	Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC	Single mode fiber cable, 10m, ST/PC male termination

HD Miniature Monitoring Downconverter

Model 2410MD-HSN

The 2410MD-HSN Monitoring Downconverter provides an inexpensive method of confidence monitoring your 1.5 Gb/s HDTV signals on standard definition monitors. This High Definition Downconverter is ideal to use with your existing standard resolution monitors whether they have Composite Analog or Serial Digital inputs. The 2410MD-HSN accepts 1080i/1080psF and 720p and provides a fixed output frame rate (selectable to 50 or 60Hz) regardless of the input 720/1080 rate. Pedestal is selectable on/off when output is NTSC.

In segmented frame mode, the 2410MD-HSN down converts the 1080p/24sF input video to 525i/60 with a 3:2 pulldown or 625i/50 with a 24:25 pulldown. The 2410MD-HSN repeats fields to create the 3:2 or 24:25 pulldown of the picture content with a random pulldown cadence on the downconverted output.

Features

Indicator LED:

- Signal presence
- Module Status

Down-conversion Format:

- Letter Box
- Side Crop
- 4x3 Squeeze
- On screen markers show 4:3 aspect ratio and safe area

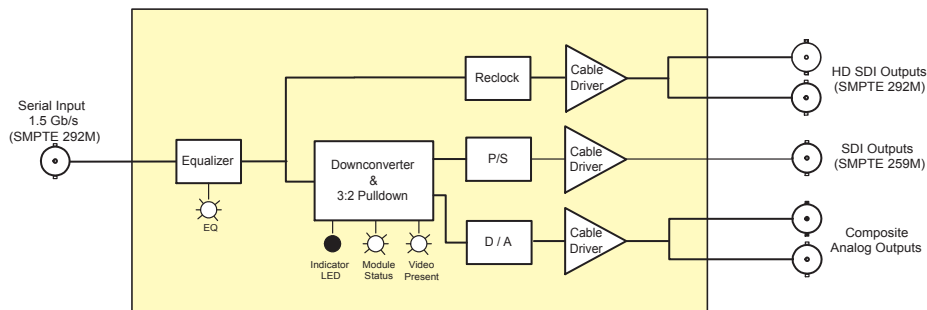
Input:

- Serial digital 1.5 Gb/s HD
- SMPTE 292M Standards: 1080i/60, 1080i/59.94, 1080i/50, 720p60 & 720p/59.94, 1080p/24sF, 1080i/23.98sF & 1080p/25sF

Output:

- 2 HD 1.5Gb/s reclocked outputs
- 2 NTSC down converted outputs
- 1 SD down converted output

2410MD-HSN Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M, 1080i/60, 1080i/59.94, 1080i/50, 1080p/24sF, 1080p/23.98sF, 1080/25sF, 720p60 & 720p/59.94,
Connector: 1 BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Equalization: Automatic 75m @ 1.5Gb/s with Belden 1694A (or equivalent)

HD Reclocked Video Output:

Standard: Same as input
Connectors: 2 BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: < 0.2 UI

SDTV Serial Digital Video Output:

Standard: Serial component 270 Mb/s (SMPTE 259M-C)
525i/59.94 or 625i/50 Dip Switch selectable
Connectors: 1 BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 740ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB
Wide Band Jitter: < 0.2 UI

Analog Video Output:

Standard: Analog composite NTSC or Analog composite PAL Dip Switch selectable
Connectors: 2 BNC per IEC 60169-8 Amendment 2
Signal Level: 1 V p-p nominal, internally adjustable
DC Offset: 0V ±0.1V
Return Loss: > 45 dB up to 6 MHz
Impedance: 75Ω

Electrical:

Voltage: +12V DC
Power: 10 Watts
Safety: Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Dimensions: 6" L x 4" W x 1" H, (152mm L x 115mm W x 25mm H)
Weight: 0.5 lbs (0.28Kg)

Ordering Information:

2410MD-HSN: HD Miniature Monitoring Downconverter with 24sF processing (with power supply)

Note: Enclosure with side mount flanges ships standard

Ordering Options:

Case Option Suffix
+NF Enclosure without mounting flanges

HD Miniature Digital to Analog Converter

Model 2430DAC-HD



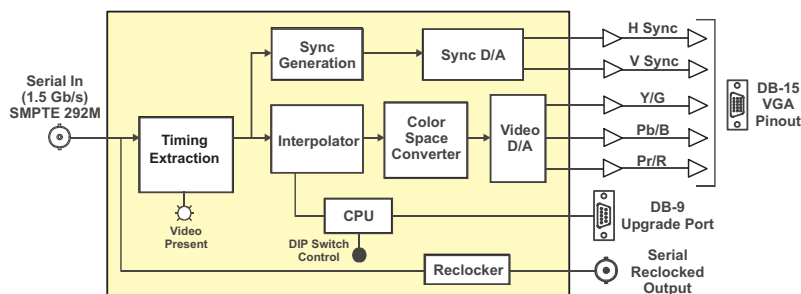
The 2430DAC-HD is a professional quality digital to analog converter for HDTV. The 2430DAC-HD supports all signal standards specified in SMPTE 240M, SMPTE 274M and SMPTE 296M.

DIP switch control allows the user to select between YPrPb, RGB or VGA style analog outputs with a variety of sync output options. User controlled 4:3 alignment markers also allow for convenient framing of the video signal. With the optionally supplied VGA to BNC breakout cable the 2430DAC-HD can easily interface to either standard broadcast monitors or VGA computer monitors.

Features

- Support for all SMPTE 240M, 274M and 296M video formats
- 4:3 alignment markers
- Full 10 Bit Broadcast quality
- 4:4:4 interpolated component output
- DIP switch selectable YPrPb, RGB or VGA outputs with bi-level or tri-level sync
- 15 pin VGA connector for use with VGA computer monitors
- Front panel LEDs indicate video presence, module faults

2430DAC-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M (1.485 Gb/s), SMPTE 240M (1035i), SMPTE 274M (1080i, 1080psF, 1080p (except 1080p/60 & 1080p/59.94) SMPTE 296M (720p)
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 125m @ 1.5Gb/s with Belden 1694A (or equivalent)

Serial Video Output Reclocked:

Standard: Same as input
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 200 ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: <0.2UI

Analog Video Outputs:

Standard: SMPTE 240M, 274M or 296M - same as input
Connector: 15 pin high density female D type
Signal Level:
Video: 1Vpp nominal YPrPb/RGB or 0.7Vpp nominal VGA
Sync: 300mV or 4V
Impedance: 75 Ω
DC Offset: 0V \pm 0.1V
Return Loss: > 45 dB up to 30 MHz

Upgrade Port:

Standard: RS-232
Connector: Female DB-9
Baud Rate: 57600
Format: 8-bits, no parity, 1 stop bits

Electrical:

Voltage: +12V DC
Power: 6 Watts
Safety: Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Dimensions: 6" L x 3.5" W x 1" H (152mm L x 89mm W x 25mm H)
With Mounting Flanges: 6" L x 4" W x 1" H (152mm L x 114mm W x 25mm H)
Weight: 0.5 lbs. (0.28 Kg)

Ordering Information:

2430DAC-HD HD Miniature D to A: YPrPb/RGB/VGA via High Density DB-15 (with power supply)

Note: Enclosure with side mount flanges ships standard

Ordering Options:

Case Option Suffix
+NF Enclosure without mounting flanges

Accessories:

WPGVABNC5 VGA to BNC - 6' Monitor Adapter Cable

Model 2430GDAC & 2430GDAC-WARP

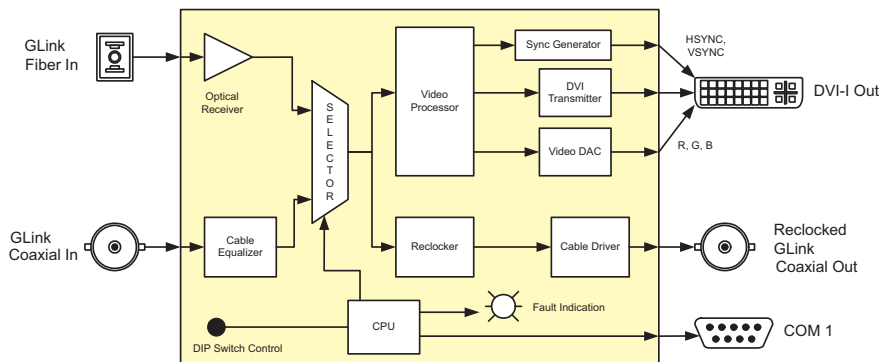
The 2430GDAC GLink D to A Converter provides a simple extension to Evertz multi-display systems by converting a GLink video signal over coaxial or fiber optic cable into a digital DVI signal and analog RGB signal that can be displayed on a computer monitor or flat panel screen, thereby eliminating the 5m distance limit of DVI signals. The converter features one GLink fiber optic input, one GLink coaxial input, one reclocked GLink coaxial output, and one DVI-I video output. The 2430GDAC has been designed for use with any Evertz module featuring a GLink output. (For example, the 3000MVP-PPMG output module from a MVP™)

The 2430GDAC-WARP features the same I/O specifications as the standard 2430GDAC but also provides the added capability of “warping” or flipping the output display from landscape mode (16:9) to portrait mode (9:16). This is ideal for space limited applications.

Features

- Display resolution capability up to UXGA (1600x1200) at 60Hz or 50Hz refresh rate
- DVI-I digital and analog RGB video output
- Autodetection of display resolution with manual override.
- One reclocked GLink coaxial output for connection to a second 2430GDAC or other GLink-compatible products
- Standard landscape display (2430GDAC) or portrait display support (2430GDAC-WARP)
- Autodetection of GLink signal loss
- Operation with single-mode or multi-mode fiber optic cable
- SC/PC, ST/PC, or FC/PC fiber connector options
- Low power +12VDC operation

2430GDAC Block Diagram



Specifications

Coaxial GLink Input:

Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic up to 10m

Fiber GLink Input:

Connector: SC/PC, ST/PC, or FC/PC female housing
Maximum Input Power: -3dBm
Wavelength: 1310 nm to 1610nm
Optical Sensitivity: -25dBm
Fiber Size: 62µm core / 125µm overall

Re-clocked Coaxial GLink Output:

Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 750mV minimum

Video Output:

Connector: DVI-I (digital + analog)
Output Resolution: Up to UXGA (1600x1200) @ 60Hz or 50Hz maximum

DVI Digital Video Output:

Voltage Swing: 400mV minimum
Output Clock Jitter: 150ps maximum
Differential Skew: 50ps maximum

RGB Analog Video Output:

Signal Level:
Video: 1Vpp nominal RGB
Sync: 4V
Impedance: 75Ω
DC Offset: 0V ±0.5V

Electrical:

Voltage: +12VDC
Power: 10 Watts
Safety: Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Dimensions: 7.2" L x 4.3" W x 1.0" H
(166mm L x 110mm W x 26mm H)
With mounting flanges: 7.2" L x 5.3" W x 1.0" H
(166mm L x 136mm W x 26mm H)
Weight: 0.85 lbs. (0.38 kg)

Ordering Information:

2430GDAC GLink to DVI converter
2430GDAC-WARP GLink to DVI converter with WARP (provides landscape to portrait display orientation conversion support)

Note: Enclosure with side mount flanges ships standard

Fiber Connector must be specified at time of order
Eg: Model +SC

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Ordering Options:

Case Option Suffix
+NF Enclosure without mounting flanges

Multivert (10 SDI to Analog Monitoring Converter)

Model 3410



The Multivert, a 10 channel composite encoder was designed for monitor wall applications where multiple SDI component video signals need to be converted to composite analog. The Multivert is the most cost effective method of monitoring on a per channel basis as it houses 10 converters as well as a redundant power supply in a 1RU frame. Each of the ten channels has two composite analog video outputs as well as a single regenerated SDI component video output.

The Multivert proves itself to be a better alternative to the use of awkward dongle based converters that use wall mounted or brick based power supplies.

The Multivert is a compact 1RU, 7.75 inches deep, rack mountable frame with both front and rear panel LED status displays for each of its ten channels. Thanks in part to its compact size, the Multivert is capable of being mounted in the rear of the monitoring wall equipment rack (Multivert was designed with capability to reverse the rack mounting brackets). Further, by having status LED's on both the rear panel as well as the front panel, it allows the cables to be installed facing the rear of the rack thus providing for both status monitoring as well as convenient cabling.

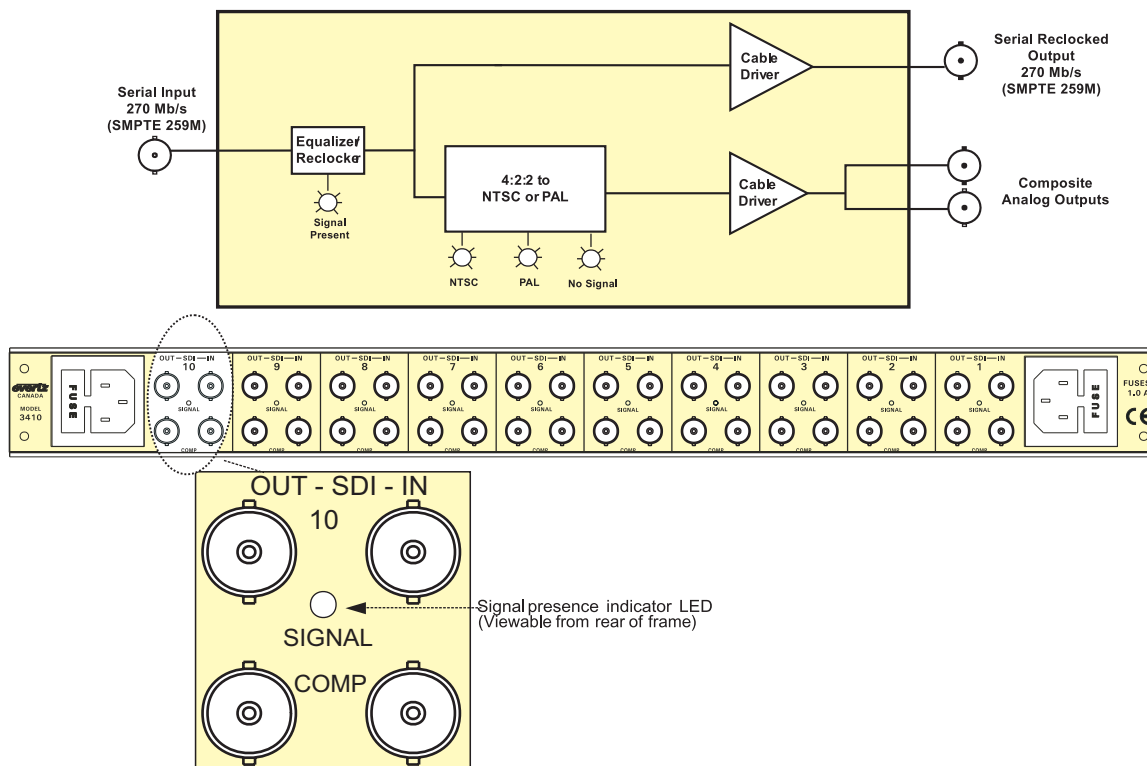
Having the Multivert mounted in the rear of the monitor racks eliminates the need for long analog cable runs from modular converters in the equipment rack room to the monitors, thus eliminating the need for analog equalizing DA's.

Features

- 10 independent converters in a 1RU enclosure
- 2 NTSC/PAL analog composite color outputs per converter
- Reclocked SDI output for each channel
- Ideal for monitoring serial component signals with inexpensive composite analog monitors
- Reversible rack ears allow for mounting in the back of a rack and with the shallow chassis measuring only 7.75"
- Can be mounted directly behind other equipment
- Dual power supply (optional)
- Each channel has front panel LED's for PAL, NTSC and signal presence
- Video presence LED for each channel, viewable from the rear of each frame

(10 SDI to Analog Monitoring Converter)

3410 Block Diagram



Specifications

Serial Digital Video Inputs:

Standard:	SMPTE 259M-C 525 line and 625 line component
Number of Inputs:	10 (1 per converter)
Input Equalization:	Automatic up to 250m with Belden 8281 (or equivalent)
Connector:	BNC per IEC 60169-8 Amendment 2
Return Loss:	> 15 dB up to 540 Mb/s
Impedance:	75Ω

Serial Digital Video Outputs:

Standard:	Serial component 270 Mb/s (SMPTE 259M-C)
Number of Outputs:	10 (1 per converter)
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	750ps nominal
Overshoot:	<10% of amplitude
Return Loss:	>15 dB
Wide Band Jitter:	<0.2UI
Impedance:	75Ω

LED's

Signal Presence:	10 Front (NTSC and PAL) 10 Rear
Power Supply:	2 Front

Composite Analog Outputs:

Number of Outputs:	20 (2 per converter)
Standard:	Analog composite NTSC if input is 525i/59.94 Analog composite PAL if input is 625i/50
Connectors:	2 BNC per IEC 60169-8 Amendment 2
Signal Level:	1 V p-p nominal, internally adjustable
DC Offset:	0V ±0.1V
Return Loss:	> 45 dB up to 6 MHz
Impedance:	75Ω

Physical:

Dimensions:	19"W x 1.75"H x 7.75"D (483mm W x 45mm H x 196mm D)
Weight:	6.7 lbs (3Kg) with two power supplies

Electrical:

Power:	Auto ranging 100-240VAC 50/60 Hz, 30 VA
Safety:	ETL listed Complies with EU safety directive
EMI/RFI:	Complies with FCC part 15 class A EU EMC Directive

Ordering Information:

3410	Multivert (10 SDI to Analog Monitoring Converter)
3400RS	Rear support kit

Ordering Options:

+2PS	Redundant power supply
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Time Code Generator/Reader with Character Inserter

Model 5010



Features

- Generates time code in accordance with SMPTE 12M locked to NTSC or PAL video or free run on internal crystal oscillator
- High resolution Character Inserter, with three Character sizes: 8,16 and 32 lines, time and user bits separately positionable on raster
- Reads LTC from 1/30th to 70x play speed
- Well proven input circuitry design permits reliable recovery of even severely distorted code
- Momentary or continuous Jam-sync modes
- Time and user bits are presettable from the front panel
- RS-232 serial port permits interfacing to computers
- EBU ↔ SMPTE drop frame time code translator mode
- Parallel control of commonly used functions
- User bit Transfer from Reader Time or User bits
- On-screen programming menu
- Date/Time Zone may be encoded into user bits according to SMPTE 309M
- Generates and reads universal co-ordinated time (UTC) or local time in time/date mode
- Automatic daylight savings time adjustment in time/date mode
- 2 General purpose outputs can be assigned to several output modes

Model 5010-VITC

The 5010-VITC is a Time Code Generator/Reader/Character Inserter for both Longitudinal and Vertical Interval Time code. As well as having all the listed 5010 features, the 5010-VITC also has the following additional features.

- Vertical Interval Time code Generator and Reader
- Separate genlock and PGM video inputs
- Set VITC Generator Line numbers from the front panel
- Translates LTC to VITC or VITC to LTC
- Reads VITC over the full shuttle range of most VTR's.
- Selectable reader line range
- Optional Bypass relay on VITC Generator

Model 5010-24Fps

The 5010-24Fps and 5010-VITC-24Fps are special purpose time code generators designed to work with the 23.98Fps time code commonly in use with the high definition 1080p/24 video format.

- Genlocks to 23.98 'slow PAL' or NTSC
- 24 FPS ↔ 30 FPS time code translator mode
- Momentary or continuous Jam-sync modes
- Locks to 6Hz reference in 24Fps mode

Time Code Generator/Reader with Character Inserter

Time Code Feature Comparison

	5010-GPSII	5010-VITC-GPSII	5950	5010	5010-VITC
LTC Generator					
Adjustable Output Level					
VITC Generator					
LTC Reader					
VITC Reader					
VITC to LTC Translator					
LTC to VITC Translator					
LTC Re-shaper					
PAL and NTSC					
Colour Framing					
Drop Frame					
Set User Bits (0-9, A-F)					
Transfer RDR. Time or UB to GEN, UB					
SMPTE ↔ EBU Time code translator					
Date/Time Zone in User Bits					
Momentary and continue. Jam-sync					
Character Generator					
On-screen programming menu					
GPS Referenced Time Code					
Serial Remote Control					
GPI Remote Control					
GP Outputs					

Specifications

LTC Generator:

Standard: SMPTE 12M
NTSC 2/4 field; PAL 4/8 field menu selectable
NTSC or 24Fps (5010-24Fps only)
Output: 3 pin male XLR type
Level: Adjustable, 0.5V to 4.5V p-p
Rise Time: 40 +/- 10 μs
Jitter: < 2 μs

LTC Reader:

Standard: SMPTE, 12M Time code
Input: 3 pin female XLR type
Level: 0.2 to 4V p-p, balanced or unbalanced
Speed: 1/30th to 70x play speed, fwd and rev, machine dependent

VITC Generator (5010-VITC):

Input: Comp. Video 1V p-p, 75Ω terminated
Outputs: 2 Comp. Video + keyed VITC
1 Output bypass relay protected when +BP option installed

Differential Gain: <0.5%

Differential Phase: <0.5°

VITC Reader (5010-VITC):

Input: Comp. video 1V p-p, Hi-Z, BNC Loop
Speed: Still frame to >40x play

Character Generator

Input: Comp. video 1V p-p, 75Ω terminated
Output: Com. video 1V p-p + keyed high resolution characters, selectable background and sizes

Serial Remote Control (5010 & 5010-VITC):

RS-232/422 interface, 9 pin "D" connector
Computer control of all functions, selectable baud rate

Physical:

Dimensions: 19"W x 1.75"H x 7.75"D
(483mm W x 45mm H x 196mm D)
Weight: 7 lbs. (3.5Kg)

Electrical:

Power: Auto ranging 100-230VAC 50/60Hz 30VA
Safety: ETL Listed
Complies with EU safety directive
Complies with FCC Part 15 Class A
EU EMC Directive

EMI/RFI:

Ordering Information:

5010	Time Code Generator/Reader
5010-24Fps	NTSC/24Fps Time Code Generator/Reader
5010-VITC	Time Code Generator/Reader with VITC
5010-VITC-24Fps	NTSC/24Fps Time Code Generator/Reader with VITC

Ordering Options:

+BP Optional bypass relay for 5010-VITC, and 5010-VITC-24Fps

Time Code Generator/Reader with Character Inserter, and GPS Antenna

Model 5010-GPSII

The Evertz 5010-GPSII Time Code Master combines the features of our standard 5010 time code generator with the ability to produce GPS referenced SMPTE/EBU time code anywhere on the face of the globe. The GPS (Global Positioning System) technology provides the 5010-GPSII Time Code Master with an accurate source of time reference. The system is ideally suited for OB or mobile operations and any professional television broadcast applications where accurate time references are a must. The 5010-GPSII system may be programmed to request a time reference from the GPS receiver automatically, daily, or on demand. The 5010-GPSII can be ordered in two configurations. Model 5010-GPSII is an LTC Generator, Reader, Character Inserter with Accutime 2000 antenna. Model 5010-VITC-GPSII comes complete with Vertical Interval Time Code capability.

Features

- Generates Time code in accordance with SMPTE 12M locked to NTSC or PAL video
- Can be operated as standard time code generator/reader or as a GPS referred time code master
- Date/Time Zone encoded into user bits according to SMPTE 309M
- Generates and reads universal co-ordinated time (UTC) or local time in time/date mode
- Automatic daylight savings time adjustment in time/date mode
- High resolution Character Inserter, with three Character sizes, 8, 16 and 32 lines, time and user bits separately positionable on raster
- Reads LTC from 1/30th to 70x play speed. Well proven input circuitry design permits reliable recovery of even severely distorted code
- Momentary or continuous Jam-sync modes
- Time and user bits are presettable from the front panel
- Parallel control of commonly used functions
- User bit Transfer from Reader Time or User bits
- On-screen programming menu
- GPS receiver, 50ft of cable (optional 100 & 400 ft. cables for longer receiver distances)
- Ideal for OB or Mobile applications
- Easy mounting and installation
- 2 General purpose outputs can be assigned to several output modes
- Tally output on loss of lock to GPS receiver
- Optional bypass relay on 5010-VITC-GPSII

Model 5010-VITC-GPSII

Features

As well as having all the listed 5010-GPSII features, the 5010-GPSII-VITC has the following additional features:

- Vertical Interval Time Code Generator, and Reader
- Separate genlock and PGM video inputs
- Set VITC Generator Line numbers from the front panel
- Translates LTC to VITC or VITC to LTC
- Reads VITC over the full shuttle range of most VTR's
- Selectable reader line range

Specifications:

LTC Generator:

Standard: SMPTE 12M
NTSC 2/4 field; PAL 4/8 field menu selectable

Output: 3 pin male XLR type

Level: Adjustable, 0.5V to 4.5V p-p

Rise Time: 40 +/- 10 μ s

Jitter: < 2 μ s

LTC Reader:

Standard: SMPTE, EBU Time code

Input: 3 pin female XLR type

Level: 0.2 to 4V p-p, balanced or unbalanced

Speed: 1/30th to 70x play speed, fwd and rev, machine dependent

GPS Receiver:

Temperature: -30°C to +70°C

Humidity: 95% R.H. Condensing at 60°C

Dimensions: 5.8" D x 3.9" H (147mm x 100mm)

Cable Options: Standard 50'
Optional 100' (order WA-T76)
Optional 400' (order WA-T11)

VITC Generator: (5010-VITC-GPSII)

Input: Composite Video 1Vp-p, 75 Ω terminated

Outputs: 2 Composite Video + keyed VITC
1 Output bypass relay protected when +BP option is installed

Differential Gain: <0.5%

Differential Phase: <0.5°

VITC Reader (5010-VITC-GPSII):

Input: Composite video 1V p-p, Hi-Z, BNC Loop

Speed: Still frame to >40x play

Character Generator

Input: Composite video 1V p-p, 75 Ω terminated

Output: Com. video 1V p-p + keyed high resolution characters, selectable background and sizes

Physical:

Dimensions: 19"W x 1.75"H x 7.75"D
(483mm W x 45mm H x 196mm D)

Weight: 7 lbs. (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60Hz 30VA

Safety: ETL listed
Complies with EU safety directive
Complies with FCC Part 15 Class A
EU EMC Directive

EMI/RFI:

Ordering Information:

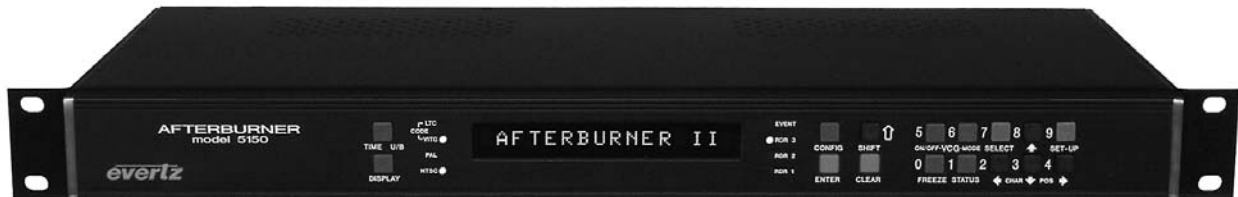
Comes with standard GPS Receiver and 50 ft. weatherproof cable

5010-GPSII	Time Code Generator with GPSII
5010-VITC-GPSII	VITC Time Code Generator with GPSII

Ordering Options:

+BP	Bypass relay for 5010-VITC-GPSII
WA-T76	100 Feet Weatherproof Cable for GPS Receiver
WA-T11	400 Feet Weatherproof Cable for GPS Receiver

Model 5150



The 5150 Afterburner is a full featured Analog VITC and LTC Time Code Reader, VITC to LTC Translator with a full function Character Inserter. The Afterburner reads SMPTE RP201 3 line VITC and displays field accurate video and audio time code as well as KeyCode and 3:2 pulldown on material transferred from film.

The unit can be configured to read LTC or VITC or can operate in an automatic switchover mode. The high speed reader in the 5150 employs sophisticated input conditioning and clock/data separator circuits to reliably recover LTC over the full shuttle spread and wind speed of most VTR's and ATR's.

Features:

- Reads LTC from 1/30th to 70x play speed
- Full speed VITC Reader with line select
- High resolution Character Inserter, with three character sizes: 8, 16 and 32 lines, time and user bits separately positionable on screen
- Dual Standard (NTSC and PAL)
- On-screen programming menu
- VITC to LTC Translator
- LTC reshaper/regenerator
- 16 digit alpha-numeric display
- Decodes 3:2 pulldown from RP201 3 line VITC
- Displays video and audio time code and keycode encoded by Evertz film footage encoders

Specifications:

LTC Reader:

Standard: SMPTE 12M
25, 30 Fps Drop & Non Drop Frame
Connector: XLR Type 3 Pin female connector
Signal Level: 0.2 to 4V p-p, balanced or unbalanced
Speed: 1/30th to 70x play speed, forward and rev, machine dependent

VITC Reader:

Input: NTSC or PAL 1V pp,
Connector: BNC per IEC 169-8
Speed: Still frame to <40x play, VTR dependant
Impedence: Hi-Z

LTC Translator:

Connector: XLR Type 3 pin male
Signal Level: Adjustable 0.5V to 4.5V p-p
Rise Time: 40 ± 10µs
Jitter: <2ns
Gen Lock: Reader input video 1 V p-p, Hi-Z, BNC loop

Character Generator:

Input: NTSC or PAL 1V p-p + keyed high resolution characters, selectable background and sizes
Connector: BNC per IEC 169-8

Parallel Remote Control:

Input: 6 TTL compatible inputs for control of selected functions
Output: 2 open collector general purpose outputs

Physical:

Dimensions: 19" W x 1.75" H x 7.75" D
(483mm W x 454mm H x 196mm D)
Weight: 7 lbs (3.5kg)

Electrical:

Voltage: 115/230 VAC, 50/60Hz, 30VA
Safety: ETL Listed
Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

5150 Analog Afterburner II LTC/VITC Reader/VCG

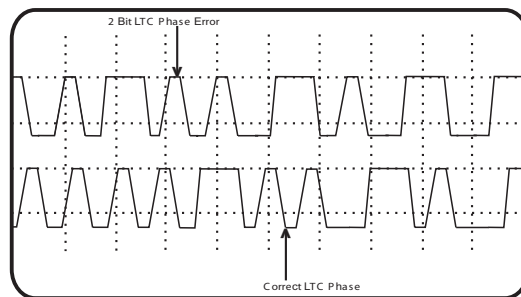
Model 5300

The Model 5300 LTC/VITC Time Code Analyzer combines the latest LSI technology with sophisticated microcontroller firmware to provide a powerful, flexible time code analyzer system. The model 5300, a LTC/VITC reader / analyzer and multi-function character inserter is an invaluable verification and troubleshooting tool for the Video, Audio and Film Post Production industries. Its power and flexibility are unsurpassed in time code analyzer applications. A 16 digit alphanumeric display can be quickly delegated to show the required data. The Time Code Analyzer contains an LTC and VITC reader that can be operated independent of each other, or can be linked to form an auto LTC/VITC reader.

Features

- Detects time code counting sequence errors
- Detects color framing sequence errors with respect to a reference video input. Detects changes in the status of the color frame input (changing phase, or color/non color changes etc.)
- Detects Time code dropouts and has a user definable dropout length
- Compares LTC and VITC numbers and reports differences between them
- Displays on screen reports of Time code problems
- Audible alarm plus a contact closure to drive an external alarm
- User definable thresholds for most alarm conditions
- Error messages available on RS-232 port for computer logging and time code verification
- On screen programming and front panel menus
- Dual standard PAL and NTSC
- Detects LTC phase problems with respect to video sync
- High resolution character inserter with three character sizes: 8, 16 and 32 lines, time and user bits separately positionable on screen
- VITC to LTC translator
- Regenerates incoming LTC to correct LTC phase problems

5300 Time Code Phase



Specifications:

LTC Reader:

Standard: SMPTE 12M
25, 30Fps Drop & Non Drop Frame
Connector: XLR Type 3 pin female connector
Signal Level: 0.2 to 4V p-p, balanced or unbalanced
Speed: 1/30th to 70x play speed, forward and rev, machine dependent

VITC Reader:

Input: NTSC or PAL 1V pp,
Connector: BNC per IEC 60169-8 Amendment 2
Speed: Still frame to <40x play, VTR dependant
Connector: BNC per IEC 60169-8 Amendment 2

Character Generator:

Input: Char. Input from VITC Reader input
Output: NTSC or PAL 1Vp-p + keyed high resolution characters, selectable background and sizes
Connector: BNC per IEC 60169-8 Amendment 2

LTC Translator:

Connector: XLR Type 3 pin male
Level: Adjustable 0.5V to 4.5V p-p
Rise Time: 40 ± 10µs
Jitter: <2 µs

Gen Lock: Reader input video 1 V p-p, Hi-Z, BNC loop

Parallel Remote Control:

Input: 6 TTL compatible inputs for control of selected functions
Output: 2 open collector general purpose outputs

Physical:

Dimensions: 19" W x 1.75" H x 7.75" D
(483mm W x 45mm H x 196mm D)
Weight: 7 lbs (3.5kg)

Electrical:

Voltage: 115/230 VAC, 50/60Hz, 30VA
Safety: ETL Listed
Complies with EU safety directive
Complies with FCC Part 15 Class A
EU EMC Directive

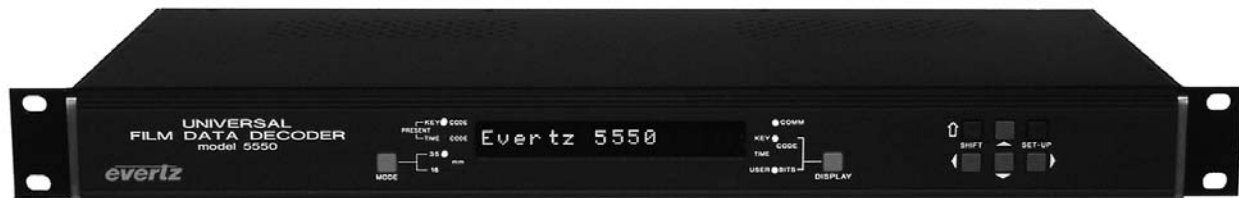
EMI/RFI:

Ordering Information:

5300 Time Code Analyzer

Universal Data Reader & Decoder

Model 5550 Decoder & UV-3 Universal Film Data Reader



The Evertz Universal Film Reader/Decoder system provides multi-format reader head and decoder unit that will handle all the major film formats and all the various codes presently in use. All in one easy to install head and a separate 1RU decoder unit. This new break through technology vastly simplifies the telecine bay operation by having a complete solution in one system while providing scalable purchase options.

Evertz KeyCode reader heads can be mounted on a telecine or other film transport, to recover KeyCode and Film Time code numbers from 16, super 16, 35 or 65mm film. Operationally the design is absolute simplicity. When switching between 16 or 35mm film, there are no levers, adjustments or realignments involved on most telecines. With the Evertz combination KeyCode reader system, varying film densities, negative and positive material are handled with ease. The Evertz universal decoder unit (model 5550) features a simple to use automatic light and sensor control.

Features:

- Can be mounted on a variety of film transports including Cintel, Thomson/GVG and Sony Telecines and Flat beds etc. The universal mounting bracket offers easy to use rotational positioning for hassle free installation
- The KeyCode/Film Time code heads can be ordered in different configurations depending on your application
- The head "floats" laterally on precision guides to assure perfect KeyCode tracking at play and shuttle speeds. The Floating design also handles film weave due to oversized rollers (common on many Telecines)
- We now offer a completely Touchless option, the film does not come in contact with the Reader Head assembly ever
- The new optical design improves the depth of field, gaining sharpness over the entire film gap
- Highly polished hard anodized surfaces and smooth round edges help protect your valuable film
- The rollers are made from finely machined highly polished stainless steel
- Simple to use diagnostics for monitoring performance and trouble shooting marginal quality code
- Ideal for non-real-time data mode transfers with Thomson/GVG Spirit, Cintel C-Reality and Millennium
- Decoder can be located up to 50ft. from the film data reader
- Incorporates FLASH technology for easy software upgrading in the field, ensuring support of new film stocks as quickly as possible
- Ability to read KeyCode and Film Time code at speeds other than play speed in forward and reverse
- Front panel display of KeyCode or Film Time code.
- Automatic sensor intensity control is especially useful when tracking various film densities on a single roll
- Separate intensity controls for KeyCode and Film Time code
- 16 digit alpha-numeric front panel display
- 19" rackmountable hardware

KeyCode Reader Heads

The Evertz Universal Film Data reader system can be used with any of the Evertz Film Footage Encoders to encode KeyCode & Film time code into VITC or VANC data. It can be ordered separately or as a part of a Film Footage Encoder system.

The Evertz Film Reader system can be purchased in a variety of configurations. Because these reader heads cannot be retrofitted in the field, it is important to specify the exact model number at the time of order. See the ordering information chart for a list of model numbers and corresponding options.

Our new Touchless Reader Head recovers KeyCode and Film Time code without coming into contact with the film stock. Please specify the Touchless version when ordering.



Please specify manufacturer and model number of Telecine when ordering.

	16mm	35mm	65mm	KeyCode	ARRI I and ARRI II	AATON	Touchless
KR-65			☒	☒			
KR-16/35	☒	☒		☒			
UV-3	☒	☒		☒	☒	☒	
UVT-3	☒	☒		☒	☒	☒	☒
UVS-3*	☒	☒		☒	☒	☒	☒

*Special Version for Sony Telecine

Specifications

(UV series) Multi-Function Reader Head :

Connector: 15 pin High Density female "D"
Max. Cable Length: 50 feet
Codes Read: KeyCode, Aaton, Aaton Code II, Arri

KeyCode Reader Head Interface (KR series heads):

Connector: 8 pin miniature female DIN
Max. Cable Length: 50 feet
Codes Read: KeyCode

LTC Output:

Standard: SMPTE 12M compliant
Frame Rate: 24, 25 and 30 Fps nominal from film time code
Connector: 3 pin male XLR type connector.
Level: Adjustable, 0.5V to 4.5V p-p

Parallel I/O:

Connector: 9 pin female D
Biphase Tach: 1, 2, 5 or 10 pulses per frame TTL level biphase quadrature
GPI: Film Type (negative/ print)
Film Gauge (16/35 mm)

Serial Ports:

Number of Ports: 2
Standard: RS-232
Baud Rate: 9600 or 38400 independently settable
Format: 7 bits, even parity
Connectors: 9 pin female D

Physical:

Dimensions: 19"W x 1.75"H x 7.75"D
(483mm W x 45mm H x 196mm D)
Weight: 6.7 lbs (3 Kg)

Electrical:

Power: 115/230 V AC 50/60 Hz, 30 VA.
Safety: ETL Listed
Complies with EU safety directive
Complies with FCC Part 15 Class A,
EU EMC Directive

EMI/RFI:

Ordering Information:

Decoder can be ordered separately or as a system which includes the Decoder, Head, Bracket & Cable. Systems may also be ordered with Film Footage Encoders (See Film Footage Encoder data sheets for information)

5550	Universal Decoder
5550/KR-16/35	5550 Decoder with KR16/35 Head & 10ft.cable
5550/UV-3	5550 Decoder with UV-3 Head & 20 ft. cable
5550/UVT-3	5550 Decoder with UVT-3 (Touchless) Head & 20 ft. cable
5550/UVS-3	5550 Decoder with UVS-3 Head & 20 ft. cable for Sony Vialta

Reader Heads may be ordered separately. (Does not include mounting bracket or cable) (See model selection chart above)

Accessories:

EV-BRKT	Universal Reader Mounting Bracket
FDL-SHIMS	Shim kit for BTS, FDL 60/90, Quadra
CINTEL-SHIM	Shim kit for Cintel C-Reality 16/35 heads
WA-S19	C-Reality Cable Harness
WA-F49	50ft extender cable for KR series heads
WA-P57	50ft extender cable for UV series heads
KKFILM16MM	16mm Kodak Keycode Verification Film
KKFILM35MM	35mm Kodak Keycode Verification Film

Automatic Changeover

Model 5600ACO/ACO2



5600ACO



5600ACO2

The 5600ACO/ACO2 Automatic Changeovers are intended for use with two 5600MSC Master Clock / Sync Generators. The 5600ACO/ACO2 system uses latching relays to ensure maximum reliability and minimal disruption in the event of any failure. The complete system provides the highest level of security for television station video and time synchronization systems. The 5600ACO is a 1RU device which is an ACO for a subset of the 5600MSC outputs. The 5600ACO2 is a 2RU ACO for all outputs of the 5600MSC. Two power supplies are included as a standard feature, to alleviate any single point of failure concerns.

The front panel has three switches, recessed into the panel for added security. There is an AUTO / MANUAL switch, a GPI / FRONT PANEL switch and an A / B select switch for manual changeover. In automatic mode, all signals from both 5600MSCs are monitored to detect any abnormal signals. For example if a level, pulse width, phase, time code error or other abnormality is detected, the 5600ACO's circuitry will trigger and the entire bank of signals will be switched to the backup 5600MSC. In manual mode the changeover can be operated from a GPI or from the front panel switch. LEDs provide status information as to the health of the two 5600MSCs, together with indication as to which one is active. In addition two GPO outputs indicate which master is active and when the inputs from both masters are not the same.

Each 5600MSC is equipped with 2 GPI inputs and 2 GPO outputs. To facilitate installation, these connections are brought through to a 2 x 6 pin terminal block on the 5600ACO. The outputs from the 5600MSCs are passed straight through the 5600ACO's. The inputs to the 5600MSCs are internally split by a 'Y' connector, to ensure that both 5600MSCs receive the same GPI contact closures.

In the event of a changeover occurrence, it is necessary that all outputs on one 5600MSC have the same timing as those on the other. Identical timing for both 5600MSCs is assured by locking both to the same frequency and phase source (e.g. GPS or by genlocking one 5600MSC to the other). Identical phasing of the independent black outputs is assured by implementing the "Syncro" mode in the 5600MSCs. To use this mode, both 5600MSC communication ports are connected together using the link cable supplied with the 5600ACO. With both 5600MSCs operating in Syncro mode, timing adjustments made to one 5600MSC will be automatically applied to both. The link cable is connected permanently, so that any system re-timing will be applied to both 5600MSC units. (See system connection diagram on 5600MSC brochure)

Features

- Three front panel switches select automatic, front panel or GPI activation of changeover
- Front panel switches are recessed to prevent accidental operation
- Front panel status LEDs show the health of each of the inputs
- Front panel status LEDs show the operational modes of the changeover
- Redundant power supply standard
- GPIO input/outputs
- Automatic changeover is a voting system based on which source has the most good signals and that the good signals on the present master are also on the backup

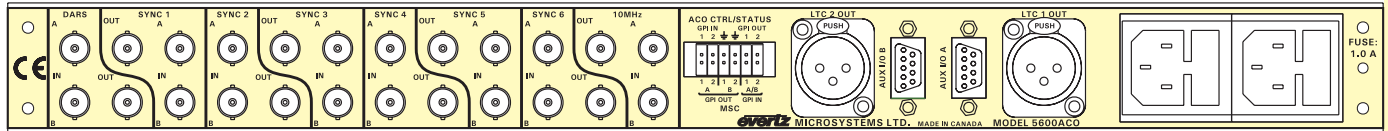
5600ACO Protected Outputs

- 6 video/sync or other coaxial signals
- 10MHz frequency reference output
- DARS output.
- 2 Linear timecode outputs

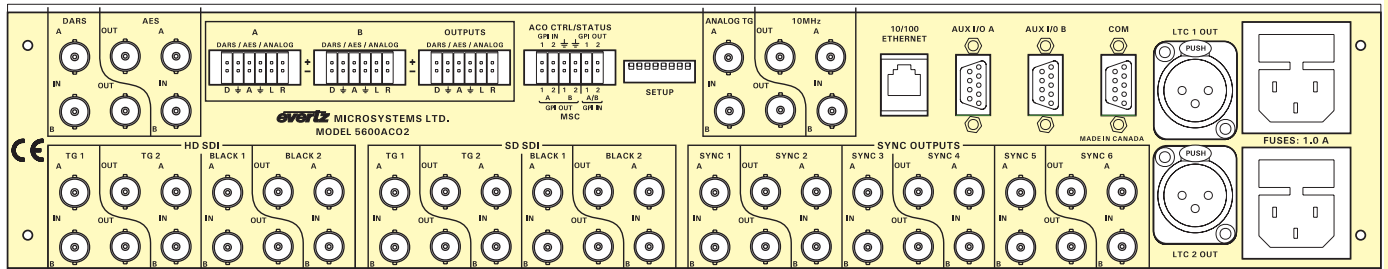
5600ACO2 Protected Outputs

- 6 video/sync outputs
- 10MHz frequency reference output
- Balanced and unbalanced DARS and AES outputs
- 2 Linear timecode outputs
- 4 HD SD SDI test signal outputs
- 4 SD SDI test signal outputs
- 1 Analog video test signal output
- Balanced analog audio output

5600ACO Rear Panel



5600ACO2 Rear Panel



Specifications:

LTC Inputs and Outputs:

Standard SMPTE 12M frame rate set by 5600MSC
Inputs: 2 per 5600MSC
Outputs: 2
Connectors
Inputs: Female DB9
Outputs: 3 pin male XLR type
Signal Level: Set in 5600MSC

Coaxial Inputs and Outputs:

Type: Depends on signal connected from 5600MSC
 DARS, bi-level or tri-level sync, color black, 10 MHz
Number: 8 groups each consisting of two inputs and one output
Connector: BNC per IEC 60169-8 Amendment 2

ACO General Purpose Inputs and Output:

Inputs:
GPI1: Master select in Manual GPI control mode
 Low: Selects Master A
 High: Selects Master B
GPI2: Future use
Outputs:
GPO1: Low: Master A is selected
 High: Master B is selected
GPO2: Low: Master A & Master B differ or PSU failure
 High: Master A and B have equivalent signals

Type

Inputs: Opto-isolated input with internal pull-up to +5 Volts
Outputs: Normally closed relay to ground. 10k Ω internal pull-up to +5Volts when relay is in active position
Connector: 4 pins plus 2 ground pins on 12 pin removable terminal block
Signal Level: +5V nominal

MSC General Purpose Inputs and Output:

Inputs: 2 GPI inputs connected to both Master A and Master B
Outputs: 2 GPI outputs connected from Master A through AUX I/O A
 2 GPI outputs connected from Master B through AUX I/O B
Connector: 6 pins on 12 pin removable terminal block
Signal Level: As specified in 5600MSC manual

Changeover conditions:

Changeover is a voting system based on which source has the most good signals and that the good signals on the current master are also present on the backup master.

The input signals are considered good according to the following criteria:

Video: Level below 70 IRE
Sync: H timing detect
10MHz: 3dB level below 0.3Vp-p
DARS: Sync word error
LTC: Level below 0.3Vp-p
 Incorrect sync word

Electrical:

Power: Auto ranging 100 - 240 Volts AC, 50/60 Hz, 30 VA
Configuration: Dual redundant supplies
Fuse Rating: 250 V, 1 amp, time delay
Safety: ETL Listed
 Complies with EU safety directives
EMI/RFI: Complies with FCC Part 15 Class A
 Complies with EU EMC Directive

Physical:

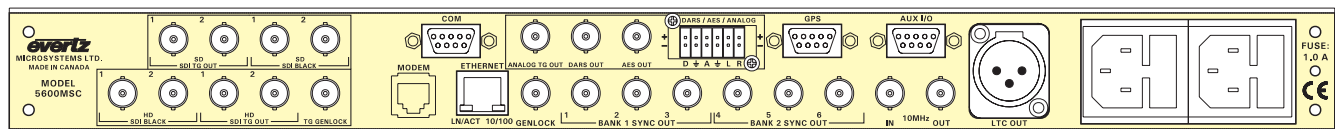
5600ACO:
Dimensions: 19" W x 1.75" H x 18.75" D.
 (483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)
5600ACO2:
Dimensions: 19" W x 3.5" H x 18.75" D.
 (483mm W x 90mm H x 477mm D)
Weight: 16 lbs. (3.5Kg)

Ordering Information:

5600ACO 1RU Automatic Changeover System complete with 2 power supplies, 2 power cords and 3 DB9 cables (BNC cables not included)
5600ACO2 2RU Automatic Changeover System complete with 2 power supplies, 2 power cords and 3 DB9 cables (BNC cables not included)

Master SPG / Master Clock System

Model 5600MSC



5600MSC Rear Panel

The 5600MSC Master Sync and Clock Generator, is both a broadcast quality master sync pulse generator (SPG) and a master clock. It provides all of the synchronizing signals needed in a 21st century TV station at the same time as solving the problem of locking the in-house master clock system to the master video sync pulse generator.

A high stability, temperature controlled oscillator, provides the 5600MSC with better than 0.5×10^{-8} (or 0.005ppm) frequency reference. The free running drift of this 10MHz reference will be less than 0.1Hz (which amounts to less than 1 millisecond time drift per day). This guarantees that any frequency drift, with time and temperature, will be within the tolerances expected from the best SPGs or master clocks available in the industry. The 5600MSC may also be referenced to an external 5 MHz or 10 MHz master oscillator if higher stability is required. Both the SPG and the Master Clock sections, may be referenced to high stability time and frequency standards present in the Global Position System (GPS) by adding the GPS option. The 5600MSC provides a high stability 10MHz output reference for use by other devices.

The SPG section provides two banks of three timeable outputs. These six BNC outputs may be configured to provide 6 independently timed color black (black burst) outputs or 6 independently timed HDTV tri-level sync outputs, or 3 of each signal type. Each color black output can optionally carry vertical interval time code (VITC) on a user specified set of lines.

When referenced to the optional GPS receiver, the start of the NTSC four field sequence, or the PAL eight field sequence, will coincide with a specific point in the GPS code. In this way, by referencing all the 5600MSCs in a system to GPS, they will all be automatically locked to each other. This is ideal for applications requiring remote facility frequency, phase and time locked! GPS heads may be remoted from the unit with standard 50 ft. cables included or optional 100 ft. & 400 ft. weatherproof cables.. For remote GPS head requirements of greater than 400 ft. or fiber optic isolation, GPS Data Fiber Transmitters & Receivers are also available (7707GPS-DT, 7707GPS-DR).

The unit also has absolute time reference support (ATR). ATR is a set of data currently being proposed by SMPTE and will be inserted onto the SMPTE 318M universal reference signal. This information gives the absolute time of the signal in seconds, and fractions of a second since the SMPTE Epoch (midnight, January 1, 1958 UTC). ATR tells when the signal was created, regardless of current time when the signal is received and provides an additional means of locking two 5600MSCs together. (This feature will be implemented when the signal is standardized by SMPTE.)

The master clock section provides a primary linear time code (LTC) output on an XLR connector and a 9 pin D connector, as well as a secondary LTC output available only on the 9 pin D connector. The time code may be set from the front panel or referenced to a number of different sources. Having two LTC outputs provides the ability to drive 24 and 30 Fps, or drop-frame and non-drop frame timecode simultaneously. Time may be externally referenced to GPS, or via modem to a high-level time source. Time derived from such sources can be offset from UTC to a specific time zone as required. When referenced to GPS or by modem, the 5600MSC can provide RFC-1305 compliant NTP via Ethernet, and operates in broadcast and server mode. GPS, NTP and Modem access are all options for the 5600MSC. The 5600MSC includes a battery backed-up real time clock to maintain its time while power is not applied to the unit.

There are two test signal generator options available. The STG option provides a composite analog video test signal output, AES and balanced analog audio tone generators and a digital audio reference output (DARS). The STG option also provides two standard definition SDI test signal outputs and two SDI black outputs. The HTG option provides two high definition SDI test signal outputs and two HD SDI black outputs.

All versions of the 5600MSC offer an AUX I/O port and a COM port for software upgrades and/or interconnecting two 5600MSC units (when used with the 5600ACO). An optional redundant power supply is also available.

Two 5600MSC units in combination with an Automatic Change Over (model 5600ACO) provide an extra degree of reliability where dual redundant installations are required. The ACO provides relay changeover for the two LTC outputs, the six Sync pulse outputs, the 10 MHz reference output, and the GPI/O interface. A serial cable interconnecting the COM ports of the two 5600MSC units guarantees that the configuration and timing of the units are identical so that changeovers are done with minimal disruption of the plant timing reference.

Master SPG / Master Clock System

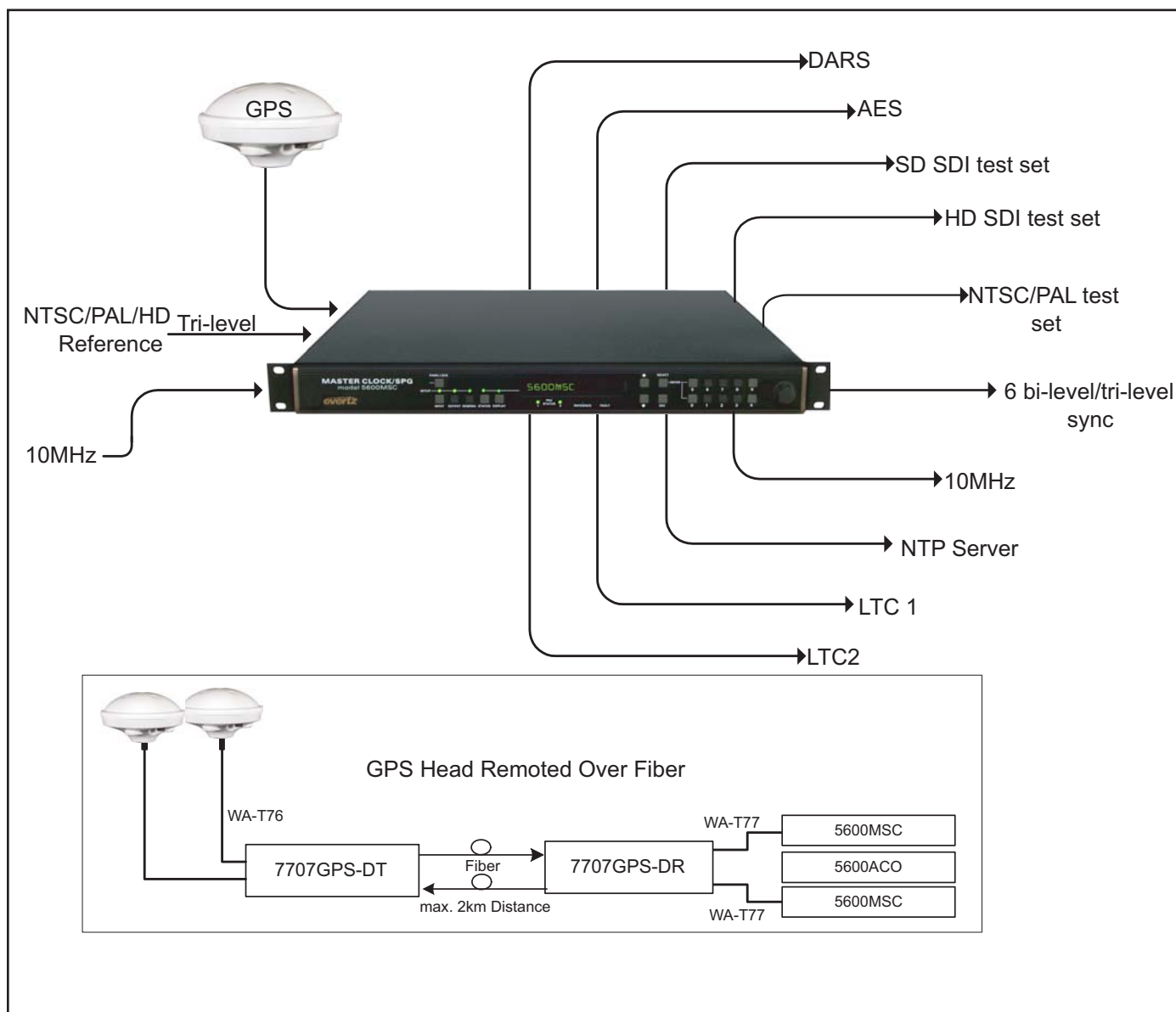
Features:

- 6 independently timeable reference outputs
- Bi-level or Tri-level outputs selectable (can provide 3 tri-level HD sync. outputs and 3 black burst outputs simultaneously)
- 2 Independent LTC Time Code outputs
- 5MHz/10MHz frequency reference input
- GPS option for frequency and time reference
- 10MHz frequency reference output
- Output frequency stability guaranteed better than 0.5×10^{-8} (or 0.005ppm)
- Optional Modem for time reference dial up
- 2 GPS based units will be in time and phase even when remotely separated by miles
- Optional analog TG output, with DARS and analog audio tone outputs
- Optional SD SDI test generator outputs
- Optional HD SDI test generator outputs
- Optional Network Time Protocol Server (NTP) server support (GPS option should be ordered with NTP option)
- 16 digit Alpha-numeric display, with 16 pushbuttons
- Rack mountable
- Optional redundant power supply
- Automatic changeover unit available for dual redundant systems applications
- Compatible with Dual GPS Data Fiber Receivers & Transmitters

Application Note:

- Audio word clock may be generated from DARS with 520DARS-W module (Refer to 520DARS-W brochure)

Redundant Master Clock/SPG System with Auto Changeover



Master SPG / Master Clock System

Specifications:

Analog Sync Outputs:

Standards: SMPTE 170M (NTSC-M), ITU-R BT.470-6 (PAL-B) SMPTE 274M (1080i/60, 1080i/50, 1080p/30, 1080p/30sF, 1080p/25, 1080p/25sF, 1080p/24 and the 1/1.001 divisor versions where applicable)
SMPTE 296M (720/60, 720p/59.94) 1 Hz and 6 Hz pulse (and the 1/1.001 divisor versions)

Connector: 6 BNC per IEC 60169-8 Amendment 2

Number of Outputs: 6 (2 banks of 3) configured as:
6 color black (black & burst) - selectable with VITC On/Off or
6 HD tri-level sync or
3 color black (black & burst) and 3 HD tri-level sync
All outputs independently timeable

Output	Possible Sync Output Combinations				Example
1	Any combination of PAL and/or NTSC Colour Black 6Hz 1Hz	Group A Any combination of 24/50/60Hz based Tri-Level Syncs	Group B Any combination of 23.98/59.94Hz based Tri-Level Syncs	3 of any signals from groups A or B or C	NTSC
2					NTSC
3					PAL
4				3 of any signals from groups A or B or C	1080i/59.94
5					720p/59.94
6					1080p/23.98

DC Offset: 0V +/- 0.1V
Return Loss: > 40 dB up to 5MHz
SNR: > 75dB

10MHz Input and Output:

Input: 0.5 Vp-p min level, 75Ω (Relay Bypass Protected)

Output: 1Vpp (75Ω terminated)

Connector: BNC per IEC 60169-8 Amendment 2

Signal Type: Sine wave. Harmonics < 40dB typical

Long Term Oscillator Stability

Free Running: 0.01ppm

External Ref: 5 or 10 MHz external reference autodetect (max locking range +/- 0.1ppm)
GPS with +G option

LTC Outputs:

Standard: SMPTE 12M

Frame Rate: Nominal 24, 25, and 30 (drop frame and non drop frame)

Number of outputs: 2

Connectors: 3 pin male XLR type, Female DB9

Level:

Unpowered: Adjustable, 0.5V to 4.5V p-p

Powered: 2V p-p with 11 VDC offset to drive downstream 1200 series slave clocks

Output Impedance: 66Ω balanced (unpowered)

Rise Time: 40 +/- 10 μs

Jitter: < 2 μs

Communications and Control:

Serial Port:

Connector: Female DB-9

Level: RS232

Baud Rate: 57.6 Kbaud

Format: 8 data bits, no parity, 2 stop bits

Modem: (with "+M" option installed):

Connector: RJ-11 telephone jack

Baud Rate: 300 baud Bell 103 compatible

Ethernet: (NTP port with "+T" option installed):

Network Type: Fast Ethernet 100 Base-TX IEEE 802.3u standard for 100 Mbps baseband CSMA/CD local area network
Ethernet 10 Base-T IEEE 802.3 standard for 10 Mbps baseband CSMA/CD local area network

Connector: RJ-45

NTP Standard: RFC-1305 compliant, broadcast and server mode support.
Must be referenced to GPS or have been synchronized via modem within the last 10 days (as per RFC-1305)

GPS Receiver (with "+GP" option installed)

Temperature: -40°C to +70°C

Humidity: 95% R.H. Condensing at 60°C

Dimensions: 5.8" D x 3.9" H (147mm x 100mm)

Cable Options: Standard 50'
Optional 100' (order WA-T76)
Optional 100' (order WA-T77 (for 7707GPS-DR to 5600MSC only)
Optional 400' (order WA-T11)

DARS & AES Test Generator Outputs (with "+STG" option installed)

Standard:

Unbalanced: SMPTE 276M single ended AES (24-bits) (1Vp-p into 75Ω)

Balanced: AES3-1992 (24-bits) (4Vp-p unterminated)

Number of Outputs:

DARS: 1 unbalanced, 1 balanced

AES Test Gen: 1 unbalanced, 1 balanced

Connector:

Unbalanced: BNC per IEC 60169-8 Amendment 2

Balanced: Removable Terminal Strip

Sampling Rate: 48 kHz

Impedance:

Unbalanced: 75Ω unbalanced

Balanced: 110Ω balanced

Return Loss: >25dB to 10MHz (with external 75Ω termination)

AES Tones: Menu selectable

Analog Composite Video Test Signal Generator (with "+STG" option installed)

Standard: SMPTE 170M (NTSC-M)
ITU-R BT470-6 (PAL-B)

Number of Outputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1V p-p nominal

DC Offset: 0V ± 0.1V

Output Impedance: 75Ω

Return Loss: >35dB to 10MHz (with external 75Ω termination)

SNR: > 75dB

Genlock Input:

Type: Autodetects standard SMPTE 170M (NTSC-M), ITU-R BT.470-6 (PAL-B), Color Black 1 V p-p
Composite Bi-level sync (525i/59.94 or 625i/50) 300 mV
HD Tri-level Sync (same HD standards as sync outputs)

Master SPG / Master Clock System

Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Video: Max: 2Vp-p video
Min: Sync level 150mV
Frequency Lock Range: ± 50 ppm from nominal
Input Impedance: High impedance, isolated, differential - external termination required
Return Loss: > 25dB to 10MHz (with external 75 Ω termination)

Analog Audio Tone Generator (with "+STG" option installed)

Number of Outputs: 2
Type: Balanced analog audio
Connector: 6 pins on 12 pin removable terminal strips
Output Impedance: 66 Ω
Signal Level: -20 to +2 dBu into 10 k Ω load

HDTV Test Generator Outputs (with "+HTG" option installed)

Standards: SMPTE 292M 4:2:2, YCbCr
SMPTE 372M dual link 4:4:4 GBRA
Same standards as HD sync outputs
Number of Outputs:
4:2:2 2 outputs of selected test signal
2 outputs of black video
4:4:4 2 dual link outputs of selected test signal
Embedded Audio: Up to 2 audio groups as specified in SMPTE 299M. Selectable tone frequencies (from 60 Hz to 10 kHz) and audio group.
Audio can be embedded on test signal or black or both outputs. Audio Level is set to -20 dB Full Scale
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V +/-0.5V
Rise and Fall Time: 200ps nominal
Overshoot: < 10% of amplitude
Jitter: < 0.2 UI
Genlock Input: HD Tri-level Sync or NTSC or PAL Color
Black 1V p-p, (provided from one of the Sync outputs)

SDI Test Generator Outputs (with "+STG" option installed)

Standard: SMPTE 259M-C (270 Mb/s)
Number of Outputs: 2 outputs of selected test signal
2 outputs of black video
Embedded Audio: Up to 4 groups as specified in SMPTE 292M.
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V +/-0.5V
Rise and Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15 dB up to 270Mb/s
Jitter: < 0.2 UI
Genlock: Provided internally by 5600MSC

General Purpose Inputs and Output

Number of Inputs: 2
Number of Outputs: 2 (function menu selectable)
Type: Opto-isolated, active low with internal pull-ups to + 5 volts
Connector: 4 pins plus 2 ground pins on 9 pin female D connector
Signal Level: +5V nominal

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Voltage: Auto ranging 100 - 240 Volts AC, 50/60 Hz 30VA
Configuration: Optional redundant supply available with +2PS option
Fuse Rating: 250 V, 1 amp, time delay
Safety: ETL Listed
Complies with EU safety directives
EMI/RFI: Complies with FCC Part 15 Class A
Complies with EU EMC Directive

Ordering Information:

5600MSC	Master SPG / Master Clock System
5600ACO	1RU Automatic Change Over System (see individual brochure)
5600ACO2	2RU Automatic Change Over System (see individual brochure)

Ordering Options (5600MSC):

+2PS	Redundant power supply
+M	Modem Option
+GP	GPS Option (includes GPS receiver and 50' weatherproof cable)
+T	Network Time Protocol (Should be ordered with +GP or +M option)
+STG	NTSC/PAL test signal generator Audio tone generator (analog) DARS generator (balanced & unbalanced) AES generator (balanced & unbalanced) PLUS an SD SDI Test Generator with 2 SD SDI test signals and 2 SD SDI black
+HTG	HD SDI Test Generator with 2 HD SDI test signals & 2 HD SDI black

Accessories:

WA-T76:	100' weatherproof cable for 5600MSC, GPSII & 7707GPS-DT
WA-T77:	100' weatherproof cable for 7707GPS-DR to 5600MSC
WA-T11:	400' weatherproof cable for GPS receiver

For remote GPS head requirements of greater than 400' cables or fiber optic isolation order:

7707GPS-DT	Dual GPS Data Fiber Transmitter
7707GPS-DR	Dual GPS Data Fiber Receiver

VITC/LTC Time Code Reader Character Inserter

Model 5950

The Model 5950 is a VITC and LTC Time code Reader, VITC to LTC Translator and full function Character Inserter with on-screen programming menu. The unit has a 12 digit alpha-numeric display that can be used for displaying Time code, user bits, or operational messages. The 5950 reads SMPTE Drop or Non-Drop Frame or EBU Time code.

The high speed LTC reader in the 5950 employs sophisticated input conditioning and clock/data separator circuits to reliably recover LTC over the full shuttle and wind speed range of most VTR's and ATR's.

The VITC reader employs advanced video processing and data extraction circuitry in combination with intelligent firmware algorithms to accurately decode multi-generation Time code, even off low end VHS machines. Finely tuned phase locked loop circuits allow the 5950 to recover VITC over the full shuttle range of most VTR's.

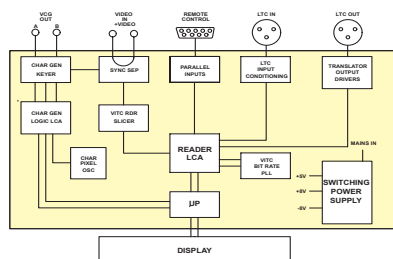
The unit can be configured to read either LTC or VITC or can operate in an automatic switchover mode. The 5950 automatically selects valid code from either source and provides accurate Time code reading from still to over 70x play speed.

The high resolution Character Inserter can display Time code, User bits, or both. 3 Character sizes: 8, 16, and 32 lines are available. The Characters can be white with or without a black background, or black with or without a white background. The windows are separately positionable on the raster and can be pushed all the way up into the Vertical Interval if desired.

Features:

- Reads LTC from 1/30th to 70x play speed
- Full speed VITC Reader with line select
- Automatic LTC/VITC switchover mode
- High resolution Character Inserter, with three character sizes: 8, 16 and 32 lines, time and user bits separately positionable on screen
- Dual Standard (NTSC and PAL)
- On-screen programming menu
- VITC to LTC Translator
- LTC reshaper/regenerator
- 12 digit alpha-numeric display

Model 5950 Block Diagram



Specifications:

LTC Reader:

Standard: SMPTE 12M
25, 30 Fps Drop & Non Drop Frame
Connector: XLR Type 3 pin female connector
Signal Level: 0.2 to 4V p-p, balanced or unbalanced
Speed: 1/30th to 70x play speed, forward and reverse machine dependent

VITC Reader:

Input: NTSC or PAL 1V p-p,
Connector: BNC per IEC 60169-8 Amendment 2
Speed: Still frame to <40x play, VTR dependent
Impedance: Hi-Z

LTC Translator:

Connector: XLR Type 3 pin male
Signal Level: Adjustable 0.5V to 4.5V p-p
Rise Time: 40 ± 10µs
Jitter: <2 µs
Gen Lock: Reader input video 1 V p-p, High, BNC loop

Character Generator:

Input: Char. Input from VITC Reader input
Output: NTSC or PAL 1V p-p + keyed high

resolution characters, selectable background and sizes
Connector: BNC per IEC 60169-8 Amendment 2

Parallel Remote Control:

Input: 6 TTL compatible inputs for control of selected functions

Physical:

Dimensions: 19" W x 1.75" H x 7.75" D
(483mm W x 45mm H x 196mm D)
Weight: 7 lbs (3.5kg)

Electrical:

Voltage: 115/230 VAC, 50/60Hz, 30VA
Safety: ETL listed
Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

5950 VITC/LTC Time Code Reader/Character Inserter

HD/SD SDI, 8 Channel AES & RS232/RS422 Auto Change Over

Model 7700ACO-HD



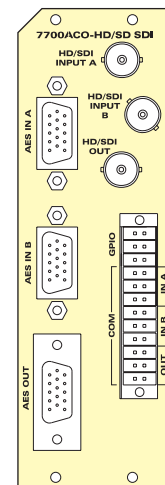
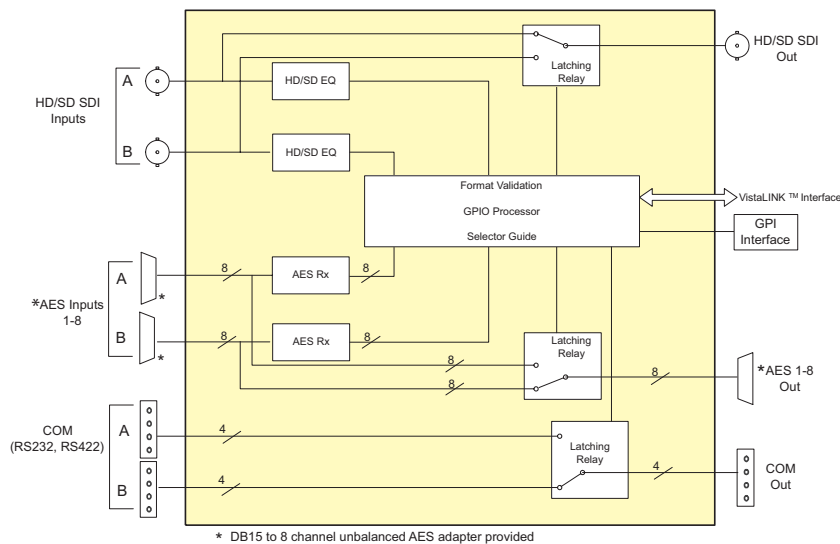
The Evertz 7700ACO-HD/SD SDI Auto change over is designed to provide a HD/SD SDI video, multi channel aes audio and RS422/RS232 change over in one device. The unit can be controlled via GPI, remotely via VistaLINK™ PRO or set in autochangeover mode. It is an all in one ACO package aimed towards protecting a complete channel.(protecting the video, 8 channels of discrete AES and associated control channel (RS232 or RS422)). The unit features latching relays that maintain state through loss.

Features

- Auto detection of signal standard
- Four modes of operation
 - Auto changeover - two standalone auto changeovers
 - Manual DIP switch control - two independently controlled 2x1 switchers
 - GPI Control - two independently GPI controlled 2x1 switchers
 - Tally output provided

- VistaLINK™ -enabled offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK™ is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame

7700ACO-HD Block Diagram



Specifications

Serial Video Input:

Standards: SMPTE 292M, SMPTE 259M A, B, C, D (143 to 540 Mb/s) or DVB-ASI
Connector: 2 BNC per IEC 60169-8 Amendment 2
Maximum Cable Length: 100m of Belden 1694A or equivalent cable combined input and output
Return Loss: 10 dB up to 1.5 Gb/s

Serial Video Outputs:

Number of Outputs: 1 passive relay output
Connector: BNC per IEC 60169-8 Amendment 2
Maximum Cable Length: 60m of Belden 1694A or equivalent cable combined input and output
DC Offset: 0V \pm 0.5V
Return Loss: 10 dB up to 1.5 Gb/s

General Purpose Inputs and Outputs:

Type:
Inputs: Opto-isolated input with internal pull-up to + 5Volts
Outputs: Normally 10k internal pull-up to + 5Volts. Ground to rear panel when relay is in active position
Connector: Screw down terminal blocks
Signal Level: +5V nominal

Signal Present and Changeover Conditions:

SDI: Valid TRS timing, CRC, and EDH
DVB-ASI: Valid SMPTE sync word
Sync: H timing detect
AES: Sync word error

Communications and Control:

Serial Port: RS232/RS422 - 4 wire, terminal block
Connector: 4 BNC per IEC 60169-8 Amendment 2

AES Input:

Standard: SMPTE 276M
Number of Inputs: 8 unbalanced AES
Connector: Female High Density DB-15 (breakout cable to BNC provided)
Input Level: 1V p-p
Input Impedance: 75 Ω
Return Loss: >25dB 100kHz to 600MHz
Equalization: Automatic to 1500m with Belden 1694A (or equivalent) @ 48kHz AES signal

AES Output:

Number of Outputs: 8 Unbalanced AES
Connector: Female High Density DB-15 (breakout cable to BNC provided)
Output Level: 1V p-p
Output Impedance: 75 Ω
Return Loss: >25dB 100kHz to 6MHz

Physical:

Number of slots: 2

Electrical:

Voltage: +12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

7700ACO-HD HD/SD SDI, 8 Channel AES & RS232/422 Auto Change Over

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone Enclosure



7700ACO-HD

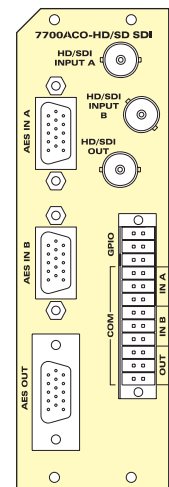
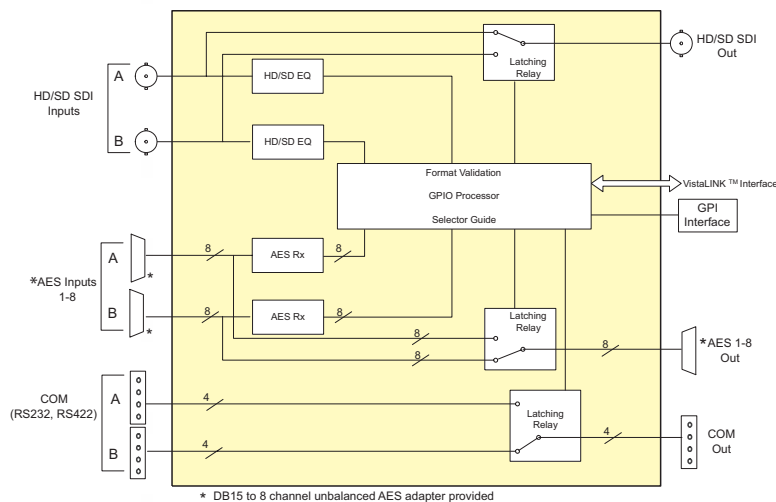
The Evertz 7700ACO-HD HD/SDI Auto Change Over is designed to provide a HD/SD SDI video, multi channel AES audio and RS422/RS232 change over in one device. The unit can be controlled via GPI, remotely via VistaLINK® PRO or set in auto changeover mode. It is an all-in-one ACO package aimed towards protecting a complete channel (ie. protecting the video, 8 channels of discrete AES and associated control channel (RS232 or RS422)). The unit features latching relays that maintain state through loss of power.

Features

- Auto detection of signal standard
- Four modes of operation
 - Auto changeover - two standalone auto changeovers
 - Manual DIP switch control - two independently controlled 2x1 switchers
 - GPI Control - two independently GPI controlled 2x1 switchers
 - Tally output provided
- Protection for 8 channels of AES
- Control channels

- Protection (on HD (1.5Gb/s) or SD (270Mb/s))
- Changeover conditions are based on signal presence of: HD/SDI (TRS timing, CRC and EDH) DVB-ASI (SMPTE sync word); Sync (H timing) and AES (sync word)
- VistaLINK® - capable offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK® is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame

7700ACO-HD Block Diagram & Rear Panel



Specifications

Serial Video Inputs:

Standards: SMPTE 292M (1.5Gb/s), SMPTE 259M-A, B, C, D (143 to 540 Mb/s) or DVB-ASI

Connector: 2 BNC per IEC 60169-8 Amendment 2

Maximum Cable Length: 100m of Belden 1694AA or equivalent cable combined input and output

Return Loss: 10 dB up to 1.5 Gb/s

Serial Video Output:

Number of Outputs: 1 passive relay output

Connector: BNC per IEC 60169-8 Amendment 2

Maximum Cable Length: 60m of Belden 1694AA or equivalent cable combined input and output

DC Offset: 0V ±0.5V

Return Loss: 10 dB up to 1.5 Gb/s

General Purpose Inputs and Outputs:

Type:

Inputs: Opto-isolated input with internal pull-up to +5Volts
Outputs: Normally 10k internal pull-up to +5Volts. Ground to rear panel when relay is in active position

Connector: Screw down terminal blocks

Signal Level: +5V nominal

Communications and Control:

Serial Port: RS232/RS422 - 4 wire, terminal block

Connector: 4 pins on removable terminal block

AES Input:

Standard: SMPTE 276M

Number of Inputs: 8 unbalanced AES

Connector: Female High Density DB-15 (breakout cable to BNC provided)

Input Level:

1V p-p

Input Impedance:

75Ω

Return Loss:

>25dB 100kHz to 600MHz

Equalization:

Automatic to 1500m with Belden 1694AA (or equivalent) @ 48kHz AES signal

AES Output:

Number of Outputs:

8 Unbalanced AES

Connector:

Female High Density DB-15 (breakout cable to BNC provided)

Output Level:

1V p-p

Output Impedance:

75Ω

Return Loss:

>25dB 100kHz to 6MHz

Physical:

Number of slots:

2

Electrical:

Voltage:

+12VDC

Power:

6 Watts

EMI/RFI:

Complies with FCC Part 15 Class A EU EMC Directive

Ordering Information:

7700ACO-HD HD/SD SDI, 8 Channel AES & RS232/422 Auto Change Over

Accessories:

WPAES8-BNCM-6F AES Audio Breakout Cable

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone Enclosure

Analog Video Distribution Amplifier

7700ADA7

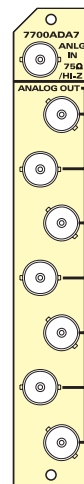
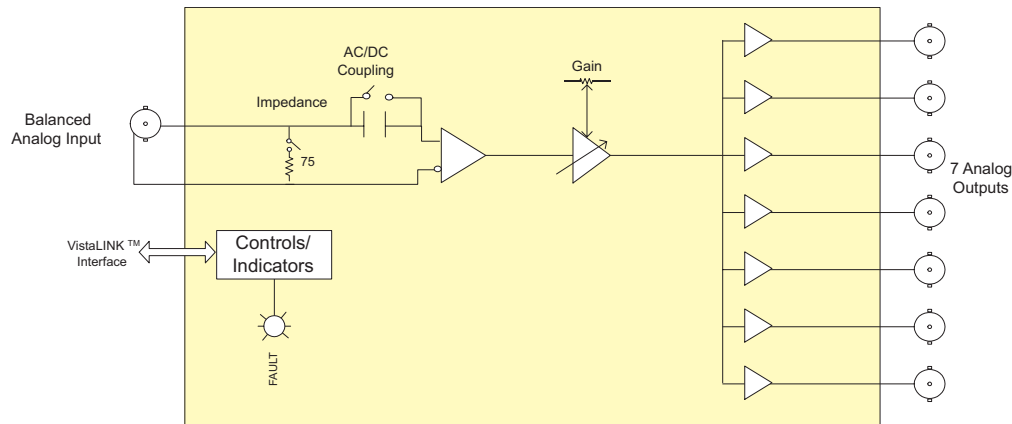
The 7700ADA7 Analog Distribution Amplifier is a general purpose amplifier for distributing analog video signals. The 7700ADA7 features one balanced input with seven outputs. The 7700ADA7 amplifier has been designed to distribute a wide range of analog video signals. It can also distribute other pulses and signals that are less than 2Vp-p.

The 7700ADA7 occupies one card slot in the 3RU frame, which will hold up to 15 modules or the 1RU frame, which will hold up to three modules.

Features

- 75Ω or high impedance input (jumper selectable)
- High common mode range and common mode rejection ratio (CMMR)
- Gain control
- Jumper selectable AC or DC coupling
- Looping feature with external "T" connector
- Consistent input impedance if card power is lost

7700ADA7 Block Diagram



Specifications

Analog Video Input:

Standards:	Any analog video format, up to 2Vp-p and 30MHz bandwidth
Connector:	BNC per IEC 60169-8 Amendment 2
Common mode range:	>6Vp-p
CMMR:	> 70dB to 1kHz
Signal amplitude:	2.5Vp-p max
Impedance:	75Ω terminated, 35kΩ Hi-Z (jumper selectable)
Coupling:	AC or DC (jumper selectable)
Return loss:	>40dB to 10MHz, >30dB to 30MHz

Analog Video Outputs:

Number of Outputs:	7 Per Card
Connector:	BNC per IEC 60169-8 Amendment 2
Output impedance:	75Ω
Gain control range:	± 5dB DC level (DC Coupling active) < +/- 100mV
Freq. Response:	<+/-0.05dB (to 5.5MHz)
Differential Gain:	<0.17 %
Differential Phase:	< 0.19 deg
C/L gain inequality:	<+/-0.1%
C/L Delay:	<+/-2nsec
Output isolation:	42dB to 10MHz, 32 dB to 30MHz
Output return loss:	>40dB to 30MHz
Noise performance:	<-78dB RMS NTC7 weighting, <-70dB RMS 15kHz to 5.5MHz

Electrical:

Voltage:	+ 12VDC
Power:	1.2 Watts
EMI/RFI:	Complies with FCC Part 15, Class A, EU EMC Directive

Physical:

Number of Slots:	1
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Ordering Information:

7700ADA7	Analog Video Distribution Amplifier
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Equalizing Analog Video Distribution Amplifier

7700ADA7-EQ

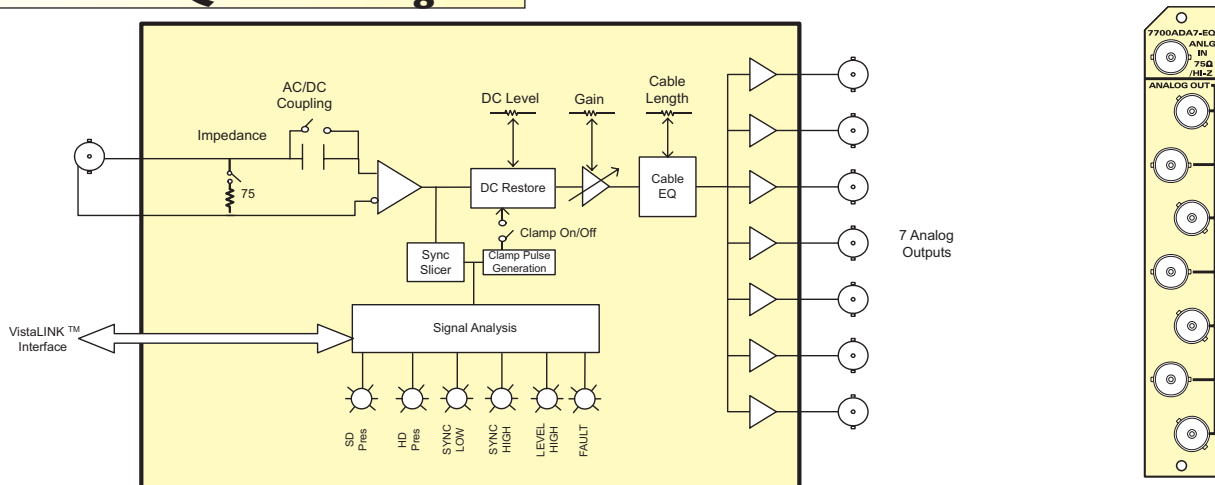
The 7700ADA7-EQ Equalizing Analog Distribution Amplifier is a general purpose amplifier for distributing analog video signals. The 7700ADA7-EQ features one balanced equalized input with seven outputs. The 7700ADA7-EQ amplifier has been designed to distribute a wide range of analog video signals. It can also distribute other pulses and signals that are less than 2Vp-p.

The 7700ADA7-EQ is housed in the 3 RU frame, which will hold up to 15 modules or the 1RU frame, which will hold up to three modules.

Features

- 75Ω or high impedance input (jumper selectable)
- High common mode range and common mode rejection ratio (CMMR)
- Gain control
- Jumper selectable AC or DC coupling
- Jumper selectable fast or slow back porch clamp
- DC level control when clamp is enabled
- Cable equalizer adjustment range: 0 to 300m of 8281 or 1694A
- Looping feature with external "T" connector and external termination
- Consistent input impedance if card power is lost

7700ADA7-EQ Block Diagram



Specifications

Analog Video Input:

Standards: Any analog video format, up to 2Vp-p and 30MHz bandwidth
Connector: 1 BNC input per IEC 60169-8 Amendment 2
Common mode range: >6Vp-p
CMRR: >70dB to 1kHz
Signal amplitude: 2.5Vp-p max
Cable equalizer: 0 to 300m of Belden 8281 or 1694A cable
Impedance: 75Ω terminated, 35kOhms Hi-Z (jumper selectable)
Coupling: AC or DC (jumper selectable)
Return loss: > 40dB to 10MHz, >30dB to 30MHz
Clamp range: >+/- 600mV
Fast clamp attenuation of 60Hz: >36dB

Analog Video Outputs:

Number of Outputs: 7
Connector: BNC per IEC 60169-8 Amendment 2
Output impedance: 75Ω
Gain control range: ± 5dB
DC level: < +/- 100mV (with DC Coupling active and back porch clamp disabled)
DC level Control range: < +/- 200mV (with back porch clamp enabled)
Freq. Response: < ±0.05dB no equalization (to 5.5MHz)
< ±0.09dB for 5 to 100m Belden 8281 or 1694 (to 5.5MHz)
< ±0.15dB for 100 to 300m Belden 8281 or 1694 (to 5.5MHz)
Differential Gain: <0.17 % 0 to 300m
Differential Phase: < 0.19 deg 0 to 300m
C/L gain inequality: <+/-0.1% for all cable lengths
C/L Delay: <+/-2nsec

Output isolation: >42dB to 10MHz, >32 dB to 30MHz
Output return loss: >40dB to 30MHz
Noise performance: <-78dB RMS NTC7 weighting
<-70dB RMS 15kHz to 5.5MHz

Electrical:

Voltage: + 12VDC
Power: 5 Watts

Physical:

Number of slots: 1

Ordering Information:

7700ADA7-EQ Analog Video Equalizing Distribution Amplifier, with 7 outputs

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Equalizing Analog Video Distribution Amplifier 7700ADA7-EQ



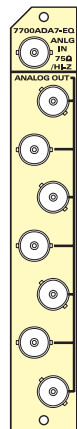
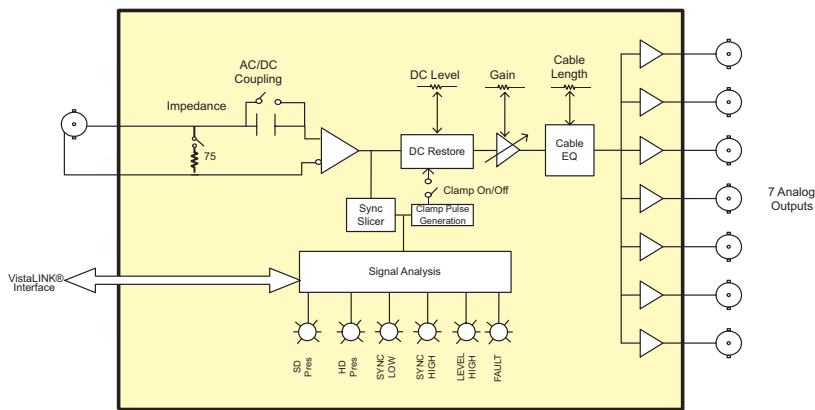
The 7700ADA7-EQ Equalizing Analog Distribution Amplifier is a general purpose amplifier for distributing analog video signals. The 7700ADA7-EQ features one balanced equalized input with seven outputs. The 7700ADA7-EQ amplifier has been designed to distribute a wide range of analog video signals. It can also distribute other pulses and signals that are less than 2Vp-p.

The 7700ADA7-EQ is housed in the 3 RU frame, which will hold up to 15 modules or the 1RU frame, which will hold up to three modules.

Features

- 75Ω or high impedance input (jumper selectable)
- High common mode range and common mode rejection ratio (CMMR)
- Gain control
- Jumper selectable AC or DC coupling
- Jumper selectable fast or slow back porch clamp
- DC level control when clamp is enabled
- Cable equalizer adjustment range: 0 to 300m of 8281 or 1694AA
- Looping feature with external "T" connector and external termination
- Consistent input impedance if card power is lost
- VistaLINK® - capable offering remote control and configuration capabilities via SNMP (using VistaLINK® PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller

7700ADA7-EQ Block Diagram & Rear Panel



Specifications

Analog Video Input:

Standards:	Any analog video format, up to 2Vp-p and 30MHz bandwidth
Connector:	BNC input per IEC 60169-8 Amendment 2
Common mode range:	>6Vp-p
CMRR:	>70dB to 1kHz
Signal amplitude:	2.5Vp-p max
Cable equalizer:	0 to 300m of Belden 8281 or 1694AA cable
Impedance:	75Ω terminated, 35kΩ Hi-Z (jumper selectable)
Coupling:	AC or DC (jumper selectable)
Return loss:	> 40dB to 10MHz, >30dB to 30MHz
Clamp range:	>± 600mV
Fast clamp attenuation of 60Hz:	>36dB

Analog Video Outputs:

Number of Outputs:	7
Connector:	BNC per IEC 60169-8 Amendment 2
Output impedance:	75Ω
Gain control range:	± 5dB
DC level:	< ± 100mV (with DC Coupling active and back porch clamp disabled)
DC level Control range:	< ± 200mV (with back porch clamp enabled)
Freq. Response:	< ±0.05dB no equalization (to 5.5MHz) < ±0.09dB for 5 to 100m Belden 8281 or 1694A (to 5.5Mhz) < ±0.15dB for 100 to 300m Belden 8281 or 1694A (to 5.5Mhz) < 0.17 % 0 to 300m < 0.19 deg 0 to 300m
Differential Gain:	<±0.1% for all cablelengths
Differential Phase:	<±2nsec
C/L gain inequality:	
C/L Delay:	

Output isolation:	>42dB to 10MHz, >32 dB to 30MHz
Output return loss:	>40dB to 30MHz
Noise performance:	<-78dB RMS NTC7 weighting <-70dB RMS 15kHz to 5.5MHz

Electrical:

Voltage:	+ 12VDC
Power:	5 Watts

Physical:

Number of slots:	1
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Ordering Information:

7700ADA7-EQ	Analog Video Equalizing Distribution Amplifier, with 7 outputs
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Analog Video Distribution Amplifier

Model 7700ADA

The 7700ADA Analog Distribution Amplifier is a general purpose amplifier for distributing analog signals. The 7700ADA features one balanced input with four outputs. The 7700ADA has been designed to distribute a wide range of analog video signals. It can also distribute other pulses and signals that do not exceed 2Vp-p.

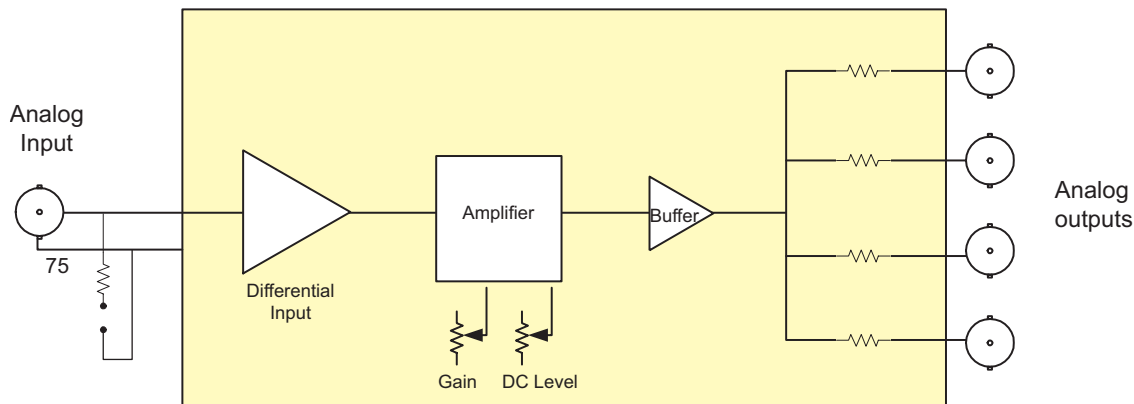
Features

- 75 Ω or high impedance input (jumper selectable)
- Looping feature with external "T" connector
- Consistent input impedance if card power is lost
- High common mode range and common mode rejection ratio (CMRR)

Card Edge LEDs:

- Module status/Local Fault
- Power supply status

7700ADA Block Diagram



Specifications

Analog Video Input:

Standard: Any analog video format up to 2Vp-p and 30MHz bandwidth

Number of Inputs: 1

Connector: 1 BNC per IEC 60169-8 Amendment 2

Equalization: None

Common mode range: 6Vp-p

CMRR: >75dB at 60Hz

>45dB at 100kHz

Return Loss: >30dB up to 30MHz

Signal Amplitude: 2.5Vp-p max

Analog Video Outputs:

Number of Outputs: 4 per card

Connector: BNC per IEC 60169-8 Amendment 2

Gain Level: 1x +3.5dB, -2.5dB

DC Offset: OV \pm 200mV (Adjustable)

Electrical:

Voltage: +12VDC

Power: 1.2 Watts

EMI/RFI: Complies with FCC Part 15, Class A, EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7700ADA Analog Video Distribution Amplifier

Ordering Options

Rear Plate must be specified at time of order

Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Dual Analog Audio Distribution Amplifier

Model 7700ADA-AUD

The 7700ADA-AUD Dual Analog Audio distribution amplifier is a general purpose amplifier for distributing analog audio signals. It can be operated as two independent 4 output amplifiers for stereo signals, or as a single amplifier with 8 outputs where higher fanout is required. The 7700ADA-AUD can be operated with either differential or single ended inputs and offers a wide range of gain adjustment to handle a wide variety of input signals.

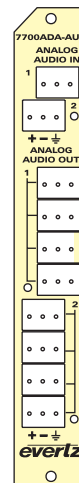
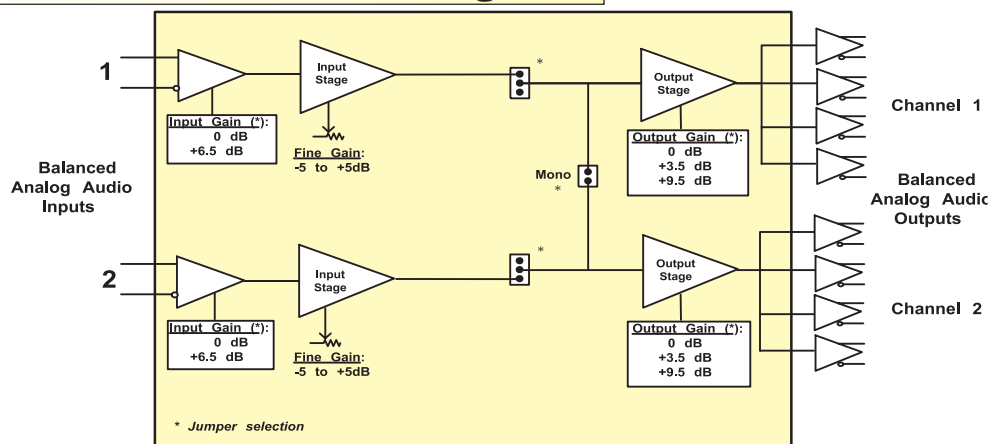
Features

- Differential and single ended input (automatic single ended to differential conversion)
- Configurable for stereo or mono
- High impedance input
- Low impedance outputs
- Wide gain adjustment range
- High common mode range and common mode rejection ratio (CMRR)
- Very high SNR
- Very low THD+N

Card Edge LEDs

- Module status/Local fault

7700ADA-AUD Block Diagram



Specifications

Analog Audio Input:

Standards:	Any analog audio signal
Number of inputs:	2 (Balanced or Single ended)
Connectors:	3 pin removable terminal strips
Input step gain:	0 dB or +6.5 dB (configurable with jumpers)
Fine gain control:	-6.5 to +9.5dB (card edge pot adjustable)
Maximum input level:	
0 dB input gain	+34 dBu
+6.5 dB input gain	+28 dBu
Noise floor:	-87 dBu (0 dB input gain), -91 dBu (+6.5 dB input gain jumper setup)
Common mode rejection:	> 115 dB @ 60 Hz, 90 dB @ 20 kHz (tested with +28 dBu CM input)
Common mode range:	
0 dB input gain	> ± 22 V
+6.5 dB input gain	> ± 7 V
Input impedance:	
0 dB input gain	33 k Ω
+6.5 dB input gain	15 k Ω

Analog Audio Outputs:

Number of Outputs:	
Stereo Mode:	4 outputs each on left and right channels
Mono Mode:	8 Outputs
Connectors:	3 pin removable terminal strips
Output step gain:	0, 3.5 or 9.5 dB (configurable with jumpers)
Maximum output level:	+28 dBu across hi-impedance load +24 dBm into 600 Ω load
Output impedance:	66 Ω
Frequency Response:	± 0.02 dB 20 Hz to 20 kHz
Stereo phase mismatch:	< 1° @ 20 kHz
SNR:	
0dB input gain	115 dB
+6.5 dB input gain	119 dB

THD+ Noise:	0.001% 20 Hz to 20 kHz @ 28 dBu, unweighted RMS, Hi-Z load 0.01% with 600 Ω up to 24dBm
Intermodulation Distortion:	0.001% - SMPTE @ 18 dBu
Stereo crosstalk:	>115 dB @ 1 kHz, >93 dB @ 20 kHz
Output Isolation:	> 110 dB @ 1 kHz, 100 dB @ 20 kHz

Electrical:

Voltage:	+12VDC
Power:	12 Watts
EMI/RFI:	Complies with FCC Part 15, Class A, EU EMC Directive

Physical:

Number of Slots:	1
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Ordering Information:

7700ADA-AUD	Dual Analog Audio Distribution Amplifier
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Analog Video Equalizing Distribution Amplifier

7700ADA-EQ

The 7700ADA-EQ Equalizing Analog Distribution Amplifier is a general purpose amplifier for distributing analog video signals. The 7700ADA-EQ features one balanced equalized input with four outputs. The 7700ADA-EQ amplifier has been designed to distribute a wide range of analog video signals. It can also distribute other pulses and signals that do not exceed 2Vp-p.

Features

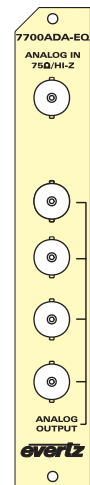
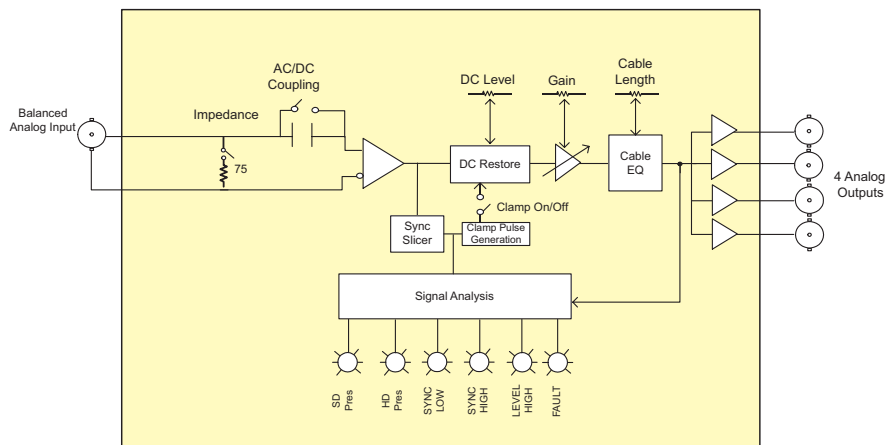
- 75Ω or high impedance input (jumper selectable)
- High common mode range and common mode rejection ratio (CMMR)
- Gain control
- Jumper selectable AC or DC coupling
- Jumper selectable fast or slow back porch clamp
- DC level control when clamp is enabled
- Cable equalizer adjustment range: 0 to 300m of 8281 or 1694

- Looping feature with external "T" connector
- Consistent input impedance if card power is lost

Card Edge LEDs:

- Module status/Local Fault
- Power supply back status
- EQ Warning

7700ADA-EQ Block Diagram



Specifications

Analog Video Input:

Standards:	Any analog video format, up to 2Vp-p and 30MHz bandwidth
Connector:	1 BNC per IEC 60169-8 Amendment 2
Common mode range:	>6Vp-p
CMRR:	>70dB to 1kHz
Signal amplitude:	2.5Vp-p max
Cable equalizer:	0 to 300m of Belden 8281 or 1694 cable
Impedance:	75Ω terminated, 35kΩ Hi-Z (jumper selectable)
Coupling:	AC or DC (jumper selectable)
Return loss:	> 40dB to 10MHz, >30dB to 30MHz
Clamp range:	>+/- 600mV
Fast clamp attenuation of 60Hz:	>36dB

Analog Video Outputs:

Number of Outputs:	4 Per Card
Connector:	BNC per IEC 60169-8 Amendment 2
Output impedance:	75Ω
Gain control range:	± 5dB
DC level:	< +/- 100mV (with DC Coupling active and back porch clamp disabled)
DC level Control range:	< +/- 200mV (with back porch clamp enabled)
Freq. Response:	< ±0.05dB no equalization (to 5.5MHz) < ±0.09dB for 5 to 100m Belden 8281 or 1694 (to 5.5MHz) < ±0.15dB for 100 to 300m Belden 8281 or 1694 (to 5.5MHz) < 0.17 % 0 to 300m
Differential Gain:	< 0.19 deg 0 to 300m
Differential Phase:	< +/- 0.1% for all cable lengths
C/L gain inequality:	

C/L Delay:	< +/- 2ns
Output isolation:	>42dB to 10MHz, >32 dB to 30MHz
Output return loss:	>40dB to 30MHz
Noise performance:	<-78dB RMS NTC7 weighting, <-70dB RMS 15kHz to 5.5MHz

Electrical:

Voltage:	+12VDC
Power:	1.2 Watts
EMI/RFI:	Complies with FCC Part 15, Class A, EU EMC Directive

Physical:

Number of Slots:	1
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Ordering Information:

7700ADA-EQ	Analog Video Equalizing Distribution Amplifier
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

143-540 Mb/s, DVB-ASI, SMPTE 310M Reclocking Distribution Amplifier

Model 7700DA7

The 7700 series Distribution Amplifier provides inexpensive distribution of your serial digital video signal at rates of 19.4 Mb/s and 143 Mb/s to 540 Mb/s. The 7700DA7 features an auto-equalized input with seven reclocked outputs. The 7700DA7 has been designed for use as a SMPTE 310M (19.4 Mb/s), DVB-ASI, M2S or SMPTE 259M distribution product. SMPTE 310M support is selected by setting a rate select jumper.

Features

- Supports up to 540Mb/s operation
- DVB-ASI compatible
- Non reclocking mode for SMPTE 310M
- Features independent isolated output drivers to ensure no cross channel loading effects (i.e. no need to terminate unused outputs)
- VistaLINK™ control

Card Edge LEDs:

- Signal presence
- Module Health Status

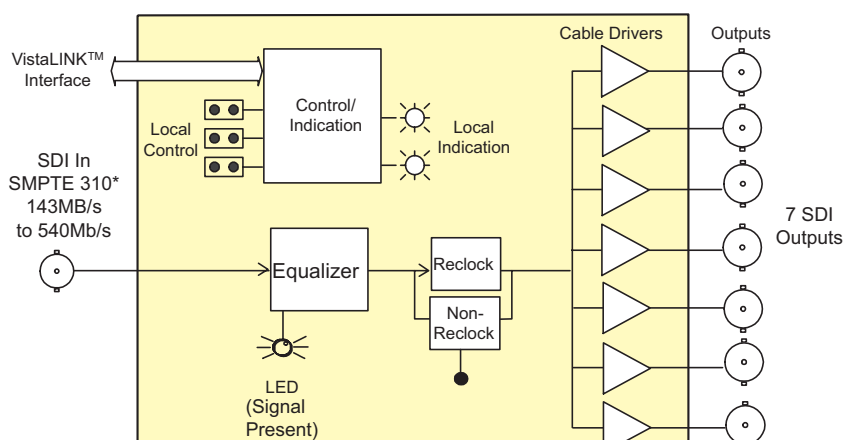
Input:

- SMPTE 259M (143 Mb/s to 540Mb/s), DVB-ASI, M2S, SMPTE 310M (19.4 Mb/s) - Non-reclocking mode
- Return loss > 15dB up to 540Mb/s
- 300m auto eq. at 270Mb/s (Belden 8281)
- 210m auto eq. at 540Mb/s (Belden 8281)

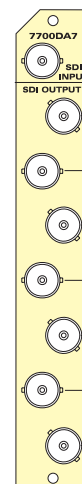
Outputs:

- 7 reclocked outputs
- Return loss > 15dB up to 540Mb/s
- Wideband jitter < 0.2 UI

7700DA7 Block Diagram



*Note: Non-Reclocking Mode will operate 19.4Mb/s to 540Mb/s



Specifications

Serial Video Input:

Standard: SMPTE 259M A, B, C, D, DVB-ASI, M2S, SMPTE 310M (19.4Mb/s-jumper selected)
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 300m @ 270Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15dB up to 540Mb/s

Serial Video Output:

Number of Outputs: 7
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: 740ps nominal
Overshoot: <10% of amplitude
Return Loss: >15 dB up to 540Mb/s
Wideband Jitter: <0.2 UI

Physical:

Number of Slots: 1

Electrical:

Voltage: +12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7700DA7 143-540 Mb/s, DVB-ASI, SMPTE 310M, M2S
Reclocking Distribution Amplifier (with 7 outputs)

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD SDI Reclocking Distribution Amplifier

Model 7700DA7-HD

The 7700 HD series Distribution Amplifiers provide reliable distribution of your 1.5 Gb/s HDTV serial digital signal. The 7700DA7-HD features one auto-equalized input with seven reclocked outputs. The 7700DA7-HD is housed in the Evertz 7700FR-C Multiframe, which is available in either a 3RU or 1RU version. The DA has been designed to reclock at 1.5Gb/s and 270Mb/s. However, in non-reclocking mode it can also be used as a SMPTE 310M distribution product.

Features

- Reclocking mode for SMPTE 292M (1.5 Gb/s), SMPTE 259M (270Mb/s), DVB-ASI or HD/SD auto sensing
- Non-reclocking mode for SMPTE 310M DA (nominal 19.4 Mb/s to 1.5Gb/s)
- VistaLINK™ control

Status LEDs:

- Signal presence
- Module Health Status

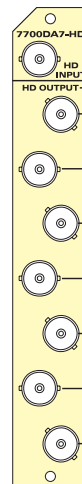
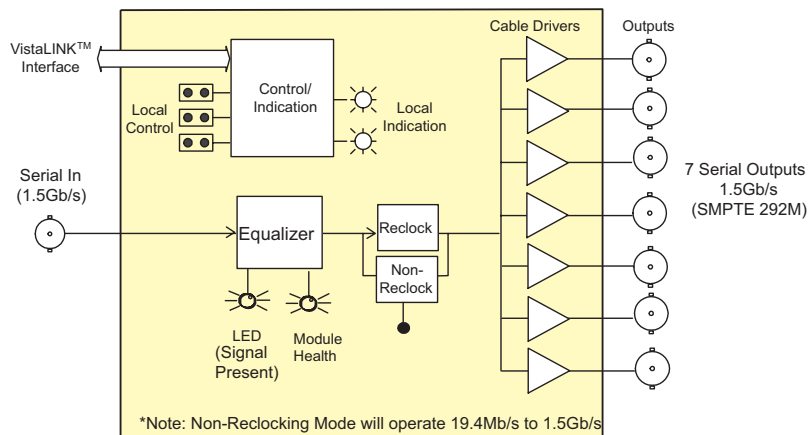
Input:

- SMPTE 292M (1.5 Gb/s) Reclocking mode
- SMPTE259M (270Mb/s) DVB-ASI - Reclocking mode
- SMPTE 310M - Non-reclocking mode
- Auto equalization to 130m (Belden 1694)

Output:

- 7 reclocked outputs
- Wideband jitter <0.2UI

7700DA7-HD Block Diagram



Specifications

Serial Video Input:

Standard:	SMPTE 292M, SMPTE 259M-A, B, C, D, DVB-ASI or M2S
In Non-Reclock Mode:	SMPTE 310M
Connector:	1 BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 130m @ 1.5Gb/s with Belden 1694 (or equivalent)
Return Loss:	>15dB to 1.56 Gb/s,

Serial Video Outputs:

Number of Outputs:	7 Per Card
Standard:	SMPTE 292M, SMPTE 259M-A, B, C, D M2S, DVB-ASI
In Non-Reclock Mode:	SMPTE 310M
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	200ps nominal
Overshoot:	<10% of amplitude
Return Loss:	>15dB to 1.56 Gb/s
Wideband jitter:	<0.2UI

Physical:

Number of Slots:	1
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Electrical:

Voltage:	+ 12V DC
Power:	5 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Ordering Information:

7700DA7-HD	HD/SD SDI reclocking DA, 7 outputs
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

143-540 Mb/s, SMPTE 310M Reclocking Distribution Amplifier

Model 7700DA10

The Evertz 7700DA10 Distribution Amplifier provides inexpensive distribution of your serial digital signal at rates of 19.4Mb/s and 143Mb/s to 540Mb/s. The DA features an auto-equalized input with ten reclocked outputs.

Although the 7700DA10DA has been designed for use as a reclocking SMPTE 259M distribution product, it also supports SMPTE310M (19.4Mb/s), DVB-ASI (270Mb/s) and M2S. SMPTE 310M support is selected by setting a rate select jumper.

Features

- Mode to run SMPTE 310M (nominal 19.4Mb/s with reclocking)
- Six of ten outputs are DVB-ASI compliant
- Supports up to 540Mb/s operation
- Tally output upon loss of input signal for quality monitoring

Card Edge LEDs:

- Signal presence
- Max. equalization warning
- Module health status

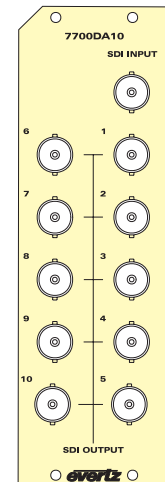
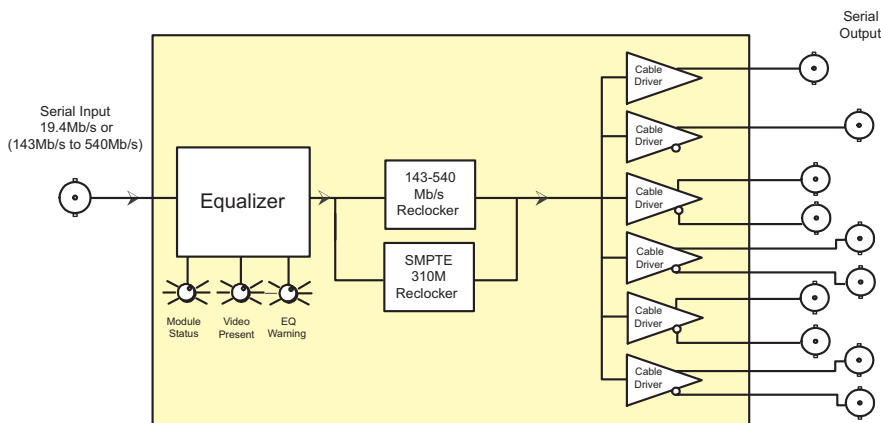
Input:

- SMPTE 259M (143Mb/s to 540Mb/s), SMPTE 310M (19.4Mb/s), DVB-ASI (270Mb/s) and M2S compliant
- Return loss >15dB up to 540Mb/s
- 300m auto eq. at 270Mb/s (Belden 8281)
- 200m auto eq. at 540Mb/s (Belden 8281)

Outputs:

- 10 reclocked outputs
- 6 DVB-ASI/M2S compliant outputs
- Return loss > 15dB up to 540Mb/s
- Wideband jitter <0.2UI

7700DA10 Block Diagram



Specifications

Serial Video Input:

Standard:

- 259 Mode:** SMPTE 259M A, B, C, D (143-540Mb/s), DVB-ASI (270Mb/s) or M2s
- 310 Mode:** SMPTE 310M (19.4Mb/s)

Serial Video Output:

- Number of Outputs:** 10
- Number of DVB-ASI Compliant Outputs:** 6
- Connector:** BNC per IEC 60169-8 Amendment 2
- Signal Level:** 800mV nominal
- DC Offset:** 0V ± 0.5V
- Rise and Fall Time:** 470ps nominal
- Overshoot:** <10% of amplitude
- Return Loss:** >15 dB to 540Mb/s
- Wideband Jitter:** <0.2 UI

Physical:

- Number of Slots:** 2

Electrical:

Voltage:

+12V DC

Power:

6 Watts

EMI/RFI:

Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

- 7700DA10** 143-540 Mb/s, SMPTE 310M, DVB-ASI, M2S
Reclocking Distribution Amplifier (with 10 outputs)

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

- +3RU** 3RU Rear Plate for use with 7700FR-C Multiframe
- +1RU** 1RU Rear Plate for use with 7701FR Multiframe
- +SA** Standalone Enclosure Rear Plate

Enclosures:

- 7700FR-C** 3RU Multiframe which holds 15 modules
- 7701FR** 1RU Multiframe which holds 3 modules
- S7701FR** Standalone enclosure

143-540 Mb/s, DVB-ASI, SMPTE 310M Reclocking Distribution Amplifier

Model 7700DA

The Evertz 7700 series Distribution Amplifier provides inexpensive distribution of your serial digital video signal at rates of 19.4 Mb/s and 143 Mb/s to 540 Mb/s. The DA features an auto-equalized input with four reclocked outputs. The 7700DA has been designed for use as a SMPTE 310M (19.4 Mb/s), DVB-ASI, M2S or SMPTE 259M distribution product. SMPTE 310M support is selected by setting a rate select jumper.

Features

- Mode to run SMPTE 310M DA (nominal 19.4 Mb/s with reclocking)
- Supports up to 540Mb/s operation
- DVB-ASI compatible
- Tally output upon loss of signal for quality monitoring
- Features independent isolated output drivers to ensure no cross channel loading effects (i.e. no need to terminate unused outputs)

Card Edge LEDs:

- Signal presence
- Max. Equalization Warning
- Module Health Status

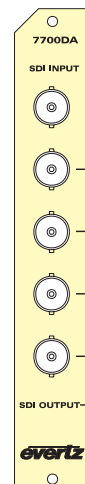
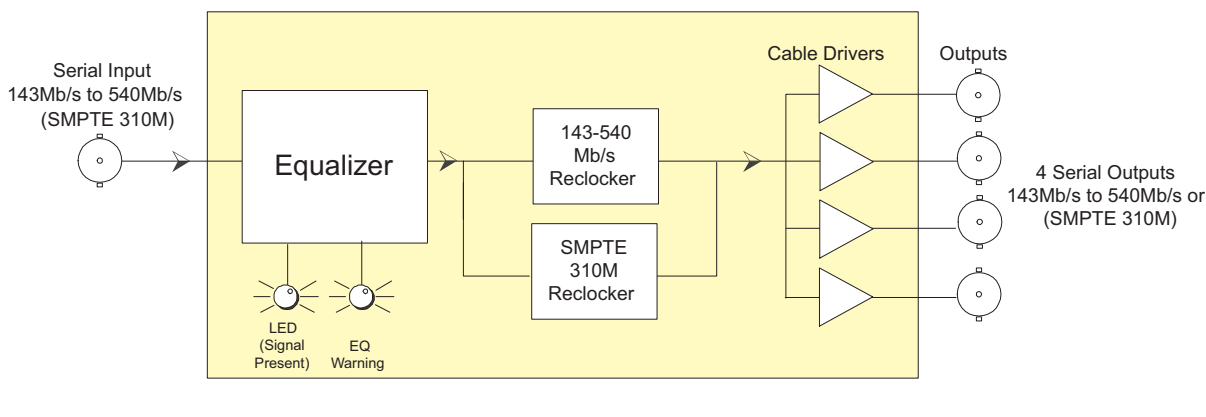
Input:

- SMPTE 259M (143 Mb/s to 540Mb/s), DVB-ASI, M2S, SMPTE 310M (19.4 Mb/s)
- Return loss > 15dB up to 540Mb/s
- 300m auto eq. at 270Mb/s (Belden 8281)
- 210m auto eq. at 540Mb/s (Belden 8281)

Outputs:

- 4 reclocked outputs
- Return loss > 15dB up to 540Mb/s
- Wideband jitter < 0.2 UI

7700DA Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M A, B, C, D, DVB-ASI, M2S, SMPTE 310M (19.4Mb/s-jumper selected)
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 300m @ 270Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15dB up to 540Mb/s

Serial Video Output:

Number of Outputs: 4 Per Card Reclocked
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: 740ps nominal
Overshoot: <10% of amplitude
Return Loss: >15 dB up to 540Mb/s
Wideband Jitter: <0.2 UI

Physical:

Number of Slots: 1

Electrical:

Voltage: +12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7700DA 143-540 Mb/s, DVB-ASI, SMPTE 310M, M2S
Reclocking Distribution Amplifier (with 4 outputs)

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Auto Equalizing Balanced AES Distribution Amplifier

Model 7700DA-AESB

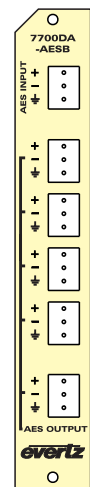
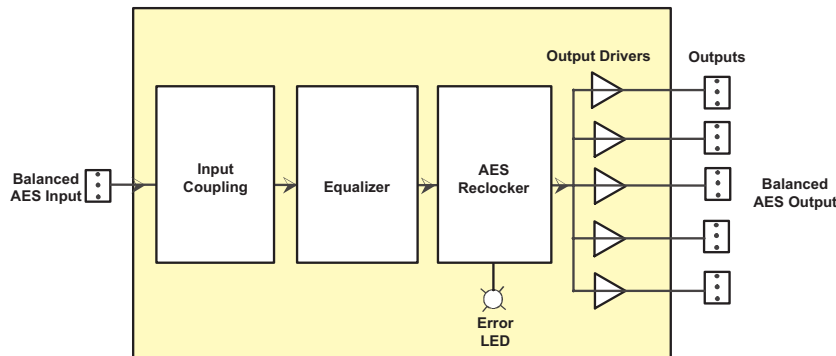
The 7700DA-AESB is a five output DA with auto equalizing input and reclocking for 110Ω balanced AES signals. The DA will automatically equalize AES signals on Belden 1800B cable when the drive signal is 7V p-p. The DA will reclock data with sampling frequencies of 32kHz, 44.1kHz, 48kHz and 96kHz.

The 7700DA-AESB card edge LED indicators provide quick and accurate assessment of the incoming signal integrity. The 7700DA-AESB also provides a contact closure output that can be configured using on-board jumpers to assert when an input error condition exists.

Features

- AES3-1992 standard for AES audio on 110Ω twisted pair cable
- Transformer coupled 110Ω balanced input (selectable Hi-Z)
- Data reclocking provides jitter reduction
- Automatic equalization
- EQ and reclock provide extended cable length compensation
- Five 110Ω balanced outputs
- Error LED indication for input PLL out of lock, parity error or biphasic coding error
- External indication of input error condition using contact closure output

7700DA-AESB Block Diagram



Specifications

AES Input:

Standard:	AES3-1992
Connector:	3 pin removable terminal strip
Number of inputs:	1
Input Level:	2 to 7V p-p
Coupling:	Transformer
Input Impedance:	110Ω (selectable Hi-Z)
Return Loss:	>14dB 100kHz to 6MHz
Equalization:	Automatic to 300m with Belden 1800B (or equivalent) @ 48kHz AES signal
Sampling Frequency:	32kHz, 44.1kHz, 48kHz and 96kHz

AES Output:

Number of Outputs:	5 Per Card Reclocked
Connector:	3 pin removable terminal strip
Output Level:	5 V p-p
Output Impedance:	110Ω
Return Loss:	30 dB 100 KHz to 6 MHz

Electrical:

Voltage:	+12VDC
Power:	1.8 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of Slots:	1
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Ordering Information:

7700DA-AESB	Autoequalizing Balanced AES/EBU Distribution Amplifier
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Auto Equalizing Unbalanced AES/EBU Distribution Amplifier

Model 7700DA-AESU

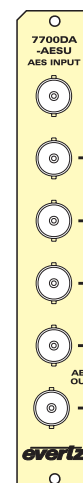
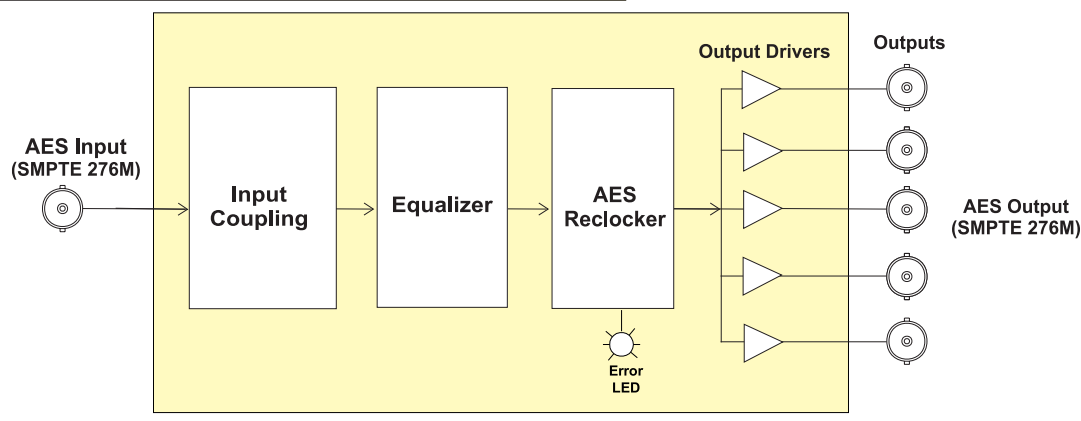
The 7700DA-AESU is a five output reclocking and auto equalizing DA for 75Ω unbalanced AES signals. The DA will automatically equalize AES signals on Belden 1694A coax to 1500m. The DA will reclock data with sampling frequencies of 32kHz, 44.1kHz, 48kHz and 96kHz.

The 7700DA-AESU card edge LED indicators provide quick and accurate assessment of the incoming signal integrity. The 7700DA-AESU also provides a contact closure output that can be configured using on-board jumpers to assert when an input error condition exists.

Features

- SMPTE 276M standard for AES audio on 75Ω coax
- Transformer coupled 75Ω unbalanced input (selectable Hi-Z)
- Data reclocking provides jitter reduction
- Automatic equalization
- EQ and reclock provide extended cable length compensation (>1500m)
- Five 75Ω coax outputs
- Error LED indication for input PLL out of lock, parity error or biphas coding error
- External indication of input error condition using contact closure output

7700DA-AESU Block Diagram



Specifications

AES Input:

Standard: SMPTE 276M (jumper selectable)
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Input Level: 1V p-p
Coupling: Transformer
Input Impedance: 75Ω (Selectable Hi-Z)
Return Loss: >25dB at 100kHz to 6MHz
Equalization: Automatic to 1500m with Belden 1694A (or equivalent) @ 48kHz AES signal
Sampling Frequency: 32kHz, 44.1kHz, 48kHz and 96kHz

AES Output:

Number of Outputs: 5 Per Card Reclocked
Connector: BNC per IEC 60169-8 Amendment 2
Output Level: 1V p-p
Output Impedance: 75Ω
Return Loss: >25dB 100kHz to 6MHz

Physical:

Number of Slots: 1

Electrical:

Voltage: +12VDC
Power: 1.2 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7700DA-AESU Auto Equalizing Unbalanced AES/EBU Distribution Amplifier

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

DS3 Distribution Amplifier

7700DA-DS3

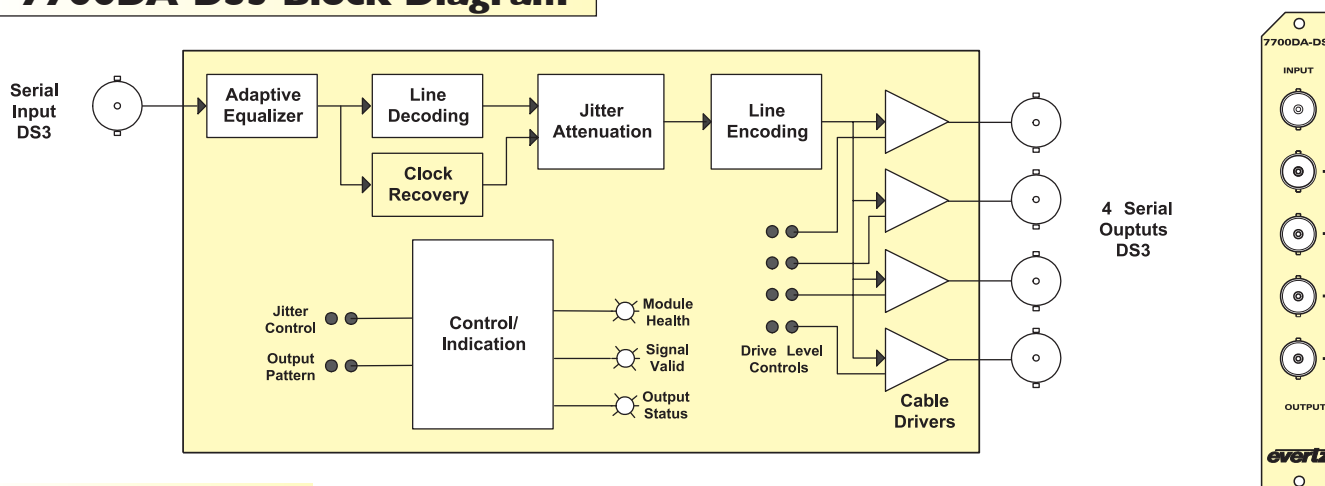
The 7700DA-DS3 Distribution Amplifier provides automatic coaxial cable equalization, reclocking and signal distribution of DS3 (44.736 Mb/s), signals. The 7700DA-DS3 accepts a B3ZS-encoded Alternate Market Inversion (AMI) input signal and provides four reclocked outputs.

The 7700DA-DS3 occupies one card slot and can be housed in either a 1RU frame that will hold up to three modules or a 3RU frame that will hold up to 15 modules

Features

- Supports DS3 (44.736 Mb/s)
- Accepts B3ZS AMI input signals
- Automatic cable equalization for up to 1000ft of high quality 75Ω cable
- Signal reclocking and optional jitter attenuator
- Output wave shaping for DS3 standards compliance
- High/Low output amplitude setting for long/short cable lengths
- Loss of signal (LOS) detection/indication
- Outputs 1's pattern generation upon loss of input signal
- Electrical output drive level control for enhanced distance
- Transformer coupled inputs/outputs
- Input/output transient protection

7700DA-DS3 Block Diagram



Specifications

Inputs:

Standard:	DS3 (44.7346 Mb/s)
Number of Inputs:	1
Connector:	Isolated BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 300m with Belden 8281 or equivalent cable
Return Loss:	> 20 dB up to 44 Mb/s

Outputs:

Number of Outputs:	4 Per Card Reclocked
Connector:	BNC per IEC 60169-8 Amendment 2
Waveform:	Conforms to G.703 compliant masks
Return Loss:	> 18 dB up to 44 Mb/s

Physical:

Number of Slots:	1
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Electrical:

Voltage:	+12VDC
Power:	6 Watts
EMI/RFI:	Complies with FCC Part 15, Class A Complies with EU EMC Directive

Ordering Information:

7700DA-DS3	DS3 Distribution Amplifier
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

HD SDI Reclocking Distribution Amplifier

Model 7700DA-HD / 7700DA8-HD

The 7700 HD series Distribution Amplifiers provide reliable distribution of your 1.5 Gb/s HDTV serial digital signal. The DA's feature one auto-equalized input with either four or eight reclocked outputs. The 7700 HD DA's are housed in the Evertz Multiframe, which is available in either a 3RU or 1RU version. The DA has been designed to reclock at 1.5Gb/s. However, in non-reclocking mode it can also be used as a SMPTE 292M, SMPTE 310M, DVB-ASI, M2S or SMPTE 259M distribution product.

Features

- Reclocking mode for SMPTE 292M (1.5 Gb/s) signals
- Non-reclocking mode for SMPTE 292M, SMPTE 310M DA (nominal 19.4 Mb/s), SMPTE 259M, DVB-ASI or M2S
- Tally output upon loss of signal for quality monitoring

Status LEDs:

- Signal presence
- Max. Equalization Warning
- Module Health Status

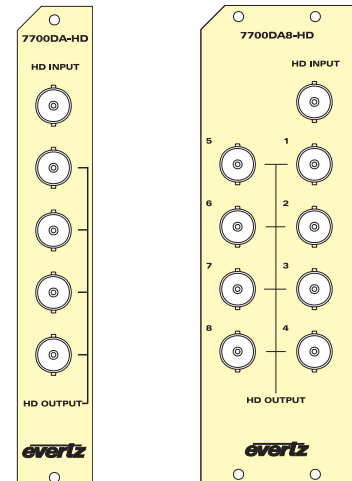
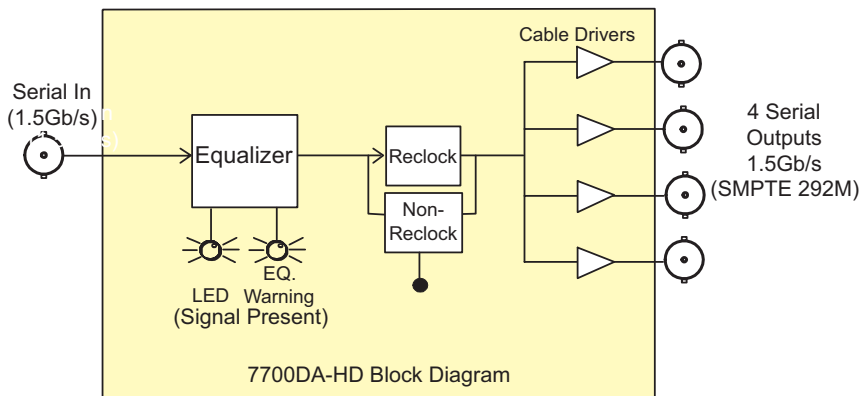
Input:

- SMPTE 292M (1.5 Gb/s) - Reclocking mode
- SMPTE 292M, SMPTE310M, SMPTE259M, M2S or DVB-ASI - Non-reclocking mode
- Auto equalization to 130m (Belden 1694)

Output:

- 4 or 8 reclocked outputs
- Wideband jitter <0.2UI

7700DA-HD / 7700DA8-HD Block Diagram



Specifications

Serial Video Input:

Standard:	SMPTE 292M
In Non-Reclock Mode:	SMPTE 292M, SMPTE 310M, SMPTE 259M-A, B, C, D, DVB-ASI or M2S
Connector:	1 BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 130m @ 1.5Gb/s with Belden 1694 (or equivalent)
Return Loss:	>15dB to 1.0 Gb/s, >12db up to 1.5 Gb/s

Serial Video Outputs:

Number of Outputs:	4 or 8 Per Card
Standard:	SMPTE 292M
In Non-Reclock Mode:	SMPTE 292M, SMPTE 310M, SMPTE 259M-A, B, C, D, M2S, DVB-ASI
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	200ps nominal
Overshoot:	<10% of amplitude
Return Loss:	>15dB to 1.0 Gb/s >12db up to 1.5 Gb/s]
Wideband jitter:	<0.2UI

Physical:

Number of Slots:	1 (7700DA-HD) 2 (7700DA8-HD)
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Electrical:

Voltage:	+ 12V DC
Power:	5 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Ordering Information:

7700DA-HD	HD SDI reclocking DA, 4 outputs
7700DA8-HD	HD SDI reclocking DA, 8 outputs

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

VistaLINK™ Frame Controller



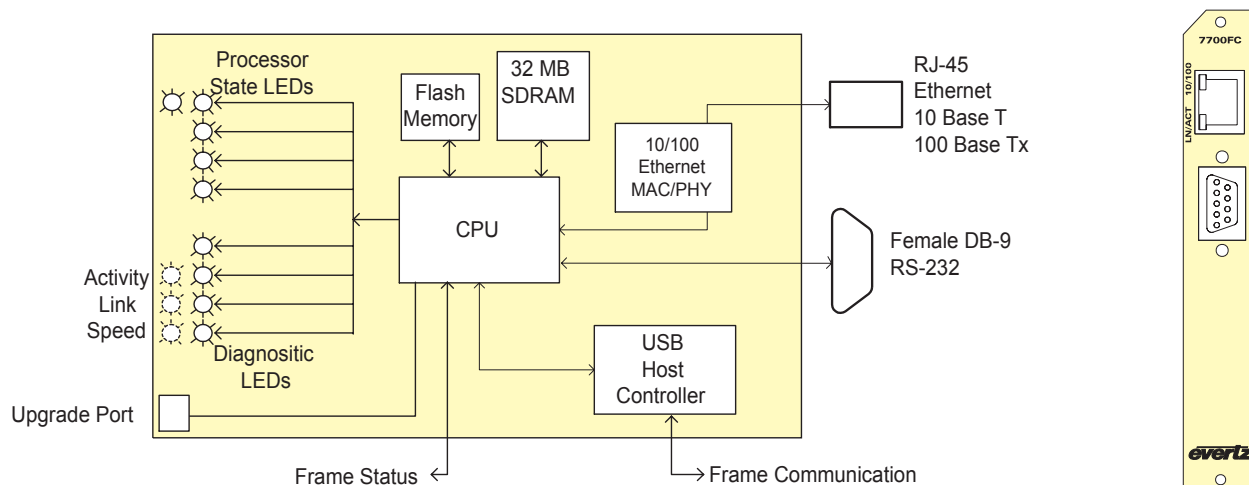
Model 7700FC VistaLINK™ Frame Controller

The 7700FC VistaLINK™ Frame Controller card provides a single point of access to communicate with VistaLINK™-enabled modules. The 7700FC VistaLINK™ Frame Controller provides a 10Base-T/100Base-TX Ethernet port and communication is facilitated through the use of Simple Network Management Protocol (SNMP). The 7700FC VistaLINK™ Frame Controller handles all SNMP communications between the frame (7700FR-C) and the network manager (NMS), and serves as a gateway to individual cards in the frame. The 7700FC VistaLINK™ Frame Controller also provides an RS-232 serial port interface for customer configurations.

Features

- Complies with IEEE 802.3 100Base-TX and 10Base-T Ethernet standards
- 100 Mbps Fast Ethernet or 10 Mbps Ethernet data transfer, selected by auto-negotiation
- Full duplex or half-duplex operation, selected by auto negotiation
- RJ-45 connector for network cable connection
- RS-232 serial control port for configuration
- Card edge LEDs indicate module fault, microprocessor state, activity and link status
- Rear panel LEDs indicate Ethernet link, activity and speed
- Supports "ftp" upgrades for frame-wide firmware upgrades (product specific)
- Includes VistaLINK™ PRO (VLPRO-C) module software configuration tool
- Provides frame/chassis status information through -enabled hardware via VistaLINK™ including power supply status, frame status, card insertion/removal counters, 7700FC software version number and LED control

Model 7700FC VistaLINK™ Frame Controller Block Diagram



Specifications

Ethernet:

Network Type: Fast Ethernet 100 Base-TX IEEE 802.3u standard for 100 Mbps baseband CSMA/CD local area network
Ethernet 10 Base-T IEEE 802.3 standard for 10Mbps baseband CSMA/CD local area network

Connector: RJ-45

Serial I/O:

Standard: RS-232

Connector: Female DB-9

Baud Rate: 57600

Format: 8 bits, no parity, 2 stop bits, no flow control

Electrical:

Voltage: + 12VDC

Power: 7 Watts

EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Physical:

Number of slots: 1 (must be in slot 1 of 7700FR-C)

Dimensions: 14 " L x 4.5 " W x 1.9 " H
(355 mm L x 114 mm W x 48 mm H)

Weight: approx. 0.5 lbs. (~0.2 kg)

Ordering Information:

7700FC: VistaLINK™ Frame Controller

Ordering Options:

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

Enclosure:

7700FR-C 3RU Multiframe only

Evertz Multiframes - 7700 Series

Model 7700FR-C, 7701FR or S7701FR



7700FR-C



7701FR



S7701FR (with rackmount tray)

The Evertz 7700FR-C, 7701FR & S7701FR Multiframes are ideal solutions to today's vast digital video and audio processing and distribution requirements. They provide flexibility to handle the high-speed requirements of HDTV as well as Analog and SDTV. The Multiframes support extraction of the modules from the front without compromising performance even at 1.5Gb/s. Hot extraction is supported on various types of interfaces including VIDEO, AUDIO and FIBER.

The 7700FR-C Multiframes are 3RU frames designed to house up to 15 single slot modules, the 7701FR Multiframe is a 1RU frame designed to house up to 3 single or dual slot modules both in various combinations and configurations and the S7701FR Multiframe is a single frame designed to house 1 single slot module or dual slot module.

Features

- Power supply and cooling fan are front extractable
- Houses up to 15 front loading processing modules with I/O for the 7700FR-C and 3 for the 7701FR
- Each slot has individually configurable inputs and outputs
- Monitoring window for verifying modules status and power supply status
- 7700FR-C can house a 7700FC VistaLINK™ Frame Controller in slot 1 which will allow for remote control and monitoring of VistaLINK™ - enabled products via SNMP over TCP/IP
- Frame status contact closure/open on power supply failure, fan failures and user selectable module alarms
- A relay based contact closure is provided with common, ground, normally open and normally closed contacts

- High-speed bussing and control system provided for modular applications
- No recabling required when hot swapping modules
- Optional redundant power supply for the 3RU 7700FR-C and 1RU 7701FR
- 7700FR-C may be ordered with 48VDC power supplies

Single Module Standalone Enclosure:

- Portable
- Powered by an external 12V DC adapter (included)
- Supports both single slot and dual slot modules
- Optional rack mount panel mounts 3 S7701FR enclosures in 1RU rack space

Evertz Multiframes - 7700 Series

Specifications

Electrical :

Power Supply Configuration:

7700FR-C:	Dual, redundant, separate AC inlets
7700FR-C-48VDC:	Dual, redundant, separate DC inlets on terminal strips
7701FR:	Standard single, optional external redundant
S7701FR:	External power supply adapter

Voltage:

7700FR-C:	Auto ranging, 100 to 240 VAC, 50/60 Hz
7700FR-C-48VDC:	36V to 60VDC
7701FR:	Auto ranging, 100 to 240 VAC, 50/60 Hz
S7701FR:	12VDC Nominal Auto ranging, 100 to 240VAC power adapter included

Maximum Power Dissipation:

7700FR-C:	200 W
7700FR-C-48VDC:	200 W
7701FR:	80 W
S7701FR:	30 W

Fuses:

7700FR-C:	4 amp, 250 Volt time delay 5x20mm - line and neutral
7700FR-C-48VDC:	10 amp, 250 Volt time delay 5x20mm
7701FR:	2 amp, 250 Volt time delay 5x20mm - line and neutral
S7701FR:	Internal self resetting fuse

Connectors:

7700FR-C:	IEC 60320
7700FR-C-48VDC:	3 position terminal strip
7701FR:	IEC 60320
S7701FR:	2.5 mm DC power jack

Certification:

Safety:	ETL Listed Complies with EU Safety Directive
EMC:	Complies with FCC part 15, Class A Complies with EU EMC Directives

Front Panel Indicators:

PSU status LED, Local Error/Failure

Tally Output:

4 pin terminal, relay N/O,
N/C for status/fault alarm

Physical:

Dimensions:

7700FR-C:	19"W x 5.25"H x 14.5"D (483mm W x 133mm H x 368mm D)
7700FR-C-48VDC:	19"W x 5.25"H x 14.5"D (483mm W x 133mm H x 368mm D)
7701FR:	19"W x 1.75"H x 14.5"D (483mm W x 45mm H x 368mm D)
S7701FR:	5"W x 1.75"H x 14.5"D 127mm W x 45mm h x 368mm D

Temperature:	0-40°C optimal performance 0-50°C operating
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Module Capacity:

7700FR-C:	15 single slot modules
7700FR-C-48VDC:	15 single slot modules
7701FR:	3 single or dual slot modules
S7701FR:	1 single or dual slot module

Weight:

7700FR-C:	32 lbs. (14.5 Kg) (Full) 17.4 lbs (8 Kg) (Empty)
7700FR-C-48VDC:	32 lbs. (14.5 Kg) (Full) 17.4 lbs (8 Kg) (Empty)
7701FR:	10 lbs. (14.5 Kg) (Full) 7 lbs. (3.1 Kg) (Empty)
S7701FR:	1.3 lbs. (.58 Kg)

Ordering Information:

7700FR-C	3RU Multiframe which holds up to 15 single slot modules with AC power supply
7700FR-CR	3RU Multiframe which holds up to 15 single slot modules without power supply
7700FR-C-48VDC	3RU Multiframe which holds up to 15 single slot modules with 48DC power supply
7701FR	1RU Multiframe which holds up to 3 single or dual slot modules
S7701FR	Standalone frame which holds 1 single slot or 1 dual slot module with power supply (Must order +SA for rear plate separately)

Ordering Options and Accessories:

For 7700FR-C & 7700FR-C-48-VDC Frames:

+7PS	Redundant power supply for 7700FR-C
7700PS	Additional power supply for 7700FR
+48PS	Redundant power supply for 7700FR-C-48VDC
7700PS-48VDC	Additional power supply for 7700FR-C-48VDC

For 7701FR Frame:

+PSX	Optional external redundant power supply for 7701FR when ordered with frame
7701PSX	Optional external power supply for 7701FR for existing hardware
7701PS	Internal power supply for 7701FR (replacement or spare orders only)

For S7701FR Frame:

S7701P	Rear connector plate for Standalone frame (price applies when ordered separately; discounted when ordered with module)
S7701FR-RP	Rackmount panel mounts 3 S7701FR enclosures in 1RU rack space

Note: Some 7700 series modules cannot be accommodated in the 1RU standalone enclosure. See individual product brochure or contact factory.

VistaLINK™ General Purpose (GPI I/O) Interface Module

Model 7700GPI



The 7700GPI VistaLINK™ General Purpose Interface module links third-party equipment and Evertz VistaLINK™ Network Management System (NMS). Third-party equipment with fault alarming capabilities through General Purpose Interface outputs (GPO) can communicate fault alarm conditions to the VistaLINK™ application software through this GPO to SNMP translator thereby extending fault monitoring capabilities across the broadcast network.

Equipped with a Linear Time Code (LTC) input, the 7700GPI module can synchronize logged fault alarms within the VistaLINK™ application software with the facility clock for accurate alarm acknowledgement and record-keeping. In addition it is possible to label each GPI input for easier notification. The label follows the fault message (trap) through to the VistaLINK™ PRO server and onto email/pager notifications (if enabled).

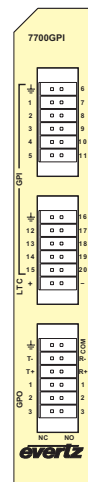
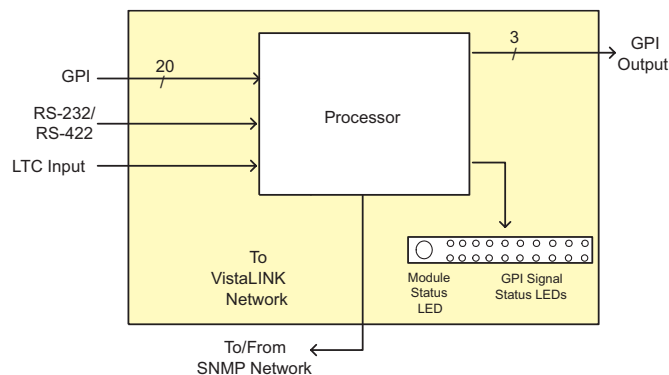
The GPI module is also equipped with three NC/NO GPI outputs (GPO) and can be utilized to relay a "message" from the VistaLINK™ system to connect-eed gear. Configuration changes or additional fault alarming are possible through this interface.

VistaLINK™ offers remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP) giving the flexibility to manage operations, including signal monitoring and module configuration from SNMP-enabled control systems (Manager or NMS).

Features

- 20 opto-isolated General Purpose Interface inputs (GPI)
- Enabled GPI inputs/alerts translated and reported to Network Management System (NMS) user interface via SNMP
- Selectable +5V or +12V supply for driving GPI over longer cable runs
- 3 relay closure General Purpose Interface outputs (GPO)
- GPI/GPO easily accessed through pin-headers (2x6 Phoenix Terminal Blocks) on rear plate
- 1 LTC input for module synchronization of fault alarms to facility time
- Modular, conveniently fits into 7700FR-C 3RU frame
- Module status LED and 20 GPI LEDs for simple GPI input diagnostics
- Frame status trigger
- Jumper-configurable RS-232/RS-422 input serial COM port for serial protocol interface translation
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

7700GPI Block Diagram



Specifications

General Purpose Interface Input:

Number of Inputs: 20
Type: Opto-isolated, active low with jumper selectable +5V or +12V supplied voltage
Connector: Phoenix Terminal Block (2x6)
Signal Level: Jumper selectable +5V or +12V

General Purpose Interface Output:

Number of Outputs: 3
Type: "Dry Contact" relay closure
Connector: 2 pins per output on Phoenix Terminal Block (2x6)
Signal Level: Normally closed and normally open

LTC Input:

Number of Inputs: 1(+/- pair)
Type: Balanced
Level: 100 mVp-p
Connector: Phoenix Terminal Block pins (2x6)

Data Input Serial Port:

Number of Ports: 1 RS-232 or 1 RS-422 (jumper selectable)
Connector: Phoenix Terminal Block pins (2x6)

Baud Rate; Up to 1 Mbaud
Electrical:
Voltage: + 12VDC
Power: <6W
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:
Number of slots: 1

Ordering Information:

7700GPI VistaLINK™ General Purpose Interface

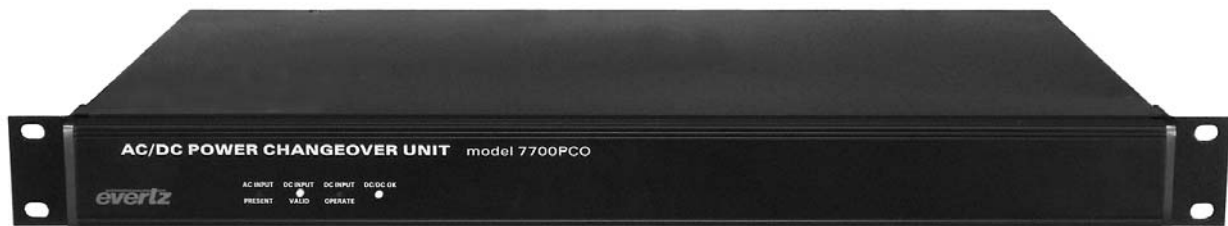
Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

Enclosures:
7700FR-C 3RU Multiframe which holds 15 modules

Model 7700PCO



The 7700PCO is a 1 rack-unit high rack frame designed to fit into a standard 19-inch rack. Special care was taken during the design process to ensure that the unit meets the demanding needs of professional video users and applications. It is intended to be used only with Evertz's line of 7700 Multiframe to provide reliable and high quality back-up power switching. This is ideal for remote applications where main power can be intermittent or where a program feed must be guaranteed at all times.

Features

- Seamless, auto switching to external DC supply in case of AC failure
 - Standard AC input cord
 - Fused DC input on terminal block
 - Direct output connection to 7700 frame power supplies
 - Dual power outlets to 7700 frame
 - Front panel status LED's
 - 30 minutes operation on fully loaded 7700 frame (200 Watt) with dual Anton Bauer Hytron 100 batteries (requires quad battery holder), 60 minutes operation on 100 Watt load (7700 frame about half full dependent on card types)
- NOTE:**
Operation times dependent upon type of battery used.
Operation times will vary

Specifications

Electrical:

Power Supply

Configuration: Input A: Auto ranging, 95 ⇄ 264 VAC,
47-63 Hz

Input B: 10 ⇄ 18 VDC

Output: 115 ⇄ 370 VDC

Maximum Output

Power Dissipation: 300 Watts

Fuse: DC input fuse - rated for 32V min. at 40 amps

Status Indicators: AC Input Present LED (green)

Valid DC Present LED (green)

DC Operate LED (green)

DC/DC OK LED (green)

Temperature: 0 ⇄ 55°C ambient

Physical

Height: 1.75" (44.5 mm)

Width: 19" (483 mm)

Depth: 11.2" (285 mm)

Weight: Approx. 7 lbs (3.2 Kg)

Ordering Information:

Note: Enclosure with side mount flanges ships standard

7700PCO	Power Changeover Unit
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Ordering Options:

IRCBH+AB	Anton Bauer Quad Battery Holder
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Universal Protocol Translator

7700PTX



The 7700PTX Universal Protocol Translator module provides the ability for Evertz VistaLINK® and MVP™ software to interface directly to third party UMD devices and routers.

The 7700PTX communicates with the router and UMD protocols either via one of four serial ports or using a built in Ethernet port. All ports both serial and Ethernet are bi-directional allowing the device complete flexibility for communication. The 7700PTX is equipped with 20 general purpose inputs and 8 general purpose outputs that can be used to connect to third party devices for the purpose of alarming or tally. A single LTC port allows the 7700PTX to connect to external time of day references.

The following protocols are supported by the specified version of 7700PTX card:

7700PTX-MVP Image Video, TSL, Leitch UDT5700, and GPI/O protocol support
7700PTX-SX Miranda PressMaster protocol support
7700PTX-XY Leitch XY Integrator protocol support
7700PTX-CTP Contribution Tally Protocol support (GVG Switcher, Ross Switcher)
7700PTX-10XL GVG 10XL protocol support for router control
7700PTX-D28 Datatek D2800 protocol support for router control
7700PTX-D20 Datatek D2000 protocol support for router control
7700PTX-RCL Router Control Language protocol (GVG Encore) for router control

7700PTX-NV Nvision router and server protocol support for router control
7700PTX-VMSI VMSI protocol support (GVG Jupiter) for router control
7700PTX-AP Andromeda UMD/tally protocol support (GVG ASCII plus)
7700PTX-PESA Pesa CPU link protocol No. 1 support for router control
7700PTX-QUTZ Quartz router switcher remote control protocol type 1 support for router control

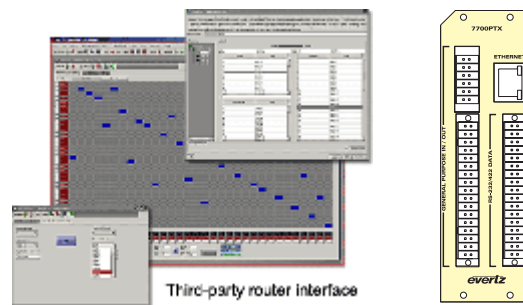
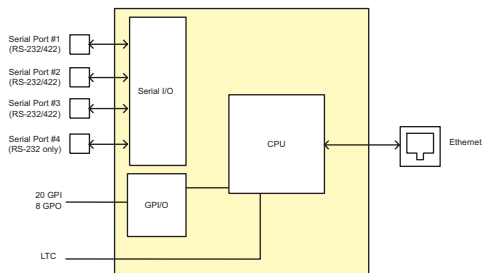
For router protocols not listed here please contact the factory.

Features

- 4 serial ports RS232/422 selectable
- 20 opto-isolated General Purpose inputs (GPI)
- Selectable +5V or +12V supply for driving GPI over longer cable runs
- 8 relay closure General Purpose Interface outputs (GPO)
- GPI/GPO easily accessed through pin-headers (2x6 Phoenix Terminal Blocks) on rear plate

- 1 LTC input for module synchronization of fault alarms to facility time (feature not available at time of printing)
- Modular, conveniently fits into 7700FR-C 3RU frame
- Module status LED and 20 GPI LEDs for simple GPI input diagnostics
- Frame status trigger
- VistaLINK® -enabled for remote monitoring and control via SNMP (using VistaLINK® PRO)

7700PTX Block Diagram & Rear Panel



Specifications

General Purpose Interface Input:

Number of Inputs: 20

Type: Opto-isolated, active low with jumper selectable +5V or +12V supplied voltage

Connector: Phoenix Terminal Block

Signal Level: Jumper selectable +5V or +12V

General Purpose Interface Output:

Number of Outputs: 8

Type: "Dry Contact" relay closure

Connector: 2 pins per output on Phoenix Terminal Block

Signal Level: Normally closed and normally open

LTC Input:

Number of Inputs: 1(± pair)

Type: Balanced

Level: 0.2 to 4V p-p balanced or unbalanced

Connector: Phoenix Terminal Block pins

Data Input Serial Port:

Number of Ports: 4 RS-232 or 3 RS-422

Connector: Phoenix Terminal Block pins

Baud Rate: Up to 1 Mbaud

Electrical:

Voltage: + 12VDC

Power: <6W

Safety: ETL Listed, complies with EU safety directives

EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 2

Ordering Information:

7700PTX-MVP PTX which drives UMDs
7700PTX-SX PTX which interfaces with Miranda Press Station
7700PTX-XY PTX which interfaces with Leitch-XY integrator
7700PTX-CTP PTX which interfaces with Ross switcher
7700PTX-10XL PTX which controls 10XL-based routers
7700PTX-D28 PTX which controls Datatek D-2800 based router
7700PTX-D20 PTX which controls Datatek D-2000 based router
7700PTX-RCL PTX which controls GVC RCL based router
7700PTX-NV PTX which controls NVISION based router
7700PTX-VMSI PTS which controls VMSI based router
7700PTX-AP PTX which controls UMD/tally based router
7700PTX-PESA PTX which controls Pesa protocol based router

Ordering Options

Rear Plate must be specified at time of order

Eg: Model +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD 4 x 1 Router

Model 7700R-4x1-HD

The 7700R-4x1-HD is a 4x1 router for the 7700FR with a 4 output DA on the output buss. The DA's features four auto-equalized inputs with four or reclocked outputs. The 7700R-4x1-HD is housed in the Evertz Multiframe, which is available in either a 3RU or 1RU version. The router has been designed to reclock at 1.5Gb/s. However, in non-reclocking mode it can also be used as a SMPTE 310M, DVB-ASI, M2S or SMPTE 259M distribution product.

Features

- Reclocking mode for SMPTE 292M (1.5 Gb/s) signals
- Non-reclocking mode for SMPTE 310M (nominal 19.4 Mb/s), SMPTE 259M, DVB-ASI or M2S
- Tally output upon loss of signal for quality monitoring

Status LEDs:

- Signal presence
- Module Health Status

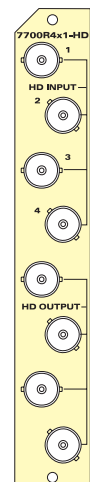
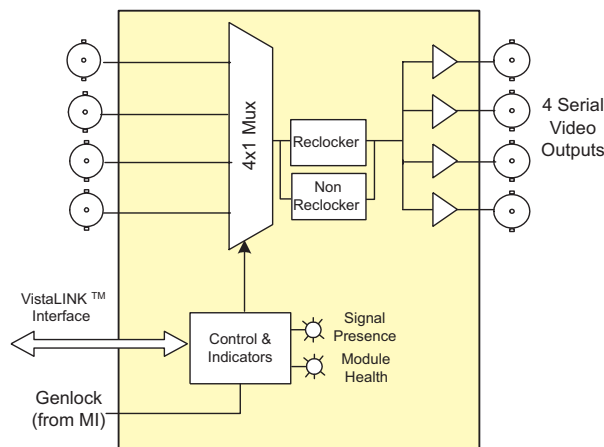
Input:

- SMPTE 292M (1.5 Gb/s) - Reclocking mode
- SMPTE 310M/259M, M2S or DVB-ASI - Non-reclocking mode
- Auto equalization to 130m (Belden 1694)

Output:

- 4 reclocked outputs
- Wideband jitter <0.2UI

7700R-4x1-HD Block Diagram



Specifications

Serial Video Input:

Standard:	SMPTE 292M
In Non-Reclock Mode:	SMPTE 310M, SMPTE 259M-A, B, C, D, DVB-ASI or M2S
Number of Inputs:	4
Connector:	1 BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 100m @ 1.5Gb/s with Belden 1694 (or equivalent)
Return Loss:	>15dB to 1.0 Gb/s, >12db up to 1.5 Gb/s

Serial Video Outputs:

Number of Outputs:	4
Standard:	SMPTE 292M
In Non-Reclock Mode:	SMPTE 310M, SMPTE 259M-A, B, C, D M2S, DVB-ASI
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	200ps nominal
Overshoot:	<10% of amplitude
Return Loss:	>15dB to 1.0 Gb/s >12db up to 1.5 Gb/s]
Wideband jitter:	<0.2UI

Physical:

Number of Slots:	1
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Electrical:

Voltage:	+ 12V DC
Power:	5 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Ordering Information:

7700R-4x1-HD	HD 4x1 Router
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure



The 7700R2x2-HD series modules are bypass routers for 1.5 Gb/s HDTV or standard definition 270 Mb/s serial digital video signals. There are three distinct models in the series offering a cost effective solution for your specific requirements. The 7700R2x2-HD series modules accept all the popular international SMPTE 292M video formats as well as 525 and 625 line SMPTE 259M-C video formats.

These 7700 series modules provide 3 reclocked primary outputs and 1 reclocked backup output. The program output is bypass relay protected and provides protection on the program path. If module is removed from enclosure the program path is maintained. The 7700RD2x2-HD model also provides monitoring downconverted outputs for HD signals and pass-through reclocked outputs for SDI signals.

The 7700R2x2-HES-HD has all the features of the 7700R2x2-HD and is also equipped with SoftSwitch[®], which provides clean video and "popless" embedded audio switching. The video output has adjustable vertical timing with respect to the genlock input. The line synchronizers on the video inputs can accommodate differences in timing of up to $\pm 1/2$ line providing clean video switches on the video outputs. The embedded audio uses Evertz' patent pending SoftSwitch[®] technology to eliminate audio pops when switches are performed on synchronous audio sources.

The two inputs are being monitored at all times for a variety of error conditions and status

- Video loss or invalid at input (proper EAV/SAV structure and timing)
- Status of embedded audio
- Status of router selection

Status is provided using a number of methods.

- Card edge 4 character alphanumeric display
- Card edge LED status for router state, signal presence, etc.
- Tally output on GPI's for router state
- SNMP reporting and monitoring via VistaLINK[®] PRO or any SNMP compliant manager

Output selection and control of the selector can be achieved a number of methods.

- Contact closures (GPI control),
- Card edge control
- Via network control panels (9000NCP, 9000NCP2),
- VistaLINK[®] provides a software GUI interface for control and monitoring of the device. VistaLINK[®] can be used to manual control the switch or be configured to trigger a change based on specific errors and thresholds.

VistaLINK[®] enables remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage operations including signal monitoring and module configuration from SNMP enabled control systems (Manager or NMS) locally or remotely.

An advanced monitoring and status option is available. This option allows for thumbnail viewing of the inputs remotely. Thumbnails are streamed over TCP/IP and viewed with the VistaLINK[®] suite of software. This option also provides advanced monitoring for several video and audio error conditions. Provisions for durations and thresholds are provided for all the monitored parameters.

The 7700R2x2-HD and 7700R2x2-HES-HD occupies one card slot and can be housed in the 3 RU frame, which will hold up to 15 single slot modules, or one the 1RU frame, which will hold up to three modules. The 7700RD2x2-HD occupies two card slots in the 3 RU frame or 1 slot in the 1RU frame.

Features:

- Serial digital 1.5 Gb/s HD input per SMPTE 292M (1080i/59.94, 1080i/50, 720p/59.94, 720p/50) or 270 Mb/s SDI input per SMPTE 259M-C (525i/59.94 or 625i/50) - auto senses HD or SD inputs
- 3 Reclocked program outputs, 1 reclocked preview on primary (HD if HD inputs applied, SD if SD inputs applied)
- Bypass relay protection on program output
- Switch point is controllable when a genlock reference is provided.
- GPI control inputs
- GPI selector status outputs
- Card edge menu used to configure the operating modes
- Card Edge LEDs for signal presence, router state, module status
- VistaLINK[®] capable offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK[®] is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK[®] Frame Controller module in slot 1 of the frame using the model 9000NCP Network Control Panel or Evertz VistaLINK[®] PRO or other third party SNMP manager software.

Additional features on 7700RD2x2-HD model only

- 1 program and one preview monitor SDI output (downconverted from HD if HD input applied), (relocked SD if SD input applied)
- Supports 16:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze aspect ratio conversions.
- HD to SD colour space conversion (ITU rec. 709 to ITU rec. 601)

Additional features on 7700R2x2-HES-HD model only

- Supports up to 16 channels of embedded audio
- SoftSwitch[®] technology provides clean video and "popless" embedded audio switching
- Configurable group selection for SoftSwitch[®]
- Dolby E compliant.
- VistaLINK[®] provides a software GUI interface for control and monitoring of the device. VistaLINK[®] can be used to manual control the switch or be configured to trigger a change based on specific errors and thresholds.

VistaLINK[®] enables remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage operations including signal monitoring and module configuration from SNMP enabled control systems (Manager or NMS) locally or remotely.

An advanced monitoring and status option is available. This option allows for thumbnail viewing of the inputs remotely. Thumbnails are streamed over TCP/IP and viewed with the VistaLINK[®] suite of software. This option also provides advanced monitoring for several video and audio error conditions. Provisions for durations and thresholds are provided for all the monitored parameters.

The 7700R2x2-HD and 7700R2x2-HES-HD occupies one card slot and can be housed in the 3 RU frame, which will hold up to 15 single slot modules, or one the 1RU frame, which will hold up to three modules. The 7700RD2x2-HD occupies two card slots in the 3 RU frame or 1 slot in the 1RU frame.

Features:

- Serial digital 1.5 Gb/s HD input per SMPTE 292M (1080i/59.94, 1080i/50, 720p/59.94, 720p/50) or 270 Mb/s SDI input per SMPTE 259M-C (525i/59.94 or 625i/50) - auto senses HD or SD inputs
- 3 Reclocked program outputs, 1 reclocked preview on primary (HD if HD inputs applied, SD if SD inputs applied)
- Bypass relay protection on program output
- Switch point is controllable when a genlock reference is provided.
- GPI control inputs
- GPI selector status outputs
- Card edge menu used to configure the operating modes
- Card Edge LEDs for signal presence, router state, module status
- VistaLINK[®] capable offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK[®] is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK[®] Frame Controller module in slot 1 of the frame using the model 9000NCP Network Control Panel or Evertz VistaLINK[®] PRO or other third party SNMP manager software.

2 X 2 HD/SD Routers

7700R2x2-HD

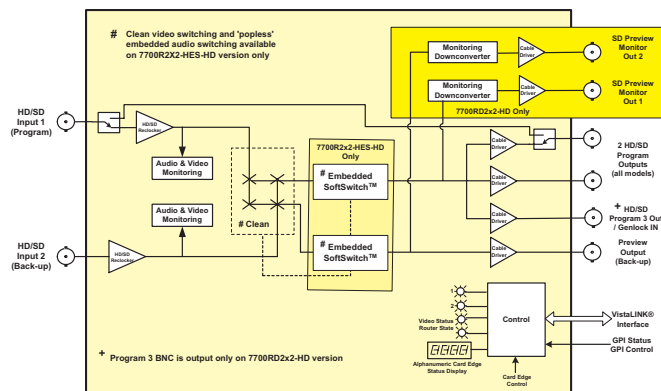
Additional features on 7700RD2x2-HD model only

- 1 program and one preview monitor SDI output (downconverted from HD if HD input applied), (reclocked SD if SD input applied)
- Supports 16:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze aspect ratio conversions.
- HD to SD colour space conversion (ITU rec. 709 to ITU rec. 601)

Additional features on 7700R2x2-HES-HD model only

- Supports up to 16 channels of embedded audio
- SoftSwitch[®] technology provides clean video and "popless" embedded audio switching
- Configurable group selection for SoftSwitch[®]
- Dolby E compliant.

7700R2x2-HD, 7700R2x2-HES-HD & 7700RD2x2-HD Router Block Diagram



Specifications

Serial Video Input:

Standard: Auto-detects standard
1.485 Gb/sec SMPTE 292M (1080i/59.94, 1080i/50, 720p/59.94, 720p/50) SMPTE 260M, SMPTE 274M, SMPTE 296M, SMPTE 349M (HD or SD carrier)
270 Mb/s SMPTE 259M-C (525i/59.94 or 625i/50)
2 BNC per IEC 60169-8 Amendment 2

Connector: BNC per IEC 60169-8 Amendment 2

Input Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694 or equivalent cable.

Return Loss: >20 dB up to 270 MHz
>12 dB up to 1.5GHz

Reclocked Serial Video Router Outputs:

Standard: Same as input

Number of Outputs: 3 Program outputs reclocked, (1 output is bypass relay protected)
1 preview output

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 200ps nominal for HD
900ps nominal for SD

Overshoot: <10% of amplitude

Return Loss: >20 dB up to 270 MHz
> 15 dB at 1.5 Gb/s

Jitter: < 0.16UI (HD) or < 0.10UI (SD)

Downconverted Serial Video Outputs (7700RD2x2-HD-only):

Standard: SMPTE 259M-C (270 Mb/s)

Number of Outputs: 1 Program 1 preview

Connector: BNC per IEC 60169-8 Amendment 2.

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 750ps nominal

Overshoot: <10% of amplitude

Return Loss: > 15 dB at 270 Mb/s

Jitter: < 0.2 UI

Genlock Input:

Type: NTSC or PAL Colour Black 1 V p-p
HD Tri-level Sync

Connector: BNC per IEC 60169-8 Amendment 2

Termination: High impedance or internal 75 ohm termination (jumper selectable)

GPIO Control Port:

Number of Inputs: 2

Number of Outputs: 2

Type: Opto-isolated, active low with internal pull-ups to +5 or +12V (jumper settable)

Connector: 6 pins removable terminal block

Signal Level: closure to ground

Input to Output Processing Delay (HD input video on (7700RD2x2-HD only):

Downconverter Video Delay:

Approximately 1 to 2 frames depending on input video format, processing mode.

Electrical:

Voltage: +12VDC

Power:

7700R2x2-HD 10 Watts.

7700R2x2-HES-HD 10 Watts.

7700RD2x2-HD 14 Watts.

EMI/RFI: Complies with FCC regulations for class A devices.
Complies with EU EMC directive.

Physical:

Number of slots

7700 frame mounting:

7700R2x2-HD 1

7700R2x2-HES-HD 1

7700RD2x2-HD 2

7701 frame mounting:

All versions: 1

Ordering Information:

7700R2x2-HD 2x2 HD/SD Router
7700R2x2-HES-HD 2x2 HD/SD Router with SoftSwitch[™]
7700RD2x2-HD 2x2 HD/SD Router with dual HD Downconverter

Ordering Options

Rear Plate must be specified at time of order
Eg: Model +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

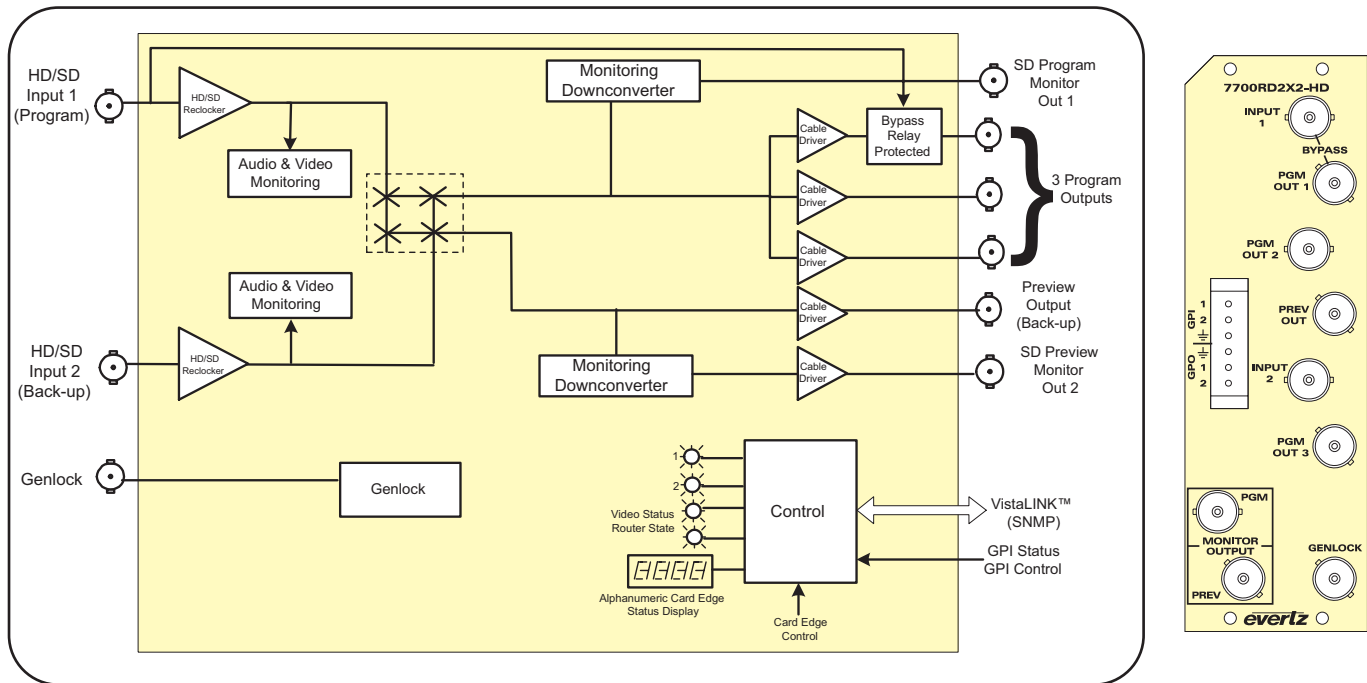
Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

2 X 2 HD/SD Router with Dual HD Down Converters



Model 7700RD2x2-HD



The 7700RD2x2-HD is a HD/SD SDI bypass router which includes monitoring downconverted outputs for HD inputs (for SD inputs, those monitoring outputs act as pass through outputs). This 7700 series module has 3 reclocked primary outputs and 1 reclocked secondary output.

The program output is bypass relay protected and provides protection on the program path. If module is removed from enclosure the program path is maintained.

The two inputs are being monitored at all times for video loss or invalid input (proper EAV/SAV structure and timing).

Status is provided using a number of methods.

- On Card edge 4 character alphanumeric display
- Card edge LED status for router state, signal presence, etc.
- Tally output on GPI's for router state
- SNMP reporting and monitoring via VistaLINK™ PRO or any SNMP compliant manager

Output selection and control of the selector can be achieved a number of methods.

- Contact closures (GPI control)
- Card edge control
- Via network control panels (9000NCP, 9000NCP2)
- VistaLINK™ provides a software GUI interface for control and monitoring of the device. VistaLINK™ can be used to manual control the switch or be configured to trigger a change based on specific errors and thresholds.

VistaLINK™ enables remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage operations including signal monitoring and module configuration from SNMP enabled control systems (Manager or NMS) locally or remotely.

2 X 2 HD/SD Router with Dual HD Down Converters

Features

- Switch point is controllable when a genlock reference is provided.
- Bypass relay protection on program output
- GPI control inputs
- GPI selector status outputs
- Downconverted preview and program output

Specifications

Serial Video Input:

Standard:	1.485Gb/s SMPTE 292M - SMPTE 274M, SMPTE 296M, SMPTE 349M 270Mb/s SMPTE 259M-C 525i/59.94 or 625i/50
Connector:	2 BNC per IEC 60169-8 Amendment 2
Input Equalization:	SD Automatic to 300m @ 270Mb/s and HD Automatic to 100m @ 1.5Gb/s with Belden 1694A or equivalent cable
Return Loss:	> 12dB up to 1.5GHz

Serial Video Output (Program/Preview):

Program Outputs:	3 (1 program bypass relay protected)
Preview Outputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise/Fall Time:	200ps nominal (HD) or 900ps nominal (SD)
Overshoot:	< 10% of amplitude
Wideband Jitter:	< 0.2UI
Return Loss:	> 15dB up to 1.5GHz

Serial Video Output (Downconverted):

Standard:	SMPTE 259M
Outputs:	1 Program 1 Preview
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Overshoot:	< 10% of amplitude
Wideband Jitter:	< 0.2UI
Return Loss:	> 15dB up to 270MHz

Genlock Input:

Standard:	HD Tri-level Sync NTSC/PAL Color Black 1V p-p or Composite Bi-level sync (525i/59.94 or 625i/50) 300mV
Connector:	BNC per IEC 60169-8 Amendment 2 Termination 75 Ω (jumper selectable)

GPI Control Port:

Number:	4 (2 input, 2 output)
Type:	Opto-isolated, active low with internal pull-ups to +5 or +12V (jumper settable)
Connector:	6 pin removable terminal block
Signal Level:	Closure to ground

Electrical:

Voltage:	+12VDC
Power:	12 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of slots:	2
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Ordering Information:

7700RD2x2-HD	2x2 HD/SD router with Dual HD Downconverters
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

SDI Monitoring Reclocking Distribution Amplifier

Model 7700VMDA/7700VMDA-2Q



The 7700VMDA Reclocking Distribution Amplifier provides inexpensive distribution and composite encoder monitoring of your SMPTE 259M (270MB/s) serial digital video signal. The 7700VMDA features an auto-equalized input with seven outputs that can be selected as either SDI or composite analog. The 7700VMDA-2Q has 2 channels, each with 3 selectable outputs. The 7700VMDA, in conjunction with the 7710DCDA-HD provides an upgrade path for monitoring future HD SDI signals without having to re-wire your installation.

The 7707VMDA occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- Features independent isolated output drivers to ensure no cross channel loading effects (i.e. no need to terminate unused outputs)

Card Edge LEDs:

- Signal presence
- Module Health Status

Input:

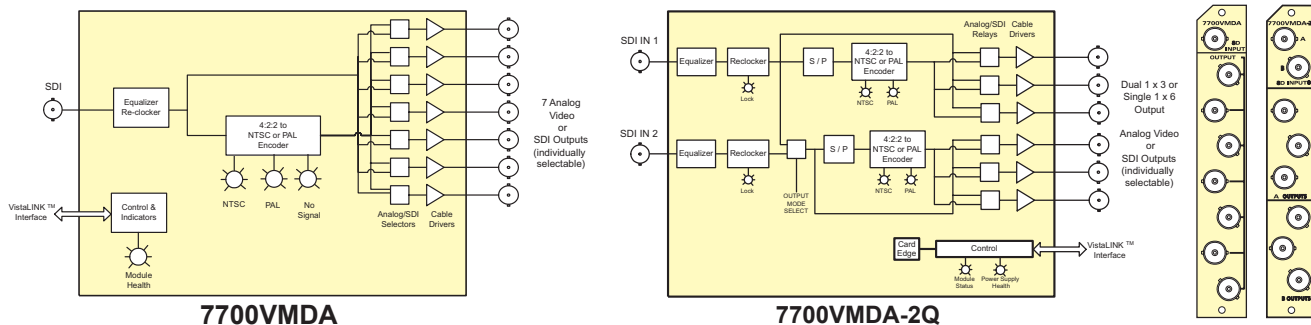
- SMPTE 259M
- Return loss > 15dB up to 540Mb/s
- 300m auto eq. at 270Mb/s (Belden 8281)

Outputs:

- Selectable reclocked/composite encoder outputs
- Return loss > 15dB up to 540Mb/s
- Wideband jitter < 0.2 UI

- VistaLINK™ -enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller

7700VMDA/7700VMDA-2Q Block Diagrams



Specifications

Serial Video Input:

Standard: SMPTE 259M
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 300m @ 270Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15dB up to 540Mb/s

Serial Video Output:

Number of Outputs: Up to 7 (jumper selectable)(7700VMDA)
3 per channel (7700VMDA-2Q)
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: 740ps nominal
Overshoot: <10% of amplitude
Return Loss: >15 dB up to 540Mb/s
Wideband Jitter: <0.2 UI

Analog Video Output:

Number of Outputs: Up to 7 (jumper selectable)(7700VMDA)
3 per channel (7700VMDA-2Q)
Standards: NTSC, SMPTE 170M if input is 525i/59.94
PAL-B ITY 624-4 if input is 625i/50
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 1 V p-p nominal
DC Offset: 0V ±0.1V
Return Loss: > 35 dB up to 5 MHz

Physical:

Number of Slots: 1

Electrical:

Voltage: +12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7700VMDA Video Monitoring Reclocking DA, 1 channel, 7 outputs
7700VMDA-2Q Video Monitoring Reclocking DA, 2 channels, 3 outputs per channel

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

2 x 1 RF Protection Switch for IF Frequencies



Model 7702BPX-IF & 7703BPX-IF

The 7702BPX-IF and 7703BPX-IF 2 x 1 RF protection switches for IF frequencies provide automatic changeover functionality to protect against link failure for RF signals from 10MHz to 850MHz. Typical applications include failover protection for 70/140MHz applications.

The 7703BPX-IF has integrated VistaLINK™ technology for remote control and monitoring capability via SNMP. This provides the ability to locally or remotely configure and monitor parameters such as module status, selected input, power level and switching threshold.

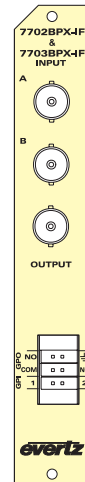
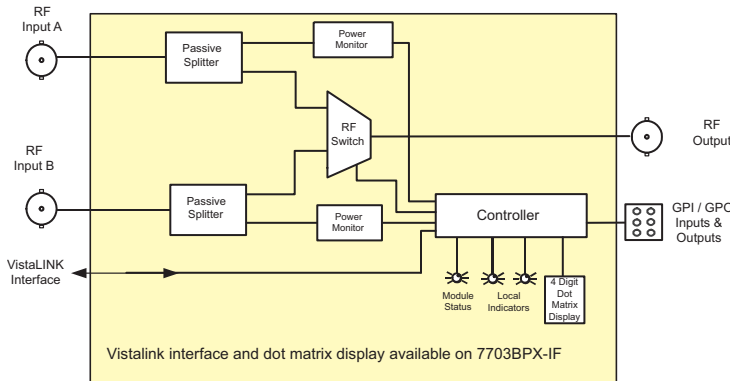
In the application of automatic changeover, the 7702BPX-IF and 7703BPX-IF can be configured to have a MAIN input and a STANDBY input. In this configuration, it will automatically switch to the Standby input when the Main input power is weak or lost. It can be also be configured to have auto or manual switch back to the Main input when the signal is re-established.

The 7702BPX-IF and 7703BPX-IF occupy one card slot and can be housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which holds up to 15 modules or a standalone enclosure which holds 1 module.

Features

- Wide operating frequency range, 10MHz to 850MHz
- Intelligent auto switching with input power detection
- User definable threshold levels on 7703BPX-IF version
- Maintains switch state and RF channel on loss of power to card or frame
- Supports automatic or manual control via GPI or SNMP on 7703BPX-IF
- Switch state indication via GPO
- Card edge LEDs indicate active input channels, output channel and power levels below threshold
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability on 7703BPX-IF version

Model 7702 & 7703BPX-IF Block Diagram



Specifications

RF Input/Output:

Inputs:	2
Outputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	75Ω
Frequency Response:	
10-200MHz	<±0.25dB
10-850MHz	<±0.5dB
Insertion Loss:	<4dB
Return Loss:	
10-200MHz	<15dB
10-850MHz	<17dB
Isolation:	>50dB (10-850MHz)
Input Power Range:	0dBm to -50dBm

General Purpose Inputs:

Number of Inputs:	2
Type:	Opto-isolated, active low with internal pull-ups to +5V
Connector:	2 pins plus ground on 6 pin terminal strip
Signal Level:	
+5V Pullup:	Low: -5 to +2.5 VDC, High: 3.5 to 10 VDC
+12V Pullup:	Low: -5 to +9.5 VDC, High: 10.5 to 15 VDC
Max Sink Current:	(input shorted to ground) 15 mA
Max Leakage Current for input High:	200 μA

General Purpose Outputs:

Number of Outputs:	1
Type:	"Dry Contact" relay contacts - normally open & normally closed contact provided

Connector: 3 pins on 6 pin terminal strip

Electrical:

Voltage:	+12V DC
Power:	3 Watts

Physical:

Number of Slots:	1
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Ordering Information:

7702BPX-IF:	2 x 1 RF Protection Switch for IF Frequencies
7703BPX-IF:	2 x 1 RF Protection Switch for IF Frequencies, with VistaLINK monitoring

Ordering Options

Rear Plate and optional connector type must be specified at time of order
Eg: Model +3RU (if 75Ω F-type connector required, order optional +F75)

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix:

+F75	75Ω, F-Type Rear Connector
------	----------------------------

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

2X1 RF ProtectionSwitch for IF Frequencies 7702BPX-IF & 7703BPX-IF



The 7702BPX-IF and 7703BPX-IF 2 x 1 RF protection switches for IF frequencies provide automatic changeover functionality to protect against link failure for RF signals from 10MHz to 850MHz. Typical applications include failover protection for 70/140MHz applications.

The 7703BPX-IF has integrated VistaLINK® technology for remote control and monitoring capability via SNMP. This provides the ability to locally or remotely configure and monitor parameters such as module status, selected input, power level and switching threshold.

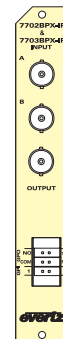
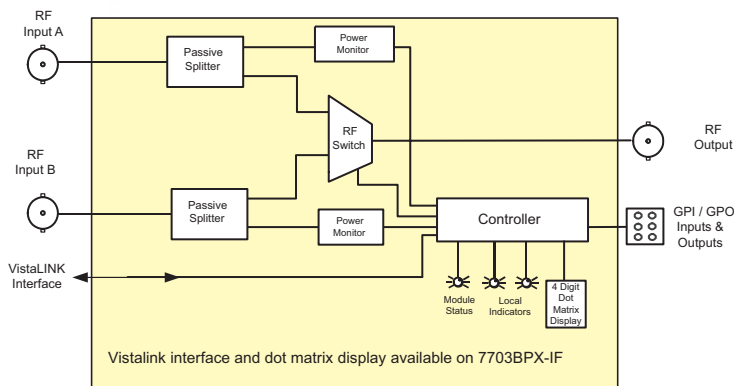
In the application of automatic changeover, the 7702BPX-IF and 7703BPX-IF can be configured to have a MAIN input and a STANDBY input. In this configuration, it will automatically switch to the Standby input when the Main input power is weak or lost. It can be also be configured to have auto or manual switch back to the Main input when the signal is re-established.

The 7702BPX-IF and 7703BPX-IF occupy one card slot and can be housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which holds up to 15 modules or a standalone enclosure which holds 1 module.

Features

- Wide operating frequency range, 10MHz to 850MHz
- Intelligent auto switching with input power detection
- User definable threshold levels on 7703BPX-IF version
- Maintains switch state and RF channel on loss of power to card or frame
- Supports automatic or manual control via GPI or SNMP on 7703BPX-IF
- Switch state indication via GPO
- Card edge LEDs indicate active input channels, output channel and power levels below threshold
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK®.
- VistaLINK® capability is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame.

7702 & 7703BPX-IF Block Diagram & Rear Panel



Specifications

RF Input/Output:

Inputs:	2
Outputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	75Ω
Frequency Response:	
10-200MHz	<±0.25dB
10-850MHz	<±0.5dB
Insertion Loss:	<4dB
Return Loss:	
10-200MHz	<15dB
10-850MHz	<17dB
Isolation:	>50dB (10-850MHz)
Input Power Range:	0dBm to -50dBm

General Purpose Inputs:

Number of Inputs:	2
Type:	Opto-isolated, active low with internal pull-ups to +5V
Connector:	2 pins plus ground on 6 pin terminal strip
Signal Level:	
+5V Pullup:	Low: -5 to +2.5 VDC, High: 3.5 to 10 VDC
+12V Pullup:	Low: -5 to +9.5 VDC, High: 10.5 to 15 VDC
Max Sink Current:	(input shorted to ground) 15 mA
Max Leakage Current for input High:	200 μA

General Purpose Outputs:

Number of Outputs:	1
Type:	"Dry Contact" relay contacts - normally open & normally closed contact provided
Connector:	3 pins on 6 pin terminal strip

Electrical:

Voltage:	+12V DC
Power:	3 Watts

Physical:

Number of Slots:	1
------------------	---

Ordering Information:

7702BPX-IF:	2 x 1 RF Protection Switch for IF Frequencies
7703BPX-IF:	2 x 1 RF Protection Switch for IF Frequencies, with VistaLINK® monitoring

Ordering Options

Rear Plate and optional connector type must be specified at time of order
Eg: Model +3RU (if 75Ω F-type connector required, order optional +F75)

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix:

+F75	75Ω, F-Type Rear Connector
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Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

2 x 1 RF Protection Switch for L band Frequencies

Model 7702BPX-LB & 7703BPX-LB



The 7702BPX-LB and 7703BPX-LB 2 x 1 RF protection switches for L-Band frequencies provide automatic changeover functionality to protect against link failure for RF signals from 950MHz to 2250MHz.

The 7703BPX-LB has integrated VistaLINK™ technology for remote control and monitoring capability via SNMP. This provides the ability to locally or remotely configure and monitor parameters such as module status, selected input, power level and switching threshold.

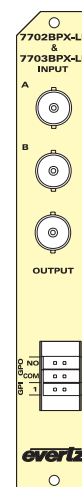
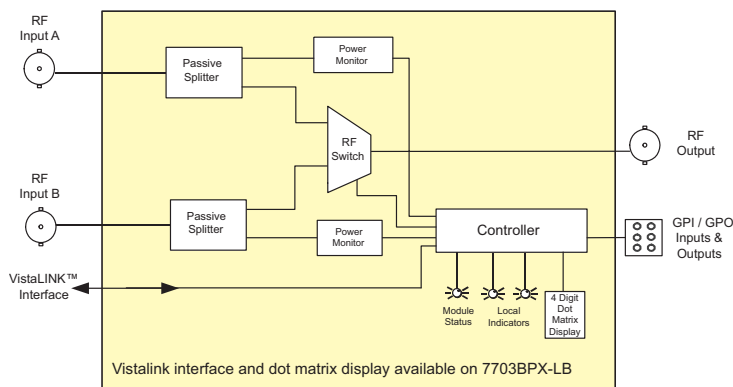
In the application of automatic changeover, the 7702BPX-LB and 7703BPX-LB can be configured to have a MAIN input and a STANDBY input. In this configuration, it will automatically switch to the Standby input when the Main input power is weak or lost. It can be also be configured to have auto or manual switch back to the Main input when the signal is re-established.

The 7702BPX-LB and 7703BPX-LB occupy one card slot and can be housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which holds up to 15 modules or a standalone enclosure which holds 1 module.

Features

- Wide operating frequency range, 950MHz - 2250MHz
- Intelligent auto switching with input power detection
- User definable threshold levels on 7703BPX-LB version
- Maintains switch state and RF channel on loss of power to card or frame
- Supports automatic or manual control via GPI or SNMP on 7703BPX-LB
- Switch state indication via GPO
- Card edge LEDs indicate active input channels, output channel and power levels below threshold
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability on 7703BPX-LB version

Model 7702 & 7703BPX-LB Block Diagram



Specifications

RF Input/Output:

Inputs:	2
Outputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	75Ω
Frequency Response:	
950MHz to 2250MHz	<±1.5dB
Insertion Loss:	<4dB
Return Loss:	>10dB
Isolation:	>50dB
Input Power Range:	0dBm to -50dBm

General Purpose Inputs:

Number of Inputs:	2
Type:	Opto-isolated, active low with internal pull-ups to +5V
Connector:	2 pins plus ground on 6 pin terminal strip
Signal Level:	
+5V Pullup:	Low: -5 to +2.5 VDC, High: 3.5 to 10 VDC
+12V Pullup:	Low: -5 to +9.5 VDC, High: 10.5 to 15 VDC
Max Sink Current:	(input shorted to ground) 15 mA
Max Leakage Current for input High:	200 µA

General Purpose Outputs:

Number of Outputs:	1
Type:	"Dry Contact" relay contacts - normally open & normally closed contact provided
Connector:	3 pins on 6 pin terminal strip

Electrical:

Voltage:	+12V DC
Power:	4 Watts

Physical:

Number of Slots:	1
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Ordering Information:

7702BPX-LB:	2 x 1 RF Protection Switch for L-Band Frequencies
7703BPX-LB:	2 x 1 RF Protection Switch for L-Band Frequencies, with VistaLINK™ Monitoring

Ordering Options

Rear Plate and optional connector type must be specified at time of order
Eg: Model +3RU (if 75Ω F-type connector required, order optional +F75)

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix:

+F75	75Ω, F-Type Rear Connector
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Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

10MHz-3GHz RF 1x4 Active Splitter

Model 7702DA4-RF & 7703DA4-RF



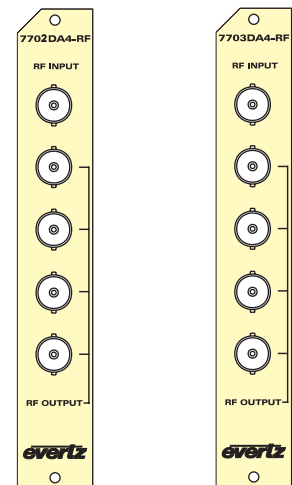
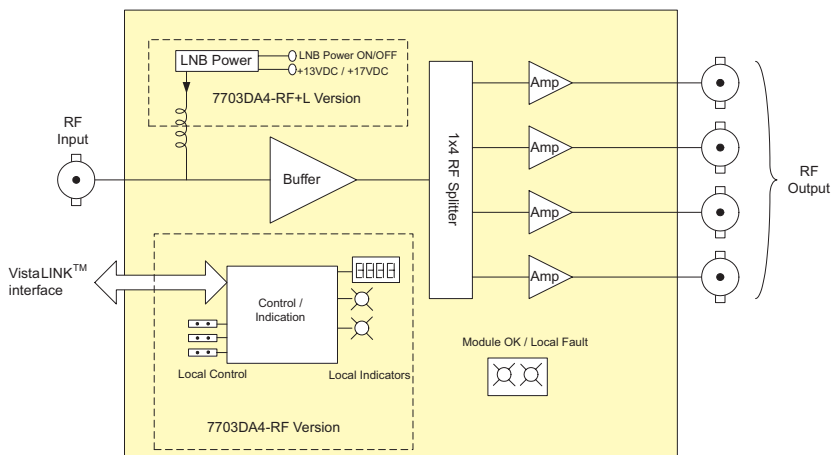
The 7702DA4-RF / 7703DA4-RF 1x4 Active Splitters provide inexpensive amplification and distribution of RF signals from 10MHz to 3GHz. The 7702DA4-RF / 7703DA4-RF handle any RF input modulation format and provide 4 buffered isolated outputs for further signal distribution. Typical applications include amplification and distribution of 950MHz - 2150MHz L Band and 70MHz-140MHz IF signals. Monitoring of RF input power, card status and control of gain / attenuation is provided remotely via Vistalink capability on the 7703DA4-RF version. Optional LNB power is available at the input connector on the 7703DA4-RF version.

The 7702DA4-RF / 7703DA4-RF occupy one card slot and can be housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which holds up to 15 modules or a standalone enclosure which holds 1 module.

Features

- Low noise amplification and distribution of RF signals from 10MHz to 3GHz
- Wide dynamic range (-10 to -60dBm)
- Adjustable output gain of -8dB to +14dB on 7703DA4-RF version. Fixed gain of 0dB on 7702DA4-RF version.
- Protocol independent - handles all modulation formats
- Input RF signal strength indication on 7703DA4-RF version
- Fully hot-swappable from front of frame
- Optional LNB power (at +13 or +17Vdc with built in current limiting) into RF input cable on 7703DA4-RF version
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability on 7703DA4-RF version only

7702DA4-RF & 7703DA4-RF Block Diagram



Specifications

RF Input:
Connector: 1 BNC per IEC 60169-8 Amendment 2 (F-Type optional)
I/O Impedance: 75Ω
Return Loss: >12dB
Input Frequency Range:
Standard: 10MHz - 3GHz
+L option: 950MHz-3GHz
Input Power Range: -10 to -60dBm

RF Output:
Number of outputs: 4
Connector: BNC per IEC 60169-8 Amendment 2 (F-Type optional)
I/O Impedance: 75Ω
Return Loss
10MHz to 2200MHz: >15dB
2200MHz to 3GHz: >10dB
Gain:
7702DA4-RF: 0dB
7703DA4-RF: -8dB to +14dB
Intermodulation Products: <-50dBc (@ -20dBm input power)
Signal To Noise: >55dB (@ -20dBm input power)
Frequency Response
Standard Version:
10MHz to 2.7GHz: <±1.5dB
2.7GHz to 3GHz: <±2dB
+L Version:
950MHz to 2.7GHz <±1.5dB
2.7GHz to 3GHz <±2dB
Isolation (Output to Output):
10MHz to 350MHz: >15dB
350MHz to 3GHz: >20dB

Physical:
Number of Slots: 1

Electrical:
Voltage: +12VDC
Power: 6 Watts

Ordering Information:
7702DA4-RF 10MHz - 3GHz RF 1x4 Active Splitter
7703DA4-RF 10MHz - 3GHz RF 1x4 Active Splitter with VistaLINK™ Monitoring

Ordering Options
Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

LNB Power Suffix:
+L LNB Power option (L Band Operation only) (7703DA4-RF version only)

Connector Suffix
+F75 75Ω, F-Type rear connector

Enclosures:
7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

10MHz-3GHz RF 1x8 Active Splitter

Model 7702DA8-RF & 7703DA8-RF



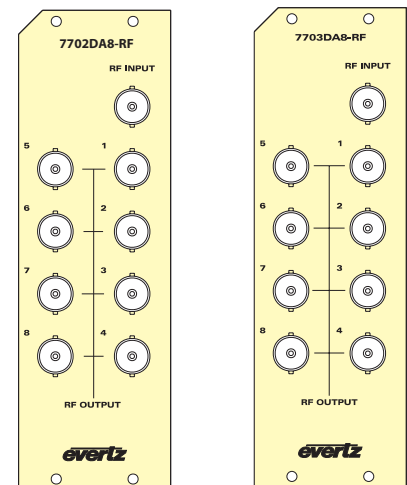
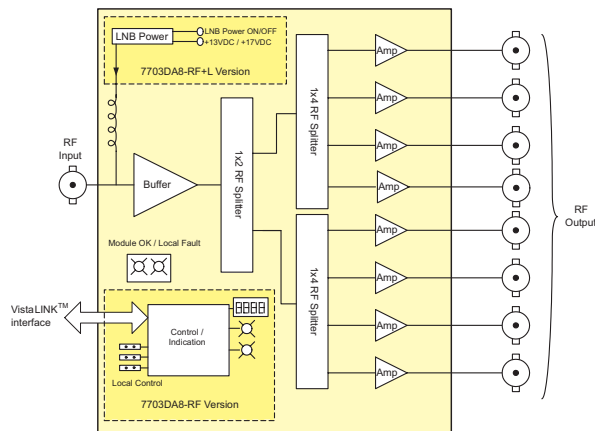
The 7702DA8-RF / 7703DA8-RF 1x 8 Active Splitters provide inexpensive amplification and distribution of RF signals from 10MHz to 3GHz. The 7702DA8-RF / 7703DA8-RF handle any RF input modulation format and provide 8 buffered isolated outputs for further signal distribution. Typical applications include amplification and distribution of 950MHz - 2150MHz L Band and 70MHz-140MHz IF signals. Monitoring of RF input power, card status and control of gain / attenuation is provided remotely via Vistalink capability on the 7703DA8-RF version. Optional LNB power is available at the input connector on the 7703DA8-RF version.

The 7702DA8-RF / 7703DA8-RF occupy two card slots and can be housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which holds up to 15 modules or a standalone enclosure which holds 1 module.

Features

- Low noise amplification and distribution of RF signals from 10MHz to 3GHz
- Wide dynamic range (-10 to -60dBm)
- Adjustable output gain of -8dB to +14dB on 7703DA8-RF version. Fixed gain of 0dB on 7702DA8-RF version.
- Protocol independent - handles all modulation formats
- Input RF signal strength indication on 7703DA8-RF version
- Fully hot-swappable from front of frame
- Optional LNB power (at +13 or +17Vdc with built in current limiting) into RF input cable on 7703DA8-RF version
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and Vistalink-enabled capability on 7703DA8-RF version only

7702DA8-RF & 7703DA8-RF Block Diagram



Specifications

RF Input:

Connector:	1 BNC per IEC 60169-8 Amendment 2 (F-Type optional)
I/O Impedance:	75Ω
Return Loss	>12dB
Input Frequency Range:	
Standard:	10MHz - 3GHz
+L option:	950MHz-3GHz
Input Power Range:	-10 to -60dBm

RF Output:

Number of outputs:	8
Connector:	BNC per IEC 60169-8 Amendment 2 (F-Type optional)
I/O Impedance:	75Ω
Return Loss	
10MHz to 2200MHz:	>15dB
2200MHz to 3GHz:	>10dB
Gain:	
7702DA8-RF:	0dB
7703DA8-RF:	-8dB to +14dB
Intermodulation Products:	< -50dBc (@ -20dBm input power)
Signal To Noise:	>55dB (@ -20dBm input power)
Frequency Response	
Standard Version:	
10MHz to 2.7GHz:	<±1.5dB
2.7GHz to 3GHz:	<±2dB
+L Version:	
950MHz to 2.7GHz	<±1.5dB
2.7GHz to 3GHz	<±2dB
Isolation (Output to Output):	
10MHz to 350MHz:	>15dB
350MHz to 3GHz:	>20dB

Physical:

Number of Slots:	2
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Electrical:

Voltage:	+12VDC
Power:	10 Watts

Ordering Information:

7702DA8-RF	10MHz - 3GHz RF 1x8 Active Splitter
7703DA8-RF	10MHz - 3GHz RF 1x8 Active Splitter with VistaLINK™ Monitoring

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

LNB Power Suffix:

+L	LNB Power option (L Band Operation only) (7703DA8-RF version only)
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Connector Suffix

+F75	75Ω, F-Type rear connector
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Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

10MHz-3GHz RF 1x4 Active Splitter 7702DA8-RF & 7703DA8-RF



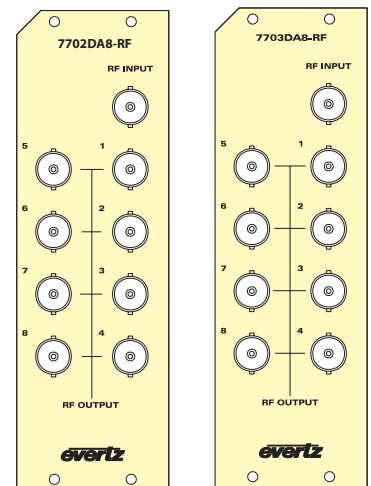
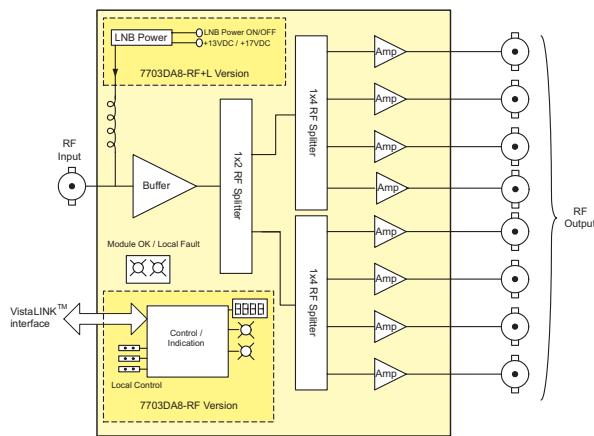
The 7702DA8-RF / 7703DA8-RF 1x 8 Active Splitters provide inexpensive amplification and distribution of RF signals from 10MHz to 3GHz. The 7702DA8-RF / 7703DA8-RF handle any RF input modulation format and provide 8 buffered isolated outputs for further signal distribution. Typical applications include amplification and distribution of 950MHz - 2150MHz L Band and 70MHz-140MHz IF signals. Monitoring of RF input power, card status and control of gain / attenuation is provided remotely via VistaLink capability on the 7703DA8-RF version. Optional LNB power is available at the input connector on the 7703DA8-RF version.

The 7702DA8-RF / 7703DA8-RF occupy two card slots and can be housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which holds up to 15 modules or a standalone enclosure which holds 1 module.

Features

- Low noise amplification and distribution of RF signals from 10MHz to 3GHz
- Wide dynamic range (-10 to -60dBm)
- Adjustable output gain of -8dB to +14dB on 7703DA8-RF version. Fixed gain of 0dB on 7702DA8-RF version.
- Protocol independent - handles all modulation formats
- Input RF signal strength indication on 7703DA8-RF version
- Fully hot-swappable from front of frame
- Optional LNB power (at +13 or +17Vdc with built in current limiting) into RF input cable on 7703DA8-RF version
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK®.
- VistaLINK® capability is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame.

7702DA8-RF & 7703DA8-RF Block Diagram & Rear Panels



Specifications

RF Input:

Connector: 1 BNC per IEC 60169-8 Amendment 2 (F-Type optional)
I/O Impedance: 75Ω
Return Loss >12dB

Input Frequency Range:

Standard: 10MHz - 3GHz
+L option: 950MHz-3GHz
Input Power Range: -10 to -60dBm

RF Output:

Number of outputs: 8
Connector: BNC per IEC 60169-8 Amendment 2 (F-Type optional)
I/O Impedance: 75Ω
Return Loss >15dB

10MHz to 2200MHz: >15dB
2200MHz to 3GHz: >10dB

Gain:

7702DA8-RF: 0dB
7703DA8-RF: -8dB to +14dB

Intermodulation Products: <-50dBc (@ -20dBm input power)

Signal To Noise: >55dB (@ -20dBm input power)

Frequency Response

Standard Version:
10MHz to 2.7GHz: <±1.5dB
2.7GHz to 3GHz: <±2dB

+L Version:

950MHz to 2.7GHz <±1.5dB
2.7GHz to 3GHz <±2dB

Isolation (Output to Output):

10MHz to 350MHz: >15dB
350MHz to 3GHz: >20dB

Physical:

Number of Slots: 2

Electrical:

Voltage: +12VDC
Power: 10 Watts

Ordering Information:

7702DA8-RF 10MHz - 3GHz RF 1x8 Active Splitter
7703DA8-RF 10MHz - 3GHz RF 1x8 Active Splitter with VistaLINK® Monitoring

Ordering Options

Rear Plate must be specified at time of order
Eg: Model +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

LNB Power Suffix:

+L LNB Power option (L Band Operation only) (7703DA8-RF version only)

Connector Suffix

+F75 75Ω, F-Type rear connector

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Dual Port LNB Power Inserter

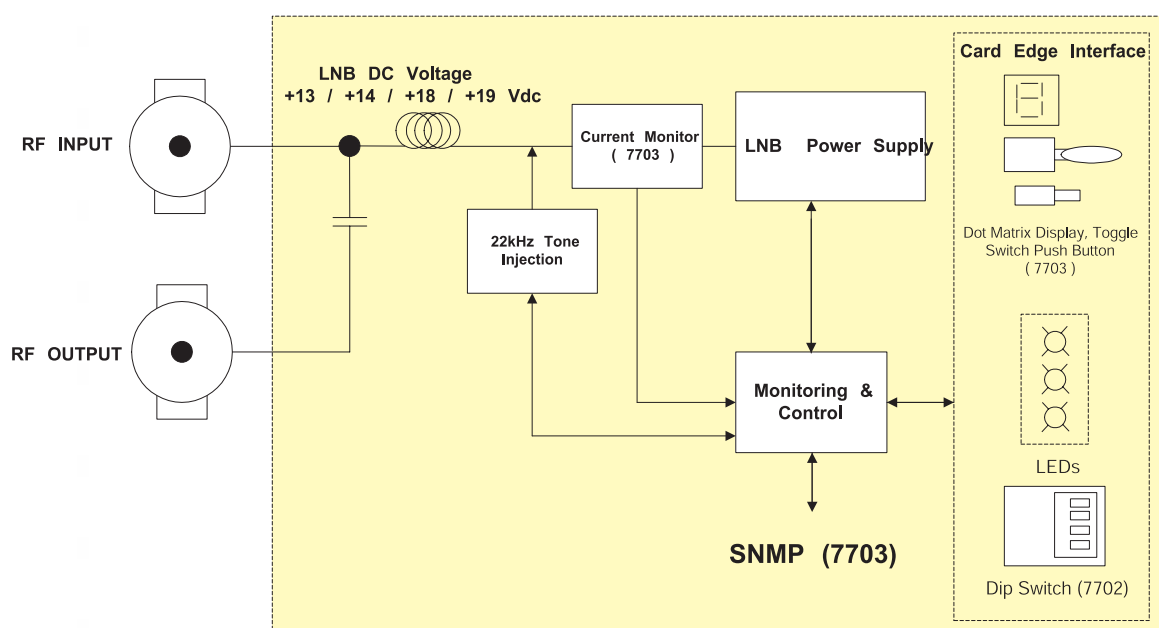
7702/7703LPS-2



The Evertz Microsystems 7702LPS-2/7703LPS-2 dual port LNB power inserter offers a reliable, high performance, compact and cost effective platform for inserting DC power on two ports via the coaxial cable to the LNB. Housed in the 7700 3RU frame with dual power supplies, up to 30 (7702) or 28 (7703) LNBs can be powered with a single frame. The cards provide +13 / +18Vdc power on the input connector with low RF insertion loss and 22kHz tone generation. The 7703 version includes SNMP support for remote monitoring and control via VistaLINK® PRO software, including LNB current monitoring for diagnostics and troubleshooting.

Features

- Two channel selectable DC voltage of +13 / +18Vdc with available +1Vdc (+14 / +19Vdc) cable compensation for long cable runs
- Dynamic or static short circuit current protection and alarming via SNMP (7703 version) or card edge LEDs (7702 and 7703). Dynamic mode features continuous short circuit check while static mode disables DC voltage until a reset is performed. Both modes indicate the short circuit condition.
- LNB current monitoring available on the 7703 version with adjustable thresholds for SNMP alarming for system diagnostics and troubleshooting
- Dual front loading hot swappable, redundant power supplies on 7700 3RU frame for ease of maintenance
- 22kHz tone generation available on both ports for LNB control
- 7702 and 7703 cards are hot swappable and front loading for simple installation and maintenance
- 7703 cards feature full SNMP support and local card edge monitoring and control via the dot matrix display, toggle switch and pushbutton interface



Specifications

RF Input/Output:

Connectors:	BNC (F type connector optional)
Impedance:	75Ω (50Ω optional)
Insertion Loss:	< 1dB (950-2250 MHz)
Return Loss:	> 15dB (950-2250 MHz)
Isolation:	>55dB (950-2250 MHz)

Electrical:

LNB DC voltage:	+13 / +14 / +18 / +19 Vdc
Maximum LNB Current:	400mA

Power:

12 Watts (typical), 18 Watts (maximum)

Mechanical:

1 slot of 7700 frame

Ordering Information:

7702LPS-2:	Dual Port LNB Power Inserter
7703LPS-2:	Dual Port LNB Power Inserter with SNMP support

Ordering Options:

+F75:	75Ω F type connectors
+50:	50Ω BNC connectors



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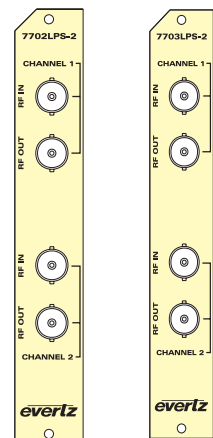
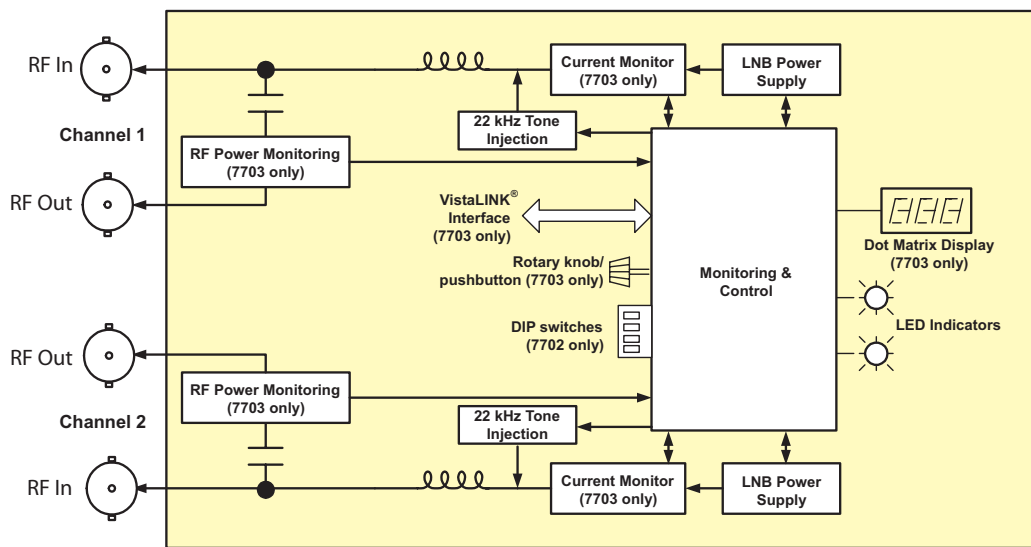
The 7702LPS-2/7703LPS-2 dual port LNB power inserter offers a modular, reliable, high performance, compact and cost effective platform for inserting DC power via coaxial cable to two LNB's. Housed in the 7700FR-C 3RU frame with dual power supplies, up to 30 (7702) or 28 (7703) LNBs can be powered with a single frame. On their input connectors, the cards provide +13 / +18VDC power and 22KHz tone generation with low RF insertion loss. The 7703 version includes SNMP support for remote monitoring and control via VistaLINK® software, including LNB current and RF input power monitoring.

The 7702LPS-2/7703LPS-2 occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone frame which will hold 1 module.

Features

- Provides DC voltage of +13 / +18VDC with available +1VDC (+14 / +19VDC) cable compensation for long cable runs
- 22KHz tone generation available on both ports for LNB control
- DC voltage level and 22KHz tone generation are independently controllable on each port
- Dynamic or static short circuit current protection -Dynamic mode features continuous short circuit check and automatic recovery, while static mode disables DC voltage until a reset is performed. Both modes indicate the short circuit condition on card edge LED's and VistaLINK® (7703 version)
- For system diagnostics and troubleshooting, the 7703 version provides RF input power and LNB current monitoring with adjustable thresholds for SNMP/VistaLINK® alarming
- 7700FR-C frame power supplies are redundant, front-loading and hot-swappable for reliability and ease of maintenance
- 7702 and 7703 cards are front loading and hot swappable for simple installation and maintenance
- 7703 cards feature full SNMP/VistaLINK® support and local card edge monitoring and control via the dot matrix display and rotary knob/pushbutton

7702LPS-2/7703LPS-2 Block Diagram & Rear Panel



Specifications

RF Input/Output:

Connector:	BNC (F type connector optional)
I/O Impedance:	75Ω (50Ω optional)
Insertion Loss:	< 1dB (950-2250 MHz)
Return Loss:	> 15dB (950-2250 MHz)
Isolation:	> 55dB (950-2250 MHz)

Electrical:

LNB DC Voltage:	+13 / +14 / +18 / +19 VDC
Max LNB Current:	400mA

Ordering Information:

7702LPS-2:	Dual Port LNB Power Inserter
7703LPS-2:	Dual Port LNB Power Inserter with SNMP/VistaLINK® support

Ordering Options:

+F75:	75Ω F type connectors
+50:	50Ω BNC connectors

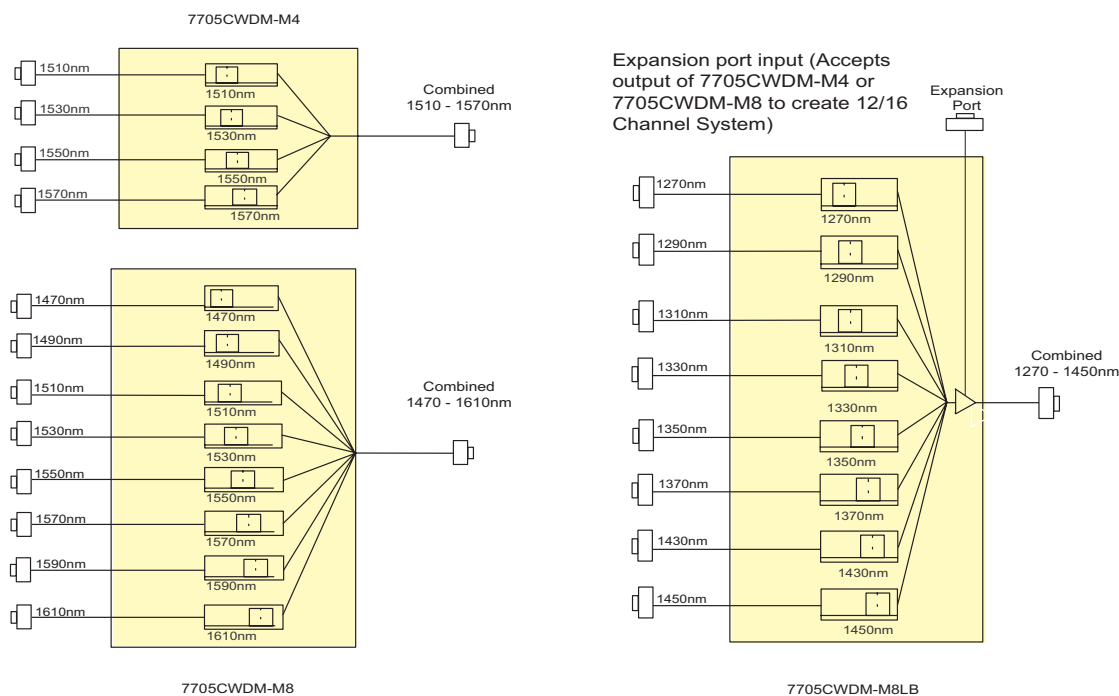
Coarse WDM Optical Modules

Model 7705CWDM

Features

- Bi-directional mux/demux of up to 16 wavelengths in the 1270nm to 1610nm spectrum (ITU-T G.694.2 compliant)
- Expandable from 4 or 8 to 12 or 16 channel systems
- Passive design for any bit rate
- Low insertion loss to conserve system power
- High optical isolation for low crosstalk
- Fully hot swappable from front of frame with no fiber disconnect/reconnect required
- SC/PC, ST/PC, FC/PC* connector options
- Fiber protector to prevent connector damage
- Housed in Evertz standard 3RU or 1RU Multiframe

7705CWDM Block Diagrams



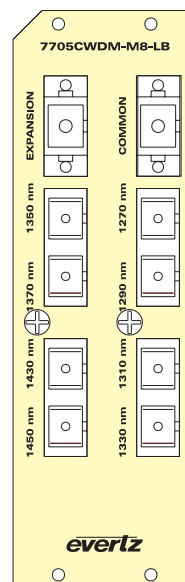
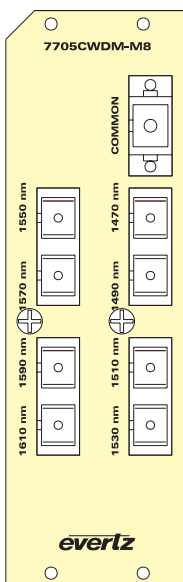
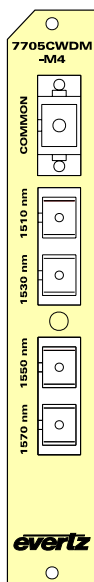
Applications

- Multi-channel transport of video, audio, data, control in fiber limited applications
- Cost reduction exercises through fewer leased fibers
- Studio and Facility extension / expansion
- STL and TSL links
- Signal aggregation for outdoor and event coverage
- Signal aggregation for security and monitoring

Descriptions

Function	Ordering Information	Description	Slots Occupied
4 Channel CWDM Mux	7705CWDM-M4	4 Channel CWDM Mux (1510nm -1570nm)	1
4 Channel CWDM Demux	7705CWDM-D4	4 Channel CWDM Demux (1510nm - 1570nm)	1
8 Channel CWDM Mux	7705CWDM-M8	8 Channel CWDM Mux (1470nm - 1610nm)	2
8 Channel CWDM Demux	7705CWDM-D8	8 Channel CWDM Demux (1470nm - 1610nm)	2
12 Channel CWDM Mux	7705CWDM-M4 & 7707CWDM-M8LB	12 Channel CWDM Mux (1270nm -1570nm)	3
12 Channel CWDM Demux	7705CWDM-D4 & 7705CWDM-D8LB	12 Channel CWDM Demux (1270nm -1570nm)	3
16 Channel CWDM Mux	7705CWDM-M8 & 7707CWDM-M8LB	16 Channel CWDM Mux (1270nm -1610nm)	4
16 Channel CWDM Demux	7705CWDM-D8 & 7705CWDM-D8LB	16 Channel CWDM Demux (1270nm -1610nm)	4

Coarse WDM Optical Modules



Specifications

Optical Input/Output:

Connector: SC/PC, ST/PC or FC/PC* female housing

Wavelength:

7705CWDM-4: 1510 - 1570nm

7705CWDM-8: 1470 - 1610nm

7705CWDM-8LB: 1270 - 1450nm

Channel Spacing: 20nm

Passband @ 0.5dB: > 13nm

Channel Uniformity: < 1.5dB

Isolation Adjacent

Channel: > 30dB

Directivity: > 50dB

Fiber Size: 9 µm core / 125 µm overall

Return Loss: > 45dB

Link Loss with Mux and Demux Combination:

7705CWDM-4: < 2.5dB Maximum Loss

7705CWDM-8: < 3.5dB Maximum Loss

7705CWDM-8LB: < 5.5dB Maximum Loss

Expansion Port: < 3.5dB Maximum Loss

7707CWDM-4 +
7707CWDM-8LB: < 6.0dB (1270nm - 1570nm)

7705CWDM-8 +
7705CWDM-8LB: < 5.5dB (1270nm - 1450nm)
< 7.0dB (1470nm - 1610nm)

Ordering Information

7705CWDM-D4 4 Channel CWDM Demux (1510nm - 1570nm)
7705CWDM-D8 8 Channel CWDM Demux (1470nm - 1610nm)
7705CWDM-D8LB 8 Channel Low Band CWDM Demux (1270nm - 1450nm)
7705CWDM-M4 4 Channel CWDM Mux (1510nm - 1570nm)
7705CWDM-M8 8 Channel CWDM Mux (1470nm - 1610nm)
7705CWDM-M8LB 8 Channel Low Band CWDM Mux (1270nm - 1450nm)

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model + 3RU +SC

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure (with power supply)

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC*

*Note:

FC/PC connector option is available on 'COMMON' and "EXPANSION" ports only (SC/PC on remaining fiber I/O ports)

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

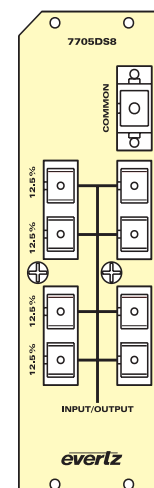
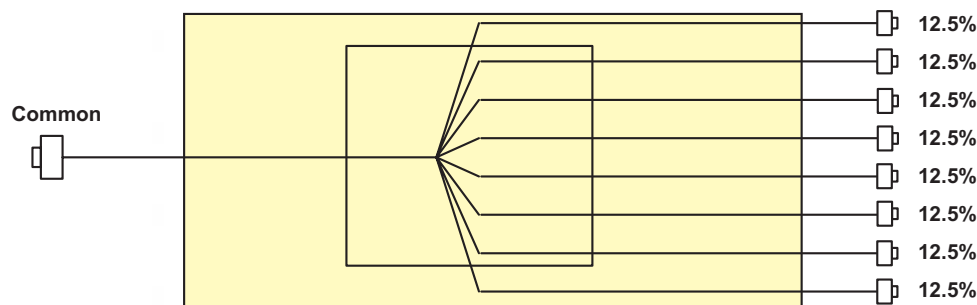
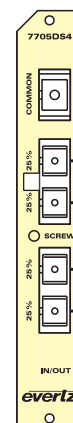
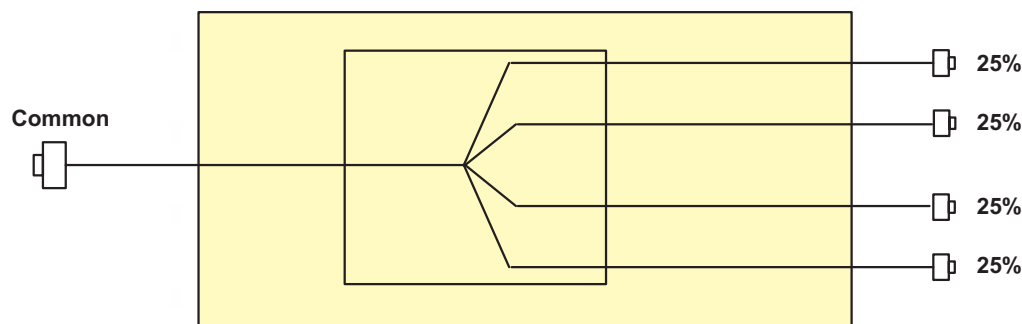
7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Four & Eight Channel Optical Splitter 7705DS-4, 7705DS-8

Features

- Separates one optical input into 4 or 8 optical outputs
- Wideband operation from 1270nm - 1610nm
- Passive splitter design for any bit rate
- Fully hot swappable from front of frame with no fiber disconnect/reconnect required
- Supports single mode fiber
- Available in SC, ST & FC* connector options
- 7705DS-4 occupies one card slot, 7705DS-8 occupies two card slots and both can be housed in a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 7 dual slot modules or 15 single slot modules or a standalone enclosure which will hold 1 module

7705DS-4 & 7705DS-8 Block Diagrams & Rear Panels



Specifications

Optical Input/Output:

Connector: SC/PC, ST/PC & FC/PC* female housing

Wavelength: 1270nm to 1610nm

Insertion Loss:

7705DS-4 7dB typical, < 8.5dB maximum

7705DS-8 10dB typical, < 11.0dB maximum

Uniformity:

7705DS-4 < 2.5dB

7705DS-8 < 0.9dB

Directivity:

7705DS-4 > 50dB

7705DS-8 > 55dB

Fiber Size:

9µm, single mode fiber

Physical:

Number of Slots:

7705DS-4 1

7705DS-8 2

Ordering Information:

7705DS-4 Four Channel Optical Splitter

7705DS-8 Eight Channel Optical Splitter

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order

Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC

+ST ST/PC

+FC FC/PC*

*Note: FC/PC connector option is available only on 'COMMON' port (SC/PC on remaining fiber I/O ports)



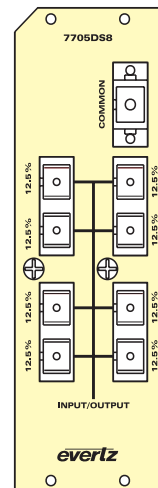
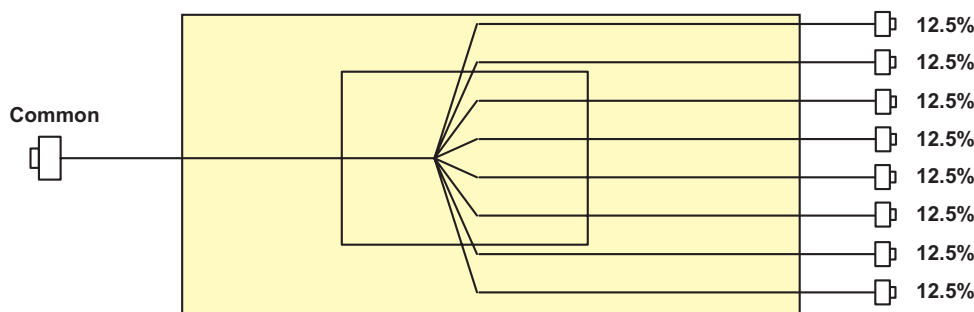
Eight Channel Optical Splitter

Model 7705DS-8

Features

- Separates one optical input into 8 optical outputs
- Wideband operation from 1270nm - 1610nm
- Passive splitter design for any bit rate
- Fully hot swappable from front of frame with no fiber disconnect/reconnect required
- Supports single mode fiber
- Available in SC, ST & FC* connector options
- Occupies two card slots and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 7 modules or a standalone enclosure which will hold 1 module

7705DS-8 Block Diagram



Specifications

Optical Input/Output:

Connector: SC/PC, ST/PC & FC/PC* female housing
Wavelength: 1270nm to 1610nm
Insertion Loss: 10dB typical, < 11.0dB maximum
Uniformity: < 0.9dB
Directivity: > 55dB
Fiber Size: 9µm, single mode fiber

Physical:

Number of Slots: 2

Ordering Information:

7705DS-8: Eight Channel Optical Splitter

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C
Multiframe	
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC*

*Note: FC/PC connector option is available only on 'COMMON' port (SC/PC on remaining fiber I/O ports)

Fiber Optic Patch Cable:

7705FC-SP1MSP Single-mode fiber, 9µm core/900µm

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Dense WDM Optical Modules

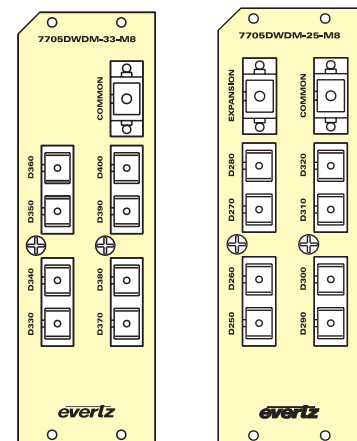
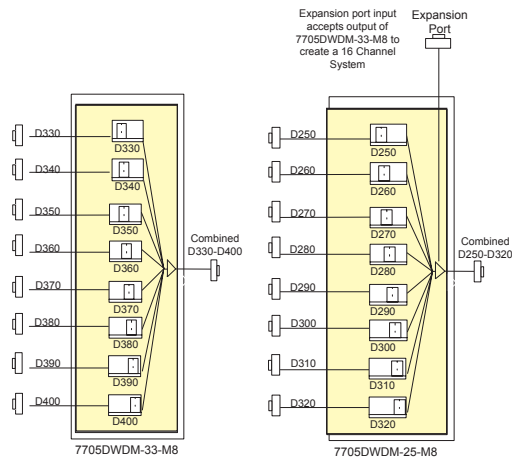
Model 7705DWDM

Features

- Cascadeable, bi-directional eight channel mux/demux modules
- ITU-T G.694.1 compliant 0.8nm (100GHz) channel spacing
- Capable of being inserted into CWDM wavelength slots adding an additional 8 or 16 DWDM wavelengths to existing CWDM systems
- Passive design for any bit rate
- Low insertion loss to conserve system power
- High optical isolation for low crosstalk
- Fully hot swappable from front of frame with no fiber disconnect/reconnect required
- SC/PC, ST/PC, FC/PC* connector options
- Fiber protector to prevent connector damage

Applications

- Multi-channel transport of video, audio, data, control in fiber limited applications
- Cost reduction exercises through fewer leased fibers
- Studio and Facility extension / expansion
- L-Band & IF Link transport
- STL and TSL Links
- Signal aggregation for outdoor and event coverage
- Signal aggregation for security and monitoring



Specifications

Optical Input/Output:

Connector: SC/PC, ST/PC or FC/PC* female housing

Wavelength: C-Band (ITU G.694.1 compliant)

7705DWDM-25: ITU C25-C32 (1557.36 - 1551.72nm)

7705DWDM-33: ITU C33-C40 (1550.92 - 1545.32nm)

Channel Spacing: 100GHz (0.8nm nominal)

Passband @ 0.5dB: ± 0.11 nm

Channel Uniformity: < 1.5dB

Isolation

- Adjacent Channel: > 25dB
- Non-Adjacent Channel: > 35dB

Directivity: > 40dB

Maximum Optical Power: 300mW or +25dBm

Fiber Size: 9 μ m core / 125 μ m overall

Return Loss: > 45dB

Max Input Power: +25dBm

Link Loss with Mux and Demux Combination:

7705DWDM-8: < 4.5dB maximum loss
(7705DWDM-25/33)

7705DWDM-16: < 7.5dB maximum loss
(7705DWDM-33 + 7705DWDM-25)

Ordering Information

7705DWDM-25-M8	8 Channel Cascadeable DWDM Mux, 100Ghz Spacing, ITU Channel C25-C32
7705DWDM-25-D8	8 Channel Cascadeable DWDM Demux, 100Ghz Spacing, ITU Channel C25-C32
7705DWDM-33-M8	8 Channel Cascadeable DWDM Mux, 100Ghz Spacing, ITU Channel C33 to C40
7705DWDM-33-D8	8 Channel Cascadeable DWDM Demux, 100Ghz Spacing, ITU Channel C33 to C40

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order

Eg: Model + 3RU + SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure (with power supply)

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC*

*Note:

FC/PC connector option is available on 'COMMON' and 'EXPANSION' ports only (SC/PC on remaining fiber I/O ports)

Fiber Optic Patch Cable:

CB-FP1M-SCPC	Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC	Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC	Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC	Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC	Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC	Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Triple SDI Electrical to Optical Converter

19.4Mb/s or 143-540Mb/s

Model 7705EO13-3

Features

- Triple SDI electrical to optical converter for 3 independent channels
- Provides 45 independent channels of optical conversion, in a single 3RU frame
- Supports all SMPTE259M standards with operation from 143Mb/s-360Mb/s
- Supports additional standards of SMPTE305M (SDTi), SMPTE310M (19.4Mb/s), SMPTE344M (540Mb/s), M2S and DVB-ASI (270Mb/s)
- Supports multi-mode or single-mode fiber
- Fully hot swappable from front of frame, with no fiber or BNC disconnect /reconnect required
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules or a 3RU frame which will hold up to 15 modules or a standalone frame which will hold 1 module

Inputs:

- Three independent serial digital BNC inputs, each providing cable equalization to >300m @270Mb/s (Belden 8281)

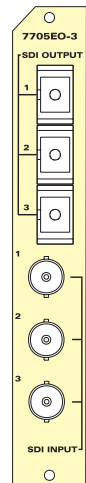
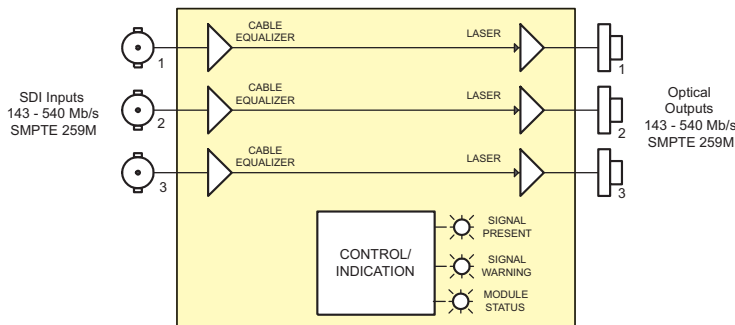
Outputs:

- Three independent fiber outputs
- Optical output wavelength of 1310nm
- SC/PC, ST/PC, FC/PC connector options

Status LEDs:

- Signal presence indication for each channel
- Laser status indication for each channel
- Module status indication

7705EO13-3 Block Diagram



Specifications

Standards: SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 305M, SMPTE 310M, SMPTE344M, M2S, DVB-ASI

Serial Video Input:

Number of Inputs: 3 (independent channels)
Connector: 3 BNC inputs per IEC 169-8
Equalization: Automatic to 300m @270Mb/s, with Belden 8281 (or equivalent)
Return Loss: >15dB up to 540Mb/s

Optical Outputs:

Number of Outputs: 3 (independent channels)
Connector: SC/PC, ST/PC, FC/PC female housing
Return Loss: >14dB
Rise/Fall Time: 400-700ps
Jitter: <0.2UI
Nominal Wavelength: 1310nm
Optical Power: -7dBm ±1dBm

Electrical:

Voltage: +12V DC
Power: 6 Watts

Physical:

Number of Slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

7705EO13-3

**Triple SDI Electrical to Optical Converter,
19.4Mb/s or 143-540Mb/s, 1310nm, FP laser**

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone enclosure

SDI Electrical to Optical Converter

19.4Mb/s or 143-540Mb/s

Model 7705EO13/15

Features

- Electrical to optical converter for all SMPTE 259M standards with operation from 143Mb/s - 360Mb/s
- Supports additional standards of SMPTE 305M (SDTi) SMPTE 310M (19.4Mb/s), SMPTE 344M(540Mb/s), M2S and DVB-ASI (270Mb/s)
- Compatible with multi-mode or single-mode fiber
- Fully hot swappable from front of frame with no fiber or BNC disconnect/reconnect required
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to three modules, a 3RU frame which will hold up to 15 modules or a standalone frame which will hold 1 module

Input:

- Automatic input cable equalization to >300m @270Mb/s (Belden 8281)

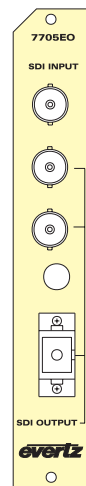
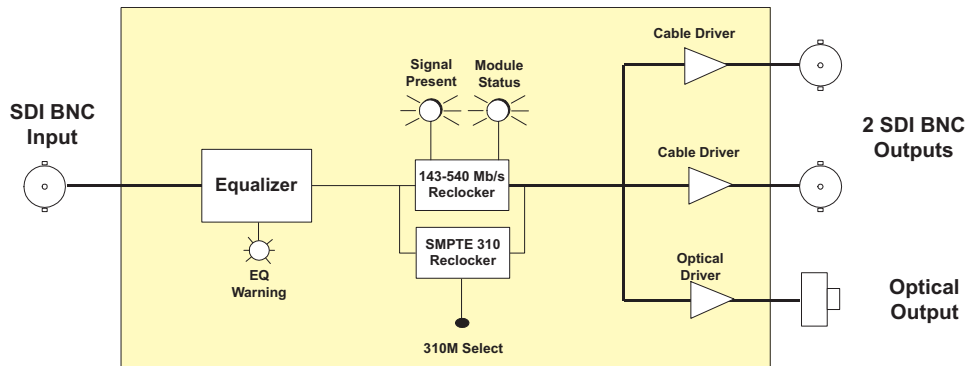
Outputs:

- Two reclocked serial digital BNC outputs for loop-through or monitoring
- One reclocked fiber output available in 1310nm or 1550nm
- Wideband Jitter < 0.2 UI
- SC/PC, ST/PC, FC/PC connector options

Status LEDs:

- Signal presence indication
- Maximum equalization warning indication
- Module status indication

7705EO13/15 Block Diagram



Specifications

Standards: SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 305M, SMPTE 310M, SMPTE 344M, M2S, DVB-ASI

Serial Video Input:

Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 300m @ 270Mb/s with Belden 8281 (or equivalent)
Return Loss: >15dB up to 540Mb/s

Serial Video Outputs:

Number of Outputs: 2 per card-reclocked
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15dB up to 540Mb/s
Wideband Jitter: < 0.2 UI

Optical Outputs:

Number of Outputs: 1
Connector: SC/PC, ST/PC, FC/PC female housing
Return Loss: > 14dB
Wavelength: 1310nm, 1550nm

Optical Power:

1310nm FP: -7 dBm ± 1dBm
1550nm DFB: 0 dBm ± 1dBm

Electrical:

Voltage: +12V DC
Power: 6 Watts

Physical:

Number of Slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Laser Safety: Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

7705EO13	SDI Electrical to Optical Converter, 19.4Mb/s or 143-540Mb/s, 1310nm, FP Laser
7705EO15	SDI Electrical to Optical Converter, 19.4Mb/s or 143-540Mb/s, 1550nm, DFB Laser

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

HDTV Electrical to Optical Converter, 19.4Mb/s to 1.5Gb/s

Model 7705EO13/15-HD

Features

- Operation from 19.4Mb/s to 1.5Gb/s
 - Reclocking for SMPTE 292M (1.485Gb/s)
 - Non-reclocking mode for all other rates from 19.4 Mb/s to 1.5Gb/s including SMPTE 259M, SMPTE 305M, SMPTE 310M, M2S, DVB-ASI, etc.
- Supports single-mode and multi-mode fiber optic cable
- Fully hot swappable from front of frame with no fiber or BNC disconnect/reconnect required
- Can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone frame which will hold 1 module

Input:

- Automatic input cable equalization to 130m (Belden 1694A)

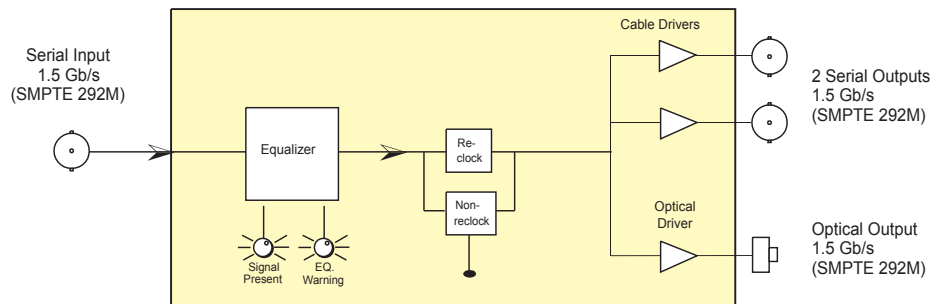
Outputs:

- Two serial digital BNC outputs for loop-through or monitoring
- One fiber output available in 1310nm or 1550nm
- Wideband Jitter < 0.2 UI (reclocked)
- SC/PC, ST/PC, FC/PC connector options

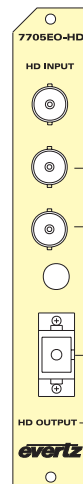
Status LEDs:

- Signal presence indication
- Maximum equalization warning indication
- Module status indication

7705EO-HD Block Diagram



*Note: Non-reclock Mode will operate 19.4 Mb/s to 1.5 Gb/s.



Specifications

Standards:

SMPTE 292M, 259M, 297M, 305M, 310M, M2S, DVB-ASI, DVB-SSI, and other bi-level Telecom/Datacom rates from 19.4Mb/s to 1.5Gb/s

Serial Video Input:

Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 130m with Belden 1694A (or equivalent)
Return Loss: >15dB to 1GHz, >12dB to 1.5GHz

Serial Video Outputs:

Number of Outputs: 2 Reclocked outputs
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB to 1GHz, >12dB to 1.5GHz
Jitter: <0.2 UI Reclocked

Optical Outputs:

Number of Outputs: 1
Connector: SC/PC, ST/PC, FC/PC female housing
Return Loss: > 14dB
Rise and Fall Time: 270ps nominal
Jitter: < 0.2 UI (reclocked)
Nominal Wavelength: 1310nm, 1550nm

Optical Power:

1310nm FP -7dBm \pm 1dBm
1310nm/1550nm DFB 0 dBm \pm 1dBm

Electrical:

Voltage: +12V DC
Power: 6 Watts
Safety: Complies with EU safety Directive
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of Slots: 1

Compliance:

Electrical Safety:

CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Complies with FCC Part 15, Class A
EU EMC directive

Laser Safety:

EMI/RFI:

Ordering Information:

7705EO13-HD	HDTV Electrical to Optical Converter, 19.4Mb/s to 1.5 Gb/s, 1310nm, FP Laser
7705EO13-HD-L	HDTV Electrical to Optical Converter, 19.4Mb/s to 1.5 Gb/s, 1310nm, DFB Laser
7705EO15-HD	HDTV Electrical to Optical Converter, 19.4Mb/s to 1.5 Gb/s, 1550nm, DFB Laser

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC	Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC	Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC	Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC	Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC	Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC	Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

70/140MHz IF Fiber Receiver

Model 7705IFRA

(Replaces the 7705IFR & offers improved performance and wider operating range)

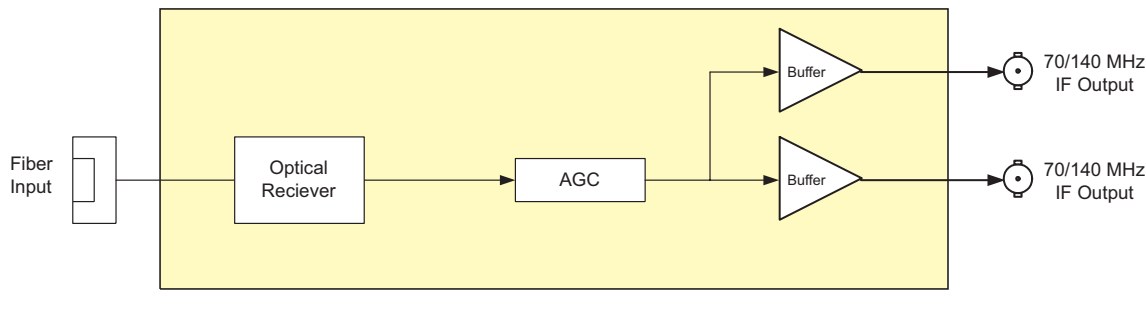
The 7705IFRA is a fiber optic receiver for 70/140 MHz IF signals. The 7705IFRA accepts a fiber optic input from the companion 7705IFTA and provides two 70/140 MHz IF output signals via BNCs.

The 7705IFRA occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- 30-200MHz bandwidth
- Protocol transparent - receives all video, audio and data modulation formats
- Supports manual & automatic gain control (AGC)
- Wide AGC hold range (45dB) using 7705IFTA + 7705IFRA
- Two IF outputs for extra signal distribution or monitoring functions
- Available with BNC or F-Type connector options
- Wide range optical input (1270nm to 1610nm)
- IF output power independent of optical loss (within AGC range)
- Supports single-mode and multi-mode fiber optic cable
- Available in SC/PC, ST/PC, FC/PC & APC connector options
- Fully hot swappable from front of frame

7705IFRA Block Diagram



Specifications

RF Output:	
Number of Outputs:	2
Connector:	BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	75Ω (50Ω optional) (See Ordering Information)
Return Loss:	18dB (min)
Frequency Range:	30MHz - 200MHz
Flatness:	± 1dB @ 30 MHz - 200MHz ± .2dB @ 36MHz BW
Carrier to Noise:	-40dB @ 1MHz
Output Signal Level:	
AGC:	-10dBm constant (within AGC range)
Manual:	-5 to -65 (depends on RF input level & optical loss)
Intermodulation Products:	-50dBc max (-10dBm at IFTA input & 3dB optical loss)
Signal to Noise:	50dBc
Optical Input:	
Number of Inputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC, SC/APC, FC/APC
Operating Wavelength:	1270nm - 1610nm
Optical Input Power:	+3dBm (max)
Optical Sensitivity:	-14dBm @35dB C/N @36MHz BW
Optical Attenuation:	
AGC Hold Range:	10dB optical
Electrical:	
Voltage:	+12VDC
Power:	5 Watts
Physical:	
Number of slots:	1

Ordering Information:
Note: 75Ω I/O impedance ships standard

7705IFRA	70/140 MHz Fiber Receiver
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Ordering Options:
Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix	
+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Impedance Suffix	
+50	50Ω I/O Impedance

Connector Suffix	
+SC	SC/PC
+AP+SC	SC/APC (Angle polished)
+ST	ST/PC
+FC	FC/PC
+AP+FC	FC/APC (Angle polished)
+F75	75Ω, F-Type rear connector

Enclosures:	
7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone enclosure

70/140Mhz IF Fiber Transmitter

Model 7705IFTA

(Replaces the 7705IFT & offers improved performance and wider operating range)

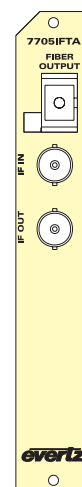
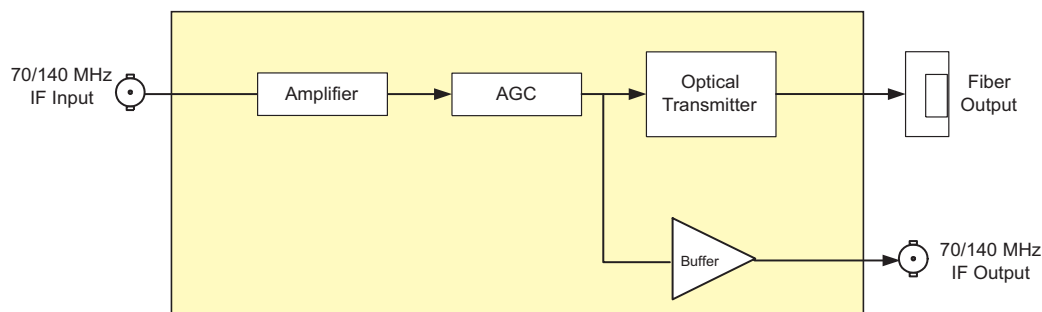
The 7705IFTA is a fiber optic transmitter for 70/140 MHz IF signals. The 7705IFTA accepts one 70/140 MHz coaxial input and provides a fiber optic output signal at 1310nm. An IF BNC output is also provided for monitoring or further signal distribution.

The 7705IFTA occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- 30-200MHz bandwidth
- Wide dynamic range RF input (-5 to -65dBm)
- Protocol transparent - transmits all video, audio and data modulation formats
- Supports manual and automatic gain control on IF input
- Wide AGC hold range (45dB) using 7705IFTA +7705IFRA
- Additional IF BNC output for monitoring or distribution
- Available with BNC or F-Type connector options
- Supports single-mode and multi-mode fiber optic cable
- Available in SC/PC, ST/PC, FC/PC and APC connector options
- Fully hot swappable from front of frame

7705IFTA Block Diagram



Specifications

RF Input:

Connector:	1 BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	75Ω (50Ω optional) (See Ordering Information)
Return Loss:	18dB (min)
Frequency Range:	30MHz - 200MHz
Input Power Range:	-5 to -65dBm
AGC Hold Range:	-10 to -35dBm

IF Monitoring Output:

Connector:	1 BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	75Ω (50Ω optional) (See Ordering Information)
Return Loss:	18dB (min)
Frequency Range:	30MHz - 200MHz
Flatness:	± 1dB @ 30 MHz - 200MHz ± 2dB @ 36MHz BW

Output Signal Level:

AGC mode:	-20dBm constant (within AGC range -20 to -35dBm total RF input power)
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Manual mode:

(Input signal) + 15dB

Intermodulation Products: -50dBc (-10dBm RF in, ACG mode)

Carrier to Noise: 37dB @any 36MHz BW

Optical Output:

Number of outputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC, SC/APC, FC/APC
Operating Wavelength:	1310nm
Output Power:	0dBm ± 1dBm

Electrical:

Voltage:	+12VDC
Power:	4 Watts

Physical:

Number of slots:	1
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Ordering Information: 70/140MHz IF Fiber Transmitter

Note: 75Ω I/O impedance ships standard

7705IFTA13	1310nm FP Laser, Medium Haul (<40km)
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Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Impedance Suffix

+50	50Ω I/O Impedance
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Connector Suffix

+SC	SC/PC
+AP+SC	SC/APC (Angle polished)
+ST	ST/PC
+FC	FC/PC
+AP+FC	FC/APC (Angle polished)
+F75	75Ω, F-Type rear connector

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3modules
S7701FR	Standalone enclosure

L-Band Satellite Fiber Receiver

Model 7705LR

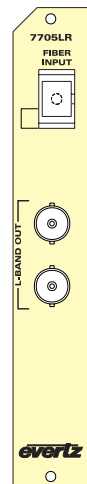
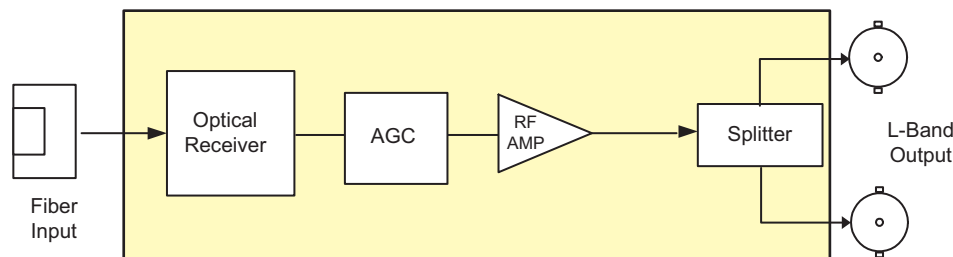
The 7705LR is a fiber optic receiver for L-Band satellite signals. The 7705LR accepts a fiber optic input from the 7705LTA and provides two L-Band RF output signals via BNCs.

The 7705LR occupies one card slot and can be housed in either a 1RU frame, which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- Broadband operation - 950 to 2250MHz
- Operation to 40km
- Supports manual and automatic gain control (AGC)
- Wide AGC hold range (50dB) using 7705LTA + 7705LR
- Protocol transparent - receives all video, audio and data modulation formats
- Two L-Band RF outputs for extra signal distribution or monitoring functions
- RF output independent of optical loss (within AGC range)
- Available with BNC or F-Type connector options
- Supports single-mode and multi-mode fiber optic cable
- Available in SC/PC, ST/PC, FC/PC and APC connector options
- Fully hot-swappable from front of frame

7705LR Block Diagram



Specifications

RF Output:

Number of outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance: 75Ω (50Ω optional)
Return Loss: >10dB
Frequency Range: 950MHz - 2250MHz
Flatness: ± 1.5dB (max) @950MHz-2250MHz
± 0.25dB @ any 36MHz BW

Output Signal Level

AGC Mode: -20dBm constant (within AGC range)
Manual Mode: -20 to -65dBm (depends on RF level and optical loss)

Intermodulation Products: -55dBc (-20dBm RF input to TX, 1m fiber, AGC mode on TX & RX)

Carrier to Noise: 37dB @ any 36MHz BW
Noise Figure: (AGC mode on 7705LTA and 7705LR)
0dB Optical Loss: 7dB
5dB Optical Loss: 14dB
Signal to Noise: 55dB

Optical Input:

Number of inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC, SC/APC, FC/APC

Operating Wavelength: 1270nm - 1610nm
Optical Input Power: +3dBm (max)
Optical Sensitivity: -14dBm @ 35dB S/N
Optical Attenuation:
AGC Hold Range: 10dB optical

Electrical:

Voltage: +12VDC
Power: 4 Watts

Physical:

Number of slots: 1

Ordering Information:

Note: 75Ω I/O impedance ships standard

7705LR	L-Band Satellite Fiber Receiver
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Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Impedance Suffix:

+50	50Ω I/O Impedance
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Connector Suffix

+SC	SC/PC
+AP+SC	SC/APC (Angle polished)
+ST	ST/PC
+FC	FC/PC
+AP+FC	FC/APC (Angle polished)
+F75	75Ω, F-Type rear connector

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone Enclosure

L-Band Satellite Fiber Transmitter

Model 7705LTA

(Replaces the 7705LT & offers improved performance and wider operating range)

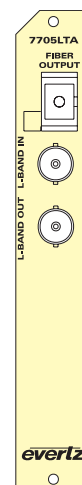
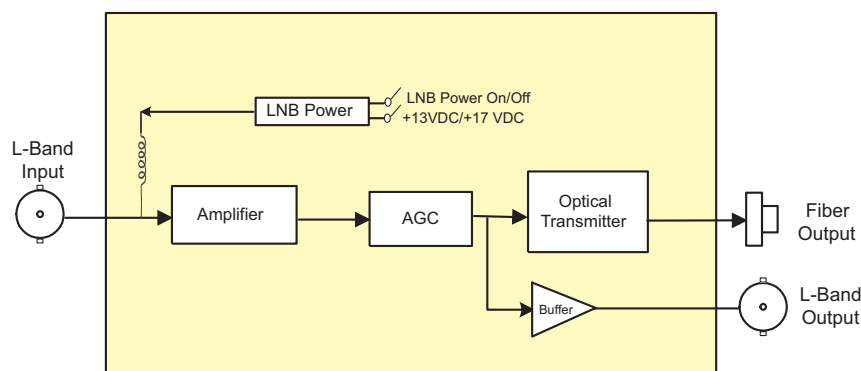
The 7705LTA is a fiber optic transmitter for L-Band satellite signals. The 7705LTA accepts one L-Band coaxial input and provides a fiber optic output signal at 1310nm. An L-Band BNC RF output is also provided for monitoring or further signal distribution.

The 7705LTA occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- Broadband operation - 950 to 2250 MHz
- Wide dynamic range RF input (-20 to -65dBm)
- Operation to 40km
- Protocol transparent - transmits all video, audio and data modulation formats
- Supports manual and automatic gain control (AGC)
- Wide AGC hold range (50dB) using 7705LTA + 7705LR
- Additional L-Band BNC output for monitoring or distribution
- LNB power at +13 or +17 VDC with built-in current limiting
- Available with BNC or F-Type connector options
- Supports single-mode and multi-mode fiber optic cable
- Available with SC/PC, ST/PC, FC/PC and APC connector options
- Fully hot swappable from front of frame

7705LTA Block Diagram



Specifications

RF Input:

Connector: 1 BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance: 75Ω (50Ω optional) (See Ordering Information)
Return Loss: >10dB
Frequency Range: 950MHz - 2250MHz
Input Power Range: -20 to -65dBm
AGC Hold Range: -20 to -50dBm

RF Monitoring Output:

Number of outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance: 75Ω (50Ω optional)
Return Loss: >10dB
Frequency Range: 950MHz - 2250MHz
Flatness: ± 1.5dB @ 1000MHz - 2250MHz
± 0.25dB @ any 36MHz BW

Output Signal Level

AGC Mode: -20dBm constant (within AGC range)
Manual Mode: (Input Level) +25dB gain (-5dB)
Intermodulation Products: -55dBc (AGC mode, RF input -20dBm)
Carrier to Noise: 37dB @ any 36MHz BW

Optical Output:

Number of outputs: 1
Connector: Female SC/PC, ST/PC, FC/PC, SC/APC, FC/APC
Operating Wavelength: 1310nm
Optical Power: 0 dBm ± 1dBm

Physical:

Number of slots: 1

Electrical:

Voltage: +12VDC
Power: 4 Watts

Ordering Information:

Note: 75Ω I/O impedance ships standard

7705LTA13 L-Band Satellite Fiber Transmitter, 1310nm, up to 40km

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Impedance Suffix

+50 50Ω I/O impedance

Connector Suffix

+SC SC/PC
+AP+SC SC/APC (Angle polished)
+ST ST/PC
+FC FC/PC
+AP+FC FC/APC (Angle polished)
+F75 75Ω, F-Type rear connector

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone Enclosure

Triple SDI Optical to Electrical Converter

19.4Mb/s or 143-540Mb/s

Model 7705OE-3

Features

- Triple SDI optical to electrical converter for 3 independent channels
- Provides 45 independent channels of optical conversion, in a single 3RU frame
- Supports all SMPTE259M standards with operation from 143Mb/s-360Mb/s
- Supports additional standards of SMPTE305M (SDTi), SMPTE310M (19.4Mb/s), SMPTE344M (540Mb/s), M2S and DVB-ASI (270Mb/s)
- Supports multi-mode or single-mode fiber
- Fully hot swappable from front of frame, with no fiber or BNC disconnect /reconnect required
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules or a 3RU frame which will hold up to 15 modules or a standalone frame which will hold 1 module

Inputs:

- Three independent fiber inputs
- 1270nm to 1610nm input wavelength range
- Input sensitivity to -32dBm
- SC/PC, ST/PC, FC/PC connector options.

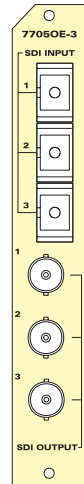
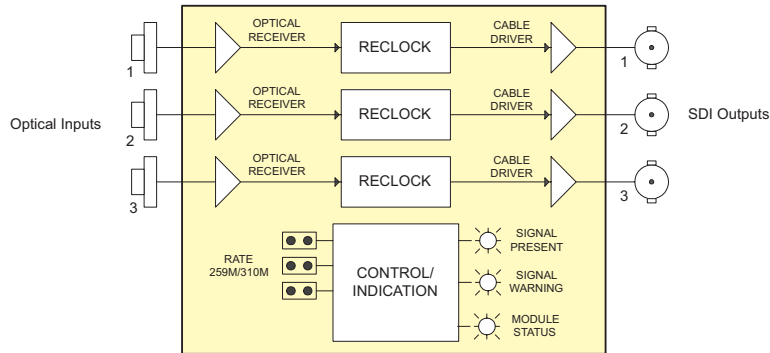
Outputs:

- Three independent, reclocked, serial digital BNC outputs.
- Wideband jitter < 0.2UI

Status LEDs:

- Signal presence indication for each channel
- Input carrier weak indication for each channel
- Module status indication

7705OE-3 Block Diagram



Specifications

Standards: SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 305M, SMPTE 310M, SMPTE344M, M2S, DVB-ASI

Optical Inputs:

Number of Inputs: 3 (independent channels)
Connector: SC/PC, ST/PC, FC/PC female housing
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: 0dBm
Optical Sensitivity: -32dBm

Serial Video Outputs:

Number of Outputs: 3 reclocked (independent channels)
Connector: 3 (1 per input channel) Reclocked
Signal Level: 800mV nominal
DC Offset: 0V±0.5V
Rise/Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15dB up to 540Mb/s
Jitter: < 0.2UI

Electrical:

Voltage: +12V DC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7705OE-3 Triple SDI Optical to Electrical Converter
19.4Mb/s or 143-540Mb/s

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone enclosure

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone enclosure

SDI Optical to Electrical Converter

19.4Mb/s or 143-540Mb/s

Model 7705OE

Features

- Optical to electrical converter for all SMPTE 259M standards with operation from 143Mb/s - 360Mb/s
- Supports additional standards of SMPTE 305M (SDTi), SMPTE 310M (19.4Mb/s), SMPTE 344M(540Mb/s), M2S and DVB-ASI (270Mb/s)
- Supports multi-mode or single-mode fiber
- Fully hot swappable from front of frame with no fiber or BNC disconnect/reconnect required
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to three modules or a 3RU frame which will hold up to 15 modules or a standalone frame which will hold 1 module

Input:

- Optical input range from 1270nm to 1610nm
- Input sensitivity to -32dBm
- SC/PC, ST/PC, FC/PC connector options

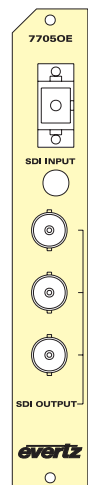
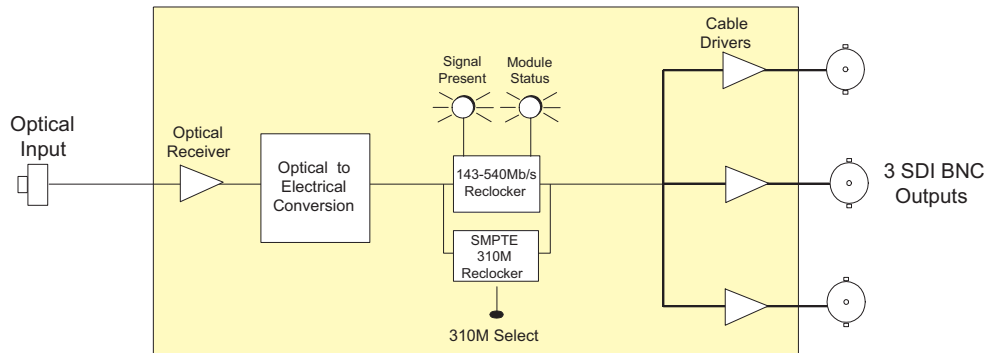
Outputs:

- Three serial digital BNC outputs for loop-through or monitoring
- Wideband Jitter < 0.2 UI

Status LEDs:

- Signal presence indication
- Module status indication

7705OE Block Diagram



Specifications

Standards: SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 305M, SMPTE 310M, SMPTE 344M M2S, DVB-ASI

Optical Input:
Number of Inputs: 1
Connector: SC/PC, ST/PC, FC/PC Female Housing
Operating Wavelength: 1270nm to 1610nm
Optical Sensitivity: -32dBm
Maximum Input Power: 0dBm

Serial Video Outputs:
Number of Outputs: 3 per card reclocked
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB up to 540Mb/s
Wideband Jitter: <0.2 UI

Electrical:
Voltage: +12V DC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A EU EMC Directive

Physical:
Number of Slots: 1

Ordering Information:

7705OE SDI Optical to Electrical Converter, 19.4Mb/s or 143-540Mb/s

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HDTV Optical to Electrical Converter, 19.4Mb/s to 1.5Gb/s

Model 7705OE-HD

Features

- Operation from 19.4Mb/s to 1.5Gb/s
 - Reclocking for SMPTE 292M (1.485Gb/s)
 - Non-reclocking mode for all other rates from 19.4 Mb/s to 1.5Gb/s including SMPTE 259M, SMPTE 305M, SMPTE 310M, M2S, DVB-ASI, etc.
- Supports single-mode and multi-mode fiber optic cable
- Fully hot swappable from front of frame with no fiber or BNC disconnect/reconnect required
- Can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone frame which will hold 1 module

Input:

- Optical input range from 1270nm to 1610nm
- Input sensitivity up to -23dBm
- SC/PC, ST/PC, FC/PC connector options

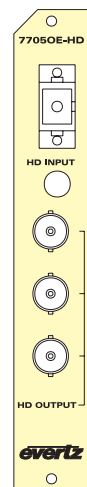
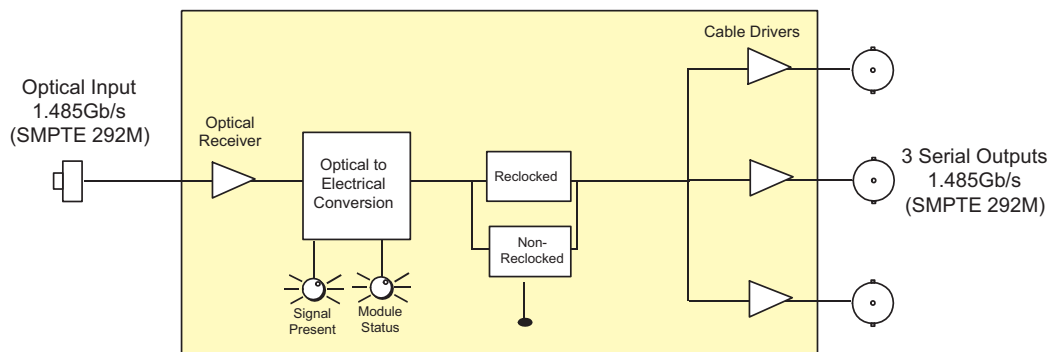
Outputs:

- Three serial digital BNC outputs for fan-out, loop-through or monitoring
- Wideband Jitter < 0.2 UI (reclocked)

Status LEDs:

- Signal presence indication
- Module status indication

7705OE-HD Block Diagram



Specifications

Standard: SMPTE 292M, 259M, 297M, 305M, 310M, M2S, DVB-ASI, and other Telecom/Datacom standards involving data rates from 19.4Mb/s to 1.5Gb/s

Optical Input:

Number of Inputs: 1
Connector: SC/PC, ST/PC, FC/PC Female housing
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: -1dBm
Optical Sensitivity: -23dBm

Serial Video Outputs:

Number of Outputs: 3 Reclocked outputs
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 270ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB to 1GHz, >12dB to 1.5GHz
Jitter: <0.2UI Reclocked

Electrical:

Voltage: +12V DC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of Inputs: 1

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Ordering Information:

7705OE-HD HDTV Optical to Electrical Converter, 19.4Mb/s to 1.5 Gb/s

Optical to Optical Wavelength Converter for rates to 540Mb/s

Model 770500

Features

- Optical wavelength converter and/or optical repeater
- Supports all SMPTE 259M standards with operation from 143-540Mb/s
- Supports additional standards of SMPTE 305M(SDTi), SMPTE 310M(19.4Mb/s) and M2S or DVB-ASI(270Mb/s)
- Can also support Datacom/Telecom rates up to 540Mb/s
- Supports single-mode and multi-mode fiber optic cable
- Coaxial or optical input (jumper selectable)
- Fully hot-swappable from front of frame with no fiber or BNC disconnect required
- Independent isolated output drivers to ensure no cross channel loading effects and to maintain polarity from input to output for DVB-ASI applications

- SC/PC, ST/PC or FC/PC connector options
- Tally output on Frame Status bus upon loss of input signal

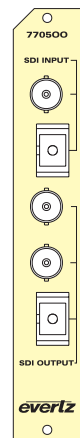
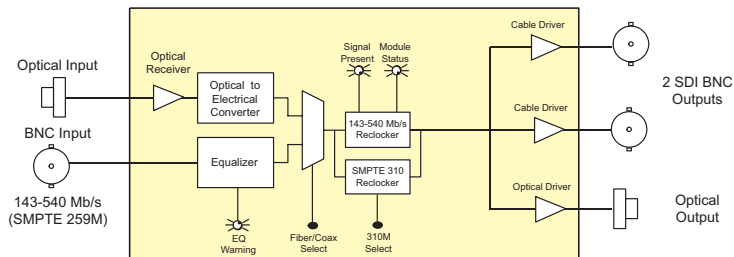
Input:

- Optical input accepts 1270nm to 1610nm
- Automatic cable equalization for coaxial input to 300m @ 270Mb/s with Belden 8281 (or equivalent)

Output:

- One fiber reclocked output at 1310nm, 1550nm or up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- Two BNC serial digital outputs

770500 Block Diagram



Specifications

Standards: SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 305M, SMPTE 310M, DVB-ASI, M2S

Optical Input:

Number of Inputs: 1
Connector: SC/PC, ST/PC, FC/PC Female Housing
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: 0dBm
Optical Sensitivity: -31dBm

Electrical Video Input:

Normal: SMPTE 259M (143 to 540 Mb/s) or DVB/ASI
Jumper Selectable: SMPTE 310M (19.4 Mb/s)
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 300m @ 270 Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15 db to 540 Mb/s

Optical Outputs:

Number of Outputs: 1
Connector: SC/PC, ST/PC, FC/PC female housing
Return Loss: > 14dB
Jitter: < 0.2 UI
Nominal Wavelength: 1310nm, 1550nm
CWDM Wavelengths: See Ordering Information

Optical Power:

1310nm FP -7dBm ± 1dBm
1550nm DFB 0dBm ± 1dBm
CWDM DFB 0dBm ± 1dBm

Electrical Video Outputs:

Number of Outputs: 2 per card - reclocked
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB up to 540Mb/s
Wide Band Jitter: <0.2 UI

Electrical:

Voltage: +12V DC
Power: 6 Watts

Physical:

Number of Slots 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Laser Safety: Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

77050013 Optical to Optical Wavelength Converter for rates to 540 Mb/s, 1270-1610nm input, 1310nm FP laser output
77050015 Optical to Optical Wavelength Converter for rates to 540 Mb/s, 1270-1610nm input, 1550nm, DFB laser output

For CWDM, please refer to the end of the fiber section for ordering information

770500xx Optical to Optical Wavelength Converter for rates to 540 Mb/s, 1270-1610nm input, CWDM DFB laser output

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Optical to Optical Wavelength Converter for HDTV, SDTV, Telecom/Datacom Signals to 1.5Gb/s

Model 770500-HD

Features

- Optical wavelength converter and/or repeater
- Reclocking mode for SMPTE 292M (1.485 Gb/s) signals
- Non-reclock mode for SMPTE 310M (nominal 19.4 Mb/s), SMPTE 259M (143 to 540 Mb/s), DVB-ASI, M2S or most other bit rates less than 1.5 Gb/s
- Fully hot-swappable from front of frame with no fiber or BNC disconnect required
- Independent isolated output drivers to ensure no cross channel loading effects and to maintain polarity from input to output for DVB-ASI applications
- Supports single-mode and multi-mode fiber optic cable

- SC/PC, ST/PC or FC/PC connector options
- Tally output on Frame Status bus upon loss of input signal

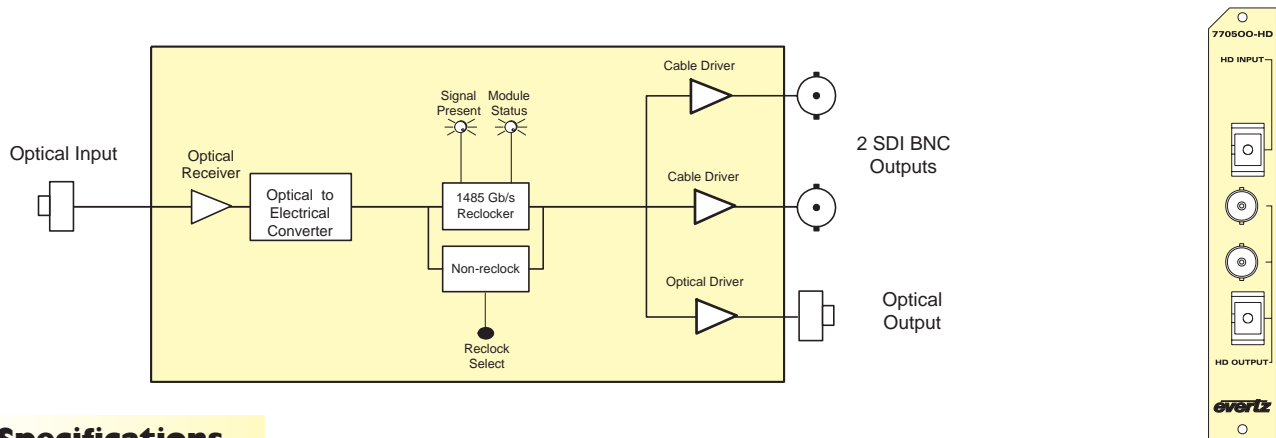
Input:

- Optical input accepts 1270nm to 1610nm

Output:

- Two BNC serial digital outputs
- One fiber reclocked output at 1310nm, 1550nm or up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)

770500-HD Block Diagram



Specifications

Standards:

Reclock Mode: SMPTE 292M
SMPTE 310M (19.4Mb/s) or
Non-Reclock Mode: SMPTE 259M A, B, C, D or DVB-ASI or any other bit rate less than 1.5Gb/s

Optical Input:

Number of Inputs: 1
Connector: SC/PC, ST/PC, FC/PC Female Housing
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power:
Standard: -1dBm
High Sensitivity (-H): -8dBm
Optical Sensitivity:
Standard: -23dBm
High Sensitivity(-H): -28dBm

Optical Outputs:

Number of Outputs: 1 reclocked
Connector: SC/PC, ST/PC, FC/PC female housing
Return Loss: > 14dB
Jitter: < 0.2 UI (reclocked)
Nominal Wavelength: 1310nm, 1550nm
CWDM Wavelength: See Ordering Information

Optical Power:

1310nm FP -7dBm \pm 1dBm
1550nm DFB 0 dBm \pm 1dBm
CWDM DFB 0 dBm \pm 1dBm

Electrical Video Outputs:

Number of Outputs: 2 per card - reclocked
Standard: Same as input
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 270ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB up to 1Gb/s, >12dB up to 1.5Gb/s
Wide Band Jitter: <0.2 UI (reclocked)

Electrical:

Voltage: +12V DC
Power: 6 Watts

Physical:

Number of Slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Laser Safety: Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

77050013-HD Optical to Optical Wavelength Converter for HDTV/SDTV, Telecom/Datacom signals to 1.5 Gb/s, 1270-1610nm input, 1310nm FP laser output
77050015-HD Optical to Optical Wavelength Converter for HDTV/SDTV, Telecom/Datacom signals to 1.5 Gb/s, 1270-1610nm input, 1550nm DFB Laser output
77050013-HD-H Optical to Optical Wavelength Converter for HDTV/SDTV, Telecom/Datacom signals to 1.5 Gb/s, High sensitivity 1270nm-1670nm input, 1310nm FP laser output
77050015-HD-H Optical to Optical Wavelength Converter for HDTV/SDTV, Telecom/Datacom signals to 1.5 Gb/s, High sensitivity 1270nm-1670nm input, 1550nm DFB Laser

For CWDM, please refer to the end of the fiber section for ordering information

770500xx-HD Optical to Optical Wavelength Converter for HDTV/SDTV, Telecom/Datacom signals to 1.5 Gb/s, 1270-1610nm input, CWDM DFB laser output

For CWDM high sensitivity, please refer to the end of the fiber section for ordering information

770500xx-HD-H Optical to Optical wavelength converter for HDTV/SDTV, Telecom/Datacom signals to 1.5 Gb/s, High sensitivity(-27dBm) input, CWDM DFB user output

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

1310/1550nm WDM & Optical Splitters

Model 7705WDM, 7705WDM13/15, 7705DS & 7705MS

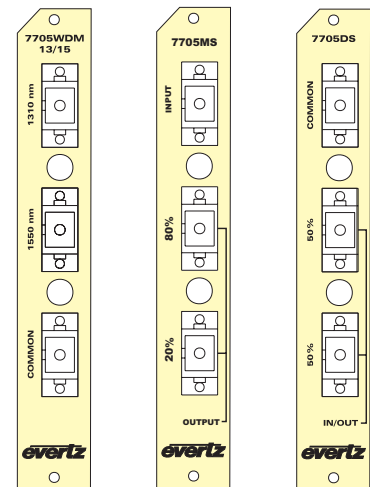
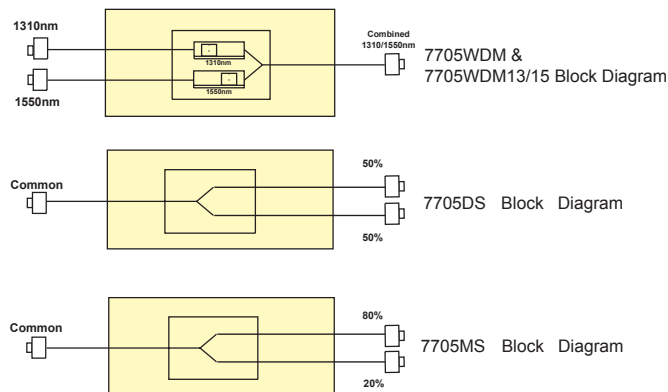
Features

- 7705WDM (Wideband Wavelength Division Multiplexor)**
7705WDM13/15 (Standard Wavelength Division Multiplexor)
7705DS (Fiber Distribution Splitter) &
7705MS (Fiber Monitoring Splitter)
- Bi-directional operation handles 1310nm and 1550nm bands
 - Passive design for any bit rate
 - Fully hot swappable from front of frame with no fiber disconnect/reconnect required
 - Low insertion loss to conserve system power
 - Supports single mode fiber
 - Available in SC, ST & FC connector options

Functions:

- **7705WDM** -- Combines/separates 1310nm and 1470nm-1610nm wavelengths on/from a single fiber
- **7705WDM13/15** -- Combines/separates 1310nm and 1550nm wavelengths on/from a single fiber
- **7705DS** -- Splits one signal into two signals of 50% power or combines two signals into one output signal.
- **7705MS** -- Splits input signal into two signals of 80% / 20% power - used for fiber confidence monitoring.

7705WDM, 7705WDM13/15, 7705DS & 7705MS Block Diagram



Specifications

Optical Input/Output:

Connector: SC/PC, ST/PC, FC/PC female housing
Wavelength: 1310nm and 1550nm bands
Fiber Size: 9µm core / 125µm overall

Insertion Loss:

7705WDM: 1310nm port, 2dB Maximum Loss
1550nm port, 3dB Maximum Loss
(1470nm - 1610nm)
7705WDM13/15: 1310nm port, 2dB Maximum Loss
1550nm port, 2dB Maximum Loss
7705DS: 50% port, 4 dB Maximum Loss
7705MS: 80% port, 2 dB Maximum Loss
20% port, 9 dB Maximum Loss

Isolation:

7705WDM: >50dB between 1310nm/1550nm ports with
1470nm - 1610nm on 1550nm port
7705WDM13/15: >25dB between 1310nm/1550nm ports at center
wavelength \pm 20nm

Physical:

Number of Slots: 1

Ordering Information:

7705WDM: Wideband wavelength Division Multiplexor
7705WDM13/15: Standard Wavelength Division Multiplexor
7705DS: Fiber Distribution Splitter
7705MS: Fiber Monitoring Splitter

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Fiber Optic Patch Cable:

7705FC-SP1MSP Single-mode fiber, 9µm core/900µm

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Analog or SDI Video with 4-Channel Analog or AES Audio Fiber Receiver

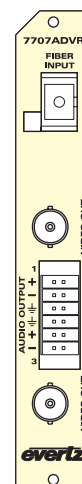
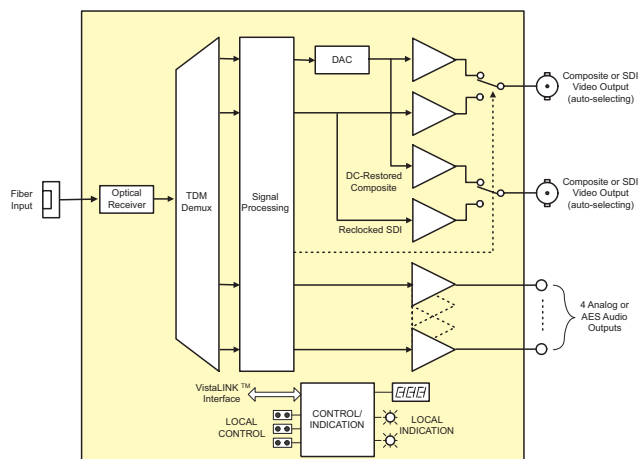
Model 7707ADVR



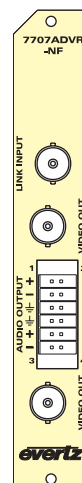
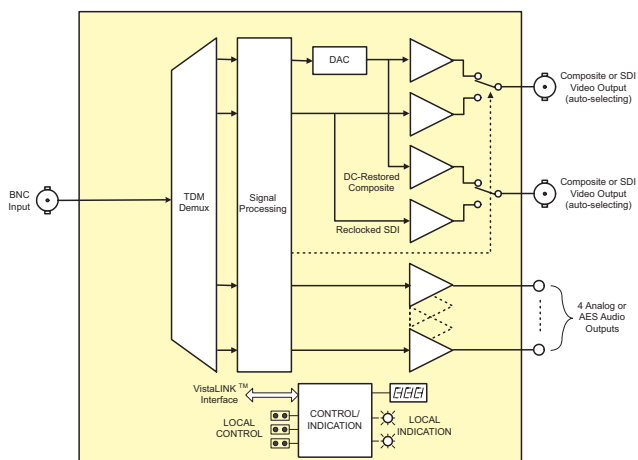
Features

- Single card fiber optic receiver for one analog or SDI video and four analog or AES audio signals
- Auto sensing (analog or digital) video and audio outputs
- Supports both NTSC and PAL analog or 4:2:2 component digital video
- Broadcast quality analog video and audio performance
- Meets or exceeds EIA/TIA RS250-C short haul specifications for analog video and audio transport
- Supports 32, 44.1, 48kHz AES audio
- Dolby E compatible
- Comprehensive signal and card status monitoring via four-digit card-edge display, or through SNMP and VistaLINK™-enabled capability
- Adjustable gain, DC offset and pre-emphasis for driving up to 250m of Belden 1694 coaxial cable
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Input available with fiber optics or BNC
- Wideband optical input (1270nm-1610nm)

7707ADVR Block Diagram



7707ADVR-NF Block Diagram



Analog or SDI Video with 4-Channel Analog or AES Audio Fiber Receiver

Specifications

Analog Video Outputs:

Standard:	SMPTE 170M, (NTSC), ITU-R 624-2 (PAL)
Number of Outputs:	2 BNC per IEC 60169-8 Amendment 2.
System bandwidth:	> 5.5 MHz
Output Level:	1 Vp-p (nominal), 2 Vp-p (maximum)
Gain:	Unity gain nominal, adjustable 50% to 150%
Output Impedance:	75Ω
Return Loss:	> 30dB to 5.5MHz
SNR:	> 67dB
Differential Gain:	< 1.0%
Differential Phase:	< 0.7°
Pre-Emphasis:	Adjustable cable loss compensation for up to 250m of Belden 1694

Passband Ripple:

NTSC:	< ±0.1dB to 4.1MHz and < ±0.2dB to 5.5MHz
PAL:	< ±0.1dB to 4.8MHz and < ±0.2dB to 5.8MHz

Chroma/Luma Gain:

Chroma/Luma Delay:

NTSC:	<5ns
PAL:	<12ns

Line Time Distortion:

	1.2%
--	------

Serial Video Output:

Number of Outputs:	2 regenerated
Standard:	SMPTE 259M-C, 525 or 625 line components SMPTE 305M (SDTi)
Connector:	BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 300m with Belden 1694 (or equivalent)
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	900ps nominal
Overshoot:	<10% of amplitude
Return Loss:	> 15dB at 270Mb/s
Wide Band Jitter:	< 0.2UI

Analog Audio Outputs:

Number of Outputs:	4
Type:	Balanced analog audio
Connector:	12 pin removal terminal block
Output impedance:	66Ω
Freq. Response:	+/- 0.1dB, 20Hz to 20 kHz
THD 20Hz-20kHz:	< 0.005%
Channel Phase Diff.	+/- 1 deg
SNR (weighted):	> 85dB
Output Level Adj:	-20dB to +3dB
Max Output Level:	+24 dBu into 10kΩ loads

AES Audio Outputs:

Number of Outputs:	4 regenerated (selectable for balanced or unbalanced)
Standard:	
Unbalanced AES:	SMPTE 276M
Balanced AES:	AES3-1992
Other:	Dolby E compatible
Connector:	12 pin terminal strip
Input Return Loss:	>15dB (1MHz to 6MHz)
Signal Level:	
Unbalanced:	1 Vp-p ±0.1Vp-p
Balanced:	2 Vp-p ±0.1Vp-p

Resolution:	Up to 24-bits
Sampling Rate:	32, 44.1, 48 kHz
Output Jitter:	<0.1UI
Impedance:	
Unbalanced:	75Ω
Balanced:	110Ω

Optical Input:

Number of Inputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC
Operating Wavelength:	1270nm to 1610nm
Maximum Input Power:	0dBm
Optical Sensitivity:	-32dBm

Electrical:

Voltage:	+12VDC
Power:	12Watts

Physical:

Number of slots:	1
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Ordering Information:

7707ADVR:	Analog/SDI video & analog/AES audio fiber optic receiver
7707ADVR-NF:	Electrical input only

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone Enclosure

Analog or SDI Video with 4-Channel Analog or AES Audio Fiber Transmitter

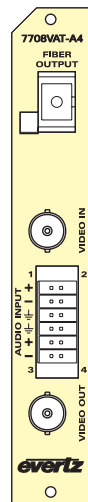
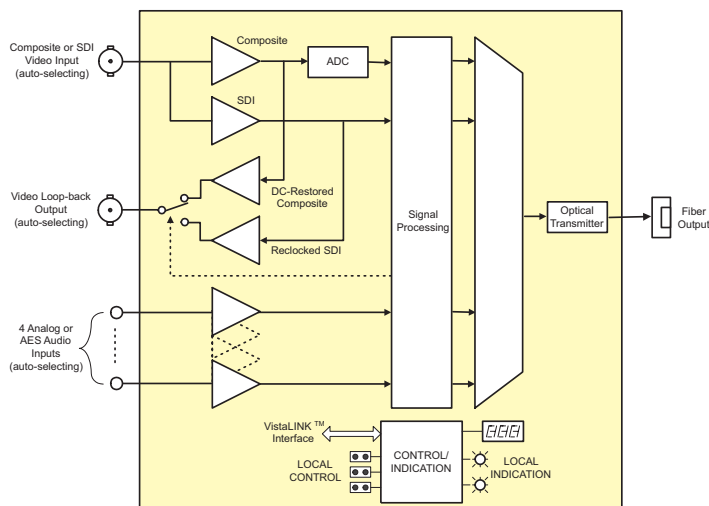
Model 7707ADVT



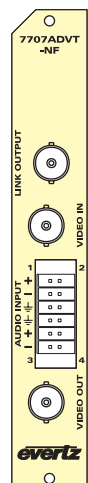
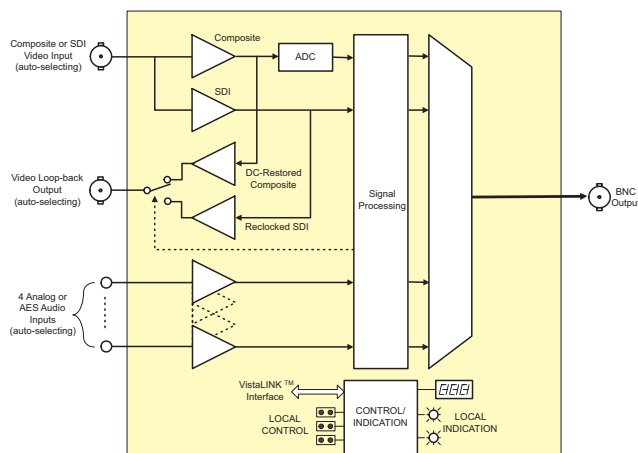
Features

- Single card fiber optic transmitter for one analog or SDI video and four analog or AES audio signals
- Auto-sensing (analog or digital) video and audio inputs
- Supports both NTSC and PAL analog or 4:2:2 component digital video
- Broadcast quality analog video and audio performance
- Meets or exceeds EIA/TIA RS250-C short haul specifications for analog video and audio transport
- Supports 32, 44.1, 48kHz AES audio inputs
- Dolby E compatible
- Comprehensive signal and card status monitoring via four-digit card-edge display, or through SNMP and VistaLINK™ -enabled capability
- Adjustable gain equalization for analog video for up to 250m of Belden 1694 coaxial cable
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths at 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU G.694.2 compliant)
- DWDM wavelengths also available (ITU G.694.1 compliant)
- Outputs available with fiber optics and BNC's only
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths from 1270nm to 1610nm
- DWDM wavelengths (ITU G.692.1 compliant) also available

7707ADVT Block Diagram



7707ADVT-NF Block Diagram



Analog or SDI Video with 4-Channel Analog or AES Audio Fiber Transmitter

3e

Specifications

Analog Video Input:

Standards:	SMPTE 170M (NTSC), ITU-R 624-2 (PAL)
Number of Inputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2.
Signal Quantization:	12 bit
System Bandwidth:	>5.5MHz
Input Level:	2 Vp-p (Maximum)
Gain Equalization:	Up to 250m of Belden 1694 or equivalent (adjustable)
Input impedance:	75Ω
Return Loss:	> 30 dB to 5.5 MHz
Signal/Noise Ratio:	> 67 dB
Differential Gain:	< 1.0 %
Differential Phase:	< 0.7 Degree
Passband Ripple:	
NTSC:	< +/- 0.1dB to 4.1 MHz < +/- 0.2dB to 5.5 MHz
PAL:	< +/- 0.1dB to 4.8 MHz < +/- 0.2dB to 5.8 MHz
Chroma/Luma Gain:	98% to 103%
Chroma/Luma Delay:	
NTSC:	< 5 ns
PAL:	< 12 ns
Line Time Distortion:	1.2%

Serial Video Input:

Standard:	SMPTE 259M-C, 525 or 625 line component, SMPTE 305M, (SDTi)
Connector:	1 BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 300m @ 270 Mb/s with Belden 1694 or equivalent cable
Return Loss:	> 15 dB up to 270 Mb/s

Analog Video Output:

Standard:	Same as Analog Video Input
Number of Outputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2.
Output Level:	1V p-p
Output Impedance:	75Ω
Return Loss:	> 30 dB to 5.5 MHz

Serial Video Output:

Number of Outputs:	
Fiber Version	1
NF Version	2
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V ± 0.5V
Rise and Fall Time:	900ps nominal
Overshoot:	<10% of amplitude
Return Loss:	>15 dB at 270 Mb/s
Wide Band Jitter:	<0.2 UI

Analog Audio Inputs:

Number of Inputs:	4
Type:	Balanced analog audio
Connector:	12 pin removal terminal block
Input impedance:	High Impedance (>20K Ω)
Freq. Response:	+/-0.1 dB, 20Hz to 20 kHz
THD 20Hz-20kHz:	< 0.005%
Channel Phase Diff.:	+/- 1 deg
SNR (weighted):	> 85 dB
Max. Audio Input Level:	+24 dBu
Signal Quantization:	24 Bits

AES Audio Inputs:

Number of Inputs:	4 (auto-sensing for balanced or unbalanced input)
Standard:	
Unbalanced AES:	SMPTE 276M
Balanced AES:	AES3-1992
Other:	Dolby E compatible
Connector:	12 pin removable terminal block
Input Return Loss:	>15dB (1MHz to 6MHz)
Signal Level:	
Unbalanced:	1.2V p-p ±0.1V
Balanced:	1 to 7Vp-p

Equalization:

Unbalanced:	450m of Belden 1800D cable
Balanced:	1500m of Belden 1694 cable
Resolution:	Up to 24 bits
Sampling Rate:	32, 44.1, 48 kHz
Impedance:	
Unbalanced:	75 Ω
Balanced:	110 Ω

Optical Outputs:

Number of Outputs:	1
Connector:	Female SC/PC, ST/PC or FC/PC
Return Loss:	> 14 dB
Rise and Fall Time:	200ps nominal
Fiber Size:	9 μm core / 125 μm overall
Wavelengths:	
Standard	1310nm, 1550nm (nominal)
CWDM:	See Ordering Information
DWDM:	See Ordering Information
Output Power:	
1310nm FP (Standard)	-7dBm ± 1dBm
1310nm FP (M Version)	0dBm ± 1dBm
1550 & CWDM DFB	0dBm ± 1dBm
DWDM DFB	+7dBm ± 1dBm

Electrical:

Voltage:	+12VDC
Power:	10 Watts (Non DWDM), 12 Watts (DWDM)

Physical:

Number of slots:	1
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Compliance:

Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive Class 1 laser product
Laser Safety:	Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC directive

Ordering Information:

7707ADVT13:	1310nm FP Laser (-7dBm launch power)
7707ADVT13M:	1310nm FP Laser (0dBm launch power)
7707ADVT15:	1550nm DFB Laser
7707ADVT-NF:	Electrical outputs only

For CWDM applications please refer to the end of the fiber section for details

7707ADVTxx	Analog or SDI Video & 4 Analog or 4 AES audio fiber transmitter, CWDM Laser, VistaLINK™
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For DWDM applications please refer to the end of the fiber section for details

7707ADVTDyyy	Analog or SDI Video & 4 Analog or 4 AES audio fiber transmitter, DWDM Laser, VistaLINK™
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Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone Enclosure

Eight/Sixteen Channel AES Audio Fiber Receiver Demux

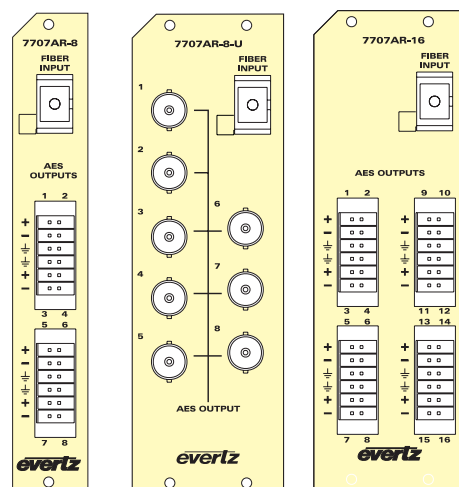
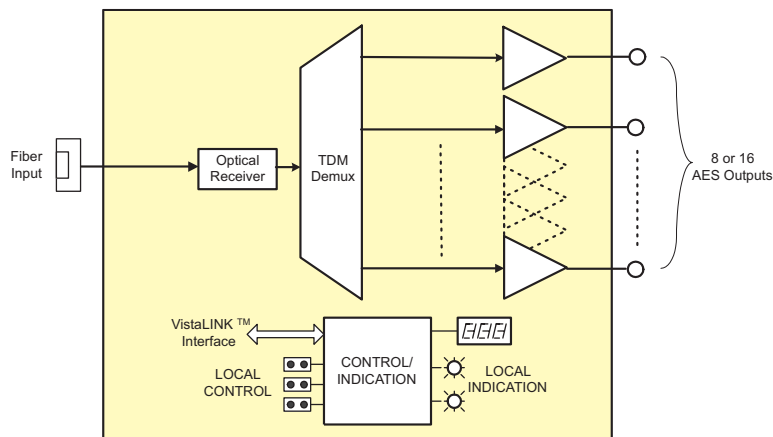
Models 7707AR-8/7707AR-8U 7707AR-16



Features

- Eight or sixteen AES audio fiber optic receiver
- Dolby E compliant
- 7707AR-8 and 7707AR-16 versions provide interface to balanced or unbalanced signals
- 7707AR-8U version provides interface to unbalanced signals via BNC connections
- AES audio sample rate detection provided independently for each channel
- Audio monitoring via card-edge headphone jack with adjustable volume
- All configuration settings controllable through the card-edge user interface, or remotely through SNMP and VistaLINK™
- Wide-band optical input is compatible with 1310nm, 1550nm, CWDM, or DWDM wavelengths
- Supports single-mode and multi-mode fiber optic cable
- SC/PC, ST/PC, or FC/PC fiber connector options
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability

7707AR-8/7707AR-16 Block Diagram



Specifications

AES Audio Outputs:

Standard:	SMPT E 276M - Unbalanced AES, Dolby E compliant
7707AR-8U:	AES3-1992, Balanced or Unbalanced (selectable), Dolby E compliant
7707AR-16:	
Number of Outputs:	
7707AR-8/8U:	8
7707AR-16:	16
Connectors:	
7707AR-8U:	BNC per IEC 60169-8 Amendment 2
7707AR-8/16:	Multi-pin Removable Terminal Blocks
Output Sample Rate:	32 to 48kHz (same as input signal at 7707AT)
Output Impedance:	
Unbalanced:	75Ω
Balanced:	110Ω
Output Return loss:	>15dB
Output Amplitude:	
Unbalanced:	1Vp-p to ±0.1Vp-p
Balanced:	2Vp-p to ±0.1Vp-p
Output Rise/Fall Times:	
Unbalanced:	35ns ±5ns
Balanced:	20ns ±5ns
Output Jitter:	< 0.1UI

Optical Input:

Connector:	SC/PC, ST/PC, FC/PC female housing
Input Wavelength:	1270 to 1610nm
Input Power (max):	0dBm
Input Optical Sensitivity:	-28dBm

Electrical:

Voltage:	12V DC
Power (max):	6 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

7700 frame mounting:	
Number of Slots:	
7707AR-8U:	2 slots
7707AR-8:	1 slot
7707AR-16:	2 slots
7701 frame mounting:	
Number of Slots:	1 slot all versions

Ordering Information:

7707AR-8	Eight Channel AES Audio Fiber Receiver Demux, VistaLINK™ Monitoring
7707AR-8U	Eight Channel Unbalanced AES Audio Fiber Receiver Demux, VistaLINK™ Monitoring
7707AR-16	Sixteen Channel AES Audio Fiber Receiver Demux, VistaLINK™ Monitoring

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC	Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC	Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC	Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC	Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC	Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC	Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Eight/Twelve Channel Analog Audio Fiber Receiver Demux

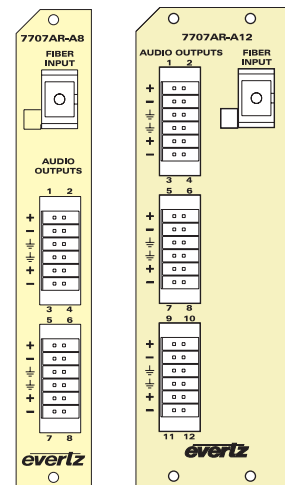
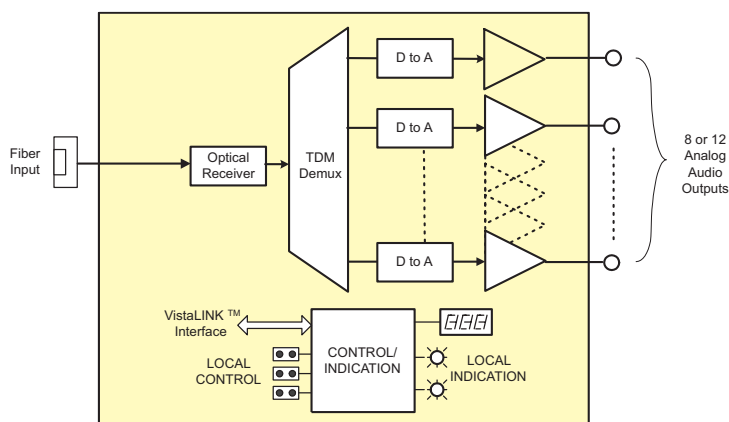
Models 7707AR-A8/7707AR-A12



Features

- Eight or twelve professional quality analog audio fiber optic receiver
- Adjustable audio detection for each channel
- Adjustable audio gain for each channel
- Audio monitoring via card-edge headphone jack
- All configuration settings controllable through the card-edge interface, or remotely through SNMP and VistaLINK™
- Wide-band optical input compatible with 1310nm, 1550nm, CWDM, or DWDM transmission wavelengths
- Supports single-mode and multi-mode fiber optic cable
- SC/PC, ST/PC, or FC/PC fiber connector options
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four-digit cardedge display or remotely through SNMP and VistaLINK™ -enabled capability

7707AR-A8/7707AR-A12 Block Diagram



Specifications

Analog Audio Outputs:

Number of Outputs:	
7707AR-A8:	8
7707AR-A12:	12
Connectors:	Multi-pin Removable Terminal Blocks
Output Level:	
Into High Impedance:	+24dBu (max)
Into 600Ω:	+23dBu (max)
Frequency Response:	±0.1dB (max, 20Hz to 20kHz)
THD + Noise:	-90dB or 0.003% (max, 20Hz to 20kHz, @0dBFS)
Crosstalk:	-100dB (max, 20Hz to 20kHz, measured channel connected at input)
S/N Ratio:	100dB (min)
Channel Phase:	±0.5degrees (max, 20Hz to 20kHz)
Output Impedance:	66Ω (nom, differential)
Adjustable Gain:	-10dB to +10dB (0.5dB increments)

Optical Input:

Connector:	SC/PC, ST/PC, FC/PC female housing
Input Wavelength:	1270 to 1610nm
Input Power (Max):	0dBm
Input Optical Sensitivity:	-28dBm

Electrical:

Voltage:	12V DC
Power:	
7707AR-A8:	13.5 Watts (max)
7707AR-A12:	18.5 Watts (max)
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

7700 frame mounting:	
Number of Slots:	
7707AR-A8:	1 slot
7707AR-A12:	2 slots

7701 frame mounting:	
Number of Slots:	1 slot

Ordering Information:

7707AR-A8	Eight Channel Analog Audio Fiber Receiver, Demux VistaLINK™ Monitoring
7707AR-A12	Twelve Channel Analog Audio Fiber Receiver, Demux VistaLINK™ Monitoring

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC	Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC	Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC	Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC	Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC	Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC	Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Eight/Sixteen Channel AES Audio Fiber Transmitter Mux

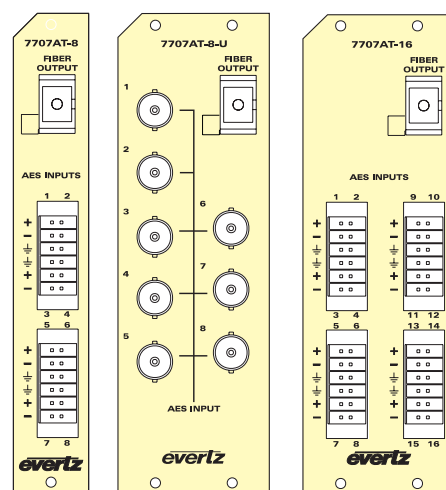
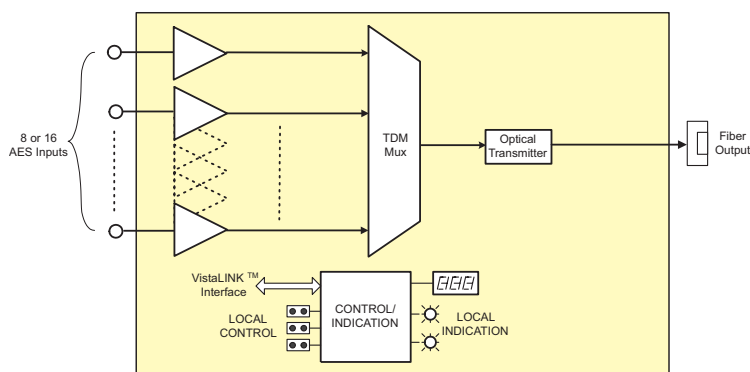
Models 7707AT-8/7707AT-8U 7707AT-16



Features

- Eight or sixteen AES audio fiber optic transmitter
- Dolby E compatible
- 7707AT-8 and 7707AT-16 versions provide interface to balanced or unbalanced signals
- 7707AT-8U version provides interface to unbalanced signals via BNC connections
- AES audio sample rate detection is provided independently for each channel
- Audio monitoring via card-edge headphone jack with adjustable volume
- All configuration settings are controllable through the card-edge user interface, or remotely through SNMP and VistaLINK™
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths also available (ITU-T G.694.1 compliant)
- Supports single-mode and multi-mode fiber optic cable
- SC/PC, ST/PC, or FC/PC fiber connector options
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability

7707AT-8/7707AT-16 Block Diagram



Specifications

AES Audio Inputs:

Standard:	
7707AT-8U:	SMPTE 276M - Unbalanced AES, Dolby E compatible
7707AT-8/16:	AES3-1992, Balanced or Unbalanced (selectable), Dolby E compatible

Number of Inputs:

7707AT-8/8U:	8
7707AT-16:	16

Connectors:

7707AT-8U:	BNC per IEC 60169-8 Amendment 2
7707AT-8/16:	Multi-pin Removable Terminal Blocks

Input Sample Rate:

32 to 48kHz

Input Impedance:

Unbalanced:	75Ω
Balanced:	110Ω

Input Return Loss:

>15dB

Input Amplitude (max):

Unbalanced:	1.2Vp-p
Balanced:	7Vp-p

Input Amplitude (min):

Unbalanced:	320mVp-p
Balanced:	200mVp-p

Cable Equalization (max):

Unbalanced:	450m (~1900ft) of Belden 1694 cable
Balanced:	1500m (~4900ft) of Belden 1800B cable

Optical Output:

Connector:	SC/PC, ST/PC, FC/PC female housing
Output Wavelengths:	See Ordering Information

Output Power:

1310nm FP (Standard):	-7 dBm ±1dBm
CWDM DFB:	0 dBm ±1dBm
DWDM DFB:	+7 dBm ±1dBm

Electrical:

Voltage:	12V DC
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Power

7707AT-8/8U:	6 Watts (Non DWDM) or 9 Watts (DWDM)
7707AT-16:	8 Watts (Non DWDM) or 11 Watts (DWDM)

Physical:

7700 frame mounting:

Number of Slots:	
7707AT-8U:	2 slots
7707AT-8:	1 slot
7707AT-16:	2 slots

7701 frame mounting:

Number of Slots:	1 for all versions
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Compliance:

Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive
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Laser Safety:

Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Complies with FCC Part 15, Class A
EU EMC Directive

EMI/RFI:

Ordering Information:

7707AT13-8	Eight channel AES Audio Fiber Transmitter Mux , 1310nm FP, VistaLINK™
7707AT13-8U	Eight channel AES Unbalanced Audio Fiber Transmitter Mux, 1310nm FP, VistaLINK™, AES on BNC's
7707AT13-16	Sixteen channel AES Audio Fiber Transmitter Mux, 1310nm FP, VistaLINK™
7707AT15-8	Eight channel AES Audio Fiber Transmitter Mux , 1550nm DFB, VistaLINK™
7707AT15-8U	Eight channel AES Unbalanced Audio Fiber Transmitter Mux , 1550nm DFB, VistaLINK™
7707AT15-16	Sixteen channel AES Audio Fiber Transmitter Mux , 1550nm DFB, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707ATxx-8	Eight channel AES Audio Fiber Transmitter Mux, CWDM wavelength, VistaLINK™
7707ATxx-8U	Eight channel AES Unbalanced Audio Fiber Transmitter Mux , CWDM wavelength, VistaLINK™
7707ATxx-16	Sixteen channel AES Audio Fiber Transmitter Mux, CWDM wavelength, VistaLINK™

For DWDM, please refer to the end of the fiber section for ordering information

7707ATDyyy-8	Eight channel AES Audio Fiber Transmitter Mux, DWDM wavelength, VistaLINK™
7707ATDyyy-8U	Eight channel AES Unbalanced Audio Fiber Transmitter Mux, DWDM wavelength, VistaLINK™
7707ATDyyy-16	Sixteen channel AES Audio Fiber Transmitter Mux , DWDM wavelength, VistaLINK™

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Eight/Twelve Channel Analog Audio Fiber Transmitter Mux

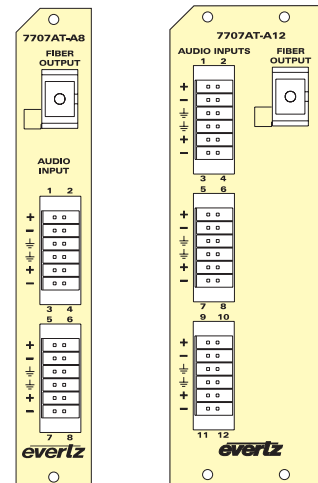
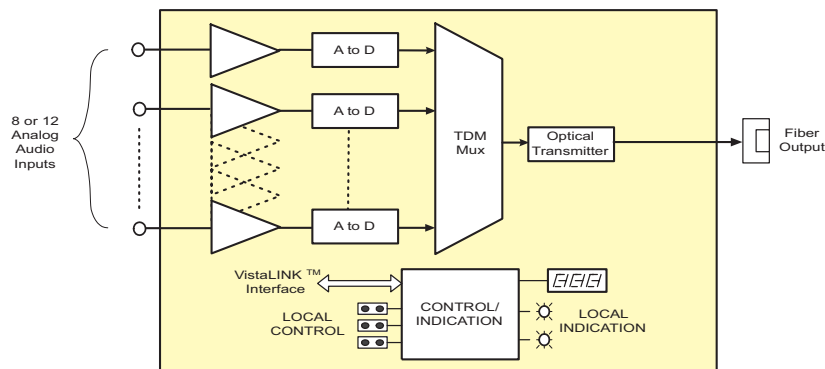
Models 7707AT-A8/7707AT-A12



Features

- Eight or twelve professional quality analog audio fiber optic transmitter
- Adjustable audio detection for each channel
- Audio monitoring via card-edge headphone jack with adjustable volume
- All configuration settings controllable through the card-edge user interface, or remotely through SNMP and VistaLINK™
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths also available (ITU-T G.694.1 compliant)
- Supports single-mode and multi-mode fiber optic cable
- SC/PC, ST/PC, or FC/PC fiber connector options
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability

7707AT-A8/7707AT-A12 Block Diagram



Specifications

Analog Audio Inputs:

Number of Inputs:	8
7707AT-A8:	12
Connectors:	Multi-pin Removable Terminal Blocks
Input Level:	+24dBu (max)
Frequency Response:	±0.1dB (max, 20Hz to 20kHz)
THD + Noise:	-90dB or 0.003% (max, 20Hz to 20kHz, @0dBFS)
Crosstalk:	-100dB (max, 20Hz to 20kHz, measured channel connected at input)
S/N Ratio:	100dB (min)
Channel Phase:	±0.5degrees (max, 20Hz to 20kHz)
Input Impedance:	10kΩ (min, differential)
Resolution:	24 Bits

Optical Output:

Connector:	SC/PC, ST/PC, FC/PC female housing
Output Wavelengths:	See Ordering Information
Output Power:	
1310nm FP (Standard):	-7 dBm (nom) ±1dBm
CWDM DFB:	0 dBm (nom) ±1dBm
DWDM DFB:	+7 dBm (nom) ±1dBm

Electrical:

Voltage:	12V DC
Power:	
7707AT-A8:	
Non DWDM Laser:	8 Watts (max)
DWDM Laser:	10 Watts (max)
7707AT-A12:	
Non DWDM Laser:	10 Watts (max)
DWDM Laser:	12 Watts (max)

Physical:

7700 frame mounting:	
Number of Slots:	
7707AT-A8:	1 slot
7707AT-A12:	2 slots
7701 frame mounting:	
Number of Slots:	1 slot

Compliance:

Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065
	Complies with CE Low voltage Directive
Laser Safety:	Class 1 laser product
	Complies with 24 CFR 1040.10 and 1040.11
	IEC 60825-1

EMI/RFI:

Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7707AT13-A8	Eight channel Analog Audio Fiber Transmitter Mux, 1310nm FP, VistaLINK™
7707AT15-A8	Eight channel Analog Audio Fiber Transmitter Mux, 1550nm DFB, VistaLINK™
7707AT13-A12	Twelve channel Analog Audio Fiber Transmitter Mux , 1310nm FP, VistaLINK™
7707AT15-A12	Twelve channel Analog Audio Fiber Transmitter Mux , 1550nm DFB, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707ATxx-A8	Eight channel Analog Audio Fiber Transmitter Mux , CWDM wavelength
7707ATxx-A12	Twelve channel Analog Audio Mux Fiber Transmitter, CWDM wavelength

For DWDM, please refer to the end of the fiber section for ordering information

7707ATDyyy-A8	Eight channel Analog Audio Mux Fiber Transmitter, DWDM wavelength
7707ATDyyy-A12	Twelve channel Analog Audio Mux Fiber Transmitter, DWDM wavelength

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Fiber Optic Patch Cable please refer to the end of the fiber section for details

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

2 x 1 Optical Bypass Protection Switch

Model 7707BPX



The 7707BPX is a wide band 2 x 1 optical protection switch that provides auto-changeover functionality by detecting changes in the optical input power level.

The 7707BPX has integrated VistaLINK™ technology for remote control and monitoring capability via SNMP. This provides the user with the ability to locally or remotely configure and monitor parameters such as module status, selected input, power level and switching threshold.

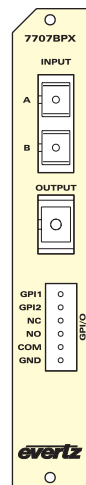
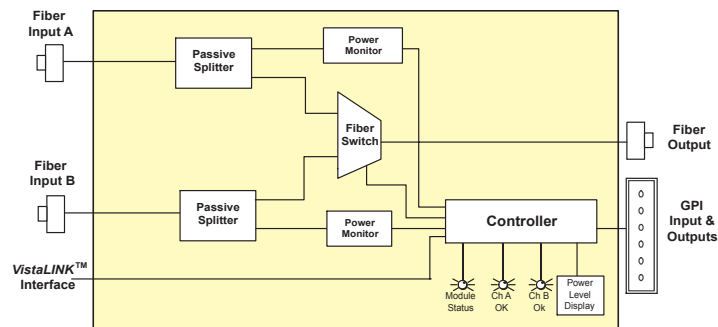
In the application of auto-changeover, the 7707BPX can be configured to have a MAIN input and a STANDBY input. In this configuration, it will automatically switch to the Standby input when the Main input power is weak or lost. It can also be configured to have auto or manual switch back to the Main input when the signal is re-established.

The 7707BPX occupies one card slot and can be housed in either a 1RU frame which hold up to 3 modules or a 3RU frame which will hold up to 15 modules.

Features

- Intelligent auto-switching with input power detection and user definable thresholds
- Supports automatic or manual control via SNMP or GPI
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Accepts any wavelength in the 1270nm to 1610nm range
- Supports single-mode fiber optic cable
- SC/PC, ST/PC or FC/PC fiber connector options
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

Model 7707BPX Block Diagram



Specifications

Optical Input/Output:

Number:	3 Bi-directional optical signals
Connector:	SC/PC, ST/PC, FC/PC Female Housing
Insertion Loss:	< 3dB
Switch Time:	< 30 ms
Maximum Input Power:	5 dBm
Input Optical Sensitivity:	-40dBm
Operating Wavelength:	1270nm to 1610nm
Fiber Size:	9µm core / 125 µm overall

General Purpose Inputs:

Number of Inputs:	2
Type:	Opto-isolated, active low with internal pull-ups to +5V
Connector:	2 pins plus ground on 6 pin terminal strip
Signal Level:	
+5V Pullup:	Low: -5 to +2.5 VDC, High: 3.5 to 10 VDC
+12V Pullup:	Low: -5 to +9.5 VDC, High: 10.5 to 15 VDC
Max Sink Current:	(input shorted to ground) 15 mA
Max Leakage Current for input High:	200 µA

General Purpose Outputs:

Number of Outputs:	1
Type:	"Dry Contact" relay contacts - normally open & normally closed contact provided
Connector:	3 pins on 6 pin terminal strip

Electrical:

Voltage:	+12V DC
Power:	3 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of Slots:	1
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Ordering Information:

7707BPX:	2 x 1 Optical Bypass Protection Switch
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Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

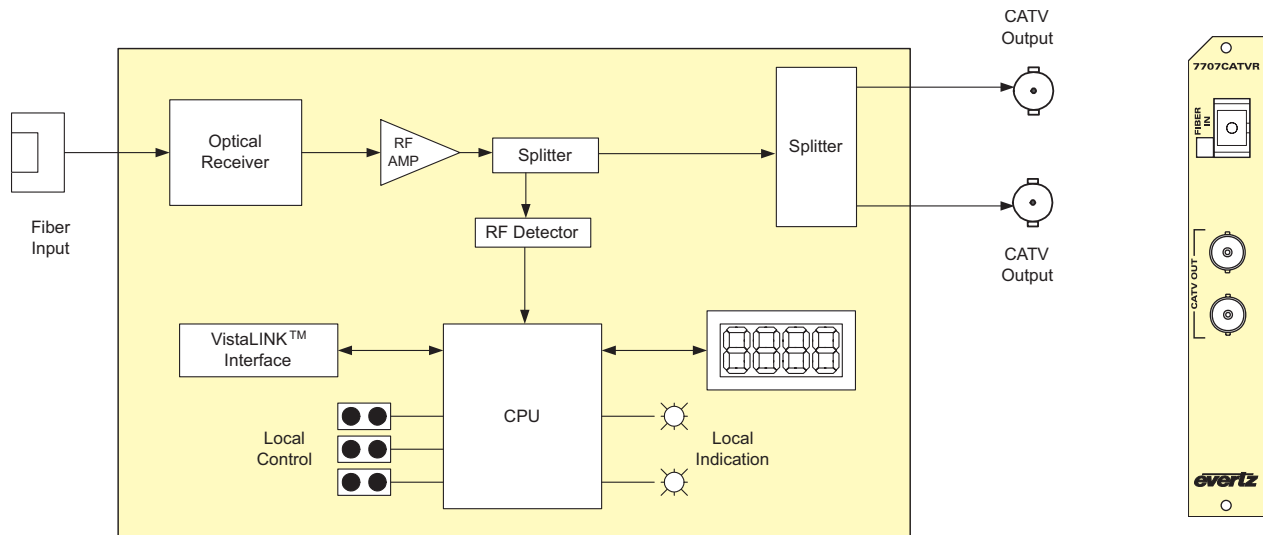
Model 7707CATVR



Features

- 80/110 Channel PAL/NTSC CATV fiber optic receiver
- 50-850 MHz operational bandwidth
- Low CSO and CTB intermod products
- Supports single mode fiber
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™-enabled capability
- Provides up to 35km extension of CATV systems
- Two RF outputs for extra signal distribution or monitoring functions
- Optical power monitoring and alarm thresholds
- RF output power monitoring and alarm thresholds

7707CATVR Block Diagram



Specifications

CATV Outputs:

Connector:	2 F-Type (BNC optional)
I/O Impedance:	75Ω
Return Loss:	> 17dB
CSO:	<-64dB*
CTB:	<-67dB*
CNR:	>50dB*
RF Flatness:	± 1dB* (50 - 850MHz)

* Measured with fully loaded CATV spectrum with 40dBmV/channel input to 7707CATVT and 0dBm optical power input to 7707CATVR with 0dB gain setting on 7707CATVR

Optical Input:

Connector:	1 SC/APC
Operating Wavelength:	1310nm
Optical Link Budget:	14dB (Using 7707CATVT - 110-11 transmitter) 11dB (Using 7707CATVT - 110-8 transmitter)

Electrical:

Voltage:	+12VDC
Power:	5 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of slots:	1
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Ordering Information:

7707CATVR	80/110 Channel PAL/NTSC CATV Fiber Receiver, SC/APC connector, VistaLINK™
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Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Optical Connector Suffix

+AP+SC	SC/APC (Angle Polished)
+AP+FC	FC/APC (Angle Polished)

RF Connector Suffix

+BNC	BNC Connector
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Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone enclosure

CATV Fiber Transmitter

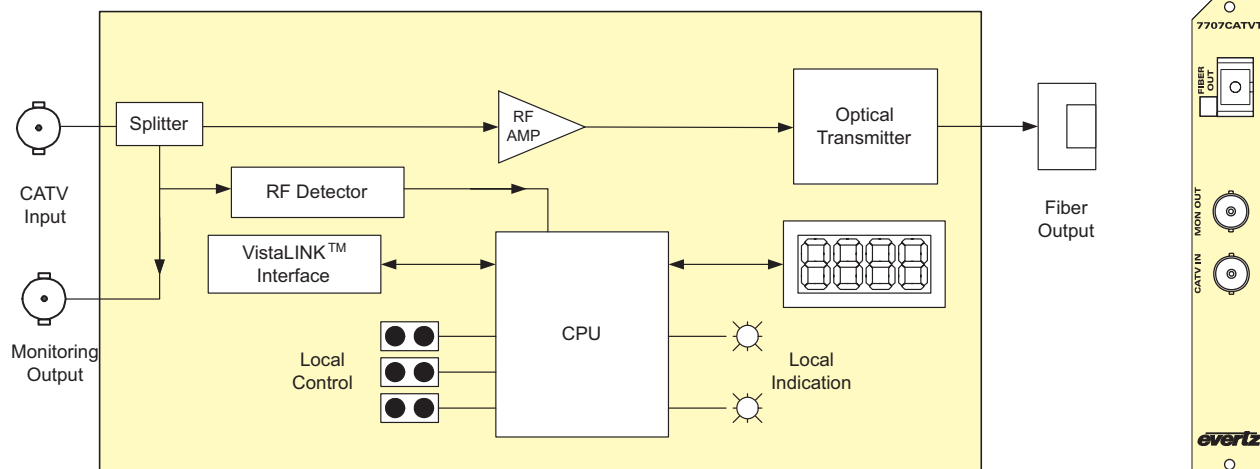


Model 7707CATVT

Features

- 80/110 Channel PAL/NTSC CATV fiber optic transmitter
- 50-850 MHz operational bandwidth
- Low CSO and CTB intermod products
- Supports single mode fiber
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Provides up to 35km extension of CATV systems
- RF input power monitoring and alarm thresholds
- Two setting adjustable optical output power level
- Two optical output power versions available at 1310nm wavelength, +11dBm and +8dBm

7707CATVT Block Diagram



Specifications

CATV Input:

Number of Inputs:	1, 80/110 channel, PAL/NTSC CATV signal
Bandwidth:	50-850 MHz
RF Drive Level/channel:	40dBmV/channel for full 80 PAL/110 NTSC channel load
Connector:	1 F-Type (BNC optional)
I/O Impedance:	75Ω
Return Loss:	>18dB

Monitoring Output:

Number of Outputs:	1
Connector:	F-Type (BNC optional)
I/O Impedance:	75Ω
Signal Level:	(Input) -25dB
RF Flatness:	± 1dB (50 - 850MHz)

Optical Output:

Connector:	1 SC/APC
Operating Wavelength	1310nm
Output Power	
110-11:	+11dBm ± 1dBm
110-8:	+8dBm ± 1dBm
Fiber Size:	9μm core / 125μm overall

CATV Channel Performance (7707CATVT & 7707CATVR):

Flatness:	± 1dB, (50 - 850MHz)*
CNR:	> 50dB*
CSO:	< -65dBc*
CTB:	< -67dBc*

* Measured with fully loaded CATV spectrum with 40dBmV/channel input to 7707CATVT and 0dBm optical power input to 7707CATVR with 0dB gain setting on 7707CATVR

Electrical:

Voltage:	+12VDC
Power:	12 Watts

Physical:

Number of slots:	1
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Ordering Information:

7707CATVT13-110-8	1310nm, DFB Laser, +8dBm output power, 80/110 channel PAL/NTSC
7707CATVT13-110-11	1310nm, DFB Laser, +11dBm output power, 80/110 channel PAL/NTSC

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Optical Connector Suffix

+AP+FC	FC/APC (Angle Polished)
+AP+SC	SC/APC (Angle Polished)

RF Connector Suffix

+BNC	BNC Connector
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Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone Enclosure

Analog Video, 4 Channel Audio (-A4) and RS232/422 Fiber Receiver



Model 7707CVDR/CVDR-A4

The 7707CVDR and 7707CVDR-A4 are VistaLINK™ -enabled composite analog video and bi-directional RS232/422 fiber optic receivers for broadcast quality video signals. The “-A4” version adds 4 channels of broadcast quality analog audio.

These products are ideal for analog VTR link extension or camera PTZ applications.

The 7707CVDR and 7707CVDR-A4 occupy one card slot and can be housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which holds up to 15 modules or a standalone enclosure which holds one module.

Features

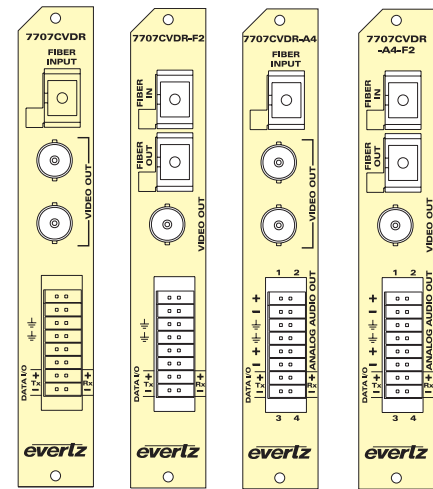
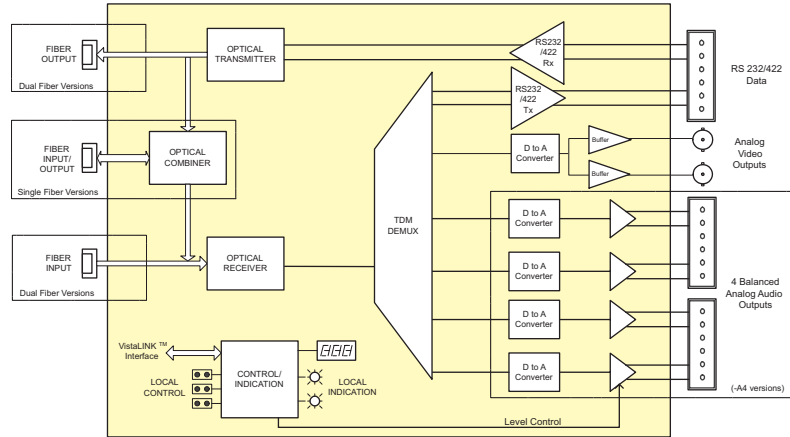
- Single card fiber optic receiver for analog video, four analog audio (-A4 version) and bi-directional RS232/422 signals
- Supports both NTSC and PAL video signals
- Broadcast quality analog video and audio performance
- 2 bi-directional RS232 or 1 bi-directional RS422
- Superior digital data transmission
- Signal transport over fiber uninterrupted by loss of input video, audio or data feeds
- Adjustable gain and DC offset, and pre-emphasis for up to 300m of Belden 1694 coaxial cable
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability
- Fully hot-swappable from front of frame with no fiber disconnect/reconnect required
- Optical output wavelengths of 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available

7707CVDR Application Configurations (use -A4 version if audio is required)

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<1km	7707CVDT13-F2	-7dBm	7707CVDR13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	2	21dB/60km	7707CVDT13-F2	-7dBm	7707CVDR13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	1	14dB/40km*	7707CVDT13	-10dBm	7707CVDR13	-24dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	25dB/70km	7707CVDT15-W	-1dBm	7707CVDR13M-W	-26dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	24dB/95km**	7707CVDTxx-F2	0dBm	7707CVDRyy-F2	-28dBm	Different CWDM wavelengths on Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km***	7707CVDTDxxx-F2	+7dBm	7707CVDRDyyy-F2	-28dBm	Different DWDM wavelengths on Tx & Rx, with 8 channel DWDM Mux/Demux**
* With >20dB return loss on fiber interface ** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB *** Assumes 8 Ch DWDM Mux/Demux loss of 5dB					Tx Power/Rx Sensitivity are nominal values ±1dBm Fiber loss= 0.35/0.25dB per km @1310nm/1550nm		

Analog Video, 4 Channel Audio (-A4) and RS232/422 Fiber Receiver

7707CVDR/7707CVDR-A4 Block Diagram



Specifications

Optical Input:
Number of Inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: 0dBm
Optical Sensitivity: See Application Configuration Chart

Optical Output:
Number of Outputs: 1
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 14 dB
Rise and Fall Time: 200ps nominal
Fiber Size: 9 μ m core / 125 μ m overall
Wavelength: See Ordering Information
Output Power: See Application Configuration Chart

Analog Video Outputs:
Standard: NTSC, SMPTE 170M, PAL, ITU-R624-4
Connector: BNC per IEC 60169-8 Amendment 2
Signal Resolution: 12 bits
System bandwidth: 5.5 MHz
Output Level: 1 Vp-p (nominal), 2 Vp-p maximum
Gain: Unity gain nominal, adjustable 50% to 150%
Output Impedance: 75 Ω
Return Loss: > 20 dB
Signal/Noise: > 67dB
Differential Gain: < 1.0%
Differential Phase: < 1.0°
Passband Ripple: < +/- 0.1dB to 4.7MHz (Equalization set to 0 m)
< +/- 0.2dB to 4.7MHz (Equalization set to maximum)
Pre-Emphasis: Cable loss compensation for up to 300m of Belden 1694 (each output adjustable separately)
Chroma/Luma Delay: <11 ns
Line time distortion: <1% (.5% typical)

Analog Audio Outputs (-A4 version):
Number of Outputs: 4
Type: Balanced analog audio
Connector: 12 pin removal terminal block
Output impedance: 66 Ω
Freq. Response: +/- 0.1dB, 20Hz to 20 kHz
THD 20Hz-20kHz: < 0.005%
Channel Phase Diff. +/- 1 deg
SNR (weighted): > 85dB
Output Level Adj: -20dB to +3dB
Max Output Level: +24 dBu into 10k Ω loads

Serial Data Ports:
Number of Ports: 1 RS422 or 2 RS232 - Jumper Selectable
Connector: 4 pins (plus ground) on 16pin removable terminal block
Baud Rate: Up to 3 Mb/s (Determined by incoming data)

System Performance (7707CVDT + 7707CVDR):

Video Input to Video
Output Delay: <10 μ s
Audio Input to Audio
Output Delay (-A4 version): < 1.9ms

Electrical:
Voltage: +12VDC
Power: 12 Watts (Non DWDM), 15 Watts (DWDM)

Physical:
Number of slots: 1

Compliance:
Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:
7707CVDR13 Analog Video + Bi-di RS-232/422 Fiber Receiver, single fiber, 1310nm TX & RX
7707CVDR13-A4 Analog Video + Audio + Bi-di RS-232/422 Fiber Receiver, single fiber, 1310nm TX & RX
7707CVDR13-F2 Analog Video + Bi-di RS-232/422 Fiber Receiver, dual fiber, 1310nm TX & RX
7707CVDR13-A4-F2 Analog Video + Audio + Bi-di RS-232/422 Fiber Receiver, dual fiber, 1310nm TX & RX
7707CVDR13M-W Analog Video + Bi-di RS-232/422 Fiber Receiver, single fiber, 1310nm TX @0dBm, RX on 1550nm
7707CVDR13M-W-A4 Analog Video + Audio + Bi-di RS-232/422 Fiber Receiver, single fiber, 1310nm TX @ 0dBm, RX on 1550nm

For CWDM, please refer to the end of the fiber section for ordering information

7707CVDR27 to 61-F2 Analog Video + Bi-di RS-232/422 Fiber Receiver, dual fiber, CWDM Laser
7707CVDR27 to 61-A4-F2 Analog Video + Audio + Bi-di RS-232/422 Fiber Receiver, dual fiber, CWDM Laser

For DWDM, please refer to the end of the fiber section for ordering information

7707CVDRDxxx to Dyyy-F2 Analog Video + Bi-di RS-232/422 Fiber Receiver, dual fiber, DWDM Laser
7707CVDRDxxx to Dyyy-A4-F2 Analog Video + Audio + Bi-di RS-232/422 Fiber Receiver, dual fiber, DWDM Laser

Ordering Options
Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix
+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:
7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone Enclosure

Analog Video, 4 Channel Audio (-A4) and RS232/422 Fiber Transmitter



Model 7707CVDT/CVDT-A4

The 7707CVDT and 7707CVDT-A4 are VistaLINK™ -enabled composite analog video and bi-directional RS232/422 fiber optic transmitters for broadcast quality video signals. The “-A4” version adds 4 channels of broadcast quality analog audio.

These products are ideal for analog VTR link extension or camera PTZ applications.

The 7707CVDT and 7707CVDT-A4 occupy one card slot and can be housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which holds up to 15 modules or a standalone enclosure which holds one module.

Features

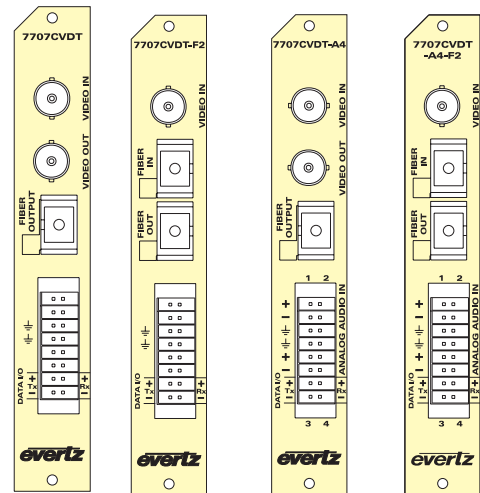
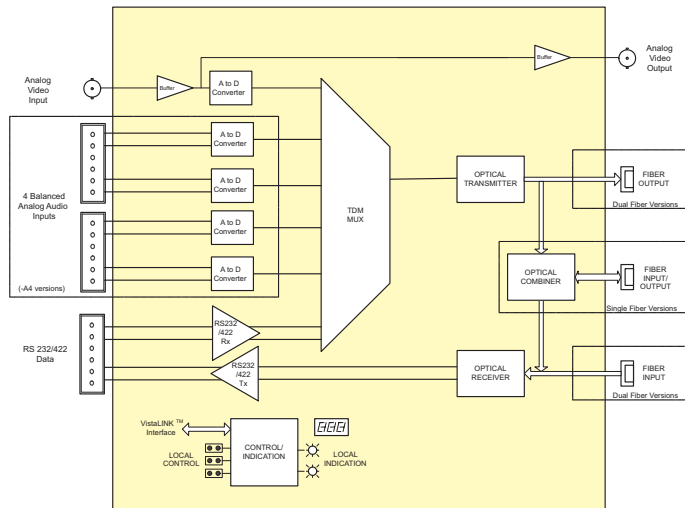
- Single card fiber optic transmitter for analog video, four analog audio (-A4 version) and bi-directional RS232/422
- Supports both NTSC and PAL video signals
- Broadcast quality analog video and audio performance
- 2 bi-directional RS232 or 1 bi-directional RS422
- Superior digital data transmission
- Signal transport over fiber uninterrupted by loss of input video, audio or data feeds
- Adjustable gain equalization for up to 300m of Belden 1694 coaxial cable
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability
- Fully hot-swappable from front of frame with no fiber disconnect/reconnect required
- Optical output wavelengths of 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available

7707CVDT Application Configurations(use -A4 version if audio is required)

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<1km	7707CVDT13-F2	-7dBm	7707CVDR13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	2	21dB/60km	7707CVDT13-F2	-7dBm	7707CVDR13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	1	14dB/40km*	7707CVDT13	-10dBm	7707CVDR13	-24dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	25dB/70km	7707CVDT15-W	-1dBm	7707CVDR13M-W	-26dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	24dB/95km**	7707CVDTxx-F2	0dBm	7707CVDRyy-F2	-28dBm	Different CWDM wavelengths on Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km***	7707CVDTDxxx-F2	+7dBm	7707CVDRDyyy-F2	-28dBm	Different DWDM wavelengths on Tx & Rx, with 8 channel DWDM Mux/Demux***
* With >20dB return loss on fiber interface ** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB *** Assumes 8 Ch DWDM Mux/Demux loss of 5dB					Tx Power/Rx Sensitivity are nominal values ±1dBm Fiber loss= 0.35/0.25dB per km @1310nm/1550nm		

Analog Video, 4 Channel Audio (-A4) and RS232/422 Fiber Transmitter

7707CVDT/7707CVDT-A4 Block Diagram



Specifications

Analog Video Input:

Standards: NTSC, SMPTE 170M, PAL, ITU-R 624-4
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Quantization: 12 bits
System Bandwidth: 5.5MHz
Input Level: 2 Vp-p (Maximum)
Gain Equalization: Up to 300m of Belden 1694 or equivalent (adjustable)
Input Impedance: 75Ω
Return Loss: > 30 dB to 5.5 MHz

Analog Video Outputs (Not available on -F2 versions):

Standard: NTSC, SMPTE 170M, PAL, ITU-R 624-4
Number of Outputs: 1 buffered version of input
Connector: BNC per IEC 60169-8 Amendment 2.
Output Level: 1V p-p
Output Impedance: 75Ω
Return Loss: > 30 dB to 5.5 MHz

Analog Audio Inputs (-A4 version):

Number of Inputs: 4
Type: Balanced analog audio
Connector: 12 pin removal terminal block
Input impedance: High Impedance (>20K Ω)
Max. Audio Input Level: +24 dBu
Signal Quantization: 24 Bits
Freq. Response: +/-0.1 dB, 20Hz to 20 kHz

Serial Data Ports:

Number of Ports: 1 RS422 or 2 RS232 - Jumper Selectable
Connector: 4 pins (plus ground) on 16pin removable terminal block
Baud Rate: Up to 3 Mb/s (Determined by incoming data)

Optical Input:

Number of Inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: 0dBm
Optical Sensitivity: See Application Configuration Chart

Optical Output:

Number of Outputs: 1
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 14 dB
Rise and Fall Time: 200ps nominal
Fiber Size: 9 μm core / 125 μm overall
Wavelength: See Ordering Information
Output Power: See Application Configuration Chart

System Performance (7707CVDT + 7707CVDTR):

Video Input to Video Output Delay: < 10μs
Audio Input to Audio Output Delay (-A4 Version): < 1.9ms

Electrical:

Voltage: +12VDC
Power: 12Watts (Non-DWDM), 15Watts (DWDM)

Physical:

Number of slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Complies with FCC Part 15, Class A
EU EMC directive

EMI/RFI:

Ordering Information:

7707CVDT13 Analog Video + Bi-di RS-232/422 Fiber Transmitter, single fiber, 1310nm TX & RX
7707CVDT13-A4 Analog Video + Audio + Bi-di RS-232/422 Fiber Transmitter, single fiber, 1310nm TX & RX
7707CVDT13-F2 Analog Video + Bi-di RS-232/422 Fiber Transmitter, dual fiber, 1310nm TX & RX
7707CVDT13-A4-F2 Analog Video + Audio + Bi-di RS-232/422 Fiber Transmitter, dual fiber, 1310nm TX & RX
7707CVDT15-W Analog Video + Bi-di RS-232/422 Fiber Transmitter, single fiber, 1550nm TX, RX on 1310nm
7707CVDT15-W-A4 Analog Video + Audio + Bi-di RS-232/422 Fiber Transmitter, single fiber, 1550nm TX, RX on 1310nm

For CWDM, please refer to end of fiber section for ordering information

7707CVDT27 to 61-F2 Analog Video + Bi-di RS-232/422 Fiber Transmitter, dual fiber, CWDM Laser
7707CVDT27 to 61-A4-F2 Analog Video + Audio + Bi-di RS-232/422 Fiber Transmitter, dual fiber, CWDM Laser

For DWDM, please refer to end of fiber section for ordering information

7707CVDTDxxx to Dyyy-F2 Analog Video + Bi-di RS-232/422 Fiber Transmitter, dual fiber, DWDM Laser

7707CVDTDxxx to Dyyy-A4-F2

Analog Video + Audio + Bi-di RS-232/422 Fiber Transmitter, dual fiber, DWDM Laser

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone Enclosure

Single/Dual Analog Video with 4-Channel Analog Audio Fiber Receiver

Model 7707CVR & 7707CVR-2



The 7707CVR is a VistaLINK™ -enabled, composite analog video and analog audio fiber receiver for broadcast quality video signals. This single card module accepts a fiber optic input from the companion 7707CVT Composite Video and Analog Audio Fiber Transmitter, demultiplexes the signals, performs D to A conversion and outputs NTSC or PAL analog video and up to four balanced analog audio signals.

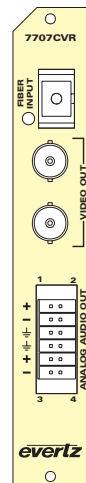
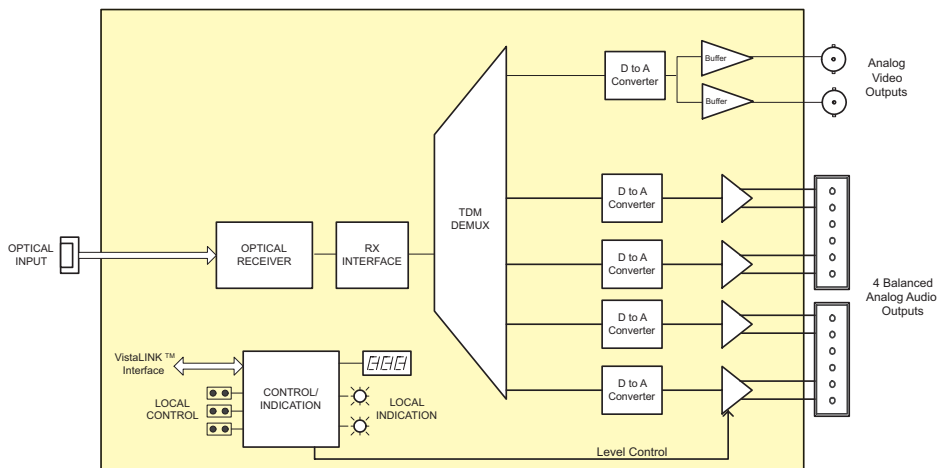
The 7707CVR-2 Dual Composite Video and Analog Audio Fiber Receiver is a dual channel version that accepts a fiber optic input, from the companion 7707CVT-2 transmitter, demultiplexes the signals, performs D to A conversion and outputs 2 NTSC or PAL analog video signals and up to four balanced analog audio signals.

The 7707CVR and 7707CVR-2 occupy one card slot and can be housed in either a 1RU frame, which will hold up to 3 modules, a 3 RU frame, which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- Single card fiber optic receiver for one or two analog video and four analog audio signals
- Supports both NTSC and PAL video signals
- Broadcast quality analog video and audio performance
- Meets or exceeds EIA/TIA RS250-C short haul specifications for analog video and audio transport
- Adjustable gain, DC offset and pre-emphasis for up to 250m of Belden 1694 coaxial cable
- Low Audio to Video latency
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range

7707CVR Block Diagram



Single/Dual Analog Video with 4-Channel Analog Audio Fiber Receiver 7707CVRA/7707CVRA-2



The 7707CVRA is a VistaLINK® -capable, composite analog video and analog audio fiber receiver for broadcast quality video signals. This single card module accepts a fiber optic input from the companion 7707CVTA Composite Video and Analog Audio Fiber Transmitter, demultiplexes the signals, performs D to A conversion and outputs NTSC or PAL analog video and up to four balanced analog audio signals.

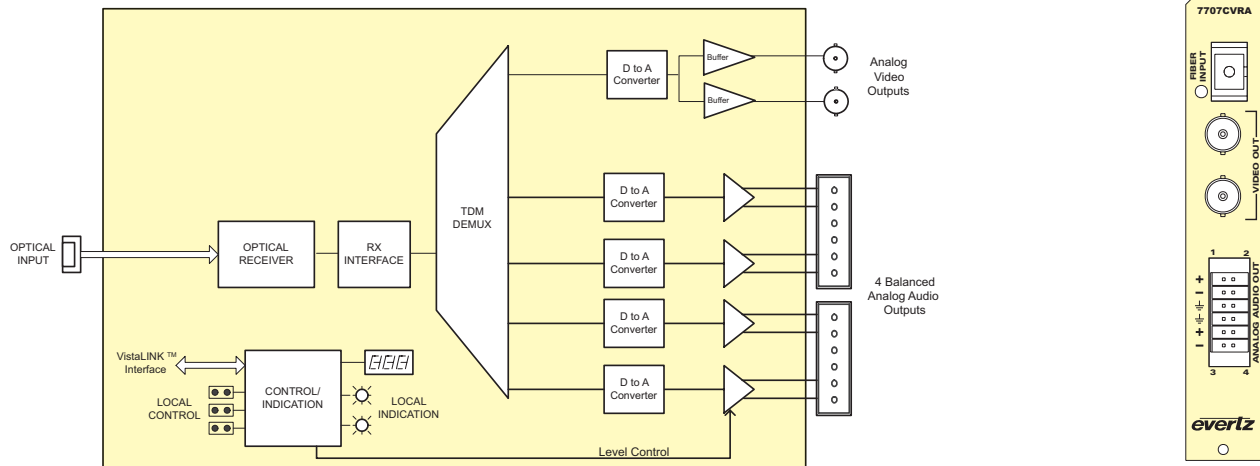
The 7707CVRA-2 Dual Composite Video and Analog Audio Fiber Receiver is a dual channel version that accepts a fiber optic input from the companion 7707CVTA-2 transmitter, demultiplexes the signals, performs D to A conversion and outputs 2 NTSC or PAL analog video signals and up to four balanced analog audio signals.

The 7707CVRA and 7707CVRA-2 occupy one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3 RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

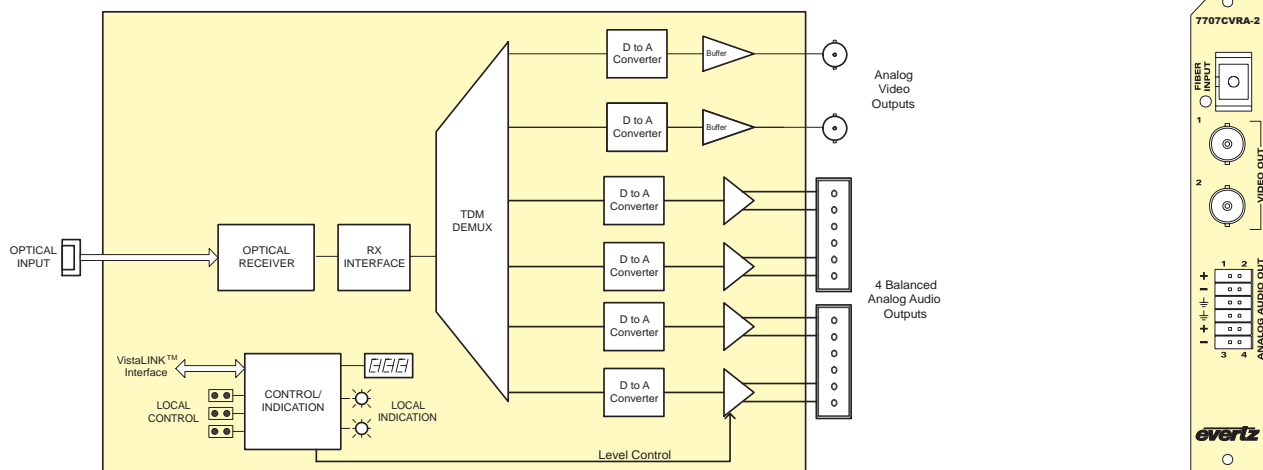
Features

- Single card fiber optic receiver for one or two analog video and four analog audio signals
- Supports both NTSC and PAL video signals
- Broadcast quality analog video and audio performance
- Meets or exceeds EIA/TIA RS250-C short haul specifications for analog video and audio transport
- Adjustable gain, DC offset and pre-emphasis for up to 250m of Belden 1694A coaxial cable
- Low Audio to Video latency
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK®.
- VistaLINK® capability is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame.
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range

7707CVRA Block Diagram & Rear Panel



7707CVRA-2 Block Diagram & Rear Panel



Single/Dual Analog Video with 4-Channel Analog Audio Fiber Receiver

7707CVRA & 7707CVRA-2

Specifications

Optical Input:

Number of Inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: 0dBm
Optical Sensitivity: -28dBm

Analog Video Outputs:

Standards: NTSC, SMPTE 170M, PAL, ITU-R624-4
Number of Outputs: 2 on 7707CVRA
2 (1 per video channel) on 7707CVRA-2
Connector: BNC per IEC 60169-8 Amendment 2
System bandwidth: 5.5 MHz
Output Level: 1 Vp-p (nominal), 2 Vp-p maximum
Gain: Unity gain nominal, adjustable 50% to 150%
Output Impedance: 75Ω
Return Loss: > 20dB
SNR: > 70dB
Differential Gain: < 1.0%
Differential Phase: < 0.7°
Pre-Emphasis: Cable loss compensation for up to 250m of Belden 1694A (each output adjustable separately)

Passband Ripple:

NTSC: < ±0.1dB to 4.1MHz and
< ±0.2dB to 5.5MHz
PAL: < ±0.1dB to 4.8MHz and
< ±0.2dB to 5.8MHz

Chroma/Luma Gain:

98% - 103%

Chroma/Luma Delay:

NTSC: <5ns
PAL: <12ns

Line Time Distortion: 1.2%

Analog Audio Outputs:

Number of Outputs: 4
Type: Balanced analog audio
Connector: 12 pin removable terminal block
Output impedance: 66Ω
Freq. Response: ± 0.1dB, 20Hz to 20 kHz
THD 20Hz-20kHz: < 0.005%
Channel Phase Diff. ± 1°
SNR (weighted): > 85dB
Output Level Adj: -20dB to +3dB
Max Output Level: +24 dBu into 10kΩ loads

System Performance (7707CVTA + 7707CVRA or 7707CVTA-2 + 7707CVRA-2):

Video Input to
Output Delay: <10μs
Audio Input to
Output Delay: <1.9ms

Electrical:

Voltage: +12VDC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Physical:

Number of slots: 1

Ordering Information:

7707CVRA Analog Video with 4-Channel Analog Audio
Fiber Receiver, VistaLINK®
7707CVRA-2 Dual Analog Video with 4-Channel Analog
Audio Fiber Receiver, VistaLINK®

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C
Multiframe
+1RU 1RU Rear Plate for use with 7701FR
Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

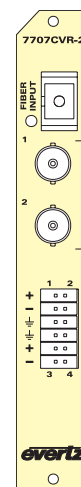
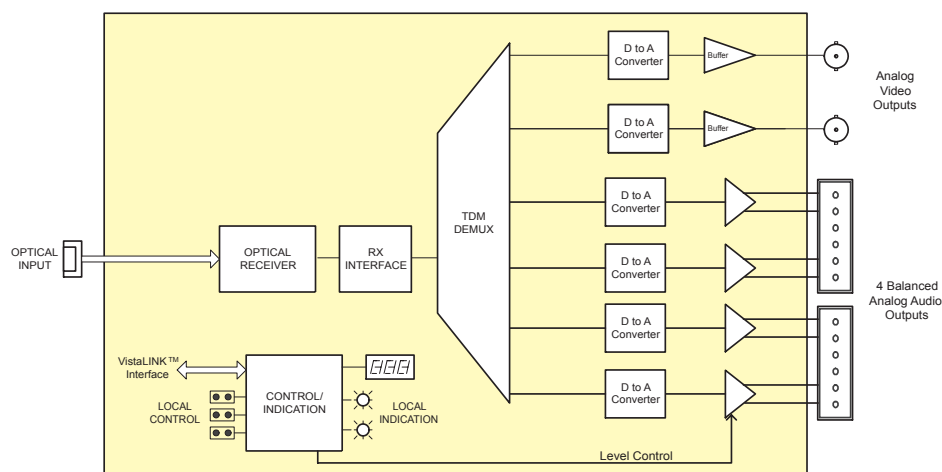
+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone Enclosure

Single/Dual Analog Video with 4-Channel Analog Audio Fiber Receiver

7707CVR-2 Block Diagram



Specifications

Optical Input:

Number of Inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: 0dBm
Optical Sensitivity: -28dBm

Analog Video Outputs:

Standards: NTSC, SMPTE 170M, PAL, ITU-R624-4
Number of Outputs: 2 on 7707CVR
2 (1 per video channel) on 7707CVR-2
Connector: BNC per IEC 60169-8 Amendment 2
System bandwidth: 5.5 MHz
Output Level: 1 Vp-p (nominal), 2 Vp-p maximum
Gain: Unity gain nominal, adjustable 50% to 150%
Output Impedance: 75Ω
Return Loss: > 20dB
SNR: > 67dB
Differential Gain: < 1.0%
Differential Phase: < 0.7°
Pre-Emphasis: Cable loss compensation for up to 250m of Belden 1694 (each output adjustable separately)

Passband Ripple:

NTSC: < ±0.1dB to 4.1MHz and < ±0.2dB to 5.5MHz

PAL:

< ±0.1dB to 4.8MHz and < ±0.2dB to 5.8MHz

Chroma/Luma Gain:

Chroma/Luma Delay:

NTSC: <5ns
PAL: <12ns
Line Time Distortion: 1.2%

Analog Audio Outputs:

Number of Outputs: 4
Type: Balanced analog audio
Connector: 12 pin removal terminal block
Output impedance: 66Ω
Freq. Response: +/- 0.1dB, 20Hz to 20 kHz
THD 20Hz-20kHz: < 0.005%
Channel Phase Diff. +/- 1 deg
SNR (weighted): > 85dB
Output Level Adj: -20dB to +3dB
Max Output Level: +24 dBu into 10kΩ loads

System Performance (7707CVT + 7707CVR or 7707CVT-2 + 7707CVR-2):

Video Input to Output Delay: <10μs

Audio Input to Output Delay: <1.9ms

Electrical:

Voltage: +12VDC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Physical:

Number of slots: 1

Ordering Information:

7707CVR	Analog Video with 4-Channel Analog Audio Fiber Receiver, VistaLINK™
7707CVR-2	Dual Analog Video with 4-Channel Analog Audio Fiber Receiver, VistaLINK™

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone Enclosure

Single/Dual Analog Video with 4-Channel Analog Audio Fiber Transmitter

Model 7707CVT & 7707CVT-2



The 7707CVT is a VistaLINK™ -enabled, composite analog video and analog audio fiber transmitter for broadcast quality video and audio signals. This single card module accepts one NTSC or PAL analog video input with up to four analog audio inputs, performs analog to digital conversion and transmits them over a single fiber. The companion 7707CVR Composite Video and Analog Audio Fiber Receiver demultiplexes the signals and converts them back to analog form.

The 7707CVT-2 Dual Composite Video and Analog Audio fiber transmitter is a dual channel version that digitizes and multiplexes two analog video and up to four analog audio signals and converts them to an optical signal for transmission. The companion 7707CVR-2 Dual Composite Video and Analog Audio Fiber Receiver accepts a fiber optic input, demultiplexes the signals, performs D to A conversion and outputs two NTSC or PAL analog video signals and up to four balanced analog audio signals.

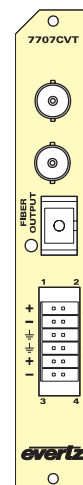
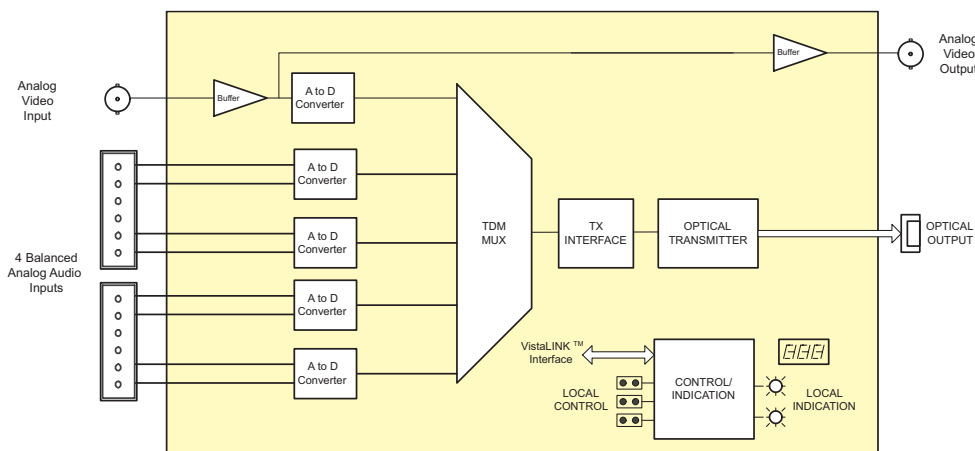
The fiber optic output of the 7707CVT and 7707CVT-2 is available in an assortment of optical wavelengths, accommodating 1310nm/1550nm, CWDM and DWDM transmission schemes.

The 7707CVT and 7707CVT-2 occupy one card slot and can be housed in either a 1RU frame, which will hold up to three modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure that will hold 1 module.

Features

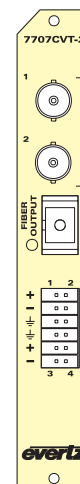
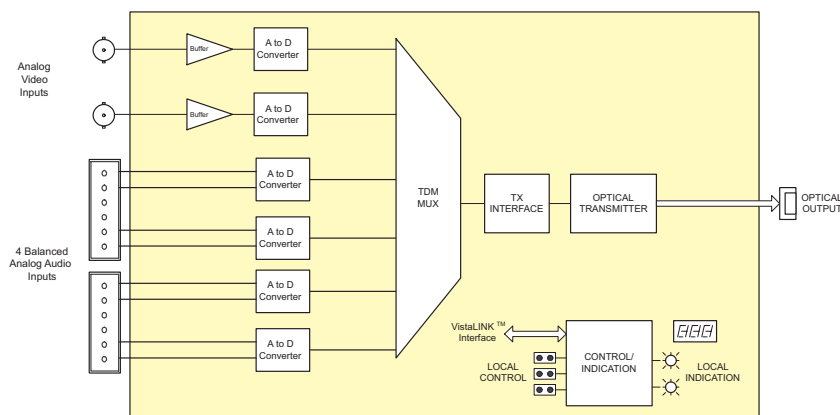
- Single card fiber optic transmitter for one or two analog video and four analog audio signals
- Supports both NTSC and PAL video signals
- Broadcast quality analog video and audio performance
- Meets or exceeds EIA/TIA RS250-C short haul specifications for analog video and audio transport
- Superior digital data transmission
- Video loop-through for additional signal distribution or monitoring (7707CVT only)
- Signal transport over fiber is uninterrupted by loss of input video or audio feeds
- Low Audio to Video latency
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Adjustable gain equalization for up to 250m of Belden 1694 coaxial cable
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available

7707CVT Block Diagram



Single/Dual Analog Video with 4-Channel Analog Audio Fiber Transmitter

7707CVT-2 Block Diagram



Specifications

Analog Video Input:

Standards: NTSC, SMPTE 170M, PAL, ITU-R 624-4
Number of Inputs: 1 on 7707CVT, 2 on 7707CVT-2
Connector: BNC per IEC 60169-8 Amendment 2.
Signal Quantization: 12 bits
System Bandwidth: 5.5MHz
Input Level: 2 Vp-p (Maximum)
Gain Equalization: up to 250m of Belden 1694 or equivalent (adjustable)
Input impedance: 75Ω
Return Loss: > 30 dB to 5.5 MHz
Signal/Noise Ratio: > 67 dB
Differential Gain: < 1.0 %
Differential Phase: < 0.7 Degree
Passband Ripple: NTSC: < +/- 0.1dB to 4.1 MHz
 PAL: < +/- 0.2dB to 5.5 MHz
 < +/- 0.1dB to 4.8 MHz
 < +/- 0.2dB to 5.8 MHz
 98% to 103%
Chroma/Luma Gain: NTSC: < 5 ns
 PAL: < 12 ns
Line Time Distortion: 1.2%

Analog Video Outputs: (7707CVT only)

Standard: NTSC, SMPTE 170M, PAL, ITU-R 624-4
Number of Outputs: 1 buffered version of input
Connector: BNC per IEC 60169-8 Amendment 2.
Output Level: 1V p-p
Output Impedance: 75Ω
Return Loss: > 30 dB to 5.5 MHz

Analog Audio Inputs:

Number of Inputs: 4
Type: Balanced analog audio
Connector: 12 pin removal terminal block
Input impedance: High Impedance (>20K Ω)
Freq. Response: +/-0.1 dB, 20Hz to 20 kHz
THD 20Hz-20kHz: < 0.005%
Channel Phase Diff.: +/- 1 deg
SNR (weighted): > 85 dB
Max. Audio Input Level: +24 dBu
Signal Quantization: 24 Bits

Optical Outputs:

Number of Outputs: 1
Connector: Female SC/PC, SC/PC, ST/PC or FC/PC
Return Loss: > 14 dB
Wavelengths: Standard 1310nm, 1550nm (nominal)
 CWDM: See Ordering Information
 DWDM: See Ordering Information
Output Power: 1310nm FP (Standard) -7dBm ± 1dBm
 1310nm FP (M Version) 0dBm ± 1dBm
 1550 & CWDM DFB 0dBm ± 1dBm
 DWDM: +7dBm ± 1dBm

System Performance (7707CVT + 7707VCR or 7707CVT-2 + 7707CVR-2):

Video Input to Output Delay: < 10μs
Audio Input to Output Delay: < 1.9ms

Electrical:

Voltage: +12VDC
Power: 11/12 Watts (Non-DWDM), 13/14Watts (DWDM)

Physical:

7700 or 7701 frame mounting: 1
Number of slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
 Complies with CE Low voltage Directive
 Class 1 laser product
 Complies with 24 CFR 1040.10 and 1040.11
 IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
 EU EMC directive

Ordering Information:

7707CVT13 Analog Video with 4-channel Analog Audio Fiber Transmitter 1310nm FP Laser, VistaLINK™
7707CVT13-2 Dual Analog Video with 4-channel Analog Audio Fiber Transmitter, 1310nm FP Laser, VistaLINK™
7707CVT13M Analog Video with 4-channel Analog Audio Fiber Transmitter 1310nm Higher Power (0dBm) FP Laser, VistaLINK™
7707CVT13M-2 Dual Analog Video with 4-channel Analog Audio Fiber Transmitter, 1310nm High Power (0dBm) FP Laser, VistaLINK™
7707CVT15 Analog Video with 4-channel Analog Audio Fiber Transmitter 1550nm DFB Laser, VistaLINK™
7707CVT15-2 Dual Analog Video with 4-channel Analog Audio Fiber Transmitter, 1550nm DFB Laser, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707CVTxx Analog Video with 4-channel Analog Audio Fiber Transmitter CWDM DFB Laser, VistaLINK™
7707CVTxx-2 Dual Analog Video with 4-channel Analog Audio Fiber Transmitter CWDM DFB Laser, VistaLINK™

For DWDM, please refer to the end of the fiber section for ordering information

7707CVTxxxx to yyyy Analog Video with 4-channel Analog Audio Fiber Transmitter DWDM DFB Laser, VistaLINK™
7707CVTxxxx to yyyy-2 Dual Analog Video with 4-channel Analog Audio Fiber Transmitter DWDM DFB Laser, VistaLINK™

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
 Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone Enclosure

Single/Dual Analog Video with 4-Channel Analog Audio Fiber Transmitter 7707CVTA & 7707CVTA-2



The 7707CVTA is a VistaLINK® -capable, composite analog video and analog audio fiber transmitter for broadcast quality video and audio signals. This single card module accepts one NTSC or PAL analog video input with up to four analog audio inputs, performs analog to digital conversion and transmits them over a single fiber. The companion 7707CVRA Composite Video and Analog Audio Fiber Receiver demultiplexes the signals and converts them back to analog form.

The 7707CVTA-2 Dual Composite Video and Analog Audio fiber transmitter is a dual channel version that digitizes and multiplexes two analog video and up to four analog audio signals and converts them to an optical signal for transmission. The companion 7707CVRA-2 Dual Composite Video and Analog Audio Fiber Receiver accepts a fiber optic input, demultiplexes the signals, performs D to A conversion and outputs two NTSC or PAL analog video signals and up to four balanced analog audio signals.

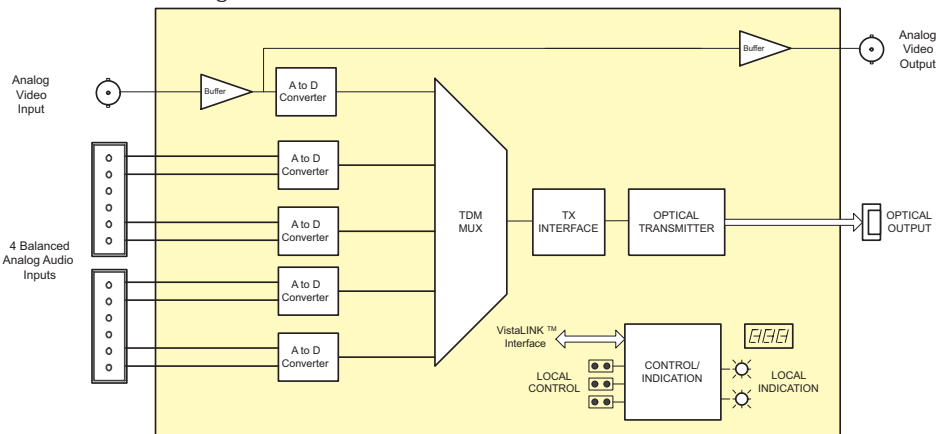
The fiber optic output of the 7707CVTA and 7707CVTA-2 is available in an assortment of optical wavelengths, accommodating 1310nm/1550nm, CWDM and DWDM transmission schemes.

The 7707CVTA and 7707CVTA-2 occupy one card slot and can be housed in a 1RU frame, which will hold up to three modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure that will hold 1 module.

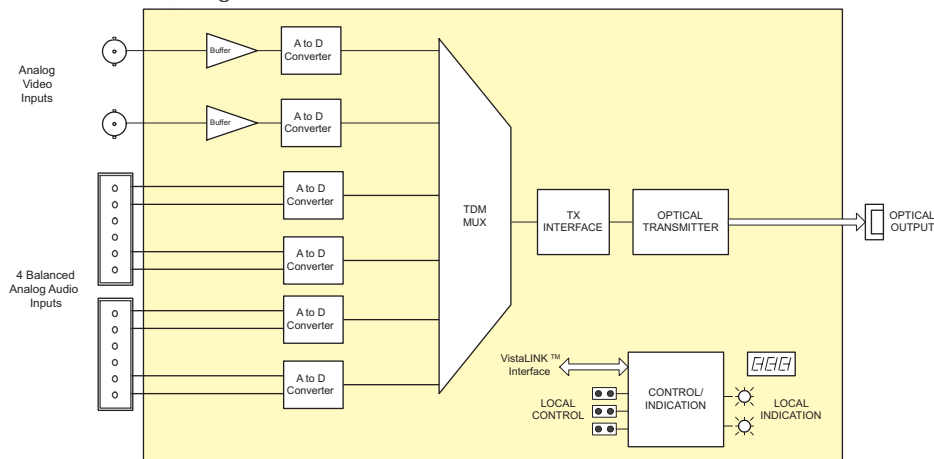
Features

- Single card fiber optic transmitter for one or two analog video and four analog audio signals
- Supports both NTSC and PAL video signals
- Broadcast quality analog video and audio performance
- Meets or exceeds EIA/TIA RS250-C short haul specifications for analog video and audio transport
- Superior digital data transmission
- Video loop-through for additional signal distribution or monitoring (7707CVTA only)
- Signal transport over fiber is uninterrupted by loss of input video or audio feeds
- Low Audio to Video latency
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK®.
- VistaLINK® capability is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame.
- Adjustable gain equalization for up to 250m of Belden 1694A coaxial cable
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available

7707CVTA Block Diagram & Rear Panel



7707CVTA-2 Block Diagram



Single/Dual Analog Video with 4-Channel Analog Audio Fiber Transmitter 7707CVTA & 7707CVTA-2

Specifications

Analog Video Input:

Standards:	NTSC, SMPTE 170M, PAL, ITU-R 624-4
Number of Inputs:	1 on 7707CVTA, 2 on 7707CVTA-2
Connector:	BNC per IEC 60169-8 Amendment 2.
Signal Quantization:	12 bits
System Bandwidth:	5.5MHz
Input Level:	2 Vp-p (Maximum)
Gain Equalization:	up to 250m of Belden 1694A or equivalent (adjustable)
Input impedance:	75Ω
Return Loss:	> 30 dB to 5.5 MHz
Signal/Noise Ratio:	> 70 dB
Differential Gain:	< 1.0 %
Differential Phase:	< 0.7 °
Passband Ripple:	
NTSC:	< ± 0.1dB to 4.1 MHz < ± 0.2dB to 5.5 MHz
PAL:	< ± 0.1dB to 4.8 MHz < ± 0.2dB to 5.8 MHz
Chroma/Luma Gain:	98% to 103%
Chroma/Luma Delay:	
NTSC:	< 5 ns
PAL:	< 12 ns
Line Time Distortion:	1.2%

Analog Video Outputs: (7707CVTA only)

Standard:	NTSC, SMPTE 170M, PAL, ITU-R 624-4
Number of Outputs:	1 buffered version of input
Connector:	BNC per IEC 60169-8 Amendment 2.
Output Level:	1V p-p
Output Impedance:	75Ω
Return Loss:	> 30 dB to 5.5 MHz

Analog Audio Inputs:

Number of Inputs:	4
Type:	Balanced analog audio
Connector:	12 pin removable terminal block
Input impedance:	High Impedance (>20K Ω)
Freq. Response:	±0.1 dB, 20Hz to 20 kHz
THD 20Hz-20kHz:	< 0.005%
Channel Phase Diff.:	± 1 deg
SNR (weighted):	> 85 dB
Max. Audio Input Level:	+24 dBu
Signal Quantization:	24 Bits

Optical Outputs:

Number of Outputs:	1
Connector:	Female SC/PC, SC/PC, ST/PC or FC/PC
Return Loss:	> 14 dB
Wavelengths:	
Standard	1310nm, 1550nm (nominal)
CWDM:	See Ordering Information
DWDM:	See Ordering Information
Output Power:	
1310nm FP (Standard)	-7dBm ± 1dBm
1310nm FP (M version)	0dBm ± 1dBm
1550 & CWDM DFB	0dBm ± 1dBm
DWDM:	+7dBm ± 1dBm

System Performance (7707CVTA + 7707VCRA or 7707CVTA-2 + 7707CVRA-2):

Video Input to Output Delay:	< 10μs
Audio Input to Output Delay:	< 1.9ms

Electrical:

Voltage:	+12VDC
Power:	11/12 Watts (Non-DWDM), 13/14Watts (DWDM)

Physical:

7700 or 7701 frame mounting:	
Number of slots:	1

Compliance:

Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive
Laser Safety:	Class 1 laser product Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC directive

Ordering Information:

7707CVTA13	Analog Video with 4-channel Analog Audio Fiber Transmitter 1310nm FP Laser, VistaLINK®
7707CVTA13M	Analog Video with 4-channel Analog Audio Fiber Transmitter 1310nm FP Laser (0dBm launch), VistaLINK®
7707CVTA13-2	Dual Analog Video with 4-channel Analog Audio Fiber Transmitter, 1310nm FP Laser, VistaLINK®
7707CVTA13M-2	Dual Analog Video with 4-channel Analog Audio Fiber Transmitter, 1310nm FP Laser, (0dBm launch), VistaLINK®
7707CVTA15	Analog Video with 4-channel Analog Audio Fiber Transmitter 1550nm DFB Laser, VistaLINK®
7707CVTA15-2	Dual Analog Video with 4-channel Analog Audio Fiber Transmitter, 1550nm DFB Laser, VistaLINK®

For CWDM, please refer to the end of the fiber section for ordering information

7707CVTAxx	Analog Video with 4-channel Analog Audio Fiber Transmitter CWDM DFB Laser, VistaLINK®
7707CVTAxx-2	Dual Analog Video with 4-channel Analog Audio Fiber Transmitter CWDM DFB Laser, VistaLINK®

For DWDM, please refer to the end of the fiber section for ordering information

7707CVTADypp	Analog Video with 4-channel Analog Audio Fiber Transmitter DWDM DFB Laser, VistaLINK®
7707CVTADypp-2	Dual Analog Video with 4-channel Analog Audio Fiber Transmitter DWDM DFB Laser, VistaLINK®

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix	
+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate
Connector Suffix	
+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone Enclosure



Multi RS-232/422/485/GPIO Fiber Data Transceiver



Model 7707DT/7707DT-GPIO

The 7707DT series Fiber Data Transceivers provide an economical method of transmitting multiple bi-directional RS-232, RS-422, RS-485 data signals as well as Linear Time Code (LTC) over a single fiber optic link. The 7707DT-GPIO version provides additional RS232 and General Purpose Input/Outputs (GPIO). A pair of 7707DT Data Transceivers permits bi-directional data transmission over distances up to 100 km, with minimum possible latency.

Single and dual fiber (-F2) optical interface configurations allow the user to choose the optimal function /price /performance to suit a particular application. The dual fiber configuration is compatible with CWDM /DWDM systems and is designed to transmit and receive over separate fibers. The optical output of the 7707DT is available in 1310nm, 1550nm, CWDM and DWDM wavelengths.

The 7707DT occupies a single card slot and can be housed in either a 1RU Multiframe that will hold up to 3 modules, a 3RU Multiframe that will hold up to 15 modules or a standalone enclosure which will hold 1 module. The 7707DT-GPIO occupies two card slots and can be housed in the same enclosures.

Features

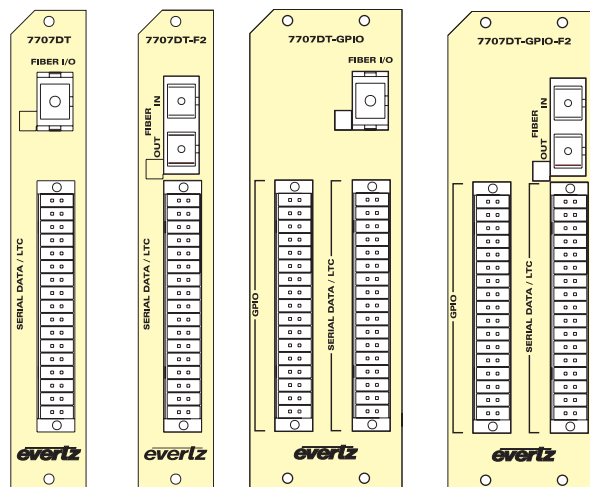
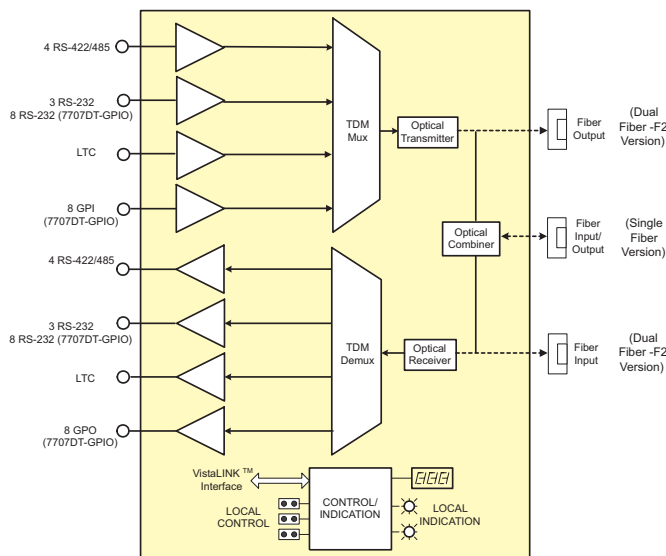
- 7707DT transports four RS-422 or RS-485, three RS-232, and one LTC
- 7707DT-GPIO version provides five additional RS-232 and eight General Purpose Input/Outputs (GPIO)
- Selectable termination and failsafe bias settings for RS-422/485 data inputs
- Selectable network timeouts for RS-485 accommodates twelve data rates
- All configuration settings are controllable through the card-edge user interface, or VistaLINK™
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths also available (ITU-T G.694.1 compliant)
- Supports single-mode and multi-mode fiber optic cable
- SC/PC, ST/PC, or FC/PC* fiber connector options
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™-enabled capability

7707DT Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<3km	7707DT13-F2	-7dBm	7707DT13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	2	21dB/60km	7707DT13-F2	-7dBm	7707DT13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	1	14dB/40km*	7707DT13	-10dBm	7707DT13	-24dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	25dB/71km	7707DT13M-W	-1dBm	7707DT15-W	-26dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	24dB/96km**	7707DTxx-F2	0dBm	7707DTyy-F2	-28dBm	Different CWDM wavelengths on Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km***	7707DTDxxx-F2	+7dBm	7707DTDyyy-F2	-28dBm	Different DWDM wavelengths on Tx & Rx, with 8 channel DWDM Mux/Demux***
* With >20dB return loss on fiber interface ** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB *** Assumes 8 Ch DWDM Mux/Demux loss of 5dB					Tx Power/Rx Sensitivity are nominal values ±1dBm Fiber loss= 0.35/0.25dB per km @1310nm/1550nm		

Multi RS-232/422/485/GPIO Fiber Data Transceiver

7707DT/7707DT-GPIO Block Diagram



Specifications

RS-422/485 Serial Data:

Number of Signals: 4 Inputs/Outputs
Connector: Multi-pin Removable Terminal Block
Signal Type: RS-485 or RS-422 (selectable)
Input Termination: 110Ω or Open (selectable)
Input Failsafe Bias: 200mV (3.3mA into 60Ω) or None (selectable)
Bit Rate (max):
RS-422: 460kb/s
RS-485: 1.2kb/s, 2.4kb/s, 4.8kb/s, 9.6kb/s, 19.2kb/s, 38.4kb/s, 57.6kb/s, 76.8kb/s, 115kb/s, 153kb/s, 230kb/s, or 460kb/s (selectable)

RS-232 Serial Data:

Number of Signals: 3 Input/Outputs
Standard Version: 8 Inputs/Outputs
GPIO Version: Multi-pin Removable Terminal Block
Connector: RS-232
Signal Type: 115kb/s

LTC Data:

Number of Signals: 1 Input/Output
Connector: Multi-pin Removable Terminal Block
Signal Type: SMPTE 12M Linear Time Code
Input Level: 0.2 to 4V p-p (balanced or unbalanced)
Rise/Fall Times: 40μs ± 10μs
Output Level: 1V p-p nominal (balanced)

General Purpose Inputs (7707DT-GPIO ONLY):

Number of Signals: 8 Inputs
Connector: Multi-pin Removable Terminal Block
Type: Opto-isolated, Active low
Input Voltage: -20V to +10V
Safe Voltage Range: +3.5V
Off Condition (min): +2.5V (active low)
On Condition (max): 1mA
Input Current (min): 10mA (internally limited)
Input Current (max): 10mA (internally limited)

General Purpose Outputs (7707DT-GPIO ONLY):

Number of Signals: 8 Outputs
Connector: Multi-pin Removable Terminal Block
Output Type: Dry contact relay closure, normally open
Output Current (min): 100mA

Optical Input/Output:

Connector:
Single fiber version: 1 Bi-directional optical connector: SC/PC, ST/PC or FC/PC* female housing
Dual fiber (F2) version: 2 optical connector: SC/PC or ST/PC female housing
Maximum Input Power:
Single fiber versions: 0dBm
Dual fiber (F2) versions: 0dBm
Input Optical Sensitivity: See Application Configuration Chart
Output Wavelengths: See Application Configuration Chart
Output Power: See Application Configuration Chart

Electrical:

Voltage: 12V DC
Power (max): 6 Watts (Non DWDM), 8 Watts (DWDM)
Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 frame mounting:
Number of Slots:
7707DT: 1
7707DT-GPIO: 2
7701 frame mounting:

Number of Slots:

7707DT: 1
7707DT-GPIO: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1
Laser Safety:
Complies with FCC Part 15, Class A
EU EMC directive

EMI/RFI:

Ordering Information:

7707DT13 Multi RS232/422 Fiber Data Transceiver, single fiber, 1310nm FP TX & RX, VistaLINK™
7707DT13-GPIO Multi RS232/422 and GPIO Fiber Data Transceiver, single fiber, 1310nm FP TX & RX, VistaLINK™
7707DT13M-W Multi RS232/422 Fiber Data Transceiver, single fiber, WDM, 1310nm FP TX, RX on 1550nm, VistaLINK™
7707DT13M-W-GPIO Multi RS232/422 and GPIO Fiber Data Transceiver, single fiber, WDM, 1310nm FP TX, RX on 1550nm, VistaLINK™
7707DT15-W Multi RS232/422 Fiber Data Transceiver, single fiber, WDM, 1550nm DFB TX, RX on 1310nm, VistaLINK™
7707DT15-W-GPIO Multi RS232/422 and GPIO Fiber Data Transceiver, single fiber, WDM, 1550nm DFB TX, RX on 1310nm, VistaLINK™
7707DT13-F2 Multi RS232/422 Fiber Data Transceiver, dual fiber, 1310nm FP TX & RX, VistaLINK™
7707DT13-F2-GPIO Multi RS232/422 and GPIO Fiber Data Transceiver, dual fiber, 1310nm FP TX & RX, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707DT-xx-F2 Multi RS232/422 Fiber Data Transceiver, dual fiber, CWDM TX
7707DT-xx-F2-GPIO Multi RS232/422 and GPIO Fiber Data Transceiver, dual fiber, CWDM TX

For DWDM, please refer to the end of the fiber section for ordering information

7707DTyyyy-F2 Multi RS232/422 Fiber Data Transceiver, dual fiber, DWDM TX
7707DTyyyy-F2-GPIO Multi RS232/422 and GPIO Fiber Data Transceiver, dual fiber, DWDM TX

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC*

Note: FC/PC is only available on single fiber version

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure



The 7707DVIR is a VistaLINK® SNMP - capable DVI/KVM receiver for high resolution/high quality video signals. Available in fiber optic and coaxial versions, this single card module accepts an input from the companion 7707DVIT DVI/KVM Transmitter and outputs digital DVI video. The 7707DVIR is also available with analog audio, keyboard + mouse, serial and USB options.

The 7707DVIR occupies one card slot (two card slots for the A2KM and A2KM-USB versions) and can be housed in a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

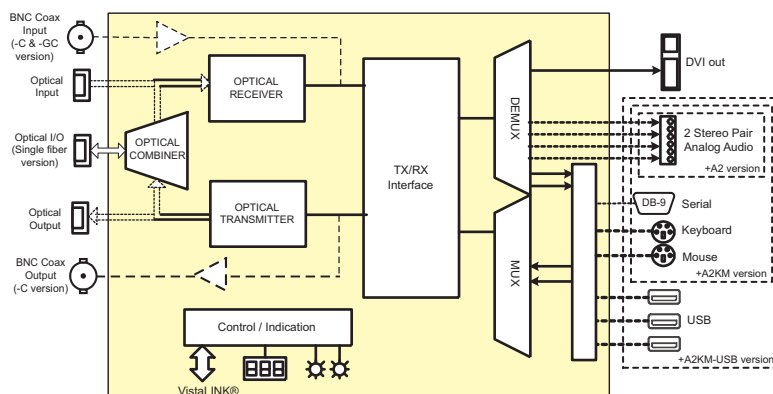
Features

- Supports DVI transport over a single fiber or coax (-C version)
- VESA video resolutions supported up to WUXGA
- Full 24 bits per pixel color resolution
- Ideal for use with high resolution LCD, plasma, and projection screens
- Superior digital data transmission
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK®.
- VistaLINK® capability is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame.
- Fully hot-swappable from front of frame with no fiber disconnect/re-connect required
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range
- Optional 2 channel stereo analog audio
- Optional keyboard, mouse and serial
- Optional USB interface
- Optional G-LINK support for use with Evertz VIP™ & MVP™ Multi-display products
- Optional coax I/O for Tx & Rx

7707DVIR Application Configurations

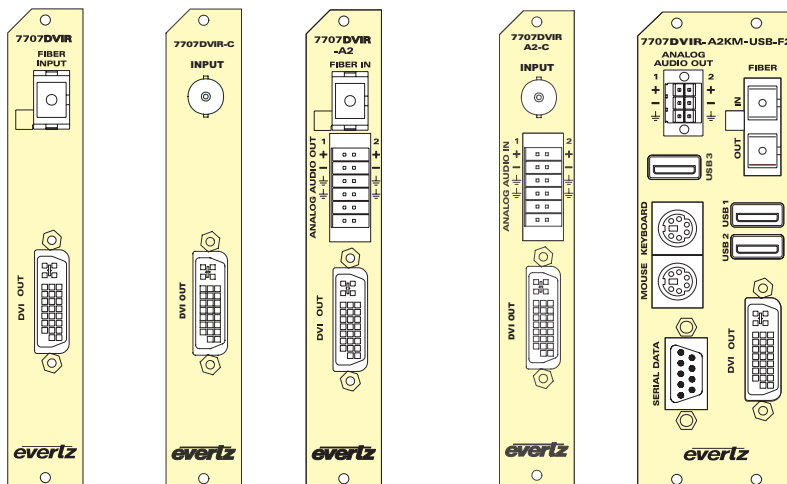
FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<500m	7707DVIT13-A2KM-USB-F2	-7dBm	7707DVIR13-A2KM-USB-F2	-19dBm	1310nm on Tx & Rx fibers
Single-Mode	2	12dB/34km	7707DVIT13-A2KM-USB-F2	-7dBm	7707DVIR13-A2KM-USB-F2	-19dBm	1310nm on Tx & Rx fibers
Single-Mode	1	8dB/20km*	7707DVIT15-A2KM-USB-W	-1dBm	7707DVIR13-A2KM-USB-W	-17dBm	1310nm/1550nm WDM bi-directional, one fiber
Single-Mode	1(CWDM)	15.5dB/60km**	7707DVITxx-A2KM-USB-F2	0dBm	7707DVIRyy-A2KM-USB-F2	-19dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	21dB/80km***	7707DVITDxxx-A2KM-USB-F2	+7dBm	7707DVIRDyyy-A2KM-USB-F2	-19dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux**
* With >20dB return loss on fiber interface			Tx Power/Rx Sensitivity are nominal values ±1dBm				
** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB			Fiber loss= 0.35/0.25dB per km @1310nm/1550nm				
*** Assumes 8 Ch DWDM Mux/Demux loss of 5dB							

7707DVIR Block Diagram



DVI/KVM Fiber Receiver 7707DVIR

7707DVIR Rear Panels



Specifications

Video Output:

Standards:	DVI 1.0
Number of Outputs:	1
Connectors:	28-pin DVI
Video Resolution:	Up to WUXGA (1920x1200) at 75Hz
Color Resolution:	24 bits

Analog Audio Output (A2, A2KM & A2KM-USB versions):

Number of Outputs:	2
Type:	Balanced analog audio
Connector:	Removable terminal block
Impedance:	High Impedance (> 20kΩ)
Frequency Response:	±0.1dB (20Hz to 20kHz)
THD:	< 0.005% (20Hz to 20kHz)
Channel Phase Diff:	< ±1°
SNR:	> 85dB
Level:	-20dB to +3dB
Maximum Output Level:	+24dBu into 10kΩ loads

Serial, USB, Keyboard/Mouse Input/Output (A2KM & A2KM-USB versions):

Standards:	USB 1.1
Number:	3 (A2KM), 6 (A2KM-USB)
Connector:	1 DB-9M serial, 1 PS2 for each keyboard & mouse 3 USB type A (A2KM-USB only)

Coaxial Input (-C, -C2, and -GC versions):

Number of Inputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2

Optical Input:

Number of Outputs:	1
Connector:	Female SC/PC, ST/PC or FC/PC
Operating Wavelength:	1270nm - 1610nm
Max Input Power:	0dBm
Optical Sensitivity:	See Application Configuration chart

Coaxial Output (-C2 versions):

Number of Outputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2

Optical Output (A2KM & A2KM-USB-F2 versions):

Number of Inputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC
Wavelengths:	See Ordering Information
Power:	See Application Configuration Chart

Electrical:

Voltage:	+12 VDC
Power:	11 Watts (Non-DWDM), 14 Watts (DWDM)

Physical:

Number of Slots:	1 (Standard and A2 versions) 2 (A2KM and A2KM-USB versions)
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Compliance:

Electrical Safety:

CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Complies with FCC Part 15, Class A
EU EMC directive

Laser Safety:

EMI/RFI:

Ordering Information:

7707DVIR	DVI Fiber Receiver
7707DVIR-C	DVI Receiver, coaxial connector
7707DVIR-GC	DVI G-Link Receiver, coaxial connector
7707DVIR-GF	DVI G-Link Fiber Receiver
7707DVIR-A2	DVI + 2 Analog Audio Fiber Receiver
7707DVIR-A2-C	DVI + 2 Analog Audio, Receiver, coaxial connector
7707DVIR-A2-GC	DVI + 2 Analog Audio, G-Link Receiver, coaxial connector
7707DVIR-A2-GF	DVI + 2 Analog Audio, G-Link Fiber Receiver
7707DVIR13-A2KM-F2	DVI/KVM + 2 Analog Audio + Bi-di Keyboard and Mouse Fiber Receiver, dual fiber, 1310nm TX & RX
7707DVIR13-A2KM-C2	DVI/KVM + 2 Analog Audio + Bi-di Keyboard and Mouse Coaxial Receiver, dual coax, TX & RX
7707DVIR13-A2KM-USB-F2	DVI/KVM + 2 Analog Audio + Bi-di Keyboard and Mouse + USB Fiber Receiver, dual fiber, 1310nm TX & RX
7707DVIR13-A2KM-USB-C2	DVI/KVM + 2 Analog Audio + Bi-di Keyboard and Mouse + USB Coaxial Receiver, dual coax, TX & RX
7707DVIR13-A2KM-W	DVI/KVM + 2 Analog Audio + Bi-di Keyboard and Mouse Fiber Receiver, single fiber, 1310nm TX, RX on 1550nm
7707DVIR13-A2KM-USB-W	DVI/KVM + 2 Analog Audio + Bi-di Keyboard, Mouse and USB Fiber Receiver, single fiber, 1310nm TX, RX on 1550nm

For CWDM, please refer to the end of the fiber section for ordering information

7707DVIRyy-A2KM-F2	DVI/KVM + 2 Analog Audio + Bi-di Keyboard and Mouse Fiber Receiver, dual fiber, CWDM Laser
7707DVIRyy-A2KM-USB-F2	DVI/KVM + 2 Analog Audio + Bi-di Keyboard, Mouse and USB Fiber Receiver, dual fiber, CWDM Laser

For DWDM, please refer to the end of the fiber section for ordering information

7707DVIRDyyy-A2KM-F2	DVI/KVM + 2 Analog Audio + Bi-di Keyboard and Mouse Fiber Receiver, dual fiber, DWDM Laser
7707DVIRDyyy-A2KM-USB-F2	DVI/KVM + 2 Analog Audio + Bi-di Keyboard, Mouse and USB Fiber Receiver, dual fiber, DWDM Laser

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix:

+3RU:	3RU rear plate for use with 7700FR-C Multiframe
+1RU:	1RU rear plate for use with 7701FR Multiframe
+SA:	Standalone Enclosure Rear Plate

Connector Suffix:

+SC:	SC/PC
+ST:	ST/PC
+FC:	FC/PC



The 7707DVIT is a VistaLINK® SNMP - capable DVI/KVM transmitter for high resolution/high quality video signals. Available in fiber optic and coaxial versions, this single card module accepts one DVI video input up to WUXGA resolution and transmits it over a single fiber for coax cable. The 7707DVIT is also available with analog audio, keyboard + mouse, serial and USB options. The companion 7707DVIR DVI/KVM Fiber Receiver demultiplexes the signals and converts them back to digital DVI. The fiber output is available in an assortment of optical wavelengths, accommodating 1310/1550nm, CWDM and DWDM transmission schemes.

The 7707DVIT occupies one card slot (two card slots for the A2KM and A2KM-USB versions) and can be housed in a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- Supports DVI transport over a single fiber or coax (-C versions)
- VESA video resolutions supported up to WUXGA
- Full 24 bits per pixel color resolution
- Ideal for use with high resolution LCD, plasma, and projection screens
- Superior digital data transmission
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK®.
- VistaLINK® capability is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame.
- Fully hot-swappable from front of frame with no fiber or coax disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths at 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Optional 2 channel stereo analog audio
- Optional keyboard, mouse and serial
- Optional USB interface
- Optional G-LINK support for use with Evertz VIP™ & MVP™ Multi-display products
- Optional coax I/O for Tx & Rx

7707DVIT Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<500m	7707DVIT13-A2KM-USB-F2	-7dBm	7707DVIR13-A2KM-USB-F2	-19dBm	1310nm on Tx & Rx fibers
Single-Mode	2	12dB/34km	7707DVIT13-A2KM-USB-F2	-7dBm	7707DVIR13-A2KM-USB-F2	-19dBm	1310nm on Tx & Rx fibers
Single-Mode	1	8dB/20km*	7707DVIT15-A2KM-USB-W	-1dBm	7707DVIR13-A2KM-USB-W	-17dBm	1310nm/1550nm WDM bi-directional, one fiber
Single-Mode	1(CWDM)	15.5dB/60km**	7707DVITxx-A2KM-USB-F2	0dBm	7707DVIRyy-A2KM-USB-F2	-19dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	21dB/80km***	7707DVITDxxx-A2KM-USB-F2	+7dBm	7707DVIRDyyy-A2KM-USB-F2	-19dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux**

* With >20dB return loss on fiber interface

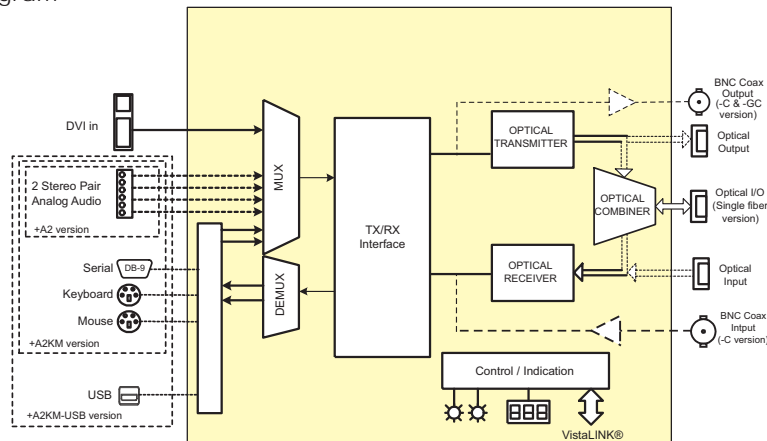
** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB

*** Assumes 8 Ch DWDM Mux/Demux loss of 5dB

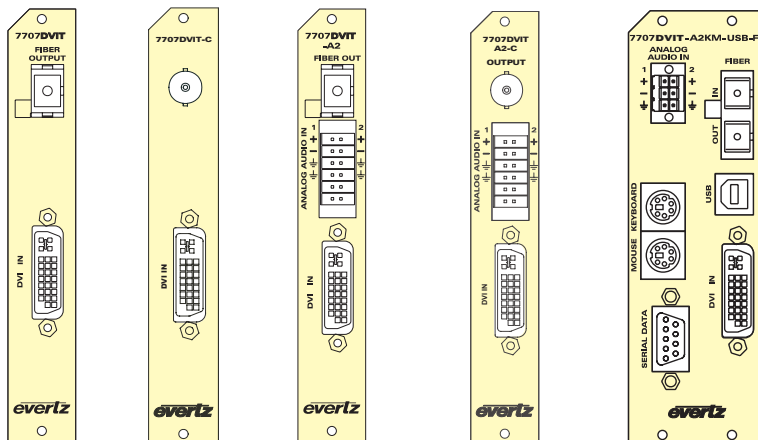
Tx Power/Rx Sensitivity are nominal values ± 1 dBm

Fiber loss= 0.35/0.25dB per km @1310nm/1550nm

7707DVIT Block Diagram



7707DVIT Rear Panels



Specifications

Video Input:

Standards:	DVI 1.0
Number of Inputs:	1
Connectors:	28-pin DVI
Video Resolution:	Up to WUXGA (1920x1200) at 75Hz
Color Resolution:	24 bits

Analog Audio Input (A2, A2KM & A2KM-USB versions):

Number of Inputs:	2
Type:	Balanced analog audio
Connector:	Removable terminal block
Impedance:	High Impedance (> 20kΩ)
Frequency Response:	±0.1dB (20Hz to 20kHz)
THD:	< 0.005% (20Hz to 20kHz)
Channel Phase Diff:	< ±1°
SNR:	> 85dB
Maximum Input Level:	+24dBu
Signal Quantization:	24 bits

Serial USB, Keyboard/Mouse Input/Output (A2KM & A2KM-USB versions):

Standards:	USB 1.1
Number:	3 (A2KM), 4 (A2KM-USB)
Connector:	DB-9F serial, 1 PS2 for each keyboard & mouse, 1 USB type B (A2KM-USB only)

Coaxial Output (-C, -C2 & -GC versions):

Number of Outputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2

Optical Output:

Number of Outputs:	1
Connector:	Female SC/PC, ST/PC or FC/PC
Wavelengths:	See Ordering Information
Output Power:	See Application Configuration Chart

Coaxial Input (-C2 versions):

Number of Inputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2

Optical Input (A2KM & A2KM-USB-F2 versions):

Number of Inputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC
Wavelength:	1270 to 1610nm
Maximum Power:	0dBm
Optical Sensitivity:	See Application Configuration Chart

Electrical:

Voltage:	+12 VDC
Power:	11 Watts (Non-DWDM), 14 Watts (DWDM)

Physical:

Number of Slots:	1 (Standard and A2 versions) 2 (A2KM and A2KM-USB versions)
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Compliance:

Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive Class 1 laser product Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1
Laser Safety:	Complies with FCC Part 15, Class A EU EMC directive
EMI/RFI:	

Ordering Information:

7707DVIT13	DVI Fiber Transmitter, 1310nm FP
7707DVIT-C	DVI Coaxial Transmitter
7707DVIT-GC	DVI G-Link Coaxial Transmitter
7707DVIT-GF	DVI G-Link Fiber Transmitter, 1310nm FP Laser
7707DVIT13-A2	DVI + 2 Analog Audio Fiber Transmitter, 1310nm FP Laser
7707DVIT-A2-C	DVI + 2 Analog Audio, Coaxial Transmitter
7707DVIT-A2-GC	DVI + 2 Analog Audio, G-Link Coaxial Transmitter
7707DVIT-A2-GF	DVI + 2 Analog Audio, G-Link Fiber Transmitter, 1310nm FP Laser
7707DVIT13-A2KM-F2	DVI + 2 Analog Audio + Bi-di Keyboard and Mouse Fiber Transmitter, dual fiber, 1310nm TX & RX
7707DVIT-A2KM-C2	DVI + 2 Analog Audio + Bi-di Keyboard and Mouse Coaxial Transmitter, dual coax, TX & RX
7707DVIT13-A2KM-USB-F2	DVI + 2 Analog Audio + Bi-di Keyboard and Mouse + USB Fiber Transmitter, dual fiber, 1310nm TX & RX
7707DVIT-A2KM-USB-C2	DVI + 2 Analog Audio + Bi-di Keyboard and Mouse + USB Coaxial Transmitter, dual coax, TX & RX
7707DVIT15-A2KM-W	DVI + 2 Analog Audio + Bi-di Keyboard and Mouse Fiber Transmitter, single fiber, TX on 1550nm, RX on 1310nm
7707DVIT15-A2KM-USB-W	DVI/KVM + 2 Analog Audio + Bi-di Keyboard and Mouse + USB Fiber Transmitter, single fiber, TX on 1550nm, RX on 1310nm

For CWDM, please refer to the end of the fiber section for ordering information

7707DVITxx	DVI Fiber Transmitter, CWDM Laser
7707DVITxx-A2	DVI + 2 Analog Audio Fiber Transmitter, CWDM Laser
7707DVITxx-A2KM-F2	DVI + 2 Analog Audio + Bi-di Keyboard and Mouse Fiber Transmitter, dual fiber, CWDM Laser
7707DVITxx-A2KM-USB-F2	DVI/KVM + 2 Analog Audio + Bi-di Keyboard Mouse + USB Fiber Transmitter, dual fiber, CWDM Laser

For DWDM, please refer to the end of the fiber section for ordering information

7707DVITDxxx	DVI Fiber Transmitter, DWDM Laser
7707DVITDxxx-A2	DVI + 2 Analog Audio Fiber Transmitter, DWDM Laser
7707DVITDxxx-A2KM-F2	DVI + 2 Analog Audio + Bi-di Keyboard and Mouse Fiber Transmitter, dual fiber, DWDM Laser
7707DVITDxxx-A2KM-USB-F2	DVI + 2 Analog Audio + Bi-di Keyboard Mouse + USB Fiber Transmitter, dual fiber, DWDM Laser

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix:

+3RU:	3RU rear plate for use with 7700FR-C Multiframe
+1RU:	1RU rear plate for use with 7701FR Multiframe
+SA:	Standalone Enclosure Rear Plate

Connector Suffix:

+SC:	SC/PC
+ST:	ST/PC
+FC:	FC/PC

Enclosures:

7700FR-C:	3RU Multiframe which holds 15 modules
7701FR:	1RU Multiframe which holds 3 modules
S7701FR:	Standalone enclosure

Triple SDI Electrical to Optical Converter

19.4Mb/s or 143-540Mb/s



Model 7707EO-3

Features

- Triple SDI electrical to optical converter for 3 independent channels
- Provides 45 independent channels of optical conversion, in a single 3RU frame
- Supports all SMPTE259M standards with operation from 143Mb/s - 360Mb/s
- Supports additional standards of SMPTE305M (SDTi), SMPTE310M (19.4Mb/s), SMPTE344M (540Mb/s), M2S and DVB-ASI (270Mb/s)
- Supports multi-mode or single-mode fiber
- Fully hot swappable from front of frame, with no fiber or BNC disconnect /reconnect required
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules or a 3RU frame which will hold up to 15 modules or a standalone frame which will hold 1 module
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

Inputs:

- Three independent serial digital BNC inputs, each providing cable equalization to >300m @270Mb/s (Belden 8281)

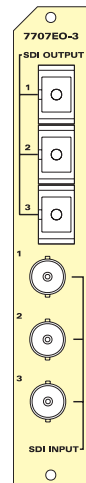
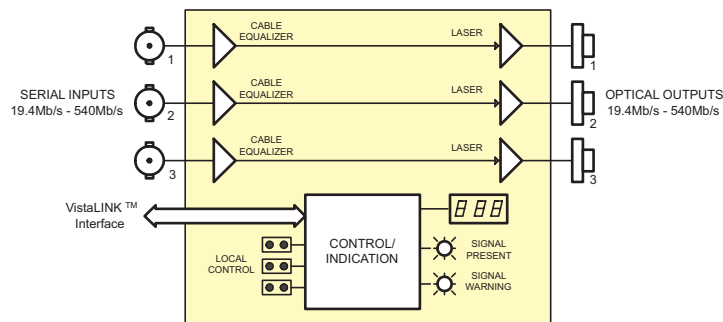
Outputs:

- Three independent fiber outputs
- Optical output wavelength of 1310nm
- SC/PC, ST/PC, FC/PC connector options

Status LEDs:

- Signal presence indication for each channel
- Laser status indication for each channel
- Module status indication

7707EO-3 Block Diagram



Specifications

Standards: SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 305M, SMPTE 310M, SMPTE344M, M2S, DVB-ASI

Serial Video Input:

Number of Inputs: 3 (independent channels)
Connector: 3 BNC inputs per IEC 169-8
Equalization: Automatic to 300m @270Mb/s, with Belden 8281 (or equivalent)
Return Loss: >15dB up to 540Mb/s

Optical Outputs:

Number of Outputs: 3 (independent channels)
Connector: SC/PC, ST/PC, FC/PC female housing
Return Loss: >14dB
Rise/Fall Time: 400-700ps
Jitter: <0.2UI
Nominal Wavelength: 1310nm
Optical Power: -7dBm ±1dBm

Electrical:

Voltage: +12V DC
Power: 7 Watts

Physical:

Number of Slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Laser Safety: Complies with FCC Part 15, Class A
EU EMC directive
EMI/RFI:

Ordering Information:

7707EO13-3 Triple SDI Electrical to Optical Converter, 19.4Mb/s or 143-540Mb/s, 1310nm, FP laser VistaLINK™ Monitoring

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone enclosure

Triple HDTV Electrical to Optical Converter

19.4Mb/s to 1.485Gb/s

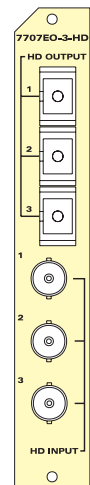
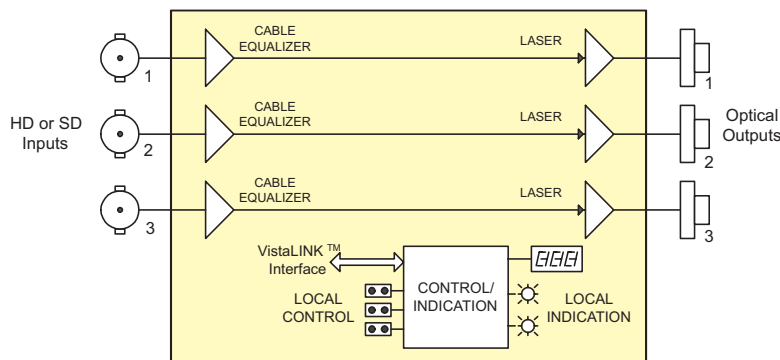
Model 7707EO-3-HD



Features

- Three independent channels of electrical to optical conversion that support all SMPTE 292M standards at 1.485Gb/s.
- Supports all SMPTE 259M standards with operation from 143Mb/s - 360Mb/s.
- Supports additional standards of SMPTE 305M (SDTi), SMPTE 310M (19.4Mb/s), SMPTE 344M (540Mb/s), M2S and DVB-ASI (270Mb/s).
- Automatic cable equalization to 300m @ 270 Mb/s and 75m @ 1.485 Gb/s with Belden 1694A (or equivalent) cable
- Fully hot swappable from front of frame, with no fiber or BNC disconnect /reconnect required.
- High density - accommodates up to 45 independent channels of optical conversion, in a single 3RU frame
- Can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone which will hold 1 module
- Signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™-enabled capability
- Detection and display of input cable length
- Supports single-mode and multi-mode fiber optic cable
- SC/PC, ST/PC or FC/PC connector options
- Tally output on Frame Status bus upon loss of input signal

7707EO-3-HD Block Diagram



Specifications

Standards: SMPTE 292M, SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 305M, SMPTE 310M, SMPTE 344M, M2S, DVB-ASI

Serial Video Input:
Number of Inputs: 3 (independent channels)
Connector: 3 BNC inputs per IEC 169-8
Equalization: Automatic to 75m@ HD (1.485Gb/s) and 300m@ SD(270Mb/s) with Belden 1694A (or equivalent)
Return Loss: >14dB up to 1.5Gb/s

Optical Outputs:
Number of Outputs: 3 (independent channels)
Connector: SC/PC, ST/PC, FC/PC female housing
Return Loss: >14dB
Rise/Fall Time: 270ps nominal
Jitter: <0.2UI
Nominal Wavelength: 1310nm
Optical Power: -7dBm ±1dBm

Electrical:
Voltage: +12V DC
Power: 6 Watts

Physical:
Number of Slots: 1

Compliance:
Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
 Complies with CE Low voltage Directive
 Class 1 laser product
 Complies with 24 CFR 1040.10 and 1040.11
 IEC 60825-1
Laser Safety: Complies with FCC Part 15, Class A
EMI/RFI: EU EMC directive

Ordering Information:
7707EO13-3-HD Triple HD or SD Electrical to Optical Converter, 19.4Mb/s or 143Mb/s -1.485Gb/s, 1310nm FP laser, VistaLINK™

Ordering Options:
 Rear Plate and Fiber Connector must be specified at time of order
 Eg. Model +3RU +SC

Rear Plate Suffix
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix
+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:
CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:
7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone enclosure

SDI Electrical to Optical Converter, 19.4Mb/s or 143-540Mb/s, VistaLINK Monitoring

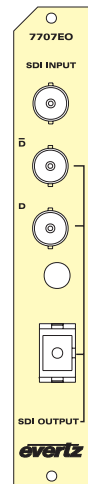
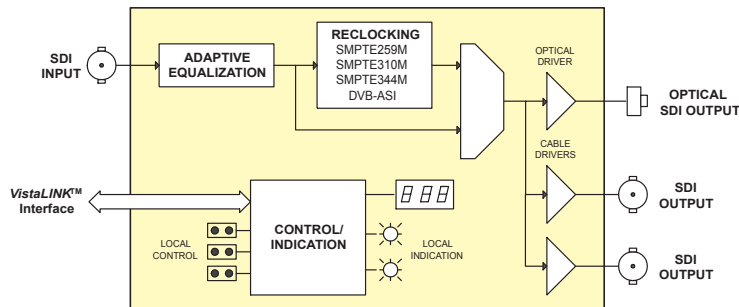
Model 7707EO



Features

- Electrical to optical converter for all SMPTE 259M standards with operation from 143Mb/s - 360Mb/s
- Supports SMPTE 310M (19.4Mb/s), M2S, DVB-ASI (270Mb/s), SMPTE 344M (540Mb/s) and SMPTE 305M (SDTi) rates
- Detection and display of input equalization, video format and EDH errors
- Automatic coaxial input equalization up to 275m at 270Mb/s (Belden 8281)
- Reclocked optical and electrical outputs
- Optical output wavelengths of 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports multi-mode and single-mode fiber
- Fully hot swappable from front of frame
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to three modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold one module
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

7707EO Block Diagram



Specifications

Standards:

Reclocked: SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 344M, SMPTE 310M, SMPTE 305M, M2S or DVB-ASI

Non-Reclocked: Any bi-level signal type at rates of 19.4 - 540Mb/s

Serial Video Input:

Connector: 1 BNC per IEC 60169-8 Amendment 2

Equalization: Automatic up to 275m @270Mb/s with Belden 8281(or equivalent cable)

Return Loss: > 15 dB up to 540 Mb/s

Serial Video Output:

Number of Outputs: 2 per card (1 output DVB-ASI/M2S compliant)

Connectors: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 900ps nominal

Overshoot: < 10% of amplitude

Return Loss: > 15 dB up to 270 Mb/s

Wide Band Jitter: < 0.2 UI

Optical Output:

Standard: SMPTE 297M

Connector: 1 Female SC/PC, ST/PC or FC/PC

Return Loss: > 14 dB

Rise and Fall Time: 400-700 ps

Wide Band Jitter: < 0.2 UI

Wavelengths: See Ordering Information

Output Power:

- 1310nm FP: -7dBm \pm 1dBm
- 1550nm & CWDM: 0dBm \pm 1dBm
- DWDM DFB: 7dBm \pm 1dBm

Electrical:

Voltage: +12V DC

Power: 6 Watts (Non-DWDM), 9 Watts (DWDM)

Physical:

Number of slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1

Laser Safety:

EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

7707EO13: SDI Electrical to Optical Converter 19.4Mb/s or 143-540Mb/s, 1310nm, FP Laser

7707EO15: SDI Electrical to Optical Converter 19.4Mb/s or 143-540Mb/s, 1550nm, DFB Laser

For CWDM, please refer to the end of the fiber section for ordering information

7707EOxx SDI Electrical to Optical Converter 19.4Mb/s or 143-540Mb/s, CWDM DFB Laser

For DWDM, please refer to the end of the fiber section for ordering information

7707EODyyy SDI Electrical to Optical Converter, 19.4Mb/s or 143-540Mb/s, DWDM Laser, +7dBm

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC

+ST ST/PC

+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

7701FR 1RU Multiframe which holds 3 modules

S7701FR Standalone Enclosure

DS3 Electrical to Optical Converter

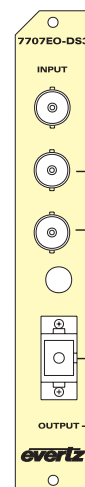
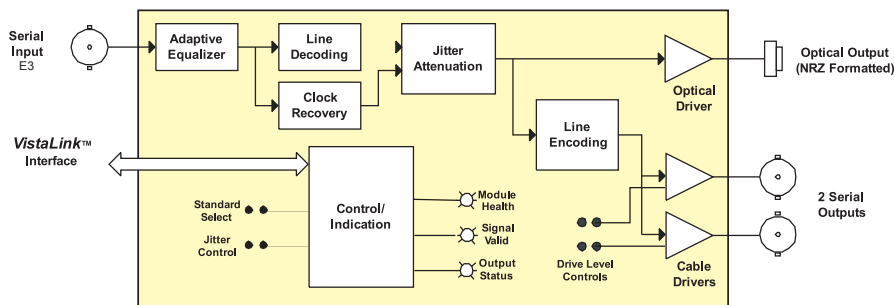


Model 7707EO-DS3

Features

- Electrical to optical converter for DS3 (44.736Mb/s)
- Automatic cable equalization for up to 300m of high quality 75Ω coaxial cable
- Signal reclocking and jitter attenuation
- Output wave shaping for G.703 standards compliance
- Loss of signal (LOS) detection/indication (ANSI T1.231-1999 and ITU G.775)
- Electrical output drive level control for enhanced distance
- Transformer coupled inputs/outputs
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports single-mode and multi-mode fiber optic cable
- Fully hot swappable from front of frame
- Occupies one card slot and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone enclosure that will hold 1 module
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

Model 7707EO-DS3 Block Diagram



Specifications

Inputs:

Standard: G.703 @ 44.736 Mb/s
Connector: 1 Isolated BNC input
Equalization: Automatic to 300m with Belden 8281 or equivalent cable
Return Loss: > 20 dB up to 44 Mb/s

Outputs:

Standard: G.703 @ 44.736 Mb/s
Number of Outputs: 2 Per Card-Reclocked.
Connector: BNC per IEC 60169-8 Amendment 2
Waveform: Conforms to G.703 compliant masks
Return Loss: > 15 dB up to 44.736 Mb/s
Drive Level:
High: For driving cable lengths > 70m
Low: For driving cable lengths < 70m

Optical Output:

Number of Outputs: 1 Scrambled DS3 @ 44.736Mb/s
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 14 dB
Fiber Size: 9 μm core / 125 μm overall
Wavelengths: (See ordering information)
Output Power:
1310nm FP: -7dBm ± 1dB
1550nm/CWDM DFB: 0dBm ± 1dB
DWDM DFB: 7dBm ± 1dBm

Electrical:

Voltage: + 12VDC
Power: 6 Watts (Non-DWDM), 9 Watts (DWDM)
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive

Laser Safety:

Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Complies with FCC Part 15, Class A
EU EMC directive

EMI/RFI:

Ordering Information:

7707EO13-DS3 DS3 Electrical to Optical Converter, VistaLINK™, 1310nm, FP Laser
7707EO15-DS3 DS3 Electrical to Optical Converter, 1550nm DFB Laser, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707EOxx-DS3 DS3 Electrical to Optical Converter, CWDM DFB Laser, VistaLINK™

For DWDM, please refer to the end of the fiber section for ordering information

7707EODyyy-DS3 DS3 (45Mb/s) Electrical to Optical Converter, DWDM Laser, +7dBm, VistaLINK™

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

E3 Electrical to Optical Converter

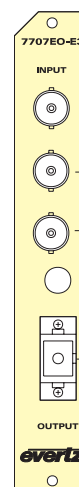
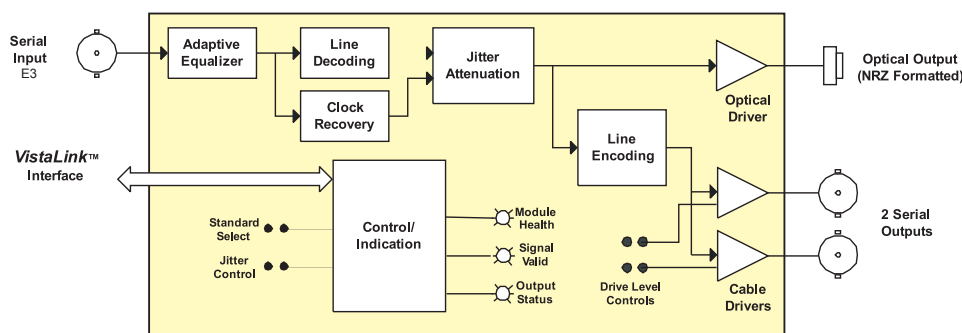
Model 7707EO-E3



Features

- Electrical to optical converter for E3 (34.368Mb/s)
- Automatic cable equalization for up to 300m of high quality 75Ω coaxial cable
- Signal reclocking and jitter attenuation
- Output wave shaping for G.703 standards compliance
- Loss of signal (LOS) detection/indication (ANSI T1.231-1999 and ITU G.775)
- Electrical output drive level control for enhanced distance
- Transformer coupled inputs/outputs
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports single-mode and multi-mode fiber optic cable
- Fully hot swappable from front of frame
- Occupies one card slot and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone enclosure that will hold 1 module
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

Model 7707EO-E3 Block Diagram



Specifications

Inputs:

Standard:	G.703 @ 34.368Mb/s
Connector:	1 Isolated BNC input
Equalization:	Automatic to 300m with Belden 8281 or equivalent cable
Return Loss:	> 20 dB up to 34MHz

Outputs:

Standard:	G.703 @ 34.368Mb/s
Number of Outputs:	2 Per Card-Reclocked.
Connector:	BNC per IEC 60169-8 Amendment 2
Waveform:	Conforms to G.703 compliant masks
Return Loss:	> 15 dB up to 34MHz
Drive Level:	
High:	For driving cable lengths > 70m
Low:	For driving cable lengths < 70m

Optical Output:

Number of Outputs:	1 Scrambled E3 @ 34.368Mb/s
Connector:	Female SC/PC, ST/PC or FC/PC
Return Loss:	> 14 dB
Fiber Size:	9 μm core / 125 μm overall
Wavelengths:	(See ordering information)
Output Power:	
1310nm FP:	-7dBm ± 1dB
1550nm/CWDM DFB:	0dBm ± 1dB
DWDM DFB:	7dBm ± 1dBm

Electrical:

Voltage:	+ 12VDC
Power:	6 Watts (Non-DWDM), 9 Watts (DWDM)
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of slots:	1
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Compliance:

Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive
Laser Safety:	Class 1 laser product Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC directive

Ordering Information:

7707EO13-E3	E3 Electrical to Optical Converter, VistaLINK™, 1310nm, FP Laser
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For CWDM, please refer to the end of the fiber section for ordering information
7707EOxx-E3 E3 Electrical to Optical Converter, CWDM DFB Laser, VistaLINK™

For DWDM, please refer to the end of the fiber section for ordering information
7707EODyyy-E3 E3 Electrical to Optical Converter, DWDM Laser, +7dBm, VistaLINK™

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

HDTV Electrical to Optical Converter

19.4Mb/s to 1.5Gb/s

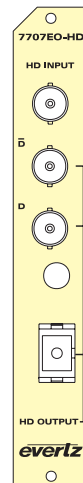
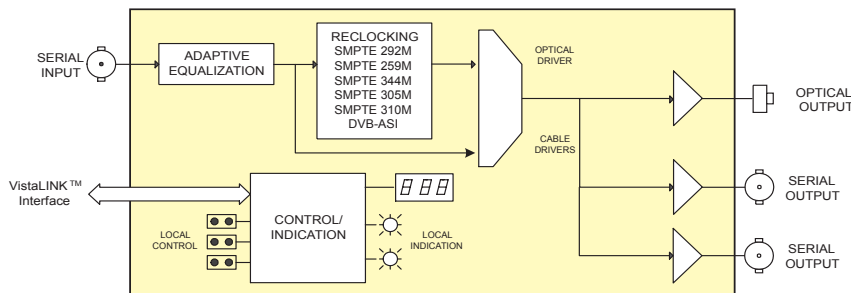


Model 7707EO-HD

Features

- Supports all SMPTE 292M standards at 1.485Gb/s
- Supports all SMPTE 259M standards with operation from 143Mb/s - 360Mb/s
- Supports SMPTE 310M (19.4Mb/s), M2S or DVB-ASI (270Mb/s), SMPTE 344M (540Mb/s), and SMPTE 305M (SDTi) rates
- Auto rate selection, indication and reclocking for all SDI and HD-SDI data rates from 143Mb/s to 1.485Gb/s
- Selectable non reclock mode for other data rates
- Detection and display of equalization strength, video format, and EDH errors (SDI only)
- Automatic coaxial input equalization to 150m for all rates to 1.485Gb/s (Belden 1694A)
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports single-mode and multi-mode fiber optic cable
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to three modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold one module

7707EO-HD Block Diagram



Specifications

Serial Video Input:

Standards:

Reclocked: SMPTE 292M, SMPTE 259M A, B, C, D, SMPTE 344M, SMPTE 305M, DVB-ASI, M2S, SMPTE 310M

Non-Reclocked: Any bi-level signal type at rates of 19.4 Mb/s to 1.485Gb/s

Connector: 1 BNC per IEC 60169-8 Amendment 2

Equalization: Automatic to 150m @ 1.485Gb/s with Belden 1694A or equivalent cable

Return Loss: > 15dB to 1.5GHz

Serial Video Outputs:

Number of Outputs: 2 Per Card (1 output DVB-ASI/M2S compliant)

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV ±80mV

DC Offset: 0V ±0.5V

Rise and Fall Time: <270ps

Overshoot: <10% of amplitude

Return Loss: >12dB to 1.5GHz

Wide Band Jitter: < 0.2UI (Reclocked).

Optical Output:

Standard: SMPTE 297M

Number of Outputs: 1

Connector: Female SC/PC, ST/PC or FC/PC

Return Loss: > 14dB

Rise and Fall Time: < 270ps

Wide Band Jitter: < 0.2 UI (Reclocked).

Wavelengths: See Ordering Information

Output Power:

1310nm FP: -7dBm ± 1dBm

1310/1550nm DFB: 0dBm ± 1dBm

CWDM: 0dBm ± 1dBm

DWDM: 7dBm ± 1dBm

Electrical:

Voltage: +12VDC

Power: 8 Watts (Non DWDM), 11 Watts (DWDM)

EMI/RFI: Complies with FCC Part 15, Class A

EU EMC Directive

Physical:

Number of slots: 1

Compliance:

Electrical Safety:

CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Complies with FCC Part 15, Class A
EU EMC directive

Laser Safety:

EMI/RFI:

Ordering Information:

7707EO13-HD HD Electrical to Optical Converter, 1310nm FP Laser
7707EO13-HD-L HD Electrical to Optical Converter, 1310nm DFB Laser
7707EO15-HD HD Electrical to Optical Converter, 1550nm

For CWDM, please refer to the end of the fiber section for ordering information
7707EOxx-HD HD Electrical to Optical Converter, CWDM DFB Laser

For DWDM, please refer to the end of the fiber section for ordering information
7707EODyyy-HD HD Electrical to Optical Converter, DWDM Laser

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Quad Ethernet Fiber Transceiver

Model 7707ET-4



The 7707ET-4 is a VistaLINK™ –enabled Quad Ethernet Fiber Transceiver that transmits up to four separate 10/100BaseT Ethernet channels over optical fiber. Monitoring of card status and parameters is provided locally at the card edge and remotely via VistaLINK™. A pair of 7707ET-4 transceivers permits full duplex communication of all four channels over a single or dual optical fiber(s).

The 7707ET-4 provides four RJ45 input connectors and either one or two fiber optic output connectors. Multiple versions of the 7707ET-4 are available to address single-mode/multi-mode fiber, single/dual fiber and CWDM/DWDM applications. (See Application Configuration chart below)

The 7707ET-4 occupies one or two card slots and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 7 dual slot modules or 15 single slot modules or a standalone enclosure which will hold 1 module.

Features

- Four completely independent and isolated Ethernet streams
- Auto negotiation for 10/100 speeds on all ports
- Built-in Ethernet switches for isolation of each transmission end
- Comprehensive signal and card status monitoring via four digit card-edge display or remotely through SNMP and VistaLINK™ –enabled capability
- Optical output wavelengths at 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available

- Fully hot swappable from front of frame
- SC/PC, ST/PC, FC/PC Connector options

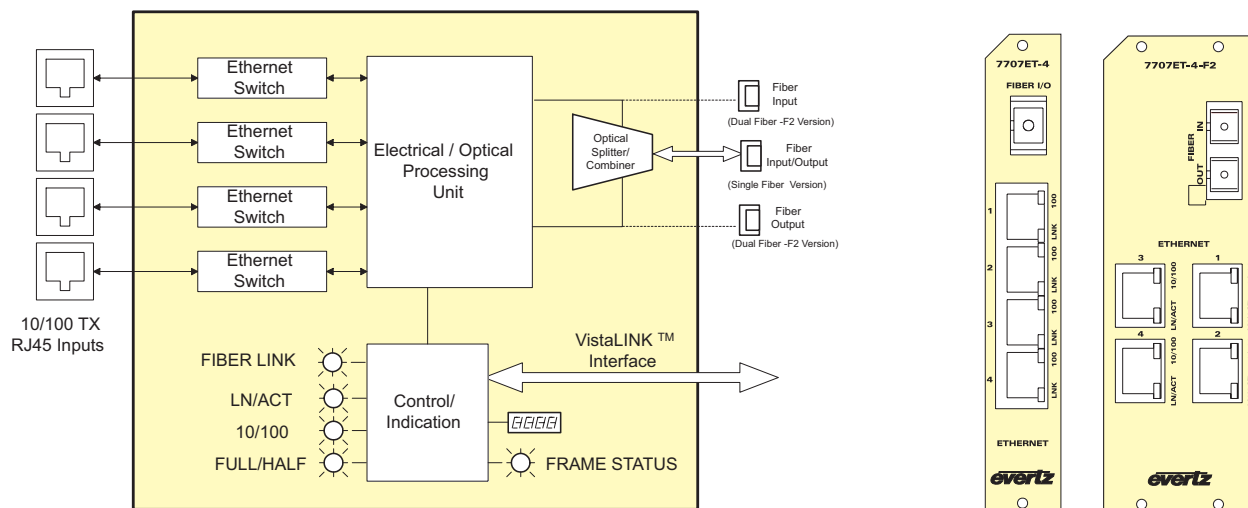
Status Indication:

- Frame status
- 10/100 Speed indication on copper ports
- Full Duplex/Collision indication on copper ports
- Link activity on copper ports
- Received optical power level

7707ET-4 Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<2km	7707ET13-4-F2	-7dBm	7707ET13-4-F2	-23dBm	1310nm on Tx & Rx fibers
Single-Mode	2	16dB/45km	7707ET13-4-F2	-7dBm	7707ET13-4-F2	-23dBm	1310nm on Tx & Rx fibers
Single-Mode	1	9dB/25km*	7707ET13-4	-10dBm	7707ET13-4	-19dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	20dB/57km	7707ET13M-4-W	-1dBm	7707ET15-4-W	-21dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	19dB/76km**	7707ETxx-4-F2	0dBm	7707ETyy-4-F2	-23dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(CWDM)	28dB/112km**	7707ETxx-4-F2-H	0dBm	7707ETyy-4-F2-H	-32dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux with high sensitivity receiver**
Single-Mode	1(DWDM)	25dB/100km***	7707ETDxxx-4-F2	+7dBm	7707ETDyyy-4-F2	-23dBm	Different DWDM wavelengths on Tx & Rx, with 8 channel DWDM Mux/Demux***
Single-Mode	1(DWDM)	34dB/136km***	7707ETDxxx-4-F2-H	+7dBm	7707ETDyyy-4-F2-H	-32dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux with high sensitivity receiver***
* With >20dB return loss on fiber interface					Tx Power/Rx Sensitivity are nominal values ±1dBm		
** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB					Fiber loss= 0.35/0.25dB per km @1310nm/1550nm		
***Assumes 8 Ch DWDM Mux/Demux loss of 5dB							

Model 7707ET13/I5-4-Block Diagram



Specifications

Ethernet Input/Output:

Standard: IEEE 802.3 10BASE-T
802.3u 100BASE-TX
Connectors: 4 RJ45 ports

Cable Requirements:

10Base-T: UTP category 3, 4, or 5 cable up to 328 ft/100m
100Base-T: UTP category 5 cable up to 328 ft/100m

Optical Input/Output:

Connector

Single Fiber Version: 1 Female SC/PC, ST/PC, FC/PC
Dual Fiber Version: 2 Female SC/PC, ST/PC, FC/PC

Input Wavelengths: 1270nm to 1610nm

Rise and Fall Time: 200ps nominal

Wide Band Jitter: < 0.2 UI

Maximum Input Power:

Standard: -1dBm

F2-H Versions: -8dBm

Input Optical Sensitivity: See Application Configuration Chart

Output Wavelengths: See Ordering Information

Output Power: See Application Configuration Chart

Electrical:

Voltage: + 12VDC

Power: 12 Watts (Non DWDM)

14 Watts (DWDM)

EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots:

Single Fiber: 1
Dual Fiber: 2

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1

Laser Safety:

Ordering Information:

7707ET13-4 Quad Ethernet Fiber Transceiver, single fiber,
1310nm FP TX & RX
7707ET13M-4-W Quad Ethernet Fiber Transceiver, single fiber,
WDM, 1310nm FP TX, RX on 1550nm,

7707ET15-4-W

Quad Ethernet Fiber Transceiver, single fiber,

WDM, 1550nm DFB TX, RX on 1310nm

7707ET13-4-F2

Quad Ethernet Fiber Transceiver, dual fiber,
1310nm FP TX & RX

For CWDM, please refer to the end of the fiber section for ordering information

7707ETxx-4-F2

Quad Ethernet Fiber Transceiver, dual fiber, CWDM
TX

For Long Distance CWDM, please refer to the end of the fiber section for ordering information

7707ETxx-4-F2-H

Quad Ethernet Fiber Transceiver, dual fiber,
CWDM TX, High Sensitivity RX

For DWDM, please refer to the end of the fiber section for ordering information

7707ETDyyy-4-HD-F2

Quad Ethernet Fiber Transceiver, dual fiber,
DWDM TX

For Long Distance DWDM, please refer to the end of the fiber section for ordering information

7707ETDyyy-4-HD-F2-H

Quad Ethernet Fiber Transceiver, dual fiber,
DWDM TX, High Sensitivity RX

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C
Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone enclosure

Ethernet Fiber Transceiver

Model 7707ET



The 7707ET is a VistaLINK™ -enabled Ethernet Fiber Transceiver that provides an economical method of transmitting two 10BaseT Ethernet channels or one 100Base-TX Ethernet channel over optical fiber. The transceiver is IEEE 802.3 10BASE-T and IEEE 802.3u 100BASE-TX compliant. It mediates between a 10/100BASE-TX segment and supports both full duplex and half-duplex operation. Monitoring of card status and parameters is provided locally at the card edge and remotely via VistaLINK™. A pair of 7707ET transceivers permits full duplex communication over single or dual optical fibers. Diagnostic LEDs provide indication of power, link status and data reception.

Multiple versions of the 7707ET are available to address single-mode/multi-mode fiber, single/dual fiber and CWDM/DWDM applications (See Applications Configuration Chart)

The 7707ET occupies one card slot and can be housed in either a 1RU Frame that will hold up to 3 modules, a 3RU Frame that will hold up to 15 modules or a standalone enclosure that will hold 1 module.

Features

- Auto negotiation for 10/100 speed and half/full duplex modes
- Built in Ethernet switch for complete isolation of each transmission end
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Local display of optical signal strength, link parameters and link status
- Optical output available in 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports single-mode and multi-mode fiber optic cable
- Fully hot-swappable from front of frame with no fiber or Ethernet channel disconnect required
- SC/PC, ST/PC or FC/PC connector options

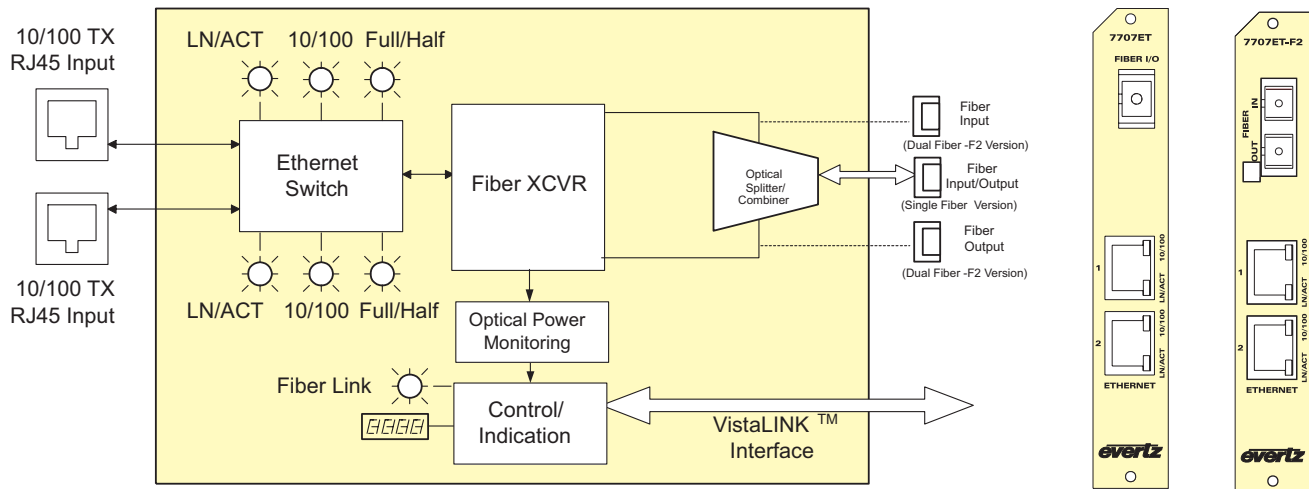
Status Indicators:

- Frame Status
- 10/100 speed indication for all copper ports
- Full duplex/Collision Indication for all copper ports
- Link activity for copper port
- Received optical power level
- Fiber link indication

7707ET Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<3km	7707ET13-F2	-7dBm	7707ET13-F2	-32dBm	1310nm on Tx & Rx fibers
Single-Mode	2	25dB/71km	7707ET13-F2	-7dBm	7707ET13-F2	-32dBm	1310nm on Tx & Rx fibers
Single-Mode	1	14dB/40km*	7707ET13	-10dBm	7707ET13	-24dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	25dB/71km	7707ET13M-W	-1dBm	7707ET15-W	-26dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	28dB/112km**	7707ETxx-F2	0dBm	7707ETyy-F2	-32dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	34dB/136km***	7707ETDxxx-F2	+7dBm	7707ETDyyy-F2	-32dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux***
* With >20dB return loss on fiber interface					Tx Power/Rx Sensitivity are nominal values ±1dBm		
** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB					Fiber loss= 0.35/0.25dB per km @1310nm/1550nm		
***Assumes 8 Ch DWDM Mux/Demux loss of 5dB							

Model 7707ET Block Diagram



Specifications

Ethernet Input/Output:

Standard :	IEEE 802.3 (10 BaseT), IEEE 802.3u (100 BaseTX)
Connector:	Two RJ45's
Number of channels:	Two 10Base-T or one 100BaseTX
Cable Requirements:	
10 BaseT :	UTP category 3,4 or 5 cable up to 328ft/100m (2 pairs)
100 BaseTX :	UTP category 5 cable up to 328 ft/100m (2 pairs)

Optical Input/Output:

Connector:	
Single Fiber Versions:	1 Female SC/PC, ST/PC or FC/PC
Dual Fiber (F2) Versions:	2 Female SC/PC, ST/PC or FC/PC
Input wavelengths:	1270nm - 1610nm
Maximum Input Power:	0dBm
Input Optical Sensitivity:	See Application Configuration Chart
Output Wavelengths:	See Ordering Information
Output Power:	See Application Configuration Chart

Electrical:

Voltage:	12 volts
Power:	6 Watts (Non DWDM) 8 Watts (DWDM)
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of slots:	1
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Compliance:

Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive
Laser Safety:	Class 1 laser product Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1

Ordering Information:

7707ET13	Ethernet Fiber Transceiver - Single Fiber, 1310nm, FP Laser, VistaLINK™ Monitoring
7707ET13M-W	Ethernet Fiber Transceiver - Single Fiber, WDM, 1310nm, FP TX, RX on 1550nm, VistaLINK™ Monitoring
7707ET15-W	Ethernet Fiber Transceiver, single fiber, WDM, 1550nm DFB TX, RX on 1310nm, VistaLINK™
7707ET13-F2	Ethernet Fiber Transceiver - Dual Fiber, 1310nm, FP Laser, VistaLINK™ Monitoring

For CWDM, please refer to the end of the fiber section for ordering information

7707ETxx-F2	Ethernet Fiber Transceiver - Dual Fiber, CWDM, DFB Laser, VistaLINK™ Monitoring
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For DWDM, please refer to the end of the fiber section for ordering information

7707ETDyyy-F2	Ethernet Fiber Transceiver, dual fiber, DWDM TX, VistaLINK™
----------------------	---

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Ethernet and T1/E1/J1 Fiber Transceiver



Model 7707ET-TE1

The 7707ET-TE1 is a VistaLINK™ - enabled Ethernet and T1/E1/J1 Fiber Transceiver that provides an economical method of transmitting one 10/100BaseT Ethernet signal and one T1/E1/J1 signal over optical fiber. Monitoring control of card status and parameters is provided locally at the card edge and remotely via VistaLink™. A pair of 7707ET-TE1 transceivers permits full duplex communication of all signals over single or dual optical fibers.

The 7707ET-TE1 provides one RJ45 input connector for the 10/100BaseT Ethernet, one RJ45 input connector for the T1/E1/J1 and one or two fiber optic output connectors. Multiple versions of the 7707ET-TE1 are available to address single-mode/multi-mode fiber, single/dual fiber and CWDM/DWDM applications. (See Applications Configuration Chart below)

The 7707ET-TE1 occupies one card slot and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone enclosure that will hold 1 module.

Features

- 10/100BaseT Ethernet and T1/E1/J1 fiber optic transceiver
- Auto negotiation for 10/100 speeds and full/half duplex operation on Ethernet port
- G.703 compliant T1/E1/J1 port
- Ethernet and T1/E1/J1 signals completely independent over transport interface
- Built-in Ethernet switch for isolation of each transmission end
- Comprehensive signal and card status monitoring via four digit card-edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Local display of optical signal strength, link parameters and link status
- Optical output available in 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports single-mode and multi-mode fiber optic cable
- Fully hot-swappable from front of frame
- SC/PC, ST/PC or FC/PC connector options

Status Indication:

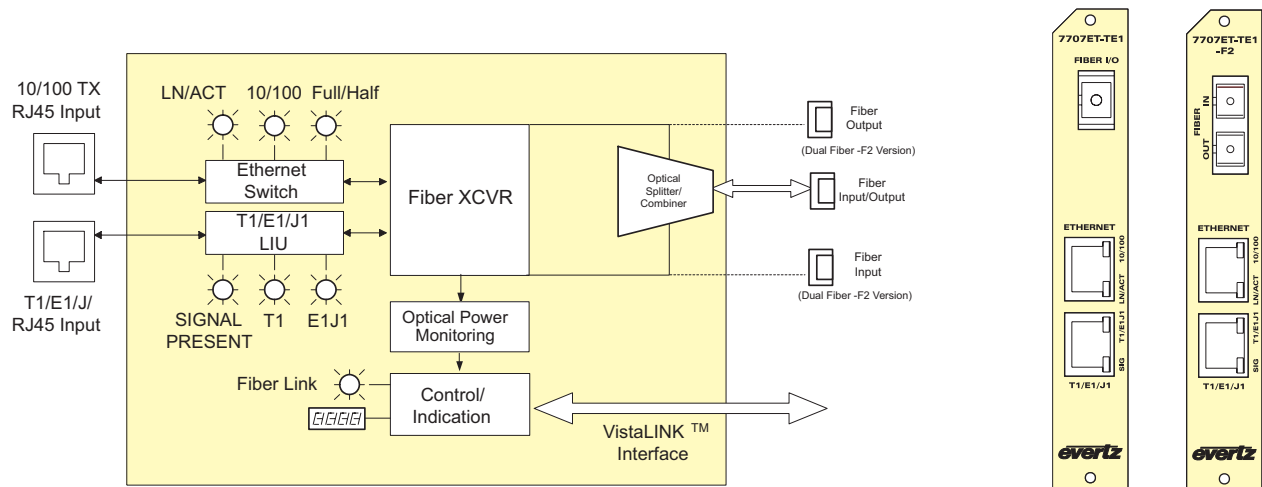
- Frame status
- Fiber link indication
- 10/100 Speed indication
- Ethernet Full Duplex/Collision indication
- Ethernet Link activity
- T1/E1/J1 Signal Presence
- T1/E1/J1 Indication
- Optical Power Level

7707ET-TE1 Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<3km	7707ET13-TE1-F2	-7dBm	7707ET13-TE1-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	2	21dB/60km	7707ET13-TE1-F2	-7dBm	7707ET13-TE1-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	1	14dB/40km*	7707ET13-TE1	-10dBm	7707ET13-TE1	-24dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	25dB/71km	7707ET13M-TE1-W	-1dBm	7707ET15-TE1-W	-26dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	24dB/96km**	7707ETxx-TE1-F2	0dBm	7707ETyy-TE1-F2	-28dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km***	7707ETDxxx-TE1-F2	+7dBm	7707ETDyyy-TE1-F2	-28dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux***
* With >20dB return loss on fiber interface ** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB *** Assumes 8 Ch DWDM Mux/Demux loss of 5dB						Tx Power/Rx Sensitivity are nominal values ±1dBm Fiber loss= 0.35/0.25dB per km @1310nm/1550nm	

Ethernet and T1/E1/J1 Fiber Transceiver

Model 7707ET-TE1 Block Diagram



Specifications

Ethernet Input/Output

Standard :	IEEE 802.3 (10 BaseT), IEEE 802.3u (100 BaseTX)
Connector:	1 RJ45
Cable Requirements:	
10 BaseT:	UTP category 3,4 or 5 cable up to 328ft/100m (2 pairs)
100 BaseTX:	UTP category 5 cable up to 328 ft/100m (2 pairs)

T1/E1/J1 Input/Output:

Standard:	G.703
Connector:	1 RJ45
Cable Requirements:	0.63 mm (22 AWG) cable up to 1000 meters

Optical Input/Output:

Connector:	
Single Fiber versions:	1 Female SC/PC, ST/PC or FC/PC
Dual Fiber (F2) versions:	2 Female SC/PC, ST/PC or FC/PC
Maximum Input Power:	0dBm
Input Wavelength:	1270nm - 1610nm
Input Optical Sensitivity:	See Application Configuration Chart
Output Wavelengths:	See Ordering Information
Output Power:	See Application Configuration Chart

Electrical:

Voltage:	12 volts
Power:	6 Watts (Non DWDM) 8 Watts (DWDM)

Physical:

Number of slots:	1
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Compliance:

Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive
Laser Safety:	Class 1 laser product Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Ordering Information:

7707ET13-TE1	Ethernet & T1/E1/J1 Fiber Transceiver, single fiber, 1310nm FP TX & RX, VistaLINK™
7707ET13M-TE1-W	Ethernet & T1/E1/J1 Fiber Transceiver, single fiber, WDM, 1310nm FP TX, RX on 1550nm, VistaLINK™
7707ET15-TE1-W	Ethernet & T1/E1/J1 Fiber Transceiver, single fiber, WDM, 1550nm DFB TX, RX on 1310nm, VistaLINK™
7707ET13-TE1-F2	Ethernet and T1/E1/J1 Fiber Transceiver, Dual Fiber, 1310 nm, FP Laser, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707ETxx-TE1-F2	Ethernet and T1/E1/J1 Fiber Transceiver, Dual Fiber, CWDM, DFB Laser, VistaLINK™
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For DWDM, please refer to the end of the fiber section for ordering information

7707ETDyyy-TE1-F2	Ethernet & T1/E1/J1 Fiber Transceiver, dual fiber, DWDM TX, VistaLINK™
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Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

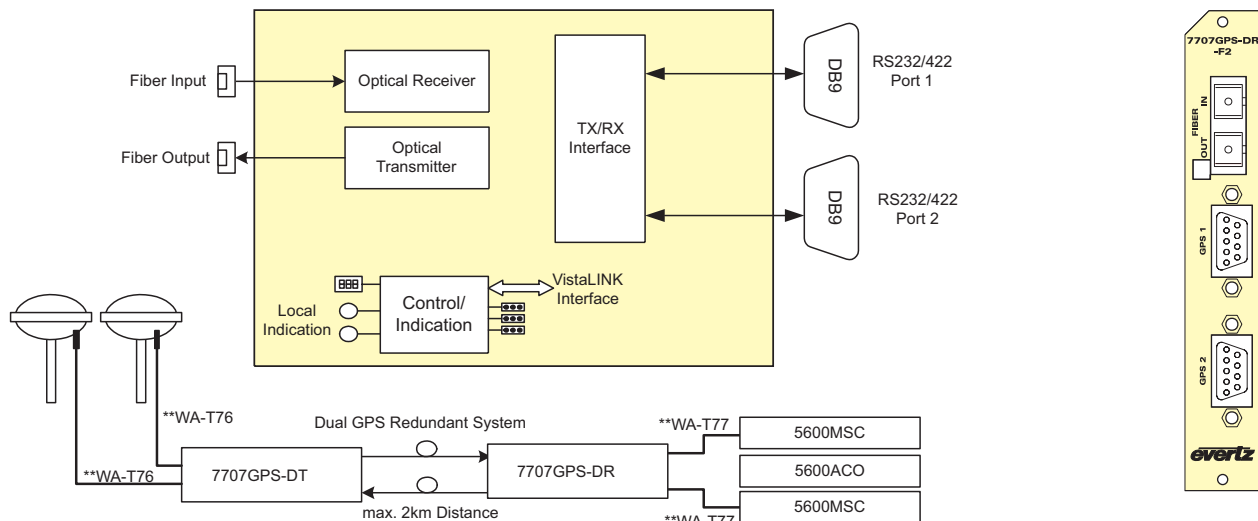
Model 7707GPS-DR



Features

- Transports GPS data signals from two Trimble Accutime 2000 Smart Antenna's simultaneously
- Allows user to run 1 or 2 Accutime 2000 GPS heads for primary and redundant links
- All configuration settings are controllable through the card-edge user interface, or VistaLINK™
- Comprehensive signal and status monitoring via four-digit card-edge display, or VistaLINK™
- Optical output wavelength of 1310nm or 1550nm provides a 2km transmission distance of GPS data signal
- Low latency
- Compatible with multi-mode and single-mode fiber
- SC/PC, ST/PC, or FC/PC fiber connector options
- Fully hot swappable from front of frame
- VistaLINK™ enabled for remote monitoring and control when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

7707GPS-DR Block Diagram



**Evertz recommends that only these cables be used for connecting the specified equipment to the 7707GPS-DT and 7707GPS-DR. See Accessories for ordering details.

Specifications

GPS Serial Data:
Number of Signals: 2 bi-directional GPS signals
Connector: 2 x DB-9 connectors
Type: RS-232 or RS-422 (selectable)
Bit Rate RS-232/RS-422: 115kb/s,

Optical Input/Outputs:
Number of Connections: 2
Connector: Female SC/PC, ST/PC or FC/PC
Maximum Input Power: 0dBm
Input Optical Sensitivity: -22dBm
Fiber Size and Type
Dual Fiber (F2): 9µm core / single mode on TX, 62.5µm core / multi-mode on RX
Output Wavelength 1310nm, 1550nm (nominal)

Output Power:
Dual Fiber (F2)
1310nm FP (Standard): -7dBm ±1dBm
1550nm DFB: 0dBm ±1dBm

Electrical:
Voltage: +12V DC
Power: 6 Watts

GPS Power:
Voltage: +17V DC
Power: 7 Watts
Current: 200mA

Connecting Cables (see Ordering Options):**
Number of cables 2

Physical:
7700 Frame Mounting: 1
7701 Frame Mounting: 1

Compliance:
Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
 Complies with CE Low voltage Directive

Laser Safety: Class 1 laser product
 Complies with 24 CFR 1040.10 and 1040.11
 IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
 EU EMC Directive

Ordering Information:
7707GPS-DR13-F2 Dual GPS Data Fiber Receiver, 1310nm FP Tx and Rx
7707GPS-DR15-F2 Dual GPS Data Fiber Receiver, 1550nm DFB Tx and Rx

Ordering Options:
 Rear Plate and Fiber Connector must be specified at time of order
 Eg: Model +SC +3RU

Rear Plate Suffix:
+3RU 3RU rear plate for use with 7700FR-C Multiframe
+1RU 1RU rear plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix:
+SC SC/PC
+ST ST/PC
+FC FC/PC

Accessories:
WA-T76 100' IF cable for 5600MSC, GPSII and 7707GPS-DT
WA-T77 100' IF cable for 7707GPS-DR to 5600MSC

Notes**
 **Please specify the quantity of WA-T76 and WA-T77 cables required to connect the 7707GPS-DT and 7707GPS-DR to the Accutime Head and 5600MSC or 5010-GPSII respectively. The 7707GPS-DT and 7707GPS-DR are only compatible with the WA-T76 and WA-T77 cables. See diagram and Accessories for more information.

Enclosures:
7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone Enclosure

Dual GPS Data Fiber Transmitter

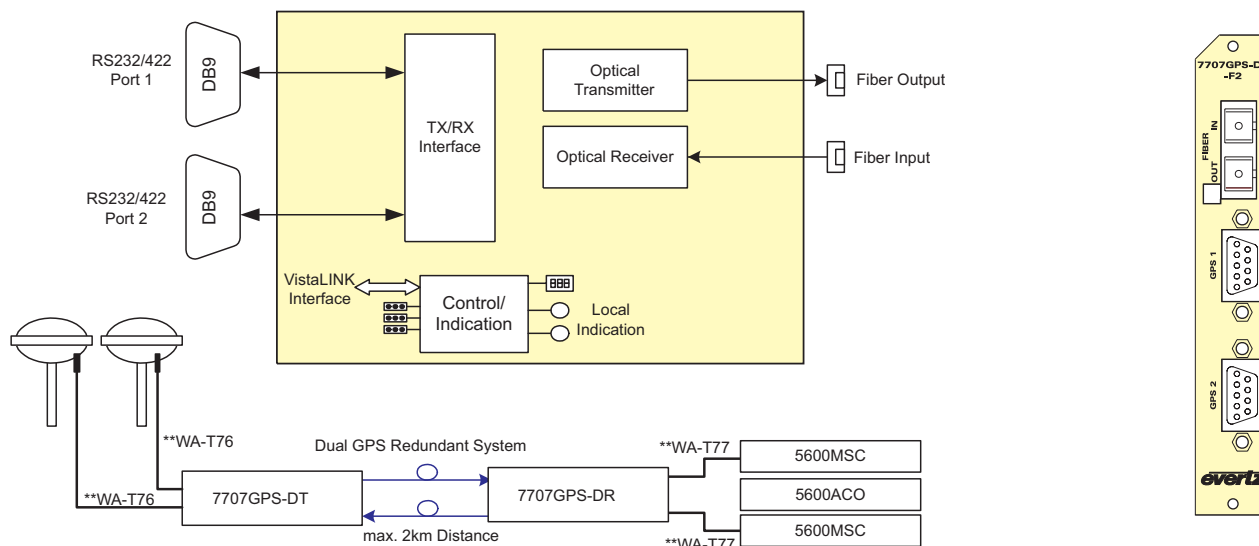
Model 7707GPS-DT



Features

- Transports GPS data signals from two Trimble Accutime 2000 Smart Antenna's simultaneously
- Allows user to run 1 or 2 Accutime 2000 GPS heads for primary and redundant links
- GPS power at +17V DC with built-in current limiting
- All configuration settings are controllable through the card-edge user interface, or VistaLINK™
- Comprehensive signal and status monitoring via four-digit card-edge display, or VistaLINK™
- Optical output wavelength of 1310nm or 1550nm provides a 2km transmission distance of GPS data signal
- Low latency
- Compatible with multi-mode and single-mode fiber
- SC/PC, ST/PC, or FC/PC fiber connector options
- Fully hot swappable from front of frame
- VistaLINK™ enabled for remote monitoring and control when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

7707GPS-DT Block Diagram



Specifications

GPS Serial Data:
Number of Signals: 2 bi-directional GPS signals
Connector: 2 x DB-9 connectors
Type: RS-232 or RS-422 (selectable)
Bit Rate RS-232/RS-422: 115kb/s,

Optical Input/Outputs:
Number of Connections: 2
Connector: Female SC/PC, ST/PC or FC/PC
Maximum Input Power: 0dBm
Input Optical Sensitivity: -22dBm
Fiber Size and Type
Dual Fiber (F2): 9µm core / single mode on TX, 62.5µm core / multi-mode on RX
Output Wavelength: 1310nm, 1550nm (nominal)

Output Power:
Dual Fiber (F2)
1310nm FP (Standard): -7dBm ±1dBm
1550nm DFB: 0dBm ±1dBm

Electrical:
Voltage: +12V DC
Power: 10 Watts

GPS Power:
Voltage: +17V DC
Power: 7 Watts
Current: 200mA

Connecting Cables (see Ordering Options):**
Number of cables 2

Physical:
7700 Frame Mounting: 1
7701 Frame Mounting: 1

Compliance:
Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive

Laser Safety: Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1

EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:
7707GPS-DT13-F2 Dual GPS Data Fiber Transmitter, 1310nm FP Tx and Rx
7707GPS-DT15-F2 Dual GPS Data Fiber Transmitter, 1550nm DFB Tx and Rx

Ordering Options:
Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix:
+3RU 3RU rear plate for use with 7700FR-C Multiframe
+1RU 1RU rear plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix:
+SC SC/PC
+ST ST/PC
+FC FC/PC

Accessories:
WA-T76 100' IF cable for 5600MSC, GPSII and 7707GPS-DT
WA-T77 100' IF cable for 7707GPS-DR to 5600MSC

Notes** **Please specify the quantity of WA-T76 and WA-T77 cables required to connect the 7707GPS-DT and 7707GPS-DR to the Accutime Head and 5600MSC or 5010-GPSII respectively. The 7707GPS-DT and 7707GPS-DR are only compatible with the WA-T76 and WA-T77 cables. See diagram and Accessories for more information.

Enclosures:
7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone Enclosure

Gigabit Ethernet Fiber Transceiver

Model 7707GT



The 7707GT is a VistaLINK™ -enabled Gigabit Ethernet Fiber Transceiver that provides an economical method of transmitting one 10/100/1000BaseT Ethernet channel over optical fiber. The transceiver is IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX and IEEE 802.3ab 1000BASE-TX compliant and provides auto negotiation between a 10/100/1000BASE-TX segment. Monitoring of card status and parameters is provided locally at the card edge and remotely via VistaLINK™. A pair of 7707GT transceivers permits full duplex communication over single or dual optical fibers. Diagnostic LEDs provide indication of power, linkage and data reception.

Multiple versions of the 7707GT are available to address single-mode/multi-mode fiber, single/dual fiber and CWDM/DWDM applications. (See Application Configuration chart below)

The 7707GT occupies one card slot and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- Auto negotiation for 10/100/1000 speeds and half/full duplex modes
- Auto equalization for up to 100m at Gigabit ethernet rates
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Local display of optical signal strength and link status
- Optical output available in 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports single-mode and multi-mode fiber optic cable
- Fully hot swappable from front of frame
- SC/PC, ST/PC or FC/PC connector options

Status Indication:

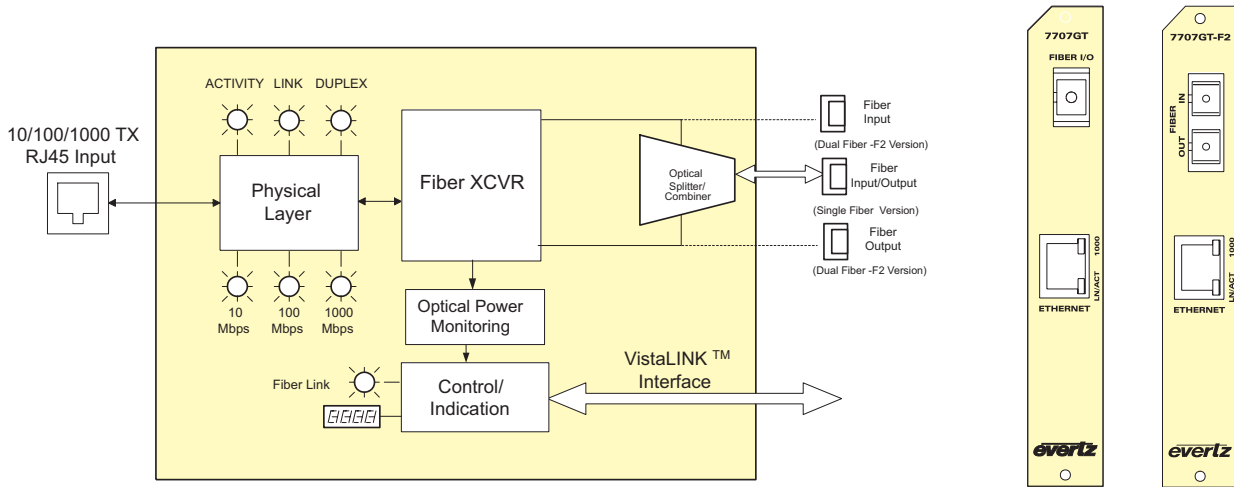
- Frame status
- Copper Interface Status
- 10/100/1000 Speed Indication
- Fiber Link Status
- Optical Power Level

7707GT Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<1km	7707GT13-F2	-7dBm	7707GT13-F2	-23dBm	1310nm on Tx & Rx fibers
Single-Mode	2	16dB/45km	7707GT13-F2	-7dBm	7707GT13-F2	-23dBm	1310nm on Tx & Rx fibers
Single-Mode	1	9dB/25km*	7707GT13	-10dBm	7707GT13	-19dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	20dB/57km	7707GT13L-W	-1dBm	7707GT15-W	-21dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	19dB/76km**	7707GTxx-F2	0dBm	7707GTyy-F2	-23dBm	Different CWDM wavelengths on Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(CWDM)	28dB/112km**	7707GTxx-F2-H	0dBm	7707GTyy-F2-H	-32dBm	Different CWDM wavelengths on Tx & Rx, with 8 channel CWDM Mux/Demux, High Sensitivity Receiver**
Single-Mode	1(DWDM)	25dB/100km***	7707GTDxxx-F2	+7dBm	7707GTDyyy-F2	-21dBm	Different DWDM wavelengths on Tx & Rx, with 8 channel DWDM Mux/Demux***
Single-Mode	1(DWDM)	34dB/136km***	7707GTDxxx-F2-H	+7dBm	7707GTDyyy-F2-H	-32dBm	Different DWDM wavelengths on Tx & Rx, with 8 channel DWDM Mux/Demux, High Sensitivity Receiver***
* With >20dB return loss on fiber interface					Tx Power/Rx Sensitivity are nominal values ±1dBm		
** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB					Fiber loss= 0.35/0.25dB per km @1310nm/1550nm		
*** Assumes 8 Ch DWDM Mux/Demux loss of 5dB							

Gigabit Ethernet Fiber Transceiver

Model 7707GT Block Diagram



Specifications

Ethernet Input/Output Standard:

IEEE 802.3 (10 BaseT), IEEE 802.3u (100 BaseTX), IEEE 802.3ab(1000baseTX) 1 RJ45

Connector:

Cable Requirements:

10 BaseT:

UTP category 3,4 or 5 cable up to 328ft/100m (2 pairs).

100 BaseTX:

UTP category 5 cable up to 328 ft/100m (2 pairs).

1000 BaseTX:

UTP category 5 cable up to 328 ft/100m (4 pairs).

Optical Input/Output:

Connector:

Single Fiber version:

1 female SC/PC, ST/PC or FC/PC

Dual Fiber (F2) version:

2 female SC/PC, ST/PC or FC/PC

Input Wavelengths:

1270nm - 1610nm

Maximum Input Power Standard:

-1dBm

-H versions:

-8dBm

Input Optical Sensitivity:

See Application Configuration Chart

Output Wavelengths:

See Ordering Information

Output Power:

See Application Configuration Chart

Electrical:

Voltage:

12V

Power:

8 watts (Non DWDM)

10 watts (DWDM)

Physical:

Number of slots:

1

Compliance:

Electrical Safety:

CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1

Laser Safety:

Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1

EMI/RFI:

Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7707GT13

Gigabit Ethernet Fiber Transceiver, single fiber, 1310nm FP TX & RX, VistaLINK™

7707GT13L-W

Gigabit Ethernet Fiber Transceiver, single fiber, WDM, 1310nm DFB TX, RX on 1550nm, VistaLINK™

7707GT15-W

Gigabit Ethernet Fiber Transceiver, single fiber, WDM, 1550nm DFB TX, RX on 1310nm, VistaLINK™

7707GT13-F2

Gigabit Ethernet Fiber Transceiver, dual fiber, 1310nm FP TX & RX, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707GTxx-F2

Gigabit Ethernet Fiber Transceiver, dual fiber, CWDM TX, VistaLINK™

For Long Distance CWDM, please refer to the end of the fiber section for ordering information

7707GTxx-F2-H

Gigabit Ethernet Fiber Transceiver, dual fiber, CWDM TX, High Sensitivity RX, VistaLINK™

For DWDM, please refer to the end of the fiber section for ordering information

7707GTDyyy-HD-F2

Gigabit Ethernet Fiber Transceiver, dual fiber, DWDM TX, VistaLINK™

For Long Distance DWDM, please refer to the end of the fiber section for ordering information

7707GTDyyy-HD-F2-H

Gigabit Ethernet Fiber Transceiver, dual fiber, DWDM TX, High Sensitivity RX, VistaLINK™

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU

3RU Rear Plate for use with 7700FR-C Multiframe

+1RU

Multiframe

1RU Rear Plate for use with 7701FR

+SA

Standalone Enclosure Rear Plate

Connector Suffix

+SC

SC/PC

+ST

ST/PC

+FC

FC/PC

Enclosures:

7700FR-C

3RU Multiframe which holds 15 modules

7701FR

1RU Multiframe which holds 3 modules

S7701FR

Standalone enclosure

70/140 Mhz IF Fiber Receiver with VistaLINK™ Monitoring



Model 7707IFRA

(Replaces the 7707IFR & offers improved performance and wider operating range)

The 7707IFRA is a VistaLINK™ -enabled fiber optic receiver for 70/140 MHz IF signals. The 7707IFRA accepts a fiber optic input from the companion 7707IFTA and provides two 70/140 Mhz IF output signals via BNC's. Monitoring and control of card status and parameters is provided locally at the card edge and remotely via VistaLINK™ capability.

The 7707IFRA occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

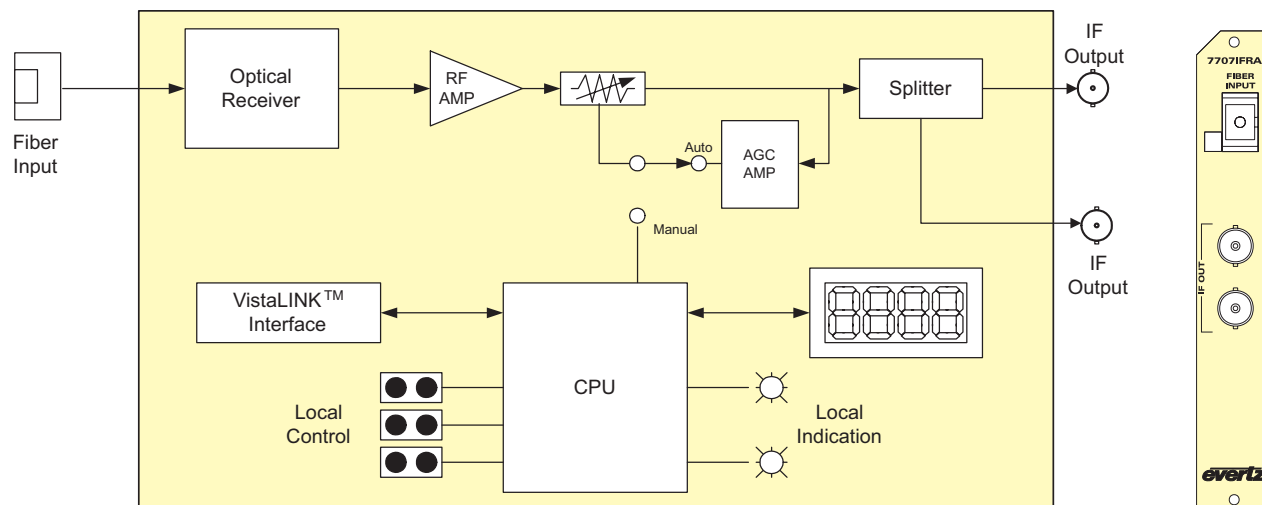
- 30-200 MHz bandwidth
- Protocol transparent - receives all video, audio and data modulation formats
- Supports manual and automatic gain control (AGC)
- Wide AGC hold range (45dB) using 7707IFTA + 7707IFRA
- Two IF outputs for extra signal distribution or monitoring functions
- IF output power independent of optical loss (within AGC range)
- Available with BNC or F-Type connector options
- Wide range optical input (1270nm to 1610nm)
- Supports single-mode and multi-mode fiber optic cable
- Available in SC/PC, ST/PC, FC/PC and APC connector options
- Fully hot swappable from front of frame
- Comprehensive signal and status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

7707IFRA Application Configurations

APPLICATION	OPTICAL/LINK BUDGET	TRANSMITTER SIDE		RECEIVER SIDE		DESCRIPTION
		ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
ONE SIGNAL PER FIBER						
Short to Medium Haul	14dB/40km	7707IFTA13	0dBm	7707IFRA	-14dBm	1310nm FP laser on Tx
Medium Haul	16dB/45km	7707IFTA13L	+2dBm	7707IFRA	-14dBm	1310nm DFB laser on Tx
Long Haul	16dB/64km	7707IFTA15	+2dBm	7707IFRA	-14dBm	1550nm DFB laser on Tx
Long Haul	25dB/71km	7707IFTA13L	+2dBm	7707IFRA-H	-23dBm	1310nm DFB laser on Tx, High Sensitivity RX
Long Haul	25dB/100km	7707IFTA15	+2dBm	7707IFRA-H	-23dBm	1550nm DFB laser on Tx, High Sensitivity RX
MULTI-SIGNAL PER FIBER (WAVELENGTH MUX/DEMUX)						
Medium Haul	12.5dB/50km*	7707IFTAxx	+2dBm	7707IFRA	-14dBm	1470nm-1610nm CWDM DFB laser on Tx, with 8 Ch CWDM Mux/Demux*
Long Haul	21.5dB/86km*	7707IFTAxx	+2dBm	7707IFRA-H	-23dBm	1470nm-1610nm CWDM DFB laser on Tx, High Sensitivity RX, 8 Ch CWDM Mux/Demux*
Long Haul	16dB/70km**	7707IFTADyyy	+7dBm	7707IFRA	-14dBm	DWDM DFB laser on Tx, with 8 Ch DWDM Mux/Demux**
Long Haul	25dB/100km**	7707IFTADyyy	+7dBm	7707IFRTA-H	-23dBm	DWDM DFB laser on Tx, High Sensitivity RX, 8 Ch DWDM Mux/Demux**
Fiber loss = 0.35/0.25dB per km @1310nm/1550nm * Assumes 8 Channel upper band CWDM Mux/Demux loss of 3.5dB **Assumes 8 Channel DWDM Mux/Demux loss of 5dB						

70/140 Mhz IF Fiber Receiver with VistaLINK™ Monitoring

7707IFRA Block Diagram



Specifications

IF Output:

Connector: 2 BNC per IEC 60169-8 Amendment 2
I/O Impedance: 75 (50Ω optional) (See Ordering Information)

Return Loss: 18dB (min)

Frequency Range: 30MHz - 200MHz

Flatness: ± 1dB @ 30 MHz - 200MHz

± 0.2dB @ 36MHz BW

37dB @ 36MHz BW

Carrier to Noise:

Output Signal Level:

AGC mode: -10dBm constant (within AGC range)

Manual mode: -5 to -65 (depends on RF input level, optical loss & gain setting)

Intermodulation

Products: -50dBc max (-10dBm at IFTA input & 3dB optical loss)

Optical Input:

Number of Inputs: 1

Connector: Female SC/PC, ST/PC, FC/PC, SC/APC, FC/APC

Operating Wavelength: 1270nm - 1610nm

Maximum Input Power:

Standard Version +3dBm

-H Version -7dBm

Optical Sensitivity:

Standard Version -14dBm @35dB C/N @36MHz BW

-H Version -23dBm @35dB C/N @36MHz BW

-29dBm @25dB C/N @36MHz BW

Optical Attenuation:

AGC Hold range: 10dB optical

Electrical:

Voltage: +12VDC

Power: 5 Watts

Physical:

Number of slots: 1

Ordering Information:

Note: 75Ω I/O impedance ships standard

7707IFRA	70/140MHz IF Fiber Receiver, VistaLINK™ Monitoring
7707IFRA-H	70/140MHz IF High Sensitivity Fiber Receiver, VistaLINK™ Monitoring

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix:

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Impedance Suffix:

+50	50Ω I/O Impedance
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Connector Suffix:

+SC	SC/PC
+AP+SC	SC/APC (Angle polished)
+ST	ST/PC
+FC	FC/PC
+AP+FC	FC/APC (Angle polished)
+F75	75Ω, F-Type rear connector

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3modules
S7701FR	Standalone enclosure

70/140MHz IF Fiber Transmitter with VistaLINK™ Monitoring



Model 7707IFTA

(Replaces the 7707IFT & offers improved performance and wider operating range)

The 7707IFTA is a VistaLINK™ - enabled fiber optic transmitter for 70/140 MHz IF signals. The 7707IFTA accepts one 70/140 MHz coaxial input and provides a fiber optic output signal at 1310nm, 1550nm, CWDM or DWDM wavelengths. An IF BNC output is also provided for monitoring or further signal distribution. Monitoring and control of card status is provided locally at the card edge and remotely via VistaLINK™.

The 7707IFTA occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

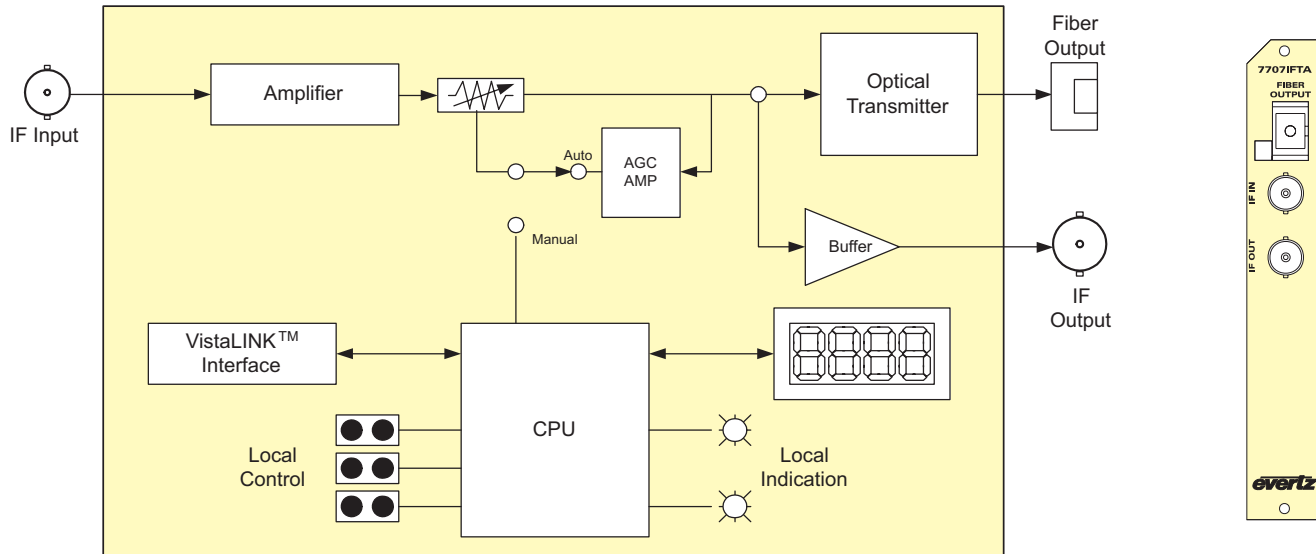
- 30-200 MHz bandwidth
- Wide dynamic range RF input (-5 to -65dBm)
- Protocol transparent - transmits all video, audio and data modulation formats
- Supports manual and automatic gain control on IF input
- Wide AGC hold range (45dB) using 7707IFTA + 7707IFRA
- Additional IF BNC output for monitoring or distribution
- Available with BNC or F-Type connector options
- Available with output wavelengths of 1310nm, 1550nm, CWDM (ITU-T G.694.2 compliant) and DWDM (ITU-T G.694.1 compliant)
- Supports single-mode and multi-mode fiber optic cable
- Available in SC/PC, ST/PC, FC/PC and APC connector options
- Fully hot swappable from front of frame
- Comprehensive signal and status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

7707IFTA Application Configurations

APPLICATION	OPTICAL/LINK BUDGET	TRANSMITTER SIDE		RECEIVER SIDE		DESCRIPTION
		ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
ONE SIGNAL PER FIBER						
Short to Medium Haul	14dB/40km	7707IFTA13	0dBm	7707IFRA	-14dBm	1310nm FP laser on Tx
Medium Haul	16dB/45km	7707IFTA13L	+2dBm	7707IFRA	-14dBm	1310nm DFB laser on Tx
Long Haul	16dB/64km	7707IFTA15	+2dBm	7707IFRA	-14dBm	1550nm DFB laser on Tx
Long Haul	25dB/71km	7707IFTA13L	+2dBm	7707IFRA-H	-23dBm	1310nm DFB laser on Tx, High Sensitivity RX
Long Haul	25dB/100km	7707IFTA15	+2dBm	7707IFRA-H	-23dBm	1550nm DFB laser on Tx, High Sensitivity RX
MULTI-SIGNAL PER FIBER (WAVELENGTH MUX/DEMUX)						
Medium Haul	12.5dB/50km*	7707IFTAxx	+2dBm	7707IFRA	-14dBm	1470nm-1610nm CWDM DFB laser on Tx, with 8 Ch CWDM Mux/Demux*
Long Haul	21.5dB/86km*	7707IFTAxx	+2dBm	7707IFRA-H	-23dBm	1470nm-1610nm CWDM DFB laser on Tx, High Sensitivity RX, 8 Ch CWDM Mux/Demux*
Long Haul	16dB/70km**	7707IFTADyyy	+7dBm	7707IFRA	-14dBm	DWDM DFB laser on Tx, with 8 Ch DWDM Mux/Demux**
Long Haul	25dB/100km**	7707IFTADyyy	+7dBm	7707IFRTA-H	-23dBm	DWDM DFB laser on Tx, High Sensitivity RX, 8 Ch DWDM Mux/Demux**
Fiber loss = 0.35/0.25dB per km @1310nm/1550nm * Assumes 8 Channel upper band CWDM Mux/Demux loss of 3.5dB **Assumes 8 Channel DWDM Mux/Demux loss of 5dB						

70/140MHz IF Fiber Transmitter with VistaLINK™ Monitoring

7707IFTA Block Diagram



Specifications

RF Input:

Connector:	1 BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	75Ω (50Ω optional) (See Ordering Information)
Return Loss:	18dB (min)
Frequency Range:	30MHz - 200MHz
Input Power Range:	-5 to -65dBm
AGC Hold Range:	-10 to -35dBm

IF Monitoring Output:

Connector:	1 BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	75Ω (50Ω optional) (See Ordering Information)
Return Loss:	18dB (min)
Frequency Range:	30MHz - 200MHz
Flatness:	± 1dB @ 30 MHz - 200MHz ± .2dB @ 36MHz BW

Output Signal Level:

AGC mode:	-20dBm constant (within AGC range -10 to -35dBm total RF input power)
Manual mode:	(Input signal) + (manual Gain setting)
Intermodulation Products:	-48dBc (-10dBm RF in, ACG mode)
Carrier to Noise:	37dB @36MHz BW

Optical Output:

Number of outputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC, SC/APC, FC/APC
Operating Wavelengths:	
Standard:	1310nm, 1550nm (nominal)
CWDM:	1270nm to 1610nm
DWDM:	C-Band (ITU G.694.1 compliant)

Output Power:

1310nm FP:	0dBm ± 1dBm
1310nm, 1550nm & CWDM DFB:	+2dBm ± 1dBm
DWDM DFB:	+7dBm ± 1dBm

Electrical:

Voltage:	+12VDC
Power:	6 Watts 9 Watts (DWDM)

Physical:

Number of slots:	1
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Ordering Information:

70/140MHz IF Fiber Transmitter, with VistaLINK™
Note: 75Ω I/O impedance ships standard

7707IFTA13	1310nm FP Laser, Short to Medium Haul
7707IFTA13L	1310nm DFB Laser, Medium Haul
7707IFTA15	1550nm DFB Laser, Long Haul

For CWDM, please refer to the end of the fiber section for ordering information

7707IFTAxx	70/140 Mhz IF Fiber Transmitter, CWDM wavelength, with VistaLINK™
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For DWDM, please refer to the end of the fiber section for ordering information:

7707IFTADyyy	70/140 Mhz IF Fiber Transmitter, DWDM wavelength, with VistaLINK™
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Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Impedance Suffix

+50	50Ω I/O Impedance
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Connector Suffix

+SC	SC/PC
+AP+SC	SC/APC (Angle polished available with 7707IFTA13 only)
+ST	ST/PC
+FC	FC/PC
+AP+FC	FC/APC (Angle polished available with 7707IFTA13 only)
+F75	75Ω, F-Type rear connector

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3modules
S7701FR	Standalone enclosure

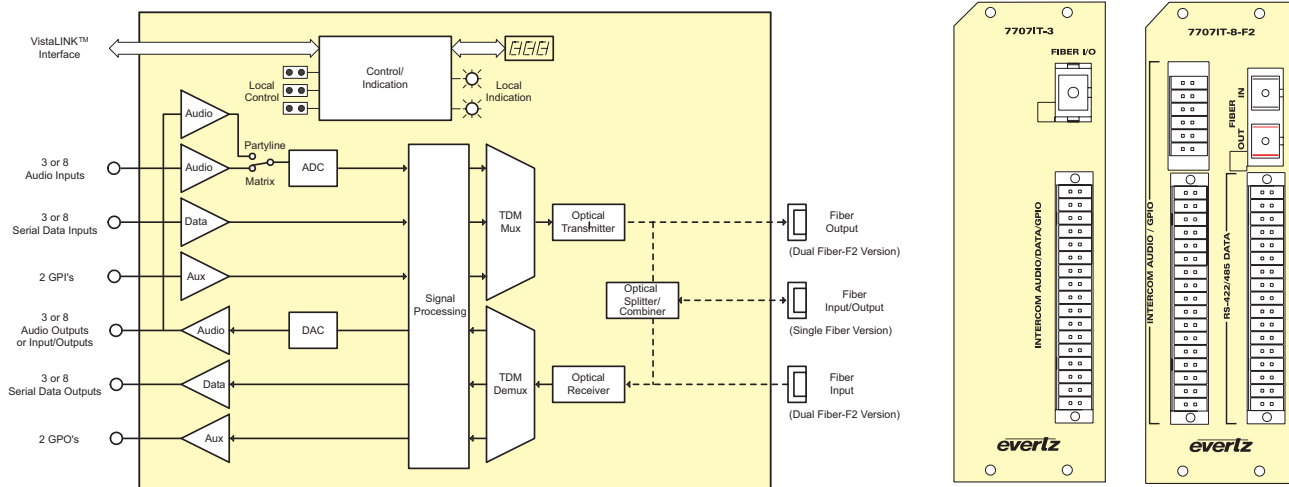
Multi-Channel Intercom Fiber Transceivers



Models 7707IT-3/7707IT-8

Features

- Extends up to 3 or 8 independent channels of intercom communication over a single fiber optic link
- Configurable interface to:
 - RTS-Telex Matrix: 4-Wire Audio, RS-485 Data, GPIO
 - ClearCom Matrix: 4-Wire Audio, RS-422 Data, GPIO
 - RTS-Telex Party-Line: 1-Wire Audio, GPIO
 - ClearCom Party-line: 1-Wire Audio, GPIO
- Independent channels can simultaneously accommodate different intercom types
- User-friendly selection of intercom interfaces via programmed profiles
- All configurations and adjustments are controllable through the card-edge user interface or remotely via SNMP and VistaLINK™-enabled capability
- Selectable termination, and failsafe bias settings for RS422/485 data inputs
- Provides 2 general-purpose inputs (GPI's), and 2 general purpose outputs (GPO's)
- Comprehensive signal and card status monitoring via four-digit card-edge display, or VistaLINK™
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Compatible with single-mode and multi-mode fiber optic cable (dual fiber version)
- Fully hot swappable from front of frame
- Occupies two card slots and can be housed in a 1 RU frame which holds up to 3 modules, a 3RU frame which holds up to 7 dual slot modules or a standalone enclosure which holds 1 module



7707IT-3/7707IT-8 Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<3km	7707IT13-3-F2 7707IT13-8-F2	-7dBm	7707IT13-3-F2 7707IT13-8-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	2	21dB/60km	7707IT13-3-F2 7707IT13-8-F2	-7dBm	7707IT13-3-F2 7707IT13-8-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	1	14dB/40km*	7707IT13-3 7707IT13-8	-10dBm	7707IT13-3 7707IT13-8	-24dBm	1310nm bi-directional, one fiber
Single-Mode	1(WDM)	25dB/71km*	7707IT13M-3-W 7707IT13M-8-W	-1dBm	7707IT15-3-W 7707IT15-8-W	-26dBm	1310nm/1550nm WDM bi-directional on one fiber
Single-Mode	1(CWDM)	24dB/96km**	7707ITxx-3-F2 7707ITxx-8-F2	0dBm	7707ITyy-3-F2 7707ITyy-8-F2	-28dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km***	7707ITDxxx-3-F2 7707ITDxxx-8-F2	+7dBm	7707ITDyyy-3-F2 7707ITDyyy-8-F2	-28dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux***

* With >20dB return loss on fiber interface

** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB

*** Assumes 8 Ch DWDM Mux/Demux loss of 5dB

Tx Power/Rx Sensitivity are nominal values ± 1 dBm
Fiber loss= 0.35/0.25dB per km @1310nm/1550nm

Multi-Channel Intercom Fiber Transceivers

3e

Specifications

Analog Audio:

Balanced/Matrix Type Audio

Number of Signals

7707IT-3:	3 inputs, 3 outputs
7707IT-8:	8 inputs, 8 outputs
Type:	Analog Audio, Balanced
Industry Standards:	ClearCom, RTS-Telex
Connector:	Multi-pin removable terminal block
Input Impedance:	> 10kΩ
Output Impedance:	66Ω
Signal Resolution:	24-Bits
Sampling Rate:	52.7kHz
Frequency Response:	20Hz to 20kHz
Gain Flatness:	± 2dB
Input Level(max):	+20dBu
Output Level(max):	
Into 10KΩ	+20dBu
Into 600Ω	+19dBu
Signal/Noise Ratio:	> 90dB
THD:	< 0.01%
Crosstalk:	< -80dB
Controllable Gain:	-10dB to +10dB

Unbalanced/Party-Line Type Audio

Number of Signals

7707IT-3:	3
7707IT-8:	8
Type:	Analog Audio, Full-duplex, Unbalanced
Industry Standards:	ClearCom, RTS-Telex
Connector:	Multi-pin removable terminal block
Signal Coupling:	AC coupled (accommodates 30V 'wet' inputs)
Bridging Impedance:	>10kΩ
Signal Resolution:	24-Bit
Sampling Rate:	52.7kHz
Sidetone Null:	> 25dB
Sidetone Null Range:	100Ω to 300Ω load
Frequency Response:	120Hz to 20kHz
Gain Flatness:	± 2dB
Input Level(max):	+5dBu
Output Level(max):	+5dBu (into 200Ω load)
Signal/Noise Ratio:	> 75dB
THD:	< 0.1%
Crosstalk:	< -60dB
Controllable Gain:	-5dB to +5dB (into 200Ω load)
Receive Signaling:	4VDC min (ClearCom), 20kHz ±500Hz (RTS)
Send Signaling:	11VDC min (ClearCom), 20kHz ±100Hz (RTS)

Serial Data:

RS-422 /RS-485 Type Data

Number of Signals:

7707IT-3:	3
7707IT-8:	8
Connector:	Multi-pin removable terminal block
Signal Type:	RS-485 or RS-422 (selectable)
Input Termination:	120Ω or Open (selectable)
Input Failsafe Bias:	200mV (3.3mA into 60Ω) or none (selectable)
Bit Rate:	
RS485:	Compatible with all Telex RS485 rates
RS422:	460Kb/s

Optical Input/Output:

Number:	1 (Standard and -W Single Fiber Version) 2 (-F2 Dual Fiber Version)
Connector at Frame:	SC/PC, ST/PC, FC/PC female housing
Input Wavelength:	1270nm to 1610nm
Maximum Input Power:	0dBm
Output Wavelengths:	
Standard:	1310nm, 1550nm (nominal)
CWDM:	1270nm to 1610nm (ITU-T G.694.2 compliant)
DWDM:	C-Band (ITU-T G.694.1 compliant)
Output Power:	See Application Configuration Chart

General Purpose Outputs (GPO):

Number of Signals:	2 Outputs
Connector:	Multi-pin removable terminal block
Output Type:	Dry contact relay closure, normally open
Output Current(min):	100mA

General Purpose Inputs (GPI):

Number of Signals:	2 Inputs
Connector:	Multi-pin removable terminal block
Type:	Opto-isolated, Active low
GPI Input Voltage:	
Safe Voltage Range:	-20V to +10V
On Condition(max):	<+2.5V(active low)
Off Condition(min):	>+3.5V

GPI Input Current(min):	1mA
GPI Input Current(max):	10mA(internally limited)

Electrical:

Voltage(type):	12V DC(nominal frame voltage)
Power(max):	7707IT-3 (Non DWDM) = 7 Watts 7707IT-3 (DWDM) = 9 Watts 7707IT-8 (Non DWDM) = 18 Watts 7707IT-8 (DWDM) = 20 Watts

Physical:

7700 frame mounting:	
Number of Slots:	2
7701 frame mounting:	
Number of Slots:	1

Compliance:

Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive Class 1 laser product Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1
Laser Safety:	
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC directive

Ordering Information:

7707IT13-3	3 Channel Intercom Fiber Transceiver, single fiber, 1310nm FP TX & RX
7707IT13M-3-W	3 Channel Intercom Fiber Transceiver, single fiber, WDM, 1310nm FP TX, RX on 1550nm
7707IT15-3-W	3 Channel Intercom Fiber Transceiver, single fiber, WDM, 1550nm DFB TX, RX on 1310nm
7707IT13-3-F2	3 Channel Intercom Fiber Transceiver, dual fiber, 1310nm FP TX & RX
7707IT13-8	8 Channel Intercom Fiber Transceiver, single fiber, 1310nm FP TX & RX
7707IT13M-8-W	8 Channel Intercom Fiber Transceiver, single fiber, WDM, 1310nm FP TX, RX on 1550nm
7707IT15-8-W	8 Channel Intercom Fiber Transceiver, single fiber, WDM, 1550nm DFB TX, RX on 1310nm
7707IT13-8-F2	8 Channel Intercom Fiber Transceiver, dual fiber, 1310nm FP TX & RX

For CWDM, please refer to the end of the fiber section for ordering information

7707ITxx-3-F2	3 Channel Intercom Fiber Transceiver, dual fiber, CWDM TX, VistaLINK™
7707ITxx-8-F2	8 Channel Intercom Fiber Transceiver, dual fiber, CWDM TX, VistaLINK™

For DWDM, please refer to the end of the fiber section for ordering information

7707ITDyyy-3-F2	3 Channel Intercom Fiber Transceiver, dual fiber, DWDM TX, VistaLINK™
7707ITDyyy-8-F2	8 Channel Intercom Fiber Transceiver, dual fiber, DWDM TX, VistaLINK™

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone enclosure rear plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone enclosure

L-Band Satellite Fiber Receiver with VistaLINK™ Monitoring



Model 7707LR/LR-WB

The 7707LR and 7707LR-WB are VistaLINK™ -enabled fiber optic receivers for L-Band Satellite signals. The 7707LR-WB offers extended bandwidth from 250 to 2250MHz vs 950 to 2250MHz for the 7707LR version. Both 7707LR and 7707LR-WB accept a fiber optic input from the companion L-Band transmitters and provide L-Band RF output signals via BNC's. Monitoring and control of card status is provided locally at the card edge and remotely via VistaLINK™.

The 7707LR and 7707LR-WB occupy one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold 1 module.

Features

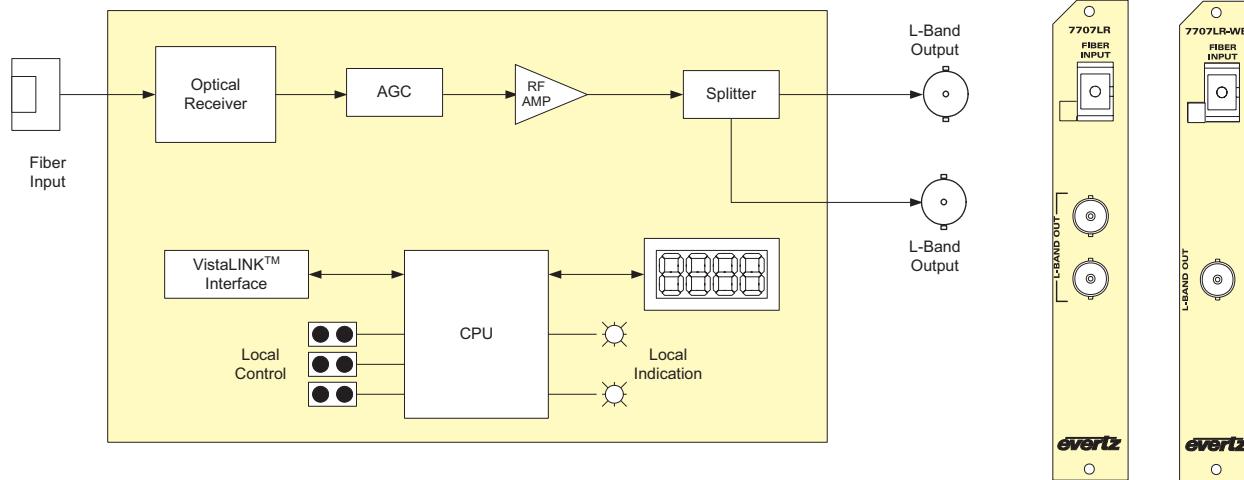
- Band operation - 950 to 2250MHz (7707LR)
- 250 to 2250MHz (7707LR-WB)
- Protocol transparent - receives all video, audio and data modulation formats
- Supports manual and automatic gain control (AGC)
- Wide AGC hold range (50dB) using 7707LTA/LTA-WB + 7707LR/LR-WB
- Two L-Band RF outputs (7707LR only) for extra signal distribution or monitoring functions
- RF output independent of optical loss (within AGC range)
- Available with BNC or F-Type connector options
- Wide range optical input (1270nm to 1610nm)
- Supports single-mode and multi-mode fiber optic cable
- Available in SC/PC, ST/PC, FC/PC and APC connector options
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

7707LR/LR-WB Application Configurations

APPLICATION	OPTICAL/LINK BUDGET	TRANSMITTER SIDE		RECEIVER SIDE		DESCRIPTION
		ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
ONE SIGNAL PER FIBER						
Short to Medium Haul	14dB/40km	7707LTA13/-WB	0dBm	7707LR/-WB	-14dBm	1310nm FP laser on Tx
Medium Haul	16dB/45km	7707LTA13L/-WB	+2dBm	7707LR/-WB	-14dBm	1310nm DFB laser on Tx
Long Haul	16dB/64km	7707LTA15/-WB	+2dBm	7707LR/-WB	-14dBm	1550nm DFB laser on Tx
Long Haul	25dB/71km	7707LTA13L/-WB	+2dBm	7707LR-H/-WB	-23dBm	1310nm DFB laser on Tx, High Sensitivity RX
Long Haul	25dB/100km	7707LTA15/-WB	+2dBm	7707LR-H/-WB	-23dBm	1550nm DFB laser on Tx, High Sensitivity RX
MULTI-SIGNAL PER FIBER (WAVELENGTH MUX/DEMUX)						
Medium Haul	12.5dB/50km	7707LTAx/-WB	+2dBm	7707LR/-WB	-14dBm	1470nm-1610nm CWDM DFB laser on Tx, with 8 Ch CWDM Mux/Demux*
Long Haul	21.5dB/86km*	7707LTAx/-WB	+2dBm	7707LR-H/-WB	-23dBm	1470nm-1610nm CWDM DFB laser on Tx, High Sensitivity RX, 8 Ch CWDM Mux/Demux*
Long Haul	16dB/64km**	7707LTADyyy/-WB	+7dBm	7707LR/-WB	-14dBm	DWDM DFB laser on Tx, with 8 Ch DWDM Mux/Demux**
Long Haul	25dB/100km**	7707LTADyyy/-WB	+7dBm	7707LR-H/-WB	-23dBm	DWDM DFB laser on Tx, High Sensitivity RX, 8 Ch DWDM Mux/Demux**
Fiber loss = 0.35/0.25dB per km @1310nm/1550nm * Assumes 8 Channel upper band CWDM Mux/Demux loss of 3.5dB **Assumes 8 Channel DWDM Mux/Demux loss of 5dB						

L-Band Satellite Fiber Receiver with VistaLINK™ Monitoring

7707LR Block Diagram



Specifications

RF Outputs:

Number of Outputs: 2 (7707LR)
1 (7707LR-WB)
Connector: 2 BNC's (F-type optional)
I/O Impedance: 75Ω (50Ω optional) (See Ordering Information)
Return Loss: >10dB
Frequency Range: 950MHz - 2250MHz (7707LR)
250MHz - 2250MHz (7707LR-WB)
Flatness: ± 1.5dB @950MHz-2250MHz (7707LR)
± 2dB @250MHz - 2250MHz (7707LR-WB)
± 0.25dB @ any 36MHz BW

Output Signal Level

AGC Mode: -20dBm constant (within AGC range)
Manual Mode: -20 to -65dBm (depends on RF level and optical loss)

OIP3:

Intermodulation Products: -55dBc (-20dBm RF in on TX, 1m fiber, AGC mode on TX & RX)

Carrier to Noise: 37dB @ any 36MHz BW
Noise Figure: 20dB/32dB (minimum/maximum optical loss)
Signal to Noise: >55dB

Optical Input:

Number of inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC, SC/APC, FC/APC

Operating Wavelength: 1270nm - 1610nm

Maximum Input Power:

Standard Version +3dBm
-H Version -7dBm

Optical Sensitivity:

Standard Version -14dBm @35dB S/N
-H Version -23dBm @35dB S/N
-29dBm @25dB S/N

Optical Attenuation

AGC Hold Range: 10dB optical

Electrical:

Voltage: +12VDC
Power: 5 Watts

Physical:

Number of slots: 1

Ordering Information:

L-Band Satellite Fiber Receiver with VistaLINK™
Note: 75Ω I/O impedance ships standard

7707LR	L-Band Satellite Fiber Receiver
7707LR-H	L-Band High Sensitivity Satellite Fiber Receiver
7707LR-WB	L-Band Satellite Fiber Receiver, Wideband
7707LR-H-WB	L-Band High Sensitivity Satellite Fiber Receiver, Wideband

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Impedance Suffix

+50 50Ω I/O impedance

Connector Suffix

+SC SC/PC
+AP+SC SC/APC (Angle polished)
+ST ST/PC
+FC FC/PC
+AP+FC FC/APC (Angle polished)
+F75 75Ω, F-Type rear connector

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone enclosure

Wideband L-Band Satellite Fiber Receiver with VistaLINK™ Monitoring



Model 7707LR-WB

The 7707LR-WB is a VistaLINK™ -enabled fiber optic receiver for L-Band Satellite signals. The 7707LR-WB accepts a fiber optic input from the companion 7707LTA-WB and provides a L-Band RF output signal via BNC. Monitoring and control of card status is provided locally at the card edge and remotely via VistaLINK™.

The 7707LR-WB occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold 1 module.

Features

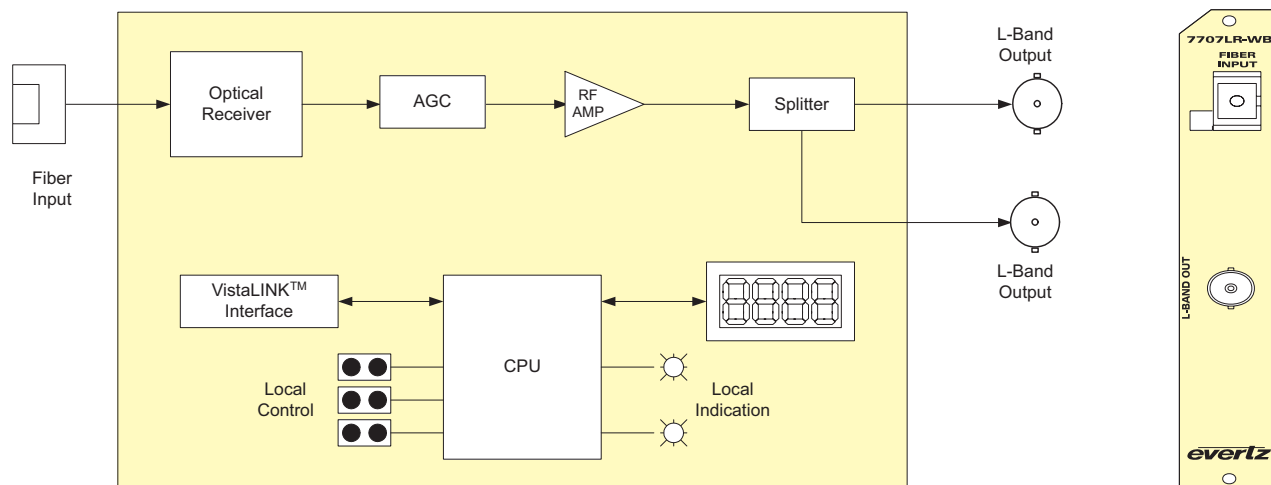
- Wideband operation - 250 to 2150MHz
- Protocol transparent - receives all video, audio and data modulation formats
- Supports manual and automatic gain control (AGC)
- Wide AGC hold range (50dB) using 7707LTA-WB + 7707LR-WB
- RF output independent of optical loss (within AGC range)
- Available with BNC or F-Type connector options
- Wide range optical input (1270nm to 1610nm)
- Supports single-mode and multi-mode fiber optic cable
- Available in SC/PC, ST/PC, FC/PC and APC connector options
- Fully hot swappable from front of frame
- Backward compatible with 7707LTA-WB
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

7707LR-WB Application Configurations

APPLICATION	OPTICAL/LINK BUDGET	TRANSMITTER SIDE		RECEIVER SIDE		DESCRIPTION
		ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
ONE SIGNAL PER FIBER						
Short to Medium Haul	14dB/40km	7707LTA13-WB	0dBm	7707LR-WB	-14dBm	1310nm FP laser on Tx
Medium Haul	16dB/45km	7707LTA13L-WB	+2dBm	7707LR-WB	-14dBm	1310nm DFB laser on Tx
Long Haul	16dB/64km	7707LTA15-WB	+2dBm	7707LR-WB	-14dBm	1550nm DFB laser on Tx
Long Haul	25dB/71km	7707LTA13L-WB	+2dBm	7707LR-WB-H	-23dBm	1310nm DFB laser on Tx, High Sensitivity RX
Long Haul	25dB/100km	7707LTA15-WB	+2dBm	7707LR-WB-H	-23dBm	1550nm DFB laser on Tx, High Sensitivity RX
MULTI-SIGNAL PER FIBER (WAVELENGTH MUX/DEMUX)						
Medium Haul	12.5dB/50km	7707LTA-WBxx	+2dBm	7707LR-WB	-14dBm	1470nm-1610nm CWDM DFB laser on Tx, with 8 Ch CWDM Mux/Demux*
Long Haul	21.5dB/86km*	7707LTA-WBxx	+2dBm	7707LR-WB-H	-23dBm	1470nm-1610nm CWDM DFB laser on Tx, High Sensitivity RX, 8 Ch CWDM Mux/Demux*
Long Haul	16dB/64km**	7707LTA-WBDyyy	+7dBm	7707LR-WB	-14dBm	DWDM DFB laser on Tx, with 8 Ch DWDM Mux/Demux**
Long Haul	25dB/100km**	7707LTA-WBDyyy	+7dBm	7707LR-WB-H	-23dBm	DWDM DFB laser on Tx, High Sensitivity RX, 8 Ch DWDM Mux/Demux**
Fiber loss = 0.35/0.25dB per km @1310nm/1550nm * Assumes 8 Channel upper band CWDM Mux/Demux loss of 3.5dB **Assumes 8 Channel DWDM Mux/Demux loss of 5dB						

Wideband L-Band Satellite Fiber Receiver with VistaLINK™ Monitoring

7707LR-WB Block Diagram



Specifications

RF Outputs:

Number of Outputs:

1

Connector:

2 BNC per IEC 60169-8 Amendment 2(F-type optional)

I/O Impedance:

75Ω (50Ω optional) (See Ordering Information)

Return Loss:

>10dB

Frequency Range:

250MHz - 2150MHz

Flatness:

± 2dB @250MHz-2150MHz

± 0.25dB @ any 36MHz BW

Output Signal Level

AGC Mode:

-20dBm constant (within AGC range)

Manual Mode:

-20 to -65dBm (depends on RF level and optical loss)

OIP3:

+10dBm (-40dBm input level)

Intermodulation Products:

-55dBc (-20dBm RF in on TX, 1m fiber, AGC mode on TX & RX)

Carrier to Noise:

37dB @ any 36MHz BW

Noise Figure:

20dB/32dB (minimum/maximum optical loss)

Signal to Noise:

>55dB

Optical Input:

Number of inputs:

1

Connector:

Female SC/PC, ST/PC, FC/PC, SC/APC, FC/APC

Operating Wavelength:

1270nm - 1610nm

Maximum Input Power:

Standard Version

+3dBm

-H Version

-7dBm

Optical Sensitivity:

Standard Version

-14dBm @35dB S/N

-H Version

-23dBm @35dB S/N

-29dBm @25dB S/N

Optical Attenuation

AGC Hold Range:

10dB optical

Electrical:

Voltage:

+12VDC

Power:

5 Watts

Physical:

Number of slots:

1

Ordering Information:

Note: 75Ω I/O impedance ships standard

7707LR-WB

Wideband L-Band Satellite Fiber Receiver, VistaLINK™ Monitoring

7707LR-WB-H

Wideband L-Band High Sensitivity Satellite Fiber Receiver, VistaLINK™ Monitoring

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order

Eg. Model +3RU +SC

Rear Plate Suffix

+3RU

3RU Rear Plate for use with 7700FR-C Multiframe

+1RU

1RU Rear Plate for use with 7701FR Multiframe

+SA

Standalone Enclosure Rear Plate

Impedance Suffix

+50

50Ω I/O impedance

Connector Suffix

+SC

SC/PC

+AP+SC

SC/APC (Angle polished)

+ST

ST/PC

+FC

FC/PC

+AP+FC

FC/APC (Angle polished)

+F75

75Ω, F-Type rear connector

Enclosures:

7700FR-C

3RU Multiframe, which holds 15 modules

7701FR

1RU Multiframe, which holds 3 modules

S7701FR

Standalone enclosure

L-Band Satellite Fiber Transmitter with VistaLINK™ Monitoring



Model 7707LTA/LTA-WB

The 7707LTA and 7707LTA-WB are VistaLINK™ -enabled fiber optic transmitters for L-Band satellite signals. The 7707LTA-WB offers extended bandwidth from 250 to 2250MHz vs 950 to 2250MHz for the 7707LTA version. The 7707LTA and 7707LTA-WB accept one L-Band coaxial input and provide a fiber optic output signal at 1310nm, 1550nm, CWDM or DWDM wavelengths. An L-Band BNC output is also provided for monitoring or further signal distribution. Monitoring and control of card status is provided locally at the card edge and remotely via VistaLINK™.

The 7707LTA and 7707LTA-WB occupy one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold 1 module.

Features

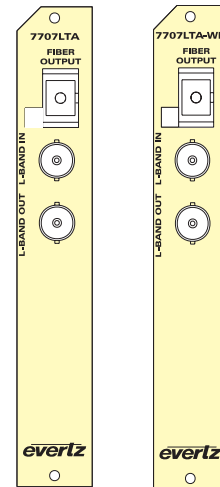
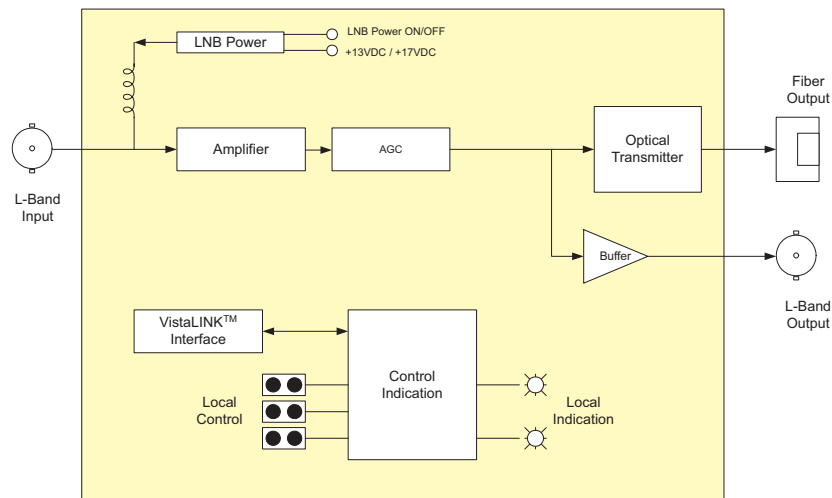
- Band operation - 950 to 2250MHz (7707LT)
- 250 to 2250MHz (7707LTA-WB)
- Wide dynamic range RF input (-20 to -65dBm)
- Protocol transparent - transmits all video, audio and data modulation formats
- Supports manual and automatic gain control (AGC)
- Wide AGC hold range (50dB) using 7707LTA/LTA-WB + 7707LR/LR-WB
- Additional L-Band BNC output for monitoring or distribution
- DISEqC1.2 & 22kHz tone compatible
- LNB power at +13 or +17 VDC with built-in current limiting
- Available with BNC or F-Type connector options
- Available with wavelengths of 1310nm, 1550nm, CWDM (ITU-T G.694.2 compliant) and DWDM (ITU-T G.694.1 compliant)
- Supports single-mode and multi-mode fiber optic cable
- Available in SC/PC, ST/PC, FC/PC and APC connector options
- Fully hot-swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

7707LTA/LTA-WB Application Configurations

APPLICATION	OPTICAL/LINK BUDGET	TRANSMITTER SIDE		RECEIVER SIDE		DESCRIPTION
		ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
ONE SIGNAL PER FIBER						
Short to Medium Haul	14dB/40km	7707LTA13/-WB	0dBm	7707LR/-WB	-14dBm	1310nm FP laser on Tx
Medium Haul	16dB/45km	7707LTA13L/-WB	+2dBm	7707LR/-WB	-14dBm	1310nm DFB laser on Tx
Long Haul	16dB/64km	7707LTA15/-WB	+2dBm	7707LR/-WB	-14dBm	1550nm DFB laser on Tx
Long Haul	25dB/71km	7707LTA13L/-WB	+2dBm	7707LR-H/-WB	-23dBm	1310nm DFB laser on Tx, High Sensitivity RX
Long Haul	25dB/100km	7707LTA15/-WB	+2dBm	7707LR-H/-WB	-23dBm	1550nm DFB laser on Tx, High Sensitivity RX
MULTI-SIGNAL PER FIBER (WAVELENGTH MUX/DEMUX)						
Medium Haul	12.5dB/50km	7707LTAx/-WB	+2dBm	7707LR/-WB	-14dBm	1470nm-1610nm CWDM DFB laser on Tx, with 8 Ch CWDM Mux/Demux*
Long Haul	21.5dB/86km*	7707LTAx/-WB	+2dBm	7707LR-H/-WB	-23dBm	1470nm-1610nm CWDM DFB laser on Tx, High Sensitivity RX, 8 Ch CWDM Mux/Demux*
Long Haul	16dB/64km**	7707LTADyyy/-WB	+7dBm	7707LR/-WB	-14dBm	DWDM DFB laser on Tx, with 8 Ch DWDM Mux/Demux**
Long Haul	25dB/100km**	7707LTADyyy/-WB	+7dBm	7707LR-H/-WB	-23dBm	DWDM DFB laser on Tx, High Sensitivity RX, 8 Ch DWDM Mux/Demux**
Fiber loss = 0.35/0.25dB per km @1310nm/1550nm * Assumes 8 Channel upper band CWDM Mux/Demux loss of 3.5dB **Assumes 8 Channel DWDM Mux/Demux loss of 5dB						

L-Band Satellite Fiber Transmitter with VistaLINK™ Monitoring

7707LTA Block Diagram



Specifications

RF Input:

Number of Inputs:	1
Connector:	1 BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	75Ω (50Ω optional) (See Ordering Information)
Return Loss:	>10dB
Frequency Range:	950MHz - 2250MHz (7707LTA) 250MHz - 2250MHz (7707LTA-WB)
Input Power Range:	-20 to -65dBm
AGC Hold Range:	-20 to -50dBm

RF Monitoring Output:

Number of Outputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	75Ω (50Ω optional) (See Ordering Information)
Return Loss:	>10dB
Frequency Range:	950MHz - 2250MHz (7707LTA) 250MHz - 2250MHz (7707LTA-WB)
Flatness:	± 1.5dB @ 950MHz - 2250MHz (7707LTA) ± 2.0dB @ 250MHz - 2250MHz (7707LTA-WB) ± 0.25dB @ any 36MHz BW

Output Signal Level

AGC mode:	-20dBm constant (within AGC range)
Manual mode:	(Input signal) + (manual Gain setting) -5dB
OIP3:	+10dBm (-40dBm input level)
Intermodulation Products:	-55dBc (-20dBm RF in, AGC mode)
Carrier to Noise:	37dB @any 36MHz BW
Noise Figure:	20dB/32dB (minimum/maximum optical loss)

Optical Output:

Number of outputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC, SC/APC, FC/APC
Operating Wavelengths	
Standard:	1310nm, 1550nm (nominal)
CWDM:	1270nm to 1610nm
DWDM:	C-Band (ITU G.694.1 compliant)

Output Power:

1310nm FP:	0dBm ± 1dBm
1310nm, 1550nm & CWDM DFB:	+2dBm ± 1dBm
DWDM DFB:	+7dBm ± 1dBm

Electrical:

Voltage:	+12VDC
Power:	6 Watts (Non DWDM) 9 Watts (DWDM)

Physical:

Number of slots:	1
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Compliance:

Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive Class 1 laser product Class 1M laser product (DWDM versions only) Complies with 24 CFR 1040.10 and 1040.11, IEC 60825-1 Complies with FCC Part 15, Class A EU EMC directive
Laser Safety:	
EMI/RFI:	

Ordering Information:

	L-Band Satellite Fiber Transmitter with VistaLINK™
	Note: 75Ω I/O impedance ships standard
7707LTA13	1310nm, FP Laser, Short to Medium Haul
7707LTA13L	1310nm, DFB Laser, Medium Haul
7707LTA15	1550nm, DFB Laser, Long Haul
7707LTA13-WB	1310nm, FP Laser, Short to Medium Haul, Wideband
7707LTA13L-WB	1310nm, DFB Laser, Medium Haul, Wideband
7707LTA15-WB	1550nm, DFB Laser, Long Haul, Wideband

For CWDM, please refer to the end of the fiber section for ordering information

7707LTAxx	L-Band Satellite Fiber Transmitter, CWDM wavelength,
7707LTAxx-WB	L-Band Satellite Fiber Transmitter, CWDM wavelength, Wideband

For DWDM, please refer to the end of the fiber section for ordering information

7707LTADyyy	L-Band Satellite Fiber Transmitter, DWDM wavelength,
7707LTADyyy-WB	L-Band Satellite Fiber Transmitter, DWDM wavelength, Wideband

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Impedance Suffix

+50	50Ω I/O impedance
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Connector Suffix

+SC	SC/PC
+AP+SC	SC/APC (Angle polished available with 7707LTA13 only)
+ST	ST/PC
+FC	FC/PC
+AP+FC	FC/APC (Angle polished available with 7707LTA13 only)
+F75	75Ω, F-Type rear connector

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone Enclosure

Model 7707LTA-WB



The 7707LTA-WB occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold 1 module.

Features

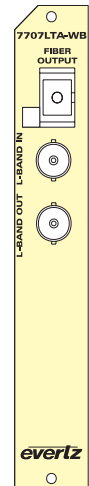
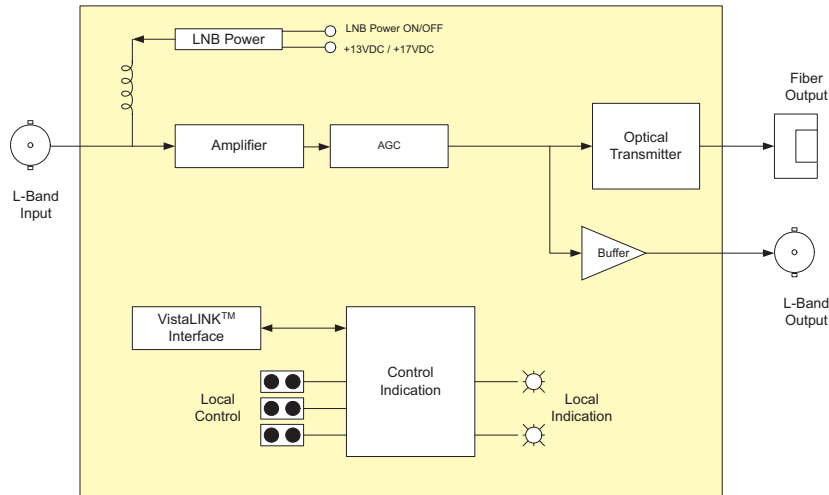
- Wideband operation - 250 to 2150 MHz
- Wide dynamic range RF input (-20 to -65dBm)
- Protocol transparent - transmits all video, audio and data modulation formats
- Supports manual and automatic gain control (AGC)
- Wide AGC hold range (50dB) using 7707LTA-WB + 7707LR-WB
- Additional L-Band BNC output for monitoring or distribution
- DISEqC1.2 & 22kHz tone compatible
- LNB power at +13 or +17 VDC with built-in current limiting
- Available with BNC or F-Type connector options
- Available with wavelengths of 1310nm, 1550nm, CWDM (ITU-T G.694.2 compliant) and DWDM (ITU-T G.694.1 compliant)
- Supports single-mode and multi-mode fiber optic cable
- Available in SC/PC, ST/PC, FC/PC and APC connector options
- Fully hot-swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Backward compatible with 7707LR

7707LTA-WB Application Configurations

APPLICATION	OPTICAL/LINK BUDGET	TRANSMITTER SIDE		RECEIVER SIDE		DESCRIPTION
		ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
ONE SIGNAL PER FIBER						
Short to Medium Haul	14dB/40km	7707LTA13-WB	0dBm	7707LR-WB	-14dBm	1310nm FP laser on Tx
Medium Haul	16dB/45km	7707LTA13L-WB	+2dBm	7707LR-WB	-14dBm	1310nm DFB laser on Tx
Long Haul	16dB/64km	7707LTA15-WB	+2dBm	7707LR-WB	-14dBm	1550nm DFB laser on Tx
Long Haul	25dB/71km	7707LTA13L-WB	+2dBm	7707LR-WB-H	-23dBm	1310nm DFB laser on Tx, High Sensitivity RX
Long Haul	25dB/100km	7707LTA15-WB	+2dBm	7707LR-WB-H	-23dBm	1550nm DFB laser on Tx, High Sensitivity RX
MULTI-SIGNAL PER FIBER (WAVELENGTH MUX/DEMUX)						
Medium Haul	12.5dB/50km	7707LTA-WBxx	+2dBm	7707LR-WB	-14dBm	1470nm-1610nm CWDM DFB laser on Tx, with 8 Ch CWDM Mux/Demux*
Long Haul	21.5dB/86km*	7707LTA-WBxx	+2dBm	7707LR-WB-H	-23dBm	1470nm-1610nm CWDM DFB laser on Tx, High Sensitivity RX, 8 Ch CWDM Mux/Demux*
Long Haul	16dB/64km**	7707LTA-WBDyyy	+7dBm	7707LR-WB	-14dBm	DWDM DFB laser on Tx, with 8 Ch DWDM Mux/Demux**
Long Haul	25dB/100km**	7707LTA-WBDyyy	+7dBm	7707LR-WB-H	-23dBm	DWDM DFB laser on Tx, High Sensitivity RX, 8 Ch DWDM Mux/Demux**
Fiber loss = 0.35/0.25dB per km @1310nm/1550nm * Assumes 8 Channel upper band CWDM Mux/Demux loss of 3.5dB **Assumes 8 Channel DWDM Mux/Demux loss of 5dB						

Wideband L-Band Satellite Fiber Transmitter with VistaLINK™ Monitoring

7707LTA-WB Block Diagram



Specifications

RF Input:

Connector: 1 BNC per IEC 60169-8 Amendment 2 (F-type optional)
75Ω (50Ω optional) (See Ordering Information)
I/O Impedance: 75Ω (50Ω optional) (See Ordering Information)
Return Loss: >10dB
Frequency Range: 250MHz - 2150MHz
Input Power Range: -20 to -65dBm
AGC Hold Range: -20 to -50dBm

RF Monitoring Output:

Connector: 1 BNC per IEC 60169-8 Amendment 2 (F-type optional)
75Ω (50Ω optional) (See Ordering Information)
I/O Impedance: 75Ω (50Ω optional) (See Ordering Information)
Return Loss: >10dB
Frequency Range: 250MHz - 2150MHz
Flatness: ± 2dB @ 250MHz - 2150MHz
± 0.25dB @ any 36MHz BW

Output Signal Level

AGC mode: -20dBm constant (within AGC range)
Manual mode: (Input signal) + (manual Gain setting) -5dB
OIP3: +10dBm (-40dBm input level)
Intermodulation Products: -55dBc (-20dBm RF in, AGC mode)
Carrier to Noise: 37dB @any 36MHz BW
Noise Figure: 20dB/32dB (minimum/maximum optical loss)

Optical Output:

Number of outputs: 1
Connector: Female SC/PC, ST/PC, FC/PC, SC/APC, FC/APC
Operating Wavelengths
Standard: 1310nm, 1550nm (nominal)
CWDM: 1270nm to 1610nm
DWDM: C-Band (ITU G.694.1 compliant)

Output Power:

1310nm FP: 0dBm ± 1dBm
1310nm, 1550nm & CWDM DFB: +2dBm ± 1dBm
DWDM DFB: +7dBm ± 1dBm

Electrical:

Voltage: +12VDC
Power: 6 Watts (Non DWDM)
9 Watts (DWDM)

Physical:

Number of slots: 1

Ordering Information:

Wideband L-Band Satellite Fiber Transmitter, VistaLINK™ Monitoring

Note: 75Ω I/O impedance ships standard

7707LTA13-WB	1310nm, FP Laser, Short to Medium Haul
7707LTA13L-WB	1310nm, DFB Laser, Medium Haul
7707LTA15-WB	1550nm, DFB Laser, Long Haul

For CWDM, please refer to the end of the fiber section for ordering information

7707LTA-WBxx	Wideband L-Band Satellite Fiber Transmitter, CWDM wavelength, VistaLINK™ Monitoring
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For DWDM, please refer to the end of the fiber section for ordering information

7707LTA-WBDyyy	Wideband L-Band Satellite Fiber Transmitter, DWDM wavelength, VistaLINK™ Monitoring
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Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Impedance Suffix

+50	50Ω I/O impedance
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Connector Suffix

+SC	SC/PC
+AP+SC	SC/APC (Angle polished available with 7707LTA13 only)
+ST	ST/PC
+FC	FC/PC
+AP+FC	FC/APC (Angle polished available with 7707LTA13 only)
+F75	75Ω, F-Type rear connector

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone Enclosure

Bi-Directional Transceiver for 1 SDI, 2 AES, RS232/422, 2 GPI/O

Models 7707MB



The 7707MB is a VistaLINK™ - enabled fiber optic transceiver for SDI Video, AES Audio, RS232/422 and GPI/O signals. This single card module transports one bi-directional SDI Video, two bi-directional AES Audio, one bi-directional RS-232/422 and two bi-directional GPI/Os over a single or dual fiber optic cable.

The 7707MB will transparently pass incoming SDI video feeds with embedded AES audio or any other data in the horizontal or vertical ancillary data space. Minimal Audio to Video latency over the transport interface is also achieved.

The fiber output is available in 1310nm, 1550nm, CWDM and DWDM wavelengths.

The 7707MB can be housed in either a 1RU frame which will hold up to 3 modules, or a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

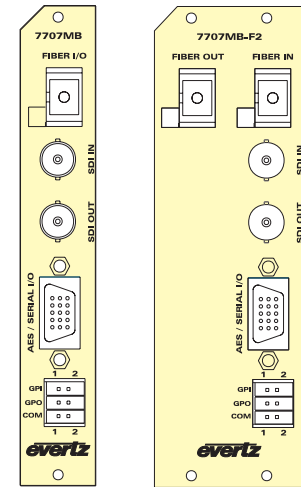
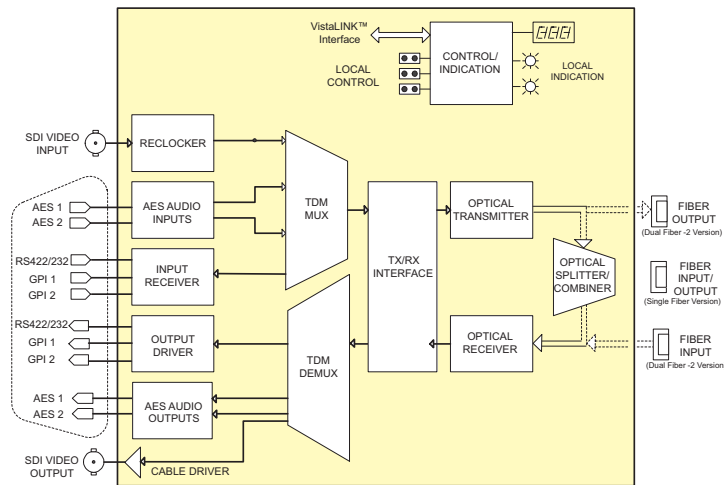
- Bi-directional fiber optic transceiver for 1 SDI Video, 2 AES Audio, 1 RS-232/422 and 2 GPI/O
- Supports 525 or 625 line 4:2:2 component SDI signals
- Supports 32, 44.1, 48 kHz AES audio
- Dolby E compatible
- Supports bi-directional RS422 rates up to 3 Mb/s
- Low Audio to Video latency
- Signal transport over fiber uninterrupted by loss of input SDI, AES or Serial Data feeds
- Built-in jitter attenuation
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability
- Local display of optical signal strength, video, audio, data presence, video and AES formats and EDH errors
- Fully hot-swappable from front of frame with no fiber disconnect/reconnect required
- Bi-directional optical input/output
- Accepts any wavelength in the 1270nm to 1610nm range
- Optical output wavelengths of 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports single-mode and multi-mode fiber optic cable

7707MB Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<3km	7707MB13-F2	-7dBm	7707MB13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	2	21dB/60km	7707MB13-F2	-7dBm	7707MB13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	1	14dB/40km*	7707MB13	-10dBm	7707MB13	-24dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	25dB/71km	7707MB13M-W	-1dBm	7707MB15-W	-26dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	24dB/96km**	7707MBxx-F2	0dBm	7707MByy-F2	-28dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km***	7707MBDxxx-F2	7dBm	7707MBDyyy-F2	-28dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux***
* With >20dB return loss on fiber interface ** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB *** Assumes 8 Ch DWDM Mux/Demux loss of 5dB*						Tx Power/Rx Sensitivity are nominal values ±1dBm Fiber loss= 0.35/0.25dB per km @1310nm/1550nm	

Bi-Directional Transceiver for 1 SDI, 2 AES, RS232/422, 2 GPI/O

7707MB Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C, 525 or 625 line component, SMPTE 305M
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 250m @ 270 Mb/s with Belden 8281 or equivalent cable
Return Loss: > 15 dB up to 270 Mb/s

Serial Video Output:

Number of Outputs: 1
Standard: SMPTE 259M-C, SMPTE 305M
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: >15 dB at 270 Mb/s
Wide Band Jitter: <0.2 UI

Optical Input/Output:

Number: 1 (single fiber version)
2 (dual fiber -F2 version)
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 14dB
Maximum Input Power: 0 dBm
Input Wavelength: 1270nm to 1610nm
Input Optical Sensitivity: See Application Configurations Chart
Output Jitter: < 0.2 UI
Output Wavelengths: See Ordering Information
Output Power: See Application Configurations Chart

AES Audio Inputs:

Standard: SMPTE 276M
AES3-1992
Dolby E compatible
Number of Inputs: 2 (Jumper selectable for balanced or unbalanced)
Connector: 4 pins on female high density DB-15
Signal Level: Unbalanced:
1Vp-p \pm 0.1V
Balanced:
2 to 7Vp-p with Level Jumper set to HI, 1 to 2Vp-p with level jumper set to LO
Equalization: 300m @ 48kHz with Belden 1800B or equivalent cable
Resolution: Up to 24 bits
Sampling Rate: 32, 44.1, 48 kHz
Impedance: Unbalanced - 75 Ω , Balanced - 110 Ω

AES Audio Outputs:

Standard: SMPTE 276M
AES3-1992
Dolby E compatible
Number of Outputs: 2 regenerated (Jumper selectable for balanced or unbalanced)
Connector: 4 pins on female high density DB-15
Signal Level: Unbalanced:
1Vp-p
Balanced:
5Vp-p
Resolution: Up to 24 bits
Sampling Rate: 32, 44.1, 48 kHz
Intrinsic Jitter: < 20ns
Impedance: Unbalanced - 75 Ω , Balanced - 110 Ω

General Purpose Inputs:

Number of Inputs: 2
Type: Opto-isolated, active low with internal pull-ups to +5V or +12V (jumper selectable)
Connector: 6 pin removable terminal block
Signal Drive Level: Open or closure to ground

General Purpose Outputs:

Number of Outputs: 2
Type: "Dry Contact" relay closure
Connector: 6 pin removable terminal block
Signal Level: Normally Closed or Normally Open (jumper settable)

Serial Data Port:

Number of Ports: 1 RS-422 or 2 RS-232 - Jumper Selectable
Connector: 4 pins (plus ground) on female high density DB-15
Baud Rate: Up to 3 Mb/s RS-422 (Determined by incoming data)

System Performance: (7707MB pair)

Video Input To Output Delay: <2 μ s
Audio to Video delay: < 1 μ s

Electrical:

Voltage: +12VDC
Power: 12 Watts (Non-DWDM)
14 Watts (DWDM)

Physical:

Number of slots: 1 (7707MB)
2 (7707MB-F2)

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

7707MB13	Bi-directional SDI, 2 AES, RS232/422, GPI/O Fiber Transceiver, single fiber, 1310nm FP TX & RX, VistaLINK™
7707MB13M-W	Bi-directional SDI, 2 AES, RS232/422, GPI/O Fiber Transceiver, single fiber, WDM, 1310nm FP TX, RX on 1550nm, VistaLINK™, use with 7707MB15-W
7707MB15-W	Bi-directional SDI, 2 AES, RS232/422, GPI/O Fiber Transceiver, single fiber, WDM, 1550nm DFB TX, RX on 1310nm, VistaLINK™ use with 7707MB13M-W
7707MB13-F2	Bi-directional SDI, 2 AES, RS232/422, GPI/O Fiber Transceiver, dual fiber, 1310nm FP TX & RX, VistaLINK™
For CWDM, please refer to the end of the fiber section for ordering information	
7707MBxx-F2	Bi-directional SDI, 2 AES, RS232/422, GPI/O Fiber Transceiver, dual fiber, CWDM TX, VistaLINK™
For DWDM, please refer to the end of the fiber section for ordering information	
7707MBDyyy-F2	Bi-directional SDI, 2 AES, RS232/422, GPI/O Fiber Transceiver, dual fiber, DWDM Laser, VistaLINK™

Ordering Options:

7707MB-BHP-15	Bulkhead Breakout Panel for 15 x 7707MB cards (includes 15 3 ft. cables)
7707MB-BHP-15-B	Bulkhead Breakout Panel for 15 x 7707MB cards (includes 15 3 ft. cables) for balanced audio only
7707MX-BHP-1	Bulkhead Breakout Panel for 1 x 7707MB card (includes 1 3ft cable)

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU Rear Plate for use with 7700FR-C Multiframe
+1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

SDI, 2 AES Audio, Bi-Directional RS-232/422, 2 GPI and 2 GPO, Fiber Receiver

Models 7707MRxx-F2



The 7707MR Multi-Signal Fiber Receiver is a VistaLINK™ - enabled fiber optic receiver for SDI Video, AES Audio, RS422 control, and GPIO signals. This single card module demultiplexes one uni-directional SDI Video, two uni-directional AES Audio, one bi-directional RS422 and two bi-directional GPI's and GPO's that have been Time Domain Multiplexed (TDM) by the companion 7707MT Multi-Signal Fiber Transmitter module. Evertz patent pending SoftSwitch™ technology is applied to the received signal to ensure virtually glitch free AES Audio output signals when upstream SDI or AES feeds are switched. The 7707MR and companion 7707MT will transparently pass incoming SDI video feeds with embedded AES audio or any other data in the horizontal or vertical ancillary data space. Minimal Audio to Video latency over the transport interface is also achieved.

The fiber output is available in an assortment of optical wavelengths, accommodating 1310/1550nm, CWDM and DWDM transmission schemes.

The 7707MR occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3 RU frame which will hold up to 15 modules and a standalone enclosure which will hold 1 module.

Features

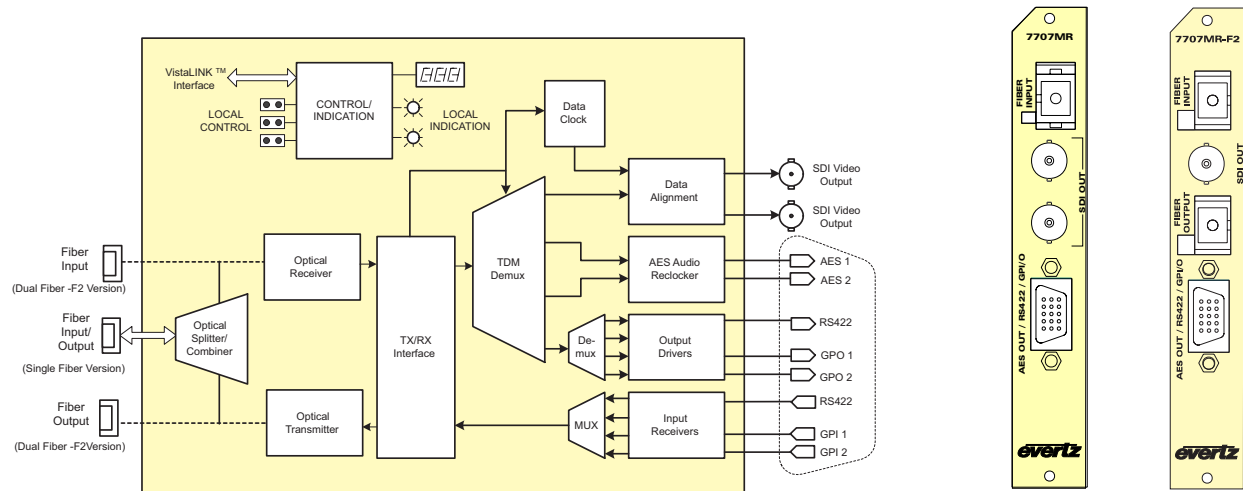
- SDI Video, 2 AES Audio, 1 bi-directional RS232/422 and 2 GPIO fiber optic receiver
- Supports 525 or 625 line 4:2:2 component SDI signals
- Supports SDTi signals
- Supports 32, 44.1, 48 kHz AES audio
- Dolby E compatible
- Supports bi-directional RS422 rates up to 3 Mb/s
- Incorporates Evertz SoftSwitch™ (Patent Pending) technology for virtually glitch-free AES Audio outputs when upstream SDI or AES feeds are switched
- User selectable SoftSwitch™ bypass
- Minimal Audio to Video latency
- Output AES "Mute" on loss of fiber optic input signal or AES feed to upstream 7707MT multiplexer
- Output Video "Black" or "Blue" (selectable) on loss of video input signal
- Signal transport over fiber uninterrupted by loss of input SDI, AES, Serial Data or GPIO feeds
- SDI video regeneration for jitter removal
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability
- Local display of optical signal strength, video, audio and data presence, video and AES formats, EDH errors, GPI and GPO status
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Bi-directional optical input/output
- Accepts any wavelength in the 1270nm to 1610nm range
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports single-mode and multi mode fiber optic cable

7707MRxx-F2 Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<3km	7707MR13-F2	-7dBm	7707MT13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	2	21dB/60km	7707MR13-F2	-7dBm	7707MT13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	1	14dB/40km*	7707MR13	-10dBm	7707MT13	-24dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	25dB/71km	7707MR13M-W	-1dBm	7707MT15-W	-26dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	24dB/96km**	7707MRyy-F2	0dBm	7707MTxx-F2	-28dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km***	7707MRDyyy-F2	+7dBm	7707MTDxxx-F2	-28dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux***
* With >20dB return loss on fiber interface						Tx Power/Rx Sensitivity are nominal values ±1dBm	
** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB						Fiber loss= 0.35/0.25dB per km @1310nm/1550nm	
*** Assumes 8 Ch DWDM Mux/Demux loss of 5dB							

SDI, 2 AES Audio, Bi-Directional RS-232/422, 2 GPI and 2 GPO, Fiber Receiver

7707MRxx-F2 Block Diagram



Specifications

Optical Input/Output:

Number: 1 (Single fiber version)
2 (Dual fiber - F2 version)
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 20dB
Rise and Fall Time: 200ps nominal
Maximum Input Power: 0 dBm
Input Wavelengths: 1270nm - 1610nm
Input Optical Sensitivity: See Application Configuration Chart
Output Wavelengths: See Application Configuration Chart
Output Power: See Application Configuration Chart

Serial Video Outputs:

Number of Outputs: 2 regenerated (1 output on -F2 versions)
Standard: SMPTE 259M-C
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15 dB at 270 Mb/s
Wide Band Jitter: < 0.15 UI

AES Audio Outputs:

Standard: SMPTE 276M
AES3-1992
Unbalanced AES: Dolby E compatible
Balanced: Other:
Number of Outputs: 2 regenerated (Jumper selectable for balanced or unbalanced)

Connector: 4 pins on female high density DB-15
Signal Level: Unbalanced - 1 Vp-p, Balanced - 5 Vp-p
Resolution: Up to 24 bits
Sampling Rate: 32, 44.1, 48 kHz
Intrinsic Jitter: < 20ns
Impedance: Unbalanced - 75Ω
Balanced - 110Ω

Serial Data Ports:

Number of Ports: 1 RS-422 or 2 RS-232 - Jumper Selectable
Connector: 4 pins (plus ground) on female high density DB-15
Baud Rate: Up to 3 Mb/s RS-422 (Determined by incoming data)

General Purpose Inputs:

Number of Inputs: 2
Type: Opto-isolated, active low with internal pull-ups to +5V or +12V (jumper selectable)
Connector: 2 pins (plus ground) on female high density DB-15
Signal Drive Level: Open or closure to ground

General Purpose Outputs:

Number of Outputs: 2
Type: "Dry Contact" relay closure
Connector: 2 pins per output on female high density DB-15
Signal Level: Normally Closed or Normally Open (jumper settable)

System Performance (7707MR + 7707MT):

Video Input To Output Delay: <1.5 μs
Audio to Video delay: < 1μs with SoftSwitch™ disabled
< 2ms with SoftSwitch™ enabled

Electrical:

Voltage: +12VDC
Power: 12 Watts (Non DWDM)
14 Watts (DWDM)

Physical:

Number of slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

7707MR13 SDI, 2 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, single fiber, 1310nm FP TX & RX, VistaLINK™
7707MR13M-W SDI, 2 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, single fiber, WDM, 1310nm FP TX, RX on 1550nm, VistaLINK™
7707MR13-F2 SDI, 2 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, dual fiber, 1310nm FP TX & RX, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707MRxx-F2 SDI, 2 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, dual fiber, CWDM TX, VistaLINK™

For DWDM, please refer to the end of the fiber section for ordering information

7707MRDyyy-F2 SDI, 2 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, dual fiber, DWDM Laser, VistaLINK™

Ordering Options

7707MX-BHP-15 Bulkhead Breakout Panel for 15 x 7707MR cards (includes 15 3 ft. cables)
7707MX-BHP-15-B Bulkhead Breakout Panel for 15 x 7707MR cards (includes 15 3 ft. cables) for balanced audio only
7707MX-BHP-1 Bulkhead Breakout Panel for 1 x 7707MR card (includes 1 3ft cable)

Rear Plate and Fiber Connector must be specified at time of order

Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD-SDI, 4 AES Audio Bi-Directional RS232/422, 1 GPIO/GPO, Fiber Receiver

Model 7707MRxx-HD-F2



Features

- Supports HD-SDI and SDI video
- Demultiplexes up to 4 AES audio, bi-directional RS-232/422 and 1 GPIO with HD-SDI or SDI
- Supports all SMPTE 292M (1.485Gb/s) rates/standards
- Supports 525/625 line component 4:2:2 SDI @ 270 Mb/s
- Supports 32, 44.1, 48 kHz AES audio
- Dolby E compatible
- Built-in jitter attenuation
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK®-capable capability
- All settings controllable via card-edge interface or through VistaLINK®
- Local display of optical signal strength, video, audio, and data presence, video and AES formats, GPI and GPO status
- Accepts any wavelength in the 1270nm to 1610nm range
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports single-mode and multi mode fiber optic cable
- Fully hot-swappable from front of frame
- Occupies a single card slot and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules, or a standalone enclosure that will hold 1 module

7707MRxx-HD-F2 Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	< 1km	7707MT13-HD-F2	-7dBm	7707MR13-HD-F2	-23dBm	1310nm on Tx & Rx fibers
Single-Mode	2	16dB/45km	7707MT13-HD-F2	-7dBm	7707MR13-HD-F2	-23dBm	1310nm on Tx & Rx fibers
Single-Mode	1	9dB/25km*	7707MT-HD	-10dBm	7707MR-HD	-19dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	20dB/57km	7707MT-HD-W	-1dBm	7707MR-HD-W	-21dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	19dB/76km**	7707MTyy-HD-F2	0dBm	7707MRxx-HD-F2	-23dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(CWDM)	24dB/96km**	7707MTyy-HD-F2	0dBm	7707MRxx-HD-F2-H	-28dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	25dB/100km**	7707MTDyyy-HD-F2	+7dBm	7707MRDxxx-HD-F2	-23dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km***	7707MTDyyy-HD-F2	+7dBm	7707MRDxxx-HD-F2-H	-28dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux***
* With >20dB return loss on fiber interface ** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB ***Assumes 8 Ch DWDM Mux/Demux loss of 5dB					Tx Power/Rx Sensitivity are nominal values ± 1 dBm Fiber loss= 0.35/0.25dB per km @1310nm/1550nm		

SDI, 2 AES Audio, Bi-Directional RS-232/422, 2 GPI and 2 GPO, Fiber Transmitter

Models 7707MT



The 7707MT Multi-Signal Fiber Transmitter is a VistaLINK™ - enabled, fiber transmitter for SDI Video, AES Audio, RS422 control and GPI/O. This single card module transports one uni-directional SDI Video, two uni-directional AES Audio, one bi-directional RS422 and two bi-directional GPI's and GPO's. These signals are combined using Time Domain Multiplex (TDM) technology and transmitted over a single fiber. The companion 7707MR Multi-Signal Fiber Receiver demultiplexes the signals and converts them back to their original formats. The 7707MT and companion 7707MR will transparently pass incoming SDI video feeds with embedded AES audio or any other data in the horizontal or vertical ancillary data space. Minimal Audio to Video latency over the transport interface is also achieved.

The fiber output is available in an assortment of optical wavelengths, accommodating 1310/1550nm, CWDM and DWDM transmission schemes.

The 7707MT occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

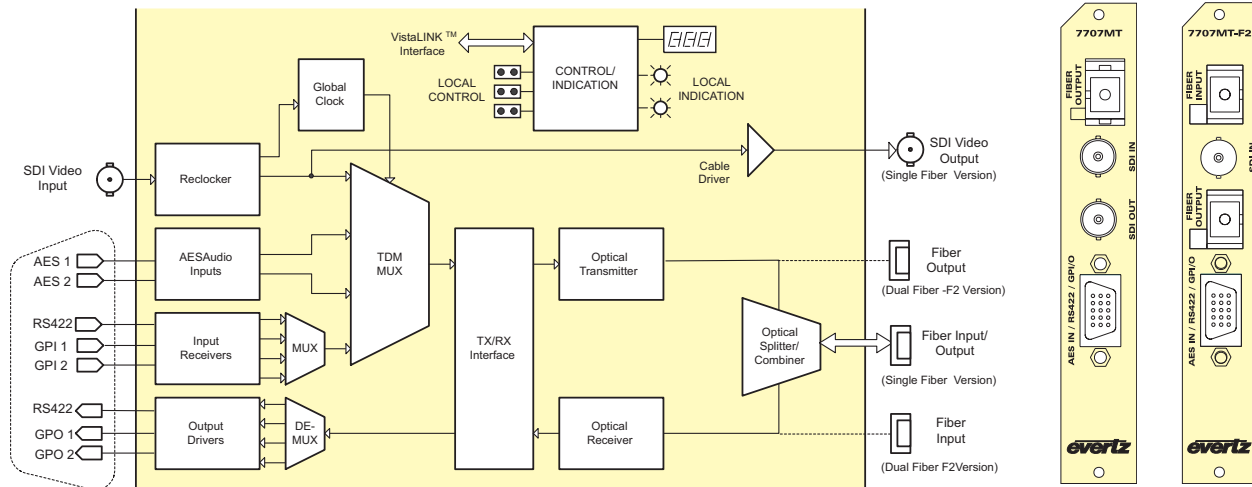
- SDI Video, 2 AES Audio, 1 bi-directional RS-232/422 and 2 GPI/O fiber optic transmitter
- Supports 525 or 625 line 4:2:2 component SDI signals
- Supports SDTi signals
- Supports 32, 44.1, 48 kHz AES audio inputs
- Dolby E compatible
- Supports bi-directional RS422 signals at baud rates up to 3 Mb/s
- AES audio inputs can be synchronous or asynchronous to each other and/or to input video
- Reclocked SDI output for additional signal distribution
- Signal transport over fiber uninterrupted by loss of input SDI, AES, Serial Data or GPI/O feeds
- Low Audio to Video latency over transport interface
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability
- Local display of optical signal strength, video, audio, and data presence, video and AES formats, EDH errors, GPI and GPO status
- Automatic coaxial input equalization to 300m at 270Mb/s (Belden 1694)
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Bi-directional optical input/output
- Accepts any wavelength in the 1270nm to 1610nm range
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports multi-mode and single mode fiber optic cable

7707MT Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<3km	7707MT13-F2	-7dBm	7707MR13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	2	21dB/60km	7707MT13-F2	-7dBm	7707MR13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	1	14dB/40km*	7707MT13	-10dBm	7707MR13	-24dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	25dB/71km	7707MT15-W	-1dBm	7707MR13M-W	-26dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	24dB/96km**	7707MTxx-F2	0dBm	7707MRyy-F2	-28dBm	Different CWDM wavelengths on Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km***	7707MTDxxx-F2	+7dBm	7707MRDyyy-F2	-28dBm	Different DWDM wavelengths on Tx & Rx, with 8 channel DWDM Mux/Demux***
* With >20dB return loss on fiber interface ** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB *** Assumes 8 Ch DWDM Mux/Demux loss of 5dB						Tx Power/Rx Sensitivity are nominal values ± 1 dBm Fiber loss= 0.35/0.25dB per km @1310nm/1550nm	

SDI, 2 AES Audio, Bi-Directional RS-232/422, 2 GPI and 2 GPO, Fiber Transmitter

7707MT Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C, SMPTE 305M
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 300m @ 270 Mb/s with Belden 1694 or equivalent cable
Return Loss: > 15 dB up to 270 Mb/s

Serial Video Output (Not available on dual fiber '-F2' version):

Number of Outputs: 1 Per Card reclocked
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15 dB at 270 Mb/s
Wide Band Jitter: < 0.2 UI

AES Audio Inputs:

Standard: SMPTE 276M
Unbalanced: AES3-1992
Balanced: Dolby E compatible
Other:
Number of Inputs: 2 (Jumper selectable for balanced or unbalanced input)
Connector: 4 pins on female high density DB-15
Signal Level:
Unbalanced: 1V p-p \pm 0.1V
Balanced: 2 to 7V-p with Level Jumper set to HI, 1 to 2Vp-p with level jumper set to LO
Equalization: 500m @ 48kHz with Belden 1800B or equivalent cable
Resolution: Up to 24 bits
Sampling Rate: 32, 44.1, 48 kHz
Intrinsic Jitter: < 20ns
Impedance:
Unbalanced: 75 Ω
Balanced: 110 Ω

Serial Data Ports:

Number of Ports: 1 RS-422 or 2 RS-232 - Jumper Selectable
Connector: 4 pins (plus ground) on female high density DB-15
Baud Rate: Up to 3 Mb/s (Determined by incoming data)

General Purpose Inputs:

Number of Inputs: 2
Type: Opto-isolated, active low with internal pull-ups to +5V or +12V (jumper selectable)
Connector: 2 pins (plus ground) on female high density DB-15
Signal Drive Level: Open or closure to ground

General Purpose Outputs:

Number of Outputs: 2
Type: "Dry Contact" relay closure
Connector: 2 pins per output on female high density DB-15
Signal Level: Normally Closed or Normally Open (jumper settable)

Optical Input/Output:

Number: 1 (Single fiber version)
2 (Dual fiber '-F2' version)
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 20dB
Rise and Fall Time: 200ps nominal
Maximum Input Power: 0 dBm
Input Wavelengths: 1270nm to 1610nm
Input Optical Sensitivity: See Application Configurations Chart
Output Wavelengths: See Ordering Information
Output Power: See Application Configurations Chart

System Performance (7707MT + 7707MR):

Video Input To Output Delay: < 1.5 μ s
Audio to Video delay: < 1 μ s with SoftSwitch™ disabled on 7707MR
< 2ms with SoftSwitch™ enabled on 7707MR

Electrical:

Voltage: +12VDC
Power: 12 Watts (Non DWDM), 14 Watts (DWDM)

Physical:

Number of slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Laser Safety:
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

7707MT13 SDI, 2 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter single fiber, 1310nm FP TX & RX, VistaLINK™
7707MT15-W SDI, 2 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter single fiber, WDM, 1550nm FP TX, RX on 1310nm, VistaLINK™
7707MT13-F2 SDI, 2 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter dual fiber, 1310nm FP TX & RX, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707MTxx-F2 SDI, 2 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter dual fiber, CWDM TX, VistaLINK™

For DWDM, please refer to the end of the fiber section for ordering information

7707MTDyyy-F2 SDI, 2 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter dual fiber, DWDM Laser, VistaLINK™

Ordering Options

7707MX-BHP-15 Bulkhead Breakout Panel for 15 x 7707MT cards (includes 15 3 ft. cables)
7707MX-BHP-15-B Bulkhead Breakout Panel for 15 x 7707MT cards (includes 15 3 ft. cables) for balanced audio only
7707MX-BHP-1 Bulkhead Breakout Panel for 1 x 7707MT card (includes 1 3ft cable)

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD-SDI, 4 AES Audio, Bi-Directional RS-232/422, 1 GPI/GPO, Fiber Transmitter

Model 7707MT-HD



Features

- Supports HD-SDI and SDI video
- Multiplexes up to 4 AES audio, bi-directional RS-232/422 and 1 GPIO with HD-SDI or SDI
- Supports all SMPTE 292M (1.485Gb/s) rates/standards
- Supports 525/625 line component 4:2:2 SDI @ 270 Mb/s
- Supports 32, 44.1, 48kHz AES audio inputs
- Reclocked video output for additional signal distribution
- AES audio inputs can be synchronous or asynchronous to each other and/or to input video
- Dolby E compatible
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK®-capable capability
- All settings controllable via card-edge interface or through VistaLINK®
- Local display of optical signal strength, video, audio, and data presence, video format, GPI and GPO status
- Automatic coaxial input equalization up to 130m at 1.485Gb/s and 300m at 270Mb/s (Belden 1694)
- Accepts any wavelength in the 1270nm to 1610nm range
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-G.694.1 compliant) also available
- Supports single-mode and multi-mode fiber optic cable
- Fully hot-swappable from front of frame
- Occupies a single card slot and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules, or a standalone enclosure that will hold 1 module

7707MT-HD Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	< 1km	7707MT13-HD-F2	-7dBm	7707MR13-HD-F2	-23dBm	1310nm on Tx & Rx fibers
Single-Mode	2	16dB/45km	7707MT13-HD-F2	-7dBm	7707MR13-HD-F2	-23dBm	1310nm on Tx & Rx fibers
Single-Mode	1	9dB/25km*	7707MT-HD	-10dBm	7707MR-HD	-19dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	20dB/57km	7707MT-HD-W	-1dBm	7707MR-HD-W	-21dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	19dB/76km**	7707MTyy-HD-F2	0dBm	7707MRxx-HD-F2	-23dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(CWDM)	24dB/96km**	7707MTyy-HD-F2	0dBm	7707MRxx-HD-F2-H	-28dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	25dB/100km**	7707MTDyyy-HD-F2	+7dBm	7707MRDxxx-HD-F2	-23dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km***	7707MTDyyy-HD-F2	+7dBm	7707MRDxxx-HD-F2-H	-28dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux***
* With >20dB return loss on fiber interface ** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB ***Assumes 8 Ch DWDM Mux/Demux loss of 5dB						Tx Power/Rx Sensitivity are nominal values ±1dBm Fiber loss= 0.35/0.25dB per km @1310nm/1550nm	

Triple SDI Optical to Electrical Converter

19.4Mb/s or 143-540Mb/s

Model 7707OE-3



Features

- Triple SDI optical to electrical converter for 3 independent channels
- Provides 45 independent channels of optical conversion, in a single 3RU frame
- Supports all SMPTE259M standards with operation from 143Mb/s - 360Mb/s
- Supports additional standards of SMPTE305M (SDTi), SMPTE310M (19.4Mb/s), SMPTE344M (540Mb/s), M2S and DVB-ASI (270Mb/s)
- Supports multi-mode or single-mode fiber
- Fully hot swappable from front of frame, with no fiber or BNC disconnect/reconnect required
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules or a 3RU frame which will hold up to 15 modules or a standalone frame which will hold 1 module
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

Inputs:

- Three independent fiber inputs
- 1270nm to 1610nm input wavelength range
- Input sensitivity to -30dBm
- SC/PC, ST/PC, FC/PC connector options

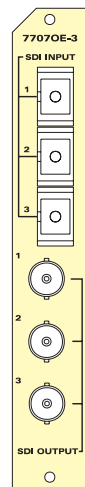
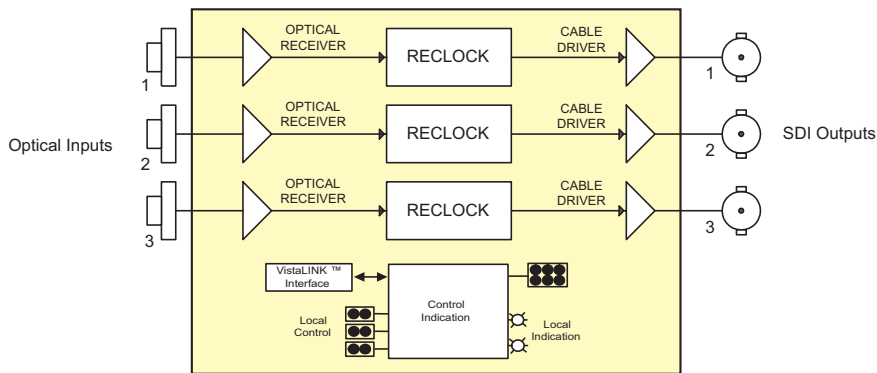
Outputs:

- Three independent, reclocked, serial digital BNC outputs

Status LEDs:

- Signal presence indication for each channel
- Input carrier weak indication for each channel
- Module status indication

7707OE-3 Block Diagram



Specifications

Standards: SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 305M, SMPTE 310M, SMPTE344M, M2S, DVB-ASI

Optical Inputs:

Number of Inputs: 3 (independent channels)
Connector: SC/PC, ST/PC, FC/PC female housing
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: 0dBm
Optical Sensitivity: -30dBm

Serial Video Outputs:

Number of Outputs: 3 reclocked (independent channels)
Connector: 3 BNC inputs per IEC 169-8
Signal Level: 800mV nominal
DC Offset: 0V±0.5V
Rise/Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15dB up to 540Mb/s
Jitter: < 0.2UI

Electrical:

Voltage: +12V DC
Power: 7 Watts
EMI/RFI: Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7707OE-3 Triple SDI Optical to Electrical Converter 19.4Mb/s or 143-540Mb/s, VistaLINK™ Monitoring

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone enclosure

Triple HDTV Optical to Electrical Converter

19.4Mb/s to 1.485Gb/s

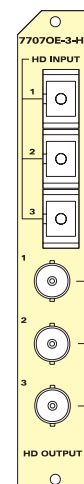
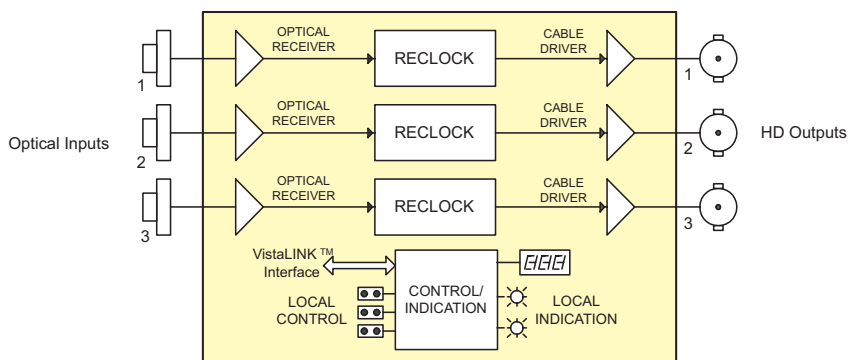


Model 7707OE-3-HD

Features

- Three independent channels of optical to electrical conversion that support all SMPTE 292M standards at 1.485Gb/s.
- Supports reclocking of all SMPTE 259M standards with operation from 143Mb/s - 360Mb/s
- Supports reclocking of additional standards of SMPTE 305M (SDTi), SMPTE 344M (540Mb/s), M2S and DVB-ASI (270Mb/s)
- Automatically operates in non-reclocking mode in the presence of rates not supported by reclocking
- Fully hot swappable from front of frame, with no fiber or BNC disconnect /reconnect required
- High density - accommodates up to 45 independent channels of optical conversion, in a single 3RU frame
- Can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone which will hold 1 module
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability
- Detection and display of optical input power, and data rate
- Wide range optical input (1270nm-1610nm)
- Supports single-mode and multi-mode fiber optic cable
- SC/PC, ST/PC or FC/PC connector options
- Tally output on Frame Status bus upon loss of input signal

7707OE-3-HD Block Diagram



Specifications

Standards: SMPTE 292M, SMPTE 259M-A,B,C,D
SMPTE 305M, SMPTE 310M, SMPTE 344M, M2S,
DVB-ASI

Optical Inputs:
Number of Inputs: 3 (independent channels)
Connector: SC/PC, ST/PC, FC/PC female housing
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: -1dBm
Optical Sensitivity: -18dBm

Serial Video Outputs:
Number of Outputs: 3 reclocked (independent channels)
Connector: 3 BNC inputs per IEC 169-8
Signal Level: 800mV nominal
DC Offset: 0V±0.5V
Rise/Fall Time
SD @270Mb/s: 600ps nominal
HD @1.485Gb/s: 150ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15dB up to 1.5Gb/s
Jitter: < 0.2UI

Electrical:
Voltage: +12V DC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:
Number of Slots: 1

Ordering Information:
7707OE-3-HD Triple HD or SD Optical to Electrical Converter,
19.4Mb/s or 143Mb/s -1.485Gb/s, VistaLINK™

Ordering Options:
Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix
+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:
CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:
7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone enclosure

SDI Optical to Electrical Converter, 19.4Mb/s or 143-540Mb/s, VistaLINK™ Monitoring

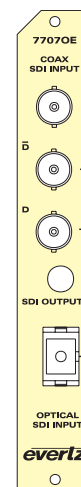
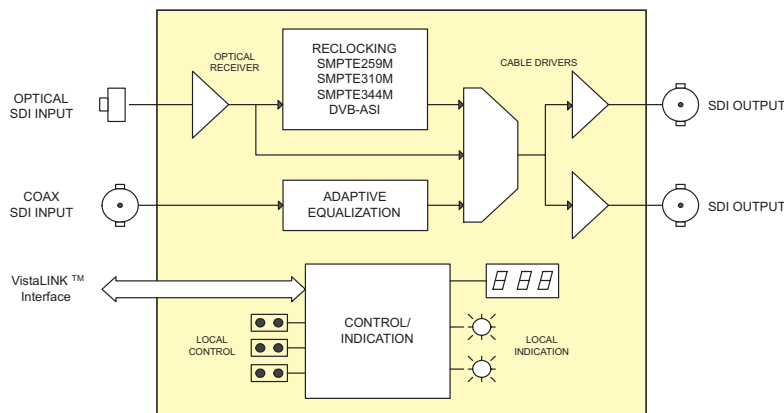
Model 7707OE



Features

- Optical to electrical converter for all SMPTE 259M standards with operation from 143Mb/s - 360Mb/s
- Supports SMPTE 310M (19.4Mb/s), M2S, DVB-ASI (270Mb/s), SMPTE 344M (540Mb/s) and SMPTE 305M (SDTi) rates
- Detection and display of optical input power, video format and EDH errors
- Reclocked optical input, with selectable non-reclocked mode
- Wide range optical input (1270nm to 1610nm)
- Supports multi-mode and single-mode fiber
- Redundant second SDI input for automatic failure switching applications
- Automatic input cable equalization to 275m at 270Mb/s (Belden 8281) on coaxial input
- Fully hot swappable from front of frame
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to three modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold 1 module
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

7707OE Block Diagram



Specifications

Standards:

Reclocked: SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 305M, SMPTE 310M, SMPTE 344M, M2S or DVB-ASI

Non-Reclocked: Any bi-level signal type at rates of 19.4Mb/s to 540Mb/s

Optical Input:

Connector: 1 Female SC/PC, ST/PC or FC/PC

Wavelength: 1270nm to 1610nm

Optical Sensitivity: -32dBm @ 270Mb/s

Max. Input Power: 0dBm

Coaxial Input:

Connector: 1 BNC per IEC 60169-8 Amendment 2

Impedance: 75Ω (nominal)

Equalization: Automatic to 275m @ 270Mb/s with Belden 8281 cable

Return Loss: > 15dB to 540Mb/s

Serial Video Outputs:

Number of Outputs: 2 per card (1 output DVB-ASI/M2S compliant)

Connector: BNC per IEC 60169-8 Amendment 2

Impedance: 75Ω (nominal)

Signal Level: 800mV nominal

DC Offset: 0V ±0.5V

Rise and Fall Time: 900ps nominal

Overshoot: < 10% of amplitude

Return Loss: > 15 dB up to 540 Mb/s

Wide Band Jitter: < 0.20 UI

Electrical:

Voltage: +12V DC

Power: 6 Watts

EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7707OE: SDI Optical to Electrical Converter, 19.4Mb/s or 143-540Mb/s, VistaLINK™ Monitoring

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC

+ST ST/PC

+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination

CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination

CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination

CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination

CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination

CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

7701FR 1RU Multiframe which holds 3 modules

S7701FR Standalone Enclosure

DS3 Optical to Electrical Converter

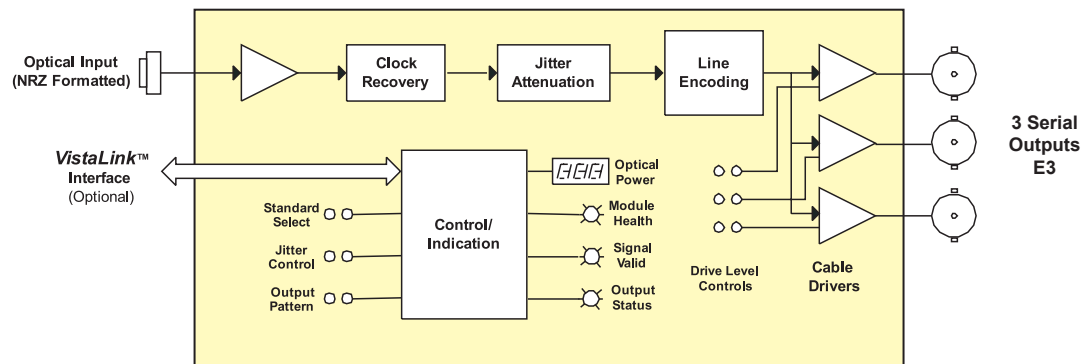


Model 7707OE-DS3

Features

- Optical to electrical converter for DS3 (44.736Mb/s)
- Signal reclocking and jitter attenuation
- Output wave shaping for G.703 standards compliance
- Output 1010 pattern generation upon loss of lock to an input signal
- Electrical output drive level control for enhanced distance
- Transformer coupled outputs
- Display of received optical power provides a pre-emptive indication of link integrity
- Wide range optical input (1270nm-1610nm)
- Supports single-mode and multi-mode fiber optic cable
- Fully hot swappable from front of frame
- Occupies one card slot and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone enclosure that will hold 1 module
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

Model 7707OE-DS3 Block Diagram



Specifications

Optical Input:

Number of Inputs: 1 Scrambled DS3 @ 44.736Mb/s
Connector: Female SC/PC, ST/PC or FC/PC
Wavelength: 1270nm- 1610nm
Optical Sensitivity: -31dBm
Max. Input Power: 0dBm
Fiber Size: 62µm core / 125µm overall

Outputs:

Number of Outputs: 3 per card-reclocked
Connector: BNC per IEC 60169-8 Amendment 2
Waveform: Conforms to G.703 compliant masks
Return Loss: > 15dB up to 44.736Mb/s
Drive Level:
 High: For driving cable lengths > 70m
 Low: For driving cable lengths < 70m

Electrical:

Voltage: + 12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7707OE-DS3 DS3 Optical to Electrical Converter, VistaLINK™ Monitoring

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

E3 Optical to Electrical Converter

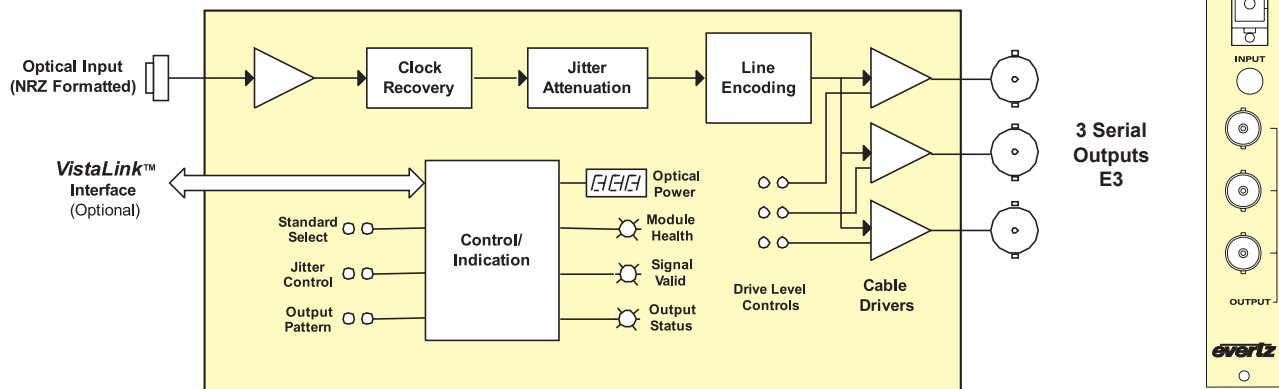
Model 7707OE-E3



Features

- Optical to electrical converter for E3 (34.368Mb/s)
- Signal reclocking and jitter attenuation
- Output wave shaping for G.703 standards compliance
- Output 1010 pattern generation upon loss of lock to an input signal
- Electrical output drive level control for enhanced distance
- Transformer coupled outputs
- Display of received optical power provides a pre-emptive indication of link integrity
- Wide range optical input (1270nm-1610nm)
- Supports single-mode and multi-mode fiber optic cable
- Fully hot swappable from front of frame
- Occupies one card slot and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone enclosure that will hold 1 module
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™-enabled capability

Model 7707OE-E3 Block Diagram



Specifications

Optical Input:

Number of Inputs: 1 Scrambled E3 @ 34.368Mb/s
Connector: Female SC/PC, ST/PC or FC/PC
Wavelength: 1270nm- 1610nm
Optical Sensitivity: -31dBm
Max. Input Power: 0dBm
Fiber Size: 62µm core / 125µm overall

Outputs:

Number of Outputs: 3 per card-reclocked
Connector: BNC per IEC 60169-8 Amendment 2
Waveform: Conforms to G.703 compliant masks
Return Loss: > 15dB up to 34MHz
Drive Level:
High: For driving cable lengths > 70m
Low: For driving cable lengths < 70m

Electrical:

Voltage: + 12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Ordering Information:

7707OE-E3 E3 Optical to Electrical Converter, VistaLINK™ Monitoring

HDTV Optical to Electrical Converter

19.4Mb/s to 1.5Gb/s

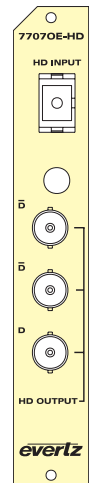
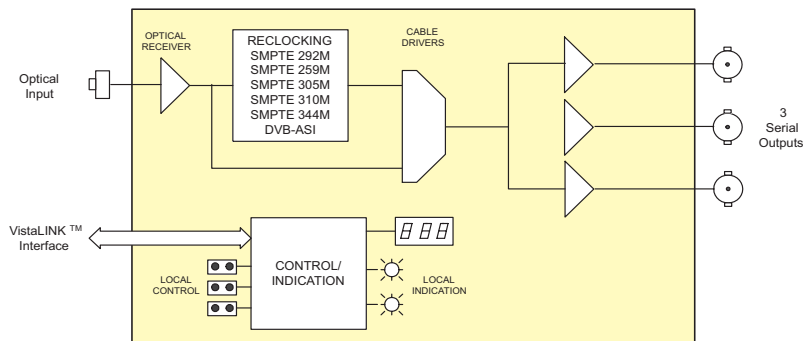
Model 7707OE-HD



Features

- Supports all SMPTE 292M standards at 1.485Gb/s
- Supports all SMPTE259M standards with operation from 143Mb/s - 360Mb/s
- Supports SMPTE 310M (19.4Mb/s), M2S or DVB-ASI (270Mb/s), SMPTE 344M (540Mb/s), and SMPTE 305M (SDTi) rates
- Auto rate selection, indication and reclocking for all SDI and HD-SDI data rates from 143Mb/s to 1.485Gb/s
- Selectable non-reclock mode for other rates
- Detection and display of optical input power, video format, and EDH errors (SDI only)
- Display of received optical power for continuous indication of link integrity
- Wide range optical input (1270nm-1610nm)
- Supports single-mode and multi-mode fiber optic cable
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to three modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold one module

7707OE-HD Block Diagram



Specifications

Optical Input:

Standards: SMPTE 297M
Reclocked: SMPTE 292M, SMPTE 259M A, B, C, D, SMPTE 344M, SMPTE 305M, SMPTE 310M (19.4 Mb/s), DVB-ASI, M2S

Non-Reclocked: Any bi-level signal type at rates of 19.4Mb/s - 1.485Gb/s

Connector: Female SC/PC, ST/PC or FC/PC.
Wavelength: 1270nm -1610nm

Optical Sensitivity:
Standard: -23dBm @ 1.485Gb/s
High Sensitivity (-H): -28dBm @ 1.485Gb/s
Max. Input Power:
Standard: -1dBm
High Sensitivity (-H): -8dBm

Serial Video Outputs:

Number of Outputs: 3 Per Card (1 output DVB-ASI/M2S compliant)
Connectors: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω (nominal)
Signal Level: 800mV(nominal)
DC Offset: 0V ±0.5V
Rise and Fall Time: <270ps
Overshoot: < 10% of amplitude
Return Loss: > 12dB to 1.5GHz
Wide Band Jitter: < 0.20UI (Reclocked)

Electrical:

Voltage: +12VDC
Power: 8 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7707OE-HD	HDTV Optical to Electrical Converter, 19.4Mb/s to 1.5Gb/s
7707OE-HD-H	HDTV Optical to Electrical Converter, 19.4Mb/s to 1.5Gb/s, High Sensitivity receiver

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC	Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC	Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC	Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC	Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC	Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC	Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone enclosure

Optical Regenerator/Wavelength Converter, 19.4Mb/s to 540Mb/s, VistaLINK™

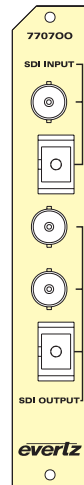
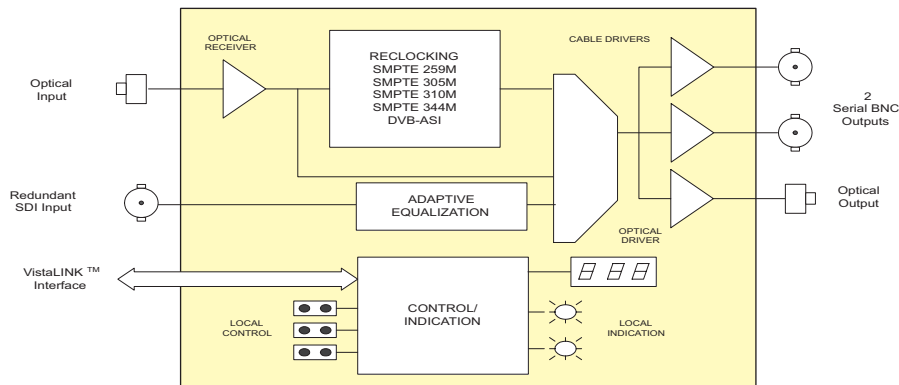
Model 770700



Features

- Can be used as optical regenerator/repeater, E to O converter, O to E converter, O to O wavelength converter
- Auto-rate selection, reclocking and indication for all SMPTE 259M standards from 143-540Mb/s
- Supports additional standards of SMPTE 305M(SDTi), SMPTE 310M(19.4Mb/s) and M2S or DVB-ASI(270Mb/s)
- Can also support Datacom/Telecom rates up to 540Mb/s
- Coaxial or optical input (jumper selectable)
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths of 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Independent isolated output drivers to ensure no cross channel loading effects and to maintain polarity from input to output for DVB-ASI applications
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Detection and display of optical input power, video format and EDH errors
- Fully hot-swappable from front of frame
- Two BNC serial digital outputs

770700 Block Diagram



Specifications

Standards:	SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 305M, SMPTE 310M, DVB-ASI, M2S
Optical Input:	
Connector:	Female SC/PC, ST/PC, FC/PC
Operating Wavelength:	1270nm to 1610nm
Maximum Input Power:	0dBm
Optical Sensitivity:	-31dBm
Electrical Video Input:	
Normal:	SMPTE 259M (143 to 540 Mb/s) or DVB/ASI
Jumper Selectable:	SMPTE 310M (19.4 Mb/s)
Connector:	1 BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 275m @ 270 Mb/s with Belden 8281 (or equivalent)
Return Loss:	> 15 db to 540 Mb/s
Optical Outputs:	
Connector:	SC/PC, ST/PC, FC/PC female housing
Return Loss:	> 14dB
Jitter:	< 0.15UI (Reclocked) < 0.20UI (Non-reclocked)
Nominal Wavelength:	1310nm, 1550nm
CWDM Wavelengths:	See Ordering Information
DWDM Wavelengths:	See Ordering Information
Output Power:	
1310nm FP	-7dBm ± 1dBm
1550nm DFB	0dBm ± 1dBm
CWDM DFB	0dBm ± 1dBm
DWDM DFB:	+7dBm ± 1dBm
Electrical Video Outputs:	
Number of Outputs:	2 per card - reclocked (both outputs maintain polarity from input to output for DVB-ASI applications)
Connectors:	BNC per IEC 60169-8 Amendment 2
Impedance:	75Ω (nominal)
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	900ps nominal
Overshoot:	<10% of amplitude
Return Loss:	>15dB up to 540Mb/s
Wide Band Jitter:	< 0.15UI (Reclocked) < 0.20UI (Non-reclocked)

Electrical:	
Voltage:	+12V DC
Power:	6 Watts (Non DWDM), 9 Watts (DWDM)
Physical:	
Number of Slots	1
Compliance:	
Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive Class 1 laser product Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1
Laser Safety:	Complies with FCC Part 15, Class A EU EMC directive
EMI/RFI:	

Ordering Information:	
770700I3	Optical Regenerator / Wavelength Converter for rates to 540Mb/s, 1270nm to 1610nm input, 1310nm FP output
770700I5	Optical Regenerator / Wavelength Converter for rates to 540Mb/s, 1270nm to 1610nm input, 1550nm DFB laser output

For CWDM, please refer to the end of the fiber section for ordering information	
770700xx	Optical Regenerator / Wavelength Converter for rates to 540Mb/s, 1270nm to 1610nm input, CWDM output

For DWDM, please refer to the end of the fiber section for ordering information	
770700Dyyy	Optical Regenerator / Wavelength Converter for rates to 540Mb/s, 1270nm to 1610nm input, DWDM output

Ordering Options	
Rear Plate and Fiber Connector must be specified at time of order	
Eg: Model +SC +3RU	

Rear Plate Suffix	
+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix	
+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:	
7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Optical Regenerator/Wavelength Converter, 19.4Mb/s to 1.485Gb/s, VistaLINK™

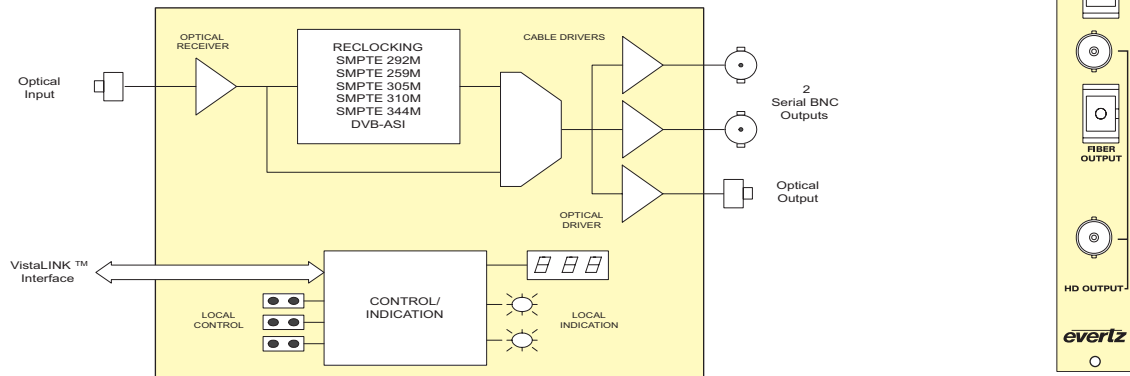
Model 770700-HD



Features

- Can be used as optical regenerator/repeater, O to E converter or O to O wavelength converter
- Auto rate selection, reclocking and indication for all SDI (SMPTE 259M) and HD-SDI (SMPTE 292M) data rates from 143Mb/s to 1.485Gb/s
- Also supports SMPTE 305M (SDTi), SMPTE 310M (19.4Mb/s) and M2S or DVB-ASI (270Mb/s)
- Supports other Telecom/Datacom rates up to 1.5Gb/s
- Wide range optical input (1270nm-1610nm)
- Optical output wavelengths of 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- BNC outputs maintain polarity from input to output for DVB-ASI applications
- Supports single-mode and multi-mode fiber optic cable
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Detection and display of optical input power, video format, and EDH errors (SDI only)
- Fully hot swappable from front of frame

770700-HD Block Diagram



Specifications

Standards:	SMPTE 297M
Reclocked:	SMPTE 292M, SMPTE 259M A, B, C, D, SMPTE 344M, SMPTE 305M, SMPTE 310M (19.4 Mb/s), DVB-ASI, M2S
Non-Reclocked:	Any bi-level signal type at rates of 19.4Mb/s - 1.485Gb/s

Optical Input:	
Connector:	Female SC/PC, ST/PC or FC/PC
Operating Wavelength:	1270nm -1610nm
Max. Input Power:	
Standard:	-1dBm
High Sensitivity (-H):	-7dBm
Optical Sensitivity	
Standard:	-23dBm @ 1.485Gb/s
High Sensitivity (-H):	-28dBm @ 1.485Gb/s

Optical Output:	
Connector:	SC/PC, ST/PC or FC/PC female housing
Return Loss:	< 14dB
Wide Band Jitter:	< 0.2UI (reclocked)
Nominal Wavelength:	1310nm, 1550nm
CWDM Wavelengths:	See Ordering Information
DWDM Wavelengths:	See Ordering Information
Output Power:	
1310nm FP	-7dBm ± 1dBm
1550nm DFB	0dBm ± 1dBm
CWDM DFB	0dBm ± 1dBm
DWDM DFB:	+7dBm ± 1dBm

Electrical Video Outputs:	
Number of Outputs:	2 per card reclocked (both outputs maintain polarity from input to output for DVB-ASI applications)
Connectors:	BNC per IEC 60169-8 Amendment 2.
Impedance:	75Ω(nominal).
Signal Level:	800mV(nominal).
DC Offset:	0V ±0.5V
Rise and Fall Time:	<270ps
Overshoot:	< 10% of amplitude.
Return Loss:	> 12dB to 1.5GHz
Wide Band Jitter:	< 0.2UI (Reclocked)

Electrical:	
Voltage:	+12VDC
Power:	8 Watts (Non-DWDM version) 11 Watts (DWDM version)

Physical:	
7700 or 7701 frame mounting:	
Number of slots:	1

Compliance:	
Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive

Laser Safety:	Class 1 laser product Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1 Complies with FCC Part 15, Class A EU EMC directive
EMI/RFI:	

Ordering Information:	
77070013-HD	Optical Regenerator / Wavelength Converter for rates to 1.5Gb/s, 1270nm to 1610nm input, 1310nm FP output
77070013-HD-H	Optical Regenerator / Wavelength Converter for rates to 1.5Gb/s, High Sensitivity (-28dBm) input, 1310nm FP output
77070015-HD	Optical Regenerator / Wavelength Converter for rates to 1.5Gb/s, 1270nm to 1610nm input, 1550nm DFB Laser output
For CWDM, please refer to the end of the fiber section for ordering information	
770700xx-HD	Optical Regenerator / Wavelength Converter for rates to 1.5Gb/s, 1270nm to 1610nm input, CWDM output
For Long Distance CWDM high sensitivity, please refer to the end of the fiber section for ordering information	
770700xx-HD-H	Optical Regenerator / Wavelength Converter for rates to 1.5Gb/s, High Sensitivity (-28 dBm) input, CWDM output
For DWDM, please refer to the end of the fiber section for ordering information	
770700Dyyy-HD	Optical Regenerator / Wavelength Converter for rates to 1.5Gb/s, 1270nm to 1610nm input, DWDM output
For Long Distance DWDM high sensitivity, please refer to the end of the fiber section for ordering information	
770700Dyyy-HD-H	Optical Regenerator / Wavelength Converter for rates to 1.5Gb/s, High Sensitivity (-28dBm) input, DWDM output

Ordering Options	
Rear Plate and Fiber Connector must be specified at time of order	
Eg: Model +SC +3RU	

Rear Plate Suffix	
+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix	
+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:	
7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

RGBHV/DVI/KVM Fiber Receiver

VistaLINK™ Monitoring



Model 7707RGBR

The 7707RGBR is a VistaLINK™ SNMP -enabled RGBHV/DVI/KVM fiber receiver for high resolution/high quality video signals. This single card module accepts a fiber optic input from the companion 7707RGBT RGBHV/DVI/KVM Fiber Transmitter, and outputs both analog RGBHV and digital DVI video. The 7707RGBR is also available with analog audio and keyboard + mouse options.

The 7707RGBR occupies one card slot (two card slots for the A2KM version) and can be housed in either a 1RU frame, which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- Supports DVI or RGBHV transport over a single fiber
- Provides both RGBHV and DVI outputs simultaneously
- VESA video resolutions supported up to UXGA
- Full 24 bits per pixel color resolution
- Ideal for use with high resolution LCD, plasma, and projection screens
- Superior digital data transmission
- Comprehensive signal and card status monitoring via four-digit card-edge display, or through SNMP and VistaLINK™ -enabled capability
- Fully hot-swappable from front of frame with no fiber disconnect/re-connect required
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range
- Optional 2 channel stereo analog audio
- Optional keyboard and mouse

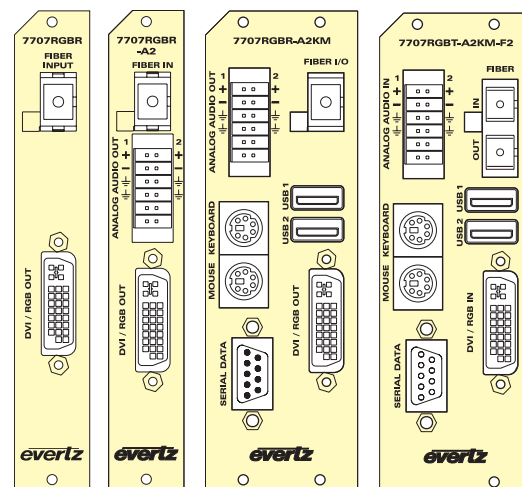
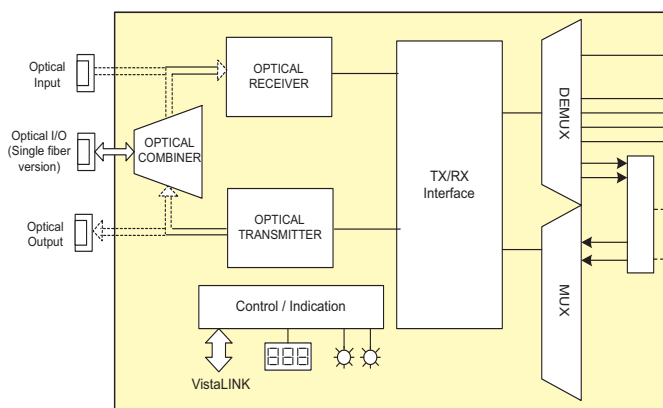
7707RGBR Application Configurations (“-A2KM” KVM Version)

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<500m	7707RGBT13-A2KM-F2	-7dBm	7707RGBR13-A2KM-F2	-19dBm	1310nm on Tx & Rx fibers
Single-Mode	2	12dB/34km	7707RGBT13-A2KM-F2	-7dBm	7707RGBR13-A2KM-F2	-19dBm	1310nm on Tx & Rx fibers
Single-Mode	1	8dB/20km*	7707RGBT15-A2KM-W	-1dBm	7707RGBR13-A2KM-W	-17dBm	1310nm/1550nm WDM bi-directional, one fiber
Single-Mode	2(CWDM)	15.5dB/60km**	7707RGBTxx-A2KM-F2	0dBm	7707RGBRyy-A2KM-F2	-19dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	2(DWDM)	21dB/80km***	7707RGBTDxxx-A2KM-F2	+7dBm	7707RGBRDyyy-A2KM-F2	-19dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux**
* With >20dB return loss on fiber interface ** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB *** Assumes 8 Ch DWDM Mux/Demux loss of 5dB					Tx Power/Rx Sensitivity are nominal values ±1dBm Fiber loss= 0.35/0.25dB per km @1310nm/1550nm		

RGBHV/DVI/KVM Fiber Receiver

VistaLINK™ Monitoring

7707RGBR Block Diagram



Specifications

Video Output:

Standards:	DVI 1.0, VESA
Number of Outputs:	1
Connectors:	28-pin DVI with Analog
Video Resolution:	Up to UXGA (1600x1200) at 60Hz
Video Bandwidth:	500MHz
Color Resolution:	24 bits
Analog Output Level:	1.4 Vp-p (maximum)
Analog Output Impedance:	75Ω
Signal/Noise Ratio:	> 55 dB

Analog Audio Output (A2, A2KM & A2KM-F2 versions):

Number of Outputs:	2
Type:	Balanced analog audio
Connector:	12 pin removable terminal block
Impedance:	High Impedance (> 20kΩ)
Frequency Response:	±0.1dB (20Hz to 20kHz)
THD:	< 0.005% (20Hz to 20kHz)
Channel Phase Diff:	< ±1°
SNR:	> 85dB
Level:	-20dB to +3dB
Maximum Output Level:	+24dBu into 10kΩ loads

Keyboard/Mouse Input/Output (A2KM & A2KM-F2 versions):

Standards:	USB 1.0
Number:	2 (Mouse), 2 (Keyboard)
Connector:	1 PS2 and 1 USB for each keyboard & mouse

Optical Input:

Number of Inputs:	1
Connector:	Female SC/PC, ST/PC or FC/PC
Operating Wavelength:	1270nm - 1610nm
Max Input Power:	0dBm
Optical Sensitivity:	See Application Configuration chart

Optical Output (A2KM & A2KM-F2 versions):

Number of Inputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC
Wavelengths:	See Ordering Information
Power:	See Application Configuration Chart

Electrical:

Voltage:	+12 VDC
Power:	11 Watts (Non-DWDM), 14 Watts (DWDM)

Physical:

Number of Slots:	1 (Standard versions) 2 (A2KM versions)
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Compliance:

Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive Class 1 laser product Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1
Laser Safety:	Complies with FCC Part 15, Class A EU EMC directive
EMI/RFI:	

Ordering Information:

7707RGBR	RGBHV/DVI Fiber Receiver
7707RGBR-A2	RGBHV/DVI +2 Analog Audio Fiber Receiver
7707RGBR13-A2KM-F2	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Receiver, dual fiber, 1310nm TX & RX
7707RGBR13-A2KM-W	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Receiver, single fiber, 1310nm TX, RX on 1550nm
For CWDM, please refer to the end of the fiber section for ordering information	
7707RGBRxx-A2KM-F2	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Receiver, dual fiber, CWDM Laser
For DWDM, please refer to the end of the fiber section for ordering information	
7707RGBRDyyy-A2KM-F2	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Receiver, dual fiber, DWDM Laser

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix:

+3RU:	3RU rear plate for use with 7700FR-C Multiframe
+1RU:	1RU rear plate for use with 7701FR Multiframe
+SA:	Standalone Enclosure Rear Plate

Connector Suffix:

+SC:	SC/PC
+ST:	ST/PC
+FC:	FC/PC

Enclosures:

7700FR-C:	3RU Multiframe which holds 15 modules
7701FR:	1RU Multiframe which holds 3 modules
S7701FR:	Standalone enclosure

7707RGRB



The 7707RGRB is a VistaLINK® SNMP - capable RGBHV/DVI/KVM receiver for high resolution/high quality video signals. Available in fiber optic and coaxial versions, this single card module accepts an input from the companion 7707RGRB RGBHV/DVI/KVM Transmitter and outputs both analog RGBHV and digital DVI video. The 7707RGRB is also available with analog audio, keyboard + mouse, serial and USB options.

The 7707RGRB occupies one card slot (two card slots for the A2KM and A2KM-USB versions) and can be housed in a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- Supports DVI or RGBHV transport over a single fiber or coax (-C version)
- Provides both RGBHV and DVI outputs simultaneously
- VESA video resolutions supported up to WUXGA
- Full 24 bits per pixel color resolution
- Ideal for use with high resolution LCD, plasma, and projection screens
- Superior digital data transmission
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK®.
- VistaLINK® capability is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame.
- Fully hot-swappable from front of frame with no fiber disconnect/re-connect required
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range
- Optional 2 channel stereo analog audio
- Optional keyboard, mouse and serial
- Optional USB interface
- Optional G-Link support for use with Evertz VIP™ & MVP™ Multi-display products
- Optional coax I/O for Tx & Rx

7707RGRB Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<500m	7707RGRB13-A2KM-USB-F2	-7dBm	7707RGRB13-A2KM-USB-F2	-19dBm	1310nm on Tx & Rx fibers
Single-Mode	2	12dB/34km	7707RGRB13-A2KM-USB-F2	-7dBm	7707RGRB13-A2KM-USB-F2	-19dBm	1310nm on Tx & Rx fibers
Single-Mode	1	8dB/20km*	7707RGRB15-A2KM-W	-1dBm	7707RGRB13M-A2KM-W	-17dBm	1310nm/1550nm WDM bi-directional, one fiber
Single-Mode	1(CWDM)	15.5dB/60km**	7707RGRBxx-A2KM-USB-F2	0dBm	7707RGRByy-A2KM-USB-F2	-19dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	21dB/80km***	7707RGRBDyyy-A2KM-USB-F2	+7dBm	7707RGRBDyyy-A2KM-USB-F2	-19dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux**

* With >20dB return loss on fiber interface

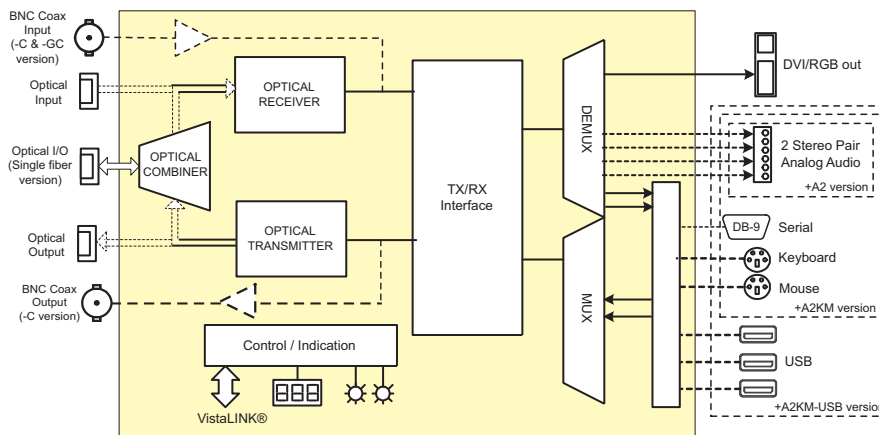
** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB

*** Assumes 8 Ch DWDM Mux/Demux loss of 5dB

Tx Power/Rx Sensitivity are nominal values ± 1 dBm

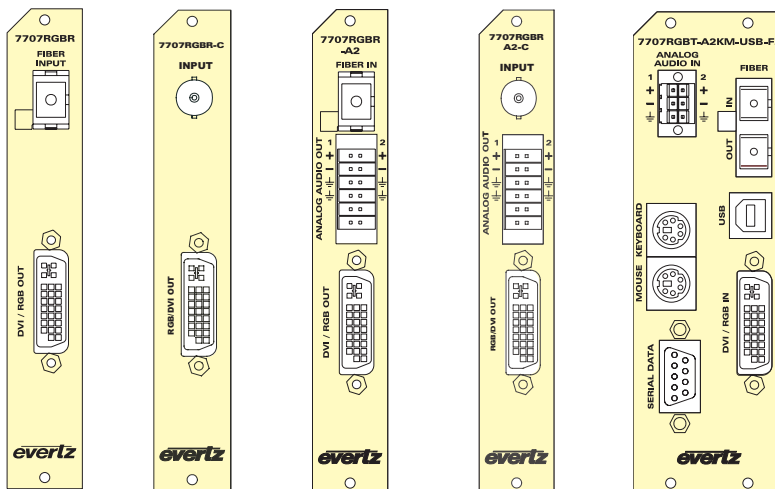
Fiber loss= 0.35/0.25dB per km @1310nm/1550nm

7707RGRB Block Diagram



RGBHV/DVI/KVM Fiber Receiver 7707RGBR

7707RGBR Rear Panels



Specifications

Video Output:

Standards:	DVI 1.0, VESA
Number of Outputs:	1
Connectors:	28-pin DVI with Analog
Video Resolution:	Up to WUXGA (1920x1200) at 75Hz
Video Bandwidth:	500MHz
Color Resolution:	24 bits
Analog Output Level:	1.4 Vp-p (maximum)
Analog Output Impedance:	75Ω
Signal/Noise Ratio:	> 55 dB

Analog Audio Output (A2, A2KM & A2KM-USB-F2 versions):

Number of Outputs:	2
Type:	Balanced analog audio
Connector:	12 pin removable terminal block
Impedance:	High Impedance (> 20kΩ)
Frequency Response:	±0.1dB (20Hz to 20kHz)
THD:	< 0.005% (20Hz to 20kHz)
Channel Phase Diff:	< ±1°
SNR:	> 85dB
Level:	-20dB to +3dB
Maximum Output Level:	+24dBu into 10kΩ loads

Serial, Keyboard/Mouse, USB Input/Output (A2KM & A2KM-USB versions):

Standards:	USB 1.1
Number:	3 (A2KM versions), 6 (USB versions)
Connector:	2 PS2 for keyboard & mouse 3 USB Type A, 1 DB-9F serial

Optical Input:

Number of Inputs:	1
Connector:	Female SC/PC, ST/PC or FC/PC
Operating Wavelength:	1270nm - 1610nm
Max Input Power:	0dBm
Optical Sensitivity:	See Application Configuration chart

Coaxial Input (-C, -C2, and -GC versions):

Number of Inputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2

Optical Output (A2KM & A2KM-USB-F2 versions):

Number of Outputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC
Wavelengths:	See Ordering Information
Power:	See Application Configuration Chart

Coaxial Output (-C2 versions):

Number of Outputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2

Electrical:

Voltage:	+12 VDC
Power:	11 Watts (Non-DWDM), 14 Watts (DWDM)

Physical:

Number of Slots:	1 (Standard versions) 2 (A2KM versions)
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Compliance:

Electrical Safety:

CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product

Laser Safety:

Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1

EMI/RFI:

Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

7707RGBR	RGBHV/DVI Fiber Receiver
7707RGBR-C	RGBHV/DVI Coaxial Receiver
7707RGBR-GC	RGBHV/DVI G-Link Coaxial Receiver
7707RGBR-GF	RGBHV/DVI G-Link Fiber Receiver
7707RGBR-A2	RGBHV/DVI +2 Analog Audio Fiber Receiver
7707RGBR-A2-GC	RGBHV/DVI +2 Analog Audio, G-Link Coaxial Receiver
7707RGBR-A2-GF	RGBHV/DVI +2 Analog Audio, G-Link Fiber Receiver
7707RGBR13-A2KM-F2	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Receiver, dual fiber, 1310nm TX & RX
7707RGBR-A2KM-C2	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Coaxial Receiver, dual coax, TX & RX
7707RGBR13-A2KM-USB-F2	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse + USB, Fiber Receiver, dual fiber, 1310nm TX & RX
7707RGBR-A2KM-USB-C2	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse + USB Coaxial Receiver, dual coax, TX & RX
7707RGBR13M-A2KM-W	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Receiver, single fiber, 1310nm TX, RX on 1550nm
7707RGBR13M-A2KM-USB-W	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse + USB Fiber Receiver, single fiber, 1310nm TX, RX on 1550nm

For CWDM, please refer to the end of the fiber section for ordering information

7707RGBR-yy-A2KM-F2	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Receiver, dual fiber, CWDM Laser
7707RGBR-yy-A2KM-USB-F2	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse + USB Fiber Receiver, dual fiber, CWDM Laser

For DWDM, please refer to the end of the fiber section for ordering information

7707RGBR-Dyyy-A2KM-F2	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Receiver, dual fiber, DWDM Laser
7707RGBR-Dyyy-A2KM-USB-F2	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse and USB Fiber Receiver, dual fiber, DWDM Laser

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix:

+3RU:	3RU rear plate for use with 7700FR-C Multiframe
+1RU:	1RU rear plate for use with 7701FR Multiframe
+SA:	Standalone Enclosure Rear Plate

Connector Suffix:

+SC:	SC/PC
+ST:	ST/PC
+FC:	FC/PC

Enclosures:

7700FR-C:	3RU Multiframe which holds 15 modules
7701FR:	1RU Multiframe which holds 3 modules
S7701FR:	Standalone enclosure

RGBHV/DVI/KVM Fiber Transmitter

VistaLINK™ Monitoring



Model 7707RGBT

The 7707RGBT is a VistaLINK™ SNMP-enabled RGBHV/DVI/KVM fiber transmitter for high resolution/high quality video signals. This single card module accepts one analog RGBHV or digital DVI video input up to UXGA resolution and transmits them over a single fiber. The 7707RGBT is also available with analog audio and keyboard + mouse options. The companion 7707RGBR RGBHV/DVI/KVM Fiber Receiver demultiplexes the signals and converts them back to analog RGBHV and digital DVI.

The fiber output is available in an assortment of optical wavelengths, accommodating 1310/1550nm, CWDM and DWDM transmission schemes.

The 7707RGBT occupies one card slot (two card slots for the A2KM version) and can be housed in either a 1RU frame, which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold 1 module.

Features

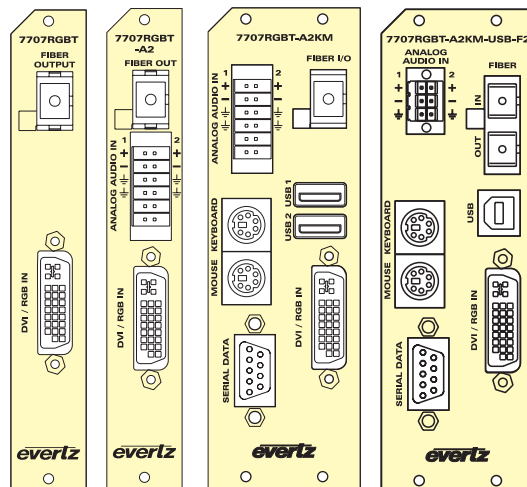
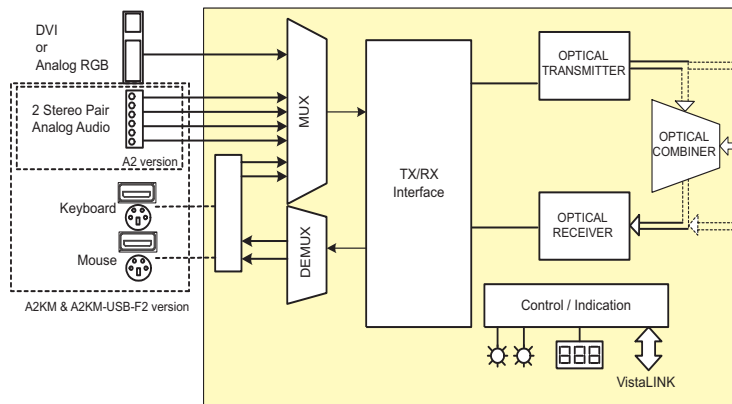
- Supports DVI or RGBHV transport over a single fiber
- Both RGBHV and DVI outputs available simultaneously on companion 7707RGBR Receiver
- VESA video resolutions supported up to UXGA
- Full 24 bits per pixel color resolution
- Ideal for use with high resolution LCD, plasma, and projection screens
- Superior digital data transmission
- Comprehensive signal and card status monitoring via four-digit card-edge display, or through SNMP and VistaLINK™-enabled capability
- Fully hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths at 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Optional 2 channel stereo analog audio
- Optional keyboard and mouse
- Optional keyboard and mouse feature

7707RGBT Application Configurations (“-A2KM” KVM Version)

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<500m	7707RGBT13-A2KM-USB-F2	-7dBm	7707RGBR13-A2KM-USB-F2	-19dBm	1310nm on Tx & Rx fibers
Single-Mode	2	12dB/34km	7707RGBT13-A2KM-USB-F2	-7dBm	7707RGBR13-A2KM-USB-F2	-19dBm	1310nm on Tx & Rx fibers
Single-Mode	1	8dB/20km*	7707RGBT15-A2KM-W	-1dBm	7707RGBR13-A2KM-W	-17dBm	1310nm/1550nm WDM bi-directional, one fiber
Single-Mode	2(CWDM)	15.5dB/60km**	7707RGBTxx-A2KM-USB-F2	0dBm	7707RGBRyy-A2KM-USB-F2	-19dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	2(DWDM)	21dB/80km***	7707RGBTDxxx-A2KM-USB-F2	+7dBm	7707RGBRDyyy-A2KM-USB-F2	-19dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux**
* With >20dB return loss on fiber interface ** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB *** Assumes 8 Ch DWDM Mux/Demux loss of 5dB					Tx Power/Rx Sensitivity are nominal values ±1dBm Fiber loss= 0.35/0.25dB per km @1310nm/1550nm		

RGBHV/DVI/KVM Fiber Transmitter VistaLINK™ Monitoring

7707RGBT Block Diagram



Specifications

Video Input:

Standards: DVI 1.0, VESA
Number of Inputs: 1
Connectors: 28-pin DVI with Analog
Video Resolution: Up to UXGA (1600x1200) at 60Hz
Video Bandwidth: 500MHz
Color Resolution: 24 bits
Analog Output Level: 1 Vp-p (maximum)
Analog Output Impedance: 75Ω
Signal/Noise Ratio: > 55 dB

Analog Audio Input (A2, A2KM & A2KM-USB-F2 versions):

Number of Inputs: 2
Type: Balanced analog audio
Connector: 12 pin removable terminal block
Impedance: High Impedance (> 20kΩ)
Frequency Response: ±0.1dB (20Hz to 20kHz)
THD: < 0.005% (20Hz to 20kHz)
Channel Phase Diff: < ±1°
SNR: > 85dB
Maximum Input Level: +24dBu
Signal Quantization: 24 bits

Keyboard/Mouse Input/Output (A2KM & A2KM-USB-F2 versions):

Standards: USB 1.0
Number: 2 (Mouse), 2 (Keyboard)
Connector: 1 PS2 and 1 USB for each keyboard & mouse

Optical Output:

Number of Outputs: 1
Connector: Female SC/PC, ST/PC or FC/PC
Wavelengths: See Ordering Information
Output Power: See Application Configuration Chart

Optical Input (A2KM & A2KM-USB-F2 versions):

Number of Inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC
Wavelength: 1270 to 1610nm
Maximum Power: 0dBm
Optical Sensitivity: See Application Configuration Chart

Electrical:

Voltage: +12 VDC
Power: 11 Watts (Non-DWDM), 14 Watts (DWDM)

Physical:

Number of Slots: 1 (Standard version)
2 (A2KM versions)

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

7707RGBT13	RGBHV/DVI Fiber Transmitter, 1310nm FP
7707RGBT13-A2	RGBHV/DVI + 2 Analog Audio Fiber Transmitter, 1310nm FP
7707RGBT13-A2KM-USB-F2	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Transmitter, dual fiber, 1310nm TX & RX
7707RGBT15-A2KM-W	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Transmitter, single fiber, 1550nm TX, RX on 1310nm
 <u>For CWDM, please refer to the end of the fiber section for ordering information</u>	
7707RGBTxx	RGBHV/DVI Fiber Transmitter, CWDM Laser
7707RGBTxx-A2	RGBHV/DVI+ 2 Analog Audio Fiber Transmitter, dual fiber, CWDM Laser
7707RGBTxx-A2KM-USB-F2	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Transmitter, dual fiber, CWDM Laser
 <u>For DWDM, please refer to the end of the fiber section for ordering information</u>	
7707RGBTDyyy	RGBHV/DVI Fiber Transmitter, DWDM Laser
7707RGBTDyyy-A2	RGBHV/DVI + 2 Analog Audio Fiber Transmitter, dual fiber, DWDM Laser
7707RGBTDyyy-A2KM-USB-F2	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Transmitter, dual fiber, DWDM Laser

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix:

+3RU: 3RU rear plate for use with 7700FR-C Multiframe
+1RU: 1RU rear plate for use with 7701FR Multiframe
+SA: Standalone Enclosure Rear Plate

Connector Suffix:

+SC: SC/PC
+ST: ST/PC
+FC: FC/PC

Enclosures:

7700FR-C: 3RU Multiframe which holds 15 modules
7701FR: 1RU Multiframe which holds 3 modules
S7701FR: Standalone enclosure



The 7707RGBT is a VistaLINK® SNMP -capable RGBHV/DVI/KVM fiber transmitter for high resolution/high quality video signals. This single card module accepts one analog RGBHV or digital DVI video input up to WUXGA resolution and transmits them over a single fiber or coax cable. The 7707RGBT is also available with analog audio, keyboard + mouse, serial and USB options. The companion 7707RGBR RGBHV/DVI/KVM Fiber Receiver demultiplexes the signals and converts them back to analog RGBHV and digital DVI.

The -C version provides an electrical I/O path via coax in addition to the fiber I/O path. This allows the cards to interface with electrical devices supporting 3Gb/s (i.e. electrical router) while providing the capability to convert the electrical signal back to optical on the same card.

The fiber output is available in an assortment of optical wavelengths, accommodating 1310/1550nm, CWDM and DWDM transmission schemes.

The 7707RGBT series occupy one, two or three card slots. (See the physical specifications for the slot count of the specific card) They can be housed in a 1RU frame, which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold 1 module. 7707RGBT13-A2KM-C-F2 and 7707RGBT13-A2KM-USB-C-F2 versions can be housed in the 3RU frame only.

Features

- Supports DVI or RGBHV transport over a single fiber or coax (-C version)
- Both RGBHV and DVI outputs available simultaneously on companion 7707RGBR Receiver
- VESA video resolutions supported up to WUXGA
- Full 24 bits per pixel color resolution
- Ideal for use with high resolution LCD, plasma, and projection screens
- Superior digital data transmission
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK®.
- VistaLINK® capability is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame.
- Fully hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths at 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Optional 2 channel stereo analog audio
- Optional keyboard, mouse and serial
- Optional USB interface
- Optional coaxial BNC connectors with additional optical/electrical conversion
- Optional G-Link support for use with Evertz VIP™ & MVP™ Multi-display products
- Optional coax I/O for Tx & Rx

7707RGBT Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<500m	7707RGBT13-A2KM-USB-F2	-7dBm	7707RGBR13-A2KM-USB-F2	-19dBm	1310nm on Tx & Rx fibers
Single-Mode	2	12dB/34km	7707RGBT13-A2KM-USB-F2	-7dBm	7707RGBR13-A2KM-USB-F2	-19dBm	1310nm on Tx & Rx fibers
Single-Mode	1	8dB/20km*	7707RGBT15-A2KM-W	-1dBm	7707RGBR13-A2KM-W	-17dBm	1310nm/1550nm WDM bi-directional, one fiber
Single-Mode	1(CWDM)	15.5dB/60km**	7707RGBTxx-A2KM-USB-F2	0dBm	7707RGBRyy-A2KM-USB-F2	-19dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDMux/Demux**
Single-Mode	1(DWDM)	21dB/80km***	7707RGBTDxxx-A2KM-USB-F2	+7dBm	7707RGBRDyyy-A2KM-USB-F2	-19dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDMx/Demux**

* With >20dB return loss on fiber interface

** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB

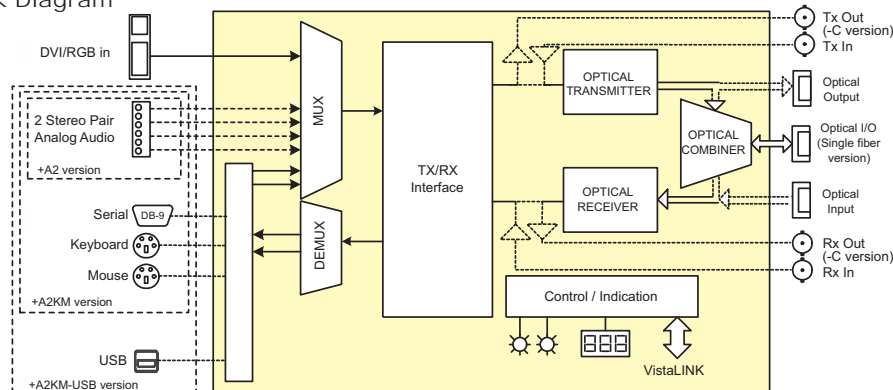
*** Assumes 8 Ch DWDM Mux/Demux loss of 5dB

Tx Power/Rx Sensitivity are nominal values ± 1 dBm

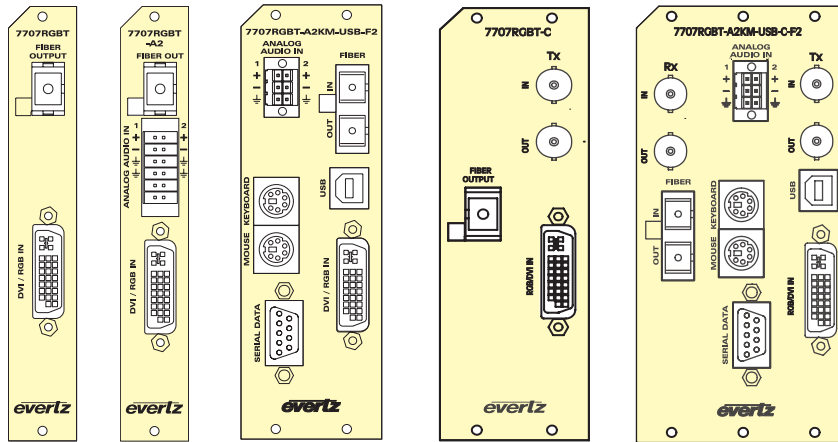
Fiber loss= 0.35/0.25dB per km @1310nm/1550nm

Note: Same TX power & Rx sensitivity applies for -C versions with Fiber I/O

7707RGBT Block Diagram



RGBHV/DVI/KVM Fiber Transmitter 7707RGBT



Specifications

Video Input:

Standards:	DVI 1.0, VESA
Number of Inputs:	1
Connectors:	28-pin DVI with Analog
Video Resolution:	Up to WUXGA (1920x1200) at 75Hz
Video Bandwidth:	500MHz
Color Resolution:	24 bits
Analog Output Level:	1 Vp-p (maximum)
Analog Output Impedance:	75Ω
Signal/Noise Ratio:	> 55 dB

Analog Audio Input (A2, A2KM & A2KM-USB versions):

Number of Inputs:	2
Type:	Balanced analog audio
Connector:	12 pin removable terminal block
Impedance:	High Impedance (> 20kΩ)
Frequency Response:	±0.1dB (20Hz to 20kHz)
THD:	< 0.005% (20Hz to 20kHz)
Channel Phase Diff:	< ±1°
SNR:	> 85dB
Maximum Input Level:	+24dBu
Signal Quantization:	24 bits

Serial, Keyboard/Mouse, USB Input/Output (A2KM & A2KM-USB versions):

Standards:	USB 1.1
Number:	3 (A2KM versions), 4 (USB versions)
Connector:	2 PS2 for keyboard & mouse 1 USB Type B, 1 DB-9F serial

Coaxial Output (-C, -C2 & -GC versions):

Number of Outputs:	1 or 2
Connector:	BNC per IEC 60169-8 Amendment 2

Optical Output:

Number of Outputs:	1
Connector:	Female SC/PC, ST/PC or FC/PC
Wavelengths:	See Ordering Information
Output Power:	See Application Configuration Chart

Coaxial Input (-C & -C2 versions):

Number of Inputs:	1 or 2
Connector:	BNC per IEC 60169-8 Amendment 2

Optical Inputs:

Number of Inputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC
Wavelength:	1270 to 1610nm
Maximum Power:	0dBm
Optical Sensitivity:	See Application Configuration Chart

Electrical:

Voltage:	+12 VDC
Power:	11 Watts (Non-DWDM), 14 Watts (DWDM)

Physical:

Number of Slots:	1 (Standard and A2 versions) 2 (RGBT-C, A2KM, and A2KM-USB versions) 3 (A2KM-C, and A2KM-USB-C versions)
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Compliance:

Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive Class 1 laser product Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1
Laser Safety:	Complies with FCC Part 15, Class A EU EMC directive
EMI/RFI:	

Ordering Information:

7707RGBT13	RGBHV/DVI Fiber Transmitter, 1310nm FP
7707RGBT-C	RGBHV/DVI Coaxial Transmitter
7707RGBT13-C	RGBHV/DVI Coax Transmitter + E to O converter, 1310nm FP
7707RGBT-GC	RGBHV/DVI G-Link Coaxial Transmitter
7707RGBT-GF	RGBHV/DVI G-Link Fiber Transmitter, 1310nm FP Laser
7707RGBT13-A2	RGBHV/DVI + 2 Analog Audio Fiber Transmitter, 1310nm FP Laser
7707RGBT13-A2-C	RGBHV/DVI + 2 Analog Audio Coax Transmitter + E to O converter, 1310nm FP Laser
7707RGBT-A2-C	RGBHV/DVI + 2 Analog Audio, Coaxial Transmitter
7707RGBT-A2-GC	RGBHV/DVI + 2 Analog Audio, G-Link Coaxial Transmitter
7707RGBT-A2-GF	RGBHV/DVI + 2 Analog Audio, G-Link Fiber Transmitter, 1310nm FP Laser
7707RGBT13-A2KM-F2	RGBHV/DVI + 2 Analog Audio + Bi-di Keyboard and Mouse Fiber Transmitter, dual fiber, 1310nm TX & RX
7707RGBT-A2KM-C2	RGBHV/DVI + 2 Analog Audio + Bi-di Keyboard and Mouse Coaxial Transmitter, dual coax, TX & RX
7707RGBT13-A2KM-USB-C-F2	RGBHV/DVI + 2 Analog Audio + Bi-di Keyboard and Mouse + USB Coaxial Transmitter + E to O converter, dual fiber/coax, 1310nm TX & RX
7707RGBT13-A2KM-USB-F2	RGBHV/DVI + 2 Analog Audio + Bi-di Keyboard and Mouse + USB Fiber Transmitter, dual fiber, 1310nm TX & RX
7707RGBT-A2KM-USB-C2	RGBHV/DVI + 2 Analog Audio + Bi-di Keyboard and Mouse + USB Coaxial Transmitter, dual coax, TX & RX
7707RGBT13-A2KM-USB-C-F2	RGBHV/DVI + 2 Analog Audio + Bi-di Keyboard and Mouse + USB Coaxial Transmitter + E to O/O to E converter, dual fiber/coax, 1310nm TX & RX
7707RGBT15-A2KM-W	RGBHV/DVI + 2 Analog Audio + Bi-di Keyboard and Mouse Fiber Transmitter, single fiber, TX on 1550nm, RX on 1310nm
7707RGBT15-A2KM-USB-W	RGBHV/DVI/KVM + 2 Analog Audio + Bi-di Keyboard and Mouse + USB Fiber Transmitter, single fiber, TX on 1550nm, RX on 1310nm

For CWDM, please refer to the end of the fiber section for ordering information

7707RGBTxx	RGBHV/DVI Fiber Transmitter, CWDM Laser
7707RGBTxx-A2	RGBHV/DVI + 2 Analog Audio Fiber Transmitter, CWDM Laser
7707RGBTxx-A2KM-F2	RGBHV/DVI + 2 Analog Audio + Bi-di Keyboard and Mouse Fiber Transmitter, dual fiber, CWDM Laser
7707RGBTxx-A2KM-USB-F2	RGBHV/DVI/KVM + 2 Analog Audio + Bi-di Keyboard Mouse + USB Fiber Transmitter, dual fiber, CWDM Laser

For DWDM, please refer to the end of the fiber section for ordering information

7707RGBTDxxx	RGBHV/DVI Fiber Transmitter, DWDM Laser
7707RGBTDxxx-A2	RGBHV/DVI + 2 Analog Audio Fiber Transmitter, DWDM Laser
7707RGBTDxxx-A2KM-F2	RGBHV/DVI + 2 Analog Audio + Bi-di Keyboard and Mouse Fiber Transmitter, dual fiber, DWDM Laser
7707RGBTDxxx-A2KM-USB-F2	RGBHV/DVI + 2 Analog Audio + Bi-di Keyboard Mouse+ USB Fiber Transmitter, dual fiber, DWDM Laser

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix:

+3RU:	3RU rear plate for use with 7700FR-C Multiframe
+1RU:	1RU rear plate for use with 7701FR Multiframe
+SA:	Standalone Enclosure Rear Plate

Connector Suffix:

+SC:	SC/PC
+ST:	ST/PC
+FC:	FC/PC

Enclosures:

7700FR-C:	3RU Multiframe which holds 15 modules
7701FR:	1RU Multiframe which holds 3 modules
S7701FR:	Standalone enclosure

Dual S-Video Fiber Receiver

7707SVR-2



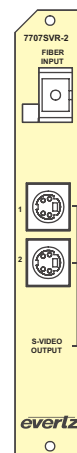
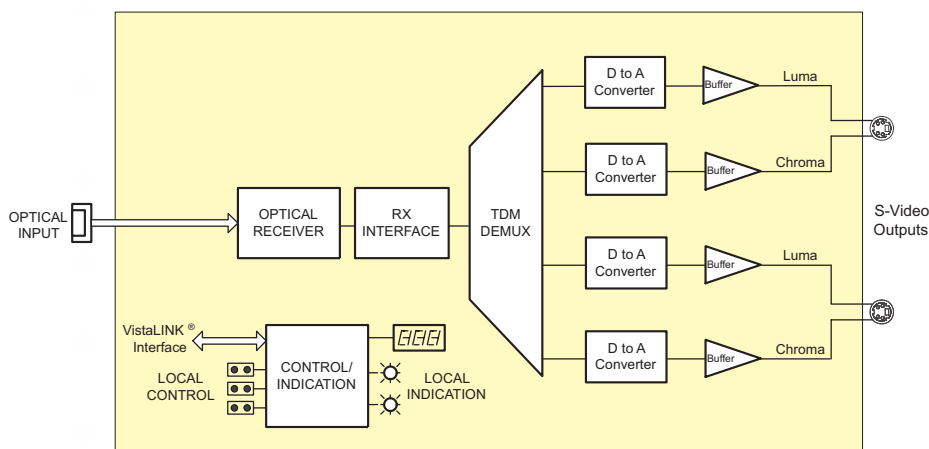
The 7707SVR-2 is a VistaLINK® - capable, S-Video fiber receiver for broadcast quality video signals. This single card module accepts a fiber optic input from the companion 7707SVT-2 S-Video Fiber Transmitter, demultiplexes the signals, performs D to A conversion and outputs NTSC or PAL S-Video signals.

The 7707SVR-2 occupies one card slot and can be housed in a 1RU frame which will hold up to 3 modules, a 3 RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- Single card fiber optic receiver for up to two S-Video signals
- Supports both NTSC and PAL video signals
- Broadcast quality S-Video performance
- Meets or exceeds EIA/TIA RS250-C short haul specifications for analog video transport
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK®.
- VistaLINK® capability is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame.
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range

7707SVR-2 Block Diagram & Rear Panel



Specifications

Optical Input:

Number of Inputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC
Operating Wavelength:	1270nm to 1610nm
Maximum Input Power:	0dBm
Optical Sensitivity:	-28dBm

S-Video Outputs:

Standards:	NTSC, SMPTE 170M, PAL, ITU-R624-4
Number of Outputs:	2
Connector:	IEC 933-5 (4-pin mini-DIN)
System bandwidth:	5.5 MHz
Output Level:	Y: 1.0Vp-p, C: 0.286Vp-p
Output Impedance:	75Ω
Return Loss:	> 20dB
SNR:	> 70dB
Differential Gain:	< 1.0%
Differential Phase:	< 0.7°
Passband Ripple:	
NTSC:	< ±0.1dB to 4.1MHz and < ±0.2dB to 5.5MHz
PAL:	< ±0.1dB to 4.8MHz and < ±0.2dB to 5.8MHz

System Performance (7707SVT-2 + 7707SVR-2):

Video Input to	
Output Delay:	<10μs

Electrical:

Voltage:	+12VDC
Power:	12 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC directive

Physical:

Number of slots:	1
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Ordering Information:

7707SVR-2	Dual S-Video Fiber Receiver, VistaLINK®
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Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone Enclosure



Dual S-Video Fiber Transmitter

7707SVT-2



The 7707SVT-2 is a VistaLINK® - capable, S-Video fiber transmitter for broadcast quality signals. This single card module accepts up to two S-Video inputs, performs analog to digital conversion and transmits them over a single fiber. The companion 7707SVR-2 S-Video Fiber Receiver demultiplexes the signals and converts them back to analog form.

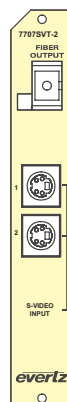
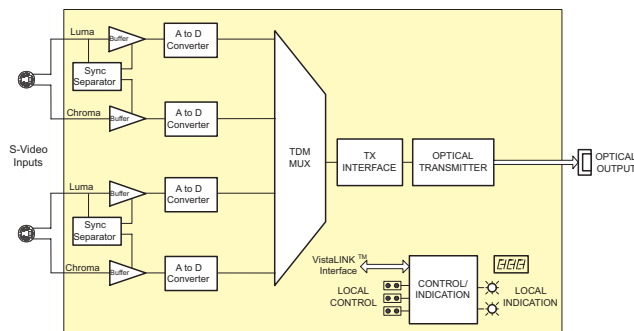
The fiber output of the 7707SVT-2 is available in an assortment of optical wavelengths accommodating 1310nm/1550nm, CWDM and DWDM transmission schemes.

The 7707SVT-2 occupies one card slot and can be housed in a 1RU frame which will hold up to three modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure that will hold 1 module.

Features

- Single card fiber optic transmitter for up to two S-Video signals
- Supports both NTSC and PAL video signals
- Broadcast quality S-Video performance
- Meets or exceeds EIA/TIA RS250-C short haul specifications for analog video transport
- Superior digital data transmission
- Signal transport over fiber is uninterrupted by loss of input video feeds
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK®.
- VistaLINK® capability is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame.
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available

7707SVT-2 Block Diagram & Rear Panel



Specifications

Analog S-Video Input:

Standards:	NTSC, SMPTE 170M, PAL, ITU-R 624-4
Number of Inputs:	2
Connector:	IEC 933-5 (4-pin mini-DIN)
Signal Quantization:	12 bits
System Bandwidth:	5.5MHz
Input Level:	Y: 1.0Vp-p, C: 0.286Vp-p
Input impedance:	75Ω
Return Loss:	> 30dB to 5.5 MHz
Signal/Noise Ratio:	> 70dB
Differential Gain:	< 1.0 %
Differential Phase:	< 0.7°
Passband Ripple:	
NTSC:	< ± 0.1dB to 4.1 MHz < ± 0.2dB to 5.5 MHz < ± 0.1dB to 4.8 MHz < ± 0.2dB to 5.8 MHz
PAL:	1.2%
Line Time Distortion:	

Optical Outputs:

Number of Outputs:	1
Connector:	Female SC/PC, ST/PC or FC/PC
Return Loss:	> 14 dB
Wavelengths:	
Standard	1310nm, 1550nm (nominal)
CWDM:	See Ordering Information
DWDM:	See Ordering Information
Output Power:	
1310nm FP (Standard)	-7dBm ± 1dBm
1550 & CWDM DFB	0dBm ± 1dBm
DWDM:	+7dBm ± 1dBm

System Performance (7707SVT-2 + 7707SVR-2):

Video Input to Output Delay: < 10μs

Electrical:

Voltage:	+12VDC
Power:	11/12 Watts (Non-DWDM), 13/14 Watts (DWDM)

Physical:

Number of slots:	1
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Compliance:

Electrical Safety:

CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Complies with FCC Part 15, Class A
EU EMC directive

Laser Safety:

EMI/RFI:

Ordering Information:

7707SVT13-2	Dual S- Video Fiber Transmitter, 1310nm FP Laser, VistaLINK®
7707SVT15-2	Dual S- Video Fiber Transmitter, 1550nm DFB Laser, VistaLINK®

For CWDM, please refer to the end of the fiber section for ordering information

7707SVTxx-2	Dual S-Video Fiber Transmitter CWDM DFB Laser, VistaLINK®
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For DWDM, please refer to the end of the fiber section for ordering information

7707SVTDyyy-2	Dual S-Video Fiber Transmitter DWDM DFB Laser, VistaLINK®
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Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone Enclosure



SDI with 2 AES Audio Fiber Receiver

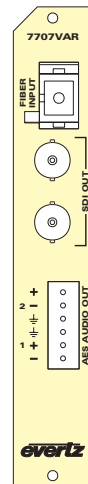
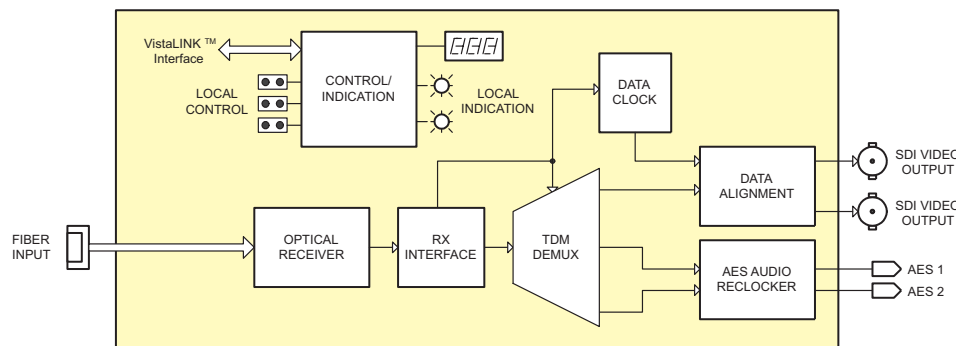
Models 7707VAR



Features

- SDI video and 2 AES audio fiber optic receiver
- Supports 270Mbps on 525 or 625 line 4:2:2 component SDI and SDTi (SMPTE 305M) video signals
- Supports 32, 44.1, 48 kHz AES audio inputs
- Dolby E compatible
- Incorporates Evertz SoftSwitch™ (Patent Pending) technology for virtually glitch-free AES Audio outputs when upstream SDI or AES feeds are switched
- User selectable SoftSwitch™ bypass
- Low Audio to Video latency
- Output AES "Mute" on loss of AES or fiber optic input signals
- SDI Video regeneration for jitter reduction
- Output Video "Black" or "Blue" (selectable) on loss of video or fiber optic input signals
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™-enabled capability
- Local display of optical signal strength, video and audio presence, video and AES formats, EDH errors
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range
- Occupies one card slot and can be housed in either a 1RU frame, which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module

7707VAR Block Diagram



Specifications

Optical Input:

Number of Inputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC
Return Loss:	>25dB
Operating Wavelength:	1270nm to 1610nm
Maximum Input Power:	0dBm
Optical Sensitivity:	-28dBm

Serial Video Outputs:

Number of Outputs:	2 regenerated
Standard:	SMPTE 259M-C
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	900ps nominal
Overshoot:	<10% of amplitude
Return Loss:	> 15dB at 270Mb/s
Wide Band Jitter:	< 0.15UI

AES Audio Outputs:

Number of Outputs:	2 regenerated (jumper selectable for balanced or unbalanced)
Standard:	
Unbalanced AES:	SMPTE 276M
Balanced AES:	AES3-1992
Other:	Dolby E compatible
Connector:	6 pin terminal strip
Signal Level:	
Unbalanced:	1 Vp-p
Balanced:	5 Vp-p
Resolution:	Up to 24-bits
Sampling Rate:	32, 44.1, 48 kHz
Intrinsic Jitter:	< 20ns
Impedance:	
Unbalanced:	75Ω
Balanced:	110Ω

System Performance: (7707VAR + 7707VAT)

Video Input To Output Delay:	< 1.5 μs
Audio to Video delay:	< 1μs with SoftSwitch™ disabled < 2ms with SoftSwitch™ enabled

Electrical:

Voltage:	+12VDC
Power:	10 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of slots:	1
------------------	---

Ordering Information:

7707VAR	SDI with 2 AES Audio Fiber Receiver, VistaLINK™ Monitoring
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Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC	Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC	Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC	Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC	Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC	Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC	Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

SDI with 4 Analog Audio Fiber Receiver

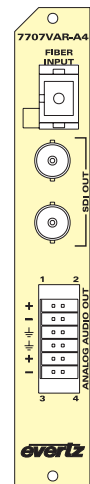
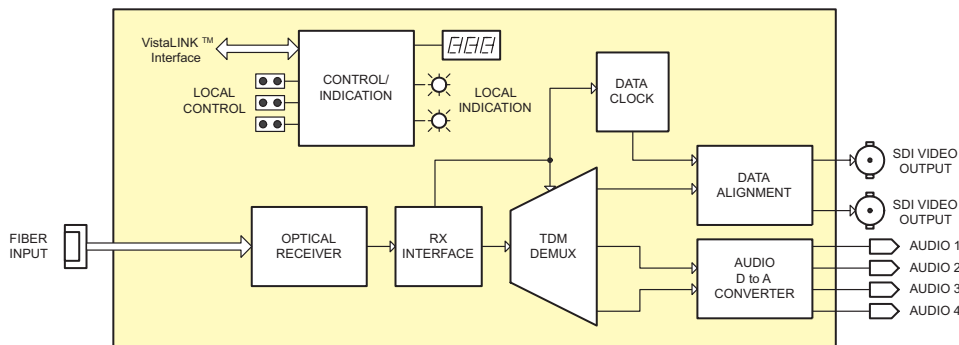
Model 7707VAR-A4



Features

- SDI video and four broadcast quality analog audio fiber optic receiver
- Supports 525 or 625 line 4:2:2 component SDI signals
- Low Audio to Video latency
- Output Video "Black" or "Blue" (selectable) on loss of video or fiber optic input signals
- Built-in jitter attenuation
- Local display of optical signal strength, video and audio presence, video format and EDH errors
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ - enabled capability
- Supports single mode and multi mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold 1 module

7707VAR-A4 Block Diagram



Specifications

Optical Input:

Number of Inputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC
Operating Wavelength:	1270nm to 1610nm
Maximum Input Power:	0dBm
Optical Sensitivity:	-28dBm

Serial Video Outputs:

Number of Outputs:	2 regenerated
Standard:	SMPTE 259M-C
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	900ps nominal
Overshoot:	<10% of amplitude
Return Loss:	> 15 dB at 270 Mb/s
Wide Band Jitter:	< 0.2 UI

Analog Audio Outputs:

Number of Outputs:	4
Type:	Balanced analog audio
Connector:	12 pin removable terminal block
Output impedance:	< 100 Ω
Freq. Response:	+/- 0.1dB, 20Hz to 20 kHz
THD 20Hz-20kHz:	< 0.005%
Channel Phase Diff.	+/- 1 deg
SNR (weighted):	> 85 dB
Output Level:	Adjustable to +24dBu
Audio Headroom:	+24dBu

System Performance: (7707VAT-A4 + 7707VAR-A4)

Video Input To Output Delay:	< 2μs
Audio Input to Output delay:	<1.9ms

Electrical:

Voltage:	+12VDC
Power:	11 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC directive

Physical:

Number of slots:	1
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Ordering Information:

7707VAR-A4	SDI with 4 Analog Audio Fiber Receiver, VistaLINK™ Monitoring
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Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +SC + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone enclosure

HD-SDI with 4 AES Audio Fiber Receiver

Model 7707VAR-HD



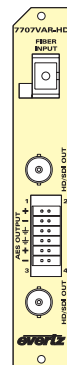
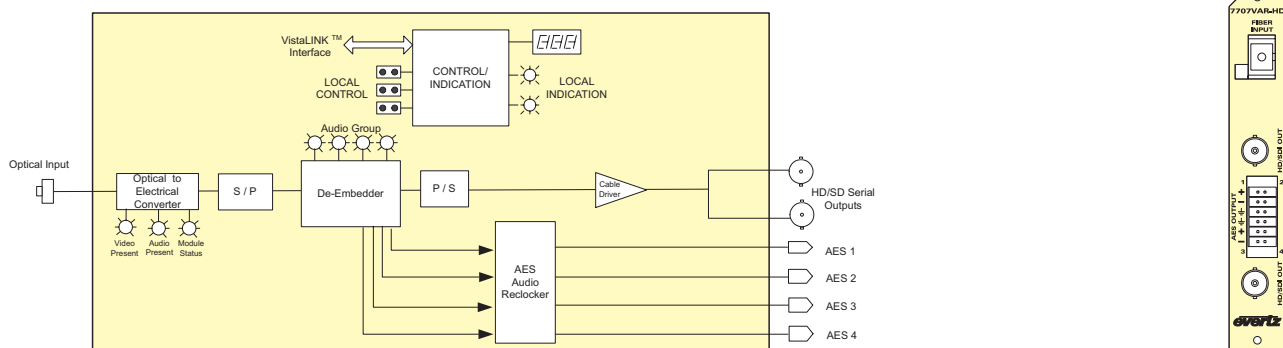
The 7707VAR-HD is a VistaLINK™ -enabled fiber optic receiver for HDTV or SDTV video and AES audio signals. This single card module outputs one HD-SDI or SDI video plus four AES audio that have been transmitted by the companion 7707VAT-HD, HD-SDI and AES audio fiber optic transmitter.

The 7707VAR-HD occupies one card slot and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone enclosure holding 1 module.

Features

- Supports all HDTV video formats @1.485Gb/s
- Supports 525/625 line component 4:2:2 SDI @270Mb/s
- Provides up to four de-embedded AES audio outputs
- Dolby E compatible
- HD/SDI video regeneration for jitter reduction
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability
- Local display of optical signal strength, video and audio presence, video and AES formats
- Fully Hot-swappable from front of frame
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range

7707VAR-HD Block Diagram



Specifications

Optical Input:

Number of Inputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC
Return Loss:	>25dB
Operating Wavelength:	1270nm to 1610nm
Maximum Input Power:	
Standard:	-1dBm
High Sensitivity	
-H version:	-7dBm
Optical Sensitivity:	
Standard:	-23dBm
High Sensitivity	
-H version:	-28dBm

Serial Video Outputs:

Number of Outputs:	2 regenerated
Standard:	SMPTE 292M, SMPTE 259M-C
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	< 270ps for HDSDI, < 900ps for SDI
Overshoot:	<10% of amplitude
Return Loss:	> 15dB up to 1.485Gb/s
Wide Band Jitter:	< 0.2 UI

AES Audio Outputs:

Number of Signals:	4 (user selectable for balanced or unbalanced)
Standards:	AES3-2003 (Balanced AES) SMPTE 276M (Unbalanced AES)
Connector:	12 pin removable terminal strip
Sampling Rate:	48kHz
Resolution:	Up to 24 bits
Signal Level:	
Balanced:	1Vp-p ±0.1V
Unbalanced:	2Vp-p ±0.1V Differential
Rise/Fall Times:	
Balanced:	20ns ±5ns
Unbalanced:	35ns ±5ns
Impedance:	
Balanced:	110Ω
Unbalanced:	75Ω
Return Loss:	>15dB, from 1MHz to 6MHz
Wideband Jitter:	<10nsp-p, with conditions of minimum to maximum cable length

System Performance (7707VAT-HD + 7707VAR-HD):

Video Input To Output	
Delay:	< 35μs
Audio to Video delay:	< 9ms

Electrical:

Voltage:	+12VDC
Power:	11 Watts

Physical:

Number of slots:	1
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Ordering Information:

7707VAR-HD	HDTV with 4 AES Audio Fiber Receiver, VistaLINK™ Monitoring
7707VAR-HD-H	HDTV with 4 AES Audio High Sensitivity Fiber Receiver, VistaLINK™ Monitoring

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC	Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC	Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC	Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC	Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC	Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC	Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

SDI with 2 AES Audio Fiber Transmitter

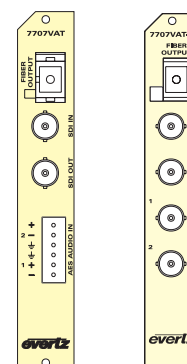
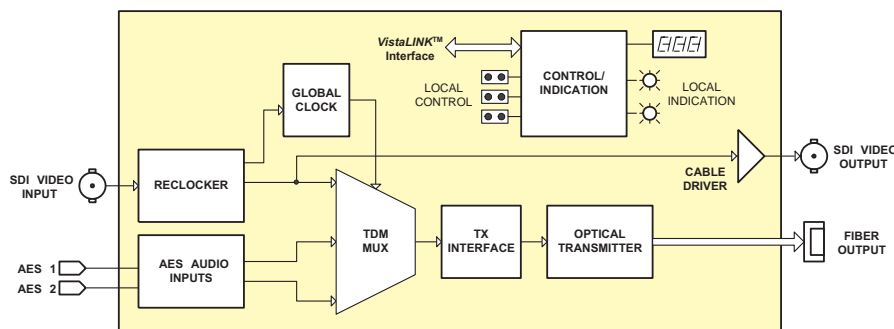
Models 7707VAT



Features

- SDI video and 2 AES audio fiber optic transmitter
- Supports 270Mb/s on 525 or 625 line 4:2:2 component SDI and SDTi (SMPTE 305M) video signals
- Supports 32, 44.1, 48 kHz AES audio inputs
- Dolby E compatible
- AES audio inputs can be synchronous or asynchronous to each other and/or to input video
- Reclocked SDI output for additional signal distribution or monitoring
- Signal transport over fiber uninterrupted by loss of SDI or AES audio input feeds
- Low audio to video latency over transport interface
- Local display of input SDI signal strength, video format, and EDH errors
- Automatic coaxial input equalization up to 300m at 270Mb/s (Belden 1694)
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports single-mode and multi-mode fiber optic cable
- Occupies one card slot and can be housed in either a 1RU frame, which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module

7707VAT Block Diagram



Specifications

Serial Line Input:

Standard: SMPTE 259M-C, 525 or 625 line component, SMPTE 305M, (SDTi)
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 300m @ 270 Mb/s with Belden 1694 or equivalent cable
Return Loss: > 15 dB up to 270 Mb/s

Serial Video Output:

Number of Outputs: 1 Per Card reclocked
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: >15 dB at 270 Mb/s
Wide Band Jitter: <0.2 UI

AES Audio Inputs (7707VAT & 7707VAT-U):

Number of Inputs: 2 (Jumper selectable for balanced or unbalanced input)
Standard: SMPTE 276M
Unbalanced AES: AES3-1992
Balanced AES: Other: Dolby E compatible
Connector: 7707VAT-U: BNC per IEC 60169-8 Amendment 2
7707VAT: 6 pin terminal strip
Signal Level: Balanced: 2 to 7Vp-p with level jumper set to HI, 1 to 2Vp-p set to LO
Unbalanced: 1V p-p ±0.1V
Equalization: Balanced: 500m @ 48kHz with Belden 1800B or equivalent cable
Unbalanced: 2200m @ 48kHz with Belden 8281 or equivalent cable
Resolution: Up to 24 bits
Sampling Rate: 32, 44.1, 48 kHz
Impedance: Unbalanced: 75 Ω
Balanced: 110 Ω

Optical Output:

Number: 1
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 14 dB
Rise and Fall Time: 200ps nominal
Wavelengths: See Ordering Information
Output Power: 1310nm FP(Standard) -7dBm ± 1dBm
1310nm FP(M version) 0dBm ± 1dBm
1550nm & CWDM DFB 0dBm ± 1dBm
DWDM DFB 7dBm ± 1dBm
Fiber Size: 9 μm core / 125 μm overall

System Performance: (7707VAT & 7707VAR)

Video Input To Output Delay: < 1.5 μs
Audio to Video delay: < 1μs with SoftSwitch™ disabled on 7707VAR
< 2ms with SoftSwitch™ enabled on 7707VAR

Electrical:

Voltage: +12VDC
Power: 10 Watts (Non-DWDM) 13 Watts (DWDM)

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

7707VAT13	SDI with 2 AES Audio Fiber Transmitter, 1310nm, FP Laser, VistaLINK™ Monitoring
7707VAT13M	SDI with 2 AES Audio Fiber Transmitter, 1310nm Higher Power (OdBm), FP Laser, VistaLINK™ Monitoring
7707VAT15	SDI with 2 AES Audio Fiber Transmitter, 1550nm, DFB Laser, VistaLINK™ Monitoring
For CWDM, please refer to the end of the fiber section for ordering information	
7707VATxx	SDI with 2 AES Audio Fiber Transmitter, CWDM DFB Laser, VistaLINK™ Monitoring
For DWDM, please refer to the end of the fiber section for ordering information	
7707VATDyyy	SDI with 2 AES Audio Fiber Transmitter, DWDM wavelength, VistaLINK™ Monitoring

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

+U Unbalanced AES Audio

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

SDI with 4 Analog Audio Fiber Transmitter

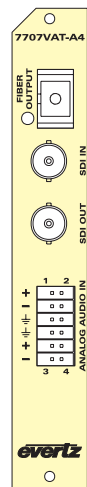
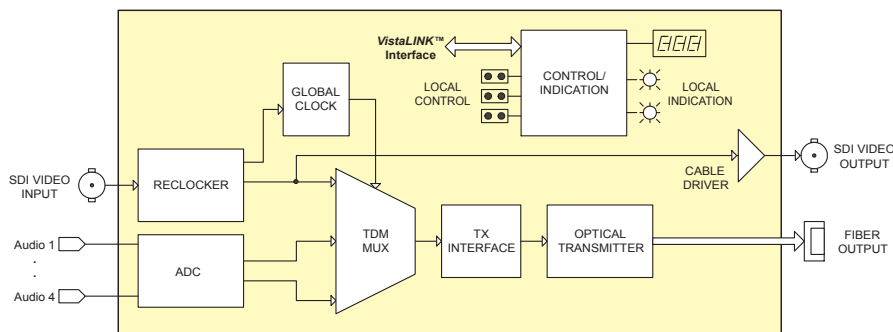
Models 7707VAT-A4



Features

- SDI Video and 4 broadcast quality analog audio fiber optic transmitter
- Supports 525 or 625 line 4:2:2 component SDI signals
- Analog audio inputs can be synchronous or asynchronous to each other and/or to input video
- Reclocked SDI output for additional signal distribution or monitoring
- Signal transport over fiber uninterrupted by loss of SDI or Analog audio input feeds
- Low Audio to Video latency over transport interface
- Local display of input SDI signal strength, video format, and EDH errors
- Automatic coaxial input equalization to 300m at 270Mb/s (Belden 8281)
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold 1 module

7707VAT-A4 Block Diagram



Specifications

Serial Video Input:

Standard:	SMPTE 259M-C
Connector:	1 BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 300m @ 270 Mb/s with Belden 8281 or equivalent cable
Return Loss:	> 15 dB up to 270 Mb/s

Serial Video Output:

Number of Outputs:	1 Per Card relocked
Standard:	SMPTE 259M-C
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V ± 0.5V
Rise and Fall Time:	900ps nominal
Overshoot:	<10% of amplitude
Return Loss:	>15 dB at 270 Mb/s
Wide Band Jitter:	<0.2 UI

Analog Audio Inputs:

Number of Inputs:	4
Type:	Balanced analog audio
Connector:	12 pin removable terminal block
Input impedance:	High Impedance (>20 KΩ)
Freq. Response:	+/-0.1 dB, 20Hz to 20 kHz
THD 20Hz-20kHz:	< 0.005%
Channel Phase Diff.:	+/- 1 deg
SNR (weighted):	> 85 dB
Max. Audio Input Level:	+24 dBu
Signal Quantization:	24 Bits

Optical Output:

Number:	1
Connector:	Female SC/PC, ST/PC or FC/PC
Return Loss:	> 14dB
Rise and Fall Time:	200ps nominal
Wavelengths:	See Ordering Information
Output Power:	
1310nm FP(Standard)	-7dBm ± 1dBm
1310nm FP(M version)	0dBm ± 1dBm
1550nm and CWDM DFB	0dBm ± 1dBm
DWDM DFB	7dBm ± 1dBm

System Performance: (7707VAT-A4 + 7707VAR-A4)

Video Input To Output Delay:	< 2µs
Audio Input to Output delay:	<1.9ms

Electrical:

Voltage:	+12VDC
Power:	11 Watts(Non-DWDM), 13 Watts(DWDM)
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC directive

Ordering Information:

7707VAT13-A4	SDI with 4 Analog Audio Fiber Transmitter, 1310nm, FP Laser, VistaLINK™ Monitoring
7707VAT13M-A4	SDI with 4 Analog Audio Fiber Transmitter, 1310nm Higher Power (0dBm), FP Laser, VistaLINK™ Monitoring
7707VAT15-A4	SDI with 4 Analog Audio Fiber Transmitter, 1550nm, DFB Laser, VistaLINK™ Monitoring

For CWDM, please refer to the end of the fiber section for ordering information

7707VATxx-A4	SDI with 4 Analog Audio Fiber Transmitter, CWDM DFB Laser, VistaLINK™ Monitoring
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For DWDM, please refer to the end of the fiber section for ordering information

7707VATDyyy-A4	SDI with 4 Analog Audio Fiber Transmitter, DWDM DFB Laser, VistaLINK™ Monitoring
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Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone Enclosure

HD-SDI with 4 AES Audio Fiber Transmitter

Model 7707VAT-HD



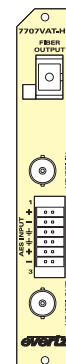
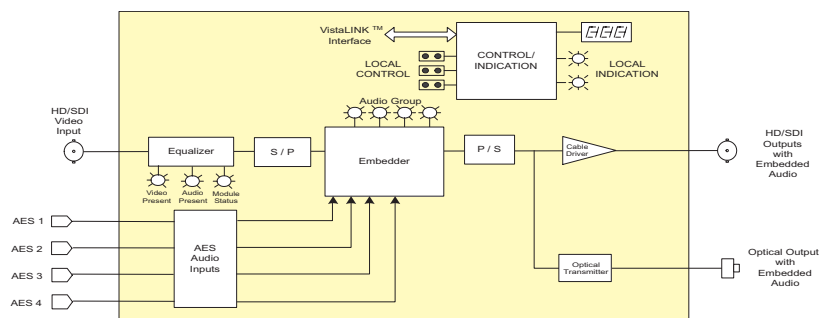
The 7707VAT-HD is a VistaLINK™ -enabled fiber optic transmitter for HDTV or SDTV video and AES audio signals. This single card module accepts one HD-SDI or SDI video plus four AES audio and transmits them on a single fiber. The companion 7707VAR-HD, HD-SDI video and AES audio receiver converts the HD-SDI and AES back to separate video and audio.

The fiber output is available in an assortment of optical wavelengths accomodating 1310/1550nm, CWDM and DWDM transmission schemes. The 7707VAT-HD occupies one card slot and can be housed in a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone enclosure holding 1 module.

Features

- Supports all HDTV video formats @1.485Gb/s
- Supports 525/625 line component 4:2:2 SDI @270Mb/s
- Supports 32, 44.1, 48 kHz AES audio inputs
- Dolby E compatible
- AES audio inputs can be synchronous or asynchronous to each other and/or to input video
- Reclocked video output for additional signal distribution or monitoring
- Signal transport over fiber uninterrupted by loss of video or AES audio input feeds
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability
- Local display of input coaxial cable length equalization
- Automatic coaxial input equalization up to 130m at 1.485Gb/s and 300m at 270Mb/s (Belden 1694)
- Fully Hot-swappable from front of frame
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available

7707VAT-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M, SMPTE 259M-C
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 100m @ 1.485 Gb/s and 300m @ 270 Mb/s with Belden 1694 (or equivalent)
Return Loss: >15 dB up to 1.485Gb/s

Serial Video Output:

Number of Outputs: 1 Per Card relocked
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: <270ps for HDI, <900ps for SD
Overshoot: <10% of amplitude
Return Loss: >15 dB up to 1.485Gb/s
Wide Band Jitter: <0.2 UI

AES Audio Inputs:

Number of Signals: 4 Inputs
Standards: AES3-2003 (Balanced AES)
SMPTE 276M (Unbalanced AES)
Connector: 12 pin removable terminal strip
Sampling Rate: 32kHz, 44.1kHz, 48kHz
Resolution: Up to 24 bits
Minimum Input: 200mVp-p
Maximum Input:
Balanced: 7Vp-p
Unbalanced: 1.2Vp-p
Equalization:
Balanced: <600m @ 48KHz, with Belden 1800B, and 2Vp-p source signal
Unbalanced: <1200m @ 48KHz, with Belden 8261, and 1Vp-p source signal
Impedance:
Balanced: 110Ω
Unbalanced: 75Ω
Return Loss: >15dB, from 1MHz to 6MHz
Wideband Jitter: <10nsp-p, with conditions of minimum to maximum cable length

Optical Output:

Number: 1
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: >14 dB
Wavelengths: See Ordering Information
Output Power:
1310nm FP(Standard) -7dBm ± 1dBm
1550nm & CWDM DFB 0dBm ± 1dBm
DWDM DFB 7dBm ± 1dBm
Fiber Size: 9µm core / 125 µm overall

System Performance: (7707VAR-HD +7707VAT-HD)

Video Input To Output Delay: < 35µs
Audio to Video delay: < 9ms

Electrical:

Voltage: +12VDC
Power: 11 Watts (Non-DWDM)
13 Watts (DWDM)

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Laser Safety: Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11, IEC 60825-1
Complies with FCC Part 15, Class A, EU EMC directive

EMI/RFI:

Ordering Information:

7707VAT13-HD 1310nm, FP Laser
7707VAT15-HD 1550nm, DFB Laser

For CWDM applications please refer to the end of the fiber section for details

7707VATxx-HD HD-SDI with 4 AES Audio Fiber Transmitter, CWDM Laser

For DWDM application please refer to end of fiber section for details

7707VATDyyy-HD HD-SDI with 4 AES Audio Fiber Transmitter, DWDM Laser

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Dual HD-SDI Fiber Receiver

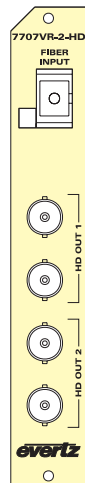
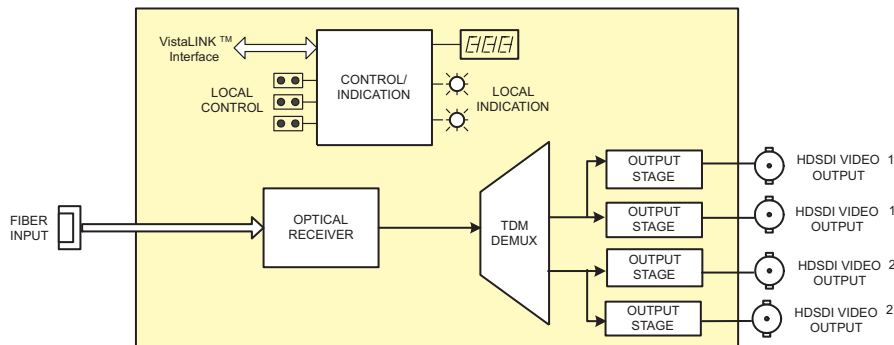


Model 7707VR-2-HD

Features

- Single card demultiplexer for two 1.485Gb/s HDSDI video signals
- Signal transport over fiber uninterrupted by loss of any HDSDI input feed
- Transparently passes embedded AES or any other data in the horizontal or vertical ancillary data space
- Fully hot-swappable from front of frame
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range
- SC/PC, ST/PC, FC/PC connector options
- VistaLINK™ -enabled for remote monitoring and control when installed in a 7700FR-C frame with 7700FC VistaLINK™ Frame Controller
- Occupies one card slot & can be housed in a standalone frame, a 1RU frame holding up to 3 modules or a 3RU frame holding up to 15 modules

7707VR-2-HD Block Diagram



Specifications

Optical Input:

Number of Inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC
Return Loss: >25dB
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power:
Standard Version: -1dBm
-H Version: -7dBm

Optical Sensitivity

Standard Version: -20dBm
-H Version: -28dBm

Serial Video Outputs:

Standards: SMPTE 292M
Number of Outputs: 2 sets of 2 independent HD-SDI signals
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 270ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB up to 1.485Gb/s
Wide Band Jitter: < 0.2UI

Electrical:

Voltage: +12VDC
Power: 10 Watts

Physical:

Number of slots: 1

Ordering Information:

7707VR-2-HD	Dual HD-SDI Fiber Receiver, VistaLINK™ Monitoring
7707VR-2-HD-H	Dual HD-SDI Fiber Receiver, High Sensitivity Optical Input, VistaLINK™ Monitoring

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Quad SDI Fiber Receiver

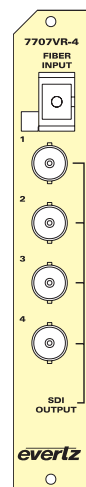
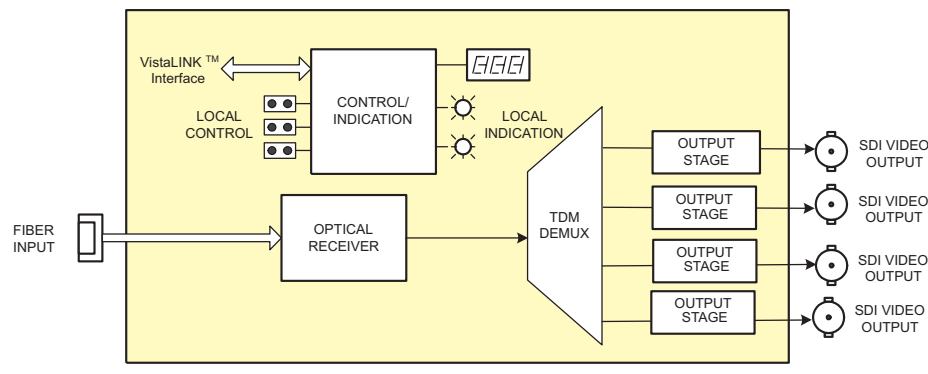
Model 7707VR-4



Features

- Single card demultiplexer for four synchronous or asynchronous 270Mb/s SDI, SDTi or DVB-ASI video signals
- Low jitter SDI outputs
- Independent signal outputs unaffected by loss of any other SDI or DVB-ASI input feed
- Transparently passes embedded AES or any other data in the horizontal or vertical ancillary data space
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range
- SC/PC, ST/PC, FC/PC connector options
- VistaLINK™ -enabled for remote monitoring and control when installed in a 7700FR-C frame with 7700FC VistaLINK™ Frame Controller
- Occupies one card slot & can be housed in a standalone frame, a 1RU frame holding up to 3 modules or a 3RU frame holding up to 15 modules

7707VR-4 Block Diagram



Specifications

Optical Input:

Number of Inputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC
Return Loss:	>25dB
Operating Wavelength:	1270nm to 1610nm
Maximum Input Power:	
Standard Version:	-1dBm
-H Version:	-8dBm

Optical Sensitivity

Standard Version:	-23dBm
-H Version:	-28dBm

Serial Video Outputs:

Standards:	SMPTE 259M-C, SMPTE 305M, DVB-ASI
Number of Outputs:	4 independent SDI, SDTi or DVB-ASI 270Mb/s signals
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	900ps nominal
Overshoot:	<10% of amplitude
Return Loss:	> 15dB up to 270Mb/s
Wide Band Jitter:	< 0.2UI

Electrical:

Voltage:	+12VDC
Power:	10 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC directive

Physical:

Number of slots:	1
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Ordering Information:

7707VR-4	Quad SDI/ASI Demux Fiber Receiver, VistaLINK™
7707VR-4-H	Quad SDI/ASI Demux Fiber Receiver, High sensitivity RX (-32dBm), VistaLINK™

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Quad SD/Dual HD Fiber Receiver

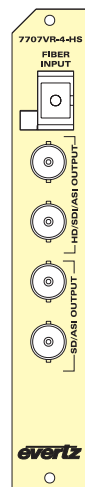
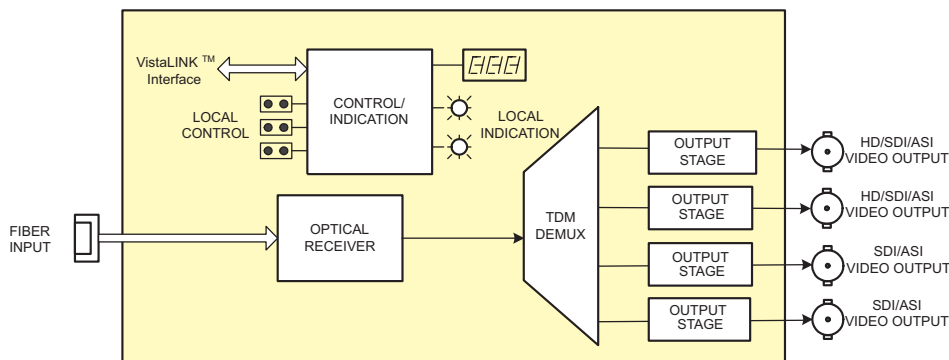
Model 7707VR-4-HS



Features

- Single card TDM de-multiplexer for two HD-SDI signals, or one HD-SDI signal and three SDI/DVB-ASI signals, or four SDI/DVB-ASI signals
- Low jitter outputs
- Independent signal outputs unaffected by loss of any other HD, SDI or DVB-ASI input feed
- Transparently passes embedded AES or any other data in the horizontal or vertical ancillary data space
- Fully hot-swappable from front of frame
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range
- SC/PC, ST/PC, FC/PC connector options
- VistaLINK™ -enabled for remote monitoring and control when installed in a 7700FR-C frame with 7700FC VistaLINK™ Frame Controller
- Occupies one card slot & can be housed in a standalone frame, a 1RU frame holding up to 3 modules or a 3RU frame holding up to 15 modules

7707VR-4-HS Block Diagram



Specifications

Optical Input:

Number of Inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC
Return Loss: >25dB
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power:
Standard Version: -1dBm
-H Version: -8dBm

Optical Sensitivity

Standard Version: -20dBm
-H Version: -28dBm

Serial Video Outputs:

Number of Outputs: 2 HD/SDI/DVB-ASI and 2 SDI/DVB-ASI video signals

Standard:

Outputs 1&2 SMPTE 292M, SMPTE 259M-C, DVB-ASI
Outputs 3&4 SMPTE 259M-C, DVB-ASI
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time:
1.485Gb/s: <270ps
270Mb/s: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: >12dB to 1.5Gb/s
Wide Band Jitter: < 0.2UI

Electrical:

Voltage: +12VDC
Power: 10 Watts

Physical:

Number of slots: 1

Ordering Information:

7707VR-4-HS	Quad SD/Dual HD Demux Fiber Receiver, VistaLINK™
7707VR-4-HS-H	Quad SD/Dual HD Demux Fiber Receiver, High sensitivity RX, VistaLINK™

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

8 Channel SDI/ASI Fiber Receiver

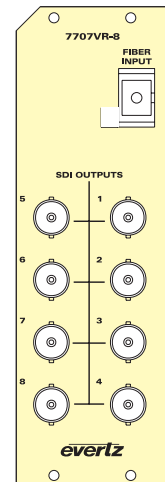
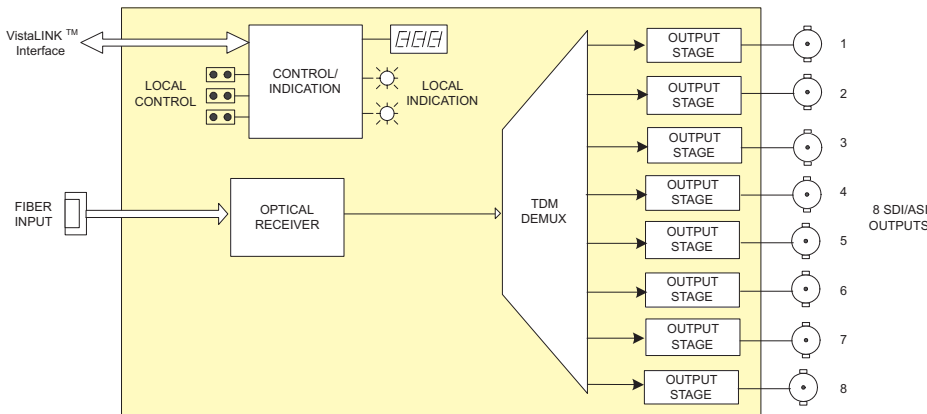
Model 7707VR-8



Features

- Demultiplexor for eight synchronous or asynchronous 270Mb/s SDI, DVB-ASI video signals
- Video generation on SDTi fiber link loss or VT-8 input loss
- Signal transport over fiber uninterrupted by loss of any input video feed
- Transparently passes embedded AES or any other data in the horizontal or vertical ancillary data space
- Comprehensive signal and card status monitoring via four-digit card-edge display
- VistaLINK™ - enabled offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK™ is available when modules are used with the 3RU 7700FR-C, a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame, and the 9000NCP Network Control Panel or Evertz VistaLINK™ PRO or other third party SNMP manager software.
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range
- SC/PC, ST/PC, FC/PC fiber connectors available

7707VR-8 Block Diagram



Specifications

Optical Input:

Number of Inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC
Return Loss: >25dB
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power:
Standard Version: -1dBm
-H Version: -8dBm
Optical Sensitivity
Standard Version: -21dBm
-H Version: -28dBm

Serial Video Output:

Standards: SMPTE 259M, SMPTE 305M, DVB-ASI
Number of Outputs: 8 independent SDI, SDTi or DVB-ASI 270Mb/s signals
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15dB up to 270Mb/s
Wide Band Jitter: < 0.2UI

Electrical:

Voltage: +12VDC
Power: 10 Watts
Safety: CSA Listed to CSA C22.2 No. 60065-03, UL 60065-03
IEC 60065-(2001-12) 7th Edition
Complies with CE Low voltage Directive 93/68/EEC
Complies with FCC regulations for class A devices
Complies with EU EMC directive 89/336/EEC

EMI/RFI:

Physical:

Number of slots: 2

Ordering Information:

7707VR-8	Eight SDI/ASI Demux Fiber Receiver, VistaLINK™ Monitoring
7707VR-8-H	Eight SDI/ASI Demux Fiber Receiver, High Sensitivity Optical Input, VistaLINK™ Monitoring

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Dual HD-SDI Fiber Transmitter

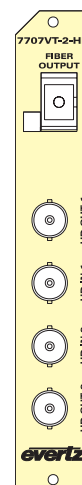
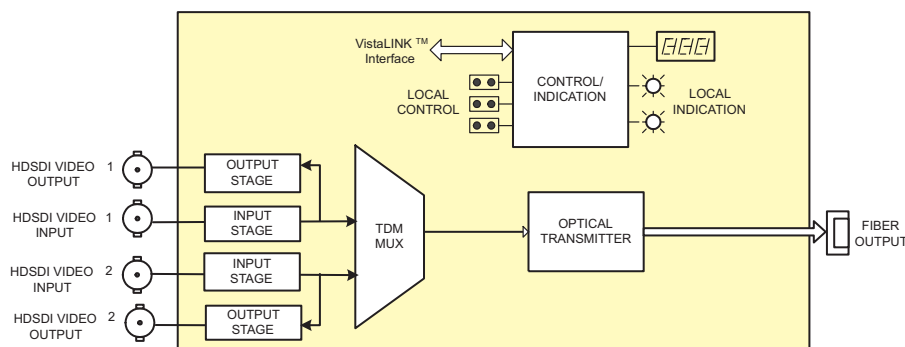
Model 7707VT13/I5-2-HD



Features

- Single card multiplexer for two 1.485Gb/s HDSDI video signals
- Signal transport over fiber uninterrupted by loss of any HDSDI, input feed
- Transparently passes embedded AES or any other data in the horizontal or vertical ancillary data space
- VistaLINK™ -enabled for remote monitoring and control when installed in a 7700FR-C frame with 7700FC VistaLINK™ Frame Controller
- Automatic coaxial input equalization up to 100m at 1.485Gb/s
- Fully hot-swappable from front of frame
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- SC/PC, ST/PC, FC/PC connector options
- Occupies one card slot & can be housed in a standalone frame, a 1RU frame holding up to 3 modules or a 3RU frame holding up to 15 modules

7707VT13/I5-2-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M
Number of Inputs: 2 independent HD-SDI signals
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 100m @ 1.485Gb/s with Belden 1694A or equivalent cable
Return Loss: > 15 dB up to 1.485Gb/s

Serial Video Outputs:

Standard: SMPTE 292M
Number of Outputs: 2 independent reclocked HD-SDI outputs
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 270ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB up to 1.485Gb/s
Wide Band Jitter: < 0.2UI

Optical Output:

Number: 1
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 14 dB
Wideband Jitter: < 0.2 UI
Fiber Size: 9µm core / 125 µm overall
Wavelengths:
Standard: 1310nm, 1550nm
CWDM: 1270nm to 1610nm (See Ordering Information)
DWDM: C-Band (ITU-T G.694.1 compliant) (See Ordering Information)

Output Power:
1310nm FP(Standard) -7dBm ± 1dBm
1550nm & CWDM DFB 0dBm ± 1dBm
DWDM DFB 7dBm ± 1dBm

Electrical:

Voltage: +12VDC
Power: 10 Watts (Non DWDM), 13 Watts (DWDM)

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
 Complies with CE Low voltage Directive
Laser Safety: Class 1 laser product
 Complies with 24 CFR 1040.10 and 1040.11
 IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
 EU EMC directive

Ordering Information:

7707VT13-2-HD Dual HDSDI Mux Fiber Transmitter, 1310nm FP,
7707VT15-2-HD Dual HDSDI Mux Fiber Transmitter, 1550nm DFB Laser

For CWDM, please refer to the end of the fiber section for ordering information
7707VTxx-2-HD Dual HDSDI Mux Fiber Transmitter, CWDM Laser,

For DWDM, please refer to the end of the fiber section for ordering information
7707VTDyyy-2-HD Dual HDSDI Mux Fiber Transmitter, DWDM Laser,

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
 Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Quad SDI Fiber Transmitter

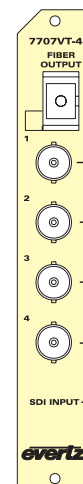
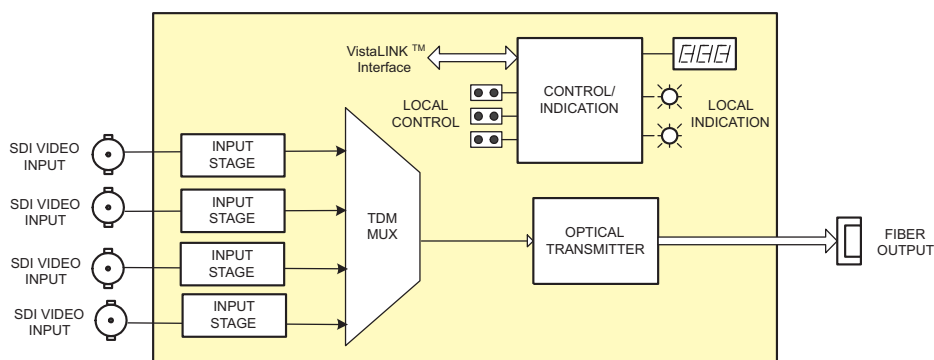


Model 7707VT13/I5-4

Features

- Single card TDM multiplexer for four synchronous or asynchronous 270Mb/s SDI, SDTi or DVB-ASI video signals
- Signal transport over fiber uninterrupted by loss of any SDI, SDTi or DVB-ASI input feed
- Transparently passes embedded AES or any other data in the horizontal or vertical ancillary data space
- VistaLINK™ -enabled for remote monitoring and control when installed in a 7700FR-C frame with 7700FC VistaLINK™ Frame Controller
- Automatic coaxial input equalization up to 250m at 270Mb/s (Belden 8281)
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- SC/PC, ST/PC, FC/PC connector options
- Occupies one card slot & can be housed in a standalone frame, a 1RU frame holding up to 3 modules or a 3RU frame holding up to 15 modules

7707VT13/I5-4 Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C, SMPTE 305M, DVB-ASI
Number of Inputs: 4 independent SDI or DVB-ASI 270Mb/s signals
Connector: 4 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 250m @ 270 Mb/s with Belden 8281 or equivalent cable
Return Loss: > 15 dB up to 270 Mb/s

Optical Output:

Number: 1
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 14 dB
Rise and Fall Time: 200ps nominal
Wideband Jitter: < 0.2 UI
Fiber Size: 9µm core / 125 µm overall

Wavelengths:

Standard: 1310nm, 1550nm (nominal)
CWDM: 1270nm to 1610nm (See Ordering Information)
DWDM: C-Band (ITU-T G.694.1 compliant) (See Ordering Information)

Output Power:

1310nm FP(Standard)
1550nm & CWDM DFB
DWDM DFB

-7dBm ± 1dBm
0dBm ± 1dBm
7dBm ± 1dBm

Electrical:

Voltage: +12VDC
Power: 10 Watts (Non DWDM), 13 Watts (DWDM)

Physical:

Number of slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Laser Safety: Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

7707VT13-4 Quad SDI/ASI Mux Fiber Transmitter, 1310nm FP, VistaLINK™
7707VT15-4 Quad SDI/ASI Mux Fiber Transmitter, 1550nm DFB, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707VTxx-4 Quad SDI/ASI Mux Fiber Transmitter, CWDM Laser, VistaLINK™

For DWDM, please refer to the end of the fiber section for ordering information

7707VTDyyy-4 Quad SDI/ASI Mux Fiber Transmitter, DWDM Laser, VistaLINK™

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Quad SD/Dual HD Fiber Transmitter

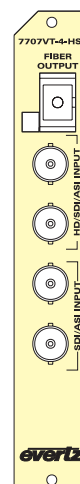
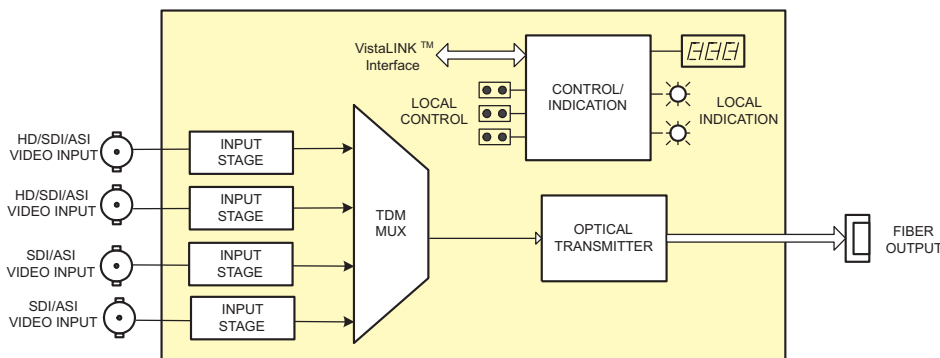


Model 7707VTI3/I5-4-HS

Features

- Single card TDM multiplexer for two HD-SDI signals, or one HD-SDI signal and three SDI/DVB-ASI signals, or four SDI/DVB-ASI signals
- Two auto-sensing video inputs for HD-SDI or SDI/DVB-ASI video signals
- Two 270Mb/s inputs for SDI or DVB-ASI video signals
- Signal transport over fiber uninterrupted by loss of any HD-SDI, SDI, SDTi or DVB-ASI input feed
- Transparently passes embedded AES or any other data in the horizontal or vertical ancillary data space
- VistaLINK™ -enabled for remote monitoring and control when installed in a 7700FR-C frame with 7700FC VistaLINK™ Frame Controller
- Automatic coaxial input equalization up to 130m at 1.485Gb/s and 250m at 270Mb/s (Belden 1694)
- Fully hot-swappable from front of frame
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- SC/PC, ST/PC, FC/PC connector options
- Occupies one card slot & can be housed in a standalone frame, a 1RU frame holding up to 3 modules or a 3RU frame holding up to 15 modules

7707VTI3/I5-4-HS Block Diagram



Specifications

Serial Video Input:

Number of Inputs:	2 HD/SDI/DVB-ASI and 2 SDI/DVB-ASI video signals
Standard:	
Inputs 1&2	SMPTE 292M, SMPTE 259M-C, DVB-ASI
Inputs 3&4	SMPTE 259M-C, DVB-ASI
Connector:	4 BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 130m @ 1.485Gb/s and 250m @ 270 Mb/s with Belden 1694 or equivalent cable
Return Loss:	> 15 dB up to 1.5Gb/s

Optical Output:

Number:	1
Connector:	Female SC/PC, ST/PC or FC/PC
Return Loss:	> 14 dB
Wideband Jitter:	< 0.2 UI
Fiber Size:	9µm core / 125 µm overall
Wavelengths:	
Standard:	1310nm, 1550nm (nominal)
CWDM:	1270nm to 1610nm (See Ordering Information)
DWDM:	C-Band (ITU-T G.694.1 compliant) (See Ordering Information)

Output Power:

1310nm FP(Standard)	-7dBm ± 1dBm
1550nm & CWDM DFB	0dBm ± 1dBm
DWDM DFB	7dBm ± 1dBm

Electrical:

Voltage:	+12VDC
Power:	10 Watts (Non DWDM), 13 Watts (DWDM)

Physical:

Number of slots:	1
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Ordering Information:

7707VTI3-4-HS	Quad SD/Dual HD Fiber Transmitter, 1310nm FP, VistaLINK™
7707VTI5-4-HS	Quad SD/Dual HD Fiber Transmitter, 1550nm DFB, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707VTxx-4-HS	Quad SD/Dual HD Fiber Transmitter, CWDM Laser, VistaLINK™
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For DWDM, please refer to the end of the fiber section for ordering information

7707VTDyyy-4-HS	Quad SD/Dual HD Fiber Transmitter, DWDM Laser, VistaLINK™
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Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

8 Channel SDI/ASI Fiber Transmitter

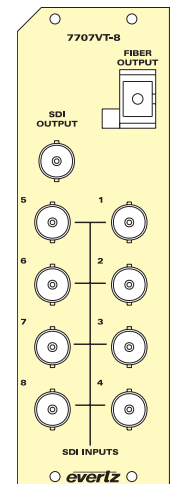
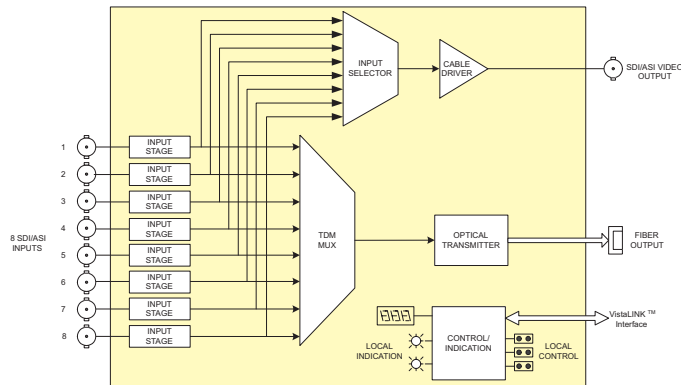
Model 7707VTI3/I5-8



Features

- Multiplexor for eight synchronous or asynchronous 270Mb/s SDI, DVB-ASI or SDTi video signals
- Signal transport uninterrupted by loss of any SDI, DVB-ASI or SDTi input feed
- Transparently passes embedded AES or any other data in the horizontal or vertical ancillary data space
- Comprehensive signal and card status monitoring via four character card-edge display
- VistaLINK™ - enabled offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK™ is available when modules are used with the 3RU 7700FR-C frame, a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame and the 9000NCP Network Control Panel or Evertz VistaLINK™ PRO or other third party SNMP manager software.
- Automatic coaxial equalization up to 250m at 270Mb/s (Belden 8281)
- Fully hot swappable from front of frame with no fiber/coax disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths of 1310nm, 1550nm and up to 16 CWDM wavelengths
- DWDM wavelengths also available
- SC/PC, ST/PC, FC/PC fiber connectors available

7707VTI3/I5-8 Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M, SMPTE 305M, DVB-ASI
Number of Inputs: 8 independent SDI, SDTi or DVB-ASI 270Mb/s signals
Connector: 8 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 250m @ 270 Mb/s with Belden 8281 or equivalent cable
Return Loss: > 15 dB up to 270 Mb/s

Serial Video Output:

Standards: SMPTE 259M, SMPTE 305M, DVB-ASI
Number of Outputs: 1 Independent SDI, SDTi or DVB-ASI 270Mb/s signal
Connectors: 8 BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV(nominal).
DC Offset: 0V ± 0.5V
Rise and Fall Time: 900ps(nominal).
Overshoot: < 10% of amplitude.
Return Loss: > 15dB to 270Mb/s.
Wide Band Jitter: < 0.2UI

Optical Output:

Number: 1
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 14 dB
Wideband Jitter: < 0.2 UI
Fiber Size: 9µm core / 125 µm overall
Wavelengths:
Standard: 1310nm, 1550nm (nominal)
CWDM: 1270nm to 1610nm (See Ordering Information)
DWDM: C-Band (ITU-T G.694.1 compliant) (See Ordering Information)

Output Power:

1310nm FP(Standard) -7dBm ± 1dBm
1550nm & CWDM DFB 0dBm ± 1dBm
DWDM DFB 7dBm ± 1dBm

Electrical:

Voltage: +12VDC
Power: 10 Watts (Non DWDM), 13 Watts (DWDM)

Physical:

Number of slots: 2

Compliance:

Electrical Safety:

CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Complies with FCC Part 15, Class A
EU EMC directive

Laser Safety:

EMI/RFI:

Ordering Information:

7707VT13-8 Eight SDI/ASI Mux Fiber Transmitter, 1310nm FP, Laser, VistaLINK™
7707VT15-8 Eight SDI/ASI Mux Fiber Transmitter, 1550nm DFB Laser, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information
7707VTxx-8 Eight SDI/ASI Mux Fiber Transmitter, CWDM Laser

For DWDM, please refer to the end of the fiber section for ordering information
7707VTDyyy-8 Eight SDI/ASI Mux Fiber Transmitter, DWDM Laser

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure



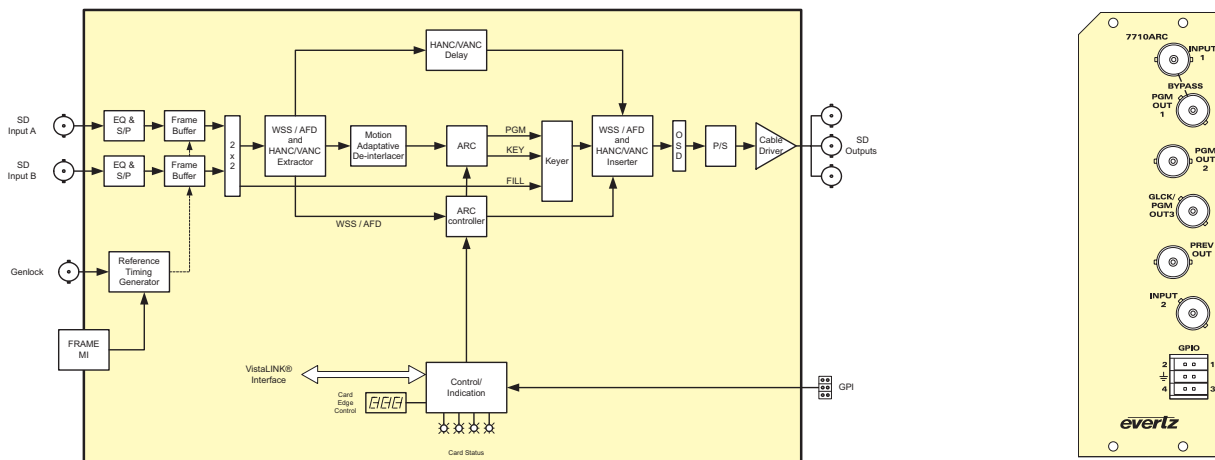
The 7710ARC series are a dual standard (525/625) serial digital 270Mb/s high quality motion adaptive video aspect ratio converter designed for use in facilities where 4x3 content is to be used in a 16x9 infrastructure.

With full 10-bit processing, the 7710ARC series converts any aspect ratio picture input to any aspect ratio picture output maintaining excellent image quality. The 7710ARC series supports input side Wide Screen Signaling (WSS) and Active Format Description (AFD) to automatically steer aspect ratio conversion. The module also supports WSS and AFD insertion capability on the output side, along with transparent handling of other HANC and VANC from the input to the output. All parameters may be controlled by use of the on screen display menu.

Features

- Any aspect ratio to any aspect ratio, with standard support for 16:9 letterbox, 14:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze aspect ratio conversions
- Flexible ARC control: slave to incoming WSS or AFD; fixed output WSS or AFD; via GPI; or remote configuration
- Motion adaptive de-interlace for exceptional vertical resolution
- High quality 10-bit video processing
- Full VANC and HANC transfer from input to output with provisionable delay
- 8 user presets for storing custom module configurations
- GPI input to recall module configuration
- Configurable output data paths allowing application specific definition
- On screen display used to configure the operating modes
- Card Edge LEDs for signal presence, input and output modes, module status
- VistaLINK® - capable for remote monitoring and control via SNMP (using VistaLINK® Pro, 9000NCP2 or 9000NCP Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK® Frame Controller

7710ARC Block Diagram & Rear Panel



Specifications

Serial Video Input:

Standard:	SMPT 259M
Connectors:	2 BNC per IEC 60169-8 Amendment 2
Input Equalization:	Automatic to 100m @ 1.5Gb/s with Belden 1694AAA or equivalent cable
Return Loss:	>15dB up to 270MHz

Serial Video Outputs:

Standard:	SMPT 259M
Number of Outputs:	3 Per module
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	750ps nominal
Overshoot:	<10% of amplitude
Return Loss:	>15dB up to 270MHz
Jitter:	< 0.2 UI

Genlock Input:

Standards:	NTSC, PAL, black or tri-level autodetect
Number of Inputs:	1
Connectors:	BNC per IEC 60169-8 Amendment 2
Impedance:	Hi-Z or 75 Ω (jumper configurable)
Return Loss:	>40dB up to 10MHz

GPI Inputs/Outputs:

Number:	4 (configurable as inputs or outputs)
Type:	Opto-isolated, active low with internal pull-ups to +5 or +12V (jumper settable)
Connector:	6 pin removable terminal block
Signal Level:	Closure to ground
Function:	
Inputs:	User Preset select
Outputs:	Tally (key on air)

Electrical:

Voltage:	+12VDC
Power:	--
EMI/RFI:	Complies with FCC Part 15 Class A EU EMC Directive

Physical:

Number of Slots:	
7700 frame mounting:	2
7701 frame mounting:	1

Ordering Information:

7710ARC	SD Aspect Ratio Converter
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Ordering Options:

Rear Plate must be specified at time of order
Eg. Model +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Accessories:

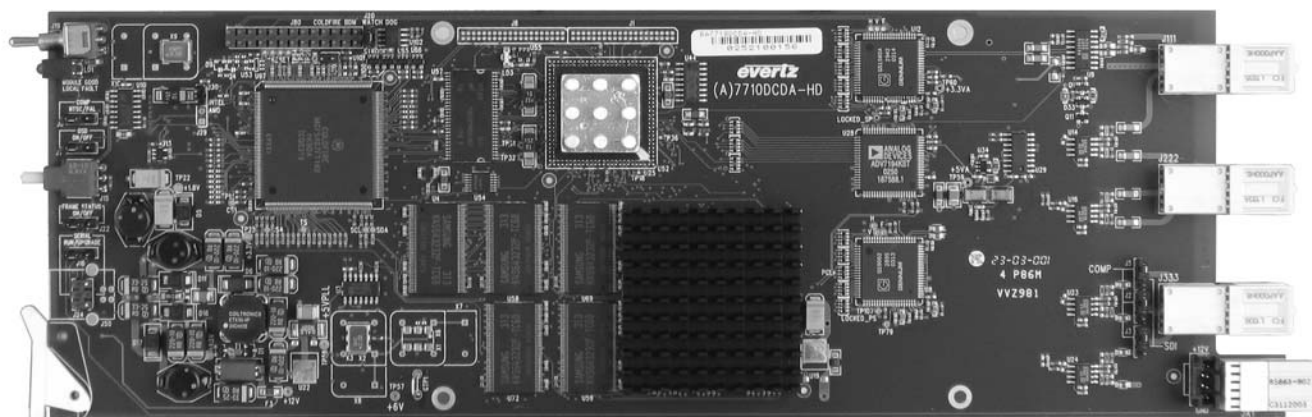
7700FC	VistaLINK® Frame Controller
9000NCP	1RU VistaLINK® General Purpose Network Control Panel
9000NCP2	2RU VistaLINK® General Purpose Network Control Panel

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone Enclosure

HD Downconverter & Distribution Amplifier

Model 7710DCDA-HD



The 7710DCDA-HD is a reclocking high definition serial digital video distribution amplifier and a high quality downconverter for 1.5 Gb/s HDTV signals. It can also function as a monitoring distribution amplifier for standard definition 270 Mb/s signals. The 7710DCDA-HD provides 4 reclocked DA outputs and 3 downconverted SDI or composite analog NTSC/PAL outputs (selectable). The 7710DCDA-HD accepts all the popular international SMPTE 292M video formats. When the 7710DCDA-HD down converts 1080p/23.98sF input video to 525i/59.94 with a 3:2 pulldown, the 3:2 pulldown cadence can be free running or locked to embedded RP188 time code.

The 7710DCDA-HD has color space conversion from ITU rec. 709 to ITU rec. 601, and will provide various down converted formats such as 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze. Full 10 bit processing is provided throughout the signal path to achieve excellent downconversion quality. The module allows for selectable horizontal and vertical filters to control picture sharpness. It also de-embeds two groups of audio and re-embeds the audio on the SDI output in time with the video. All parameters may be controlled by use of the on screen display menu.

The 7710DCDA-HD has a closed caption monitoring capability that decodes EIA-608 or EIA-708 captions that have been encoded into the VANC data space of an HD video input, or EIA-608 captions from a SD video input.

The 7710DCDA-HD provides card edge LEDs to indicate signal present and audio groups present. The 7710DCDA-HD occupies one card slot in the 3RU frame, which will hold up to 15 modules or the 1RU frame, which will hold up to three modules.

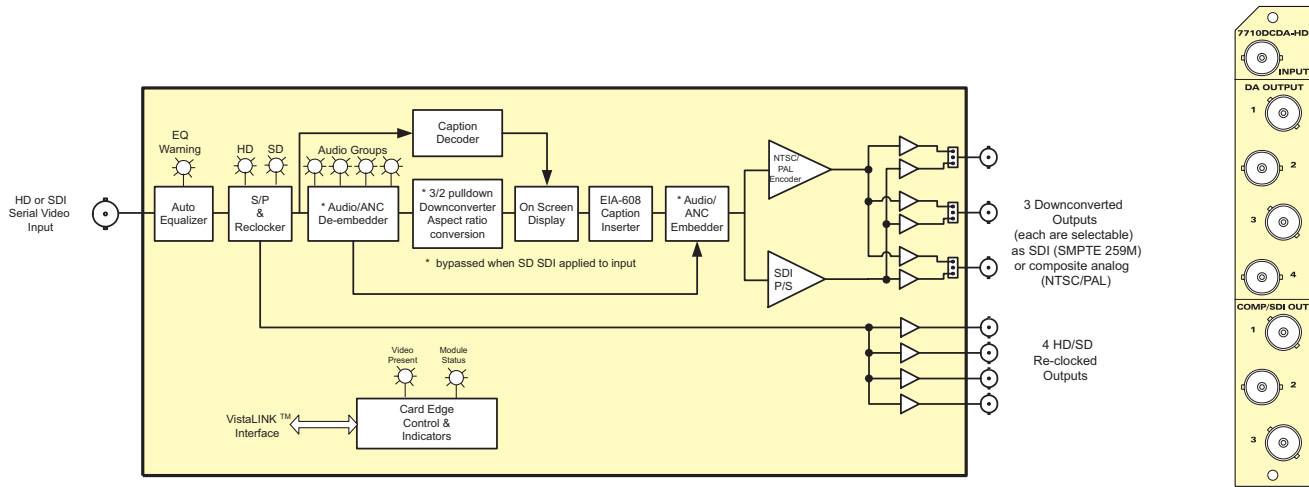
Features

- Serial digital 1.5 Gb/s HD input per SMPTE 292M
- Supports most international standards including 1080i/60, 1080i/59.94, 1080i/50, 1080p/24, 1080p/23.98, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94, 480p/60, and 480p/59.94
- Will also accept 270 Mb/s SD input SDI per SMPTE 259M in a pass through mode - auto senses HD or SD inputs
- 4 Reclocked DA outputs (HD if HD inputs applied, SD if SD inputs applied)
- 3 Selectable SDI or Composite Outputs (downconverted from HD if HD input applied), (from reclocked SD if SD input applied)
- High quality HD -> SD down conversion
- Supports 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze aspect ratio conversions
- 1080p/23.98sF conversion to 525i/59.94 with 3:2 pulldown sequence
- HD to SD colour space conversion (ITU rec. 709 to ITU rec. 601)
- On screen display used to configure the operating modes
- De-embeds Audio from HD video and embeds into standard definition SDI video (2 groups)
- Moves ANC data (e.g. captioning, timecode) from HD video to standard definition SDI video
- Decodes and displays EIA-608 or EIA-708 captions from incoming video
- On Screen aspect ratio marker
- Card Edge LEDs for signal presence, equalization warning, audio groups present, module status

VistaLINK™ -enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller

HD Downconverter & Distribution Amplifier

7710DCDA-HD Block Diagram



Specifications

Serial Video Input:

Standard:	SMPTE 259M - Pass through mode SMPTE 292M (1.5 Gb/s), SMPTE 260M, SMPTE 274M, SMPTE 296M, SMPTE 349M 1080i/60, 1080i/50, 1080p/30sF, 1080p/25sF, 1080p/24sF, 1035i/60, 720p/60, 480p/60 and the 1/1.001 divisor versions where applicable software selectable or autodetect
Connector:	BNC per IEC 60169-8 Amendment 2
Input Equalization:	Automatic to 100m @ 1.5Gb/s with Belden 1694 or equivalent cable.
Return Loss:	>15 dB up to 1.5GHz

Reclocked Serial Video DA Outputs:

Standard:	Same as input (SMPTE 259M or SMPTE 292M)
Number of Outputs:	4 Per Card relocked
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	200ps nominal for HD 750ps nominal for SD
Overshoot:	<10% of amplitude
Return Loss:	>15 dB up to 1.0GHz, >10dB up to 1.5GHz
Jitter:	< 0.2 UI

Downconverted Serial Video Outputs:

Standard:	SMPTE 259M-C (270 Mb/s)
Number of Outputs:	Up to 3 Per Card (jumper selectable)
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	750ps nominal
Overshoot:	<10% of amplitude
Return Loss:	> 15 dB at 270 Mb/s
Jitter:	< 0.2 UI

Downconverted Composite Analog Video Outputs:

Standards:	Analog composite NTSC (SMPTE 170M) or Analog composite PAL (ITU-R BT.470)
Number of Outputs:	Up to 3 Per Card (jumper selectable)
Connectors:	BNC per IEC 60169-8 Amendment 2
Signal Level:	1 V p-p nominal
DC Offset:	0V \pm 0.1V
Return Loss:	>35dB up to 5 MHz
Frequency Response:	0.1dB to 4 MHz, 0.15dB to 5.5 MHz
Differential Phase:	<0.5°(<0.3° typical)
Differential Gain:	<0.8% (<0.5 % typical)
SNR:	>78dB to 5 MHz (shallow ramp)
Impedance:	75 Ω

Input to Output Processing Delay:

Video Delay:	Just less than 1 to 2 frames depending on input video format, processing mode and phase setting (refer to table 3 in manual), ie: with 1080i/59.94 input the delay is <1 Frame delay)
Audio Delay:	Audio is delayed and re-embedded in time with the output picture

Electrical:

Voltage:	+12VDC
Power:	10 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of slots:	1
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Ordering Information:

7710DCDA-HD	HD Down Converter and Distribution Amplifier (4 HD relocked 1.5Gb/s, selectable 3 SD SDI outputs or 3 composite analog outputs)
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure



The 7710NR-HD Noise Reducer with Image Enhancement provides high quality and cost effective noise reduction for HD video signals. The 7710NR-HD is ideal for use in television production facilities, mobile broadcast vehicles, production and post-production facilities.

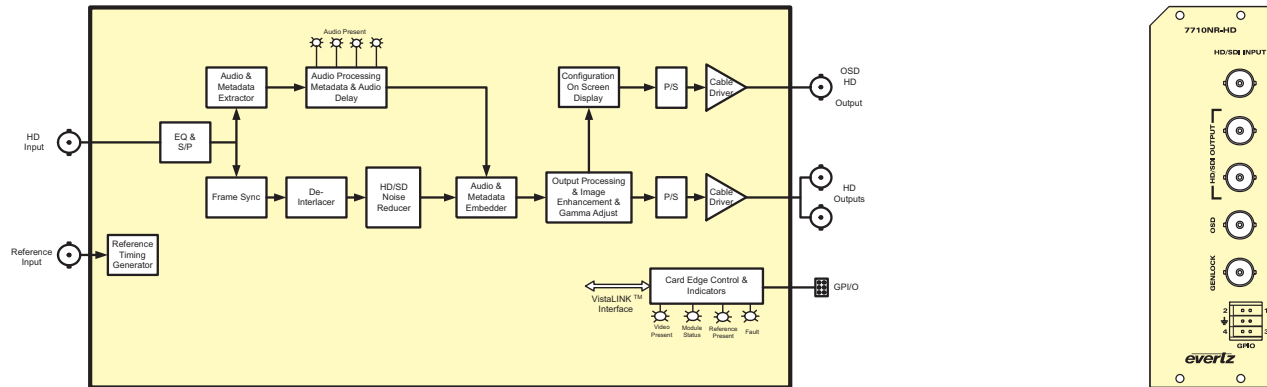
The 7710NR-HD allows the user to remove random Gaussian noise, impulsive noise, and other temporal varying artifacts. The 7710NR-HD uses proprietary noise reduction processing that consists of five distinct filters and a complex motion adaptive algorithm to combine and control the filtered results based on two motion sensors.

The 7710NR-HD also provides user adjustable image enhancements to sharpen image details.

Features

- One 1.5 Gb/s HD input (per SMPTE 292M)
- Full 10-bit I/O processing
- Gaussian, impulsive and temporal artifact noise reduction
- Image enhancements - user adjustable
- User presets to store noise reducer and image enhancement settings
- Split Screen comparison mode
- Transparent handlings of embedded audio, VANC data, and closed captioning
- On screen display for card configuration
- Card edge control and LEDs for video and audio presence and module status
- VistaLINK® - capable for remote monitoring and control via SNMP (using VistaLINK® Pro) when installed in 7700FR-C frame with 7700FC VistaLINK® Frame Controller

7710NR-HD Block Diagram & Rear Panel



Specifications

Serial Video Input:

Standard: SMPTE 292M 1.485 Gb/s , auto detects standard

Connector: 1 BNC per IEC 60169-8 Amendment 2

Input Equalization: Automatic to 100m @ 1.5 Gb/s with Belden 1694A or equivalent cable

On Screen Display Video Output:

Standard: Same as input

Number of outputs: 1 per module

Connector: 1 BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V +0.5V

Noise Reduced Video Outputs:

Standard: Same as input

Number of outputs: 2 per module

Connector: 1 BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V +0.5V

General Purpose Inputs and Outputs:

Number of inputs: 4 per module (configurable as inputs or outputs)

Standard: Opto-isolated, active low with internal pull-ups to +5V or +12V (jumper settable)

Connector: 6 pin removable terminal block

Signal Level: Closure to ground

Function Inputs: User presets for noise reducer and image enhancement settings

Electrical:

Voltage: +12VDC

Power: 25 Watts

EMC/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots:

7700 frame mounting: 2

7701 frame mounting: 1

Ordering information:

7710NR-HD HD Noise Reducer with Image Enhancement

Ordering Options & Accessories:

Rear Plate must be specified at time of order
Eg. Model +3RU

Rear Plate Suffix:

+3RU: 3RU rear plate for use with 7700FR-C Multiframe

+1RU: 1RU rear plate for use with 7701FR Multiframe

Enclosures:

7700FR-C: 3RU Multiframe, which holds 15 modules

7701FR: 1RU Multiframe, which holds 3 modules

HD Upconverter

Model 7710UC-HD



The 7710UC-HD High Definition Upconverter provides high quality conversion of 270 Mb/s standard definition (SMPTE 259M-C) signals to the common 1.5 Gb/s high definition (SMPTE 292M) video formats. The 7710UC-HD has 10-bit processing, 2 reclocked SDI outputs and 2 HD Serial Digital outputs. The 7710UC-HD outputs 1080i/59.94, 1080i/50 and 720p/59.94 HD video formats.

The 7710UC-HD has color space conversion from ITU rec. 601 to ITU rec. 709. The 7710UC-HD provides user adjustable and the common 4:3 to 16:9 aspect ratio conversion choices; 4:3 with side panels, 16:9 anamorphic stretch, 16:9 letterbox zoom to full size and 13:9 or 14:9 letterbox zoom to full height 13:9 or 14:9 with side panels.

The upconverter accepts 2 groups of SMPTE 272M embedded audio on the input and re-embeds them into the HD SMPTE 292M 1.5Gbs output. The re-embedded audio is compliant to SMPTE 299M and will have appropriate delay added to compensate for video delay incurred by the upconversion process, thus avoiding the need for external de-embedding and re-embedding of audio. The audio is also available as 4 unbalanced AES outputs.

The 7710UC-HD occupies two card slots in the 15 slot 3 RU frame, or one slot in the 3 slot 1RU frame. The 7710UC-HD provides card edge LEDs to indicate signal present, genlock present and audio groups present.

Features

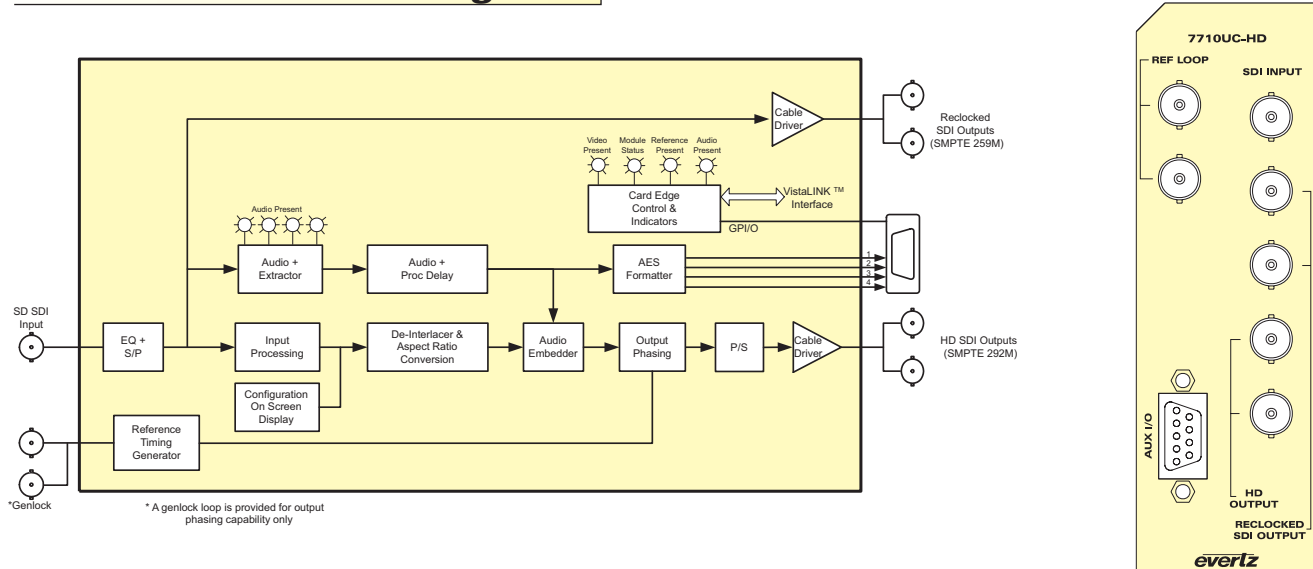
- High quality SD -> HD up conversion
- Supports 4:3 Side Panel, 16:9 Crop, 16:9 Stretch, 13:9 Crop, 14:9 Crop and user defined aspect ratio conversions.
- SD to HD colour space conversion (ITU rec. 601 to ITU rec. 709)
- Reference input allows for phasing of output video
- Module supports min. delay or variable delay for video output without reference
- Module supports video output referenced to genlock with variable delay
- Analog monitor output on screen display used to configure the operating modes
- De-embeds Audio from SD video and embeds into HD video (2 groups)

- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ Pro, 9000NCP2 or 9000NCP Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

Additional Features with VBI Option:

- Extraction of VITC on SD input and conversion to RP188 ANC Timecode on HD output
- Transcoding and translation of EIA-608 Line 21 captions from the SD input to EIA-708 (SMPTE 334M) ANC captions on the HD output

7710UC-HD Block Diagram



Specifications

SDI Video Inputs:

Standards: 525 or 625 line SMPTE 259M-C (270Mb/s) with SMPTE 272M embedded audio

Number of Inputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Input Equalization: Automatic to 300m @ 270Mb/s with Belden 1694 or equivalent cable

Return Loss: >15 dB up to 270MHz

Reclocked SDI Video Outputs:

Standard: Same as input

Number of Outputs: 2 Per Card relocked

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 740ps nominal

Overshoot: <10% of amplitude

Return Loss: > 15 dB to 270MHz

HD Serial Video Output:

Standard: 1.5 Gb/s SMPTE 292M - DIP switch selectable.

Input Format	Output Format	SMPTE Standard
525i/59.94	1080i/59.94	274M
625i/50	1080i/50	274M
525i/59.94	720p/59.94	296M

Number of Outputs: 2 Per Card relocked

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Return Loss: > 10 dB at 1.5 GHz

Genlock Input:

Type: NTSC or PAL Color Black 1 V p-p
Composite bi-level sync (525i or 625i) 300 mV
BNC Loop per IEC 60169-8 Amendment 2

Connector: 75 Ω (jumper selectable)

AES Audio Outputs:

Number of Outputs: 4

Standard: SMPTE 276M, single ended AES

Connectors: Female 9 pin D

Resolution: 24 bits

Sampling Rate: 48 kHz

Impedance: 75 Ω

Signal Level: 1 V p-p nominal

General Purpose Inputs:

Number of Inputs: 3

Type: Opto-isolated, active low with internal pull-ups to +5 or +12V (jumper settable)

Connector: 3 pins (plus ground) on female 9 pin D

Signal Level: Closure to ground

Function: User Preset select

Electrical:

Voltage: +12VDC

Power: 26 Watts

EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 2

7700 frame mounting: 2

7701 frame mounting: 1

Ordering Information:

7710UC-HD HD Modular Upconverter

Ordering Options:

Rear Plate must be specified at time of order
Eg. Model +3RU

+VBI Timecode & caption translator option

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP	2RU VistaLINK™ General Purpose Network Control Panel

WP-7711HDC-SN-EAES4 7712HDC-SN-EAES4/7710UC-HD AES/GPIO Breakout Cable

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules

7701FR 1RU Multiframe, which holds 3 modules

S7701FR Standalone Enclosure

HD Key/Fill Upconverter



Model 7710UC-KF

The 7710UC-KF is designed to solve the problems of adapting to different HDTV formats, by offering high quality UP conversion of Key and Fill signals.

The 7710UC-KF Key and Fill Up Converter is re-configurable to provide high quality up conversion of your standard definition key and fill signals to common 1.5 Gb/s high definition (SMPTE 292M) video formats

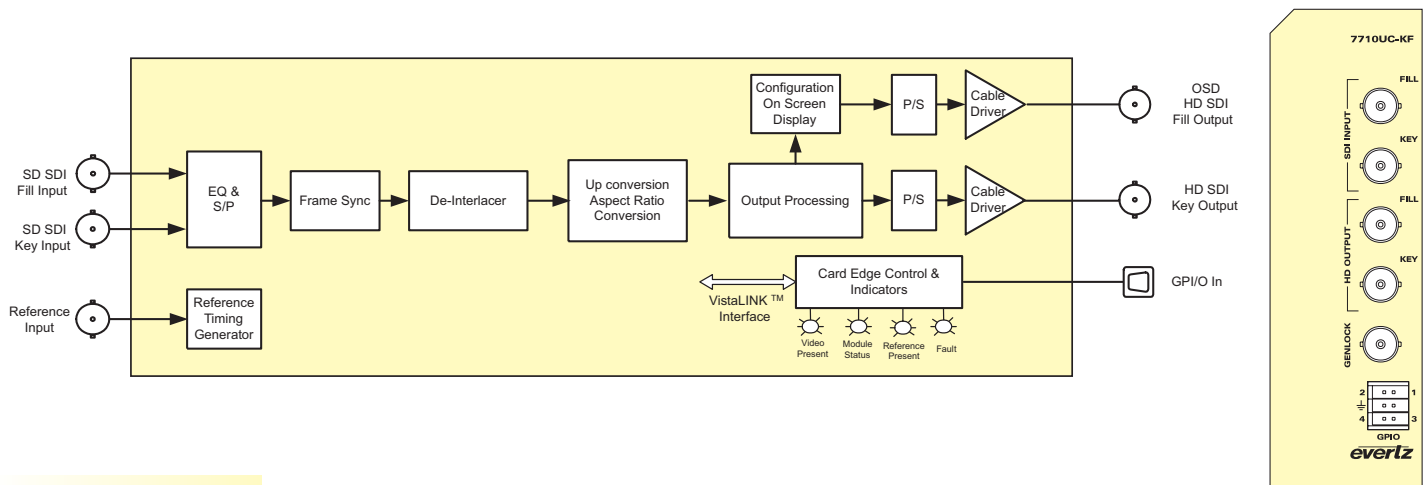
The units occupy two card slots in the 3 RU frame, which will hold up to seven 2 slot modules. It occupies one slot in the 1RU frame, which will hold up to three modules.

The units also provide card edge LEDs to indicate signal present and genlock present.

Features

- High quality SD -> HD up conversion
- Supports standard aspect ratio conversions plus all user definable
- Supports all necessary colour space conversions (ITU rec. 601 to ITU rec.709) for fill channel
- Full video processing functions, GBR gain YCrCb gain and offset and hue adjustment for fill channel
- Reference input allows for phasing of output video
- Module supports min. delay or variable delay for video output without reference
- Module supports video output referenced to genlock with variable delay
- Output on screen display used (OSD) to configure the operation of the device

7710UC-KF Block Diagram



Specifications

Serial Digital Inputs:

Standards:	270Mb/s SMPTE 259M
Number of Inputs:	1 Key, 1 Fill
Connector:	BNC per IEC 60169-8 Amendment 2
Input Equalization:	Automatic to 300m @ 270Mb/s with Belden 8281 or equivalent cable.
Return Loss:	>15 dB up to 540Mb/s

Serial Digital Outputs:

Standard:	1.485 Gb/s SMPTE 292M.
Number of Outputs:	1 Key, 1 Fill
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	200ps nominal
Overshoot:	<10% of amplitude
Return Loss:	> 15 dB at 1.5 GHz

Genlock Input:

Type:	HD Tri-Level sync, NTSC or PAL Colour Black 1 V p-p
Connector:	BNC per IEC 60169-8 Amendment 2
Termination:	75 Ω (jumper selectable)

General Purpose Inputs and Outputs:

Number:	4 (configurable as inputs or outputs)
Type:	Opto-isolated, active low with internal pull-ups to +5 or +12V (jumper settable)
Connector:	6 pin removable terminal block
Function:	closure to ground
Inputs:	2, 1 fill, 1 key
Outputs:	2, 1 fill, 1 key

Electrical:

Voltage:	+12VDC
Power:	20 Watts.
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of slots:	
7700 frame mounting:	2
7701 frame mounting:	1

Ordering Information:

7710UC-KF	HD Key/Fill Upconverter
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Ordering Options:

Rear Plate must be specified at time of order
Eg. Model +3RU

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone Enclosure

HD Cross Converter (with Up & Down Conversion Options)

Model 7710XC-HD

The 7710XC series of products is designed to solve the problems of adapting to different HDTV formats, at the same time as offering UP and DOWN conversion. Four versions are available:

MODEL #	DESCRIPTION	# OF SLOTS
7710XC-HD	Provides HD <-> HD cross-conversion with video proc, closed caption and timecode support (VANC support)	2
7710XC-AES4-HD	Provides HD <-> HD cross-conversion with external AES on BNCs and embedded audio, video proc, closed caption and timecode support (VANC support)	2
7710XUC-AES4-HD	Is reconfigurable to provide either HD <-> HD cross-conversion, SD -> HD up-conversion with noise reduction or HD -> SD down-conversion with image enhancement and gamma correction. Also supports external AES on a DB15 connector and embedded audio, video proc, closed caption and timecode support	2
7710XUDC-AES4-HD	Provides HD <-> HD cross conversion with simultaneous down-conversion providing 2 SDI & 2 composite video outputs. It is also reconfigurable to provide up-conversion support. Also supports external AES on DB15 connector and embedded audio, video proc, closed caption and timecode support	3

The 7710XC-HD High Definition Format Translator/Cross Converter provides high quality conversion of your high definition (SMPTE 292M) signals to other common 1.5 Gb/s high definition (SMPTE 292M) video formats. The 7710XC-HD has 10-bit processing, and 2 HD Serial Digital outputs and 1 OSD output, plus external genlock.

The 7710XC-AES4-HD High Definition Format Translator/Cross Converter with external AES provides high quality conversion of your high definition (SMPTE 292M) signals to other common 1.5 Gb/s high definition (SMPTE 292M) video formats.

The 7710XUC-AES4-HD High Definition Format Up/Cross Converter is reconfigurable to provide high quality conversion of your standard definition signals with noise reduction to common 1.5 Gb/s high definition (SMPTE 292M) video formats, high quality conversion of your high definition (SMPTE 292M) signals to other common 1.5 Gb/s high definition (SMPTE 292M) video formats, or high definition (SMPTE 292M) to standard definition (SMPTE 296M) down conversion with detail enhancement and gamma correction. The 7710XUC-HD has 10-bit processing, and 2 HD Serial Digital outputs and 1 OSD output, plus external genlock.

The 7710XUDC-AES4-HD High Definition Format Up/Down/Cross Converter is similar to the 7710XUC-HD but provides simultaneous cross conversion & down-conversion. It has 2 SD Serial Digital outputs and 2 composite analog video outputs.

The units accept 2 groups of SMPTE 299M embedded audio on the input or optionally external (separate) 4 AES audio and re-embeds them into the serial video output and provides 4 AES audio output mirroring the embedder. The re-embedded audio is compliant to SMPTE 299M with delay adjust and has the appropriate delay added to compensate for video delay incurred by the conversion process, thus avoiding the need for external de-embedding and re-embedding of audio. The audio is also available as 4 unbalanced AES outputs.

The units also transport the closed caption and time code information from input to output performing all necessary HD to SD and SD to HD translation and time code recalculations.

All 7710XC-HD series modules occupy two card slots in the 3RU frame which will hold up to 15 modules, except for the 7710XUDC-AES4-HD which occupies three slots. All modules, except the 7710XUDC-AES4-HD are also available for the 1RU frame which will hold up to three modules. The units also provide card edge LEDs to indicate signal present, genlock present and audio groups present.

Features

- High quality HD -> HD cross conversion
- High quality SD -> HD up conversion with Noise Reduction
- High quality HD -> SD down conversion with Image enhancement
- Supports standard aspect ratio conversions plus all user definable
- Support all necessary colour space conversions (ITU rec. 601 to ITU rec. 709)
- Full video proc functions, GBR gain YCrCb gain and offset, hue adjustment and RGB colour limiter.
- Image Detail Enhancement on Down Conversion with RGB gamma correction
- Reference input allows for phasing of output video
- Module supports min. delay or variable delay for video output without reference
- Module supports video output referenced to genlock with variable delay
- Output on screen display used to configure the operating modes
- De-embeds Audio from HD video input and embeds into HD video output (2 groups)
- Supports retimed external 4 AES inputs and outputs
- Moves VITC time code and Line 21 captions from the SD video into the HD video ancillary data
- Moves RP-188 VITC and LTC from HD input to HD output, recalculated for frame rate changes.
- Moves HD closed captions from HD input to HD output.

• VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel. VistaLINK™ is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller

HD Upconverter

7711UC-HD & 7711UC-AES4-HD

The 7711UC-HD High Definition Format Up Converter is a configurable module to provide high quality conversion of your standard definition signals with noise reduction and image enhancement to common 1.5 Gb/s high definition (SMPTE 292M) video formats. The 7711UC-HD has 10-bit processing, and 2 HD Serial Digital outputs and 1 OSD output, plus external genlock.

The 7711UC-HD can accept 2 groups of SMPTE 272M embedded audio on the input and re-embed them into the serial video output. The re-embedded audio is compliant to SMPTE 299M with delay adjust and has the appropriate delay added to compensate for video delay incurred by the conversion process, thus avoiding the need for external de-embedding and re-embedding of audio.

The module also transports the closed caption and time code information from input to output performing all necessary SD to HD translation and time code recalculations.

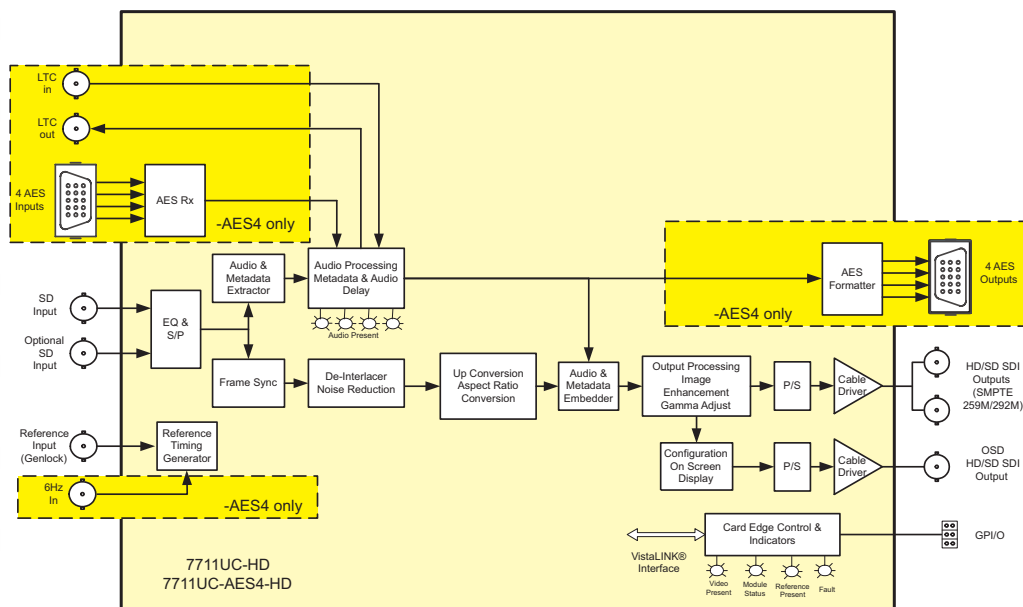
The -AES4 version also accepts 4 external discrete unbalanced AES inputs and provides 4 AES outputs with the same audio that is being embedded. The 7711UC-AES4-HD has a separate audio processor for the 4 AES outputs.

The 7711UC-HD module occupies two card slots in the 3RU frame, which will hold up to 15 modules. The module has card edge LEDs to indicate signal present, genlock present and audio groups present.

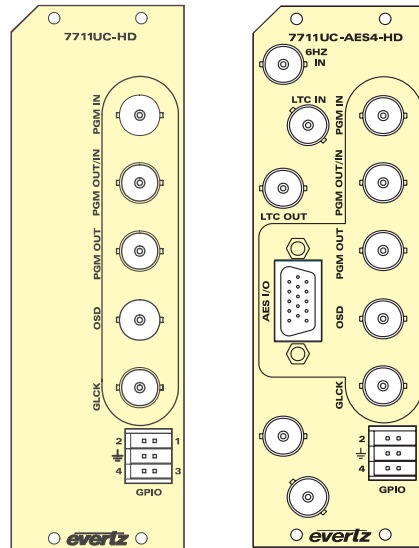
Features

- High quality SD to HD up conversion with Noise Reduction and Image Enhancement
- Supports standard aspect ratio conversions plus all user-definable
- Flexible ARC Control; supporting Active Format Description (AFD) proposed standard
- Support all necessary color space conversions (ITU rec. 601 to ITU rec. 709)
- Full video proc functions, GBR gain YCrCb gain and offset, hue adjustment and RGB color limiter
- Reference input allows for phasing of output video
- Module supports min. delay or variable delay for video output without reference
- Module supports video output referenced to genlock with variable delay
- Supports re-timed external 4 AES inputs and outputs (-AES4 version only)
- Output on screen display used to configure the operating modes
- De-embeds audio from video input and embeds into video output (2 groups)
- Moves VITC time code and Line 21 captions from the SD video into the HD video ancillary data
- VistaLINK® - capable offering remote control and configuration capabilities via SNMP using VistaLINK® PRO, 9000NCP or 9000NCP2 Network Control Panel. VistaLINK® is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller

7711UC-HD Block Diagram



7711UC-HD Rear Panels



Specifications

Serial Video Inputs:

Standard:	SMPTE 259M 270 Mb/s, 525/625 compliant SMPTE 260M, SMPTE 274M, SMPTE 349M
Number of Inputs:	1 normal, optional 2 (for conversion)
Connector:	BNC per IEC 60169-8 Amendment 2
Input Equalization:	Automatic to 300m @ 270 Mb/s with Belden 1694A or equivalent cable
Return Loss:	>15 dB up to 270 MHz

HD-SDI Serial Video Outputs:

Standard:	1.5 Gb/s SMPTE 292M, 270Mb/s, SMPTE 296M
Number of Outputs:	3 Per Card, optional 2 with 2nd input from converter)
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	200ps nominal
Overshoot:	<10% of amplitude
Return Loss:	> 10 dB at 1.5 GHz

AES Audio Inputs (-AES4 models):

Number of Inputs:	4
Standard:	SMPTE 276M, single ended synchronous or asynchronous AES
Connector:	DB15
Resolution:	24 bits
Sampling Rate:	48 kHz
Impedance:	75 Ω
Signal Level:	1 V p-p nominal

AES Audio Output (-AES4 models):

Number of Outputs:	4
Standard:	SMPTE 276M, single ended synchronous AES
Connectors:	DB15
Resolution:	24 bits
Sampling Rate:	48 kHz
Impedance:	75 Ω
Signal Level:	1 V p-p nominal

General Purpose Inputs and Outputs:

Number:	4 (configurable as inputs or outputs)
Type:	Opto-isolated, active low with internal pull- ups to +5 or +12V (jumper settable)
Connector:	6 pin removable terminal block
Signal Level:	Closure to ground
Function:	
Inputs:	User Preset select
Outputs:	Tally (key on air)

Genlock Input:

Type:	HD Tri-Level sync, NTSC or PAL Color Black 1 V p-p
Connector:	BNC per IEC 60169-8 Amendment 2
Termination:	75 Ω (jumper selectable)

Electrical:

Voltage:	+12VDC
Power:	25 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of slots:	
7700 frame mounting:	2

Ordering Information:

7711UC-HD	HD Up Converter (with Noise Reduction and Image Enhancement)
7711UC-AES4-HD	HD Up Converter (with Noise Reduction and Image Enhancement) and external AES

Ordering Options & Accessories:

Rear Plate must be specified at time of order
Eg: Model +3RU

Rear Plate Suffix:

+3RU:	3RU rear plate for use with 7700FR-C Multiframe
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Enclosures:

7700FR-C:	3RU Multiframe which holds 15 modules
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HD Broadcast Quality Down Converter



Model 7712HDC

The 7712HDC High Definition Downconverter provides broadcast quality down conversion of your 1.5 Gb/s HDTV signals. This High Definition Downconverter has 10-bit processing with Serial Digital & optional Composite Analog outputs and is designed to fit easily into a plant that is fully digital, analog or mixed. The 7712HDC accepts all the major HD video formats and provides extensive control over the downconversion process. The 7712HDC-SN-EAES4 version downconverts 1080p/24sf input video to 525i/60 with a 3:2 pulldown locked to embedded RP188 or an external 6Hz input or free running.

The 7712HDC provides card edge LEDs to indicate signal present, genlock present and audio groups present. The 7712HDC has color space conversion from ITU rec. 709 to ITU rec. 601, and will provide various down converted formats such as 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze.

The 7712HDC is available in two versions to support a wide variety of customer applications.

Model	Video			Audio			TimeCode/Captions
	SDI	Monitor Analog	Broadcast Analog	Embedded In	Embedded Out	AES Out	
7712HDC-S	2	2	--		--		
7712HDC-SN-EAES4	2	2	2	2 groups	2 groups	4	Yes

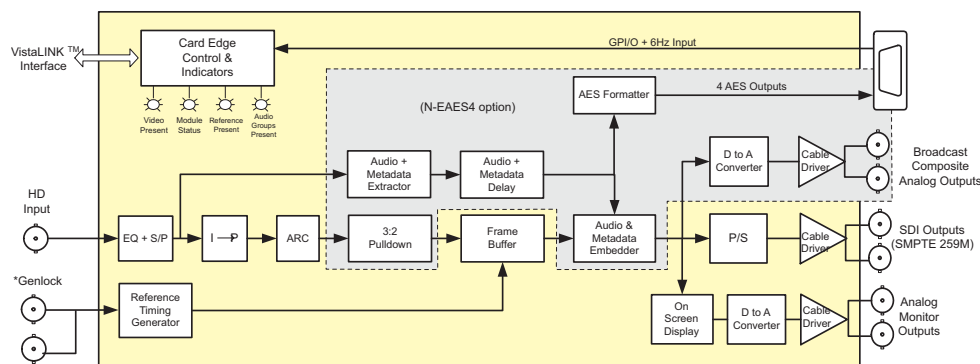
The 7712HDC-SN-EAES4 version de-embeds two groups of audio and re-embeds the audio on the SDI output in time with the video. The audio is also available as 4 unbalanced AES outputs. The 7712HDC-SN-EAES4 also handles VANC data like captioning and timecode on the HD and moves it onto the SDI outputs.

The 7712HDC occupies two card slots in the 3 RU frame which will hold up to 15 modules or one slot in the 1RU frame which will hold up to three modules or a standalone enclosure which will hold 1 module.

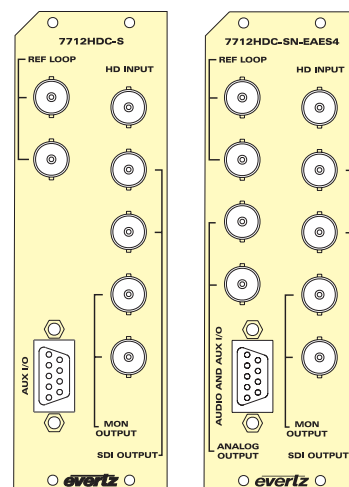
Features

- Broadcast quality HD -> SD down conversion
- Optional broadcast quality analog outputs
- Supports 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze aspect ratio conversions.
- 1080p/24sF conversion to 525i/60 with 3:2 pulldown sequence determined by RP188 or 6Hz input (EAES4 version only)
- HD to SD colour space conversion (ITU rec. 709 to ITU rec. 601)
- Reference input allows for phasing of output video
- Module supports min. delay or variable delay for video output without reference
- Module supports video output referenced to genlock with variable delay
- Automatic input standard and frame rate detection
- Analog monitor output on screen display used to configure the operating modes
- EAES4 version de-embeds Audio from HD video and embeds into SD video (2 groups)
- EAES4 version moves VANC data (e.g. captioning, timecode) from the HD video onto the SDI outputs
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™, 9000NCP or 9000NCP2 Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

7712HDC Block Diagram



* A genlock loop is provided for output phasing capability only



HD Broadcast Quality Down Converter

Specifications

Serial Video Input:

Standard: SMPTE 292M 1.485Gb/s
Formats: 1080i/59.94, 720p/59.94, 480p/59.94, 1080i/50, 1080p/25sF, 1080p/29.97sF, 1035i/59.94 (SN-EAES4 version only) 1080p/23.98sF
Connector: 1 BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Equalization: Automatic 100m @1.5Gb/s with (Belden1694)
Return Loss: >10dB to 1.5Gb/s

Serial Video Output:

Standard: SMPTE 259M-C 270Mb/s
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 740ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: < 0.2 UI
Return Loss: >15dB to 270Mb/s

Genlock Input:

Type: NTSC or PAL Colour Black 1 Vp-p
Connector: BNC per IEC 60169-8 Amendment 2
Termination: High impedance loop or internal 75Ω termination (jumper selectable)

Analog Video Output (SN-EAES4 only):

Standard: Analog composite NTSC (SMPTE 170M) or Analog composite PAL (ITU-R BT.470)
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal (user adjustable from menu)
DC Offset: 0V ±0.02V
Return Loss: > 35dB up to 5MHz
Frequency Response: 0.1dB to 4MHz, 0.15dB to 5.5 MHz
Differential Phase: < 0.5° (<0.3° typical)
Differential Gain: < 0.5% (<0.3 % typical)
SNR: > 78dB to 5MHz

Analog Monitor Video Output (SN-EAES4 only):

Standard: Analog composite NTSC (SMPTE 170M) or Analog composite PAL (ITU-R BT.470)
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V ±0.1V
Return Loss: > 35dB up to 5MHz
Frequency Response: 0.8dB to 4MHz
Differential Phase: < 0.9° (<0.6° typical)
Differential Gain: < 0.9% (<0.5 % typical)
SNR: >56dB to 5MHz (shallow ramp)

AES Audio Outputs (SN-EAES4 only):

Standard: SMPTE 276M, single ended AES
Number of Outputs: 4
Connector: Female 9-pin D
Sampling Rate: Synchronous 48kHz
Impedance: 75Ω unbalanced
Signal Level: 1V p-p nominal

General Purpose Inputs:

Number of Inputs: 3
Type: Opto-isolated, active low with internal pull-ups to +5 or +12V (jumper settable)
Connector: 3 pins (plus ground) on female 9 pin D
Signal Level: Closure to ground
Function: 6Hz reference and user Preset 1 & 2 select

General Purpose Outputs:

Number of Outputs: 1
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: 1 pin plus ground on Female 9 pin D
Signal Level: +5V nominal
Function: Not used at this time

Input to Output Processing Delay:

Minimum Delay Mode: 2 to 4 frames dependent on input video format and processing mode (see manual)
Output Phasing: Up to 1 additional frame dependent on output phasing to genlock reference
Audio and ANC: Audio, captions and timecode are delayed and re-embedded in time with the output picture (7712HC-SN-EAES4 only)

Electrical:

Voltage: +12V DC
Power: 26 Watts
EMI/RFI: Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of Slots: 2 for the 7700FR-C frame
1 for the 7701FR frame

Ordering Information:

7712HDC-S	HD Broadcast Quality Downconverter with SDI outputs
7712HDC-SN-EAES4	HD Broadcast Quality Downconverter with SDI and Broadcast Analog Outputs with 1080p/23.98sF, VANC and AES/Embedded Audio Support

Ordering Options:

Rear Plate must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

WP-7711HDC-SN-EAES4

7712HDC-SN-EAES4/7710UC-HD AES/GPIO Breakout Cable

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone Enclosure

HD Downconverter & Distribution Amplifier

Model 7713HDC



The 7713HDC is a reclocking high definition serial digital video distribution amplifier and a high quality downconverter for 1.5 Gb/s HDTV signals. It can also function as a monitoring distribution amplifier for standard definition 270 Mb/s signals. The 7713HDC provides 4 reclocked DA outputs and 3 downconverted SDI or composite analog NTSC/PAL outputs (selectable). The 7713HDC accepts all the popular international SMPTE 292M video formats. When the 7713HDC down converts 1080p/23.98sF input video to 525i/59.94 with a 3:2 pulldown, the 3:2 pulldown cadence can be free running, locked to embedded RP188 time code or an external 6Hz input.

The 7713HDC has color space conversion from ITU rec. 709 to ITU rec. 601, and will provide various down converted formats such as 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze. Full 10 bit processing is provided throughout the signal path to achieve excellent downconversion quality with detail enhancement and gamma correction. The 7713HDC has the ability to adjust video parameters such as brightness, hue and saturation. The 7713HDC also de-embeds two groups of audio and re-embeds the audio on the SDI output in time with the video. It can also reassign audio channels within the groups. All parameters may be controlled by use of the on screen display menu or through VistaLINK™ PRO.

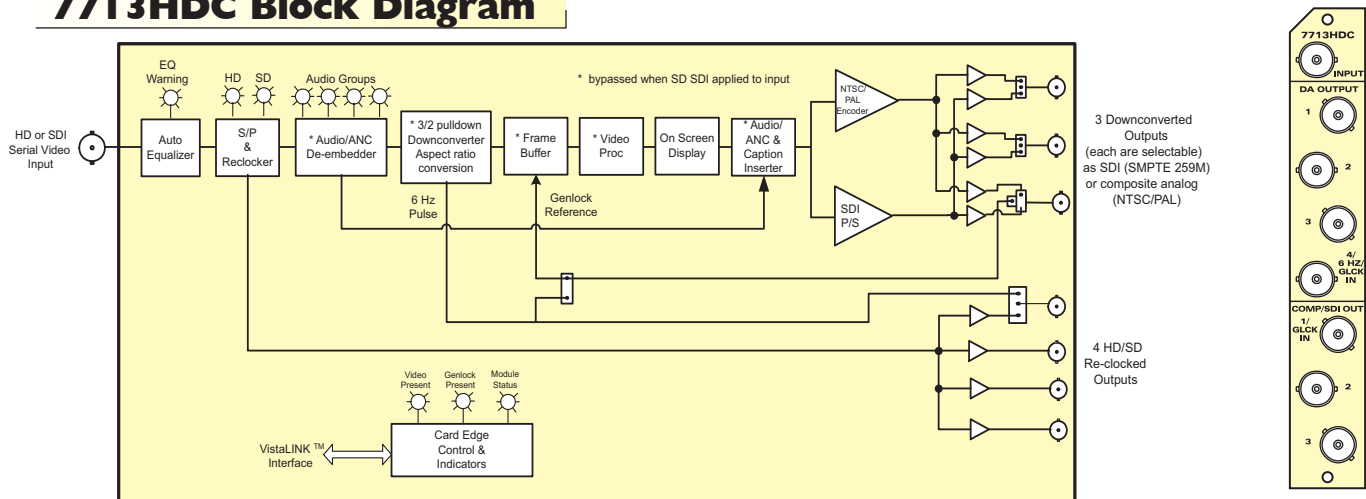
The 7713HDC provides card edge LEDs to indicate signal present and audio groups present. The 7713HDC occupies one card slot in the 3 RU frame, which will hold up to 15 modules or the 1RU frame, which will hold up to three modules.

Features

- Serial digital 1.5 Gb/s HD input per SMPTE 292M
- Supports most international standards including 1080i/60, 1080i/59.94, 1080i/50, 1080p/24, 1080p/23.98, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94, 720p/50, 480p/60, and 480p/59.94
- Will also accept 270 Mb/s SD input SDI per SMPTE 259M in a pass through mode - auto senses HD or SD inputs
- 4 Reclocked DA outputs (HD if HD inputs applied, SD if SD inputs applied)
- 3 Selectable SDI or Composite Outputs (downconverted from HD if HD input applied), (from reclocked SD if SD input applied)
- High quality HD -> SD down conversion
- Detail enhancement provided on SDI or composite outputs
- Supports 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze aspect ratio conversions.
- 1080p/23.98sF conversion to 525i/59.94 with 3:2 pulldown sequence - time code or 6 Hz Reference
- HD to SD colour space conversion (ITU rec. 709 to ITU rec. 601)
- Reference input from card or 7700FR-G Frame reference allows for phasing of output video
- On screen display used to configure the operating modes
- De-embeds Audio from HD video and embeds into standard definition SDI video (2 groups)
- Moves ANC data (e.g. captioning, time code) from HD video to standard definition SDI video
- Card Edge LEDs for signal presence, genlock presence, equalization warning, audio groups present, module status
- VistaLINK™ -enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller

HD Downconverter & Distribution Amplifier

7713HDC Block Diagram



Specifications

Serial Video Input:

Standard: 270 Mb/s SMPTE 259M - pass through mode
1.485 Gb/sec SMPTE 292M - auto-detects standard
SMPTE 260M, SMPTE 274M, SMPTE 296M, SMPTE 349M

Connector: BNC per IEC 60169-8 Amendment 2.

Input Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694 or equivalent cable

Return Loss: >15 dB up to 1.5GHz

Reclocked Serial Video DA Outputs:

Standard: Same as input

Number of Outputs: 4 Per Card relocked

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 200ps nominal for HD
750ps nominal for SD

Overshoot: <10% of amplitude

Return Loss: > 15 dB at 1.5 Gb/s

Jitter: < 0.2 UI

Downconverted Serial Video Outputs:

Standard: SMPTE 259M-C (270 Mb/s)

Number of Outputs: up to 3 Per Card (jumper selectable)

Connector: BNC per IEC 60169-8 Amendment 2.

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 750ps nominal

Overshoot: <10% of amplitude

Return Loss: > 15 dB at 270 Mb/s

Jitter: < 0.2 UI

Downconverted Composite Analog Video Outputs:

Standards: Analog composite NTSC (SMPTE 170M) or
Analog composite PAL (ITU-R BT.470)

Number of Outputs: up to 3 Per Card (jumper selectable)

Connectors: BNC per IEC 60169-8 Amendment 2.

Signal Level: 1 V p-p nominal

DC Offset: 0V \pm 0.1V

Return Loss: >35dB up to 5 MHz

Frequency Response: 0.1dB to 4 MHz, 0.15dB to 5.5 MHz

Differential Phase: <0.5° (<0.3° typical)

Differential Gain: <0.8% (<0.5 % typical)

SNR: >78dB to 5 MHz (shallow ramp)

Impedance: 75 Ω

Genlock Input:

Type: NTSC or PAL Colour Black 1 V p-p

Connector: BNC per IEC 60169-8 Amendment 2
or Frame Genlock on 7700FR-G frames. (selectable)

Termination: High impedance or internal 75 ohm termination (jumper selectable)

6 HZ Input:

Type: TTL level active high pulse 1/30 sec wide

Connector: BNC per IEC 60169-8 Amendment 2 (jumper selectable)

Termination: 500 Ω

Input to Output Processing Delay (HD Input Video)

Video Delay: Approximately 1 to 2 frames depending on input video for mat, processing mode and phase setting

Audio Delay: Audio is delayed and re-embedded in time with the output picture

Electrical:

Voltage: +12VDC

Power: 10 Watts

EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7713HDC Downconverter and Distribution Amplifier

Ordering Options:

Rear Plate must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Accessories:

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone Enclosure

High Quality Downconverter 7714HDC



The 7714HDC High Quality Down Converter provides high quality down conversion of your high definition (SMPTE 292M) signals to standard definition (SMPTE 259M) with detail enhancement and gamma correction. The 7714HDC has up to 4 SD Serial Digital outputs or up to 2 composite analog video outputs. Of the 4 outputs, 2 have OSD output. There is also an external genlock input. The module features a precise 1 frame processing delay.

The module accepts 2 groups of embedded audio on the input and re-embeds them into the serial video outputs. It also accepts 4 discrete unbalanced AES inputs and provides 4 AES outputs with the same audio that is being embedded. The re-embedded audio normally has the appropriate delay added to compensate for video delay incurred by the conversion process, thus avoiding the need for external de-embedding and re-embedding of audio. An additional audio delay adjustment can also be made for lip sync correction.

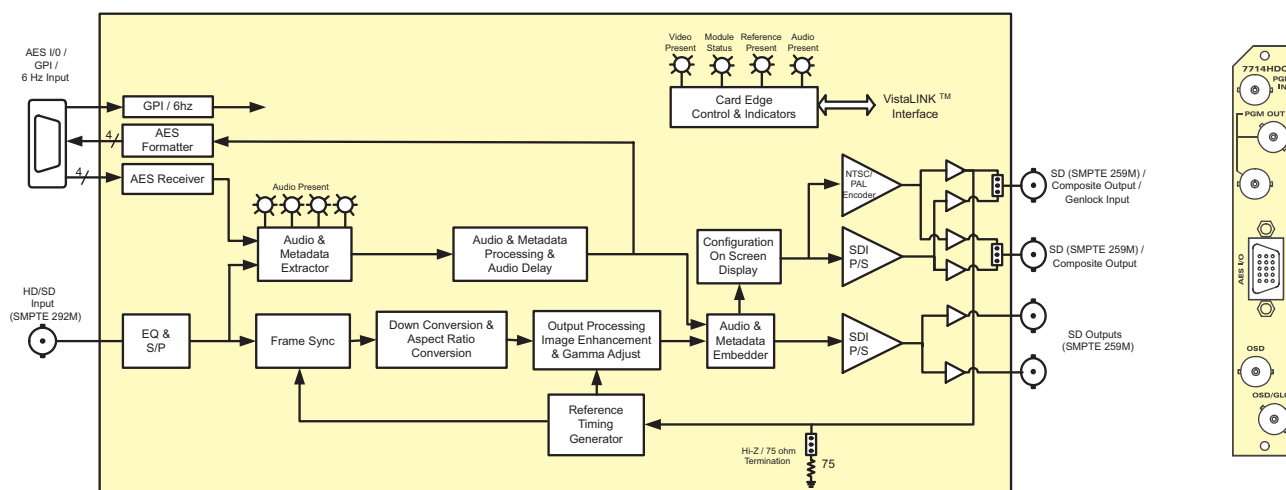
The module also transfers the closed caption and time code information from input to output performing all necessary HD to SD translation and time code recalculations.

The units occupy one card slot in the 3RU frame, which will hold up to 15 modules or one slot in the 1RU frame, which will hold up to three modules.

Features

- High quality HD -> SD down conversion with Image enhancement
- Supports standard aspect ratio conversions plus all user definable
- Support all necessary color space conversions (ITU rec. 601 to ITU rec.709)
- Full video processing functions, GBR gain YCrCb gain and offset, hue adjustment and RGB color limiter.
- Image Detail Enhancement with RGB gamma correction
- Reference input allows for phasing of output video
- Module supports min. delay or variable delay for video output without reference
- Module supports video output referenced to genlock with variable delay
- Output on screen display used to configure the operating modes
- De-embeds Audio from HD video input and embeds into SD video output (2 groups)
- Supports 4 retimed external AES inputs and outputs
- Moves RP-188 VITC and LTC from HD input to SD output, recalculated for frame rate changes.
- Moves HD closed captions from HD input to SD output.
- Card Edge LEDs for signal presence, genlock presence, equalization warning, audio groups present, module status
- VistaLINK® - capable offering remote control and configuration capabilities via SNMP (using VistaLINK® PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller

7714HDC Block Diagram and Rear Panel



Specifications

Standard:	270Mb/sec SMPTE 259M or 1.485 Gb/sec SMPTE 292M - menu selectable. SMPTE 260M, SMPTE 274M, SMPTE 296M, SMPTE 349M
Number of Inputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2
Input Equalization:	Automatic to 100m @ 1.5Gb/s with Belden 1694A or equivalent cable
Return Loss:	
SD Standards:	>15 dB up to 540Mb/s
HD Standards:	>15 dB up to 1.5Gb/s

Downconverted Serial Video Outputs:

Standard:	270Mb/sec SMPTE 259M
Number of Outputs:	4 Per Card
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	740ps nominal
Overshoot:	<10% of amplitude
Return Loss:	> 15 dB at 540MHz

Downconverted Composite Analog Video Outputs:

Standard:	SMPTE 170M (NTSC), ITU-R BT470-6 (PAL)
Number of Outputs:	2
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	1V nominal
Output Impedance:	75 Ω
DC Offset:	0V \pm 50mV
Return Loss:	>45dB to 10MHz
Freq. Response:	< \pm 0.1dB to 4 MHz (response will depend on selected filtering)
Differential Phase:	< 0.5° (< 0.3° typical)
Differential Gain:	< 0.5% (< 0.3% typical)
SNR:	>75dB (black video, 100kHz to 5MHz)
Output level control range:	\pm 10%
Black level control range:	\pm 7.5 IRE
Chroma level control range:	\pm 10%
Hue control range:	\pm 15 deg. (NTSC only)

Genlock Input:

Type:	HD Tri-Level sync, NTSC or PAL Color Black 1 V p-p
Connector:	BNC per IEC 60169-8 Amendment 2
Termination:	75 Ω (jumper selectable)

AES Audio Inputs & Outputs:

Number of Inputs:	4
Number of Outputs:	4
Standard:	SMPTE 276M, single ended synchronous AES
Connectors:	DB15 or BNC per IEC 60169-8 Amendment 2
Resolution:	24 bits
Sampling Rate:	48 kHz
Impedance:	75 Ω
Signal Level:	1 V p-p nominal

Input to Output Processing Delay (HD Input Video):

Video Delay:	<1 frames depending on input video format, processing mode and phase setting
Audio Delay:	Audio is delayed and re-embedded in time with the output picture

Electrical:

Voltage:	+12VDC
Power:	10 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of slots:	1
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Ordering Information:

7714HDC	High Quality Down Converter
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Ordering Options:

Rear Plate must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Accessories:

	WPAES8-BNCM-6F cable (included)
7700FC	VistaLINK® Frame Controller
9000NCP	1RU VistaLINK® General Purpose Network Control Panel
9000NCP2	2RU VistaLINK® General Purpose Network Control Panel

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone Enclosure

SDI AES Audio De-embedder

Model 7720AD-A4, 7720AD4, 7720AD4-B, 7720AD-B-A4-LTC



The 7720AD4 series Audio De-embedders extract embedded audio as specified by SMPTE 272M from a 270 Mb/s serial digital video signal. The companion 7720AE4 Audio Embedder facilitates audio multiplexing at the source. The 7720AD4 is available in 4 different versions.

SMPTE 272M allows for up to four groups (4 channels/group) to be embedded within a serial digital signal. The 7720AD4 can de-embed two audio groups onto four unbalanced AES outputs. The 7720AD4-B can de-embed two audio groups onto four balanced AES outputs. The 7720AD-A4 can de-embed one audio group onto two unbalanced AES outputs and 4 balanced analog audio outputs. The 7720AD-B-A4-LTC can de-embed one audio group onto two balanced AES outputs and 4 balanced analog audio outputs and can also be used as a VITC to LTC translator.

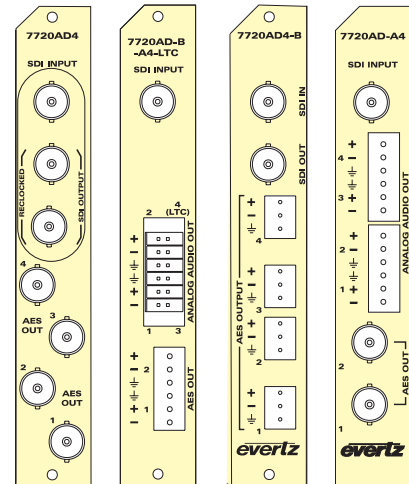
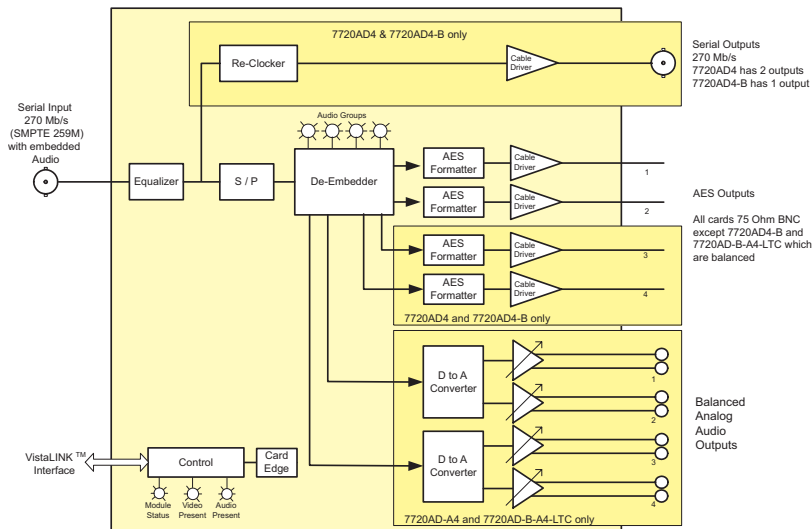
Model	Audio Outputs		Video 270Mb/s SDI Re-clocked Outputs
	AES	Analog	
7720AD-A4	2 Unbalanced	4	--
7720AD-B-A4-LTC	2 Balanced	3 +LTC or 4	--
7720AD4	4 Unbalanced	--	2
7720AD4-B	4 Balanced	--	1

Features

- Card edge LEDs indicating module status, video presence, selected audio group data is present
- LED indication for the presence of each of the 4 audio groups within the input video
- Audio group selection via card edge DIP switches
- Audio channel swapping selection via card edge DIP switches (not on 7720AD-A4)
- Analog audio output models have independent volume controls for each of the audio channel outputs
- 7720AD-B-A4-LTC has 4 balanced audio outputs or 3 audio outputs and one VITC to LTC translator output - selection of VITC reader line
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

SDI AES Audio De-embedder

7720AD Series Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M C - 525 and 625 component
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 300m @ 270 Mb/s with Belden 8281 or equivalent cable
Return Loss: > 15 dB up to 540 Mb/s

Reclocked Serial Video Outputs:

Standard: Same as input
Number of Outputs: 1 on 7720AD4-B, 2 on 7720AD4
0 on 7720AD-A4 & 7720AD-B-A4-LTC
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 700ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 270 Mb/s
Wide Band Jitter: < 0.2 UI

Unbalanced AES Audio Outputs (Not on -B versions):

Standard: SMPTE 276M, single ended synchronous AES
Number of Outputs: 2 on 7720AD-A4, 4 on 7720AD4
Connectors: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced
Dynamic Range: 20-bit

Balanced AES Audio Outputs (B-versions only):

Standard: AES3-1992
Number of Outputs: 2 on 7720AD-B-A4-LTC
4 on 7720AD4-B
Connector: Terminal strip
Sampling Rate: 48 kHz
Impedance: 110 Ω
Dynamic Range: 20-bit

Input to Output Processing Delay:

SDI to AES: 1.35 ms (A4 versions)
600 μ s all other versions
SDI to Analog: 2.25 ms (A4 versions)

Analog Audio Outputs (A4 Versions Only):

Number of Outputs: 4
Type: Balanced analog audio
Connector: Terminal strip
Output Impedance: 66 Ω balanced
Sampling Frequency: 48kHz
Signal Level: 0dB FS \Rightarrow 8 to 24dBu into 10 k Ω loads (user settable)
0dB FS \Rightarrow 8 to 22dBu into 600 Ω loads (user settable)
Frequency Response: < \pm 0.1dB (20Hz to 20kHz)
THD+N: > 90dB RMS @ 1kHz, with 24dBu output
> 100dB RMS @ 20Hz to 20kHz, with 24dBu output
Crosstalk isolation: > 100dB RMS (20Hz to 20kHz)

Electrical:

Voltage: + 12VDC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7720AD-A4 SDI AES Audio De-embedder with 2 unbalanced AES outputs and 4 analog audio outputs
7720AD-B-A4-LTC SDI AES Audio De-embedder with 2 balanced AES outputs, 4 analog audio outputs and VITC to LTC Translator
7720AD4 SDI AES Audio De-embedder with 4 unbalanced AES outputs (2 audio groups)
7720AD4-B SDI AES Audio De-embedder with 4 balanced AES outputs (2 audio groups)

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD/SD Audio De-embedder & Dolby E/AC-3 Decoder & Re-embedder

Model 7720AD8-DD-HD



The 7720AD8-DD-HD Audio De-embedder and Dolby Decoder & Re-embedder extracts embedded audio from 4 specified groups as defined by SMPTE 299M from a 1.5 Gb/s serial HDTV or as defined by SMPTE 272M from a 270Mb/s serial SDTV video signal.

One selected channel is processed by the on-card Dolby Decoder. If the channel contains Dolby E or Dolby Digital (AC3), it will yield up to 8 additional discrete audio channels and the associated Dolby E metadata. Up to 16 selected channels may be optionally delayed up to 1.2 seconds and re-embedded into the output video and/or directed to AES outputs. Video output may be optionally delayed to help with lip sync. If PCM audio is embedded, the device acts as a simple 4 group audio de-embedder.

This device also handles the Dolby E Metadata. Metadata is optionally embedded in VANC and can be provided as an output for downstream devices (i.e. Dolby Encoders, Multichannel Audio Tool, etc.).

For lip sync cohesion and ease of editing, Dolby-E data is organized in blocks with lengths matching the associated video frame. The decoder will match the beginning of each output block with the start of video, as provided with the genlock input. Additional delay can be dialed up by the user, up to 1.2 secs. AES inputs are can be configured as a backup, in the event the primary is lost, or as a voice-over source.

VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

Features

- Automatic switchover to backup audio source on loss of selected Dolby stream
- Adjustable video delay to match Dolby decoder audio delay
- Headphone jack with monitoring stereo down-mix
- Dolby Metadata is embedded in HD VANC for downstream device decoding
- AES input with backup, voice-over or Dolby E/AC3 content
- Card edge display
- Flexible audio channel router

Controls:

- Audio group selection
- Audio channel selection

Inputs:

- Program output bypass relay protected
- SMPTE 292M - (1.5Gb/s serial digital), or SMPTE 259M
- Genlock NTSC-M, PAL-B, any tri-level
- 8 AES inputs for backup/voice-over source
- Metadata input

Outputs:

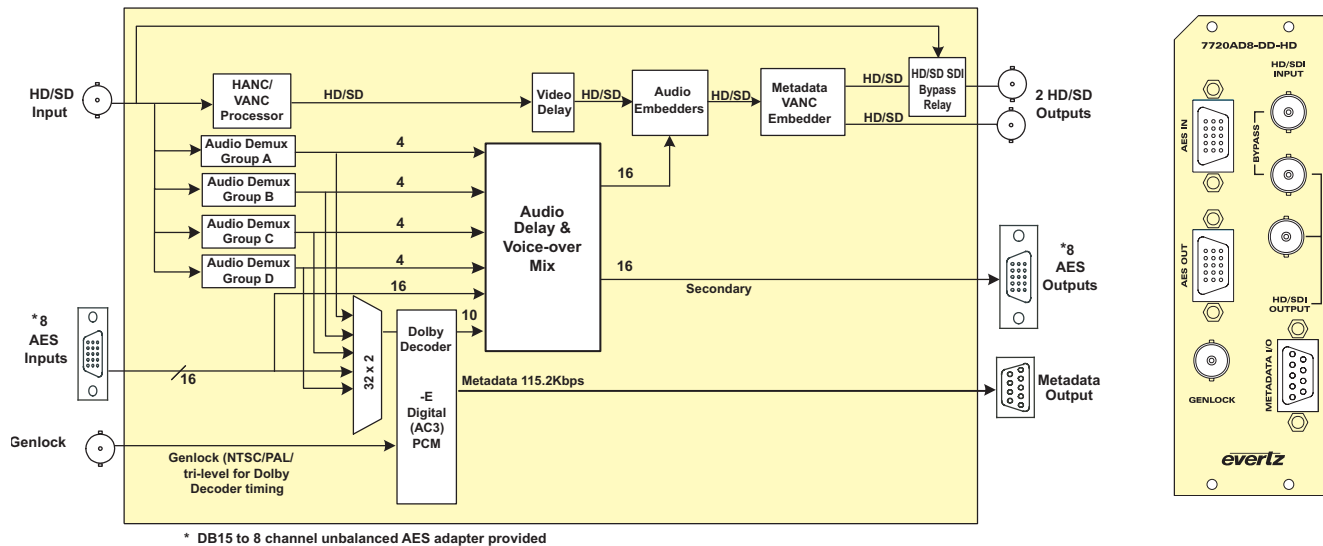
- 2 processed HD outputs (1 protected with bypass relay)
- 8 AES de-embedded and processed outputs
- 1 DB-9 Dolby metadata (RS422/485)

Card Edge LED's:

- Module Status
- Video Signal presence
- Selected audio group presence/errors
- Dolby decoder processing status
- Genlock health/compatibility
- AES signal presence

HD/SD Audio De-embedder & Dolby E/AC-3 Decoder & Re-embedder

Model 7720AD8-DD-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M, (1080i/60, 1080i/59.94, 1080i/50, 1080p/30(sF), 1080p/29.97(sF), 1080p/25(sF), 1080/24(sF), 1080/23.98(sF), 720p/50, 720p/60, 720p/59.94, 1035i/60, 1035i/59.94)
SMPTE 259M-C (270Mb/s) 525 or 625 line component
Connector: BNC per IEC 60169-8 Amendment 2

Equalization:

HD: 115m @1.5Gb/s with Belden 1694A
SD: 300m @270MB/s with Belden 1694A

Processed Serial Video Output:

Standard: Same as input or user controlled
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Rise and Fall Time: Per standard
Overshoot: <10% of amplitude
Wide Band Jitter:
HD: <0.16 VI
SD: <0.10 VI

Metadata Output:

Type: Dolby E Metadata
Connector: Female High Density DB-9 ((breakout cable to BNC provided)
Baud Rate: 115,200 baud

AES Audio Input:

Standard: SMPTE 276M
Number of Inputs: 8 unbalanced
Connector: Female High Density DB-15 (breakout cable to BNC provided)
Input Level: 0.1 to 2.5 Vp-p (5Vp-p tolerant)
Input Impedance: 75 Ω
Return Loss: >25dB 100kHz to 6MHz
Equalization: Automatic to 1000m with Belden 1694A (or equivalent) @ 48kHz AES signal
Sample Rate: 48kHz \pm 100ppm

AES Audio Output:

Standard: SMPTE 276M, single ended AES
Number of Outputs: 8 unbalanced
Connector: Female High Density DB-15 (breakout cable to BNC provided)
Sample Rate: 48kHz
Impedance: 75 Ω
Resolution: Up to 24-bit

Genlock Input:

Type: NTSC, PAL, black or any tri-level, all autodetect
Connector: 1 BNC per IEC 60169-8 Amendment 2
Impedance: hi-Z or 75 Ω (jumper configurable)
Return Loss: >40dB to 10MHz

System Performance:

AC3 Decode Delay: 32ms nominal
Dolby E Decode Delay: 1 frame nominal
De-embedding Latency: 600 μ s nominal
Additional Audio Delay: 0 to 1.2 seconds (user programmable)
Additional Video Delay: 0 to 7 frames (user programmable)

Electrical:

Voltage: +12V DC
Power: 16 Watts
EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

Physical:

Number of Slots: 2

Ordering Information:

7720AD8-DD-HD HD/SD Audio De-embedder & Dolby E/AC-3 Decoder & Re-embedder

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone Enclosure



The 7720AD8-DD-HD Audio De-embedder and Dolby Decoder & Re-embedder extracts embedded audio from 4 specified groups as defined by SMPTE 299M from a 1.5 Gb/s serial HDTV or as defined by SMPTE 272M from a 270Mb/s serial SDTV video signal.

One selected channel is processed by the on-card Dolby Decoder. If the channel contains Dolby E or Dolby Digital (AC3), it will yield up to 8 additional discrete audio channels, 2 channels of stereo downmix and the associated Dolby E metadata. Up to 16 selected channels may be optionally delayed up to 1.2 seconds and re-embedded into the output video and/or directed to AES outputs. Video output may be optionally delayed to help with lip sync. If PCM audio is embedded, the device acts as a simple 4 group audio de-embedder.

This device also handles the Dolby E Metadata. Metadata is optionally embedded in VANC and can be provided as an output for downstream devices (i.e. Dolby Encoders, Multichannel Audio Tool, etc.).

For lip sync cohesion and ease of editing, Dolby-E data is organized in blocks with lengths matching the associated video frame. The decoder will match the beginning of each output block with the start of video, as provided with the genlock input. Additional delay can be dialed up by the user, up to 1.2 secs. The 8 AES inputs can be configured as a backup, in the event the primary is lost, or as a voice-over source.

VistaLINK® enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK® PRO locally or remotely.

Features

- Automatic switchover to backup audio source on loss of selected Dolby stream
- Adjustable video delay to match Dolby decoder audio delay
- Headphone jack with monitoring stereo down-mix or any input source
- Dolby Metadata is embedded in HD VANC for downstream device decoding
- 8 AES inputs for backup, voice-over or Dolby E/AC3 content
- Card edge display
- Flexible audio channel mixer
- VistaLINK® - capable offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK® is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame

Inputs:

- Program output bypass relay protected
- SMPTE 292M - (1.5Gb/s serial digital), or SMPTE 259M
- Genlock NTSC-M, PAL-B, any tri-level
- 8 AES inputs for backup/voice-over source
- Metadata input

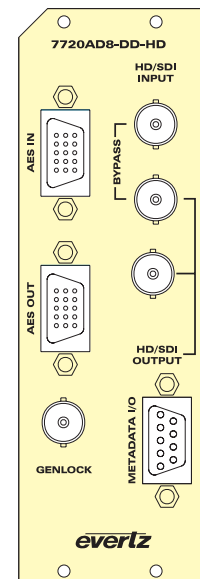
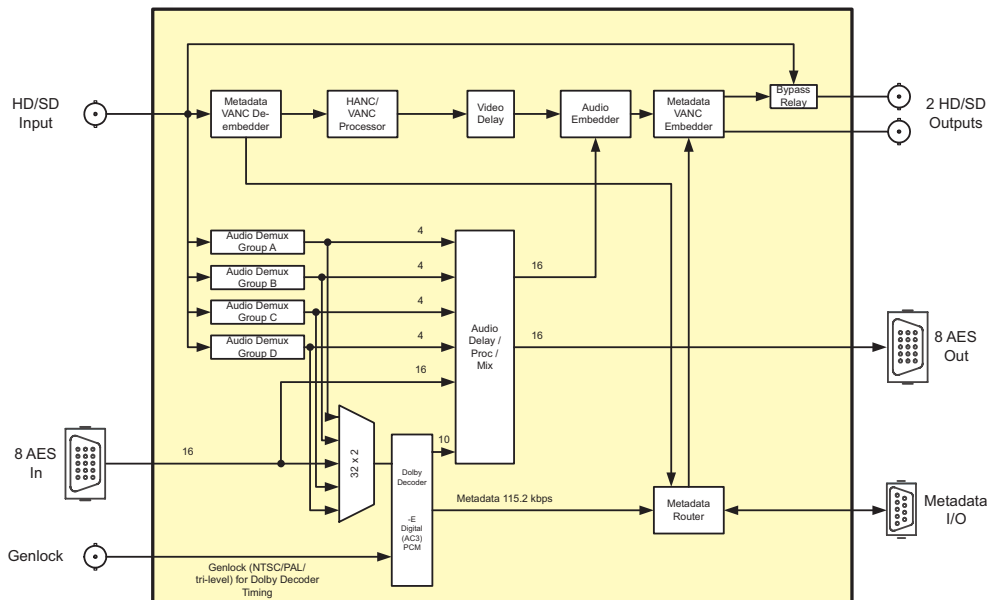
Outputs:

- 2 processed HD outputs (1 protected with bypass relay)
- 8 AES de-embedded and processed outputs
- 1 DB-9 Dolby metadata (RS422/485) on same connector as input

Card Edge LED's:

- Module Status
- Video Signal presence
- Selected audio group presence
- Dolby decoder processing status
- Genlock health/compatibility
- AES signal presence

7720AD8-DD-HD Block Diagram & Rear Panel



*DB15 to 8 channel unbalanced AES adapter provided

HD/SD Audio De-embedder & Dolby E/AC-3 Decoder & Re-embedder

7720AD8-DD-HD

Specifications

Serial Video Input:

Standard:	SMPTE 292M, (1080i/60, 1080i/59.94, 1080i/50, 1080p/30(sF), 1080p/29.97(sF), 1080p/25(sF), 1080p/24(sF), 1080p/23.98(sF), 720p/50, 720p/60, 720p/59.94, 1035i/60, 1035i/59.94) SMPTE 259M-C (270Mb/s) 525 or 625 line component
Connector:	BNC per IEC 60169-8 Amendment 2
Equalization:	
HD:	115m @1.5Gb/s with Belden 1694A
SD:	300m @270MB/s with Belden 1694A

Processed Serial Video Output:

Standard:	Same as input or user controlled
Number of Outputs:	2
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	Per standard
Overshoot:	<10% of amplitude
Wide Band Jitter:	
HD:	<0.16 UI
SD:	<0.10 UI

Metadata I/O:

Type:	Dolby E Metadata
Connector:	Female DB-9
Baud Rate:	115,200 baud

AES Audio Input:

Standard:	SMPTE 276M
Number of Inputs:	8 unbalanced
Connector:	Female High Density DB-15 (breakout cable to BNC provided)
Input Level:	0.1 to 2.5 Vp-p (5Vp-p tolerant)
Input Impedance:	75 Ω
Return Loss:	>25dB 100kHz to 6MHz
Equalization:	Automatic to 1000m with Belden 1694A (or equivalent) @ 48kHz AES signal
Sample Rate:	48kHz \pm 100ppm

AES Audio Output:

Standard:	SMPTE 276M, single ended AES
Number of Outputs:	8 unbalanced
Connector:	Female High Density DB-15 (breakout cable to BNC provided)
Sample Rate:	48kHz
Impedance:	75 Ω
Resolution:	Up to 24-bit

Genlock Input:

Type:	NTSC, PAL, black or any tri-level, all autodetect
Connector:	1 BNC per IEC 60169-8 Amendment 2
Impedance:	hi-Z or 75 Ω (jumper configurable)
Return Loss:	>40dB to 10MHz

System Performance:

AC3 Decode Delay:	32ms nominal
Dolby E Decode Delay:	1 frame nominal
De-embedding Latency:	600 μ s nominal
Additional Audio Delay:	0 to 1.2 seconds (user programmable)
Additional Video Delay:	0 to 12 frames (interlace) 0 to 28 frames (progressive)

Electrical:

Voltage:	+12V DC
Power:	21 Watts
EMI/RFI:	Complies with FCC Part 15 Class A, EU EMC Directive

Physical:

Number of Slots:	
7700 frame mounting:	2
7701 frame mounting:	1

Ordering Information:

7720AD8-DD-HD	HD/SD Audio De-embedder & Dolby E/AC-3 Decoder & Re-embedder
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Accessories:

WPAES8-BNCM-6F cable (included)

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone Enclosure



Quad Analog Audio to Dual AES Converter

Model 7720ADC-A4



The 7720ADC-A4 is a high-quality, 24-bit, analog to digital audio converter which provides digital conversion of 4 balanced analog audio channels and provides 2 unbalanced AES/EBU channels out.

The sampling clock may free run at 48kHz or may be locked to either a DARS (Digital Audio Reference Signal) reference or composite video reference. Level control is provided via a card edge toggle switch. The input gain level can be read out from a card edge display for convenience. The full scale digital signal can be calibrated to accommodate peak levels ranging from 8dBu to 27dBu with 0.5 dB resolution.

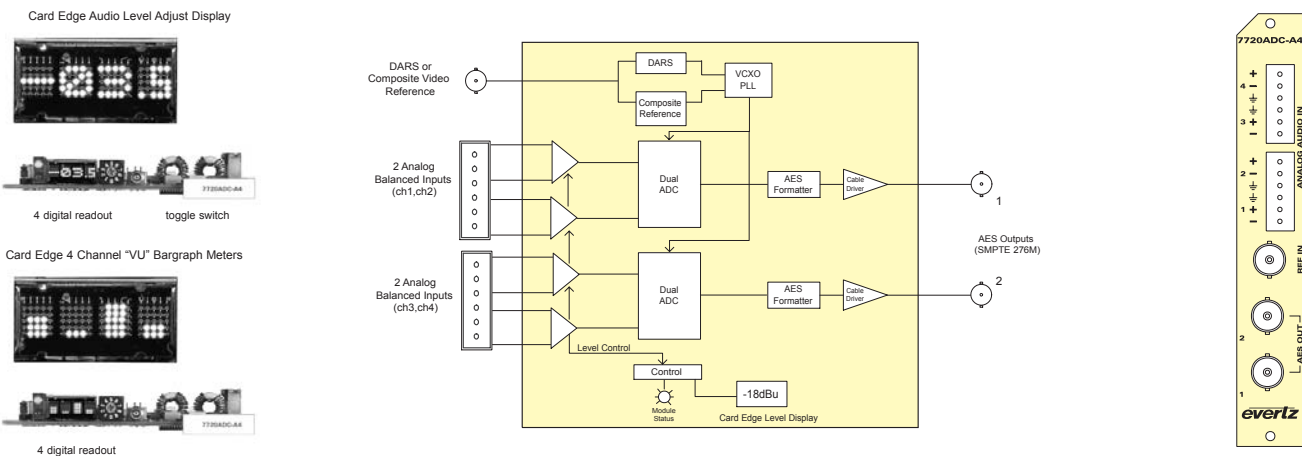
The audio ADC features a card edge VU meter for quick confidence monitoring. Four separate level indicators are provided via bargraphs for quick validation of audio program material.

Features

- Auto detect composite video or DARS on the reference input
- 24-bit, high-quality analog to digital audio conversion
- Support for 4 channels of analog audio (2 AES/EBU)
- Local card edge display and control of input gain
- 0dBFS programmable from 8dBu to 27dBu
- A card edge display provides a 4 channel bargraph type level indicator display for confidence monitoring
- Automatic DC removal

- VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel. VistaLINK™ is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller

7720ADC-A4 Block Diagram



Specifications

Analog Audio Input:	4
Number of Inputs:	Balanced analog audio
Type:	Removable terminal strip
Connector:	10kΩ minimum (differential)
Input Impedance:	48kHz (freerun or locked to the reference)
Sampling Frequency:	0dB FS = 8dBu to 27dBu (programmable via 0dB/+6dB jumper and card edge fine gain with -10... +10dB range)
Signal Level:	+/- 0.1dB (20Hz to 20kHz)
Frequency Response:	100dB with input at -1dBFS
SNR:	<0.001% (>100dB) @ 20Hz to 20kHz, -1 dB FS
THD+N:	>100dB @ 1kHz
CMRR:	< -100dB @ 20Hz-20kHz
Crosstalk:	< 1°, 20Hz-20kHz
Inter-channel Phase error:	
Reference Input:	
Standard:	NTSC (SMPTE 170M), PAL (ITU624-4), DARS
Number of Inputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	
Video:	Max: 2Vp-p video (composite only)
	Min: Sync level 150m (composite only)
	SMPTE 276M, 1Vp-p
	±100ppm from nominal
DARS:	High Impedance
Frequency Lock Range:	>25dB to 10MHz
Input Impedance:	(with external 75Ω termination)
Return Loss:	

AES Audio Output:	SMPTE 276M single ended AES
Standard:	
Number of Outputs:	2
Connectors:	BNC per IEC 60169-8 Amendment 2
Resolution:	24-bits
Sampling Rate:	48 kHz
Impedance:	75 Ω unbalanced
I/O Delay:	0.87ms

Electrical:	
Voltage:	+ 12VDC
Power:	10 Watts (nominal)
EM/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:	
Number of slots:	1

Ordering Information:	
7720ADC-A4:	Quad Analog Audio to Dual AES Converter

Ordering Options
Rear Plate must be specified at time of order
Eg: Rear + 3RU

Rear Plate Suffix	
+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:	
7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

SDI AES Audio De-embedder & Fiber Receiver

Model 7720AD-OE



The 7720AD-OE Audio De-embedder extracts embedded audio as specified in SMPTE 272M from a 270Mb/s fiber optic input signal.

SMPTE 272M allows for up to four groups (4 channels/group) to be embedded within a serial digital signal. The 7720AD-OE can de-embed one audio group onto two single ended AES outputs. The 7720AD-OE is Dolby E compliant.

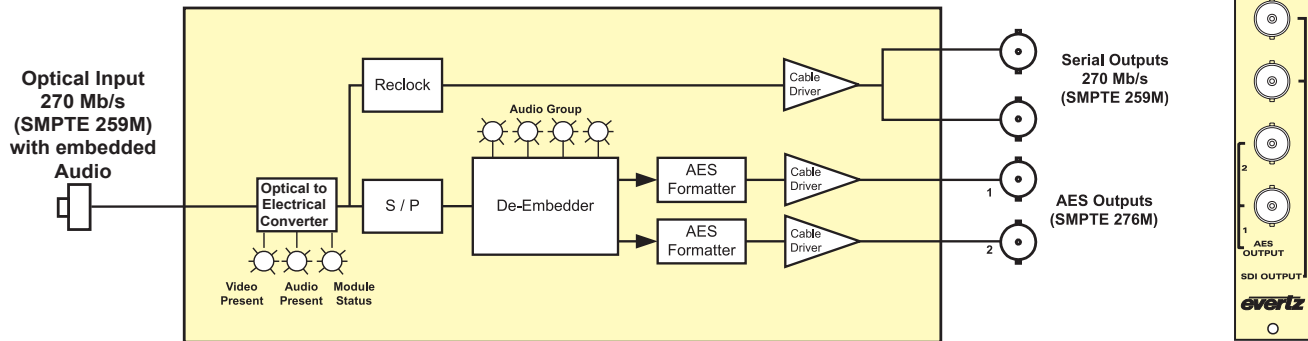
Features

- Audio group selection via card edge DIP switches
- Audio channel swapping selection via card edge DIP switches
- Dolby E compliant

Front Panel LED's:

- Video signal presence
- Module Status
- Audio Presence - Audio Group Indicator

7720AD-OE Block Diagram



Specifications

Optical Input:

Number of Inputs: 1
Connector: SC/PC, ST/PC, FC/PC Female Housing
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: 0dBm
Optical Sensitivity: -32dBm

Reclocked Serial Video Output:

Number of Outputs: 2
Standard: SMPTE 259M-C
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15 dB up to 270 Mb/s
Wide Band Jitter: < 0.2 UI

AES Audio Output:

Number of Outputs: 2
Standard: SMPTE 276M, single ended AES, Dolby E compatible
Connector: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48kHz
Impedance: 75 Ω unbalanced
Resolution: 20-bit

Input to Output Processing Delay:

Optical Input to AES: 600 μ Sec

Electrical:

Voltage: +12V DC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7720AD-OE: SDI AES Audio De-embedder & Fiber Receiver

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone enclosure

SDI 4 AES Pair Audio Embedder

Model 7720AE4



The 7720AE4 Audio Embedder inserts AES audio signals into a 270 Mb/s SDI video signal as specified in SMPTE 272M. The companion 7720AD4 Audio De-embedder facilitates audio demultiplexing at the destination.

SMPTE 272M allocates four groups of four audio channels that can be embedded into the SMPTE 259M bitstream. The 7720AE4 embeds up to 4 AES audio signals into two groups on the SDI outputs for discrete 5.1 audio applications. The 7720AE4 is Dolby E compliant when the sample rate converters are turned off.

VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

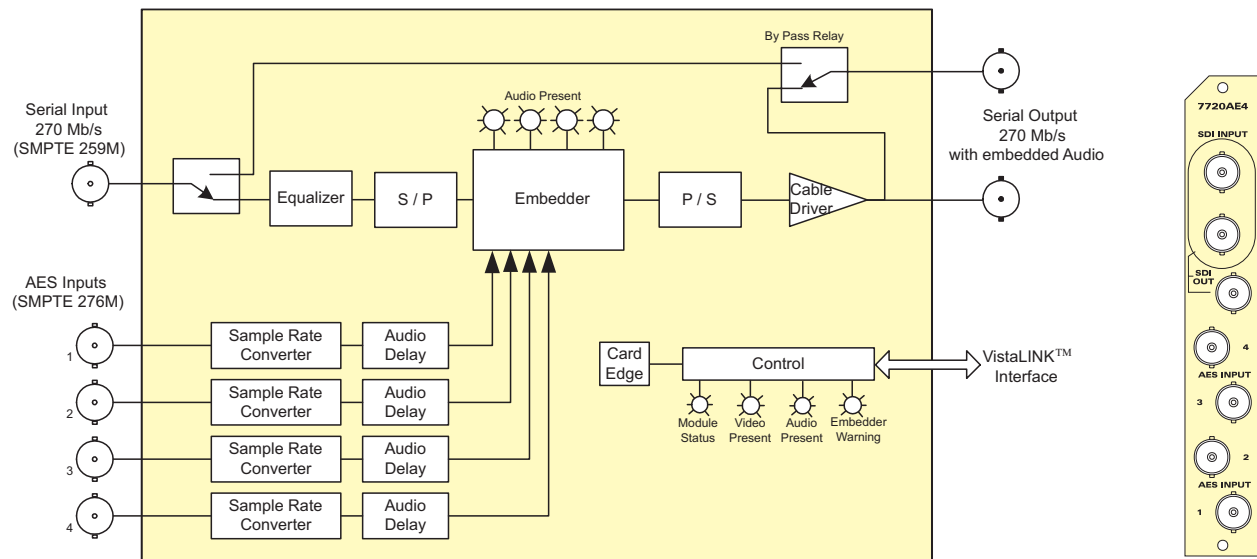
Features

- Automatic detection of 525 line and 625 line input
- Bypass relay protection on one SDI output for power failures
- 20-bit AES input and audio embedding
- Individual audio group assignment for each group
- Group lock mode maintains phase relationship between the groups for 5.1 audio applications
- Sample rate conversion disable on AES inputs to permit Dolby E embedding
- Programmable audio delays (up to 7 frames in ½ video field increments using DIP switches or up to 1.3 sec in 1 sample increments with VistaLINK™ control)
- Ancillary packet cleaning mode removes all audio before embedding
- Ancillary packet reformatting mode left justifies and removes unused packets before embedding
- Embeds audio on internally generated black or blue video when there is no video input
- Card edge LEDs indicate video and audio signal presence, and module fault

• VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

SDI 4 AES Pair Audio Embedder

7720AE4 Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C (270 Mb/s) 525 or 625 line component.

Connector: 1 BNC per IEC 60169-8 Amendment 2

Equalization: Automatic 210m @ 270 Mb/s with Belden 8281 or equivalent cable

Return Loss: > 15 dB up to 540 Mb/s

Serial Video Outputs with Embedded Audio:

Standard: same as input

Number of Outputs: 2 (1 output bypass relay protected)

Embedded Audio: SMPTE 272M - 20 bit 48 kHz synchronous

Connectors: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V $\pm 0.5V$

Rise and Fall Time: 900ps nominal

Overshoot: <10% of amplitude

Return Loss: > 15 dB up to 540 Mb/s

Wide Band Jitter: < 0.2 UI

AES Audio Inputs:

Number of Inputs: 4

Standard: SMPTE 276M, single ended AES

Connector: BNC per IEC 60169-8 Amendment 2

Resolution: 20 bits

Sampling Rate: 32 to 96 kHz synchronous or asynchronous (48 kHz synchronous AES required when sample rate converter is disabled.)

Impedance: 75 Ω unbalanced

Signal Level: 1V p-p $\pm 0.1V$

System Performance:

Embedding Latency: 1.3 to 3 ms

Audio Delay

DIP Switch Control: Up to 7 frames, $\frac{1}{2}$ frame increments (delay applied to all AES channels)

VistaLINK™ or Serial

Port Control: Up to 1.35 seconds in 1 sample increments (independent control of delay for each channel)

Electrical:

Voltage: + 12VDC

Power: 9 Watts

EMI/RFI: Complies with FCC Part 15, Class A EU EMC Directive

Physical:

7700 or 7701 frame mounting:

Number of slots: 1

Ordering Information:

7720AE4 SDI 4 AES Pair Audio Embedder

Ordering Options:

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

+SA Standalone Enclosure Rear Plate

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

7701FR 1RU Multiframe which holds 3 modules

S7701FR Standalone enclosure



The 7720AE8-DE-HD Audio Embedder & Dolby E Encoder inserts 8 AES inputs as 4 embedded audio groups into a 1.5Gb/s HD or a 270Mb/s SD video signal as specified by SMPTE 299M or 272M respectively.

Eight channels can be processed by the on-card Dolby Encoder. The encoder will transform the 8 discrete channels into 2 channels containing Dolby E and the associated Dolby E metadata. The 2 channels of Dolby E can be embedded into the video output or output to an AES. This device also handles the Dolby E Metadata. Metadata is optionally embedded in VANC and can be provided as an output for downstream devices (i.e. Dolby Encoders, Multichannel Audio Tool, etc.).

Up to 16 selected channels may be optionally delayed up to 1.2 seconds and embedded into the output video and/or directed to AES outputs. Video output may be optionally delayed to help with lip sync.

For lip sync cohesion and ease of editing, Dolby E data is organized in blocks with lengths matching the associated video frame. The encoder will match the beginning of each output block with the start of video, as provided with the genlock input. Up to 1.2 seconds of additional delay can be dialed up by the user.

VistaLINK® enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK® PRO locally or remotely.

Features

- Automatic switchover to backup audio source on loss of selected Dolby stream
- Adjustable video delay to match Dolby Encoder audio delay
- Headphone jack with monitoring stereo down-mix or any input source
- Dolby Metadata is embedded in HD VANC for downstream device decoding
- 8 AES output for backup or Dolby E content
- Card edge display
- Flexible audio channel mixer

Inputs:

- Program output bypass relay protected
- SMPTE 292M - (1.5Gb/s serial digital), or SMPTE 259M
- Genlock NTSC-M, PAL-B, any tri-level
- 8 AES inputs
- Metadata input

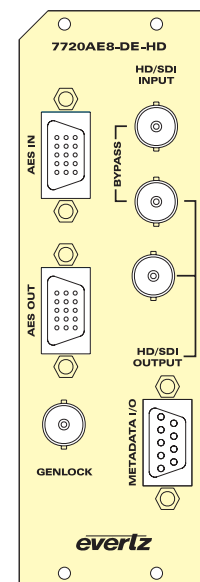
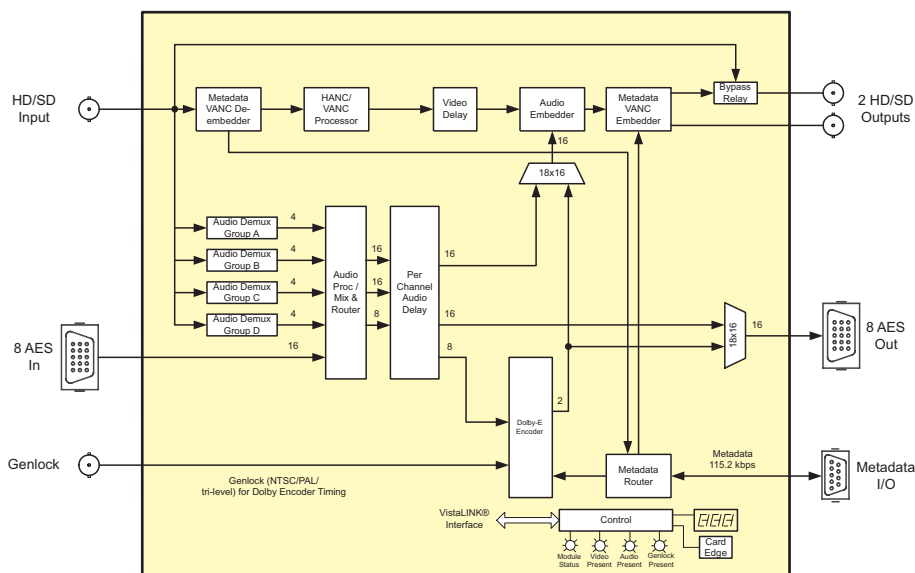
Outputs:

- 2 processed HD outputs (1 protected with bypass relay)
- 8 AES de-embedded and processed outputs (for backup or Dolby E content)
- 1 DB-9 Dolby metadata (RS422/485) on same connector as input

Card Edge LED's:

- Module Status
- Video Signal presence
- Selected audio group presence
- Dolby encoder processing status
- Genlock health/compatibility
- AES signal presence

7720AE8-DE-HD Block Diagram & Rear Panel



*DB15 to 8 channel unbalanced AES adapter provided

Specifications

Serial Video Input:

Standard:	SMPTE 292M, (1080i/60, 1080i/59.94, 1080i/50, 1080p/30(sF), 1080p/29.97(sF), 1080p/25(sF), 1080p/24(sF), 1080p/23.98(sF), 720p/50, 720p/60, 720p/59.94, 1035i/60, 1035i/59.94) SMPTE 259M-C (270Mb/s) 525 or 625 line component BNC per IEC 60169-8 Amendment 2
Connector:	
Equalization:	
HD:	115m @1.5Gb/s with Belden 1694A
SD:	300m @270MB/s with Belden 1694A

Processed Serial Video Output:

Standard:	Same as input or user controlled
Number of Outputs:	2
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	Per standard
Overshoot:	<10% of amplitude
Wide Band Jitter:	
HD:	<0.16 UI
SD:	<0.10 UI

Metadata I/O:

Type:	Dolby E Metadata
Connector:	Female DB-9
Baud Rate:	115,200 baud

AES Audio Input:

Standard:	SMPTE 276M
Number of Inputs:	8 unbalanced
Connector:	Female High Density DB-15 (breakout cable to BNC provided)
Input Level:	0.1 to 2.5 Vp-p (5Vp-p tolerant)
Input Impedance:	75 Ω
Return Loss:	>25dB 100kHz to 6MHz
Equalization:	Automatic to 1000m with Belden 1694A (or equivalent) @ 48kHz AES signal
Sample Rate:	48kHz \pm 100ppm

AES Audio Output:

Standard:	SMPTE 276M, single ended AES
Number of Outputs:	8 unbalanced
Connector:	Female High Density DB-15 (breakout cable to BNC provided)
Sample Rate:	48kHz
Impedance:	75 Ω
Resolution:	Up to 24-bit

Genlock Input:

Type:	NTSC, PAL, black or any tri-level, all autodetect
Connector:	1 BNC per IEC 60169-8 Amendment 2
Impedance:	hi-Z or 75 Ω (jumper configurable)
Return Loss:	>40dB to 10MHz

Electrical:

Voltage:	+12V DC
Power:	21 Watts
EMI/RFI:	Complies with FCC Part 15 Class A, EU EMC Directive

Number of Slots:

7700 frame mounting:	2
7701 frame mounting:	1

Ordering Information:

7720AE8-DE-HD	HD/SD Audio Embedder & Dolby E Encoder & Re-embedder
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Accessories:

WPAES8-BNCM-6F cable (included)

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone Enclosure

SDI AES Audio Embedder & Fiber Transmitter

Model 7720AE-EO



The 7720AE-EO Audio Embedder inserts AES audio channels into a 270Mb/s SDI video signal as specified in SMPTE 272M. The 7720AE-EO will embed up to four audio channels (2 AES) into the audio group selected by the DIP switches. The 7720AE series Embedders will do a seamless audio embed when the input video is switched properly in the vertical interval. The 7720AE-EO is Dolby E compliant.

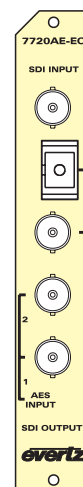
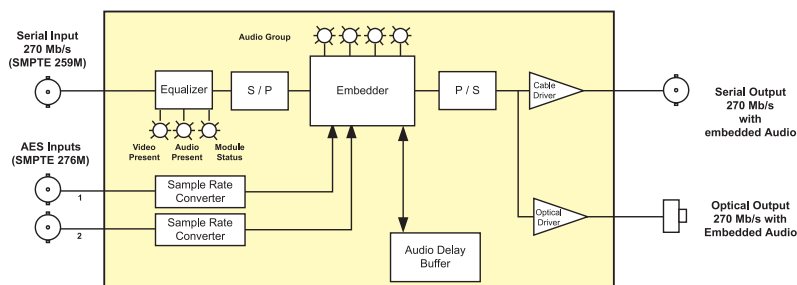
Features

- Audio group selection via card edge DIP switches
- Audio channel swapping selection via card edge DIP switches
- Sample rate conversion disable to permit Dolby E embedding

Card Edge LEDs:

- Video Signal Presence
- Module Status
- Audio Presence - Audio Group Indicator

7720AE-EO Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C 525 and 625 component
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 175m @ 270Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15 dB up to 270 Mb/s

AES Audio Inputs:

Number of Inputs: 2
Standard: SMPTE 276M, single ended AES, Dolby E compatible
Signal Level: 1V p-p $\pm 0.1V$
Connector: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48kHz
Impedance: 75 Ω unbalanced
Resolution: 20-bits

Serial Video Output With Embedded Audio

Number of Outputs: 1
Standard: Same as input
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 270 Mb/s
Wide Band Jitter: < 0.2 UI

Optical Output:

Number of Outputs: 1
Connector: SC/PC, ST/PC, FC/PC female housing
Return Loss: > 14dB
Nominal Wavelength: 1310nm, 1550nm
CWDM Wavelengths: 1270nm to 1610nm (See Ordering Info)
Output Power:
1310nm FP: -7dBm ± 1 dBm
1550nm DFB: 0 dBm ± 1 dBm
CWDM DFB: 0 dBm ± 1 dBm

System Performance:

Embedding Latency: 1.3 to 3 msec

Physical:

Number of Slots: 1

Electrical:

Voltage: +12V DC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7720AE-EO13 SDI AES Audio Embedder with Fiber Interface, 1310nm FP, Laser
7720AE-EO15 SDI AES Audio Embedder with Fiber Interface, 1550nm DFB

For CWDM applications please refer to the end of the fiber section for details

7720AE-EOxx SDI AES Audio Embedder with Fiber Interface, CWDM 1270nm to 1610nm DFB

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Quad AES Audio Mixer



Model 7720AM-AES4

The 7720AM-AES4 Audio Mixer accepts 4 AES/EBU digital audio inputs (eight channels) and synchronously mixes all channels and routes them to any of the four AES outputs. The 7720AM-AES4 performs channel swapping, over mixes, mix downs and on-air breakaways. All processing is at 24-bit resolution.

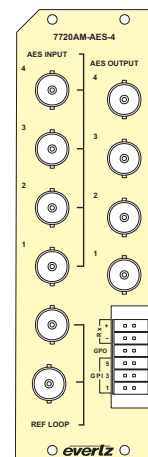
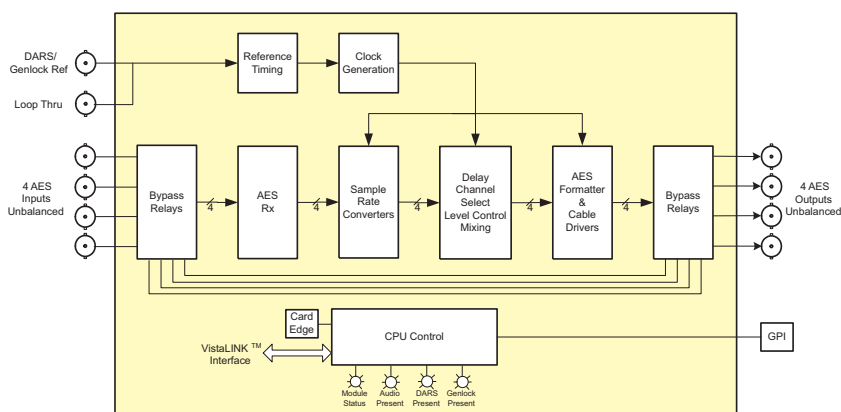
The 7720AM-AES4 provides eight channels of independent audio delay control making it ideal for retiming AES audio.

A non-PCM data mode is provided in order to pass Dolby-E or AC3 data. In this mode, channel swapping and delay is supported (mixing is not) with the requirement that the inputs are 48kHz synchronous and locked (a reference is required to be used in this mode)

Features

- 24-bit audio processing for high fidelity
 - Flexible sample rate of 28 kHz to 108kHz (will be resampled to 48kHz locked to reference on output)
 - Audio Sample Rate Converters can be disabled
 - GPI control
 - Dolby-E/AC3 pass through mode
 - Card edge LEDs indicate: module fault, audio, genlock and DARS present
 - Maximum delay of 2.54 seconds with sample accuracy
 - Bypass relay outputs at the loss of power
- Additional Features when controlled through VistaLINK™:**
- Provides 2:1 audio mixing capability, ideal for "ducking" audio or voiceovers
 - Can be used at the inputs of an audio console to expand inputs and add mixing capacity
 - Performs voice overs, mix downs and on-air breakaways
 - Reassignment of audio channels
 - +12 to -12dB gain control on each mixer input in 0.25 dB steps
 - Continuous and independent channel delay adjustment up to 2.54 seconds
 - VistaLINK™ -enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller

7720AM-AES4 Block Diagram



Specifications

AES Audio Inputs and Outputs:

Number of Inputs:	4
Number of Outputs:	4
Standard:	SMPTE 276M, single ended synchronous or asynchronous AES
Connectors:	BNC per IEC 60169-8 Amendment 2
Resolution:	24 bits
Sampling Rate:	48 kHz
Impedance:	75Ω unbalanced
Signal Level:	1 V p-p nominal

Genlock Input:

Type:	HD Tri-level syncs, NTSC or PAL Colour Black 1 V p-p, or Composite bi-level sync (525i/59.94 or 625i/50) 300 mV
Connector:	BNC loop per IEC 60169-8 Amendment 2
Termination:	75Ω (jumper selectable)

DARS Reference:

Type:	Digital Audio Signal with 48kHz sample rate.
Standard:	SMPTE 276M-1995 single ended AES, AES-11
Connectors:	BNC loop per IEC 60169-8 Amendment 2
Termination:	75Ω (jumper selectable)

Input to Output Processing:

Gain:	+/- 12 dB in 0.25 dB steps
Delay:	Min 7 samples with sample rate converters disabled Min 92 samples with sample rate converters enabled Adjustable to approximately 2.54 seconds (see Table 1 in the manual)

General Purpose In/Out:

GP Inputs:	Load user preset configurations
GP Output:	GPO1: Low when video input is missing Opto-isolated, active low with internal pull-ups to +5V
Type:	8 pins on 12 pin removable terminal block
Connector:	+5V nominal
Signal Level:	

Data Logging Serial Port:

Standard:	RS 422
Connector:	5 pins on 12 pin removable terminal block (not used at this time)
Function:	
Electrical:	
Voltage:	+ 12VDC
Power:	8 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

7700 frame mounting:	
Number of slots:	2
7701 frame mounting:	
Number of slots:	1

Ordering Information:

7720AM-AES4	Quad AES Audio Mixer
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Ordering Options:

Rear Plate must be specified at time of order
Eg. Model +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules

Dual AES to Quad Analog Audio Converter

Model 7720DAC-A4



The 7720DAC-A4 is a high-quality, 24-bit, digital to analog audio converter which converts 2 AES/EBU digital signals to 4 balanced analog audio signals. The 7720DAC-A4 has two independent AES/EBU converters. The input sample rates supported are 44.1kHz and 48kHz. All analog audio outputs levels may be set individually from the front panel.

Level control is provided via a card edge toggle and the set gain level can be read out from a card edge display for convenience. The full scale digital signal can be calibrated to product analog peak levels ranging from 12dBu to 25dBu with 0.1 dB resolution.

The audio DAC features a card edge VU meter for quick confidence monitoring. Four separate level indicators are provided via bargraphs for quick validation of audio program material.

Features

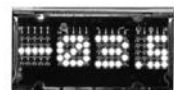
- AES3/IEC-958 or AES3/SMPTE276/S/PDIF
- 24-bit, high-quality conversion
- 44.1 and 48kHz sampling rate
- 0dBFS programmable from 12dBu to 25dBu
- Support for 4 channels of balanced analog audio (2 AES/EBU)
- Clock recovery via VCXO for extra stable sample clock generation
- A card edge display provides a 4 channel bargraph type level indicator display for confidence monitoring

- Local card edge display for level setup
- Drives directly 600Ω loads

- VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel. VistaLINK™ is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller

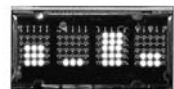
7720DAC-A4 Block Diagram

Card Edge Audio Level Adjust Display

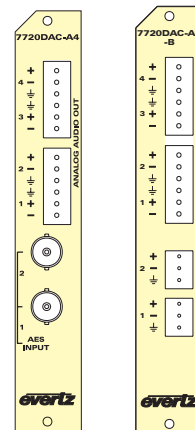
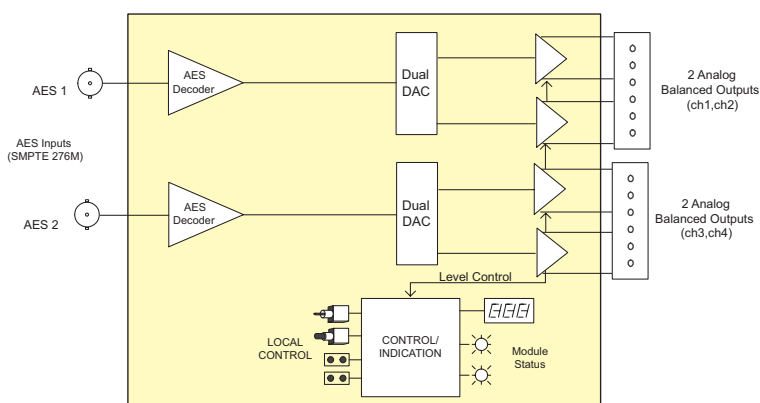


4 digital readout toggle switch

Card Edge 4 Channel "VU" Bargraph Meters



4 digital readout



Specifications

AES Audio Inputs (7720DAC-A4):

Number of inputs: 2
Standard: SMPTE 276M, AES3-2001
Connector: BNC per IEC 60169-8 Amendment 2
Input type: Unbalanced, isolated ground
Impedance: 75Ω, -25 dB return loss to 6MHz
Accepted levels: 0.1Vp-p to 2.5Vp-p
Cable distance: > 4000 ft. (with 1Vp-p cable drive)
Sample rates: 48kHz and 44.1kHz +/-100ppm

AES Audio Inputs (7720DAC-A4-B):

Number of inputs: 2
Standard: AES3-1992 (ANSI S4.40-1992), IEC-958 (except connectors)
Connector: 3 pin removable terminal strip
Input type: Balanced pair, shield, transformer-coupled
Equalization: >400m @48kHz with 2 to 10 Vp-p drive and Belden 1800B or equivalent shielded twisted pair cable
Impedance: 110Ω, +/-10%
Accepted signal levels: 0.2Vp-p to 10Vp-p
Cable distance: > 1300 ft. (with 2Vp-p to 7Vp-p cable drive)
Sample rates: 48kHz and 44.1kHz +/-100ppm

Analog Audio Outputs:

Number of Outputs: 4 balanced
Connector: Two 6 pin removable terminal strips
Output Impedance: 66Ω
Output Loads: Hi-Z or 600Ω
Peak Conversion Level: 0dB FS => 12 to 25dBu (user settable)
Frequency Response: 110dB (20Hz to 20kHz)
Dynamic Range: 24 bits
THD+N: <0.001% (>100dB) @ 20Hz to 20kHz, @ -1dB FS, unweighted
Crosstalk: 110dB (20Hz to 20kHz)
DC Offset: < ± 30mV
SNR: > 110dB "A" weighted
Inter-Channel Phase Error: < ± 1° (20Hz to 20kHz)
Digital to Analog Delay: 0.95ms

Electrical:

Voltage: +12V DC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7720DAC-A4: Dual AES to Quad Analog Audio Converter with unbalanced AES inputs
7720DAC-A4-B: Dual AES to Quad Analog Audio Converter with 2 balanced AES inputs

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

7700FC

9000NCP

9000NCP2

VistaLINK™ Frame Controller
1RU VistaLINK™ General Purpose Network Control Panel
2RU VistaLINK™ General Purpose Network Control Panel

Accessories:

Enclosures:

7700FR-C

7701FR

S7701FR

3RU Multiframe which holds 15 modules
1RU Multiframe which holds 3 modules
Standalone enclosure

SDI GPI Decoder

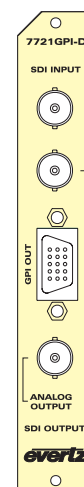
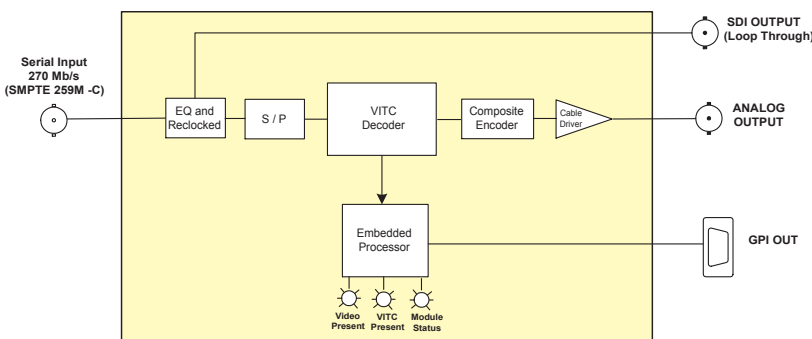
Model 7721GPI-D

The 7721GPI-D SDI GPI Decoder extracts GPI data that has been embedded into a 270 Mb/s SDI video signal by the Evertz 8010TM GPI embedder. The GPI data is decoded from the user bits on a specified VITC line and 6 general purpose opto-isolated outputs are provided.

Features

- Automatic detection of 525 and 625 line SDI video input
- Six TTL level GPO signals activate when corresponding GPI inputs on 8010TM are activated
- One reclocked SDI video output
- Card edge LEDs indicate video signal and data presence and module fault
- A composite video output with on-screen display is provided for card edge setup
- Timecode, user bits and GPO status shown on on-screen display

7721GPI-D Block Diagram



Specifications

Serial Video Input:

Standard:	SMPTE 259M-C - 525 or 625 line component
Connector:	BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic 150m @ 270Mb/s with Belden 8281 (or equivalent)
Return Loss:	> 15 dB up to 270 Mb/s

Serial Video Outputs (Reclocked):

Number of Outputs:	1
Standard:	Same as input
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	740ps nominal
Overshoot:	<10% of amplitude
Return Loss:	>15 dB up to 270 Mb/s
Wide Band Jitter:	<0.2 UI

General Purpose Outputs:

Number of Outputs:	6
Type:	Opto-isolated, active low with internal pull-ups to user supplied voltage (provides +5V which may be used for this purpose)
Connector:	Female High Density DB-15
Signal Level:	+5V nominal

Analog Monitoring Video Output:

Standard:	NTSC, (SMPTE 170M), PAL (ITU624-4)
Number of Outputs:	1 with on screen display
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	1V nominal

DC Offset:	0V \pm 0.1V
Return Loss:	> 35dB up to 5MHz
Frequency Response:	0.8dB to 4 MHz
Differential Phase:	< 0.9° (<0.6° typical)
Differential Gain:	< 0.9% (<0.5 % typical)
SNR:	>56dB to 5 MHz (shallow ramp)

Electrical:

Voltage:	+12VDC
Power:	6 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of Slots:	1
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Ordering Information:

7721GPI-D	SDI GPI Decoder
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

HD SDI AES Audio De-embedder

Model 7721AD-A4-HD & 7721AD4-HD



The 7721AD-HD series Audio De-Embedders extract embedded audio as specified by SMPTE 299M from a 1.5 Gb/s serial HDTV video signal. The companion 7721AE4-HD Audio Embedder facilitates audio multiplexing at the source. The 7721AD-HD is available in 2 different versions.

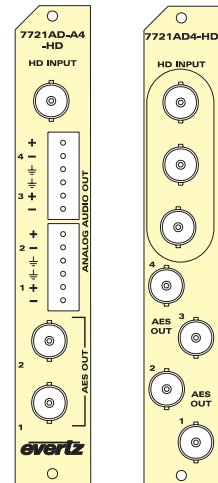
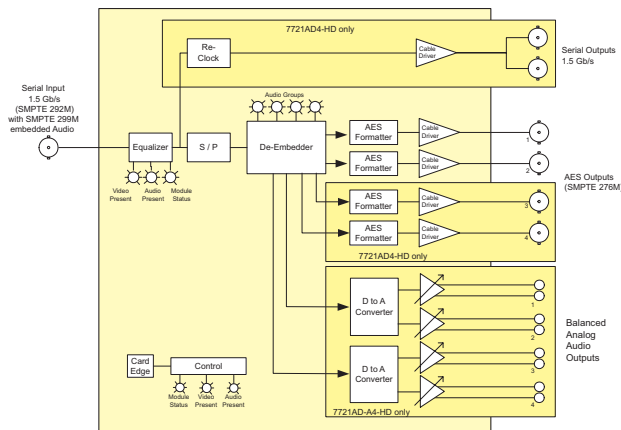
SMPTE 299M allows for up to four groups (4 channels/group) to be embedded within a serial digital signal. The 7721AD4-HD can de-embed two audio groups onto four unbalanced AES outputs. The 7721AD-A4-HD can de-embed one audio group onto two unbalanced AES outputs and 4 balanced analog audio outputs.

Model	Audio Outputs		Video 1.5Gb/s Reclocked Outputs
	AES	Analog	
7721AD4-HD	4	--	2
7721AD-A4-HD	2	4	--

Features

- Automatic detection of video input format
- Card edge LEDs indicating module status, video presence, selected audio group data is present
- LED indication for the presence of each of the 4 audio groups within the input video
- Audio group selection via card edge DIP switches
- 7721AD-A4-HD has independent volume controls for each of the audio channel outputs
- VistaLINK™ -enabled for remote monitoring and control via SNMP. (using VistaLINK™ PRO) when installed in the 7700FR-C frame with a 7700FC VistaLINK™ Frame Controller

7721AD-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M, (1080i/60, 1080i/59.94, 1080i/50, 1080p/30(sF), 1080p/29.97(sF), 1080p/25(sF), 1080/24(sF), 1080/23.98(sF), 720p/60, 720p/59.94, 1035i/60, 1035i/59.94)
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 100m @ 1.5Gb/s with Belden 1694 (or equivalent)
Return Loss: > 10 dB up to 1.5 Gb/s

Reclocked Serial Video Output (7721AD4-HD only):

Standard: Same as input
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Return Loss: > 10 dB up to 1.5 Gb/s
Wide Band Jitter: <0.2 UI

AES Audio Output:

Standard: SMPTE 276M, single ended synchronous or asynchronous AES
Number of Outputs: 4 on 7721AD4-HD & 2 on 7721AD-A4-HD
Connector: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48kHz
Impedance: 75Ω
Delay: 9 samples to approx. 3 seconds (user adjustable)
Resolution: 24-bit

Analog Audio Output (7721AD-A4-HD Only):

Number of Outputs: 4
Type: Balanced analog audio
Connector: Two 6 pin terminal strip
Output Impedance: 68Ω balanced
Sampling Frequency: 48kHz
Signal Level: 0dB FS => 8 to 24dBu into 10kΩ load (user settable)
0dB FS => 8 to 22dBu into 600Ω load (user settable)

Frequency Response:

< ± 0.1dB (20Hz to 20kHz)
Dynamic Range: 24-bit
THD+N: > 90dB RMS @ 1kHz with 24dBu output
Crosstalk: > 90dB RMS (20Hz to 20kHz)

System Performance:

De-embedding Latency: 1.35ms (7721AD-A4-HD)
600μs (7721AD4-HD)
HD SDI to AES: 2.25ms (7721AD-A4-HD)
HD SDI to Analog:

Electrical:

Voltage: +12V DC
Power: 8 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7721AD-A4-HD HD SDI Audio De-embedder with 2 unbalanced AES and 4 analog audio outputs
7721AD4-HD HD SDI Audio De-embedder with 4 unbalanced AES outputs (2 audio groups)

Ordering Options:

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure



The 7721AD-HD series Audio De-Embedders extract embedded audio as specified by SMPTE 299M from a 1.5 Gb/s serial HDTV video signal. The companion 7721AE4-HD Audio Embedder facilitates audio multiplexing at the source. The 7721AD-HD is available in 2 different versions.

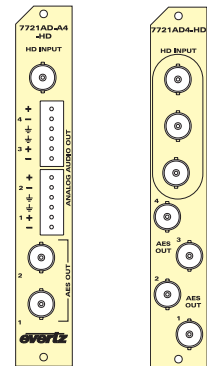
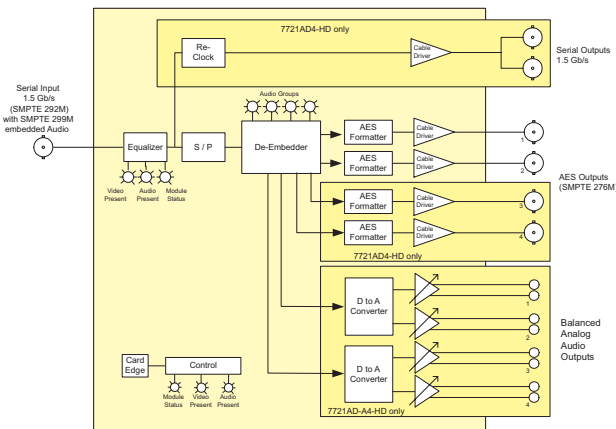
SMPTE 299M allows for up to four groups (4 channels/group) to be embedded within a serial digital signal. The 7721AD4-HD can de-embed two audio groups onto four unbalanced AES outputs. The 7721AD-A4-HD can de-embed one audio group onto two unbalanced AES outputs and 4 balanced analog audio outputs.

Model	Audio Outputs		Video 1.5Gb/s Reclocked
	AES	Analog	
7721AD4-HD	4	--	2
7721AD-A4-HD	2	4	--

Features

- Automatic detection of video input format
- Card edge LEDs indicating module status, video presence, selected audio group data is present
- LED indication for the presence of each of the 4 audio groups within the input video
- Audio group selection via card edge DIP switches
- 7721AD-A4-HD has independent volume controls for each of the audio channel outputs
- VistaLINK® - capable for remote monitoring and control via SNMP. (using VistaLINK® PRO) when installed in the 7700FR-C frame with a 7700FC VistaLINK® Frame Controller

7721AD-A4-HD, 7721AD4-HD Block Diagram & Rear Panels



Specifications

Serial Video Input:

Standard: SMPTE 292M, (1080i/60, 1080i/59.94, 1080i/50, 1080p/30(sF), 1080p/29.97(sF), 1080p/25(sF), 1080p/24(sF), 1080p/23.98(sF), 720p/60, 720p/59.94, 1035i/60, 1035i/59.94)
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 100m @ 1.5Gb/s with Belden 1694A (or equivalent)
Return Loss: > 10 dB up to 1.5 Gb/s

Reclocked Serial Video Output (7721AD4-HD only):

Standard: Same as input
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Return Loss: > 10 dB up to 1.5 Gb/s
Wide Band Jitter: <0.2 UI

AES Audio Output:

Standard: SMPTE 276M, single ended synchronous or asynchronous AES
Number of Outputs: 4 on 7721AD4-HD & 2 on 7721AD-A4-HD
Connector: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48kHz
Impedance: 75Ω
Delay: 9 samples to approx. 3 seconds (user adjustable)
Resolution: 24-bit

Analog Audio Output (7721AD-A4-HD Only):

Number of Outputs: 4
Type: Balanced analog audio
Connector: Two 6 pin terminal strip
Output Impedance: 66Ω balanced
Sampling Frequency: 48kHz
Signal Level: 0dB FS =>8 to 24dBu into 10kΩ load (user settable)
 0dB FS =>8 to 22dBu into 600Ω load (user settable)

Frequency Response: < ± 0.1dB (20Hz to 20kHz)

Dynamic Range: 24-bit

THD+N: > 90dB RMS @ 1kHz with 24dBu output

Crosstalk: > 90dB RMS (20Hz to 20kHz)

System Performance:

De-embedding Latency:

HD SDI to AES: 1.35ms (7721AD-A4-HD), 600μs (7721AD4-HD)

Electrical:

Voltage: +12V DC
Power: 8 Watts
EMI/RFI: Complies with FCC Part 15, Class A
 EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7721AD-A4-HD HD SDI Audio De-embedder with 2 unbalanced AES and 4 analog audio outputs
7721AD4-HD HD SDI Audio De-embedder with 4 unbalanced AES outputs (2 audio groups)

Ordering Options

Rear Plate must be specified at time of order
 Eg: Model +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure



The 7721AD8-HD Audio De-embedder extracts embedded audio from all 4 groups as defined by SMPTE 299M from a 1.5 Gb/s serial HDTV or as defined by SMPTE 272M from a 270Mb/s serial SDTV video signal. Up to 16 selected channels may be de-embedded and directed to 8 AES outputs.

This device also handles the Dolby E Metadata. Metadata is optionally de-embedded from VANC and can be provided as an output for downstream devices (i.e. Dolby E or Dolby AC3 Encoders etc.).

VistaLINK® enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK® Pro locally or remotely.

Features

- Automatic detection of video standard
- Flexible de-embedded audio router (16 x 16)
- 24-bit AES (from HD) and 20-bit AES (from SD)
- VANC decode and output of Dolby Metadata
- Card edge display for status & miniature bargraphs for audio peak levels
- Card edge LEDs indicate video and audio signal presence, and module fault
- VistaLINK® - capable for remote monitoring and control via SNMP (using VistaLINK® Pro) when installed in 7700FR-C frame with 7700FC VistaLINK® Frame Controller

Inputs:

- SMPTE 292M - (1.5Gb/s serial digital), or SMPTE 259M (270Mb/s)

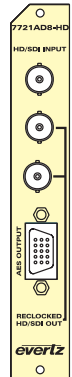
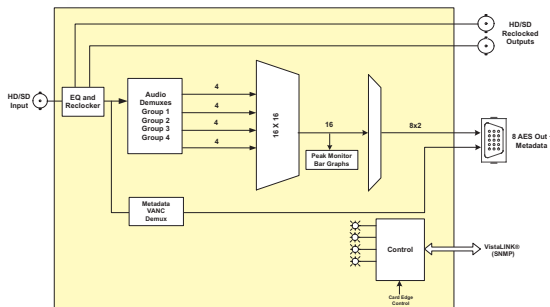
Outputs:

- Dolby Metadata output (RS422/485)
- 8 AES de-embedded outputs
- 2 re-clocked serial video outputs

Controls:

- Audio channel routing selection
- VANC decoder line, DID, and sDID

7721AD8-HD Block Diagram & Rear Panel



Specifications

Serial Video Input:

Standard:

SMPTE 292M (1.5Gb/s), (1080i/60, 1080i/59.94, 1080i/50, 1080p/30sF, 1080p/29.97sF, 1080p/25sF, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94), 1035i/60, 1035i/59.94, 1080p/30, 1080p/29.97, 1080p/25, 1080p/24, 1080p/23.98, 720p/50
SMPTE 259M (270Mb/s), 525 or 625 line

Connector:

1 BNC per IEC 60169-8 Amendment 2

Embedded Audio Input:

Standard:

SMPTE 299M - 24 bit 48 kHz synchronous
SMPTE 272M - 20 bit 48 kHz synchronous

Metadata Output:

Type:

Dolby E Metadata (RS422)

Connector:

BNC per IEC 60169-8 Amendment 2 (with DB15 to BNC 6ft Breakout cable)

Baud Rate:

115,200 baud (as per Dolby E usage)

Serial Video Outputs Re-clocked:

Standard:

Same as input

Number of Outputs:

2

Connectors:

BNC per IEC 60169-8 Amendment 2

Return Loss:

> 13 dB up to 1.5Gb/s

Wide Band Jitter:

< 0.2 UI (with 0.16 UI source)

AES Audio Outputs:

Standard:

SMPTE 276M, single ended AES

Number of Outputs:

8

Connector:

BNC per IEC 60169-8 Amendment 2 (with DB15 to BNC 6ft Breakout cable)

Sampling Rate:

48 kHz

Impedance:

75Ω unbalanced

Resolution:

Up to 24-bit

Signal Level:

1V p-p ±0.1V @termination load

System Performance:

De-embedding Latency: 0.2ms (HD), 0.7ms (SD)

Electrical:

Voltage:

+12VDC

Power:

11 Watts

EMI/RFI:

Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 or 7701 frame mounting:

Number of slots:

1

Ordering Information:

7721AD8-HD

HD/SD 8 AES (16 Channel) Audio De-embedder

Ordering Options

Rear Plate must be specified at time of order

Eg: Model +3RU

Rear Plate Suffix

+3RU

3RU Rear Plate for use with 7700FR-C Multiframe

+1RU

1RU Rear Plate for use with 7701FR Multiframe

+SA

Standalone Enclosure Rear Plate

Accessories:

WPAES8-BNCM-6F cable (included)

Enclosures:

7700FR-C

3RU Multiframe which holds 15 modules

7701FR

1RU Multiframe which holds 3 modules

S7701FR

Standalone enclosure

HD 4 AES Pair Audio Embedder



Model 7721AE4-HD

The 7721AE4-HD Audio Embedder inserts AES audio signals into a 1.5Gb/s HD video signal as specified in SMPTE 299M. The companion 7721AD4-HD Audio De-embedder facilitates audio demultiplexing at the destination.

SMPTE 299M allocates four groups of four audio pairs that can be embedded into the SMPTE 292M bitstream. The 7721AE4-HD embeds up to 4 AES audio signals into two groups on the HD-SDI outputs for discrete 5.1 audio applications. The 7721AE4-HD is Dolby E compliant when the sample rate converters are turned off.

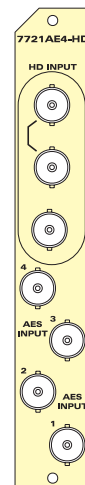
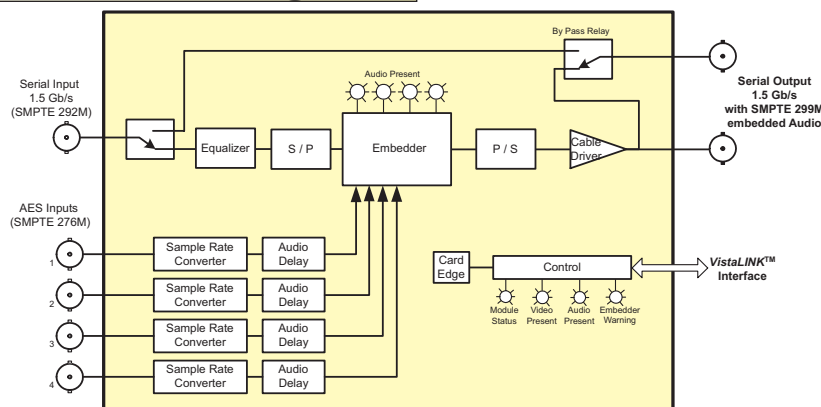
VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ Pro locally or remotely.

Features

- Automatic detection of video standard
- Bypass relay protection on one SDI output for power failures
- 24-bit AES inputs and audio embedding
- Individual audio group assignment for each group
- Group lock mode maintains phase relationship between the groups for 5.1 audio applications
- Sample rate conversion disable on AES inputs to permit Dolby E embedding
- Programmable audio delays (up to 7 frames in ½ video field increments using DIP switches or up to 1.3 sec in 1 sample increments with VistaLINK™ control)
- Ancillary packet cleaning mode removes all audio before embedding
- Ancillary packet reformatting mode left justifies and removes unused packets before embedding
- Embeds audio on internally generated black or blue video when there is no video input
- Card edge LEDs indicate video and audio signal presence, and module fault

• VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ Pro) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

7721AE4-HD Block Diagram



Specifications

Serial Video Input:

Standard:
1080p/30sF,
720p/60, 720p/59.94)

Connector:

Equalization:

Return Loss:

SMPTE 292M (1.5Gb/s), (1080i/60, 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/24sF, 1080p/23.98sF,
1 BNC per IEC 60169-8 Amendment 2
Automatic 100m @ 1.5Gb/s with Belden 1694 or equivalent cable
> 10 dB up to 1.5Gb/s

Serial Video Outputs with Embedded Audio:

Standard: same as input
Number of Outputs: 2 (1 output bypass relay protected)
Embedded Audio: SMPTE 299M - 24 bit 48 kHz synchronous
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Return Loss: > 10 dB up to 1.5Gb/s
Wide Band Jitter: < 0.2 UI

AES Audio Inputs:

Number of Inputs: 4
Standard: SMPTE 276M, single ended AES
Connector: BNC per IEC 60169-8 Amendment 2
Resolution: 24 bits
Sampling Rate: 32 to 96 kHz synchronous or asynchronous (48 kHz synchronous AES required when sample rate converter is disabled.)
Impedance: 75Ω unbalanced
Signal Level: 1V p-p ±0.1V

System Performance:

Embedding Latency: 1.3 to 3 ms

Audio Delay

DIP Switch Control:
VistaLINK™ or Serial Port Control:

Up to 7 frames, ½ frame increments (delay applied to all AES channels)
Up to 1.35 seconds in 1 sample increments (independent control of delay for each channel)

Electrical:

Voltage: + 12VDC
Power: 11 Watts
EMI/RFI: Complies with FCC Part 15, Class A EU EMC Directive

Physical:

7700 or 7701 frame mounting:
Number of slots: 1

Ordering Information:

7721AE4-HD HD 4 AES Pair Audio Embedder

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD/SD 8 AES (16 Channel) Audio Embedder 7721AE8-HD



The 7721AE8-HD Audio Embedder inserts 8 AES audio signals into a 1.5Gb/s HD or 270Mb/s SD video signals as specified in SMPTE 299M or 272M respectively. The companion 7721AD8-HD Audio De-embedder facilitates audio demultiplexing at the destination.

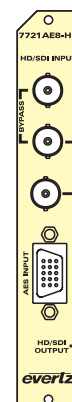
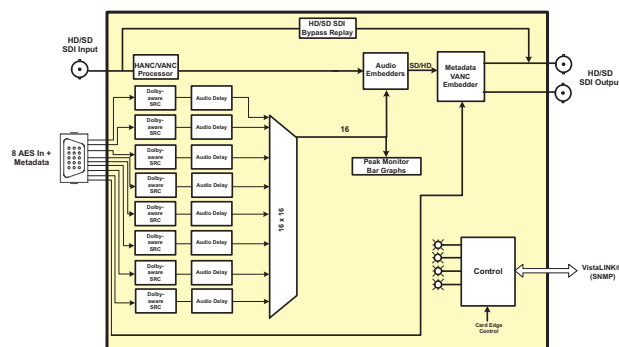
The 7721AE8-HD embeds up to 8 AES audio signals into four groups on the HD/SD outputs allowing dual 5.1 audio applications. The 7721AE8-HD is Dolby™ E compliant.

VistaLINK® enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK® Pro locally or remotely.

Features

- Automatic detection of video standard
- Bypass relay protection on one SDI output for power failures
- 24-bit AES inputs and audio embedding (HD) and 20-bit (SD)
- Individual audio group embed enable/disable
- Flexible audio channel router
- Automatic sample rate conversion disable on AES inputs to permit Dolby E embedding
- Miniature bargraph display to monitor audio content activity
- Numerous signal monitoring aids
- Ancillary packet cleaner removes any interfering audio groups before embedding
- User may force additional groups to be removed
- Embeds audio on internally generated black or blue video when there is no video input
- Card edge LEDs indicate video and audio signal presence, and module fault
- VistaLINK® - capable for remote monitoring and control via SNMP (using VistaLINK® Pro) when installed in 7700FR-C frame with 7700FC VistaLINK® Frame Controller

7721AE8-HD Block Diagram & Rear Panel



Specifications

Serial Video Input:

Standard: SMPTE 292M (1.5Gb/s), (1080i/60, 1080i/59.94, 1080i/50, 1080p/30sF, 1080p/29.97sF, 1080p/25sF, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94), 1035i/60, 1035i/59.94, 1080p/30, 1080p/29.97, 1080p/25, 1080p/24, 1080p/23.98, 720p/50

Connector: SMPTE 259M (270Mb/s), 525 or 625 line
1 BNC per IEC 60169-8 Amendment 2

Serial Video Outputs with Embedded Audio:

Standard: same as input
Number of Outputs: 2 (1 output bypass relay protected)
Embedded Audio: SMPTE 299M - 24 bit 48 kHz synchronous/SMPTE 272M- 20-bit
Connectors: BNC per IEC 60169-8 Amendment 2

AES Audio Inputs:

Number of Inputs: 8
Standard: SMPTE 276M, single ended AES
Connector: BNC per IEC 60169-8 Amendment 2 (with DB15 to BNC 6ft Breakout cable)
Resolution: 24 bits
Sampling Rate: 48 kHz synchronous or asynchronous (48 kHz synchronous AES required when sample rate converter is disabled.)
Impedance: 75Ω unbalanced
Signal Level: 1V p-p ±0.1V @ termination load

Metadata Input/Output:

Type: Dolby-E® Metadata
Standard: RS-422
Baud Rate: 115,200 baud

System Performance:

SRC THD+N: -140dB
Embedding Latency: 0.3 ms (HD), 0.7ms (SD), 3 ms (with SRC)
Audio Delay: Up to 1.35 seconds in 1 sample increments (independent control of delay for each channel)

Electrical:

Voltage: + 12VDC
Power: 7 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 or 7701 frame mounting:
Number of slots: 1

Ordering Information:

7721AE8-HD HD/SD 8 AES (16 Channel) Audio Embedder

Ordering Options

Rear Plate must be specified at time of order
Eg: Model +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Accessories:

WPAES8-BNCM-6F cable (included)

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Quad Serial Data De-embedder

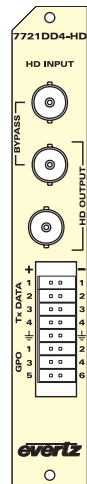
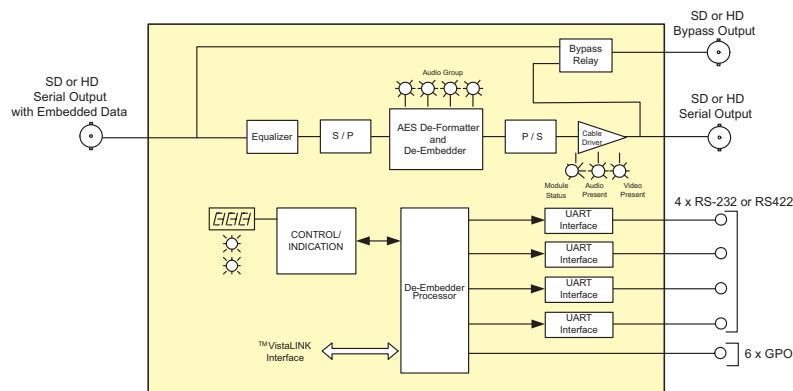
Model 7721DD4-HD

The 7721DD4-HD Quad Serial data de-embedder extracts 4 x RS-232 or RS422 serial data streams and GPI contact closure information from a 270 Mb/s SD-SDI or 1.5Gb/s HD-SDI video signal. A data error detection and correction scheme is also applied to maintain data integrity on the output of the data de-embedder. At the embedded packet layer, data packets resemble and have the same group DIDs as embedded audio packets. The data is un-packetized and extracted from the AES sub-frame according to SMPTE 337M.

Features

- Automatic detection of SD-SDI or HD-SDI video input
- 4 x RS232/422 serial outputs with selectable baud rate
- Parity selection: none, even or odd
- Packetize data into sub-frame AES format according to SMPTE 337M
- Share the same group DIDs as for embedded audio, selectable from group 1 to 4
- Group selection for extracting data from one of four Audio Groups
- Six GPI outputs to embed simple control information into the video input
- Card edge LEDs indicate video signal and data presence, cable equalization and module fault
- Valid video output on loss of input
- Compatible with 7721DE4-HD

7721DD4-HD Block Diagram



Specifications

Serial Video Input with Embedded Data:

Standard: SMPTE 259M C, SMPTE 292M
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 300m @ 270 Mb/s, 100m @ 1.5Gb/s with Belden 8281 or equivalent cable
Return Loss: > 15 dB up to 1.5Gb/s

Serial Video Outputs:

Number of Outputs: 2 outputs (1 with bypass relay protected)
Standard: Same as input
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 600ps nominal SD-SDI, 200ps nominal HD-SDI
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 1.5Gb/s (Relay Protected)
> 10 dB up to 1.5Gb/s
Wide Band Jitter: < 0.2 UI

Data Output:

Standard: 4 x RS-232 or RS-422
Connector: Terminal Block
Baud Rate: 110, 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, or 155200
Format: 5-8 data bits, parity (none, even or odd), 1 or 2 stop bits

General Purpose Outputs:

Number of Outputs: 6
Type: Opto-isolated
Connector: Terminal Block
Signal Level: +3.3/+12V, jumper selectable

Delay For Data De-embedding - Serial Output

Baud Rate: All
Average latency (μ s) +/- 20% 1200

Delay For Data De-embedding - GPO Signals

GPO Outputs: All
Average latency (μ s) +/- 20% 1200

Electrical:

Voltage: + 12VDC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7721DD4-HD Quad Serial Data De-embedder

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

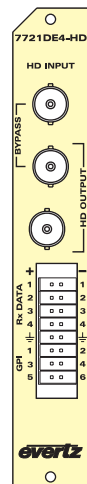
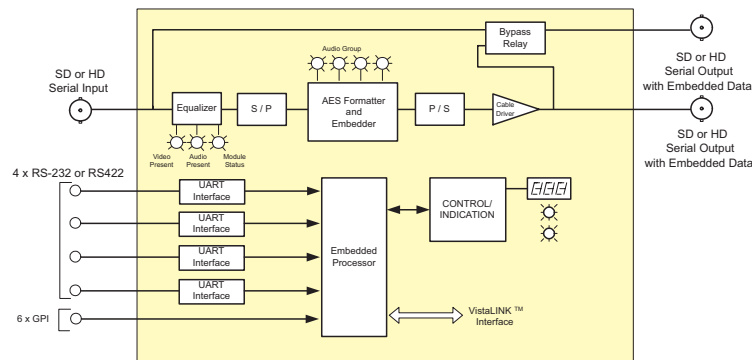
Model 7721DE4-HD

The 7721DE4-HD Quad Serial data embedder inserts 4 x RS-232 or RS422 serial data streams and GPI contact closure information into a 270 Mb/s SD-SDI or 1.5Gb/s HD-SDI video signal. The RS-232/422 serial data and GPI information are first formatted into an AES audio signal, packetized and inserted into the AES sub-frame according to SMPTE 337M, then embedded into the video stream according to SMPTE 272M-A for SD-SDI and SMPTE 299M for HD-SDI. A data error detection and correction scheme is also applied to maintain data integrity for the data de-embedder at the receiver end. At the embedded packet layer, data packets resemble and have the same group DIDs as embedded audio packets.

Features

- Automatic detection of SD-SDI or HD-SDI video input
- 4 x RS232/422 serial inputs with selectable baud rate
- Parity selection: none, even or odd
- Packetize data into sub-frame AES format according to SMPTE 337M
- Share the same group DIDs as for embedded audio, selectable from group 1 to 4
- Group selection for mapping data into one of four Audio Groups
- Six GPI inputs to embed simple control information into the video input
- Card edge LEDs indicate video signal and data presence, cable equalization and module fault
- Valid video output on loss of input
- Compatible with 7721DD4-HD

7721DE4-HD Block Diagram



Specifications

Serial Video Input::

Standard: SMPTE 259M C, SMPTE 292M
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 300m @ 270 Mb/s, 100m@1.5Gb/s with Belden 8281 or equivalent cable
Return Loss: > 15 dB up to 1.5Gb/s

Serial Video Outputs with Embedded Data:

Number of Outputs: 2 outputs (1 with bypass relay protected)
Standard: Same as input
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 600ps nominal SD-SDI
 200ps nominal HD-SDI
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 1.5Gb/s (Relay Protected)
 > 10 dB up to 1.5Gb/s
Wide Band Jitter: < 0.2 UI

Data Input:

Standard: 4 x RS-232 or RS-422
Connector: Terminal Block
Baud Rate: 110, 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, or 115200
Format: 5-8 data bits, parity (none, even or odd), 1 or 2 stop bits

General Purpose Inputs:

Number of Inputs: 6
Type: Opto-isolated, active low
Connector: Terminal Block
Signal Level: Active Low (no signal level required)

Embedding Delay:

Video I/O Delay Approximately 12ms

Delay For Data Embedding - Serial Input

Baud Rate: All
Average latency (µs) +/- 20% 1200

Delay For Data Embedding - GPI signals

Baud Rate: All
Average latency (µs) +/- 20% 1200

Electrical:

Voltage: + 12VDC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
 EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7721DE4-HD Quad Serial Data Embedder

Ordering Options

Rear Plate must be specified at time of order
 Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

SDI VBI Sidechain Bridge

Model 7725VBI-K

The 7725VBI-K module is a multi-function VBI keyer. Every program input vertical interval video line can be programmed to pass upstream video, blank the line, insert any VBI line from the SDI Key input, insert a selectable VITS (vertical interval test signal), or insert a user captured test signal. The unit provides the capability to store different VBI configurations as presets and recall them from the card edge control or via 8 opto-isolated GPI inputs. The 7725VBI-K is setup via a card edge control and an on screen display.

This unit is often used in critical on-air applications and hence bypass relay protection of the program video path is provided.

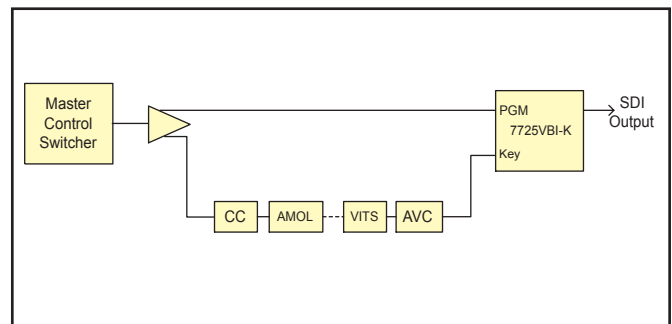
Features:

- One SDI 525 or 625, 270 Mb/s component digital program video input
- Video input relay bypass for power failure bypass protection
- One SDI 525 or 625, 270 Mb/s component digital Key video input
- One composite analog video output with On Screen Menu text
- A comprehensive on screen menu is available to configure the various features of the module
- 128 different Preset VBI keying configurations
- Up to 64 line patterns may be captured from any line and stored in User Memories for later insertion on any VBI line
- Extensive library of Factory preset test signals
- Each line of VBI independently programmable to pass, blank, insert from key signal, insert from user memory or insert factory test signals
- On Air Preset configuration selected with GPI or Menu selection
- Non-volatile memory protects current configuration in case of power loss
- Fully hot swappable from front of frame.

Applications:

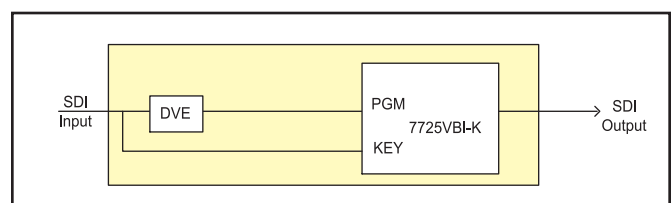
Master control output chain protection

Typically there are several units "chained" together on the output of a master control switcher. Units such as caption encoders, AMOL encoders, VITS inserters, data encoders, etc. are typically connected in series so that if one unit fails the network output will fail. The 7725VBI-K provides the capability to create a "side chain" whereby the main program path feeds directly into the program input of the device and the "chained" string of VBI insertion products feed the secondary key input.



Line 21 caption squeeze back bypass (VBI bridging)

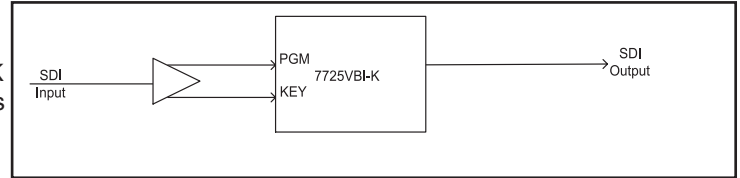
Some processing devices modify or destroy VBI data such as captioning or VITC. An example of this occurs with some DVE's during a squeeze back application. The 7725VBI-K device will provide a bypass of VBI around the processing device.



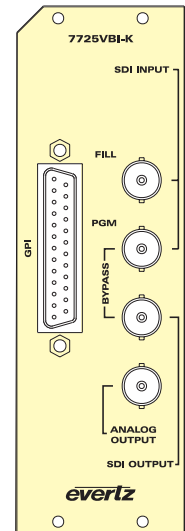
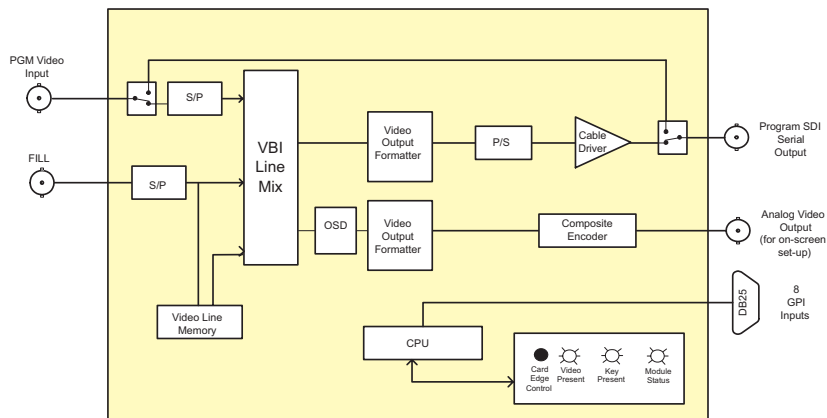
SDI VBI Sidechain Bridge

VBI Line Shuffler

By providing the same feed to both inputs of the 7725VBI-K the unit will allow the user to modify the VBI and move lines as necessary.



7725VBI-K Block Diagram



Specifications:

Serial Video Input:

Standard: SMPTE 259M-C
Number of Inputs: 1 for Program video (PGM)
1 for Key Signal to insert (FILL)
PGM and FILL need to be synchronous and timed w.r.t. each other (+/- 1/2 line)
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 250m (min) @ 270Mb/s with Belden 8281 or equivalent cable
Return Loss: > 15dB

Serial Video Output:

Number of Outputs: 1 (Bypass Protected)
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 740ps nominal
Overshoot: 10% of amplitude
Wide Band Jitter: < 0.2 UI (Reclocked)
Return Loss: > 15dB

Analog Video Output:

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V +/- 0.1V
Return Loss: >35dB up to 5MHz
Frequency Response: 0.8dB to 4 MHz
Differential Phase: <0.9° (<0.6° typical)
Differential Gain: <0.9% (<0.5% typical)
SNR: >56dB to 5MHz (shallow ramp)

General Purpose In/Out:

Number of Inputs: 8
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: Female DB-25
Input signal: Closure to ground
Signal Level: +5V nominal

Electrical:

Voltage: +12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC directive

Physical:

Number of slots: 2

Ordering Information:

7725VBI-K SDI VBI Sidechain Bridge

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure



The 7725VBI-K-HD module is a multi-function VBI keyer. Every program input vertical interval video line can be programmed to pass upstream video, blank the line, insert any VBI line from the HD/SD Key input, insert a selectable VITS (vertical interval test signal) for SD, and insert user selected data such as Wide Screen Signaling (WSS) and Active Format Description (AFD). The 7725VBI-K-HD allows for up to 70 lines to be programmed. The module provides the capability to store different VBI configurations as presets and recall them from the On-Screen Display (via Program Monitor Out), VistaLINK®, or via 8 opto-isolated GPI inputs.

The 7725VBI-K-HD has two re-clocked program outputs and one program monitor output. The module is often used in critical on-air applications and hence bypass relay protection of the program video path is provided. The 7725VBI-K-HD is setup via the On-Screen Display or VistaLINK®.

VistaLINK® enables remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage operations including signal monitoring and module configuration from SNMP enabled control systems (Manager or NMS) locally or remotely.

The 7725VBI-K-HD occupies one card slot in the 3RU 7700FR-C frame, which will hold up to 15 1-slot modules or the 1RU 7701FR frame, which will hold up to three 1-slot modules.

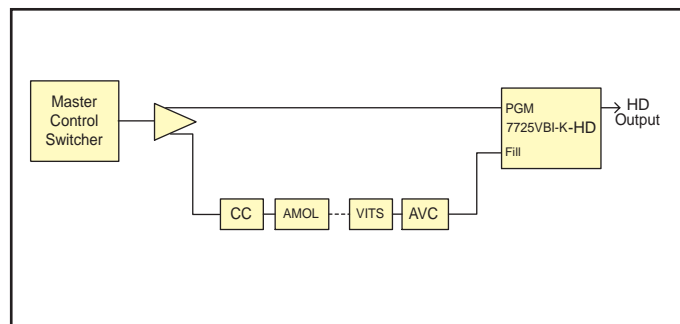
Features

- One serial digital 1.5 Gb/s HD input per SMPTE 292M, or 270Mb/s SD input per SMPTE 259M
- Two re-clocked HD or SD program outputs
- Video input relay bypass for power failure bypass protection
- One HD input or SD input digital Key video input
- One HD or SD monitor program output with On-Screen Display
- A comprehensive on screen menu is available to configure the various features of the module.
- 128 different presets for storing VBI keying configurations
- Up to 16 line patterns may be captured from any key input line and stored in User Memories for later insertion on any VBI line
- Up to 70 lines of output video can be programmed
- Each line of VBI independently programmable to pass, blank, insert from key signal, insert from user memory or insert factory test signal
- On Air Preset configuration selected with GPI, OSD, or VistaLINK® selection
- Non-volatile memory protects current configuration in case of power loss.
- Fully hot swappable from front of frame.
- VistaLINK® - capable for remote monitoring and control via SNMP (using VistaLINK® Pro) when installed in 7700FR-C frame with 7700FC VistaLINK® Frame Controller

7725VBI-K-HD Applications

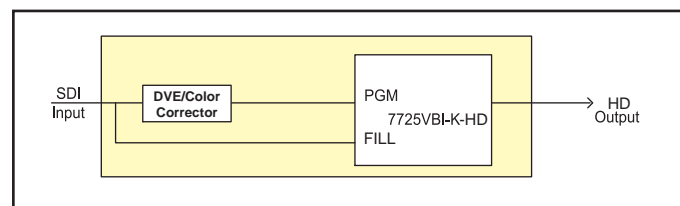
Master control output chain protection

Typically there are several units "chained" together on the output of a master control switcher. Units such as caption encoders, AMOL, encoders, VITS inserters, data encoders, etc. are typically connected in series in the program output so that if one unit fails the network output will fail. The 7725VBI-K-HD allows you to have one point of insertion in the program output path.



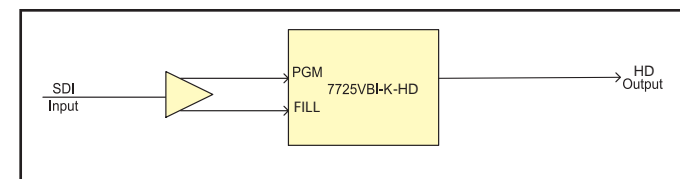
VANC Bridging

Some processing devices modify or destroy VBI data such as captioning or VITC. An example of this occurs with some DVE's during a squeeze back application or with HD color correction. The 7725VBI-K-HD device will provide a bypass of VBI around the processing device.



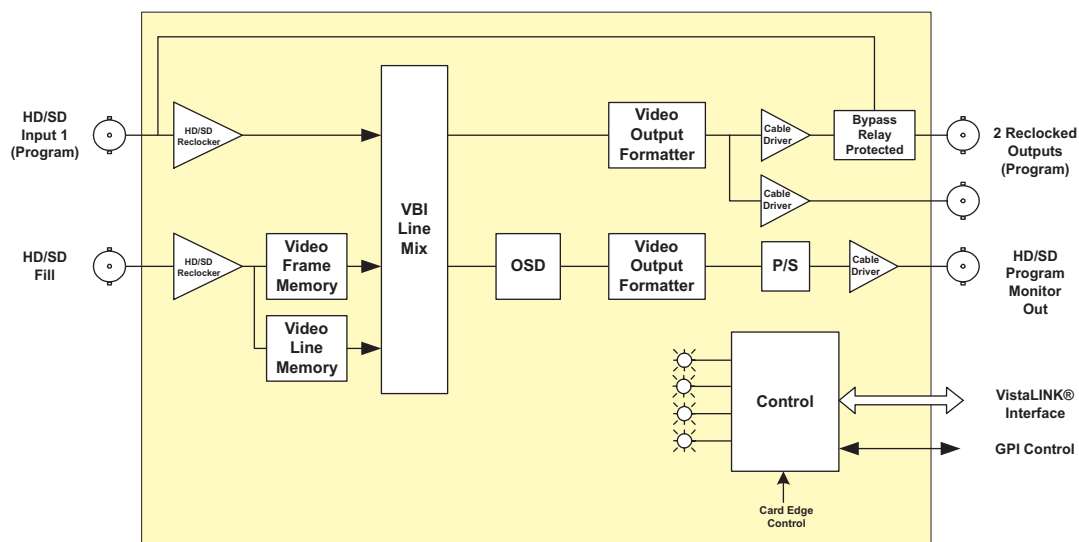
VBI Line Shuffler

By providing the same feed to both inputs of the 7725VBI-K-HD the unit will allow the user to modify the VBI and move lines as necessary.



HD/SD VBI Sidechain Bridge 7725VBI-K-HD

7725VBI-K-HD Block Diagram & Rear Panel



Specifications

Serial Video Input:

Standard:

Auto-detect
SMPTE 292M (1080i/59.94, 1080i/60, 1080i/50, 1080p/23.98, 1080p/23.98sF, 720p/59.94, 720p/60, and 720p/50)
SMPTE 259M-C (525i/59.94, 625i/50)

Number of Inputs:

1 for Program video (PGM)
1 for Key Signal to insert (FILL)
PGM and FILL need to be synchronous and timed w.r.t. each other (+/- 1/2 line)

Connector:

BNC input per IEC 60169-8 Amendment 2

Equalization:

Automatic 125m @ 1.5 Gb/s with Belden 8281 or equivalent cable

Return Loss:

> 14 dB (PGM input)

Serial Video Output:

Number of Outputs: 3 (re-clocked for program, 1 bypass protection)
same as input

1 (program monitor) same as input

Connector:

BNC per IEC 60169-8 Amendment 2

Signal Level:

800mV nominal

DC Offset:

0V \pm 0.5V

Rise and Fall Time:

200ps nominal

Overshoot:

<10% of amplitude

Wide Band Jitter:

< 0.13UI

Return Loss:

> 15 dB

Electrical:

Voltage:

+12VDC

Power:

9.5 Watts

EMI/RFI:

Complies with FCC Part 15 Class A
EU EMC directive

Physical:

Number of slots:

1

Ordering Information:

7725VBI-K-HD HD/SD VBI Sidechain Bridge

Ordering Options:

Rear Plate must be specified at time of order

Eg: Model +3RU

Rear Plate Suffix

+3RU

3RU Rear Plate for use with 7700FR-C Multiframe

+1RU

1RU Rear Plate for use with 7701FR Multiframe

+SA

Standalone Enclosure Rear Plate

Enclosures:

7700FR-C

3RU Multiframe which holds 15 modules

7701FR

1RU Multiframe which holds 3 modules

S7701FR

Standalone enclosure

General Purpose Inputs:

Number of Inputs: 8

Type:

Opto-isolated, active low with internal pull-ups
to +5 or +12V (jumper settable)

Connector:

Female DB-9

Input signal:

Closure to ground

Component Analog Video to SDI Converter



Model 7730ADC

The 7730ADC line of component analog video to serial digital converters are broadcast quality A to Ds with an extensive list of additional features. High quality analog to digital conversion of audio inputs can be packaged with the video to create a A to D frame synchronizer with audio embedder. In addition, Evertz fault monitoring processing will analyze and report video and audio problems via an On-Screen-Display, or remotely via VistaLINK™ SNMP.

The 7730ADC (1 slot module) and the 7730ADC-A4 (2 slot module) are housed in the 7700FR-C (15 slots) or in the 7701FR Multiframe (houses 3 modules).

Features

Features of the A to D process:

- 10 bit, 54MHz sampling of input video
- Internal processing to maintain 10 bit digital video quality
- Y, Pb, Pr or G, B, R input support
- Black level clamp on all components
- User adjustable input video processing functions: black level control on all 3 components, gain control on all 3 components, inter-channel delay control in 18 ns increments
- Sync on green or separate sync input
- 300mV or 4V separate sync support

Features of all 7730ADC's are:

- Three input BNCs for YPbPr or RGB input
- One sync input BNC for separate sync
- Two SDI 525 or 625, 270Mb/s component digital video output WITHOUT OSD text or audio bargraphs
- One combination output that can either be an extra SDI output or composite analog video output. When configured as a composite analog output it can either be a clean output (no OSD), or have the OSD text and bargraph graphics for monitoring
- EDH encoding on SDI output
- One combination input BNC that can either be an LTC input or a composite analog reference input (NTSC or PAL-B). 75Ω or high-Z, jumper configurable input impedance
- One frame video synchronizer (with +S option)
- Infinitely variable output phase (27MHz clock increments)
- Freeze modes: black, freeze, pass
- Menu adjustable free running frequency
- VU/PPM bargraph level Indicators

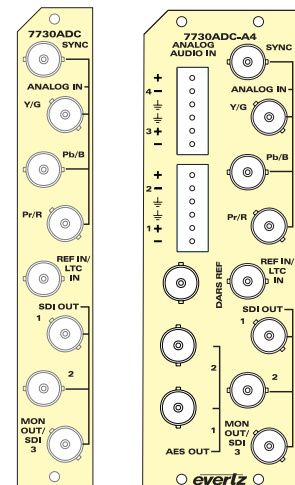
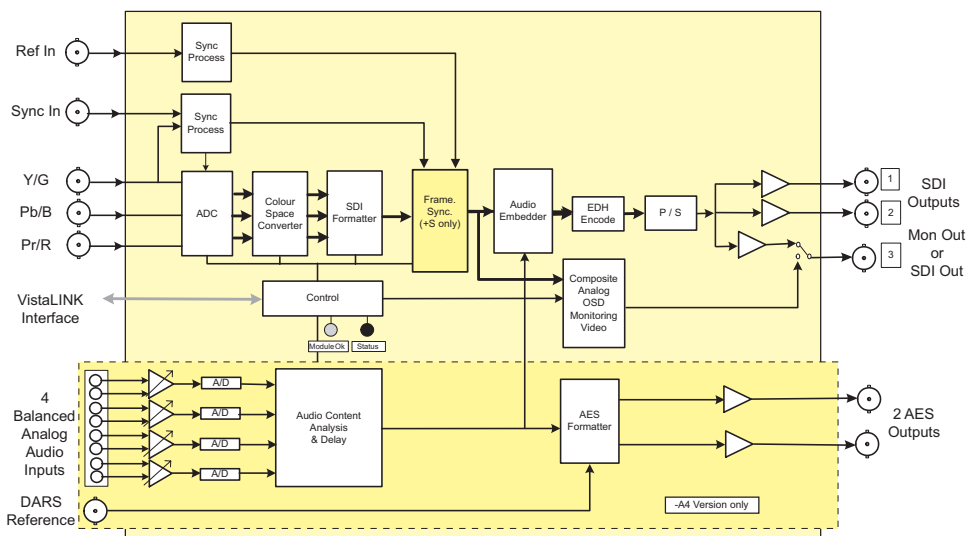
- Decodes vertical interval time code (VITC) and "burns" the time code into the OSD Monitoring output
- A comprehensive on screen display is available to configure the various features of the module
- Flexible configuration of the text and audio bar graph information displays
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
- On screen messages can be triggered by the configured fault conditions
- Fault conditions are reported via VistaLINK™ SNMP

- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

Features of -A4 option are:

- 4 balanced analog audio inputs on 2 removable barrier strips
- High impedance inputs (user supplies termination resistors for other impedance's)
- Analog audio input levels are adjustable. Jumpers set coarse input levels, fine input levels are set by software control
- Audio delay equivalent video delay (with +S option)
- Additional audio delay of up to 5 seconds
- Audio advance of up to 1 frame less 3 microseconds
- One group (4 channels of audio) is multiplexed on the outgoing digital video
- 2 unbalanced AES audio outputs delayed equivalently to the video delay
- 75Ω coaxial (unbalanced) DARS reference input on BNC
- Loss of video modes: pass audio, mute audio

7730ADC Block Diagram



Component Analog Video to SDI Converter

Specifications

Analog Video Input:

Standard: Y, Pb, Pr or G, B, R : SMPTE/EBU N10, Betacam™, MII, and other NTSC related
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Frequency Lock Range: ±75ppm from nominal
Input level control range: ±15%
Black level control range: ±5 IRE
Input Impedance: 75Ω
Return Loss: >30dB to 30MHz

Reference Video Input:

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Frequency Lock Range: ±75ppm from nominal
Input Impedance: 75Ω or High impedance (jumper selectable)
Return Loss: >35dB to 10MHz

Analog Video Output:

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75Ω
Return Loss: >35dB to 10MHz

Serial Video Output:

Standard: SMPTE 259M-C - 525 or 625 line component.
Number of Outputs: 3
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB to 270MHz
Embedded Audio: SMPTE 272M-A

Video Performance (SDI outputs only):

Frequency Response: <±??dB (100kHz to 4.1MHz)
Noise Floor: < -??dBms (15kHz to 5MHz)
Inter-channel Delay: <±9ns
Minimum Delay: 3 μsec
Maximum Delay: 1 frame plus 3 μsec

Analog Audio Input (-A4 only):

Number of Inputs: 4
Type: Balanced analog audio
Connector: Removable terminal strip
Input Impedance: 20kΩ minimum (differential)
Sampling Frequency: 48kHz
Signal Level: 0dB FS => 18 or 24dBu (jumper selectable)
Level Control Range: +/- 10dB
Frequency Response: +/- 0.1dB (20Hz to 20kHz) (broadcast quality)
SNR: 100dB with input at -0.5dBFS
THD+N: <0.001% (>100dB) @ 20Hz to 20kHz, -0.5 dB FS (input video locked to genlock video)
CMRR: >100dB @ 1kHz

AES Outputs (-A4 only):

Number of Outputs: 2
Output Standard: SMPTE 276M, single ended synchronous AES 48kHz
Connectors: BNC per IEC 60169-8 Amendment 2
Resolution: 24 bits
Sampling Rate: Synchronous 48kHz
User Bits: Transferred to output in a non-real-time, non-block-contiguous manner

Minimum I/O Delay: 2.1μs
Maximum I/O Delay: 5 seconds

Electrical:

Voltage: + 12VDC
Power: 11 Watts ADC + 9 Watts (-A4 option) = 20 Watts total
EMI/RFI: Complies with FCC Part 15, class A EU EMC Directive

Physical:

7700 frame mounting:
Number of slots: 1 for non-audio versions
2 for audio version (-A4)
Stand Alone Enclosure:
Dimensions: 14 " L x 4.5 " W x 1.9 " H
(355 mm L x 114 mm W x 48 mm H)
Weight: Approx. 1.5 lbs. (0.7 Kg)

Ordering Information:

7730ADC: Component Analog Video to SDI Converter
7730ADC-A4: Component Analog Video to SDI Converter with a four-channel Analog Audio converter/embedder

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

+S Optional frame synchronizer

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD Component Analog Video to HD SDI Converter

Model 7730ADC-HD



The 7730ADC-HD line of component analog video to serial digital converters are broadcast quality high definition A to Ds with an extensive list of additional features. High quality analog to digital conversion of audio or AES inputs can be packaged with the video to create an A to D with audio embedder. In addition, Evertz fault monitoring processing will analyze and report video and audio problems via an On-Screen-Display, or remotely via VistaLINK™ SNMP.

Features

The Features of the A to D process:

- 10 bit, 74.25MHz/(1.001) sampling of input video.
- Internal processing to maintain 10 bit digital video quality.
- Y, Pb, Pr or G, B, R input support.
- Black level clamp on all components.
- User adjustable input video processing functions: black level control on all components, gain control on all components, inter-channel delay and picture position control in 13.5 ns increments.
- Sync on green or separate sync input.

The Features of all 7730ADC-HD's are:

- Three input BNCs for Y, Pb, Pr or G, B, R input.
- One sync input BNC for separate sync.
- Two HD SDI 74.25 or 74.176 Mb/s component digital video output WITHOUT OSD text or audio bargraphs.
- One combination output that can either be an extra HD SDI output or composite analog video output. When configured as a composite analog output it will be a clean output (no picture), and have the OSD text and bargraph graphics for monitoring.
- One line video synchronizer.
- Variable output phase (in clock increments).
- Loss of video modes: black, pass
- A comprehensive on screen display is available to configure the various features of the module

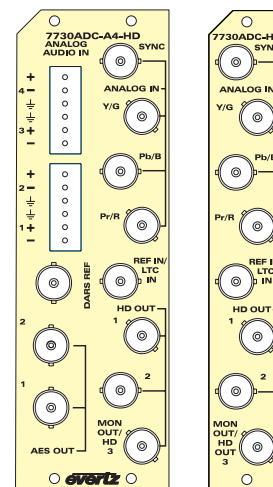
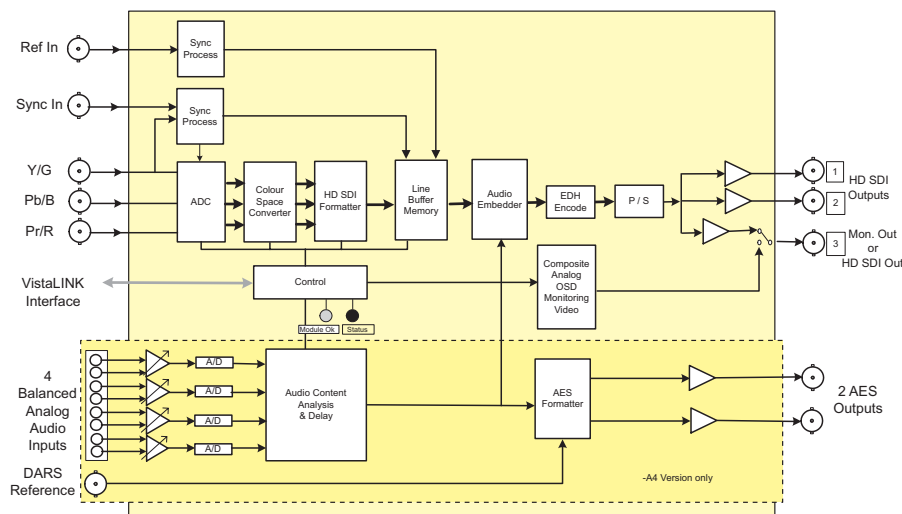
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

The Features of "-A4" option are:

- 4 balanced analog audio inputs on 2 removable barrier strips.
- High impedance inputs (user supplies termination resistors for other impedance's)
- Analog audio input levels are adjustable. Jumpers set coarse input levels, fine input levels are set by software control.
- Audio delay of up to 5 seconds.
- One group (4 channels of audio) is multiplexed on the outgoing digital video.
- 2 unbalanced AES audio outputs delayed equivalently to the embedded audio delay.
- 75Ω coaxial (unbalanced) DARS reference input on BNC.
- Loss of video modes: pass audio, mute audio

HD Component Analog Video to HD SDI Converter

7730ADC-HD Block Diagram



Specifications

Analog Video Input:

Standard: SMPTE 274M, 296M(analog), 1080i/59.94, 720p/59.94, 1080i/50 GBR or YPbPr

Input formats:

Number of Inputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1V nominal

Frequency Lock Range: ± 75 ppm from nominal

Input level control range: $\geq \pm 15\%$

Black level control range: $\geq \pm 10$ IRE

Input Impedance: 75 Ω

Return Loss: > 30 dB to 30MHz

Reference Video Input:

Standard: Tri-level sync, analog SMPTE 274M, 296M NTSC (SMPTE 170M), PAL (ITU624-4)

Number of Inputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1V nominal

Frequency Lock Range: ± 75 ppm from nominal

Input Impedance: 75 Ω or High impedance (jumper selectable)

Return Loss: > 35 dB to 10MHz

Monitoring Analog Video Output:

Standard: NTSC, SMPTE 170M PAL, ITU624-4

Number of Outputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1V nominal

Output Impedance: 75 Ω

Return Loss: > 30 dB to 10MHz

Serial Video Output:

Standard: SMPTE 292M (274M, 296M)

Number of Outputs: 2+1

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V ± 0.5 V

Rise and Fall Time: 180ps nominal

Overshoot: $< 10\%$ of amplitude

Return Loss: > 13 dB to 1.5GHz

Embedded Audio: SMPTE 299M

Video Performance (HD SDI outputs only):

Frequency Response: (Y, Pb, Pr input) $< \pm 0.05$ dB to 30MHz

Y: $< \pm 0.05$ dB to 15MHz

Cb, Cr: $< \pm 0.05$ dB to 15MHz

Inter-channel Delay: $< \pm 5$ ns

Minimum Delay: 0.5 μ s

Maximum Delay: 1 line plus 0.5 μ s

Analog Audio Input(-A4 only):

Number of Inputs: 4

Type: Balanced analog audio

Connector: Removable terminal strip

Input Impedance: 20k Ω minimum (differential)

Sampling Frequency: 48kHz

Signal Level:

0dB FS \Rightarrow 18 or 24dBu (jumper selectable)

Level Control Range:

± 10 dB

Frequency Response:

± 0.1 dB (20Hz to 20kHz) (broadcast quality)

SNR:

100dB with input at -0.5dBFS

THD+N:

$< 0.001\%$ (> 100 dB) @ 1kHz, -0.5 dB FS (rev 2)

$< 0.001\%$ (> 100 dB) @ 20Hz to 20kHz, -0.5 dB FS (input video locked to genlock video)

CMRR:

> 100 dB @ 1kHz

AES Outputs (-A4 only):

Number of Outputs:

2

Output Standard:

SMPTE 276M, single ended synchronous AES 48kHz

Connectors:

BNC per IEC 60169-8 Amendment 2

Resolution:

24 bits

Sampling Rate:

Synchronous 48kHz

User Bits:

Transferred to output in a non-real-time, non-block-contiguous manner

Minimum I/O Delay:

2.1 μ s

Maximum I/O Delay:

5 seconds

Electrical:

Voltage:

+ 12VDC

Power:

14 Watts ADC + 9 Watts (-A4 option) = 23 Watts

EMI/RFI:

Complies with FCC Part 15, Class A

EU EMC Directive

Physical:

7700 frame mounting:

Number of slots:

1 for non-audio versions
2 for audio versions (-A4)

Stand Alone Enclosure:

Dimensions:

14 " L x 4.5 " W x 1.9 " H
355 mm L x 114 mm W x 48 mm H
Approx. 1.5 lbs. (0.7 Kg)

Weight:

Ordering Information:

7730ADC-HD:

HD Component Analog Video to HD SDI Converter

7730ADC-A4-HD:

HD Component Analog Video to HD SDI Converter with a four-channel Analog Audio converter/embedder

Ordering Options

Rear Plate must be specified at time of order

Eg: Model + 3RU

Rear Plate Suffix

+3RU

3RU Rear Plate for use with 7700FR-C Multiframe

+1RU

1RU Rear Plate for use with 7701FR Multiframe

+SA

Standalone Enclosure Rear Plate

Enclosures:

7700FR-C

3RU Multiframe which holds 15 modules

7701FR

1RU Multiframe which holds 3 modules

S7701FR

Standalone enclosure

SDI D to A Component Analog Video Converter

Model 7730DAC



The 7730DAC line of serial digital video to component analog converters are broadcast quality D to A's with an extensive list of additional features. High quality digital to analog conversion of audio can be packaged with the video to create a D to A frame synchronizer with audio demux. In addition, Evertz fault monitoring processing will analyze and report video and audio problems via an On-Screen-Display, or remotely via VistaLINK™ SNMP.

Features

The Features of the D to A process:

- 12 bit, over sampled video DACs
- SMPTE/EBU N10, Betacam, MII and NTSC specific standards supported
- Y, Pb, Pr or G, B, R output format
- Selectable setup pedestal
- Black level and gain controls of all components
- 300mV separate composite sync output

The Features of all 7730DAC's are:

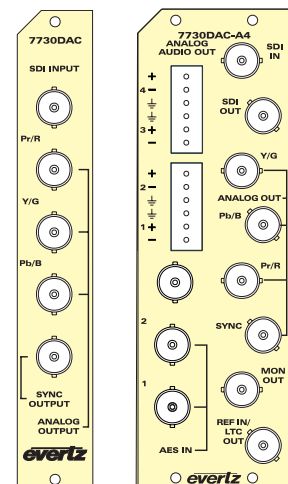
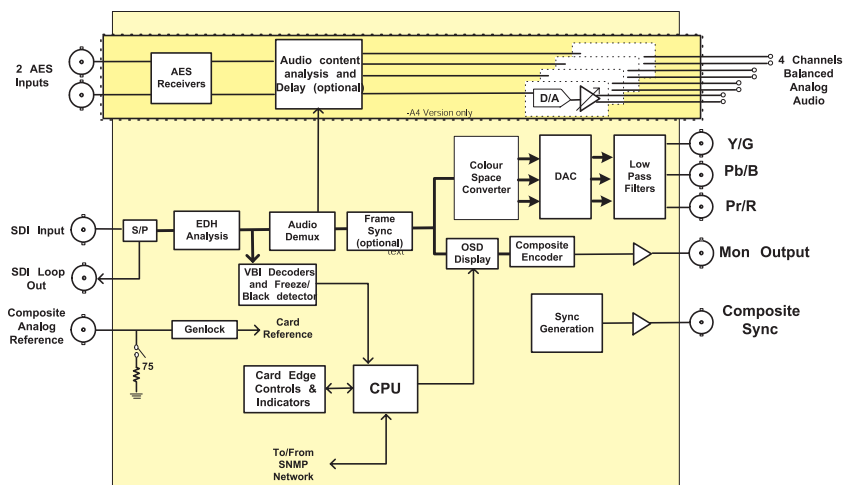
- SDI 525 or 625, 270 Mb/s component digital video input
- One 270 Mb/s re-clocked SDI output
- Four output BNCs for Y, Pb, Pr or G, B, R and composite sync
- One composite analog output on BNC for monitoring and control
- One frame video synchronizer (with +S option)
- Infinitely variable output phase (27MHz clock increments)
- Freeze modes: black, freeze, pass
- Menu adjustable free running frequency
- VU/PPM bargraph level Indicators
- Decodes vertical interval time code (VITC), and "burns" the time code into the monitoring output picture
- A comprehensive on screen display is available to configure the various features of the module
- Flexible configuration of the text and audio bar graph information displays
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
- On screen messages can be triggered by the configured fault conditions

- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

The Features of "-A4" option are:

- One group (4 channels) of synchronous 20-bit audio is de-multiplexed from the incoming digital video
- 2 unbalanced AES audio inputs (up to 48kHz, 24 bits) on BNC
- User selects EITHER the de-embedded audio or the input AES audio
- The selected audio is delayed equivalently to the video delay with the +S option
- 4 high quality 24 bit audio channels are output (analog) as balanced on 2 removable barrier strips
- Low impedance outputs (66Ω)
- Analog audio output levels are adjustable
- Additional audio delay of up to 5 seconds
- Additional audio advance of up to 1 frame, depending on video delay
- Loss of video modes: pass audio, mute audio

7730DAC Block Diagram



SDI D to A Component Analog Video Converter

Specifications

Serial Video Input:

Standard:	SMPTE 259M-C - 525 or 625 line component.
Number of Inputs:	1
Number of Reclocked Outputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2
Return Loss:	>15dB to 270MHz
Embedded Audio:	SMPTE 272M-A
Frequency Lock Range:	±75ppm from nominal

Analog Video Output:

Standards:	SMPTE/EBU N10, Betacam, MII and NTSC specific standards. GBR or YPbPr formats with or without setup
Number of outputs:	1
Connectors:	4 BNCs per IEC 169-8
Video signal Level:	1V nominal
Sync signal Level:	300mV nominal
Output level control range:	>± 7.5% (All components)
Black level control range:	±10 IRE
Input Impedance:	75Ω
Return loss:	>40dB to 10MHz

Reference Video Input:

Standard:	NTSC, SMPTE 170M PAL, ITU624-4
Number of Inputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	1V nominal
Frequency Lock Range:	±75ppm from nominal
Input Impedance:	75Ω or High impedance (jumper selectable)
Return Loss:	>35dB to 10MHz

Video Performance:

Frequency Response:	<±0.1dB (100kHz to 4.1MHz)
Noise Floor:	< -73dBms (15kHz to 5MHz)
Inter-channel Delay:	<±5ns
Minimum Delay:	3μsec
Maximum Delay:	1 frame plus 3μsec

Analog Audio Outputs (-A4 only):

Number of Outputs:	4
Type:	Balanced analog audio
Connector:	Two 6 pin removable terminal strips
Output Impedance:	66Ω balanced
Sampling Frequency:	48kHz
Signal Level:	0dBFS => 12 to 25dBu (user settable)
Frequency Response:	<+/- 0.05dB (20Hz to 20kHz)
Dynamic range:	24 bits when AES inputs selected, 20 bits when embedded audio selected
THD+N:	<0.001% (>100dB) @ 1kHz, -1dBFS
Crosstalk:	<-105dB (20Hz to 20kHz)
DC Offset:	<+/- 30mV
SNR:	>110dB "A" Weighting
Inter-Channel Phase Error:	<+/-1° (20Hz to 20kHz)

AES Audio Inputs (-A4 only):

Number of Inputs:	2
Input Standard:	SMPTE 276M, single ended synchronous or asynchronous PCM AES
Connector:	BNC per IEC 60169-8 Amendment 2
Resolution:	24 bits when AES inputs selected, 20 bits when embedded audio is selected
Input Sampling Rate:	32kHz to 48 kHz when AES inputs selected, Synchronous 48kHz when embedded audio is selected
Minimum I/O Delay:	3.5μsec

Electrical:

Voltage:	+12VDC
Power:	10 Watts DAC + 7.5 Watts (-A4 option) = 17.5 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

7700 frame mounting:	
Number of slots:	1 for non-audio versions 2 for audio versions (-A4)

Stand Alone Enclosure:

Dimensions:	14 " L x 4.5 " W x 1.9 " H (355 mm L x 114 mm W x 48 mm H)
Weight:	Approx. 1.5 lbs. (0.7 Kg)

Ordering Information:

7730DAC:	SDI D to A Component Analog Video Converter
7730DAC-A4:	SDI D to A Component Analog Video Converter with a four-channel Analog Audio converter/embedder

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

+S	Optional frame synchronizer
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Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

HD SDI to HD Component Analog Video Converter

Model 7730DAC-HD

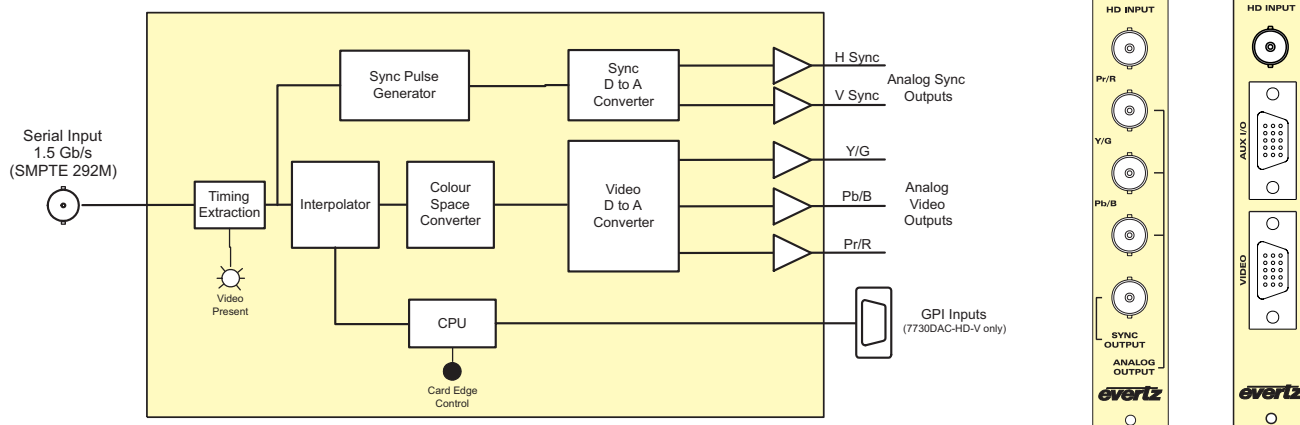
The 7730DAC-HD is a professional quality digital to analog converter for HDTV. The 7730DAC-HD supports all signal standards specified in SMPTE 274M and SMPTE 296M.

Card edge control allows the user to select RGB, YPrPb or VGA outputs. User controlled 4:3 alignment markers also allow for convenient framing of the video signal. The 7730DAC-HD is available in two versions to easily interface to standard broadcast monitors or VGA computer monitors.

Features

- Support for all SMPTE 274M and 296M video formats
- Full 10-bit Broadcast quality
- 4:4:4 Interpolated Component Output
- Card edge selectable YPrPb/RGB/VGA outputs
- GPI controllable 4:3 alignment markers
- Optional rear connector plates for use with VGA computer monitors

7730DAC-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 125m @ 1.5Gb/s with Belden 1694 (or equivalent)

Analog Video Outputs:

Standard: SMPTE 274M, 296M per nominal
Video: 1V p-p YPrPb/RGB or 0.7V p-p VGA
Sync: 300mV or 4V per nominal
Impedance: 75Ω
Connector: 4 BNC per IEC 60169-8 Amendment 2 (7730DAC-HD)
Female High Density DB15 (7730DAC-HD-V)
DC Offset: 0V ±0.1V

General Purpose Inputs (7730DAC-HD-V only):

Number of Inputs: 4
Type: Opto-isolated, active low with internal pull-ups to Vext pin.
May be internally jumped to +5V
Connector: Male High Density DB-15
Signal Level: +5V nominal

Electrical:

Voltage: +12V DC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7730DAC-HD: HD D to A Converter, YPrPb/RGB +Sync via BNC Outputs

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

+V VGA output

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Accessories:

WPGVABNC5: VGA to BNC - 6' Monitor Adapter Cable

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

7730DAC-A4-HD • HD D to A Component Analog Video Converter with a four-channel Analog Audio Converter/Embedder

The 7730DAC line of serial digital video to component analog converters are broadcast quality D to A's with an extensive list of additional features. High quality digital to analog conversion of audio can be packaged with the video to create a D to A frame synchronizer with audio demux. In addition, Evertz fault monitoring processing will analyze and report video and audio problems via an On-Screen-Display, or remotely via VistaLINK® SNMP.

The Features of the D to A process

- 12 bit, over sampled video DACs
- SMPTE/EBU N10, Betacam, MII and NTSC specific standards supported
- Y, Pb, Pr or G, B, R output format
- Selectable setup pedestal
- Black level and gain controls of all components
- 300mV separate composite sync output

Evertz designs, manufactures and markets high quality video, audio and film equipment used by professional production and post-production facilities and television broadcasters worldwide.

For complete and detailed product and pricing information, please contact Evertz SALES at +1-905.335.3700, by fax at +1-905.335.3573, or by email at: sales@evertz.com. You can also visit our website at www.evertz.com

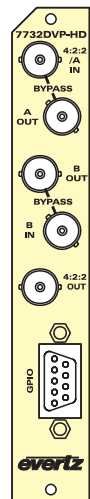
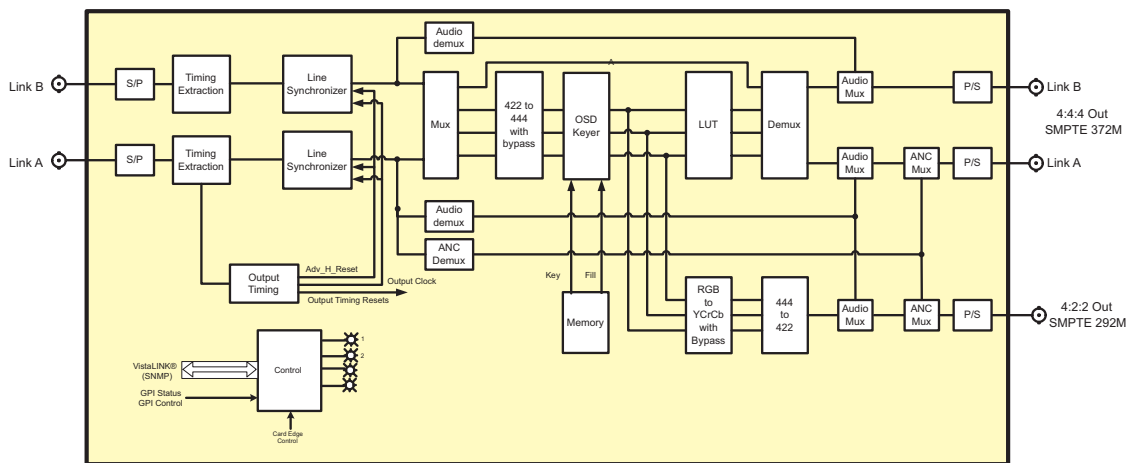


The Evertz 7732DVP-HD Dual Link Video Processor module is a multi-purpose module designed to convert between 4:2:2 and 4:4:4 HDTV video signals in a wide variety of applications. The model 7732DVP-HD can be operated in a dual link to single link mode for emerging 4:4:4 high definition applications, or a 4:2:2 to 4:4:4 mode to convert traditional high definition content to 4:4:4.

Features

- Automatically senses between 1080i/60, 1080i/50, 1080p/24, 1080p/24sF, 720p/60 and 720p/50 video formats and the 1/1.001 divisor versions where applicable
- 4:4:4 Dual Link HDSDI to 4:2:2 HDSDI converter
- 4:2:2 HDSDI to 4:4:4 Dual Link HDSDI converter
- 4:4:4 Dual Link HDSDI to 4:4:4 HDSDI with LUTs
- 3:2 pulldown inserter - locked to RP188 time code or 6 Hz pulse
- Retimed 4:4:4 dual link outputs
- 6 Hz input
- Programmable LUTs for 4:4:4 and 4:2:2 HDSDI to accommodate different colorimetry between monitoring devices
- Connects logarithmic 'filmstream' inputs from VIPER camera - to linear or 4:4:4 or 4:2:2
- Store/recall user presets of common configurations - up to 5 presets
- GPIO for presets
- On Screen menu on 4:2:2 HDSDI output accessible using push button/toggle switch
- VistaLINK® provides a software GUI interface for control and monitoring of the device. VistaLINK® can be used to manual control the switch or be configured to trigger a change based on specific errors and thresholds

7732DVP-HD Block Diagram & Rear Panel



Specifications

Serial Digital Video Inputs:

Standards: SMPTE 372M (dual Link 1.5 Gb/s) or SMPTE 292M (1.5 Gb/s) 1080i/60, 1080i/50, 1080p/24, 1080p/24sF, 720P/60 and 720p/50 video formats and the 1/1.001 divisor versions where applicable

Number of Inputs: 1 dual link input or 1 single link input

Connector: BNC per IEC 60169-8 Amendment 2.

Equalization: Automatic up to 50m with Belden 1694A or equivalent cable

Return Loss: > 15 dB up to 1.0 Gb/s, >10dB at 1.5 Gb/s

Serial Digital Video Outputs:

Standard: Same as Input

Number of Outputs: 1 dual link output and 1 single link output

Connector: BNC per IEC 60169-8 Amendment 2.

Signal Level: 800mV nominal

DC Offset: 0V ±0.5V

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Wide Band Jitter: < 0.2 UI

Output Return Loss: > 10 dB up to 1.5 Gb/s

GPI Control Port:

Number of Inputs: 8 opto-isolated, active high or active low, programmable functions

Connector: Female DB-9

Electrical:

Voltage: +12VDC

Power: 14 Watts

EMI/RFI: Complies with FCC regulations for class A devices
Complies with EU EMC directive

Physical:

Number of slots: 1

Ordering Information:

7732DVP-HD HD Dual Link Video Processor

Ordering Options

Rear Plate must be specified at time of order

Eg: Model +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

7701FR 1RU Multiframe which holds 3 modules

S7701FR Standalone enclosure

HDTV Progressive Format Translator

Model 7732PFT-HD

The 7732PFT-HD Progressive Format Translator converts 1.5 Gb/s HDTV digital video in the 1080p/24sF (1080p/23.98sF) format to 1080i/60 (1080i/59.94), thus allowing the source material to be viewed at a higher video refresh eliminating the annoying 24 Hz flicker. The 7732PFT-HD inserts extra fields to create a 3:2 pulldown of the picture content thus, increasing the video frame rate from 24 to 30 frames per second.

When an input video feed of 1080p/24sF (1080p/23.98sF) is detected, a 3:2 pulldown of the picture is inserted resulting in a 1080i/60 (1080i/59.94) output. Determination of the output sequence of the fields is determined from a 6 Hz input pulse or from RP188 ancillary time code if it is present. Dip switches allow the user to determine how the output pulldown aligns to the 6 Hz input or ancillary time code. If an input video feed of any other HD format is detected, it is simply passed through. When the 3:2 pulldown mode is turned off with a DIP switch or GPI input, the output video remains the same as the input video. An output tally indicates when the 3:2 pulldown mode is active and may be used to control external audio delay devices.

Features

- Automatic detection of 1080p/24sF video or 1080i/60 video input
- 3:2 cadence of output set from 6 Hz pulse input or incoming RP188 ANC time code
- 4:3 and 2.4:1 aspect ratio markers
- GPI Control of pulldown & aspect ratio markers
- Tally output indicates 3:2 pulldown insertion

Card Edge LEDs

- Video signal presence
- Pull down active
- Module status
- Local fault

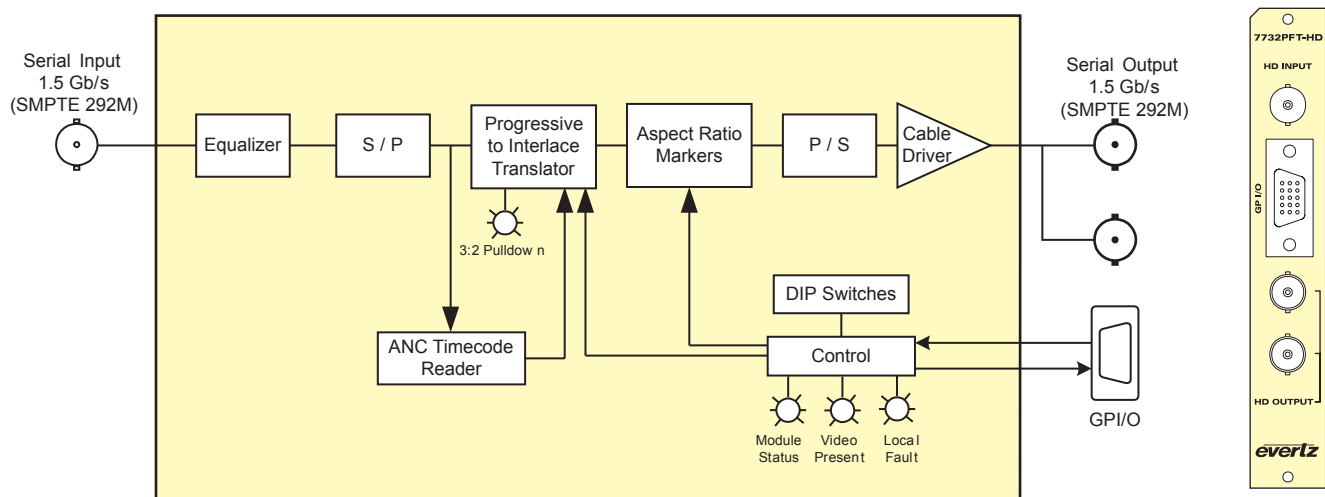
Input:

- SMPTE 292M - 1.5Gb/s serial digital 1080p/24sF (23.98Fps)
- Transparent pass-through input for all other SMPTE 292M HD video formats
- Auto equalization to 130m

Outputs:

- 2 serial HD SDI processed outputs
- When 3:2 pull down mode is active the 1080p/24sF (23.98Fps) input video is format converted to 1080i/60 (29.97Fps) on the output

7732PFT-HD Block Diagram



Specifications

Serial Video Input (1080p/24sF):

Standard:	SMPTE 292M
Connector:	BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 130m @ 1.5Gb/s with Belden 1694 (or equivalent)

Serial Video Outputs with 3:2 pulldown (1080i/60):

Connectors:	2 BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	200ps nominal
Overshoot:	<10% of amplitude
Wide Band Jitter:	<0.2UI

GPI/O:

Connector:	Female High Density DB-15
Impedance:	Opto- isolated, High Z
Inputs:	2 for Aspect Ratio markers 1 for 6 Hz input or pulldown disable 1 for 3:2 pulldown tally
Outputs:	

Electrical:

Voltage:	+12VDC
Power:	6 watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of Slots:	1
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Ordering Information:

7732PFT-HD	HDTV Progressive Format Translator
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

SDI Video D to A with Line Buffer, Quad Audio DAC with SoftSwitch™



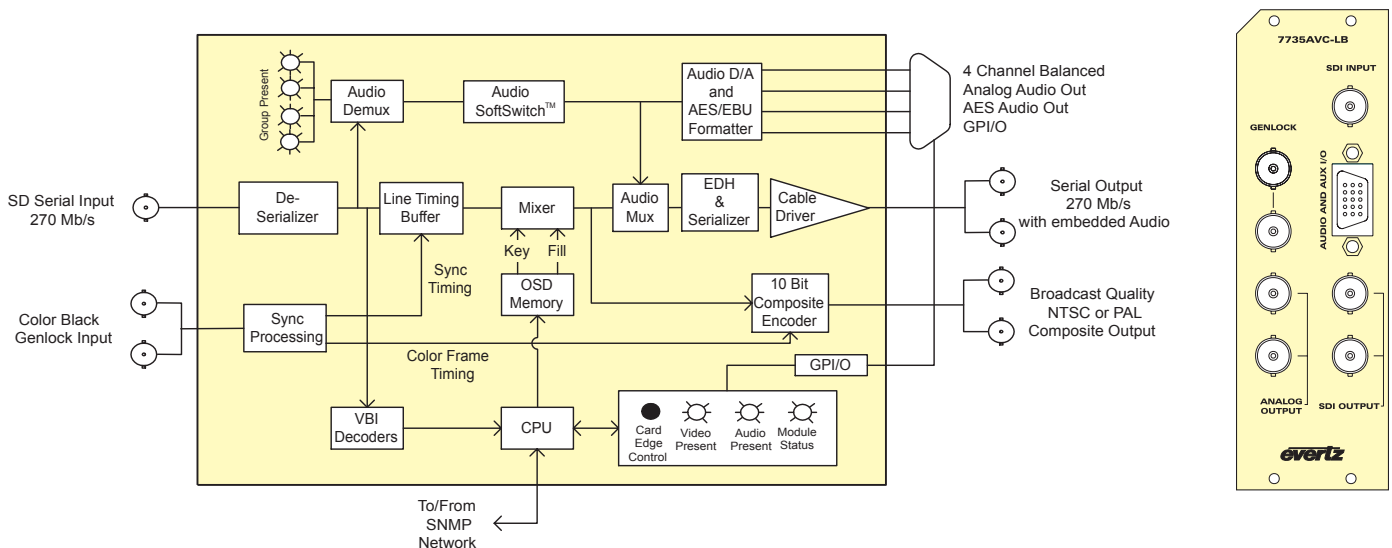
Model 7735AVC-LB

The 7735AVC-LB is a 10-bit component SDI to composite analog converter with line synchronizing buffer, audio demultiplex and digital to analog converter. The 7735AVC-LB is also equipped with Evertz SoftSwitch™ technology which mitigates audio pops during hot-switching while maintaining consistent video and audio sequences and formats. In addition, 7735AVC-LB modules are VistaLINK™ - enabled offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK™ is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame.

Features

- One SDI 525 or 625, 270 Mb/s component digital video input
- Two SDI 525 or 625, 270 Mb/s component digital video outputs
- Two composite analog video outputs
- Genlock reference loop input for proper timing and color framing
- Line synchronizing buffer allows re-timing of output video up to one line
- Embedded audio on input is de-embedded and re-embedded after re-timing
- Hot-switch audio pop mitigation through SoftSwitch™ technology
- One group (4 channels of audio) is de-multiplexed from the incoming digital video
- 4 adjustable analog audio outputs can be set so both are a mono mix of the selected channel pair
- Two pair of stereo balanced analog outputs and 2 AES digital audio outputs
- VistaLINK™ monitoring of an extensive list of error and fault conditions including freeze or black video, etc.
- RS-232 data logging port to log fault conditions
- Two GPI and one GPO to control and report user definable fault conditions through high density DB15 connector
- Bulkhead panel is available to facilitate wiring to the high density DB15 connector (up to 10 - 7735AVC-LB modules can be wired to each bulkhead panel)
- Comes with ConfigSet software to upload or download board configurations to a PC. Setups can be copied from one module to another to facilitate configuration of large numbers of modules
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

7735AVC-LB Block Diagram



SDI Video D to A with Line Buffer, Quad Audio DAC with SoftSwitch™

Specifications

Serial Digital Video Input:

Standard: SMPTE 259M-C 525 or 625 line
Connector: BNC per IEC 60169-8 Amendment 2
Termination: 75Ω
Equalization: Automatic >200m @ 270Mb/s with Belden 8281 (or equivalent)
Return Loss: >15dB up to 270MHz
Embedded Audio: SMPTE 272M-A

Serial Digital Video Output:

Standard: SMPTE 259M-C 525 or 625 line
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 470ps nominal
Overshoot: <10% of amplitude
Embedded Audio: SMPTE 272M-A

Genlock Input:

Type: NTSC (SMPTE 170M) Color black 1V p-p
Number of Inputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Termination: High impedance loop through
Return Loss: >35dB up to 10MHz
SNR: >50dB
Levels: Min: 0.5Vp-p, Max: 1.5Vp-p
Max Subcarrier Jitter: < 3°

Analog Video Output:

Standard: NTSC, SMPTE 170M, PAL, ITU624-4
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal (user adjustable from menu)
DC Offset: 0V ±0.05V
Return Loss: > 35dB up to 5MHz
Frequency Response: 0.1dB to 4 MHz, 0.15dB to 5.5 MHz
Differential Phase: < 0.5° (<0.3° typical)
Differential Gain: < 0.5% (<0.3 % typical)
SNR: > 78dB to 5 MHz
Minimum Delay: 3μsec

Analog Audio Output:

Number of Outputs: 4
Type: Balanced analog audio
Connector: Female High Density DB-15
Output Impedance: 33Ω
Sampling Frequency: 48kHz
Signal Level: 0dB FS =>8 to 24dBu (user settable)
NOTE: High impedance loads only (10 kΩ) Not for use with low impedance loads (i.e. 600Ω)
Frequency Response: < 0.05dB (20Hz to 15kHz)
< 0.1dB (20Hz to 20kHz)
Dynamic Range: > 84dB RMS
THD+N: > 74dB RMS @ 1kHz, relative to 14dBu
> 63dB RMS @ 20Hz to 20kHz, relative to 14dBu
Crosstalk: < -75dB RMS (20Hz to 20kHz)

AES Audio Outputs:

Number of Outputs: 2
Standard: SMPTE 276M, single ended synchronous or asynchronous AES
Connectors: High-density female DB-15
Resolution: 20 bits (from embedded audio)
Sampling Rate: 48 kHz
Impedance: 75Ω unbalanced

General Purpose Interface I/O (GPI/GPO):

Number of Inputs: 2
Number of Outputs: 1
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: Female High Density DB-15
Signal Level: +5V nominal

Control and Data Logging Serial Port:

Standard: RS-232
Connector: Female High Density DB-15
Format: As per AVC Control/Status Protocol Document (contact factory)

Electrical:

Voltage: + 12VDC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 2

Ordering Information:

7735AVC-LB SDI Video D to A with Line Buffer, Quad Audio DAC with SoftSwitch™

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Composite Video A to D with optional Frame Synchronizer, Quad Audio ADC & Audio Embedder



Model 7735CDM (-A4, -AES)

The 7735CDM line of composite analog video to serial digital video converters are broadcast quality decoders with an extensive list of additional features. Composite analog video is converted to 10-bit parallel data and decoded to 4:2:2 digital component video using Faroudja patented technology. In addition, high quality audio analog to digital conversion or AES inputs can be packaged with the decoder to create a video/audio frame synchronizer with audio embedder.

The 7735CDM product features various video processing functions such as VITC, closed captioning and Source Identification decoding and monitoring, as well as monitoring for black and freeze conditions. The audio is processed, by the CPU, to extract level information for creating and displaying level and phase bar graphs. In addition, the audio is analyzed for periods of high level, silence, mono, and out-of-phase conditions. All of this status information is displayed on the monitoring composite analog composite output via on-screen display (OSD) overlay.

VistaLINK™ - enables remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage operations including signal monitoring and module configuration from SNMP enabled control systems (Manager or NMS) locally or remotely.

Features

- 10-bit, 8fsc sampling of input video
- Internal processing to maintain 10-bit digital video quality
- Patented Faroudja adaptive 2D comb filtering technology
- Chroma AGC available, if desired
- User adjustable input video processing functions: black level, gain, hue, saturation (when chroma AGC is enabled)
- One composite analog input (NTSC or PAL-B). 75Ω or high-Z, jumper configurable input impedance
- One SDI 525 or 625, 270 Mb/s component digital video output without OSD text or audio bargraphs
- One monitoring composite analog video output with OSD text and bar graph graphics
- EDH encoding on SDI output
- One composite analog reference input (NTSC or PAL-B) on BNC. 75Ω or high-Z, jumper configurable input impedance
- One frame video synchronizer (if -S option ordered)
- Infinitely variable output phase (27MHz clock increments)
- Freeze modes: Rev 2 hardware: black
- Freeze modes: Rev A and greater hardware: black, freeze
- Pot adjustable free running frequency
- VU/PPM bargraph level Indicators
- Decodes vertical interval time code (VITC) and "burns" the time code into the picture
- Decodes PESA format Source ID (8 characters) or Evertz format VITC Source ID (5 or 9 characters) and burns the ID into the picture
- A comprehensive on screen display is available to configure the various features of the module
- Flexible configuration of the text and audio bar graph information displays
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
- On screen messages can be triggered by the configured fault condition
- Image enhancement and noise reduction controls included
- TBC mode available for non-time base corrected signals

- Two GPI inputs are available to modify the display characteristics
- Two GPO output to indicate user definable fault conditions
- GPI/Os are available on a DB9 connector
- RS-232 Data logging port to log fault conditions

- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO or 9000NCP Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

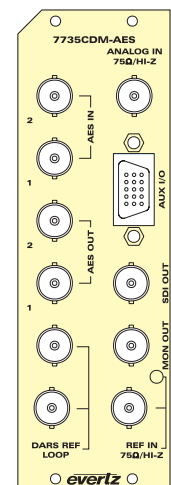
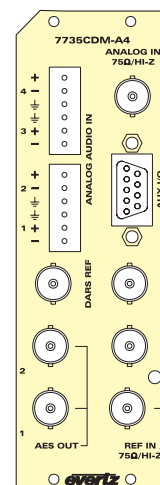
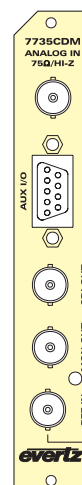
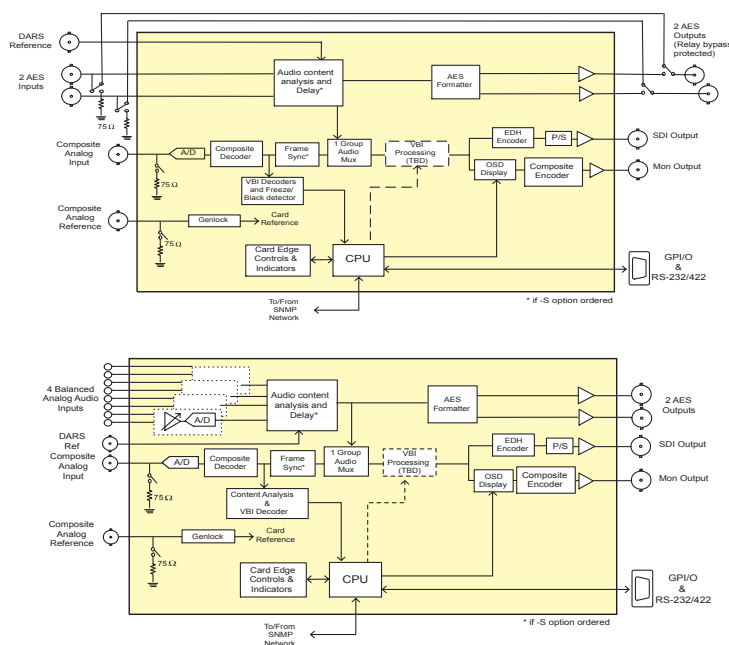
The Features of "-A4" option are:

- 4 balanced analog audio inputs on 2 removable barrier strips
- High impedance inputs (user supplies termination resistors for other impedance's)
- Analog audio input levels are adjustable. Jumpers set coarse input levels, fine input levels are set by software control
- Audio delay equivalent video delay
- Additional audio delay (5 seconds) or Advance (1 frame)
- One group (4 channels of audio) is multiplexed on the outgoing digital video
- 2 unbalanced AES audio outputs delayed equivalently to the video delay
- 75Ω coaxial (unbalanced) DARS reference input on BNC
- Loss of video modes: pass audio, mute audio

The Features of "-AES" option are:

- 75Ω coaxial (unbalanced) AES inputs (2) on BNC
- Audio delay equivalent to video delay
- Additional audio delay (5 seconds) or Advance (1 frame)
- One group (2 channels of audio) is multiplexed on the outgoing digital video
- 2 unbalanced AES audio outputs delayed equivalently to the video delay
- 75Ω coaxial (unbalanced) DARS reference input on BNC
- Loss of video modes: pass audio, mute audio
- Bypass relay protection

7735CDM/AES/A4 Block Diagrams



Composite Video A to D with optional Frame Synchronizer, Quad Audio ADC & Audio Embedder

Specifications

Analog Video Input:

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Freq. Lock Range: ± 75 ppm from nominal
Input Lvl Ctrl Range: ± 2 dB
Black Lvl Ctrl Range: ± 5 IRE
Chroma Lvl Ctrl Range: $\pm 20\%$ (only if chroma AGC enabled)
Hue Ctrl Range: $\pm 20^\circ$ (NTSC only)
Input Impedance: 75 Ω or high impedance (jumper selectable)
Return Loss: >30dB to 10MHz (Rev. 2 PCB)
>40dB to 10MHz
Hot Switch Lock up time: Between 15-45 frames (may be longer with noisy signals)

Reference Video Input:

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Freq. Lock Range: ± 75 ppm from nominal
Input Impedance: 75 Ω or high impedance (jumper selectable)
Return Loss: >25dB to 10MHz

Analog Monitoring Video Output:

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75 Ω
Return Loss: >35dB to 10MHz

Serial Video Output:

Standard: SMPTE 259M-C - 525 or 625 line component
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5 V
Rise/Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: >8dB to 270MHz (Rev. 2 PCB)
>15dB to 270MHz
Embedded Audio: SMPTE 272M-A

Decoder Performance (SDI output only):

Frequency Response: $\leq \pm 0.1$ dB (100kHz to 4.1Mhz)
Differential Gain: $\leq \pm 0.5\%$ typical
Differential Phase: $\leq \pm 0.2$ deg typical
Noise Floor: < -54dBrms (black video, 15kHz to 5MHz, Rev. 2 PCB)
< -56dBrms (black video, 15kHz to 5MHz)
< -60dBrms (VBI lines, black video, 15kHz to 5MHz)
C/L Gain: $\leq \pm 0.5\%$
C/L Delay: ≤ 9 ns
Minimum Delay: 3.25 lines
Maximum Delay: 1 frame plus 3.25 lines

Analog Audio Input ("-A4" version):

Number of Inputs: 4
Type: Balanced analog audio
Connector: Removable terminal strip
Input Impedance: 20k Ω minimum (differential)
Sampling Freq.: 48kHz
Signal Level: 0dB FS \Rightarrow 18, or 24dBu (jumper selectable)
Level Control Range: ± 10 dB
Frequency Response: ± 0.1 dB (20Hz to 20kHz)(broadcast quality)
100dB with input at -0.5dB FS
SNR: <0.001% (>100dB) @ 1kHz, -0.5dB FS (rev 2)
<0.001% (>100dB) @ 20Hz to 20kHz, -0.5dB FS (input video locked to genlock video)
THD+N: > 100dB @ 1kHz
CMRR: > 100dB @ 1kHz

AES Audio Inputs (-AES version):

Number of Inputs: 2
Input Standard: SMPTE 276M, single ended synchronous or asynchronous PCM AES
Connector: BNC per IEC 60169-8 Amendment 2
Resolution: 24 bits
Sampling Rate: 32kHz to 48kHz

AES Audio Outputs (-A4 & -AES version):

Number of Outputs: 2
Output Standard: SMPTE 276M, single ended synchronous AES
Connector: BNC per IEC 60169-8 Amendment 2
Resolution: 24 bits
Sampling Rate: 48kHz synchronous
User Bits: Transferred to output in a non-real-time, non-block-contiguous manner
Minimum I/O Delay: 2.5 μ s (-AES versions)
2.1 μ s (-A4 versions)

General Purpose In/Out:

Number of Inputs: 2 (behavior is assigned via on-screen menu items)
Number of Outputs: 2 (behavior is programmable via on-screen menu items)
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: Female DB-9
Signal Level: +5V nominal

Serial Port:

Standard: RS-232
Connector: Female DB-9
Baud Rate: 57600
Format: 8 bits, no parity, 2 stop bits, no flow control

Electrical:

Voltage: + 12VDC
Power: 10 Watts CDM + 9 Watts (-A4 option) = 19 Watts total
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of Slots: 1 for non-audio versions
2 for audio versions (-AES, -A4)

Ordering Information:

7735CDM	Analog video A to D with optional frame synchronizer
7735CDM-A4	Composite analog video to SDI decoder OSD and VistaLINK™ monitoring, control & fault reporting with optional frame synchronizer
7735CDM-AES	Composite analog video to SDI decoder OSD and VistaLINK™ monitoring, control and fault reporting, with two AES inputs and two AES outputs with optional frame synchronizer (not available in standalone enclosure)

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

+S Optional frame synchronizer

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Component Video D to A with optional Frame Synchronizer Audio Demux and Audio DAC



Model 7735CEM (-A4, AES)

The 7735CEM line of component serial digital to composite analog video converters are broadcast quality encoders with an extensive list of additional features. An audio de-embedder with high quality audio digital to analog conversion or AES inputs/outputs can be packaged with the encoder to create a video/audio frame synchronizer/conversion package.

The 7735CEM product features various video processing functions such as VITC, closed captioning and SID extraction during the encoding process, as well as monitoring video for black and freeze conditions. The audio is processed, to extract level information for creating and displaying level and phase bar graphs. In addition, the audio is analyzed for periods of high level, silence, mono, and out-of-phase conditions. All of this status information is displayed on the monitoring analog output via on-screen display (OSD) overlay.

VistaLINK™ enables remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage operations including signal monitoring and module configuration from SNMP enabled control systems (Manager or NMS) locally or remotely.

Features

The features of all 7735CEM's are:

- One component serial digital input (525 or 625)
- One composite analog video output WITHOUT OSD text or audio bargraphs
- Internal processing to maintain 10 bit digital video quality
- 10-bit output video digital to analog conversion
- One monitoring quality video output with OSD text and bargraph graphics
- User adjustable output video processing functions: black level (brightness), gain (contrast), hue and saturation
- EDH analysis on SDI input
- One composite analog reference input (NTSC or PAL-B) on BNC 75Ω or high-Z, jumper configurable input impedance
- One frame video synchronizer (with +S option)
- Infinitely variable output phase
- Freeze modes: black, freeze
- Adjustable free running frequency
- VU/PPM bargraph level indicators
- Decodes vertical interval time code (VITC) and "burns" the time code into the picture
- Decodes PESA format Source ID (8 characters) or Evertz format VITC Source ID (5 or 9 characters) and burns the ID into the picture
- A comprehensive on screen display is available to configure the various features of the module
- Flexible configuration of the text and audio bar graph information displays
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
- On screen messages can be triggered by the configured fault conditions
- Two GPI inputs are available to modify the display characteristics
- Two GPI/O output to indicate user definable fault conditions
- GPI/O's are available on a DB9 connector

- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

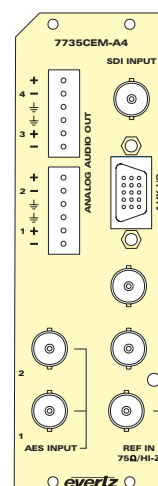
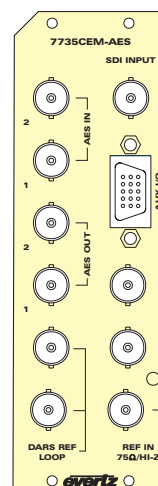
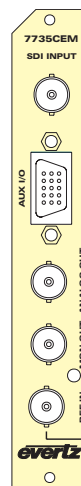
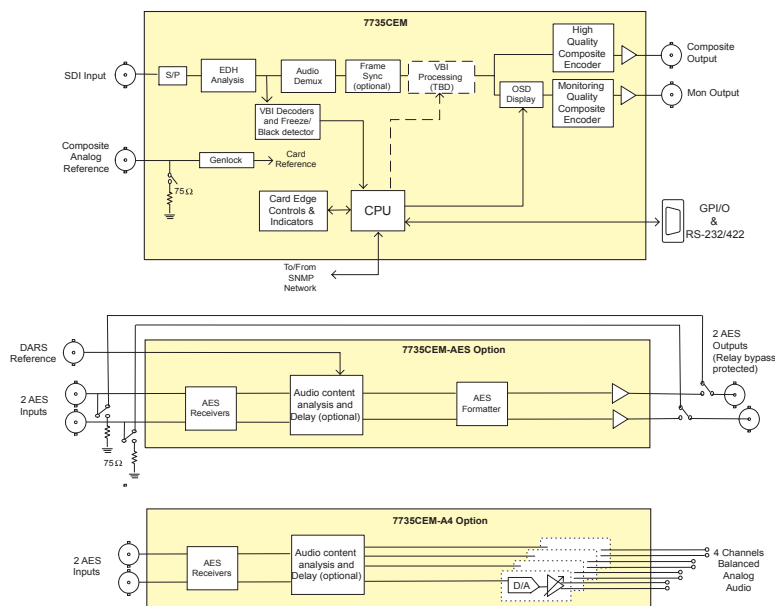
The Features of "-A4" option are:

- One group (4 channels) of synchronous 20-bit audio is de-multiplexed from the incoming digital video
- 2 unbalanced AES audio inputs (up to 48kHz, 24-bits) on BNC
- User selects EITHER the de-embedded audio or the input AES audio
- The selected audio is delayed equivalently to the video delay with the +S option
- 4 high quality 24 bit audio channels are output (analog) as balanced on 2 removable barrier strips
- Low impedance outputs (66Ω)
- Analog audio output levels are adjustable
- Additional audio delay of up to 5 seconds
- Additional audio advance of up to 1 frame, depending on video delay
- Loss of video modes: pass audio, mute audio

The Features of "-AES" option are:

- 75Ω coaxial (unbalanced) AES inputs (2) on BNC
- One group (4 channels of audio) is de-multiplexed on the incoming digital video
- User selects EITHER the de-embedded audio or the input AES audio
- Audio delay equivalent to video delay (with +S option)
- Additional audio delay of up to 5 seconds
- 2 unbalanced AES audio outputs
- Loss of video modes: pass audio, mute audio
- Bypass relay protection that allows removing the card without re-wiring AES audio

7735CEM/AES/A4 Block Diagrams



Component Video D to A with optional Frame Synchronizer Audio Demux and Audio DAC

Specifications

Analog Broadcast Video Output:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Input: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75Ω
DC Offset: 0V +/- 50mV
Return Loss: >35dB to 10MHz
Frequency Response: 0.1dB to 4 MHz (response will depend on selected filtering)

Differential Phase: < 0.5° (< 0.3° typical)
Differential Gain: < 0.5% (< 0.3% typical)
SNR: >75dB (black video, 100kHz to 5MHz)
Output level control range: ±10%
Black level control range: ±7.5 IRE
Chroma level control range: ±10%
Hue control range: ±15°. (NTSC only)
Minimum Delay: 3μs
Maximum Delay: 1 frame + 3μs (+S option only)

Reference Video Input:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal (0.5V to 1.5V)
Frequency Lock Range: ±75ppm from nominal
Input Impedance: 75Ω or High impedance (jumper selectable)
Return Loss: >25dB to 10MHz
Max Subcarrier Jitter: < 3°
Free-Running Frequency Control Range: > +/- 10 ppm (> +/- 270Hz)

Analog Monitoring Video Output:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75 Ω
Return Loss: >35dB to 10MHz

Serial Video Input:

Standard: SMPTE 259M-C - 525 or 625 line component
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB to 270MHz
Embedded Audio: SMPTE 272M-A
Frequency Lock Range: ±75ppm from nominal
Lock up time on a hot switch: 4 to 6 frames

Analog Audio Outputs (-A4 only):

Number of Outputs: 4
Type: Balanced analog audio
Connector: Two 6 pin removable terminal strips
Output Impedance: 66Ω balanced
Sampling Frequency: 48kHz
Signal Level: 0dBFS => 12 to 25dBu (user settable)
Frequency Response: <+/- 0.05dB (20Hz to 20kHz)
Dynamic range: 24 bits when AES inputs selected, 20 bits when embedded audio selected
THD+N: <0.001% (>100dB) @ 1kHz, -1dBFS
Crosstalk: <-105dB (20Hz to 20kHz)
DC Offset: <+/- 30mV
SNR: >110dB "A" Weighting
Inter-Channel Phase Error: <+/-1° (20Hz to 20kHz)

AES Audio Inputs (A4 and AES only):

Number of Inputs: 2
Input Standard: SMPTE 276M, single ended synchronous or asynchronous PCM AES
Connector: BNC per IEC 60169-8 Amendment 2

Resolution: 24 bits when AES inputs selected, 20 bits when embedded audio is selected
Input Sampling Rate: 32kHz to 48 kHz when AES inputs selected, Synchronous 48kHz when embedded audio is selected
Minimum I/O Delay: 3.5μs

AES Audio Outputs (AES only):

Number of Outputs: 2
Output Standard: SMPTE 276M, single ended synchronous AES
Connector: BNC per IEC 60169-8 Amendment 2
Resolution: 24 bits when AES inputs selected, 20 bits when embedded audio selected
Output Sampling Rate: Synchronous 48kHz
User Bits: Transferred to output in a non-real-time, non-block-contiguous manner
Minimum I/O Delay: 4.5μs

General Purpose In/Out:

Number of Inputs: 2 (behavior is assigned via. on-screen menu items)
Number of Outputs: 2 (behavior is programmable via. on-screen menu items)
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: Female DB-9
Signal Level: +5V nominal

Serial Port:

Standard: RS 232
Connector: Female DB-9
Baud Rate: 57600
Format: 8 bits, no parity, 2 stop bits, no flow control

Electrical:

Voltage: + 12VDC
Power: 9.25 Watts CEM + 16.75 Watts (-A4 option)
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1 for non-audio versions
2 for audio versions (-AES, -A4)

Ordering Information:

7735CEM: Component SDI to composite analog video encoder with optional frame synchronizer
7735CEM-A4: Component SDI to composite analog video and audio encoder with optional frame synchronizer
7735CEM-AES: Component SDI to composite analog video and audio encoder with optional frame synchronizer and two AES inputs and two AES outputs
(not available in standalone enclosure)

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

+S Optional frame synchronizer
Rear Plate Suffix
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Accessories:

7700FC VistaLINK™ Frame Controller
9000NCP 1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2 2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Model 7736CD2



The 7736CD2 line of composite analog video to serial digital converters are dual broadcast quality decoders. High quality audio analog to digital conversion can be packaged with the decoder to create a video/audio frame synchronizer with audio embedder. In addition, control of the card is via an On-Screen-Display, or remotely via Vistalink™ SNMP.

Faroudja 2D adaptive comb filtering technology has been chosen so as not to introduce moving artifacts from the decoding process. This makes it ideal for use in applications where the signal is destined to enter MPEG compressors. "The low level of moving artifacts reduces the bit-rate required to digitally encode the signal for a given picture quality level by up to 20%."¹

Traditional adaptive and non-adaptive 2D comb filters can introduce artifacts in areas of high detail. However, "by using adaptive processing incorporating Faroudja's patented H-logic and V-logic interpolation algorithms to control both the comb filter itself and the narrow and wide band chroma filters, these artifacts are substantially reduced not only on horizontal and vertical edges, but on diagonal edges too. In this way, the chroma filters reduce chroma noise without blurring the signal at sharp transitions in any direction".²

1, 2 Faroudja Laboratories Inc., FLI2000S Data Sheet

Features

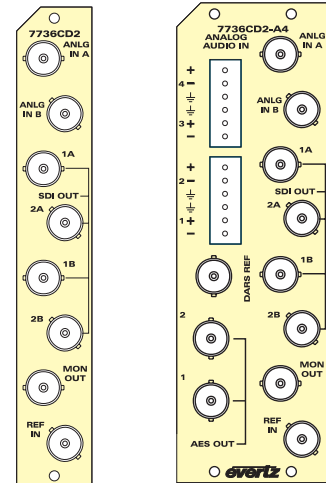
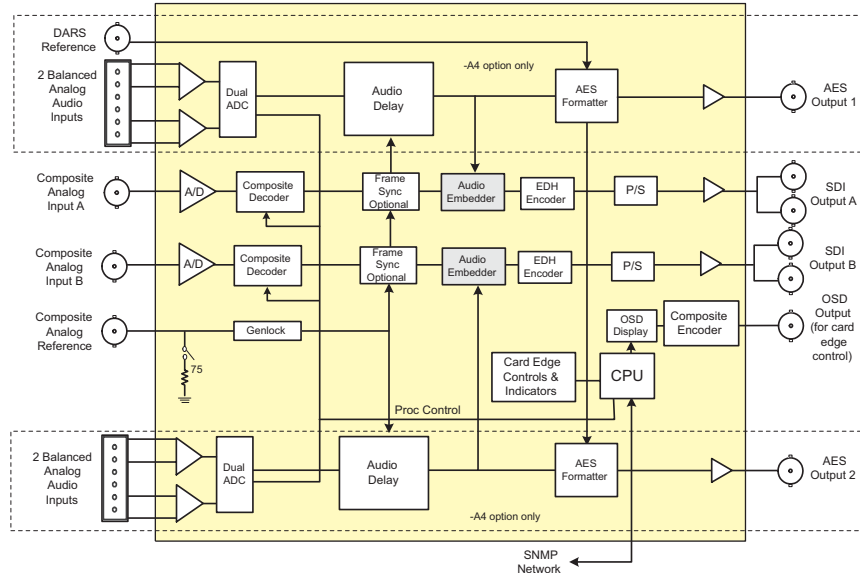
- One input BNC per channel. 75Ω or Hi-Z, jumper configurable input impedance
- Two SDI 525 or 625, 270 Mb/s component digital video output per channel WITHOUT OSD text
- EDH encoding on SDI outputs
- One composite analog video output with OSD text for card control
- One composite analog reference input (NTSC or PAL-B) on BNC. 75Ω or Hi-Z, jumper configurable input impedance. One time base for both channels
- Video frame synchronizer (with +S option)
- Infinitely variable output phase (27MHz clock increments)
- Freeze modes: black, freeze
- Adjustable free running frequency via OSD. Both channels must be free-running to be able to adjust frequency
- A comprehensive on screen display is available to configure the various features of the module
- User configurable luma and chroma detail enhancement
- User selectable noise reduction
- Chroma AGC available, if desired
- User adjustable input video processing functions: black level, gain, hue, and saturation (when chroma AGC is enabled)

The Features of "-A4" Option:

The Features of the Decoding Process:

- 12 bit, 8fsc sampling of input video.
- Internal processing to maintain 10 bit digital video quality
- Patented Faroudja adaptive 2D comb filtering technology
- Mode for support of non-time base corrected signals
- 4 balanced analog audio inputs (two stereo pair) on 2 removable barrier strips
- High impedance inputs (user supplies termination resistors for other impedance's)
- Analog audio input levels are adjustable. Jumpers set coarse input levels, fine input levels are set by software control
- Audio delay equivalent video delay (with +S option)
- Additional audio delay of up to 5 seconds
- Audio advance of up to 1 frame less 2.5 microseconds
- 2 channels (1/2 group) of audio is multiplexed onto each of the outgoing digital video
- 2 unbalanced AES audio outputs delayed equivalently to the associated video
- 75Ω coaxial (unbalanced) DARS reference input on BNC
- Loss of video modes: pass audio, mute audio

7736CD2 Block Diagram



Specifications

Analog Video Input:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Inputs: 1
Connector: 1 BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Frequency Lock Range: ± 75 ppm from nominal
Input level control range: ± 4 dB
Black level control range: ± 5 IRE
Chroma level control range: $\pm 20\%$ (only available if chroma AGC enabled)
Hue control range: $\pm 20^\circ$ (NTSC only)
Input Impedance: 75 Ω or High impedance (jumper selectable)
Return Loss: > 35 dB to 10MHz
Lock up time on a hot switch: Between 15 and 45 frames (may be longer with noisy signals)

Reference Video Input:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Inputs: 1
Connector: 1 BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Frequency Lock Range: ± 75 ppm from nominal
Input Impedance: 75 Ω or High impedance (jumper selectable)
Return Loss: > 25 dB to 10MHz

Analog Monitoring Video Output:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Outputs: 1
Connector: 1 BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75 Ω
Return Loss: > 35 dB to 10MHz

Serial Video Output:

Standard: SMPTE 259M-C - 525 or 625 line component.
Number of Outputs: 4 (2 per channel)
Connector: 1 BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5 V
Rise and Fall Time: 900ps nominal
Overshoot: $< 10\%$ of amplitude
Return Loss: > 15 dB to 270MHz
Jitter: < 0.09 UI (all outputs)
Embedded Audio: SMPTE 272M-A

Decoder Performance (SDI outputs only):

Frequency Response: $< \pm 0.1$ dB (100kHz to 4.2MHz)
Differential Gain: $< \pm 0.5\%$ typical
Differential Phase: $< \pm 0.2^\circ$ typical
Noise Floor: < -57 dB rms (black video, 15kHz to 5MHz)
 < -60 dB rms (VBI lines, black video, 15kHz to 5MHz)
 $< \pm 0.5\%$
C/L Gain: $< \pm 9$ ns
C/L Delay: 3.25 lines
Minimum Delay: 1 frame plus 3.25 lines
Maximum Delay: Within noise floor measurement
Inter-channel crosstalk: Within noise floor measurement

Analog Audio Input (-A4 only):

Number of Inputs: 4 (2 per video channel)
Type: Balanced analog audio
Connector: Removable terminal strip
Input Impedance: 20k Ω minimum (differential)
Sampling Frequency: 48kHz
Signal Level: 0dB FS \Rightarrow 18 or 24dBu (jumper selectable)
Level Control Range: ± 10 dB
Frequency Response: ± 0.1 dB (20Hz to 20kHz) (broadcast quality)
SNR: 100dB with input at -0.5dBFS
THD+N: $< 0.001\%$ (> 100 dB) @ 1kHz, -0.5 dB FS (rev 2)
 $< 0.001\%$ (> 100 dB) @ 20Hz to 20kHz, -0.5 dB FS (input video locked to genlock video)
CMRR: > 100 dB @ 1kHz

AES Audio Outputs:

Number of Outputs: 2 (1 per channel)
Output Standard: SMPTE 276M, single ended synchronous AES
Connectors: 1 BNC per IEC 60169-8 Amendment 2
Resolution: 24 bits
Sampling Rate: synchronous 48kHz
Minimum I/O Delay: 2.1ms
Maximum I/O Delay: 2.5 seconds

Electrical:

Voltage: + 12VDC
Power: 12 Watts CD2 + 9 Watts (-A4 option) = 21 Watts total
EMI/RFI: Complies with FCC Part 15, Class A
 EU EMC directive

Physical:

7700 frame mounting: 1 for non-audio version
Number of slots: 2 for audio version

Ordering Information:

7736CD2 Dual Composite Decoder
7736CD2-A4 Dual Composite Decoder with 4 analog outputs

Ordering Options

Rear Plate must be specified at time of order
 Eg: Model + 3RU

+S

Optional Frame Synchronizer

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Composite Analog Video A to D Converter with optional Frame Synchronizer

Model 7736CDM (-A4)



The 7736CDM line of composite analog video to serial digital converters are broadcast quality decoders with an extensive list of additional features. High quality audio analog to digital conversion can be packaged with the decoder to create a video/audio frame synchronizer with audio embedder. In addition, Evertz fault monitoring processing will analyze and report video and audio problems via an On-Screen-Display, or remotely via Vistalink™ SNMP.

Faroudja 2D adaptive comb filtering technology has been chosen to not introduce moving artifacts from the decoding process. This makes it ideal for use in applications where the signal is destined to enter MPEG compressors. "The low level of moving artifacts reduces the bit-rate required to digitally encode the signal for a given picture quality level by up to 20%."

Traditional adaptive and non-adaptive 2D comb filters can introduce artifacts in areas of high detail. However, "by using adaptive processing incorporating Faroudja's patented H-logic and V-logic interpolation algorithms to control both the comb filter itself and the narrow and wide band chroma filters, these artifacts are substantially reduced not only on horizontal and vertical edges, but on diagonal edges too. In this way, the chroma filters reduce chroma noise without blurring the signal at sharp transitions in any direction."

Features

The Features of the decoding process:

- 10 bit, 8fsc sampling of input video
- Internal processing to maintain 10 bit digital video quality
- Patented Faroudja adaptive 2D comb filtering technology
- Mode for support of non-time base corrected signals
- User configurable luma and chroma detail enhancement
- User selectable noise reduction
- Chroma AGC available, if desired
- User adjustable input video processing functions: black level, gain, hue, and saturation (when chroma AGC is enabled)

- Flexible configuration of the text and audio bar graph information displays
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
- On screen messages can be triggered by the configured fault conditions

• VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

The Features of all 7736CDM's are:

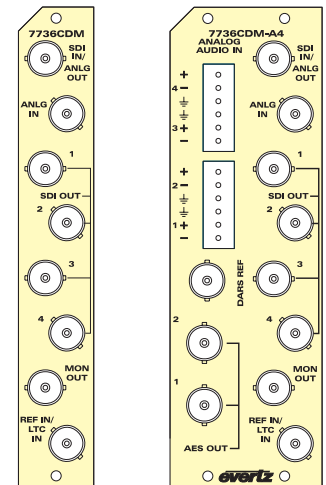
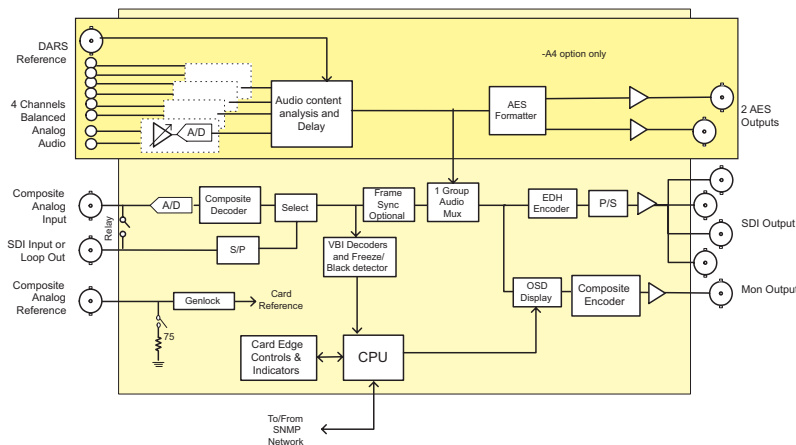
- Flexible input options for hybrid analog and digital plants/studios. Two input BNCs that can be configured either as; one composite analog loop input (NTSC or PAL-B) or a dual input with one channel of SDI and one channel of composite analog video (selectable)
- Four SDI 525 or 625, 270 Mb/s component digital video output WITH OUT OSD text or audio bargraphs
- One composite analog video output with OSD text and bargraph graphics
- EDH encoding on SDI output
- One composite analog reference input (NTSC or PAL-B) on BNC. 75Ω or high-Z, jumper configurable input impedance
- One frame video synchronizer (with +S option)
- Infinitely variable output phase (27MHz clock increments)
- Freeze modes: black, freeze
- Adjustable free running frequency via OSD
- VU/PPM bargraph level Indicators
- Decodes vertical interval time code (VITC) and "burns" the time code into the picture
- Decodes PESA format Source ID (8 characters) or Evertz format VITC Source ID (5 or 9 characters) and burns the ID into the picture
- A comprehensive on screen display is available to configure the various features of the module

The Features of "-A4" option are:

- 4 balanced analog audio inputs on 2 removable barrier strips
- High impedance inputs (user supplies termination resistors for other impedance's)
- Analog audio input levels are adjustable. Jumpers set coarse input levels, fine input levels are set by software control
- Audio delay equivalent video delay (with +S option)
- Additional audio delay of up to 5 seconds
- Audio advance of up to 1 frame less 3 microseconds
- One group (4 channels of audio) is multiplexed on the outgoing digital video
- 2 unbalanced AES audio outputs delayed equivalently to the video delay
- 75Ω coaxial (unbalanced) DARS reference input on BNC
- Loss of video modes: pass audio, mute audio

Composite Analog Video A to D Converter with optional Frame Synchronizer

7736CDM Block Diagram



Specifications

Analog Video Input:

Standard: NTSC, SMPTE 170M
PAL, ITU624-4

Number of Inputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1V nominal

Frequency Lock Range: ± 75 ppm from nominal

Input level control range: ± 5 dB

Black level control range: ± 5 IRE

Chroma level control range: $\pm 20\%$ (only available if chroma AGC enabled)

Hue control range: $\pm 20^\circ$ (NTSC only)

Input Impedance: 75 Ω or High impedance (depending on input mode)

Return Loss: > 35 dB to 10MHz

Lock up time on a hot switch: Between 15 and 45 frames (may be longer with noisy signals)

Serial Video Inputs:

Standard: SMPTE 259M-C - 525 or 625 line component.

Number of Inputs: 1

Number of re-clocked outputs: 0

Connector: BNC per IEC 60169-8 Amendment 2

Return Loss: > 15 dB to 300MHz

Embedded Audio: SMPTE 272M-A

Frequency Lock Range: ± 75 ppm from nominal

Reference Video Input:

Standard: NTSC, SMPTE 170M
PAL, ITU624-4

Number of Inputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1V nominal

Frequency Lock Range: ± 75 ppm from nominal

Input Impedance: 75 Ω or High impedance (jumper selectable)

Return Loss: > 25 dB to 10MHz

Analog Monitoring Video Output:

Standard: NTSC, SMPTE 170M
PAL, ITU624-4

Number of Outputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1V nominal

Output Impedance: 75 Ω

Return Loss: > 35 dB to 10MHz

Serial Video Output:

Standard: SMPTE 259M-C - 525 or 625 line component.

Number of Outputs: 4

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V ± 0.5 V

Rise and Fall Time: 900ps nominal

Overshoot: $< 10\%$ of amplitude

Return Loss: > 15 dB to 270MHz

Embedded Audio: SMPTE 272M-A

Decoder Performance (SDI output only):

Frequency Response: $< \pm 0.1$ dB (100kHz to 4.2MHz)

Differential Gain: $< \pm 0.5\%$ typical

Differential Phase: $< \pm 0.2^\circ$ typical

Noise Floor: < -56 dBms (black video, 15kHz to 5MHz)
 < -60 dBms (VBI lines, black video, 15kHz to 5MHz)

C/L Gain: $< \pm 0.5\%$

C/L Delay: $< \pm 9$ ns

Minimum Delay: 3.25 lines

Maximum Delay: 1 frame plus 3.25 lines (+S option only)

Analog Audio Input (-A4 only):

Number of Inputs: 4

Type: Balanced analog audio

Connector: Removable terminal strip

Input Impedance: 20k Ω minimum (differential)

Sampling Frequency: 48kHz

Signal Level: 0dB FS \Rightarrow 18 or 24dBu (jumper selectable)

Level Control Range: ± 10 dB

Frequency Response: ± 0.1 dB (20Hz to 20kHz) (broadcast quality)

SNR: 100dB with input at -0.5dBFS

THD+N: $< 0.001\%$ (> 100 dB) @ 20Hz to 20kHz, -0.5 dB FS (input video locked to genlock video)

CMRR: > 100 dB @ 1kHz

AES Audio Outputs (-A4 version only):

Number of Outputs: 2

Output Standard: SMPTE 276M, single ended synchronous AES

Connectors: BNC per IEC 60169-8 Amendment 2

Resolution: 24 bits

Sampling Rate: synchronous 48kHz

Minimum I/O Delay: 2.1ms

Maximum I/O Delay: 5 seconds

Electrical:

Voltage: + 12VDC

Power: 10 Watts CDM + 9 Watts (-A4 option) = 19 Watts total

EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 frame mounting: 1 for non-audio version

Number of slots: 2 for audio version

Stand Alone Enclosure:

Dimensions: 14 " L x 4.5 " W x 1.9 " H
(355 mm L x 114 mm W x 48 mm H)

Weight: approx. 1.5 lbs. (0.7 Kg)

Ordering Information:

7736CDM Composite analog video to SDI decoder with auxiliary SDI input, OSD and VistaLINK™ monitoring with optional frame synchronizer

7736CDM-A4 Composite analog video to SDI decoder with auxiliary SDI input, analog audio to embedded and AES and OSD, with optional frame synchronizer, and VistaLINK™ monitoring, control & fault reporting

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

+S

Optional frame synchronizer

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

+SA Standalone Enclosure Rear Plate

Accessories:

7700FC VistaLINK™ Frame Controller

9000NCP 1RU VistaLINK™ General Purpose Network Control Panel

9000NCP2 2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

7701FR 1RU Multiframe which holds 3 modules

S7701FR Standalone enclosure

Dual Composite Encoder



Model 7736CE2

The 7736CE2 component serial digital to composite analog video converters are broadcast quality encoders with an extensive list of additional features. An audio de-embedder with high quality audio digital to analog conversion can be purchased with the encoder to create a video/audio frame synchronizer/conversion package. In addition, control of card is via an On-Screen-Display or remotely via VistaLINK™ SNMP.

Features

- Two component serial digital inputs (525 or 625).
- One composite analog video output per channel WITHOUT OSD text
- Internal processing to maintain 10 bit digital video quality.
- 12 bit output video digital to analog conversion.
- One monitoring quality video output with OSD text for card configuration.
- User adjustable output video processing functions: black level (brightness), gain (contrast), hue, and saturation.
- User selectable luminance and chrominance filters for different applications (i.e. broadcast vs. studio).
- User selectable horizontal blanking interval width: narrow, normal.
- One composite analog reference input (NTSC or PAL-B) on BNC 75Ω or high-Z, jumper configurable input impedance.
- Video Frame synchronizer (with +S option).
- Infinitely variable output phase.
- Freeze modes: black, freeze.
- Adjustable free running frequency. Both channels must be free running to be able to adjust frequency.
- A comprehensive on screen display is available to configure the various features of the module.

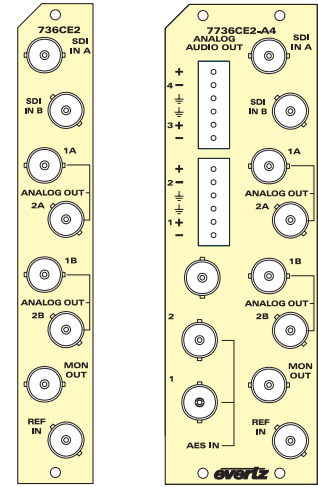
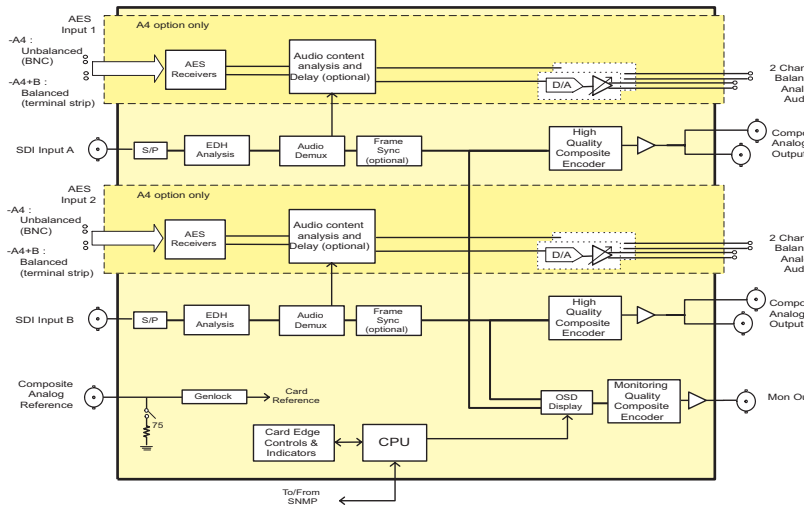
The Features of "-A4" Option:

Note: These are the features for each associated video channel.

- One half group (2 channels) of synchronous 20-bit audio is de-multiplexed from the incoming digital video.
- 1 unbalanced (or balanced) AES audio input (up to 48kHz, 24 bits) on BNC (or terminal strip for balanced audio).
- User selects EITHER the de-embedded audio or the input AES audio.
- The selected audio is delayed equivalently to the video delay with the +S option.
- 2 high quality 24 bit audio channels are output (analog) as balanced on 2 removable barrier strips.
- Low impedance outputs (66Ω).
- Analog audio output levels are adjustable.
- Additional audio delay of up to 2.5 seconds.
- Additional audio advance of up to 1 frame, depending on video delay.
- Loss of video modes: pass audio, mute audio.

Dual Composite Encoder

7736CE2 Block Diagram



Specifications

Serial Video Output:

Standard: SMPTE 259M-C - 525 or 625 line component.
Number of Inputs: 2
Number of re-clocked outputs: 0
Connector: BNC per IEC 60169-8 Amendment 2
Return Loss: >15dB to 270MHz
Embedded Audio: SMPTE 272M-A
Frequency Lock Range: ±75ppm from nominal
Lock up time on a hot switch: TBD

Analog Broadcast Video Output:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Inputs: 2 per input video
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75Ω
DC Offset: 0V +/- 50mV
Return Loss: >45dB to 10MHz
Frequency Response: <+/- 0.1dB to 4 MHz (response will depend on selected filtering)
Differential Phase: < 0.5° (< 0.3° typical)
Differential Gain: < 0.5% (< 0.3% typical)
SNR: >75dB (both channels black video, 100kHz to 5MHz)
Output level control range: ±10%
Black level control range: ±7.5 IRE
Chroma level control range: ±10%
Hue control range: ±15 deg. (NTSC only)
Minimum Delay: 3 μs
Maximum Delay: 1 frame + 3 μs (+S option only)

Reference Video Input:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal (0.5V to 1.5V)
Frequency Lock Range: ±75ppm from nominal
Input Impedance: 75Ω or High impedance (jumper selectable)
Return Loss: >25dB to 10MHz
Max Subcarrier Jitter: < 3 degrees
Free-Running Frequency Control Range: > +/- 10ppm (> +/- 270Hz)

Analog Monitoring Video Output:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75Ω
Return Loss: >35dB to 10MHz

Analog Audio Outputs (-A4 only):

Number of Outputs: 4 (2 per video channel)
Type: Balanced analog audio
Connector: Two 6 pin removable terminal strips
Output Impedance: 60Ω balanced
Sampling Frequency: 48kHz
Signal Level: 0dBFS => 12 to 25dBu (user settable)
Frequency Response: <+/- 0.05dB (20Hz to 20kHz)

Dynamic range:

24 bits when AES inputs selected, 20 bits when embedded audio selected
THD+N: <0.001% (>100dB) @ 1kHz, -1dBFS
Crosstalk: <-105dB (20Hz to 20kHz)
DC Offset: <+/- 30mV
SNR: >110dB "A" Weighting
Inter-Channel Phase Error: <+/- 1° (20Hz to 20kHz)

Unbalanced AES Audio Inputs (-A4 only)

Number of Inputs: 2
Input Standard: SMPTE 276M, single ended synchronous or asynchronous PCM AES
Connectors: BNC per IEC 60169-8 Amendment 2
Resolution: Up to 24 bits
Input Sampling Rate: 32kHz to 48 kHz
Minimum I/O Delay: 3.5msec

Balanced AES Audio Inputs (-A4+B only)

Number of Inputs: 2
Input Standard: AES3-1992, balanced synchronous or asynchronous PCM AES
Connectors: One 6 pin removable terminal strip
Impedance: 110Ω
Resolution: Up to 24 bits
Sampling Rate: 32kHz to 48 kHz
Input Level: 2V to 7V p-p
Minimum I/O Delay: 3.5msec

Electrical:

Voltage: + 12VDC
Power: 10.2 Watts (7736CE2) 17.75 Watts (-A4 or -A4+B option)
EMI/RFI: Complies with FCC Part 15, class A and EU EMC directive.

Physical:

7700 frame mounting:
Number of slots: 1 for non-audio versions
2 for audio version (-A4, -A4+B)

Ordering Information:

7736CE2 Dual Composite Encoder
7736CE2-A4 Dual Composite Encoder with 4 analog outputs

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

+S Optimal Frame Synchronizer

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Component SDI to Composite Analog Video Encoder with optional Frame Synchronizer



Model 7736CEM, (-A4)

The 7736CEM line of component serial digital to composite analog video converters are broadcast quality encoders with an extensive list of additional features. An audio de-embedder with high quality audio digital to analog conversion can be packaged with the encoder to create a video/audio frame synchronizer/conversion package.

The 7736CEM product features various video processing functions such as VITC, closed captioning and SID extraction during the encoding process, as well as monitoring video for black and freeze conditions. The audio is processed, to extract level information for creating and displaying level and phase bar graphs. In addition, the audio is analyzed for periods of high level, silence, mono, and out-of-phase conditions. All of this status information is displayed on the monitoring analog output via on-screen display (OSD) overlay.

VistaLINK™ enables remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage operations including signal monitoring and module configuration from SNMP enabled control systems (Manager or NMS) locally or remotely.

Features

The features of all 7736CEM's are:

- One component serial digital input (525 or 625)
- One re-clocked component serial digital output
- EDH analysis on SDI input
- Four composite analog video outputs WITHOUT OSD text or audio bargraphs
- Internal processing to maintain 10 bit digital video quality
- 12 bit output video digital to analog conversion
- One monitoring quality video output with OSD text and bargraph graphics
- User adjustable output video processing functions: black level (brightness), gain (contrast), hue, and saturation
- User selectable luminance and chrominance filters for different applications (i.e. broadcast vs. studio)
- User selectable horizontal blanking interval width: narrow, normal.
- One composite analog reference input (NTSC or PAL-B) on BNC. 75Ω or high-Z, jumper configurable input impedance
- One frame video synchronizer (with +S option)
- Infinitely variable output phase
- Freeze modes: black, freeze
- Adjustable free running frequency
- Built-in colour bar generator
- VU/PPM bargraph level Indicators
- Decodes vertical interval time code (VITC) and "burns" the time code into the picture
- Decodes PESA format Source ID (8 characters) or Evertz format

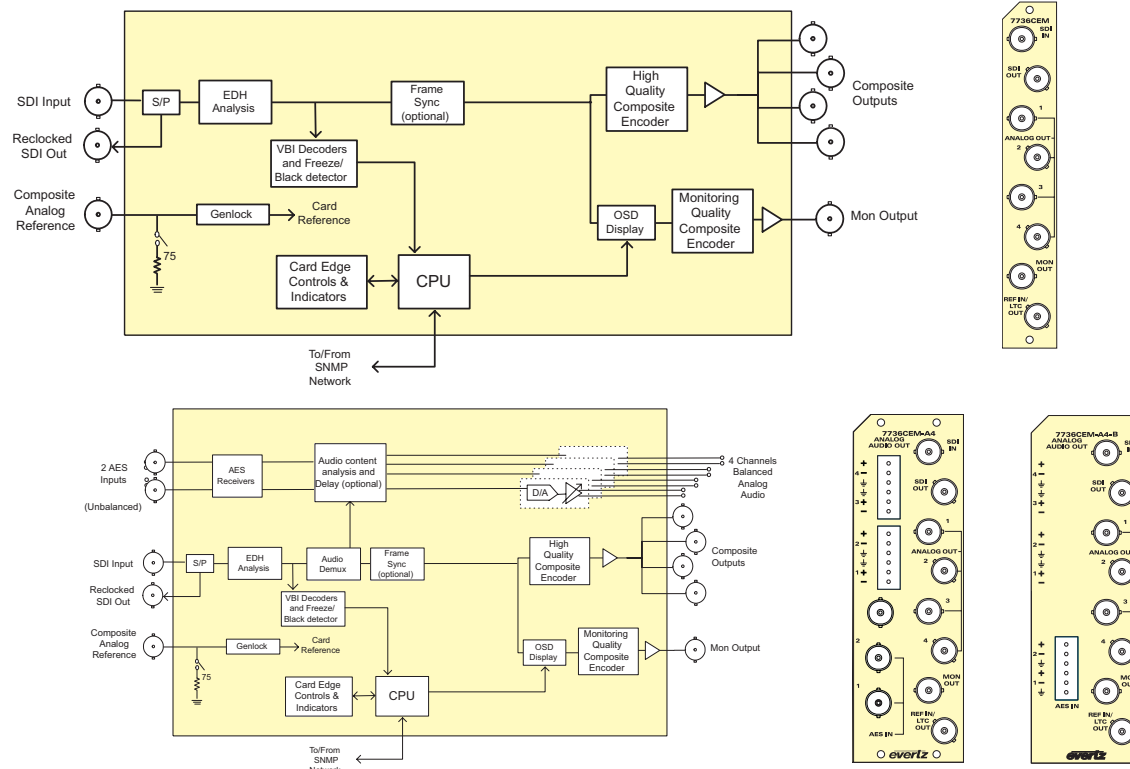
- VITC Source ID (5 or 9 characters) and burns the ID into the picture
- A comprehensive on screen display is available to configure the various features of the module
- Flexible configuration of the text and audio bar graph information displays
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
- On screen messages can be triggered by the configured fault conditions

- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

The Features of "-A4" version are:

- One group (4 channels) of synchronous 20-bit audio is de-multiplexed from the incoming digital video
- 2 unbalanced AES audio inputs (up to 48kHz, 24 bits) on BNC terminal strip
- User selects EITHER the de-embedded audio or the input AES audio
- The selected audio is delayed equivalently to the video delay with the +S option
- 4 high quality 24 bit audio channels are output (analog) as balanced on 2 removable barrier strips
- Low impedance outputs (66Ω)
- Analog audio output levels are adjustable
- Additional audio delay of up to 5 seconds
- Additional audio advance of up to 1 frame, depending on video delay
- Loss of video modes: pass audio, mute audio
- Optional balanced AES audio inputs (+B option)

7736CEM/A4 Block Diagrams



Component SDI to Composite Analog Video Encoder with optional Frame Synchronizer

Specifications

Analog Broadcast Video Output:

Standard:	NTSC, SMPTE 170M PAL, ITU624-4
Number of Inputs:	4
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	1V nominal
Output Impedance:	75Ω
DC Offset:	0V +/- 50mV
Return Loss:	>35dB to 10MHz
Frequency Response:	0.1dB to 4 MHz (response will depend on selected filtering)
Differential Phase:	< 0.5° (< 0.3° typical)
Differential Gain:	< 0.5% (< 0.3% typical)
SNR:	>75dB (black video, 100kHz to 5MHz)
Output level control range:	±10%
Black level control range:	±7.5 IRE
Chroma level control range:	±10%
Hue control range:	±15° (NTSC only)
Minimum Delay:	3μs
Maximum Delay:	1 frame + 3μs (+S option only)

Reference Video Input:

Standard:	NTSC, SMPTE 170M PAL, ITU624-4
Number of Inputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	1V nominal (0.5V to 1.5V)
Frequency Lock Range:	±75ppm from nominal
Input Impedance:	75Ω or High impedance (jumper selectable)
Return Loss:	>25dB to 10MHz
Max Subcarrier Jitter:	< 3°
Free-Running Frequency Control Range:	> +/- 10 ppm (> +/- 270Hz)

Analog Monitoring Video Output:

Standard:	NTSC, SMPTE 170M PAL, ITU624-4
Number of Outputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	1V nominal
Output Impedance:	75Ω
Return Loss:	>35dB to 10MHz

Serial Video Input:

Standard:	SMPTE 259M-C - 525 or 625 line component
Number of Inputs:	1
Number of Reclocked Inputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	900ps nominal
Overshoot:	<10% of amplitude
Return Loss:	>15dB to 270MHz
Embedded Audio:	SMPTE 272M-A
Frequency Lock Range:	±75ppm from nominal
Lock up time on a hot switch:	TBD

Analog Audio Outputs (-A4 version only):

Number of Outputs:	4
Type:	Balanced analog audio
Connector:	Two 6 pin removable terminal strips
Output Impedance:	66Ω balanced
Sampling Frequency:	48kHz
Signal Level:	0dBFS => 12 to 25dBu (user settable)
Frequency Response:	<+/- 0.05dB (20Hz to 20kHz)
Dynamic range:	24 bits when AES inputs selected, 20 bits when embedded audio selected
THD+N:	<0.001% (>100dB) @ 1kHz, -1dBFS
Crosstalk:	<-105dB (20Hz to 20kHz)
DC Offset:	<+/- 30mV
SNR:	>110dB "A" Weighting
Inter-Channel Phase Error:	<+/-1° (20Hz to 20kHz)

Unbalanced AES Audio Inputs (-A4 version only):

Number of Inputs:	2
Input Standard:	SMPTE 276M, single ended synchronous or asynchronous PCM AES
Connector:	BNC per IEC 60169-8 Amendment 2
Resolution:	24 bits when AES inputs selected, 20 bits when embedded audio is selected
Input Sampling Rate:	32kHz to 48 kHz when AES inputs selected, Synchronous 48kHz when embedded audio is selected
Minimum I/O Delay:	3.5μs

Balanced AES Audio Inputs (+B option):

Number of Inputs:	2
Input Standard:	AES3-1992, balanced synchronous or asynchronous PCM AES
Connectors:	One 6 pin removable terminal strip
Impedance:	110Ω
Resolution:	Up to 24 bits
Sampling Rate:	32kHz to 48 kHz
Input Level:	2V to 7V p-p
Minimum I/O Delay:	3.5ms

Electrical:

Voltage:	+ 12VDC
Power:	9.25 Watts CEM + 16.75 Watts (-A4 or +B option)
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of slots:	1 for non-audio versions 2 for audio version -A4 and +B option
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Ordering Information:

7736CEM	Component SDI to composite analog video encoder (optional Frame Synchronizer available)
7736CEM-A4	Component SDI to composite analog video encoder with quad audio DAC (audio source is embedded or from dual unbalanced AES inputs) (optional Frame Synchronizer available)

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

+B	Balanced audio on 7736CEM-A4
+S	Optional frame synchronizer

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Composite Encoder with Image Enhancement

Model 7737CE



The 7737CE line of component serial digital to composite analog video converters are broadcast quality encoders with image enhancement processing to sharpen video images. An audio de-embedder with high quality audio digital to analog conversion can be purchased with the encoder to create a video/audio frame synchronizer/conversion package. In addition, control of the module is via On-Screen-Display (OSD), or remotely via VistaLINK™ SNMP.

Selected high frequency information is removed from the video for enhancement and then added back onto the video to create a sharper looking image. An adjustable parameter allows user control over the gain (how much to increase edges and high frequency content). When large enhancement gain is needed to bring out small details it is not desirable to enhance large contrast edges, possible creating edge ringing. For this reason, there is a control to set the upper limit of the amount of enhancement to apply to the video. In addition, there are a couple of parameters that allow the "gating" of low amplitude video so that low level noise is not "enhanced".

Features

The features of all 7737CE's are:

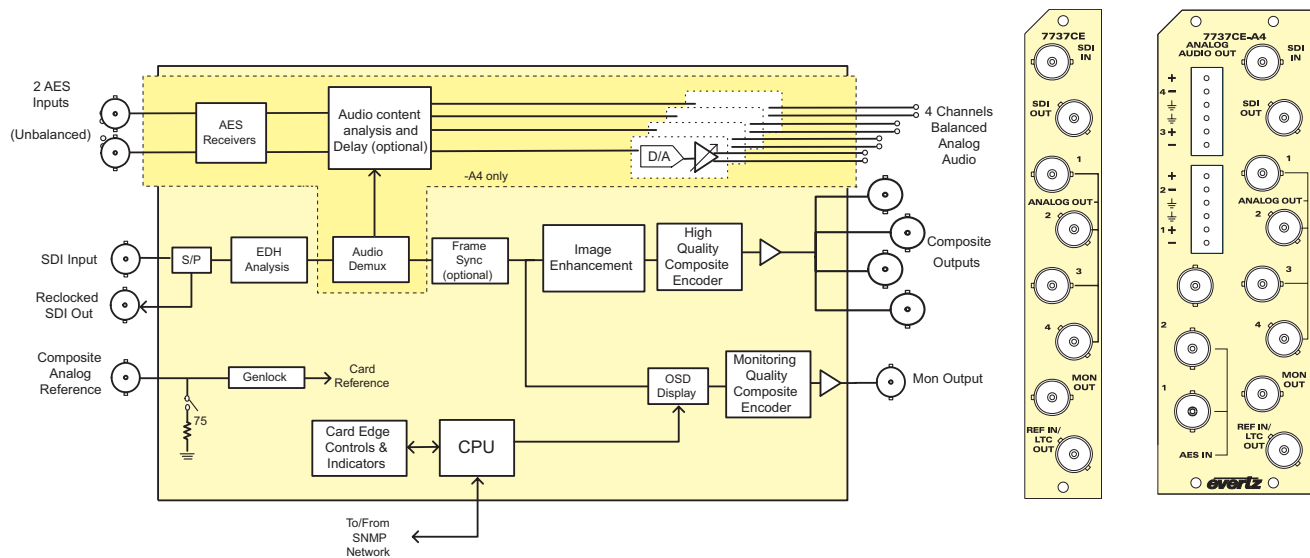
- One component serial digital input (525 or 625)
- One re-clocked component serial digital output
- EDH analysis on SDI input
- Four composite analog video outputs WITHOUT OSD text
- Internal processing to maintain 10 bit digital video quality
- 10 bit output video digital to analog conversion
- One monitoring quality video output with OSD text
- User adjustable output video processing functions: black level (brightness), gain (contrast), hue, and saturation
- User configurable image enhancement controls; enhancement gain, maximum allowable enhancement, frequency selectivity of enhancement, and noise gating so that noise is not enhanced.
- User selectable luminance and chrominance filters for different applications (i.e. broadcast vs. studio).
- User selectable horizontal blanking interval width: narrow, normal
- One composite analog reference input (NTSC or PAL-B) on BNC 75Ω or high-Z, jumper configurable input impedance
- One frame video synchronizer (with +S option)
- Infinitely variable output phase
- Freeze modes: black, freeze
- Adjustable free running frequency
- Built-in colour bar generator
- A comprehensive on screen display is available to configure the various features of the module

The Features of "-A4" option are:

- One group (4 channels) of synchronous 20-bit audio is de-multiplexed from the incoming digital video
- 2 unbalanced AES audio inputs (up to 48kHz, 24 bits) on BNC
- User selects EITHER the de-embedded audio or the input AES audio
- The selected audio is delayed equivalently to the video delay with the +S option
- 4 high quality 24 bit audio channels are output (analog) as balanced on 2 removable barrier strips.
- Low impedance outputs (66Ω)
- Analog audio output levels are adjustable
- Additional audio delay of up to 5 seconds
- Additional audio advance of up to 1 frame, depending on video delay
- Loss of video modes: pass audio, mute audio

Composite Encoder with Image Enhancement

7737CE Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C - 525 or 625 line component.
Number of Inputs: 1
Number of re-clocked outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Return Loss: >15dB to 270MHz
Embedded Audio: SMPTE 272M-A
Frequency Lock Range: ± 75 ppm from nominal
Lock up time on a hot switch: TBD

Analog Broadcast Video Output:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Inputs: 4
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75 Ω
DC Offset: 0V \pm 50mV
Return Loss: >45dB to 10MHz
Frequency Response: <+/- 0.1dB to 4 MHz (response will depend on selected filtering)
Differential Phase: < 0.5° (< 0.3° typical)
Differential Gain: < 0.5% (< 0.3% typical)
SNR: >75dB (black video, 100kHz to 5MHz)
Output level control range: $\pm 10\%$
Black level control range: ± 7.5 IRE
Chroma level control range: $\pm 10\%$
Hue control range: ± 15 deg. (NTSC only)
Minimum Delay: 3 μ s
Maximum Delay: 1 frame + 3 μ s (+S option only)

Reference Video Input:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal (0.5V to 1.5V)
Frequency Lock Range: ± 75 ppm from nominal
Input Impedance: 75 Ω or High impedance (jumper selectable)
Return Loss: >25dB to 10MHz
Max Subcarrier Jitter: < 3 degrees
Free-Running Frequency Control Range: > +/- 10ppm (> +/- 270Hz)

Analog Monitoring Video Output:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75 Ω
Return Loss: >35dB to 10MHz

Analog Audio Outputs (-A4 only):

Number of Outputs: 4
Type: Balanced analog audio
Connector: Two 6 pin removable terminal strips
Output Impedance: 66 Ω balanced
Sampling Frequency: 48kHz
Signal Level: 0dBFS \Rightarrow 12 to 25dBu (user settable)
Frequency Response: <+/- 0.05dB (20Hz to 20kHz)

Dynamic range:

24 bits when AES inputs selected, 20 bits when embedded audio selected
THD+N: <0.001% (>100dB) @ 1kHz, -1dBFS
Crosstalk: <-105dB (20Hz to 20kHz)
DC Offset: <+/- 30mV
SNR: >110dB "A" Weighting
Inter-Channel Phase Error: <+/- 1° (20Hz to 20kHz)

Unbalanced AES Audio Inputs (-A4 only)

Number of Inputs: 2
Input Standard: SMPTE 276M, single ended synchronous or asynchronous PCM AES
Connectors: BNC per IEC 60169-8 Amendment 2
Resolution: Up to 24 bits
Input Sampling Rate: 32kHz to 48 kHz
Minimum I/O Delay: 3.5msec

Electrical:

Voltage: + 12VDC
Power: 9.25 Watts (7737CE) 16.75 Watts (-A4 option)
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC directive

Physical:

7700 frame mounting:
Number of slots: 1 for non-audio versions
2 for audio version (-A4)

Ordering Information:

7737CE Composite Encoder with Image Enhancement
7737CE-A4 Composite Encoder with Image Enhancement and 4 Analog Audio Outputs

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

+S Optimal Frame Synchronizer

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure



Model 7742DLY

The 7742DLY is a full function SDI Video Delay module designed for applications such as: satellite uplink, signal re-entry on master control inputs, at cable headends, mobile vehicle outputs, broadcast transmitter inputs, virtual sets and matching delays caused by multi-channel audio compression.

The 7742DLY will delay all VBI and Ancillary data including embedded audio along with the video. The 7742DLY is capable of up to 2.3 seconds of delay. The delay can be set in frames, lines and samples or in seconds.

With the broadcast environment in mind, the module features bypass relay protection on one output.

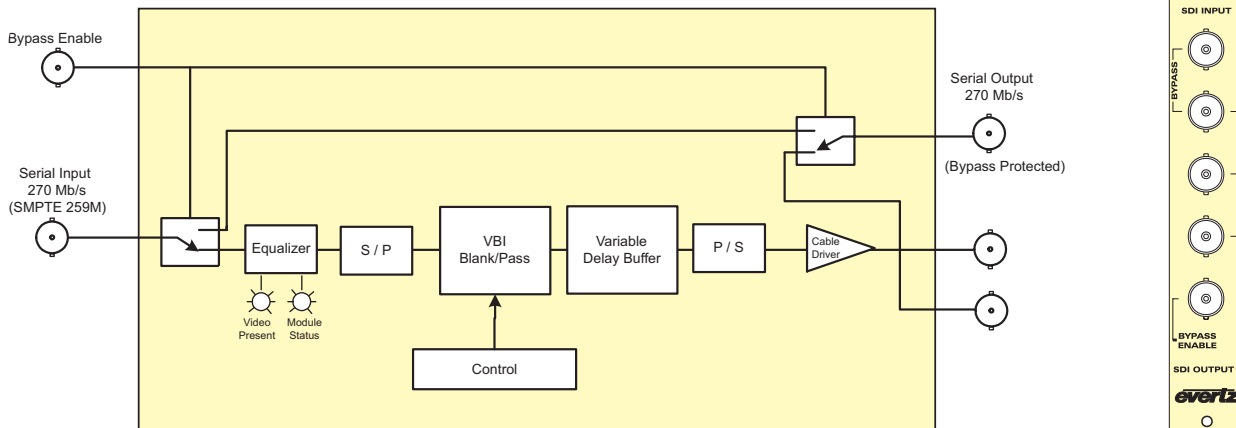
The 7742DLY module is housed in a 3RU frame that will hold up to 15 modules, a 1RU frame that will hold up to 3 modules or a standalone enclosure which will hold 1 module.

Features

- Full signal delay capability including VBI and ANC DATA
- Setup via on screen menu
- Delay programmable in frames, lines and samples or in seconds
- Dual standard, 525 or 625
- Bypass relay for program path protection on power loss
- Up to 2.3 seconds of delay

- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

7742DLY Block Diagram



Specifications

Serial Video Inputs:

Standard: SMPTE 259M-C (270 Mb/s)
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 210m with Belden 8281 or equivalent cable
Return Loss: > 15 dB up to 270 Mb/s

Serial Video Outputs:

Number of Outputs: 1 with relay bypass, 3 additional outputs
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 740ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 540 Mb/s
Wide Band Jitter: < 0.2 UI

Electrical:

Voltage: +12VDC
Power: 6 Watts
Safety: ETL Listed
 Complies with EU safety directives
EMI/RFI: Complies with FCC Part 15, Class A
 EU EMC Directive

Physical:

Number of Slots: 1

Functional:

Minimum Delay: 815 ns (22 samples)
Maximum Delay: 525 line: 70 frames, 625 line: 59 frames (approx 2.3 secs)

Ordering Information:

7742DLY SDI Video Delay (2.3 seconds max)

Ordering Options

Rear Plate must be specified at time of order
 Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

7700FC VistaLINK™ Frame Controller
9000NCP 1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2 2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone Enclosure

HD/SD Video Delay



Model 7743DLY-HD

The 7743DLY-HD is a full function HD/SD Video Delay module designed for applications such as: satellite uplink, signal re-entry on master control inputs, at cable headends, mobile vehicle outputs, broadcast transmitter inputs, virtual sets and matching delays caused by multi-channel audio compression.

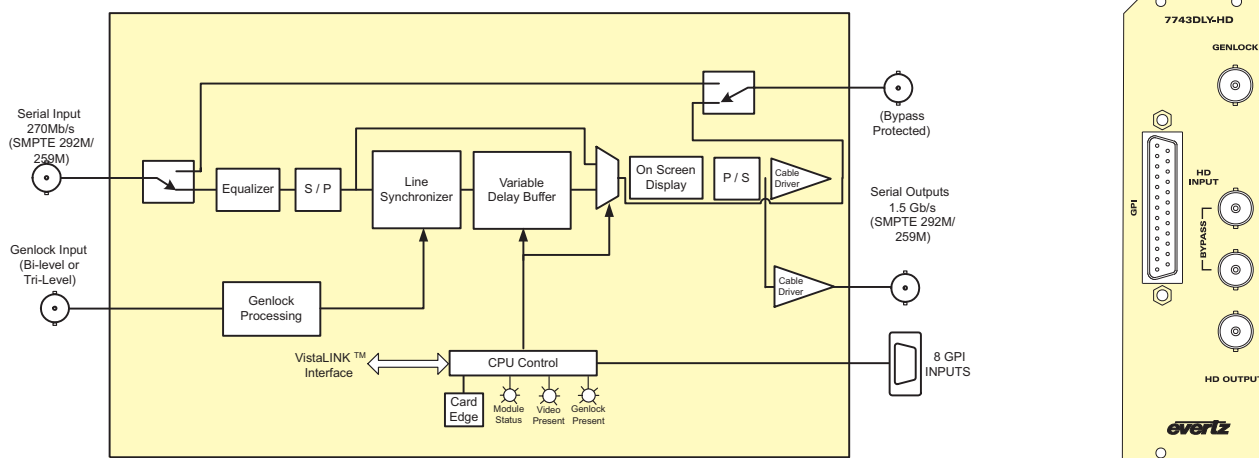
The 7743DLY-HD can act as a delay for standard definition SMPTE 259M video or for high definition. The same technology built on our clean switch router line is utilized here.

The 7743DLY-HD is capable of up to 3.2 seconds of delay for HD and up to 16.5 seconds of delay for SD. With the broadcast environment in mind, the modules feature bypass relay protection on output. The 7743DLY-HD module is housed in a 3RU frame that will hold up to 7-7743DLY-HD modules or a 1RU frame that will hold up to 3 modules.

Features

- Full signal delay capability including VBI and ANC DATA for SMPTE 292M (1.5Gb/s) signals
- 7743DLY-HD also supports full signal delay capability including VBI for SMPTE 259M (270Mb/s) signals
- Delay programmable in video units (frames, lines, and samples) or as time units (seconds)
- Auto senses video standard
- Bypass relay for program path protection on power loss
- Up to 3.2 seconds delay for HD
- Up to 16.5 seconds delay for SD
- Card edge controls operate on screen menu system to program delay settings
- Input circuit features a line buffer which is suitable for "deglitching" hot switches on upstream equipment (very useful for HD equipment)
- VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame

7743DLY-HD Block Diagram



Specifications

High Definition Serial Digital Video:

Standard: SMPTE 292M (1.5 Gb/s) or SMPTE 259M (270Mb/s)
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 75m @ 1.5 Gb/s with Belden 1694
Return Loss: > 15 dB up to 1.0 Gb/s
> 10 dB up to 1.5 Gb/s (with relay)

Standard Definition Serial Digital Video:

Standard: SMPTE 259M (270 Mb/s)
Connector: BNC per IEC 60169-8 Amendment 2
Return Loss: > 15 dB up to 270 Mb/s

Serial Video Outputs:

HD Serial Digital Video:

Number of Outputs: 1 with relay bypass, 1 additional output
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 1.5 Gb/s
Wide Band Jitter: < 0.2 UI

Standard Definition Serial Digital Video:

Number of Outputs: 1 with relay bypass, 1 additional output
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 740ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 540 Mb/s
Wide Band Jitter: < 0.2 UI

Genlock Input:

Type: HD Tri-level Sync. (See Table 3 in manual)
NTSC or PAL Color Black 1 V p-p, or Composite bi-level sync (525/59.94 or 625/50)
300 mV
Connector: BNC per IEC 60169-8 Amendment 2
Termination: 75Ω (jumper selectable)

Functional:

Minimum Delay: 65.5 ms (1770 samples) for standard definition, 37.7 ms (2800 samples) for high definition
Maximum Delay: approx. 16.5 seconds for standard definition, approx. 3.2 seconds for high definition

Electrical:

Voltage: + 12VDC
Power: 20 watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 frame mounting: 2 (7700FR)
1 (7701FR)

Stand Alone Enclosure:

Dimensions: 14 " L x 4.5 " W x 1.9 " H
(355 mm L x 114 mm W x 48 mm H)
Weight: Approx. 1.5 lbs. (0.7 Kg)

Ordering Information:

7743DLY-HD HD/SD Video Delay

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Accessories:

Enclosures:
7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone Enclosure

SDI Frame Synchronizer with Embedded Audio & AES Support



Model 7745FS-EAES

The 7745FS-EAES SDI video and audio frame synchronizer is designed to retiming a 270 Mb/s SMPTE 259M (525 or 625 line) input to a local reference composite sync signal. When necessary, frames are repeated or dropped to maintain synchronization. During the synchronizing process the video delay varies from 3 lines through to 1 frame plus 3 lines.

The 7745FS-EAES Frame Synchronizer contains an extensive list of additional features, including AES or embedded audio synchronization. The user can choose to have either 1 group from the upstream embedded audio or audio from the 2 AES inputs synchronized and embedded on the output and output as AES. The 7745FS-EAES provides no VistaLINK™ support unless the +P option is selected.

When the Processing (+P) option is added the frame synchronizer has the ability to adjust video parameters such as brightness, contrast and saturation, and audio parameters such as gain, mixing stereo pairs into monaural and reassignment of audio channels within the group via VistaLINK™ control.

Features

- SDI 525 or 625, 270 Mb/s component digital video input
- Bypass protected SDI 525 or 625, 270 Mb/s component digital video output, without OSD text or audio bargraphs
- Additional SDI output, non-bypass protected (same as bypass protected SDI output)
- Composite analog reference input loop (NTSC or PAL-B)
- Programmable output phase with respect to reference input (in 27MHz clock increments)
- One frame video synchronizer
- EDH encoding on SDI output
- Freeze on last good frame, or field, or go to Black on loss of video
- Adjustable free running frequency
- Two composite analog video outputs with OSD text and bargraph graphics
- VU/PPM bargraph level Indicators
- Decodes vertical interval time code (VITC) and "burns" the time code into the picture
- Decodes PESA format Source ID (8 characters) or Evertz format VITC Source ID (5 or 9 characters) and burns the ID into the picture
- A comprehensive on screen display menu is available to configure the various features of the module
- Flexible configuration of the text and audio bar graph information displays
- On screen messages can be triggered by the configured fault conditions
- Synchronizes two external AES signals or 1 group of embedded audio to the video

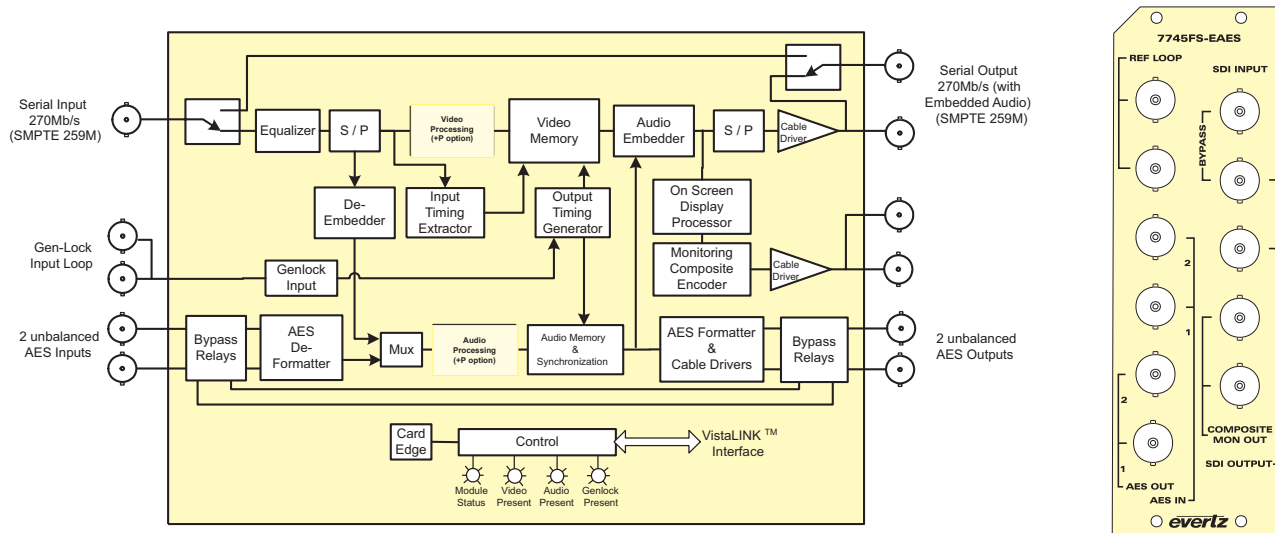
- Synchronized audio is output as 2 AES signals and embedded onto the SDI video output
- AES outputs bypass relay protected on power loss
- Selected audio source is delayed equivalent to the video delay through the synchronizer
- Additional, user selected, audio delay may be added to, or removed from the delay used to match the video
- Minimum audio input to output delay - 98 samples when video delay is less than 64 lines
- Audio Sample Rate Converters can be disabled
- Selectable audio pass or mute when video input missing

Additional Features with +P Option

- Adjustable video black level (brightness), Y level (contrast) and chroma level (saturation)
 - Independently adjustable audio levels on all channels
 - Ability to combine stereo pairs to monaural
 - Reassignment of audio channels within the embedded group
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

SDI Frame Synchronizer with Embedded Audio & AES Support

7745FS-EAES Block Diagram



Specifications

Serial Digital Video Input:

Standard: SMPTE 259M-C (270Mb/s)
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: >15dB to 270MHz
Embedded Audio: SMPTE 272M-A
Wide Band Jitter: < 0.2 UI

Serial Digital Video Output:

Standard: SMPTE 259M-C - 525 or 625 line component
Number of Outputs: 1 bypass relay protected
1 non-protected
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: >15dB to 270MHz
Embedded Audio: SMPTE 272M-A
Wide Band Jitter: < 0.2 UI

Reference Video Input:

Type: NTSC, SMPTE 170M or PAL, ITU624-4 Color black 1Vp-p
Composite Bi-level sync (525i/59.94 or 625i/50) 300mV
Number of Inputs: 2 (loop thru)
Connector: BNC per IEC 60169-8 Amendment 2
Termination: High impedance loop through
Return Loss: >35dB up to 10MHz
SNR: >50dB
Levels: Max. 2Vp-p video
Min. Sync level 150mV

Analog Monitoring Video Output:

Standard: NTSC, SMPTE 170M
PAL, ITU624-4
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75 Ω
Return Loss: >35dB up to 10MHz

AES Audio Inputs and Outputs :

Standard: SMPTE 276M, single ended AES
Number of Inputs: 2
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Resolution: 24-bits
Sampling Rate: Synchronous or Asynchronous (32kHz to 48kHz on inputs, 48kHz on outputs)
User Bits: Transferred to output with < 12ms delay

Input to Output Processing Delay:

Video Processing Delay

Synchronizing: 3 μ s to 1 frame 3 μ s
Output Phasing: Up to 1 frame of additional delay

Audio Processing Delay

AES Input to Output: 140 samples when video delay is less than 64 lines
Same as video delay when video delay is greater than 64 lines
4.5 ms to 1 frame plus 4.5 ms
Embedded to AES: 4.5 ms to 1 frame plus 4.5 ms
AES to Embedded: 4.5 ms to 1 frame plus 4.5 ms

Processing Functions: (+P option only)

Video

Black Level: +/- 7%
Luminance gain: +/- 6dB
Chroma gain: +/- 6dB
Audio Gain: +/- 24dB

Physical:

Number of Slots: 2

Electrical:

Voltage: +12V DC
Power: < 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7745FS-EAES SDI Frame Synchronizer with Embedded Audio and AES Support (No VistaLINK™ support)

Ordering Options

+P Video and audio processing functions, adds VistaLINK™ support

Rear Plate must be specified at time of order

Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules

Note: This module not available in a standalone enclosure

SD Frame Synchronizer

Model 7746FSE



The 7746FSE series SD Frame Synchronizers are designed to retiming a SMPTE259M (625i/50, 525i/59.94) input to a local sync signal. When necessary, frames are repeated or dropped to maintain synchronization. During the synchronizing process the video delay varies from 3 lines through to 1 frame plus 3 lines. Additional delay can be added to the synchronizing process in 1 frame increments.

The 7746FSE is currently available in two versions to suit various application requirements.

Model	Synchronizes			AES Audio	
	Video	Embedded Audio	AES Audio	Inputs	Outputs
7746FSE	Yes	Demux and mux 2 Groups	No	-	--
7746FS-EAES4	Yes	Demux and mux 2 Groups	4	4	4

On the 7746FSE version the video and embedded audio is synchronized. On the 7746FS-EAES4 version, the user can choose to have either 2 groups from the upstream embedded audio or audio from the 4 AES inputs embedded on the output video and output as AES. Both versions can also pass all VANC data. When the input video is lost, it will pass the input AES or mute if embedded audio is selected for synchronizing. The frame synchronizers also have the ability to set the audio delay independently from the video delay.

The frame synchronizers have the ability to adjust video parameters such as brightness, contrast, saturation and hue. The 7746FSE products can adjust audio parameters such as gain, mixing stereo pairs into monaural and reassignment of audio channels.

The card functions can be controlled from the card edge or through the VistaLINK™ interface.

Features

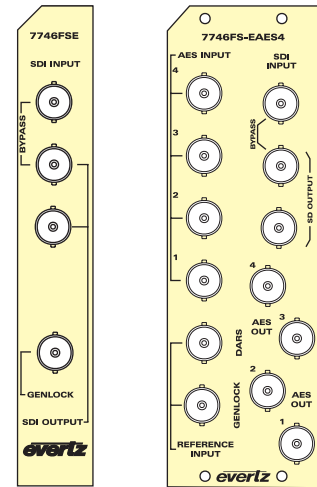
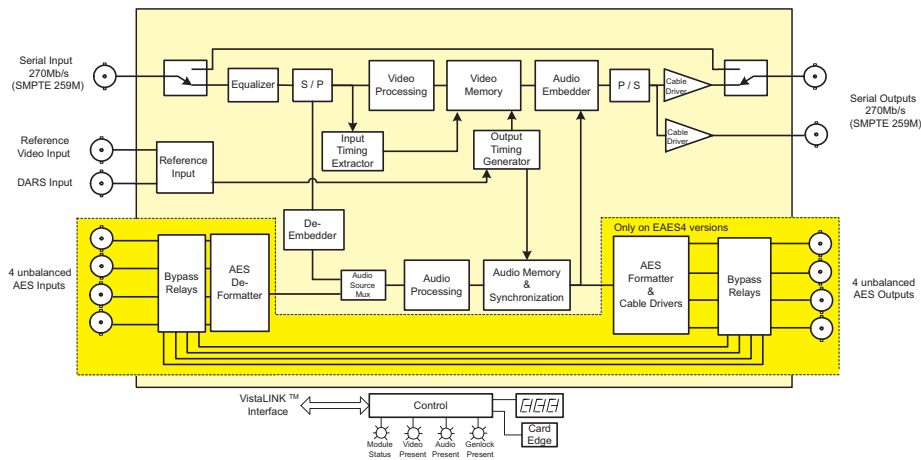
- Synchronizes 525i/59.94 or 625i/50
- Minimum video input to output delay - 3 lines
- Maximum video input to output delay - 1 frame plus 3 lines
- 12 additional frames of delay can be added for interlaced video formats
- Program Video output bypass relay protected on power loss
- Programmable output phase with respect to reference input
- Freeze on last good frame, or field, go to black on loss of video or pass input
- Synchronizes 2 groups of embedded audio and re-embeds 2 groups
- Audio Sample Rate Converters can be disabled for Dolby E support
- Independently adjustable audio levels on all channels
- Ability to combine stereo pairs to monaural
- Reassignment of audio channels within the embedded groups
- Front panel LEDs indicate: module fault, video and audio present
- Serial remote data logging
- Adjustable video black level (brightness), Y level (contrast) and chroma level (saturation), colour (hue)
- Maximum audio input to output delay - equivalent to additional frames of video delay
- Separate control of video and audio delay
- Audio Sample Rate Converters can be disabled
- Independently adjustable audio levels on all channels
- Ability to combine stereo pairs to monaural
- Reassignment of audio channels

VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame

Additional Features for EAES4 versions:

- Synchronizes four external AES signals
- Synchronized audio is output as 4 AES signals
- AES outputs bypass relay protected on power loss

7746FSE Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C 525i/59.94 or 625i/50
Connector: BNC per IEC 60169-8 Amendment 2.
Input Equalization: Automatic to 300m @ 270Mb/s with Belden 1694 or equivalent cable
Return Loss: >15 dB up to 270 MHz

Serial Video Outputs:

Number of Outputs: 2 (1 output is bypass relay protected)
Connectors: BNC per IEC 60169-8 Amendment 2.
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: < 0.10 UI

Genlock Input:

Type: NTSC or PAL Colour Black 1 V p-p, or Composite bi-level sync (525i/59.94 or 625i/50) 300 mV
Connector: BNC per IEC 60169-8 Amendment 2.
Termination: 75 Ω (jumper selectable)

DARS Reference (7746FS-EAES4 - CURRENTLY NOT USED):

Type: AES Digital Audio Signal with 48kHz sample rate.
Standard: SMPTE 276M-1995 single ended AES
Connectors: BNC per IEC 60169-8 Amendment 2.
Termination: 75 Ω (jumper selectable)

AES Audio Input and Output (7746FS-EAES4):

Number of Inputs: 4
Number of Outputs: 4
Standard: SMPTE 276M, single ended synchronous or asynchronous AES
Connectors: BNC per IEC 60169-8 Amendment 2.
Resolution: 24 bits
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced
Signal Level: 1 V p-p nominal

Processing Functions:

Video:
Black Level: \pm /- 7%
Luminance Gain: \pm /- 6dB
Chrominance Gain: \pm /- 6dB
Hue: \pm /- 20 degrees
Audio
Gain: \pm /- 24dB
Remapping: Any input or mono mix of any L/R pair to any output

Input To Output Processing Delay:

Video Processing Delay
Minimum Delay Mode: 3 lines to 1 frame plus 3 lines
Additional Delay Mode: Up to 12 frames of additional delay (1 frame increments)

Data Logging Serial Port:

Standard: RS 232
Connector: Software upgrade cable female DB-9
Baud Rate: 57600
Format: 8 bits, no parity, and 2 stop bits

Electrical:

Voltage: + 12VDC
Power:
7746FSE 12 Watts
7746FS-EAES4 15.5 Watts
EMI/RFI: Complies with FCC Part 15, Class A
 EU EMC Directive

Physical:

7700 frame mounting:
Number of slots: 1 for 7746FSE
 2 for 7746FS-EAES4
7701 frame mounting:
Number of slots: 1 for 7746FSE
 1 for 7746FS-EAES4

Ordering Information:

7746FSE SD Frame Synchronizer
7746FS-EAES4 SD Frame Synchronizer with 4 AES audio pairs and embedded audio processing & AES Support

Ordering Options:

Rear Plate must be specified at time of order
 Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Accessories:

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD Frame Synchronizer

Model 7746FS-EAES8-DD-HD



The 7746FS-EAES8-DD-HD HD/SD Frame Synchronizer is designed to retim a SMPTE 292M (1080i/60, 1080i/59.94, 1080i/50, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94, or 480p/59.94) or SMPTE259M (625i/50, 525i/59.94) input to a local reference tri-level or composite sync signal. When necessary, frames are repeated or dropped to maintain synchronization. During the synchronizing process the video delay varies from 3 lines through to 1 frame plus 3 lines. Additional delay can be added to the synchronizing process in 1 frame increments.

On the 7746FS-EAES8-DD-HD the video and any embedded audio present is synchronized. When the input video is lost, it will pass the input AES or mute if embedded audio is selected for synchronizing. The frame synchronizers also have the ability to set the audio delay independently from the video delay.

The frame synchronizers have the ability to adjust video parameters such as brightness, contrast and saturation. Hue control is available for SD standards (525i/59.94 and 625i/50). They can also adjust audio parameters such as gain, mixing stereo pairs into monaural and reassignment of audio channels.

The card functions can be controlled from the card edge or through the VistaLINK™ interface

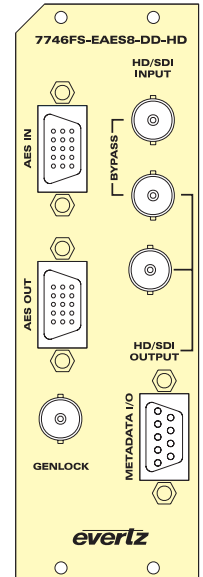
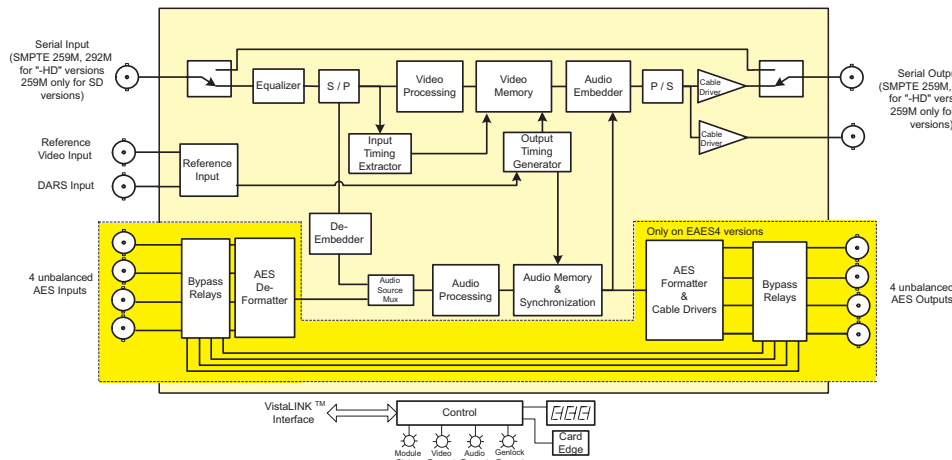
Features

- Synchronizes 1080i/60, 1080i/59.94, 1080i/50, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94, 480p/59.94, 525i/59.94 or 625i/50
 - Minimum video input to output delay - 3 lines
 - Maximum video input to output delay - 1 frame plus 3 lines
 - 12 additional frames of delay can be added for interlaced video formats, 28 frames for progressive formats.
 - Program Video output bypass relay protected on power loss
 - Programmable output phase with respect to reference input
 - Freeze on last good frame, or field, go to black on loss of video or pass input
 - Synchronizes 2 groups of embedded audio and re-embeds 2 groups
 - Front panel LEDs indicate: module fault, video and audio present
 - Serial remote data logging
 - Adjustable video black level (brightness), Y level (contrast) and chroma level (saturation)
 - Adjustable hue control for SD video standards
 - Maximum audio input to output delay - equivalent to additional frames of video delay
 - Synchronizes VANC data starting after switch line
 - Synchronizes RP188 time codes
 - Separate control of video and audio delay
 - Audio Sample Rate Converters can be disabled
 - Independently adjustable audio levels on all channels
 - Ability to combine stereo pairs to monaural
 - Reassignment of audio channels
- VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame

Additional Features for EAES4 versions:

- Synchronizes four external AES signals
- Synchronized audio is output as 4 AES signals
- AES outputs bypass relay protected on power loss

7746FS-EAES8-DD-HD Block Diagram



Specifications

Serial Video Input:

Standard:

DIP switch selectable
1.485 Gb/s SMPTE 292M - SMPTE 274M,
SMPTE 296M, SMPTE 349M
270 Mb/sec SMPTE 259M-C 525i/59.94 or 625i/50
BNC per IEC 60169-8 Amendment 2.

Connector:

Input Equalization:

SD

Automatic to 300m @ 270Mb/s with Belden 1694 or equivalent cable

HD

Automatic to 115m @ 1.5Gb/s with Belden 1694 or equivalent cable.

Return Loss:

SD

>15 dB up to 270 MHz

HD

>13 dB up to 1.5 GHz

Serial Video Outputs:

Number of Outputs:

2 (1 output is bypass relay protected)

Connectors:

BNC per IEC 60169-8 Amendment 2.

Signal Level:

800mV nominal

DC Offset:

0V \pm 0.5V

Rise and Fall Time:

200ps nominal (HD)
or 900ps nominal (SD)

Overshoot:

<10% of amplitude

Wide Band Jitter:

< 0.16 UI (HD) or < 0.10 UI (SD)

Genlock Input:

Type:

HD Tri-level Sync
NTSC or PAL Colour Black 1 V p-p, or
Composite bi-level sync (525i/59.94 or 625i/50) 300 mV

Connector:

Termination:

BNC per IEC 60169-8 Amendment 2.
75 Ω (jumper selectable)

DARS Reference (7746FS-EAES4-HD - CURRENTLY NOT USED):

Type:

AES Digital Audio Signal with 48kHz sample rate.

Standard:

SMPTE 276M-1995 single ended AES

Connectors:

BNC per IEC 60169-8 Amendment 2.

Termination:

75 Ω (jumper selectable)

AES Audio Input and Output (7746FS-EAES4-HD):

Number of Inputs:

4

Number of Outputs:

4

Standard:

SMPTE 276M, single ended synchronous or asynchronous AES

Connectors:

BNC per IEC 60169-8 Amendment 2.

Resolution:

24 bits

Sampling Rate:

48 kHz

Impedance:

75 Ω unbalanced

Signal Level:

1 V p-p nominal

Processing Functions:

Video:

Black Level:

+/- 7%

Luminance Gain:

+/- 6dB

Chrominance Gain:

+/- 6dB

Hue:

+/- 20 degrees (SD)

Audio

Gain:

+/- 24dB

Remapping:

Any input or mono mix of any L/R pair to any output

Input To Output Processing Delay:

Video Processing Delay

Minimum Delay Mode: 3 lines to 1 frame plus 3 lines

Additional Delay Mode: Up to 12 frames for interlaced formats (28 frames for progressive formats) of additional delay (1 frame increments)

Data Logging Serial Port:

Standard:

RS 232

Connector:

Software upgrade cable female DB-9

Baud Rate:

115200

Format:

8 bits, no parity, and 2 stop bits

Electrical:

Voltage:

+ 12VDC

Power:

7746FSE-HD

13.5 Watts

7746FS-EAES4-HD

15.5 Watts

EMI/RFI:

Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 frame mounting:

Number of slots:

1 for 7746FSE-HD

2 for 7746FS-EAES4-HD

7701 frame mounting:

Number of slots:

1

Ordering Information:

7746FS-EAES8-DD-HD HD Frame Synchronizer with 8 AES audio pairs and embedded audio processing & AES Support, Dolby E

Ordering Options:

Rear Plate must be specified at time of order

Eg: Model + 3RU

Rear Plate Suffix

+3RU

3RU Rear Plate for use with 7700FR-C Multiframe

+1RU

1RU Rear Plate for use with 7701FR Multiframe

+SA

Standalone Enclosure Rear Plate

Accessories:

7700FC

VistaLINK™ Frame Controller

9000NCP

1RU VistaLINK™ General Purpose Network Control Panel

9000NCP2

2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C

3RU Multiframe which holds 15 modules

7701FR

1RU Multiframe which holds 3 modules

S7701FR

Standalone enclosure



The 7746FS-EAES8-HD HD/SD Frame Synchronizer is designed to re-time a SMPTE 292M (1080i/60, 1080i/59.94, 1080i/50, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94, 720p/50, 1035i/59.94, 1035i/60, or 480p/59.94) or SMPTE259M (625i/50, 525i/59.94) input to a local reference tri-level or composite sync signal. When necessary, frames are repeated or dropped to maintain synchronization. During the synchronizing process the video delay varies from 3 lines through to 1 frame plus 3 lines. Additional delay can be added to the synchronizing process in 1 frame increments.

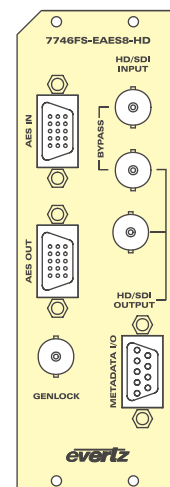
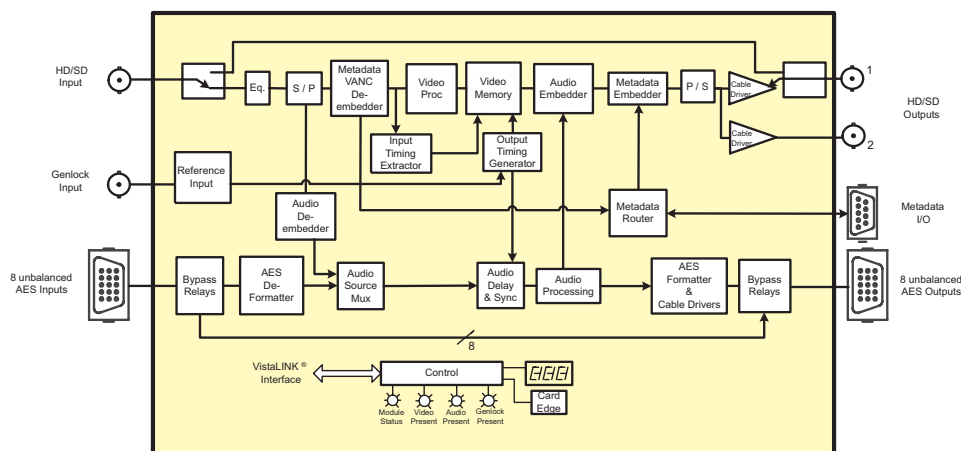
On the 7746FS-EAES8-HD version, the user can choose to have 8 stereo pairs from 4 groups in the upstream embedded audio and from the 8 AES inputs embedded on the output video and output as AES. The module can also pass all VANC data after switching line. When the input video is lost, it will pass the input AES or mute if embedded audio is selected for synchronizing. The frame synchronizers also have the ability to set the audio delay independently from the video delay.

The frame synchronizers have the ability to adjust video parameters such as brightness, contrast and saturation. Hue control is available for SD standards (525i/59.94 and 625i/50). They can also adjust audio parameters such as gain, invert, two-channel mixing, and reassignment of audio channels. The embedder and AES outputs can individually choose between two independent audio mixers.

Features

- Synchronizes 1080i/60, 1080i/59.94, 1080i/50, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94, 720p/50, 1035i/59.94, 1035i/60, 480p/59.94, 525i/59.94 or 625i/50
- Minimum video input to output delay - 3 lines
- Maximum video input to output delay - 1 frame plus 3 lines
- 12 additional frames of delay can be added for interlaced video formats, 28 frames for progressive formats.
- Program Video output bypass relay protected on power loss
- Programmable output phase with respect to reference input
- Freeze on last good frame, or field, go to black on loss of video or pass input
- Synchronizes 4 groups of embedded audio and re-embeds 4 groups
- Front panel LEDs indicate: module fault, video and embedded group presence, and AES input presense
- Serial remote data logging
- Adjustable video black level (brightness), Y level (contrast) and chroma level (saturation)
- Adjustable hue control for SD video standards
- Maximum audio input to output delay - equivalent to additional frames of video delay
- Synchronizes VANC data starting after switch line
- Synchronizes RP188 time codes
- Separate control of video and audio delay
- Audio Sample Rate Converters can be disabled, or set to automatically detect non-PCM data (i.e. Dolby-E) and disable on a per-input basis
- Independently adjustable audio levels and inversion on all channels
- Ability to combine any two inputs to any output (including monoaural down-mixes of all input stereo pairs)
- Reassignment of audio channels
- Synchronizes eight external AES signals
- Synchronized audio is output as 8 AES signals
- AES and embedded outputs can choose from two independent mixers
- AES outputs bypass relay protected on power loss
- De-embeds and embeds Dolby-E metadata to and from video VANC space
- VistaLINK® - capable offering remote control and configuration capabilities via SNMP (using VistaLINK® PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame

7746FS-EAES8-HD Block Diagram & Rear Panel



Specifications

Serial Video Input:

Standard: Auto detectable/user selectable
SMPTE 292M (1.5Gb/s), 1080i/60,
1080i/59.94, 1080i/50, 1080p/24sF,
1080p/23.94, 720p/60, 720p/59.94,
1035i/59.94, 1035i/60 or 480p/59.94
SMPTE 259M-C (270Mb/s), 525 or 625
line component

Connector: BNC per IEC 60169-8 Amendment 2.

Input Equalization:

SD Automatic to 300m @ 270Mb/s with
Belden 1694A or equivalent cable

HD Automatic to 125m @ 1.5Gb/s with
Belden 1694A or equivalent cable.

Return Loss:

SD >15 dB up to 270 Mb/s

HD >13 dB up to 1.5 Gb/s

Serial Video Outputs:

Number of Outputs: 2 (1 output is bypass relay protected)

Connectors: BNC per IEC 60169-8 Amendment 2.

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 200ps nominal (HD)
or 740ps nominal (SD)

Overshoot: <10% of amplitude

Wide Band Jitter: < 0.22 UI (HD) or < 0.10 UI (SD)

Genlock Input:

Type: HD Tri-level Sync
NTSC or PAL Color Black 1 V p-p, or
Composite bi-level sync (525i/59.94 or
625i/50) 300 mV

Connector: BNC per IEC 60169-8 Amendment 2.

Termination: 75 Ω (jumper selectable)

AES Audio Input:

Standard: SMPTE 276M, single ended AES
8 unbalanced

Number of Inputs: Female High Density DB-15 (breakout
cable to BNC provided)

Connector: 0.1 to 2.5 Vp-p (5Vp-p tolerant)

Input Level: 75 Ω

Input Impedance: >25dB 100kHz to 6MHz

Return Loss: Automatic to 1000m with Belden 1694A
(or equivalent) @ 48kHz AES signal

Equalization: 48kHz \pm 100ppm, synchronous or
asynchronous

Sample Rate:

AES Audio Output:

Standard: SMPTE 276M, single ended AES

Number of Outputs: 8 unbalanced

Connector: Female High Density DB-15 (breakout
cable to BNC provided)

Sample Rate: 48kHz

Impedance: 75 Ω

Resolution: 24-bit

Metadata Input/Output:

Type: Dolby E Metadata

Standard: RS-422

Connector: Female DB-9

Baud Rate: 115,200 baud

Delay:

AC3 Decode Delay: 32ms nominal

Dolby E Decode Delay: 1 frame nominal

De-embedding Latency: 600 μ s nominal

Additional Audio Delay: 0 to 1.2 seconds (user programmable)

Additional Video Delay: 0 to 7 frames (user programmable)

Data Logging Serial Port:

Standard: RS 232

Connector: Software upgrade cable female DB-9

Baud Rate: 115200

Format: 8 bits, no parity, and 2 stop bits

Electrical:

Voltage: +12VDC

Power: 19 Watts

EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 frame mounting: 2

7701 frame mounting: 1

Ordering Information:

7746FS-EAES8-HD HD/SD Frame Synchronizer with 8 AES
audio pairs and embedded audio
processing & AES Support

Ordering Options:

Rear Plate must be specified at time of order

Eg: Model +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C
Multiframe

+1RU 1RU Rear Plate for use with 7701FR
Multiframe

+SA Standalone Enclosure Rear Plate

Accessories:

7700FC WPAES8-BNCM-6F cable (included)

9000NCP VistaLINK® Frame Controller
1RU VistaLINK® General Purpose
Network Control Panel

9000NCP2 2RU VistaLINK® General Purpose
Network Control Panel

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

7701FR 1RU Multiframe which holds 3 modules

S7701FR Standalone enclosure

HD Frame Synchronizer

Model 7746FSE-HD



The 7746FSE-HD series HD/SD Frame Synchronizers are designed to retiming a SMPTE 292M (1080i/60, 1080i/59.94, 1080i/50, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94, or 480p/59.94) or SMPTE259M (625i/50, 525i/59.94) input to a local reference tri-level or composite sync signal. When necessary, frames are repeated or dropped to maintain synchronization. During the synchronizing process the video delay varies from 3 lines through to 1 frame plus 3 lines. Additional delay can be added to the synchronizing process in 1 frame increments.

The 7746FSE-HD is currently available in two versions to suit various application requirements.

Model	Synchronizes			AES Audio	
	Video	Embedded Audio	AES Audio	Inputs	Outputs
7746FSE-HD	Yes	Demux and mux 2 Groups	No	-	--
7746FS-EAES4-HD	Yes	Demux and mux 2 Groups	4	4	4

On the 7746FSE-HD version the video and any embedded audio present is synchronized. On the 7746FS-EAES4-HD version, the user can choose to have either 2 groups from the upstream embedded audio or audio from the 4 AES inputs embedded on the output video and output as AES. Both versions can also pass all VANC data. When the input video is lost, it will pass the input AES or mute if embedded audio is selected for synchronizing. The frame synchronizers also have the ability to set the audio delay independently from the video delay.

The frame synchronizers have the ability to adjust video parameters such as brightness, contrast and saturation. Hue control is available for SD standards (525i/59.94 and 625i/50). They can also adjust audio parameters such as gain, mixing stereo pairs into monaural and reassignment of audio channels.

The card functions can be controlled from the card edge or through the VistaLINK™ interface

Features

- Synchronizes 1080i/60, 1080i/59.94, 1080i/50, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94, 480p/59.94, 525i/59.94 or 625i/50
- Minimum video input to output delay - 3 lines
- Maximum video input to output delay - 1 frame plus 3 lines
- 12 additional frames of delay can be added for interlaced video formats, 28 frames for progressive formats.
- Program Video output bypass relay protected on power loss
- Programmable output phase with respect to reference input
- Freeze on last good frame, or field, go to black on loss of video or pass input
- Synchronizes 2 groups of embedded audio and re-embeds 2 groups
- Front panel LEDs indicate: module fault, video and audio present
- Serial remote data logging
- Adjustable video black level (brightness), Y level (contrast) and chroma level (saturation)
- Adjustable hue control for SD video standards
- Maximum audio input to output delay - equivalent to additional frames of video delay
- Synchronizes VANC data starting after switch line
- Synchronizes RP188 time codes
- Separate control of video and audio delay
- Audio Sample Rate Converters can be disabled
- Independently adjustable audio levels on all channels
- Ability to combine stereo pairs to monaural
- Reassignment of audio channels

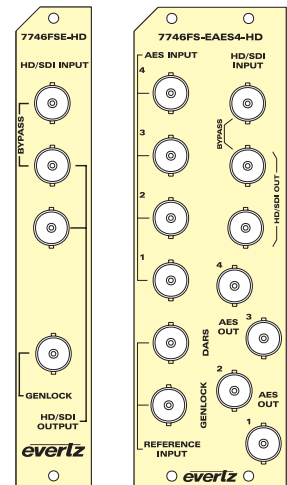
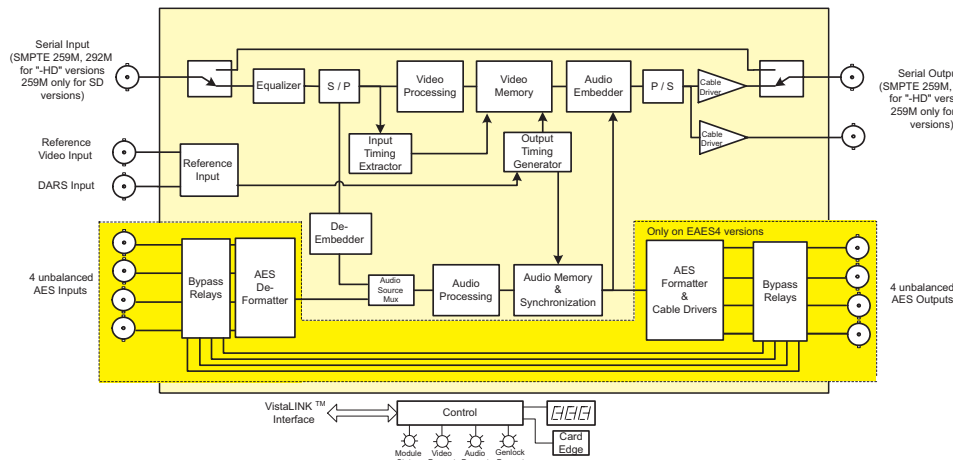
VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame

Additional Features for EAES4 versions:

- Synchronizes four external AES signals
- Synchronized audio is output as 4 AES signals
- AES outputs bypass relay protected on power loss

HD Frame Synchronizer

7746FSE-HD Block Diagram



Specifications

Serial Video Input:

Standard: DIP switch selectable
1.485 Gb/s SMPTE 292M - SMPTE 274M,
SMPTE 296M, SMPTE 349M
270 Mb/sec SMPTE 259M-C 525i/59.94 or 625i/50
BNC per IEC 60169-8 Amendment 2.

Connector:

Input Equalization:

SD

Automatic to 300m @ 270Mb/s with Belden 1694 or equivalent cable

HD

Automatic to 115m @ 1.5Gb/s with Belden 1694 or equivalent cable.

Return Loss:

SD

>15 dB up to 270 MHz

HD

>13 dB up to 1.5 GHz

Serial Video Outputs:

Number of Outputs: 2 (1 output is bypass relay protected)

Connectors: BNC per IEC 60169-8 Amendment 2.

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 200ps nominal (HD)
or 900ps nominal (SD)

Overshoot: <10% of amplitude

Wide Band Jitter: < 0.16 UI (HD) or < 0.10 UI (SD)

Genlock Input:

Type:

HD Tri-level Sync
NTSC or PAL Colour Black 1 V p-p, or
Composite bi-level sync (525i/59.94 or 625i/50) 300 mV
BNC per IEC 60169-8 Amendment 2.

Connector:

Termination: 75 Ω (jumper selectable)

DARS Reference (7746FS-EAES4-HD - CURRENTLY NOT USED):

Type: AES Digital Audio Signal with 48kHz sample rate.

Standard: SMPTE 276M-1995 single ended AES

Connectors: BNC per IEC 60169-8 Amendment 2.

Termination: 75 Ω (jumper selectable)

AES Audio Input and Output (7746FS-EAES4-HD):

Number of Inputs: 4

Number of Outputs: 4

Standard: SMPTE 276M, single ended synchronous or asynchronous AES

Connectors: BNC per IEC 60169-8 Amendment 2.

Resolution: 24 bits

Sampling Rate: 48 kHz

Impedance: 75 Ω unbalanced

Signal Level: 1 V p-p nominal

Processing Functions:

Video:

Black Level: +/- 7%

Luminance Gain: +/- 6dB

Chrominance Gain: +/- 6dB

Hue: +/- 20 degrees (SD)

Audio

Gain: +/- 24dB

Remapping: Any input or mono mix of any L/R pair to any output

Input To Output Processing Delay:

Video Processing Delay

Minimum Delay Mode: 3 lines to 1 frame plus 3 lines

Additional Delay Mode: Up to 12 frames for interlaced formats (28 frames for progressive formats) of additional delay (1 frame increments)

Data Logging Serial Port:

Standard: RS 232

Connector: Software upgrade cable female DB-9

Baud Rate: 57600

Format: 8 bits, no parity, and 2 stop bits

Electrical:

Voltage: + 12VDC

Power:

7746FSE-HD 13.5 Watts

7746FS-EAES4-HD 15.5 Watts

EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 frame mounting:

Number of slots: 1 for 7746FSE-HD

2 for 7746FS-EAES4-HD

7701 frame mounting:

Number of slots: 1 for 7746FSE-HD

1 for 7746FS-EAES4-HD

Ordering Information:

7746FSE-HD HD Frame Synchronizer

7746FS-EAES4-HD HD Frame Synchronizer with 4 AES audio pairs and embedded audio processing & AES Support

Ordering Options:

Rear Plate must be specified at time of order

Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

+SA Standalone Enclosure Rear Plate

7700FC

9000NCP VistaLINK™ Frame Controller

9000NCP2 1RU VistaLINK™ General Purpose Network Control Panel

2RU VistaLINK™ General Purpose Network Control Panel

Accessories:

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

7701FR 1RU Multiframe which holds 3 modules

S7701FR Standalone enclosure

HD Tri-Level Sync Generator

Model 7750SRG-HD

The 7750SRG-HD generates various analog bi-level & tri-level sync signals for both HD and SD applications. The 7750SRG-HD provides an analog genlock input that allows you to synchronize the sync signals to your plant horizontal and vertical timing.

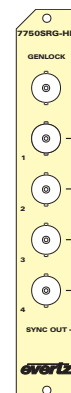
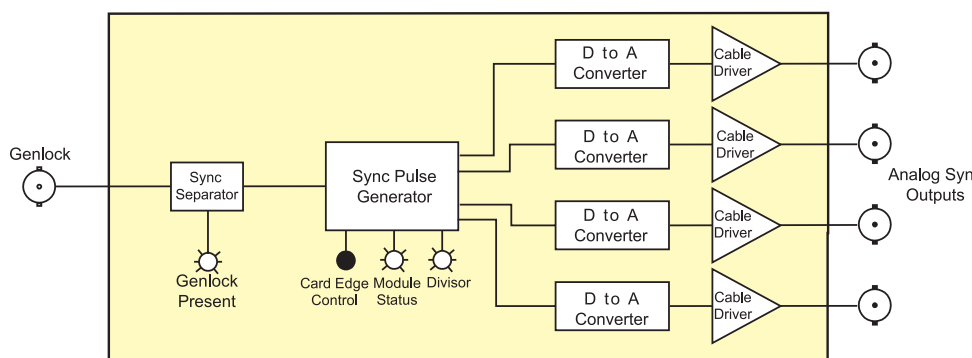
The 7750SRG-HD generates all analog sync signals defined by SMPTE 274M (1080i/p) and SMPTE 296M (720p) as well as those required for NTSC, PAL and slow PAL (625i/48) applications. The four independent sync outputs can be configured to output different sync signals. The common combinations of HDTV and SD analog sync outputs can be selected via card edge control.

In conjunction with the 7700ADA Analog Distribution Amplifier and the 7750TG2-HD HDTV Test Signal Generator, this module will fulfill all of your slave sync generation requirements. (See the PKG7752RGTS-HD system brochure for details on our HDTV Reference Generator Test Set System applications)

Features

- NTSC or PAL colour black gen lock or free-runs with no gen lock reference
- Phase adjustment of outputs with respect to gen lock input
- Selectable frame rate divisor of 1 or 1/1.001
- Wide variety of 1080i, 1035i, 1080p, 720p, NTSC, PAL and slow PAL sync output sync signals
- HSDL tri level sync for 2K data transfers
- 4 separate analog sync signal outputs
- 6 Hz or 1Hz TTL pulse shows relationship between HD & SD Sync outputs
- 8 position DIP switch selects combinations of sync signal available
- Card edge LEDs indicate gen lock presence, module fault

Block Diagram 7750SRG-HD



Selectable Sync Output Options

	Output 1	Output 2	Output 3	Output 4
1	1080i/60	1080p/24sF	625i/48	6Hz Pulse
2	1080i/50	1080p/24sF	625i/48	1Hz Pulse
3	1080p/30	1080p/24sF	625i/48	6Hz Pulse
4	1080p/25	1080p/24sF	625i/48	1Hz Pulse
5	1080p/24	1080p/24sF	625i/48	625i/48
6	1080p/24sF	1080p/24sF	625i/48	625i/48
7	720p/60	1080p/24sF	625i/48	6Hz Pulse
8	1035i/60	1080p/24sF	625i/48	6Hz Pulse
9	1080i/60	720p/60	525i/59.94	525i/59.94
10	1080i/60 V Drive	1080p/24sF	625i/48	6Hz Pulse
1/1.001 Multiple Set Via DIP Switch Where Applicable (See 7750SRG-HD manual for more switch settings)				

Specifications

Genlock Input:

Type:

NTSC or PAL Color Black 1 V p-p
Composite Bi-level sync(525i or 625i)300 mV
1 BNC per IEC 60169-8 Amendment 2
75 Ω (jumper selectable)

Connector:

Termination:

Analog Sync Outputs:

Number of Outputs:

Standard:

4
SMPTE 274M, 296M, NTSC, PAL, 6 Hz TTL,
HDSL (Selectable as per above Table)
4 BNC per IEC 60169-8 Amendment 2
HD Sync outputs: 600mV nominal tri-level
SD Sync outputs: 300mV nominal bi-level
6 Hz output: TTL

Connectors:

Signal Level:

Electrical:

Power:

Voltage:

EMI/RFI:

+12VDC
6 Watts
Complies with FCC Part 15, Class A,
EU EMC Directive.

Physical:

Number of Slots:

1

Ordering Information:

7750SRG-HD

HD Tri-Level Sync Generator

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU

+1RU

+SA

3RU Rear Plate for use with 7700FR-C Multiframe
1RU Rear Plate for use with 7701FR Multiframe
Standalone Enclosure Rear Plate

Enclosures:

7700FR-C

7701FR

S7701FR

3RU Multiframe which holds 15 modules
1RU Multiframe which holds 3 modules
Standalone enclosure

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NTSC Slave Sync Generator

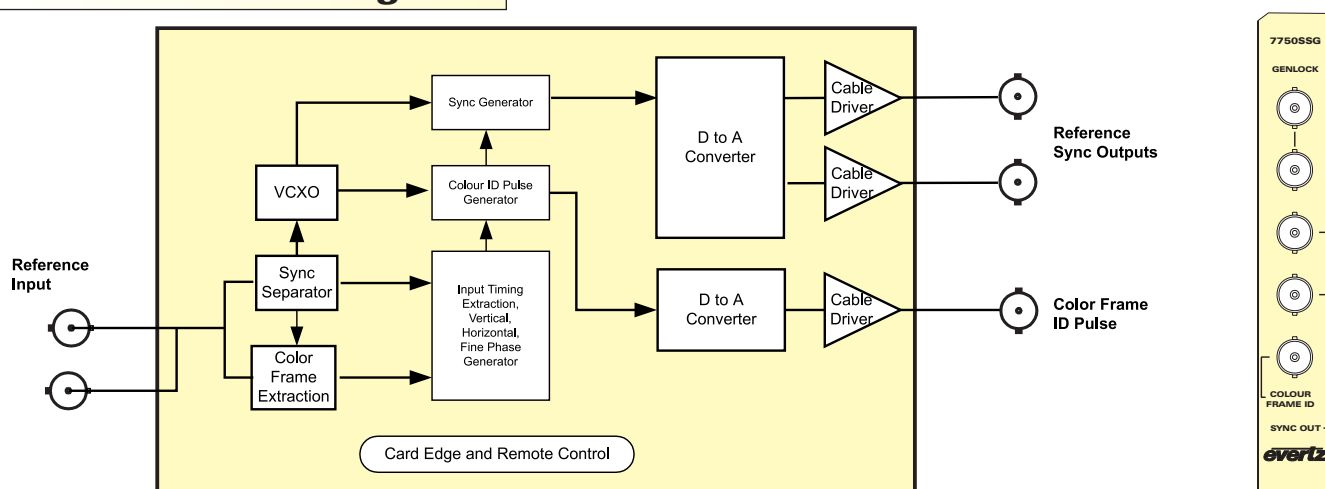
Model 7750SSG

The 7750SSG Slave Sync Generator generates two NTSC sync signals with burst and a color frame ID pulse for synchronizing various devices in a television facility. The 7750SSG has an analog genlock input that allows you to synchronize the sync signals to your plant horizontal and vertical timing. In conjunction with the 7700ADA Analog Distribution Amplifier this module will fulfill all of your slave sync generation requirements.

Features

- NTSC color black genlock with color frame decode
- Free-runs with no genlock reference
- Phase adjustment of outputs with respect to genlock input
- 2 Separate signal outputs
- TTL Color Frame ID signal
- Card edge LEDs indicate genlock presence and module fault

7750SSG Block Diagram



Specifications

Genlock Input:

Type: NTSC (SMPTE 170M) Color Black
Connector: 2 BNC per IEC 60169-8 Amendment 2
Termination: High impedance loop through
Return loss: >35 dB up to 10 MHz
SNR: > 50dB
Levels: 1 +0.5Vp-p
Max Subcarrier Jitter: < 1°

Analog Sync Outputs:

Number of Outputs: 2
Signal Output Level: 1V p-p
Connector: BNC per IEC 60169-8 Amendment 2
SYNC Level: 40IRE nominal
Burst Level: 40IRE nominal
DC Offset: Back porch at 0V ± 100mV
Return Loss: >35 dB up to 5 MHz
SC/H Phase: < 1°
Sync rise/fall time: 140 ± 20ns
V Phasing: Infinite lines
H Phasing: Infinite samples (37ns/sample)
Fine Phasing: ± 24°, in 0.24 degree increments

Color Frame ID Pulse Output:

Signal: TTL amplitude active pulse high during field 1 of color field sequence
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
DC Offset: 0V ± 100mV

Electrical:

Voltage: +12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7750SSG NTSC Slave Sync Generator

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C
Multiframe
+1RU 1RU Rear Plate for use with 7701FR
Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

SDI Test Signal Generator

Model 7750TG

The 7750TG Test Signal Generator provides a cost-effective method of generating 270 Mb/s serial digital test signals. The 7750TG is ideal for checking signal path integrity, monitor alignment or to determine system performance over varying cable lengths. The 7750TG generates a wide variety of industry standard test signals in 525 line and 625 line SMPTE 259M-C video formats and offers four 270 Mb/s outputs. Error detection and handling (EDH) codes are embedded on all the outputs to allow you to verify the performance of your digital signal paths.

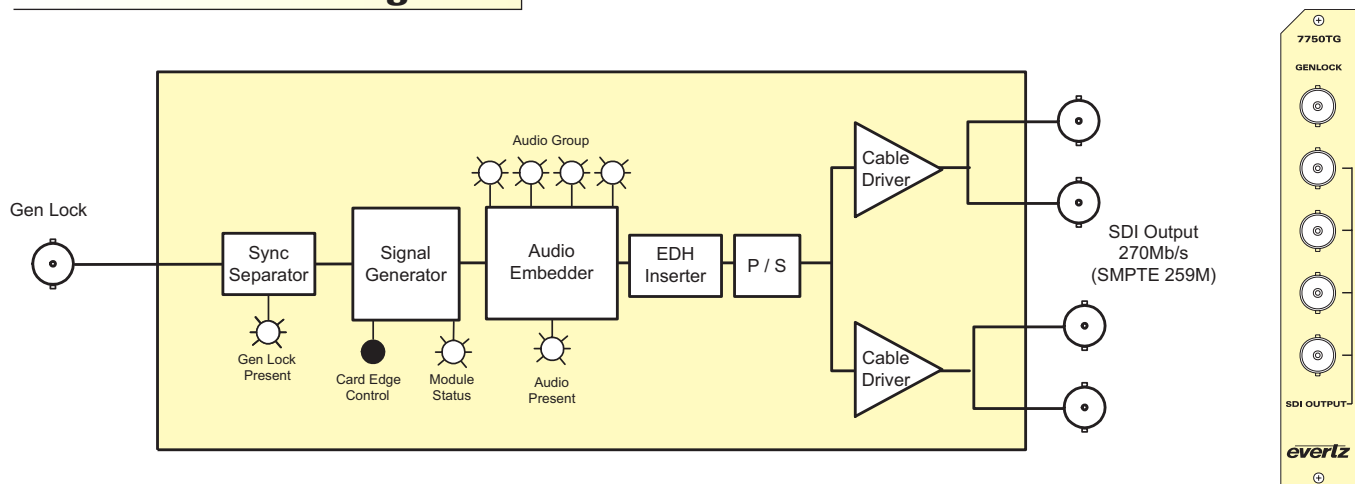
The 7750TG provides an analog genlock input that allows you to synchronize the test signals to your plant horizontal and vertical timing.

Separate audio tones can be embedded into each channel of one of the four embedded audio groups. The user can select which of the audio groups the tones will be embedded into. The audio level is fixed at -20dB full scale.

Features

- 525 line and 625 line formats
- Card edge toggle switch selects test signal
- On screen display of test signal names
- 4 embedded audio tones, selectable audio group assignment
- 4 output drivers
- On screen text message can be used for source identification
- On screen setup menu
- Card edge LEDs indicate genlock presence and module health

7750TG Block Diagram



Specifications

Genlock Input:

Type: NTSC or PAL color black 1 V p-p
Composite Bi-level sync (525 Line or 625 Line) 300mV
Connector: 1 BNC per IEC 60169-8 Amendment 2.
Termination: 75Ω (jumper selectable)

Serial Video Output:

Standard: SMPTE 259M-C (270 Mb/s)
Embedded Audio: Up to 4 tones in one audio group as specified in SMPTE 272M . Selectable tone frequencies (from 60Hz to 10kHz) and audio group. Audio level is set to -20dB full scale
Number of Outputs: 4
Connectors: 4 BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: 740ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: <0.2 UI

Electrical:

Voltage: +12 VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A, EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7750TG SDI Test Signal Generator

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Transport Stream Generator

Model 7750TG-TS

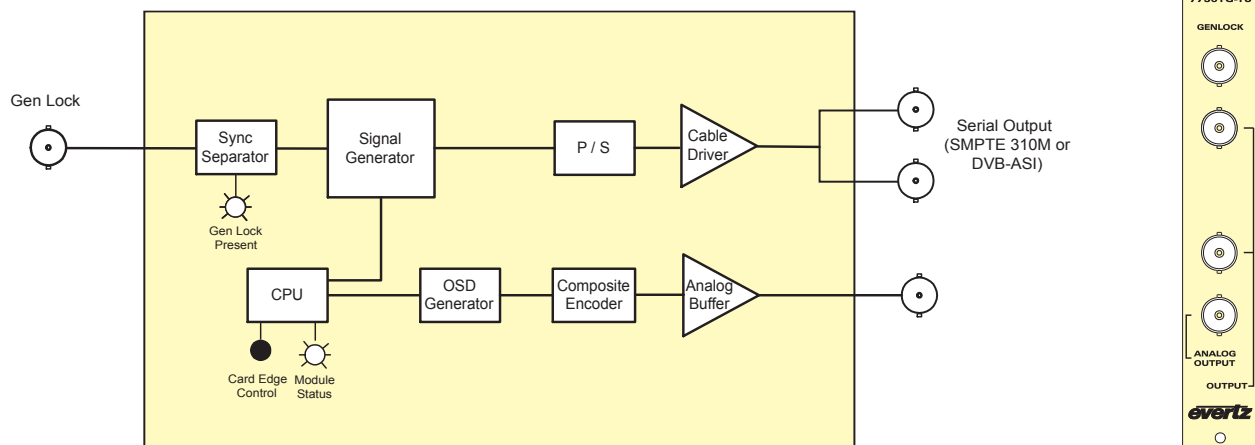
The 7750TG-TS Test Signal Generator provides a cost-effective method of generating SMPTE 310M and ASI test signals. The 7750TG-TS is ideal for checking signal path integrity, or to determine system performance over varying cable lengths. The 7750TG-TS generates test signals in either SMPTE 310M or DVB-ASI transport stream formats.

The 7750TG-TS provides an analog genlock input that allows you to synchronize the test signals to your plant horizontal and vertical timing.

Features

- SMPTE 310M and ASI outputs
- ATSC and MPEG-2 Main Level Main Profile structures multiple bit rates in ASI output mode
- Multiple video test signals, motion and non-motion, each is a fixed loop of GOPs
- All appropriate tables for ATSC and DVB supported
- Gen locks to bi-level or color black - clock or phase lock possible
- Card edge toggle switch selects test signal
- On screen setup menu
- Composite analog output with On Screen Menu Display on gray
- 8 position DIP switch selects output format
- 2 output drivers
- Tally output upon loss of gen lock
- Card edge LEDs indicate gen lock presence, and module status

7750TG-TS Block Diagram



Specifications

Genlock Input:

Type: Menu selectable - depends on output video format
NTSC or PAL Colour Black 1 V p-p
Composite Bi-level sync (525i) 300 mV
Connector: 1 BNC per IEC 60169-8 Amendment 2
Termination: 75Ω (jumper selectable)

Serial Transport Stream Outputs:

Standard: SMPTE 310M (19.4 Mb/s) or DVB ASI (15 to 50Mb/s) (switch selectable)

Number of Outputs: 2

Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 740ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 270 Mb/s
Wide Band Jitter: < 0.2 UI

Analog Video Output:

Standard: NTSC (SMPTE 170M)
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal

Electrical:

Voltage: + 12VDC
Power: 6 Watts.
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7750TG-TS SMPTE 310M/DVB-ASI Transport Stream Generator

Ordering Options:

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

The 7751TG2-CF-HD Test Signal Generator provides a cost-effective method of generating 1.5 Gb/s HDTV 4:2:2 and 4:4:4 test signals. The 7751TG2-CF-HD is ideal for checking signal path integrity, or to determine system performance over varying cable lengths. The 7751TG2-CF-HD generates test signals in a wide variety of SMPTE 292M video formats. In single link mode, the 7751TG2-CF-HD outputs a 4:2:2 black signal on two outputs and the selected 4:2:2 test signal on the remaining two outputs. In dual link mode, the 7751TG2-CF-HD outputs a 4:4:4 test signal on two dual-link 4:4:4 outputs.

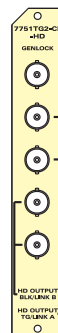
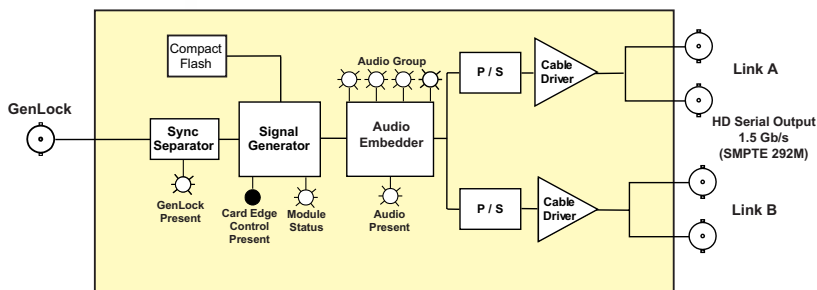
The 7751TG2-CF-HD provides downloadable bitmaps for trouble or test slides. Customers may store their own designed bitmaps (trouble slides, test slides, or test signals) into a directory structure on the compact flash. The module allows users to output one trouble slide on a pair of outputs and another trouble slide on the second pair of outputs. The 7751TG2-CF-HD comes with a 128MB compact flash. The 7751TG2-CF-HD provides an analog genlock input that allows you to synchronize the test signals to your plant horizontal and vertical timing.

Separate audio tones or user created WAV files can be embedded into each channel of two of the four embedded audio groups. The user can select which of the audio groups the tones will be embedded into. In dual link mode, the selected audio groups will be embedded into each link. The Audio level is fixed at -20 dB full scale.

Features

- Wide variety of 1080i, 1035i, 1080p, 480p and 720p output formats
- Compact flash for user created bitmaps (trouble slides, test slides, or test signals)
- Two user created bitmaps are sent individually on outputs
- User created WAV files can be sent in the embedded audio groups
- 8 position DIP switch selects output format, single or dual link and genlock reference
- Card edge toggle switch selects test signal
- Selectable gen lock input format - bi-level or tri-level sync, color black embedded audio tones for 4 groups selectable audio group assignment
- Closed caption test messages
- 2 black outputs, 2 test gen. outputs
- On screen display of test signal names
- On screen setup menu
- Tally output upon loss of gen lock
- Card edge LEDs indicate gen lock presence, module fault and audio signal presence on the output
- SMPTE 334M - EIA 708 advanced captioning test packet

7751TG2-CF-HD Block Diagram & Rear Panel



Specifications

Gen Lock Input:

Type: Menu selectable - depends on output video format
 HD Tri-level Sync
 NTSC or PAL Color Black 1 V p-p
 Composite Bi-level sync (525i or 625i) 300 mV
Connector: BNC per IEC 60169-8 Amendment 2
Termination: 75Ω (jumper selectable)

HD Serial Video Outputs:

Standard: SMPTE 292M, 4:2:2 YCBCR (single link)
 SMPTE 372M, 4:4:4 YCBCR or 4:4:4 GBRA (dual link)

Number of Outputs:

Single Link Mode: 2 outputs of Black video
 2 outputs of selected test signal
Dual Link Mode: 2 dual link outputs of selected test signal
Embedded Audio: Up to 4 groups in one audio group as specified in SMPTE 299M. Selectable tone frequencies (from 60 Hz to 10 kHz) and audio group. Audio can be embedded on either or both links. Audio Level is set to -20 dB Full Scale
Source ID: User programmable on-screen 15 character source ID message - selectable position. On Screen message can be displayed on either or both links

Connectors:

Signal Level: 800mV nominal
V Phasing: Infinite lines
H Phasing: Infinite samples
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: < 0.2 UI

Electrical:

Voltage: +12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
 EU EMC Directive

Physical:

7700 or 7701 frame mounting:
Number of slots: 1

Stand Alone Enclosure:

Dimensions: 14 " L x 4.5 " W x 1.9 " H
 (355 mm L x 114 mm W x 48 mm H)
Weight: approx. 1.5 lbs. (0.7 Kg)

Ordering Information:

7751TG2-CF-HD HD Test Signal Generator with Trouble Slide

Ordering Options

Rear Plate must be specified at time of order
 Eg: Model +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Dual HD Test Signal Generator with Embedded Audio

Model 7751TG2-HD

The 7751TG2-HD Test Signal Generator provides a cost-effective method of generating 1.5 Gb/s HDTV 4:2:2 and 4:4:4 test signals. The 7751TG2-HD is ideal for checking signal path integrity, or to determine system performance over varying cable lengths. The 7751TG2-HD generates test signals in a wide variety of SMPTE 292M video formats. In single link mode, the 7751TG2-HD outputs a 4:2:2 black signal on two outputs and the selected 4:2:2 test signal on the remaining two outputs. In dual link mode, the 7751TG2-HD outputs a 4:4:4 test signal on two dual-link 4:4:4 outputs.

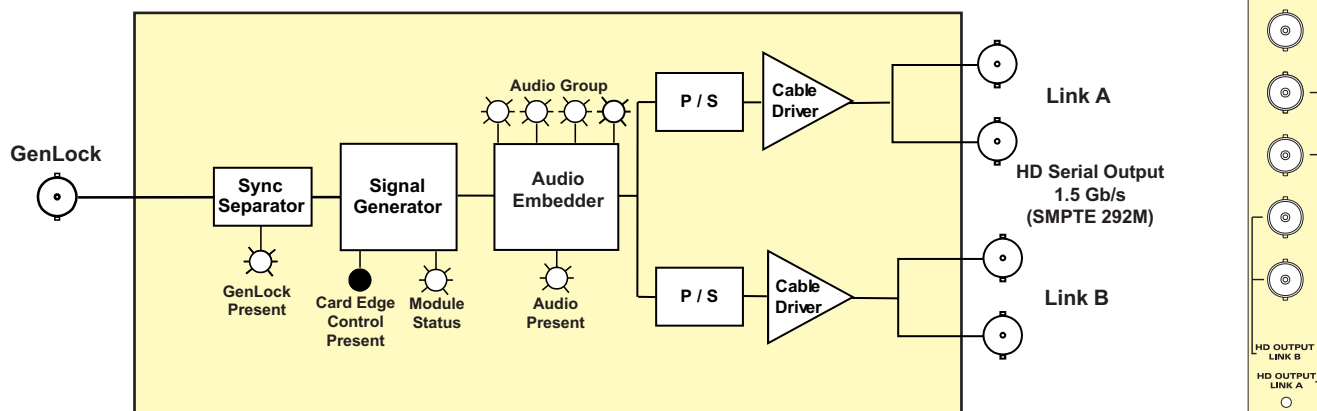
The 7751TG2-HD provides an analog genlock input that allows you to synchronize the test signals to your plant horizontal and vertical timing.

Separate audio tones can be embedded into each channel of two of the four embedded audio groups. The user can select which of the audio groups the tones will be embedded into. In dual link mode, the selected audio groups will be embedded into each link. The Audio level is fixed at -20 dB full scale.

Features

- Wide variety of 1080i, 1035i, 1080p, 480p and 720p output formats
- 8 position DIP switch selects output format, single or dual link and genlock reference
- Card edge toggle switch selects test signal
- Selectable gen lock input format - bi-level or tri-level sync, color black embedded audio tones for 4 groups selectable audio group assignment
- Closed caption test messages
- 2 black outputs, 2 test gen. outputs
- On screen display of test signal names
- On screen setup menu
- Tally output upon loss of gen lock
- Card edge LEDs indicate gen lock presence, module fault and audio signal presence on the output
- SMPTE 334M - EIA 708 advanced captioning test packet

7751TG2-HD Block Diagram



Specifications

Gen Lock Input:

Type: Menu selectable - depends on output video format
HD Tri-level Sync
NTSC or PAL Colour Black 1 V p-p
Composite Bi-level sync (525i or 625i) 300 mV
Connector: BNC per IEC 60169-8 Amendment 2
Termination: 75Ω (jumper selectable)

HD Serial Video Outputs:

Standard: SMPTE 292M, 4:2:2 YCBCR (single link)
SMPTE 372M, 4:4:4 YCBCR or 4:4:4 GBRA (dual link)

Number of Outputs:

Single Link Mode: 2 outputs of Black video
2 outputs of selected test signal
2 dual link outputs of selected test signal

Dual Link Mode: 2 dual link outputs of selected test signal

Embedded Audio: Up to 4 groups in one audio group as specified in SMPTE 299M. Selectable tone frequencies (from 60 Hz to 10 kHz) and audio group. Audio can be embedded on either or both links. Audio Level is set to -20 dB Full Scale.

Source ID: User programmable on-screen 15 character source ID message - selectable position. On Screen message can be displayed on either or both links

Connectors: 4 BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

V Phasing: Infinite lines

H Phasing: Infinite samples

DC Offset: 0V ±0.5V

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Wide Band Jitter: < 0.2 UI

Electrical:

Voltage: + 12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 or 7701 frame mounting:
Number of slots: 1

Stand Alone Enclosure:

Dimensions: 14 " L x 4.5 " W x 1.9 " H
(355 mm L x 114 mm W x 48 mm H)
Weight: approx. 1.5 lbs. (0.7 Kg)

Ordering Information:

7751TG2-HD Dual HD Test Signal Generator with embedded audio

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

SDI Video and Audio Monitoring/Conversion

Model 7760AVM2



The 7760AVM2 series of products provide a great solution for the monitoring of video and audio signals within a modern broadcast facility. Up to 15 modules can be installed in one 3RU 7700FR-C frame.

The 7760AVM2 accepts a Standard Definition Serial Digital Video input signal and provides an SDI, or composite video output along with analog audio outputs. Audio bargraphs are optionally superimposed on the video outputs by a linear keyer system. Along with the video and audio outputs, a reclocked version of the serial digital video input signal is also provided.

The 7760AVM2 can be ordered with the 7760AVM-BHP Bulkhead Breakout Panel. This panel is an accessory that provides a convenient way of connecting the audio and GPIO signals into the High Density DB-15 connectors on the rear of the modules. This panel is available for five or ten 7760AVM's and includes 3 ft. cables to connect to the AVM modules.

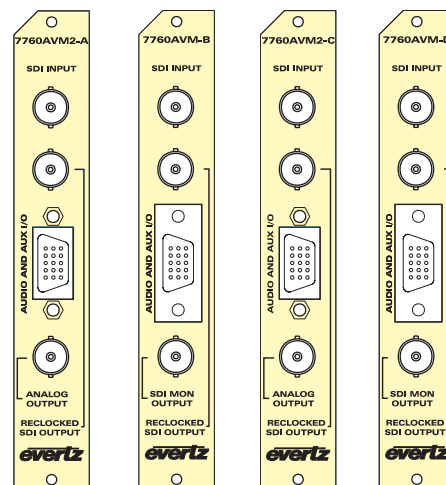
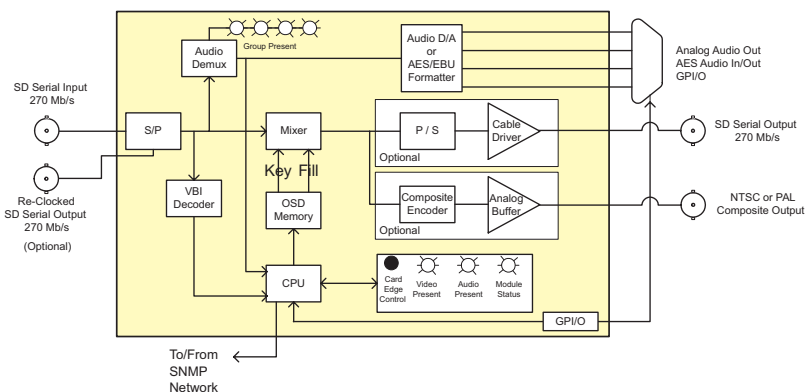
In addition 7760AVM2 modules are also VistaLINK™ - enabled offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK™ is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame.

7760AVM2-X				
Feature	A	B	C	D
Reclocked SDI Output	1	1	1	1
SDI Outputs with Superimposed Information	0	1	0	1
Composite analog outputs with superimposed information	1	0	1	0
Closed Caption Decoding *(analog outputs only, not on SDI outputs)	Y	N	Y	N
AES/EBU Digital Audio Inputs	0	0	2	2
AES/EBU Digital Audio Outputs	2	2	0	0
Analog Audio Outputs	4	4	4	4
Max. Number of cards in a 7700FR-C	15	15	15	15

Features:

- One SDI 525 or 625, 270 Mb/s component digital video input
- One group (4 channels of audio) is demultiplexed from the incoming digital video and VU/PPM level Bargraphs are keyed into the output video
- 4 adjustable analog audio outputs available for content monitoring
- Decodes vertical interval time code (VITC) and Source ID burning it into the picture
- Program rating (V-Chip) display
- A comprehensive on screen display is available to configure the various features of the module
- Decodes & monitors Video Indexing, AFD, subtitle and teletext
- Flexible configuration of the text and audio bar graph information displays
- An extensive list of error conditions can be monitored and fault conditions can be configured from these errors
- Detects frozen (patent pending) or black video
- Two GPI inputs are available to modify the display characteristics
- Fault conditions trigger On Screen messages, GPI outputs and can be logged on an RS-232 data logging port
- XDS decoding and display on output video (Network name, Network call letters, program name and time of day)
- Fault condition logic menu option
- VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP using VistaLINK™ Pro, 9000NCP or 9000NCP2 Network Control Panel. VistaLINK™ is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller

7760AVM2 Block Diagram



SDI Video and Audio Monitoring/Conversion

Specifications

Serial Video Input:

Standard: SMPTE 259M-C - 525 or 625 line component
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic >200m @ 270 Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15 dB up to 270 Mb/s
Embedded Audio: SMPTE 272M-A

Serial Video Output:

Standard: Same as Input
Reclocked Outputs: 1 on versions A, B, C, & D
Monitor Outputs: 1 on versions B & D
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 470ps nominal
Overshoot: <10% of amplitude
Embedded Audio: SMPTE 272M-A

Analog Video Output:

Standard: NTSC, SMPTE 170M, PAL, ITU624-4
Number of Outputs: 1 on versions A
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V \pm 0.1V
Return Loss: > 35dB up to 5MHz
Frequency Response: 0.8dB to 4 MHz
Differential Phase: < 0.9° (<0.6° typical)
Differential Gain: < 0.9% (<0.5 % typical)
SNR: >56dB to 5 MHz (shallow ramp)

Audio Bar Graphs:

Number of Graphs: 4 level (1 group) and 2 phase meters
Type: VU, PPM
Ballistics: AES/EBU, BBC, DIN, NORDIC N9

Analog Audio Output:

Number of Outputs: 4
Type: Balanced analog audio
Connector: Female High Density DB-15
Output Impedance: 33 Ω
Sampling Frequency: 48kHz
Signal Level: 0dBFS =>8 to 24dBu (user definable)
Note: High impedance loads only (10k Ω)
Not good for low impedance load (i.e. 600 Ω)
Frequency Response: 50Hz to 20kHz: +/- 0.20dB
SNR: >85dB (50Hz to 20 kHz)
THD+N: 65 dB @ 1kHz, 0 dB FS, typical

AES Audio Inputs and Outputs:

Number of Inputs: 2 on versions C & D
Number of Outputs: 2 on versions A & B
Standard: SMPTE 276M, single ended AES
Connectors: Female High Density DB-15
Resolution: 24-bit
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced

General Purpose Interface I/O (GPI/GPO):

Number of Inputs: 2
Number of Outputs: 1
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: Female High Density DB-15
Signal Level: +5V nominal (high), 0V (low)

Data Logging Serial Port:

Standard: RS-232
Connector: Female DB-25
Baud Rate: 57600
Format: 8-bit, no parity, 2 stop bits

Physical:

Number of slots: 1

Electrical:

Voltage: +12VDC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7760AVM2-A to D SDI Video & Audio Monitor/Conversion with On Screen Display (Single Slot) with Teletext subtitle decoder

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Rack Mount Bulkhead Breakout Panels (BHP):

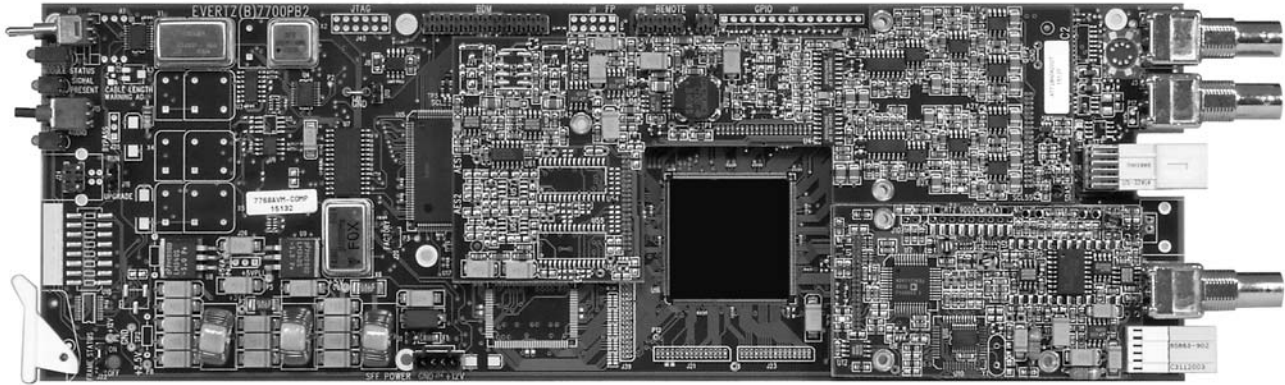
7760AVM-BHP-10 Bulkhead Breakout panel for 10 AVMs includes 10 WPAVMIO-1-0-3F - 3' cables
7760AVM-BHP-5 Bulkhead Breakout panel for 5 AVMs includes 5 WPAVMIO-1-0-3F - 3' cables

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD Video and Audio Monitoring

Model 7760AVM2-HD



The 7760AVM2-HD line of audio and video monitoring cards perform a number of quality control and monitoring functions associated with a modern high definition and standard definition serial digital television facility. They perform audio and ancillary data (for HD) or vertical blanking interval (VBI) data (for SDI) demultiplexing from the incoming digital video, analyze the data and display key information about the data on the output video. The outputs are either analog and/or digital video with analog or digital audio.

The 7760AVM2-HD can be ordered with the 7760AVM-BHP Bulkhead Breakout Panel. This panel is an accessory that provides a convenient way of connecting the audio and GPIO signals into the High Density DB-15 connectors on the rear of the modules. This panel is available for five or ten 7760AVM's and includes 3 ft. cables to connect to the AVM modules.

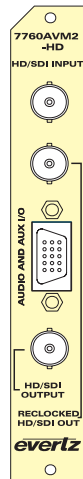
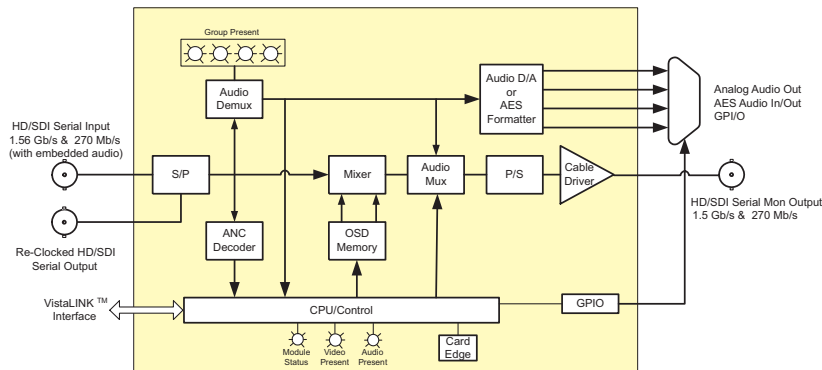
In addition 7760AVM2-HD modules are also VistaLINK™ - enabled offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK™ is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame.

Features:

- One auto sensing video input - supports 1080i/60, 1080i/59.94, 1080i/50, 720p/60, 720p/59.94, 525i/59.94 or 625i/50
- One group (4 channels of audio) is demultiplexed from the incoming digital video and VU/PPM level Indicators are keyed as bar graphs in over the picture
- One re-clocked HD/SDI video output
- Two AES/EBU digital audio outputs
- Audio monitoring of externally applied AES audio instead of embedded audio
- 4 analog audio outputs available for content monitoring.
- Analog audio output levels are adjustable
- Analog audio outputs can be set so both are mono mix of the selected channel pair
- Decodes RP188 Ancillary time code from HD signals or vertical interval time code (VITC) from SDI signals and "burns" the time code into the picture
- Decodes Evertz format VITC Source ID (5 or 9 characters) from SDI signals and burns the ID into the picture
- Decodes Evertz format ATC Source ID (5 or 9 characters) from HD signals and burns the ID into the picture
- Decodes Line 21 XDS packets from SDI signals and displays net work name, call letters, program name and time of day
- A comprehensive on screen display is available to configure the various features of the module
- Flexible configuration of the text and audio bar graph information displays
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions.
- On screen messages can be triggered by the configured fault conditions.
- Two GPI inputs are available to modify the display characteristics.
- GPO output to indicate user definable fault conditions.
- Audio and GPI/Os are available on a high density DB15 connector
- 7760AVM-BHP bulkhead panel is available to facilitate wiring to the high density DB15 connector. (up to 10 AVM2-HD modules can be wired using each bulkhead panel)
- RS-232 Data logging port to log fault conditions
- VistaLINK™ -enabled offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK™ is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame

HD Video and Audio Monitoring

7760AVM2-HD Block Diagram



Specifications

Serial Video Input:

Standard: Auto detect SMPTE 292M and SMPTE 259-M (525i/59.94 or 625i/50)
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic >115m @ 1.5Gb/s with Belden 1694 (or equivalent); to 300m @ 270Mb/s
Return Loss: > 15 dB up to 270Mb/s
Embedded Audio: SMPTE 272M-A

Serial Video Output:

Standard: Same as input
Reclocked Outputs: 1 (Same as input)
Monitor Outputs: 1 (Same as input)
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 470ps nominal
Overshoot: <10% of amplitude

Audio Bar Graphs:

Number of Graphs: 4 level (1 group) and 2 phase meters
Type: VU, PPM
Ballistics: AES/EBU, BBC, DIN, NORDIC N9

Analog Audio Output:

Number of Outputs: 4
Type: Balanced analog audio
Connector: Female High Density DB-15
Output Impedance: 33Ω
Sampling Frequency: 48kHz
Signal Level: 0dBFS =>8 to 24dBu (user definable)
Note: High impedance loads only (10kΩ)
Not good for low impedance load (i.e. 600 Ω)
Frequency Response: 50Hz to 20kHz: +/- 0.20dB
SNR: >85dB (50Hz to 20 kHz)
THD+N: 65 dB @ 1kHz, 0 dB FS, typical

AES Audio Outputs:

Number of Outputs: 2
Standard: SMPTE 276M, single ended AES
Connectors: Female High Density DB-15
Resolution: 24-bit
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced

General Purpose Interface I/O (GPI/GPO):

Number of Inputs: 2
Number of Outputs: 1
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: Female High Density DB-15
Signal Level: +5V nominal (high), 0V (low)

Standard: RS-232
Connector: Female DB-25
Baud Rate: 57600
Format: 8-bit, no parity, 2 stop bits

Physical:

Number of slots: 1

Electrical:

Voltage: +12VDC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7760AVM2-HD HD Video & Audio Monitoring

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Accessories:

Rack Mount Bulkhead Breakout Panels (BHP):

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

7760AVM-BHP-10 Bulkhead Breakout panel for 10 AVMs includes 10 WPAVMIO-1-0-3F - 3' cables
7760AVM-BHP-5 Bulkhead Breakout panel for 5 AVMs includes 5 WPAVMIO-1-0-3F - 3' cables

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Data Logging Serial Port:



The 7760AVM2 series of video and audio monitoring cards perform a number of quality control and monitoring functions associated with a modern high definition and standard definition serial digital television facility. They perform audio and ancillary data (for HD) or vertical blanking interval (VBI) data (for SDI) demultiplexing from the incoming digital video, analyze the data and display key information about the data on the output video. The outputs are either analog and/or digital video with analog or digital audio.

The 7760AVM2 series modules are available in SD-only versions (7760AVM2-A and 7760AVM2-B) and a combination HD/SD version (7760AVM2-HD).

The 7760AVM2 series modules can be ordered with a 7760AVM-BHP Bulkhead Breakout Panel. This panel is an accessory that provides a convenient way of connecting the audio and GPIO signals into the high-density DB-15 connectors on the rear of the modules. This panel is available for five or ten 7760AVM2's and includes 3 ft. cables to connect to the 7760AVM2 modules.

The 7760AVM2 series modules occupy one card slot in the 3RU frame (7700FR-C), which will hold up to 15 modules or one slot in the 1RU frame (7701FR), which will hold up to three modules. The 7760AVM2 series modules may also be used in a standalone unit (S7701FR).

VistaLINK® enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK® Pro locally or remotely.

Features:

- One group (4 channels of audio) is demultiplexed from the incoming digital video and VU/PPM level Indicators are keyed as bar graphs in over the picture
- 4 analog audio outputs available for content monitoring.
- Analog audio output levels are adjustable
- Analog audio outputs can be set so both are mono mix of the selected channel pair
- Decodes Line 21 XDS packets from SD signals and displays network name, call letters, program name and time of day
- Decodes Widescreen Signaling (WSS), Video Indexing, Active Format Description (AFD), subtitles, and teletext for monitoring.
- Displays program rating (V-Chip)
- Decodes EIA-608 closed captions from SD signals and displays on screen.
- Decodes vertical interval time code (VITC) from SD signals and "burns" the time code into the picture
- A comprehensive on screen display is available to configure the various features of the module
- Flexible configuration of the text and audio bar graph information displays.
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
- On screen messages can be triggered by the configured fault conditions.
- Two GPI inputs are available to modify the display characteristics
- GPO output to indicate user definable fault conditions
- Audio and GPI/Os are available on a high density DB15 connector
- 7760AVM-BHP bulkhead panel is available to facilitate wiring to the high density DB15 connector. (up to 10 AVM2 modules can be wired using each bulkhead panel)
- RS-232 Data logging port to log fault conditions
- VistaLINK® - enabled offering remote control and configuration capabilities via SNMP using VistaLINK® Pro, 9000NCP or 9000NCP2 Network Control Panel. VistaLINK® is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller

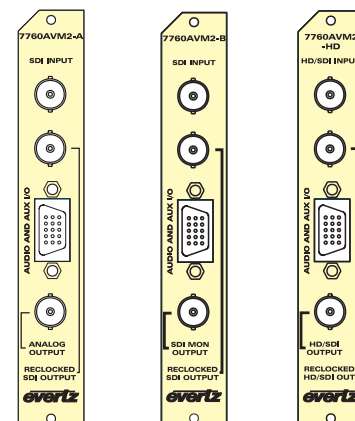
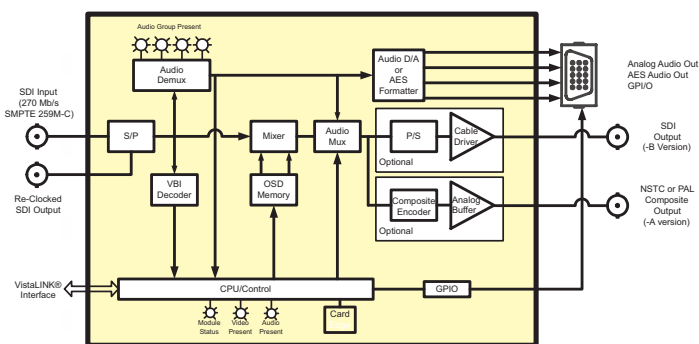
Features (7760AVM2-A and -B versions only):

- One 270 Mb/s SDI 525i/59.94 or 625i/50 video input
- One re-clocked SDI video output
- One SDI video output with superimposed monitoring information (-B version only)
- Composite analog output video with superimposed monitoring information (-A version only)
- Decodes PESA format Source ID (8 characters) or Evertz format VITC Source ID (5 or 9 characters) from SDI signals and burns the ID into the picture

Features: (7760AVM2-HD versions only):

- One auto sensing video input - supports 1080i/60, 1080i/59.94, 1080i/50, 720p/60, 720p/59.94, 720p/50, 525i/59.94 or 625i/50
- One re-clocked HD or SD video output (same as input)
- One HD or SD (same as input) video output with superimposed monitoring information
- Decodes RP188 Ancillary time code (ATC) from HD signals or vertical interval time code (VITC) from SD signals and "burns" the time code into the picture
- Optionally decodes PESA format Source ID (8 characters) or Evertz format VITC Source ID from SDI signals, or Evertz format ATC Source ID from HD signals and burns the ID into the picture. (with +SID option)
- Decodes EIA-708 closed captions from HD signals and displays on screen.

7760AVM2 Block Diagram & Rear Panels



Specifications

Serial Video Digital Input:

Standards:	Auto detect or menu selectable SMPTE 292M (1.5Gb/s): 1080i/60, 1080i/59.94, 1080i/50, 720p/60, 720p/59.94 and 720p/50 - 7760AVM2-HD only SMPTE 259M-C (270 Mb/s): 525i/59.94 or 625i/50
Number of Inputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2
Input Equalization:	Automatic to 200m @ 270Mb/s with Belden 8281 or equivalent cable. Automatic to 115m @ 1.5Gb/s with Belden 1694A or equivalent cable.
Return Loss:	
SD Standards:	>15 dB up to 270Mb/s
HD Standards:	>15 dB up to 1.5Gb/s

Serial Video Digital Output:

Standard:	Same as input
Number of Outputs:	1 Reclocked (all models) 1 Monitored (7760AVM2-B and 7760AVM2-HD)
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	
SD Standards:	470ps nominal
HD Standards:	200ps nominal
Overshoot:	<10% of amplitude

Analog Video Output (7760AVM2-A only):

Standard:	NSTC, SMPTE 170M; PAL, ITU-R BT.1700
Number of Outputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	1V nominal
DC Offset:	0V \pm 0.1V
Return Loss:	>35dB up to 5MHz
Frequency Response:	0.8dB to 4 MHz
Differential Phase:	< 0.9° (<0.6° typical)
Differential Gain:	< 0.9% (<0.5% typical)
SNR:	>56dB to 5 MHz (shallow ramp)

Analog Audio Outputs:

Number of Outputs:	4
Type:	Balanced Analog Audio
Connectors:	Female High Density DB-15
Output Impedance:	33 Ω
Sampling Frequency:	48kHz
Signal Level:	0dB FS => 8 to 24dBu (user settable) NOTE: High impedance loads only (10 kW) Not good for low impedance loads (i.e. 600 W)
Frequency Response:	50Hz to 20kHz: \pm 0.20dB
SNR:	>85dB (50Hz to 20 kHz)
THD+N:	65 dB @ 1kHz, 0 dB FS, typical

AES Audio Outputs:

Number of Outputs:	2
Standard:	SMPTE 276M compatible, single ended synchronous or asynchronous AES
Connectors:	High-density female DB-15
Resolution:	24 bits
Sampling Rate:	48 kHz
Impedance:	75 Ω unbalanced

Audio Bar Graphs:

Number of Graphs:	4 (1 group)
Ballistics:	AES/EBU, DIN, BBC and Nordic N9

General Purpose Interface I/O (GPI/GPO):

Number of Inputs:	2 (behavior is assigned via On screen menu items)
Number of Outputs:	1 (behavior is programmable via On screen menu items)
Type:	Opto-isolated, active low with internal pull-ups to +5V
Connector:	Female High Density DB-15
Signal Level:	+5V nominal

Data Logging Serial Port:

Standard:	RS-232
Connector:	Female High Density DB-15
Baud Rate:	57600
Format:	8-bits, no parity, 2 stop bits and no flow control

Physical:

Number of slots:	1
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Electrical:

Voltage:	+12VDC
Power:	12 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Ordering Information:

7760AVM2-A to B	SDI Video & Audio Monitor/Conversion with On Screen Display (Single Slot) with Teletext subtitle decoder
7760AVM2-HD	HD Video & Audio Monitoring

Ordering Options

Rear Plate must be specified at time of order
Eg: Model +3RU

+SID	Source ID Decoder option for 7760AVM2-HD
Rear Plate Suffix	
+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Accessories:

7760AVM-BHP-10	Bulkhead Breakout panel for 10 AVMs includes 10 WPAVMIO-1-0-3F - 3' cables
7760AVM-BHP-5	Bulkhead Breakout panel for 5 AVMs includes 5 WPAVMIO-1-0-3F - 3' cables
7700FC	VistaLINK® Frame Controller
9000NCP	1RU VistaLINK® General Purpose Network Control Panel
9000NCP2	2RU VistaLINK® General Purpose Network Control Panel

Enclosures:

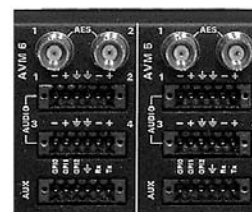
7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

AVM Bulkhead Breakout Panels

Models 7760AVM-BHP-5
7760AVM-BHP-10
7761AVM-DC-BHP-15
7765AVM-4A-BHP-7
7766AVM-4A-BHP-4
7766AVM-4A-BHP-1

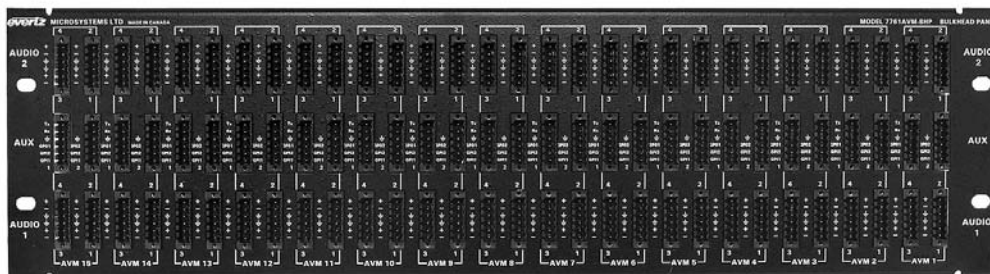
Bulkhead Breakout Panels (BHP) provide a convenient way of connecting audio and auxiliary input and output signals into module rear plate D-connectors. Each BHP may be outfitted with BNCs and/or terminal strips, extending AES, GPI/O, Tx/Rx and GND connections. BHPs occupy 1RU, 2RU or 3RU of rack space and are designed for mounting at the rear of the rack panel. BHPs include standard 3ft. adapter cables to connect with rear plate D-connectors.

7760AVM-BHP-5, 7760AVM-BHP-10



The 7760AVM-BHP Bulkhead Breakout Panel can be used to connect up to five or ten 7760AVM, 7760AVM2 and 7735AVC-LB modules. Each of the ten sets of connectors on the breakout panel is fitted with two BNCs for audio in or out, two six position terminal strips for the 4 channels of analog audio, and one six position terminal strip for the GPI I/O and RS-232 signals.

7761AVM-DC-BHP-15



The 7761AVM-4A-BHP Bulkhead Breakout Panel is available to facilitate wiring to the DB-25 connector. This 3RU panel allows for convenient audio, GPI/O and RS-232 connections for up to fifteen 7761AVM-DC modules.

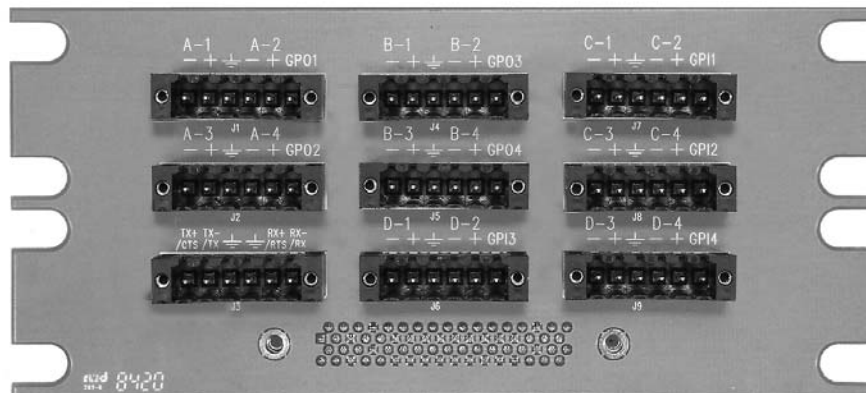
AVM Bulkhead Breakout Panels

7765AVM-4A-BHP-7



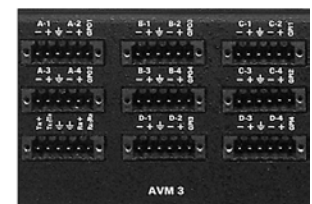
The 7765AVM-4A-BHP Bulkhead Breakout Panel provides a convenient way of connecting AES/EBU audio and GPI I/O signals into the DB-25 on up to seven 7765AVM-4A modules.

7766AVM-4A-BHP-1



The 7766AVM-4A-BHP Bulkhead Breakout Panel provides a convenient interconnection to the 7766AVM-4A Analog Quattro™ and Analog Multiviewer modules, 68 pin rear plate SCSI connector. This is used to link analog audio inputs and AUX I/O signals to the module.

7766AVM-4A-BHP-4



Ordering Information

7760AVM-BHP-5	Bulkhead Breakout Panel for 5 x 7760AVMs (includes 5-3ft cables)
7760AVM-BHP-10	Bulkhead Breakout Panel for 10 x 7760AVMs (includes 10-3ft cables)
	(Optional Cables - WPAVMIO-1-0-1F (1' Adapter Cable)
	WPAVMIO-1-0-3F (3' Adapter Cable)
	WPAVMIO-1-0-6F (6' Adapter Cable)
7761AVM-DC-BHP-15	Bulkhead Breakout Panel for 15 x 7761AVM-DCs (includes 15-3ft cables)
7765AVM-4A-BHP-7	Bulkhead Breakout Panel for 7 x 7765AVM-4A (includes 7-3ft cables)
7766AVM-4A-BHP-4	Bulkhead Breakout Panel for 4 x 7766AVM-4A (includes 4-3ft cables)
7766AVM-4A-BHP-1	Bulkhead Breakout Panel for 1 x 7766AVM-4A (includes 1-3ft cable)

SDI Video and Audio Monitoring/Conversion (without on screen display)

Model 7760AVM-LITE

The 7760AVM-Lite Audio/Video Monitor provides a convenient low cost solution for composite analog monitoring of a 270Mb/s serial digital video signal, and provides analog conversion of 1 group of embedded or *external AES audio.

The digital component video is converted to analog composite (NTSC/PAL-B). Closed captioning can be keyed onto the output composite video.

SMPTE 272M allows for up to four groups of AES audio (4 channels/group) to be embedded within a serial digital signal. The 7760AVM-Lite can de-multiplex one group and convert all 4 channels to low impedance balanced analog audio through 24-bit DAC's. In addition, the same audio is available simultaneously as 75Ω unbalanced digital AES on the 7760AVM-Lite A.

*The 7760AVM-Lite B allows for monitoring of external or embedded AES audio but does not supply de-multiplexed AES audio out.

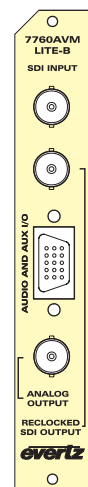
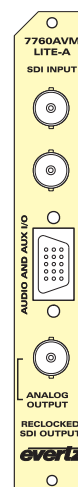
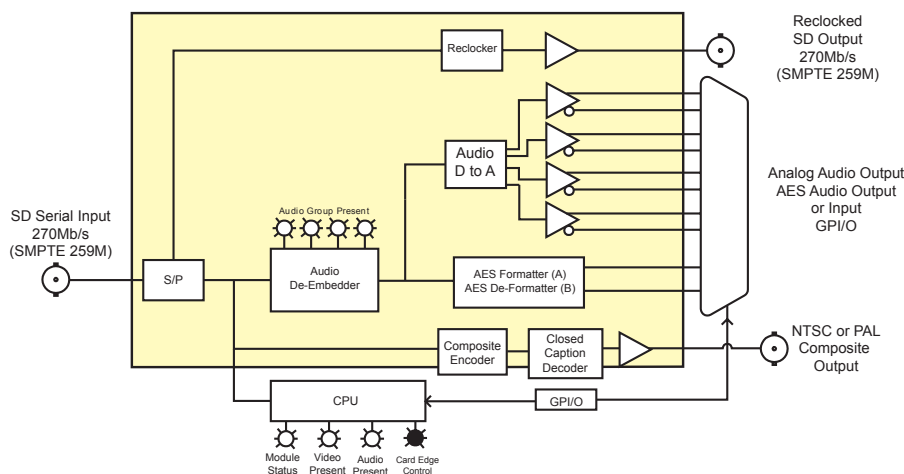
Features

- 1 Reclocked SDI output
- Composite analog (NTSC/PAL-B) output
- 4 Balanced analog audio outputs
- 2 AES digital audio outputs or inputs
- 1 General purpose output to indicate the loss of video and/or audio
- Built in closed caption decoder with on/off control via dip switch and GPI
- Audio group selection via card edge DIP switches
- Selectable analog audio output levels
- Audio channel swapping selection via card edge DIP switches
- Selectable NTSC pedestal on/off

Card Edge LED's:

- Module Status
- Local Fault
- Video Signal Presence
- Audio groups present in input video
- Selected audio group presence

7760AVM-LITE Block Diagram



SDI Video and Audio Monitoring/Conversion (without on screen display)

Specifications

Serial Video Input:

Standard: SMPTE 259M-C 525 or 625 line component
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 200m @ 270 Mb/s with Belden 8281 (or equivalent)
Return Loss: >15 dB up to 270 Mb/s

Serial Video Output:

Standard: Same as input
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 470ps nominal
Overshoot: <10% of amplitude
Return Loss: >15 dB up to 270 Mb/s
Wide Band Jitter: <0.2 UI

AES Audio Inputs:

Number of Inputs: 2 on version B
Standard: SMPTE 276M, single ended AES
Connectors: Female High Density DB-15
Resolution: 24-bit
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced

AES Audio Outputs:

Number of Outputs: 2 on version A
Standard: SMPTE 276M, single ended AES
Connectors: Female High Density DB-15
Resolution: 24-bit
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced

Analog Video Output:

Type: NTSC, (SMPTE 170M) or PAL-B, (ITU 624-4)
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V \pm 0.1V
Return Loss: >35dB up to 5MHz
Frequency Resp: 0.8dB to 4 MHz
Differential Phase: <.9° (typical <0.5%)
Differential Gain: <0.9% (typical <0.5%)
SNR: >56dB to 5 MHz (shallow ramp)
Processing Delay: 1.9 μ s

Analog Audio Outputs:

Number of Outputs: 4
Type: Balanced analog audio
Connector: Female High Density DB-15
Output Impedance: 33 Ω
Sampling Frequency: 48kHz
Signal Level: 0dB FS => 20 dBu, 22dBu, 24dBu
NOTE: High impedance loads only (>10k Ω)
Not good for low impedance loads (i.e. 600 Ω)
Frequency Resp.: 50Hz to 20kHz: +/- 0.20dB
SNR: >85dB (50Hz to 20 kHz)
THD+N: 65 dB@ 1kHz, 0 dBFS, typical
Resolution: 24-bit

Electrical:

Voltage: +12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7760AVM-LiteX SDI Video & Audio Monitoring/Conversion
X = A or B(A - AES Output), (B - AES Input)

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

SDI Closed Caption & XDS Decoder & EIA608 Analyzer

Model 7760CCM



The 7760CCM closed captioning monitoring card extends the signal monitoring capabilities of Evertz AVM product line by focusing on closed captioning and eXtended Data Services (XDS) data packets carried within the Vertical Blanking Interval (VBI). Compliant with the EIA Standard EIA/CEA-608-B, the 7760CCM can be used to monitor VBI content for pre-distribution monitoring or regulatory compliance.

The 7760CCM is capable of decoding VBI Line 21, fields 1 and 2 data and displaying the information on the SD video output. One of four closed captioning channels (CC1-CC4) and one of four text service channels (T1-T4) can be simultaneously displayed on the video output. In addition, the scrolling XDS display supports all data packets including Transmission Signal Identifier (TSID), Copy Generation Management System (CGMS-A), V-Chip rating, Station name, Station ID, Program Name, Program Type, Program Description, time of day, and time in show are decoded to human-readable format. Other (less common) packets are presented as raw data bytes.

The 7760CCM incorporates the fault reporting capabilities inherent in the AVM product line. There are four user-configurable fault alerts that are triggered upon loss of video, loss of CC waveform, parity errors, field inversions, control codes and invalid XDS parameters. The 7760CCM is also VistaLINK™-enabled, offering remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP).

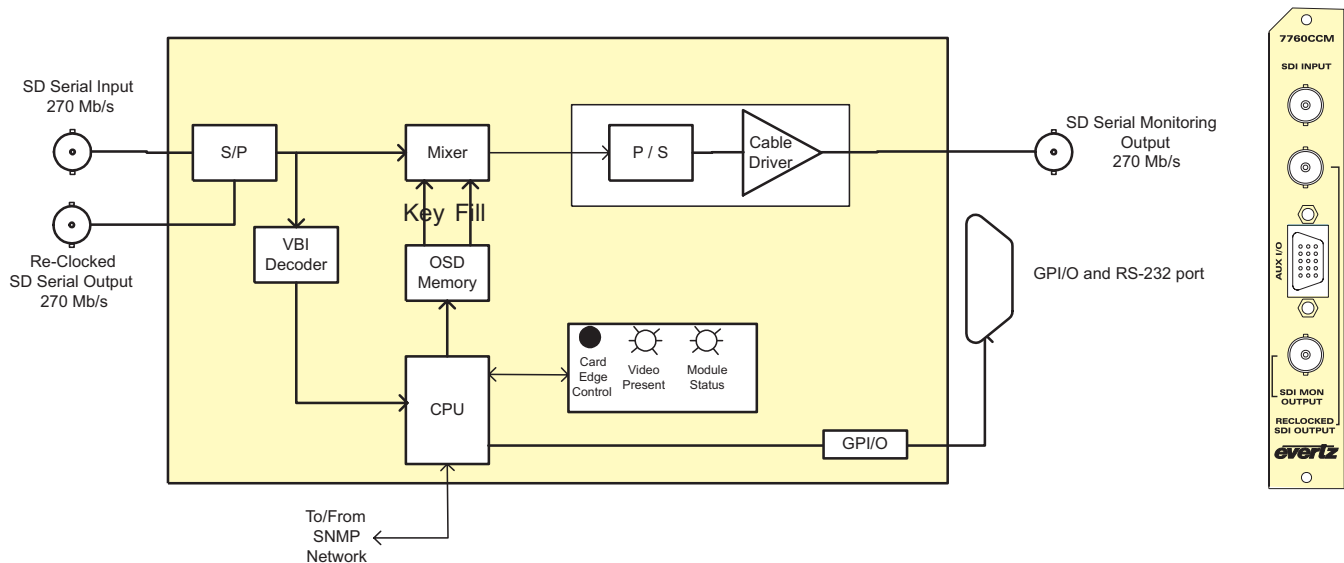
The single-slot, 7760CCM module fits conveniently into Evertz 7700FR-C, 7701FR frames or standalone enclosure.

Features

- One SD, 270 Mb/s component digital video input, 525 or 625 lines, auto-detected or manually set
- One re-clocked SD video output
- Decodes and displays closed captioning on fields 1 and 2 as per EIA Standard EIA/CEA-608-B
- User selectable closed captioning channel (1-4), text channel (1-4) and eXtended Data Services (XDS) for video "burn-in"
- Decodes Line 21 XDS packets including Transmission Signal Identifier (TSID), Copy Generation Management System (CGMS-A), Program ID, Time in show, Program name, Program type, V-chip rating, Program description, Network name, Station ID, Time of day and Time zone
- Store and recall up to three module configurations
- Fits conveniently into Evertz 7700FR-C 3RU, 7701FR 1RU frames and stand-alone enclosure
- A comprehensive on screen display menu is available to configure the various features of the module as well as allows flexible configuration of the text window positioning
- An extensive list of closed captioning and XDS error conditions can be enabled and monitored with on-screen fault messages triggered by exceeded timer parameters
- Four user-configurable GPI inputs for on screen display control, closed captioning channel and text channel selection
- Two user-configurable GPI outputs to indicate user definable fault conditions
- RS-232 serial port output used to transmit raw closed captioning data. (Compliments VBI Bridge functionality of Evertz 8084 CC Encoders)
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

SDI Closed Caption & XDS Decoder & EIA608 Analyzer

7760CCM Block Diagram



Specifications

Serial Digital Input:

Standard: SMPTE 259M-C - 525 or 625-line component serial digital video, 270Mb/s
Connector: 1 BNC per IEC 60169-8 Amendment 2
Termination: 75 Ω
Equalization: Automatic to 225m @ 270 Mb/s with Belden 8281 or equivalent cable
Return Loss: >15dB up to 270MHz

Serial Video Output:

Standard: SMPTE 259M-C - 525 or 625-line component - same as input
Number of Outputs: 1
Reclocked: 1
Monitored: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 470ps nominal
Overshoot: <10% of amplitude

General Purpose Interface I/O (GPI/GPO):

Number of Inputs: 4 (behavior is assigned via. On screen menu items)
Number of Outputs: 2 (behavior is programmable via. On screen menu items)
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: Female High Density DB-15
Signal Level: +5V nominal

Serial Port:

Standard: RS-232
Connector: Female High Density DB-15
Baud Rate: 9600
Format: 8 bits, no parity, 1 stop bits and no flow control

Electrical:

Voltage: + 12VDC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7760CCM SDI Closed Caption & XDS Decoder & EIA608 Analyzer with VistaLINK™ support

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD-SDI/SD-SDI Closed Caption EIA608/EIA708 Translator/Monitor Translator

Model 7760CCM-HD

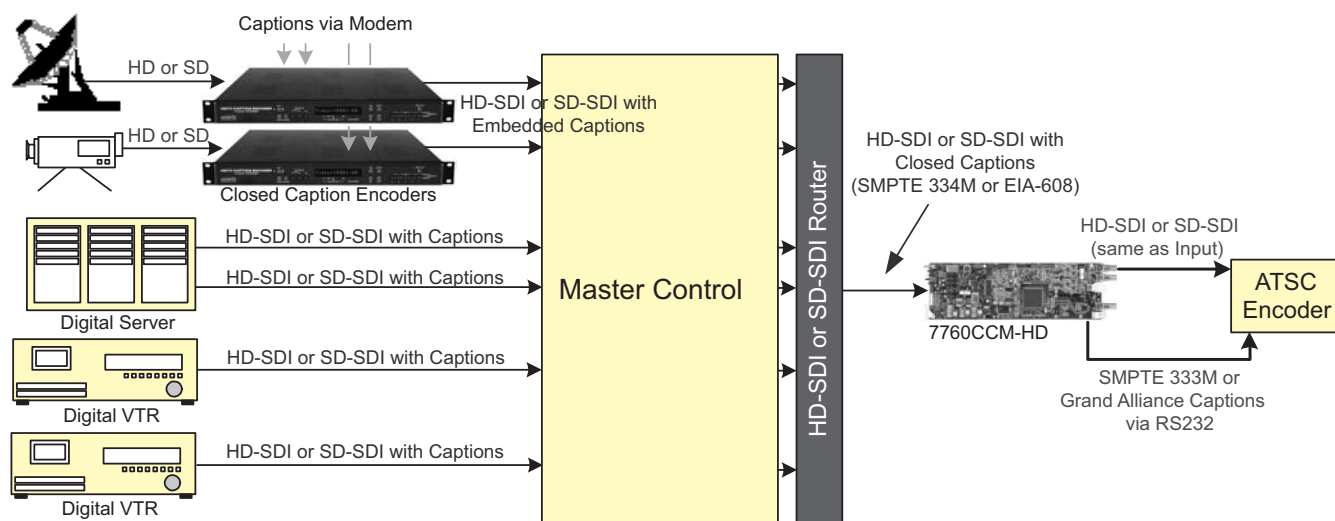


The 7760CCM-HD Closed Caption card is a EIA608 / EIA708 translator and extends the signal monitoring capabilities of the Evertz monitoring product line by focusing on closed captioning (EIA-608 & EIA-708) and Extended Data Service (XDS). The 7760CCM-HD has the capability to translate EIA608 captions to EIA708 Captions supporting SMPTE 333M and Grand Alliance format for RS-232 transfer. The 7760CCM-HD also converts SMPTE 334M VANC captions to SMPTE 333M or Grand Alliance Format for RS232 transfer.

The auto detect program input supports both standard definition and high definition formats. The 7760CCM-HD's EIA-608 decoder is capable of decoding VBI line 21, field 1 and 2 and displaying the information on the monitoring output. One of four caption channels (CC1-CC4) and one of four text service channels (T1-T4) can be simultaneously displayed on the monitoring output. In addition, the scrolling XDS display supports all data packets including TSID, CGMS-A, V-Chip, Station Name and Station ID. The EIA-708 decoder is capable of decoding all HD closed caption service channels and displaying the open options on the monitoring output**.

The 7760CCM-HD occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

****NOTE:** The built in EIA-708 caption decoder does not support the full feature-set of EIA-708 advance captions and is provided for monitoring & verifying captions only



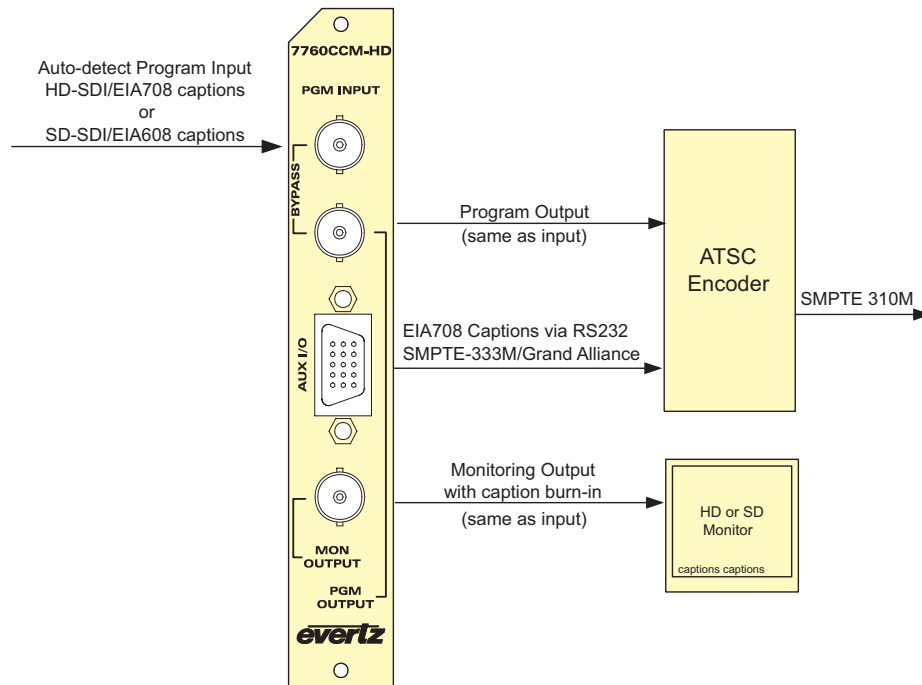
Features

- EIA608 / EIA708 translator provides SMPTE 333M or Grand Alliance format output for RS-232 raw caption data transfer
- Supports SMPTE 333M and Grand Alliance Protocol for convenient interface to most ATSC Encoders
- Built in bypass relay on program output video path
- Auto-detect SMPTE 259M (143 to 540 Mb/s), SMPTE 292M (1.5Gb/s) signal input
- Monitoring output decodes and displays upstream EIA608 and EIA708 captions
- Decodes and displays closed captions & XDS information on field 1 and 2 for the EIA-608 standard
- Decodes and displays closed caption information for the EIA-708 standard
- Decodes XDS packets containing TSID, CGMS-A, Program ID, Time in Show, Program Name, Program Type, V-Chip rating, Program Description, Network Name, Station ID, Time of Day and Time of Zone

VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

HD-SDI/SD-SDI Closed Caption EIA608/EIA708 Translator/Monitor

7760CCM-HD Block Diagram



Specifications

Program Input:

Standard: SMPTE 259M-C, SMPTE 292M
Connector: 1 BNC per IEC 60169-8 Amendment 2
Termination: 75 Ω
Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694 (or equivalent)
Automatic to 250m @ 270Mb/s with Belden 1694 (or equivalent)
Return Loss: >10dB up to 1.5 Gb/s

Program Output:

Standard: Same as input
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 200ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 10dB up to 1.5 Gb/s
Wideband Jitter: < 0.2 UI

Monitoring Output:

Standard: Same as input
Reclocked Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
Rise and Fall Time: 200ps nominal @ SMPTE 292M
740ps nominal @ SMPTE 259M-C
Overshoot: <10% of amplitude
Return Loss: >12dB up to 1.5 Gb/s
> 15dB up to 270Mb/s
Output Impedance: 75 Ω

General Purpose Interface (GPI) Input/Output:

Number of Inputs: 4
Number of Outputs: 2
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: Female High Density DB-15
Signal Level: +5V nominal

Serial Port:

Standard: RS-232
Connector: Female High Density DB-15
Baud Rate: 19200/38400/57600
Format: 8-bits, no parity, 1 stop bits and no flow control

Electrical:

Voltage: +12V DC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7760CCM-HD: SD-SDI/HD-SDI Closed Caption EIA608 / EIA708 Translator/Monitor

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

SDI Closed Caption & XDS Decoder and EIA608-708 Translator

Model 7760CCM-T



The 7760CCM-T Closed Captioning, XDS and EIA608-EIA708 Translator card is functionally similar to the 7760CCM card, with the additional feature of a EIA608 to EIA708 Standard translator. The single-slot, 7760CCM-T module fits conveniently into Evertz 7700FR-C, 7701FR frames or standalone enclosures.

The 7760CCM-T closed captioning monitoring card extends the signal monitoring capabilities of Evertz AVM product line by focusing on closed captioning and eXtended Data Services (XDS) data packets carried within Line 21 of the Vertical Blanking Interval (VBI). Compliant with the EIA Standard EIA/CEA-608-B, the 7760CCM-T can be used to monitor the content of Line 21 for pre-distribution monitoring or regulatory compliance.

The 7760CCM-T is capable of decoding Line 21, fields 1 and 2 data and displaying the information on the SDI video output. One of four closed captioning channels (CC1-CC4) and one of four text service channels (T1-T4) can be simultaneously displayed on the video output. In addition, the scrolling XDS display supports all data packets including Transmission Signal Identifier (TSID), Copy Generation Management System (CGMS-A), V-Chip rating, Station Name, Station ID, Program Name, Program Type, Program Description, Time of Day, and Time in Show are decoded to human-readable format. Other (less common) packets are presented as raw data bytes.

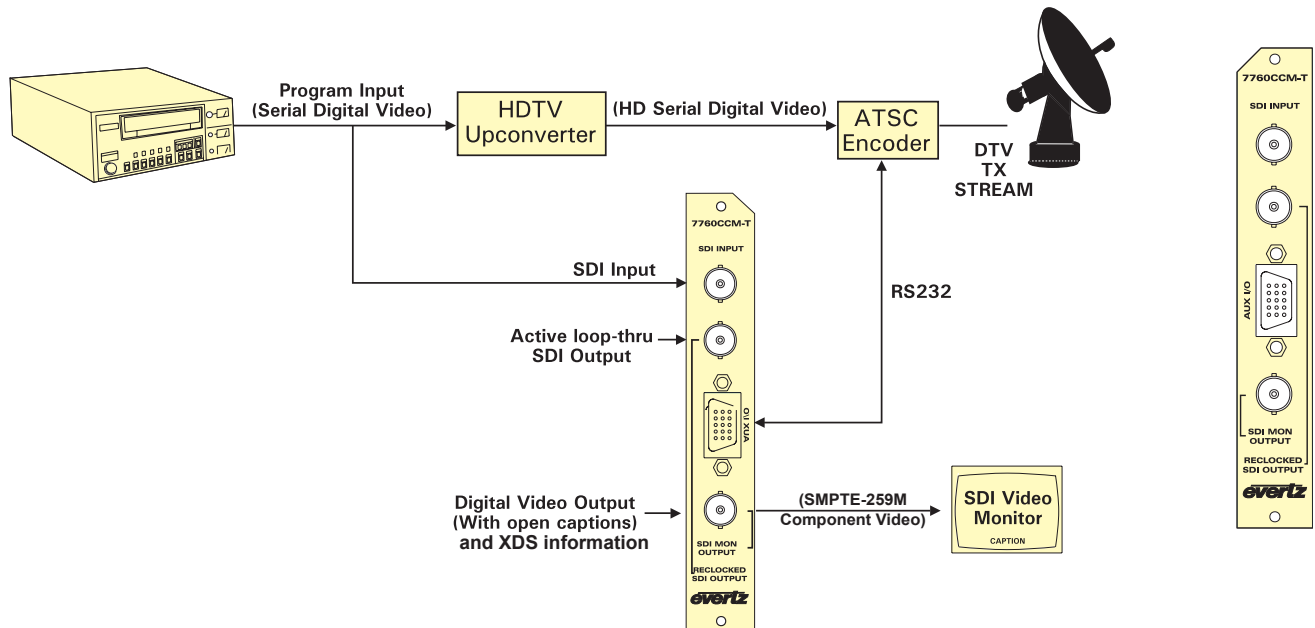
The 7760CCM-T incorporates the fault reporting capabilities inherent in the AVM product line. There are four user-configurable fault alerts that are triggered upon loss of video, loss of CC waveform, parity errors, field inversions, control codes and invalid XDS parameters. The 7760CCM-T is also VistaLINK™-enabled, offering remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP).

Features

- One SD 270 Mb/s component digital video input, 525 or 625 lines, auto-detected or manually set
- One re-clocked SD video output
- Decodes and displays closed captioning on fields 1 and 2 as per EIA Standard EIA/CEA-608-B
- EIA608 to EIA708 translator
- Supports SMPTE 333M and Grand Alliance Protocol for convenient interface to most ATSC Encoders
- User selectable closed captioning channel (1-4), text channel (1-4) and eXtended Data Services (XDS) for video "burn-in"
- Decodes Line 21 XDS packets including Transmission Signal Identifier (TSID), Copy Generation Management System (CGMS-A), Program ID, Time in show, Program name, Program type, V-chip rating, Program description, Network name, Station ID, Time of day and Time zone
- Store and recall up to three module configurations
- Fits conveniently into Evertz 7700FR-C 3RU, 7701FR 1RU frames and standalone enclosure
- A comprehensive on screen display menu is available to configure the various features of the module as well as allows flexible configuration of the text window positioning
- An extensive list of closed captioning and XDS error conditions can be enabled and monitored with on-screen fault messages triggered by exceeded timer parameters
- Four user-configurable GPI inputs for on screen display control, closed captioning channel and text channel selection
- Two user-configurable GPI outputs to indicate user definable fault conditions
- RS-232 serial port output used to transmit raw closed captioning data. (Compliments VBI Bridge functionality of Evertz 8084 CC Encoders)
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

SDI Closed Caption & XDS Decoder and EIA608-708 Translator

7760CCM-T Block Diagram



Specifications

Serial Digital Input:

Standard: SMPTE 259M-C - 525 or 625-line component serial digital video, 270Mb/s
1 BNC per IEC 60169-8 Amendment 2
Connector: 75Ω
Termination: Automatic >225m @ 270 Mb/s with Belden 8281 or equivalent cable
Equalization: >15dB up to 270MHz
Return Loss:

Serial Video Output:

Standard: SMPTE 259M-C - 525 or 625-line component - same as input
Number of Outputs:
Reclocked: 1
Monitor: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 470ps nominal
Overshoot: <10% of amplitude

General Purpose Interface (GPI) Input/Output:

Number of Inputs: 4 (behavior is assigned via on screen menu items)
Number of Outputs: 2 (behavior is programmable via on screen menu items)
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: Female High Density DB-15
Signal Level: +5V nominal

Serial Port:

Standard: RS-232
Connector: Female High Density DB-15
Baud Rate: 38400
Format: 8 bits, no parity, 1 stop bits and no flow control

Electrical:

Voltage: + 12VDC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7760CCM-T EIA608-EIA708 Translator (Includes Basic Function of 7760CCM and cable)

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD Monitoring Splitter

Model 7760VMS-HD



The 7760VMS-HD is a Video Monitoring tool for two 1.5 Gb/s HDTV serial digital video signals. The 7760VMS-HD has a HDTV split screen output from two input signals and also provides a monitoring downconverted split screen. The 7760VMS-HD accepts all the popular international SMPTE 292M video formats.

This 7700 series module provides 3 reclocked primary outputs and 1 reclocked secondary output. The program output is bypass relay protected and provides protection on the program path. If module is removed from enclosure the program path is maintained.

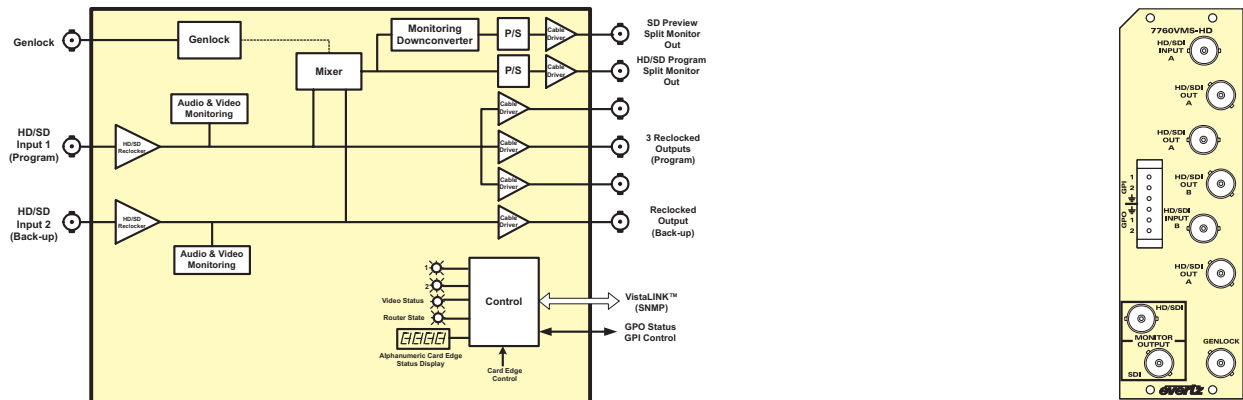
The 7760VMS-HD occupies two card slot in the 3 RU frame, which will hold up to 7 modules or the 1RU frame, which will hold up to three modules.

Features

- Two Serial digital 1.5 Gb/s HD inputs per SMPTE 292M
- 3 Reclocked DA outputs from input 1 and 1 reclocked DA output from input 2
- Mixer takes left half of input 1 and right half of input 2 and keys them together to form the HD Program Output
- Monitoring downconverter for SDI monitoring of split signal
- Occupies two card slots in the 3 RU frame, which will hold up to 7 modules or the 1 RU frame, which will hold up to three modules

- Card edge LEDS indicate module health, video present
- Tally output on Frame Status bus upon loss of input signals
- VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame

7760VMS-HD Block Diagram



Specifications

Serial Video Inputs:

Standard:

1.485 Gb/sec SMPTE 292M - auto-detects standard
SMPTE 260M, SMPTE 274M, SMPTE 296M, SMPTE 349M
2 BNC per IEC 60169-8 Amendment 2.

Connector:

Automatic to 100m @ 1.5Gb/s with Belden 1694 or equivalent cable

Input Equalization:

>20 dB up to 270 MHz

Return Loss:

>12 dB up to 1.5GHz

Reclocked Serial Video Outputs:

Standard:

Same as input

Number of Outputs:

3 outputs from input A, 1 output from input B, reclocked

Connector:

BNC per IEC 60169-8 Amendment 2

Signal Level:

800mV nominal

DC Offset:

0V \pm 0.5V

Rise and Fall Time:

200ps nominal for HD

Overshoot:

<10% of amplitude

Return Loss:

>20 dB up to 270 MHz

> 15 dB at 1.5 Gb/s

Jitter:

< 0.16UI (HD)

Downconverted Serial Video Output:

Standard:

SMPTE 259M-C (270 Mb/s)

Number of Outputs:

1

Connector:

BNC per IEC 60169-8 Amendment 2.

Signal Level:

800mV nominal

DC Offset:

0V \pm 0.5V

Rise and Fall Time:

750ps nominal

Overshoot:

<10% of amplitude

Return Loss:

> 15 dB at 270 Mb/s

Jitter:

< 0.2 UI

Genlock Input:

Type:

NTSC or PAL Colour Black 1 V p-p

Connector:

BNC per IEC 60169-8 Amendment 2

Termination:

High impedance or internal 75 ohm termination (jumper selectable)

GPIO Control Port:

Type:

Opto-isolated, active low with internal pull-ups to +5 or +12V (jumper settable)

Connector:

6 pins removable terminal block

Signal Level:

Closure to ground

Electrical:

Voltage:

+12VDC

Power:

14 Watts

EMI/RFI:

Complies with FCC regulations for class A devices

Complies with EU EMC directive

Physical:

7700 frame mounting:

Number of slots:

2

7701 frame mounting:

Number of slots:

1

Ordering Information:

7760VMS-HD HD Video Monitoring Splitter

Ordering Options:

Rear Plate must be specified at time of order

Eg: Model + 3RU

Rear Plate Suffix

+3RU

3RU Rear Plate for use with 7700FR-C Multiframe

+1RU

1RU Rear Plate for use with 7701FR Multiframe

Enclosures:

7700FR-C

3RU Multiframe which holds 15 modules

7701FR

1RU Multiframe which holds 3 modules



The 7760VMS-HD is a Video Monitoring tool for two 1.5 Gb/s HDTV serial digital video signals. The 7760VMS-HD has a HDTV split screen output from two input signals and also provides a monitoring downconverted split screen. The 7760VMS-HD accepts all the popular international SMPTE 292M video formats.

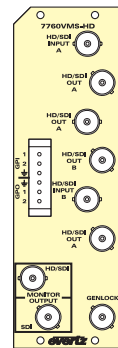
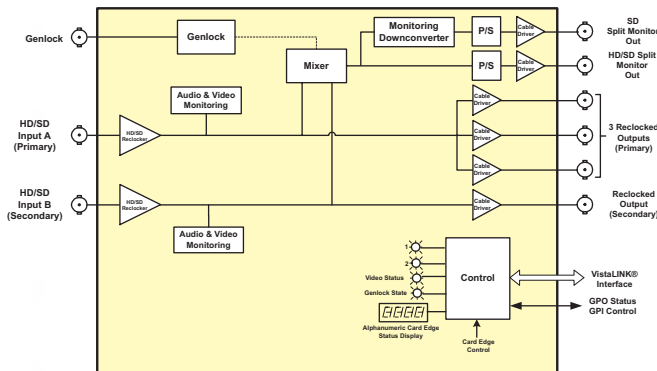
This 7700 series module provides 3 reclocked primary outputs and 1 reclocked secondary output.

The 7760VMS-HD occupies two card slots in the 3 RU frame, which will hold up to 7 modules or 1 slot in the 1RU frame, which will hold up to three modules.

Features

- Two Serial digital 1.5 Gb/s HD inputs per SMPTE 292M
- 3 Rclocked DA outputs from input 1 and 1 reclocked DA output from input 2
- Mixer takes left half of input 1 and right half of input 2 and keys them together to form the HD Program Output
- Monitoring downconverter for SDI monitoring of split signal
- Occupies two card slots in the 3 RU frame, which will hold up to 7 modules or the 1 RU frame, which will hold up to three modules
- Card edge LEDS indicate module health, video present
- Tally output on Frame Status bus upon loss of input signals
- VistaLINK® - enabled offering remote control and configuration capabilities via SNMP (using VistaLINK® PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame

7760VMS-HD Block Diagram & Rear Panel



Specifications

Serial Video Inputs:

Standard: 1.485 Gb/sec SMPTE 292M - auto-detects standard SMPTE 260M, SMPTE 274M, SMPTE 296M, SMPTE 349M

Connector: 2 BNC per IEC 60169-8 Amendment 2

Input Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694A or equivalent cable

Return Loss: >20 dB up to 270 MHz
>12 dB up to 1.5GHz

Connector:

Signal Level:

6 pins removable terminal block
Closure to ground

Electrical:

Voltage:

+12VDC

Power:

14 Watts

EM/RFI:

Complies with FCC regulations for Class A devices
Complies with EU EMC directive

Reclocked Serial Video Outputs:

Standard: Same as input

Number of Outputs: 3 outputs from input A, 1 output from input B, reclocked

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V ±0.5V

Rise and Fall Time: 200ps nominal for HD

Overshoot: <10% of amplitude

Return Loss: >20 dB up to 270 MHz, > 15 dB at 1.5 Gb/s

Jitter: < 0.16UI

Physical:

7700 frame mounting:

Number of slots: 2

7701 frame mounting:

Number of slots: 1

Downconverted Serial Video Output:

Standard: SMPTE 259M-C (270 Mb/s)

Number of Outputs: 1

Connector: BNC per IEC 60169-8 Amendment 2.

Signal Level: 800mV nominal

DC Offset: 0V ±0.5V

Rise and Fall Time: 750ps nominal

Overshoot: <10% of amplitude

Return Loss: > 15 dB at 270 Mb/s

Jitter: < 0.2 UI

Genlock Input:

Type: NTSC or PAL Color Black 1 V p-p

Connector: BNC per IEC 60169-8 Amendment 2

Termination: High impedance or internal 75Ω termination (jumper selectable)

GPIO Control Port:

Type: Opto-isolated, active low with internal pull-ups to +5 or +12V (jumper settable)

Ordering Information:

7760VMS-HD HD Video Monitoring Splitter

Ordering Options:

Rear Plate must be specified at time of order

Eg: Model +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

Accessories:

7700FC VistaLINK® Frame Controller

9000NCP 1RU VistaLINK® General Purpose Network Control Panel

9000NCP2 2RU VistaLINK® General Purpose Network Control Panel

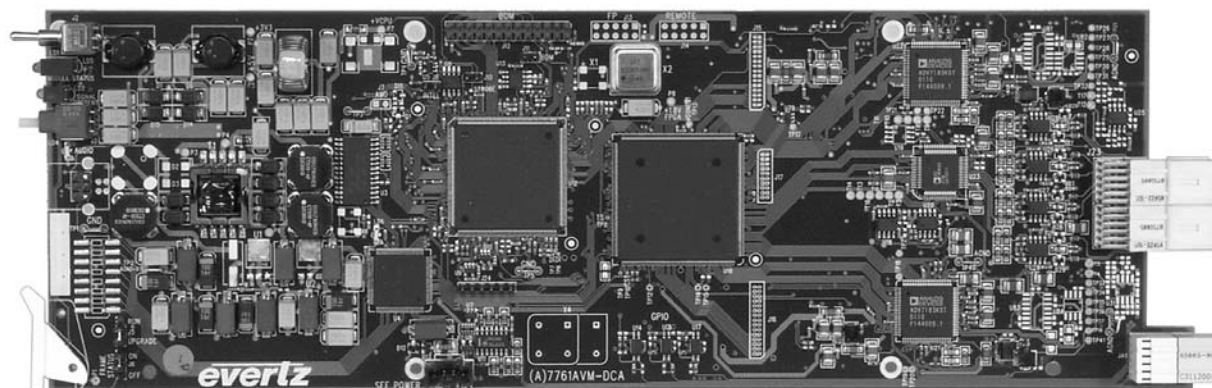
Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

7701FR 1RU Multiframe which holds 3 modules

Dual Channel Video and Analog Audio Monitoring

Model 7761AVM2-DC and 7761AVM2-SDC



The 7761AVM2-DC Dual Channel Composite Video and Analog Audio and 7761AVM2-SDC Dual S-Video and Analog Audio monitoring cards perform a number of video, audio and vertical blanking interval (VBI) data analysis, quality control and monitoring functions similar to that of the 7760AVM line of audio/video monitoring cards. Incoming composite analog video or S-video is analyzed and key information about the signal is displayed on the output video. Both 7761AVM2-DC and 7761AVM2-SDC cards have two independent, composite analog video outputs. The 7761AVM2-DC and 7761AVM2-SDC are configurable both locally, through a card-edge push-button toggle with an on-screen display menu, and remotely, through the SNMP communication channel - known as VistaLINK™.

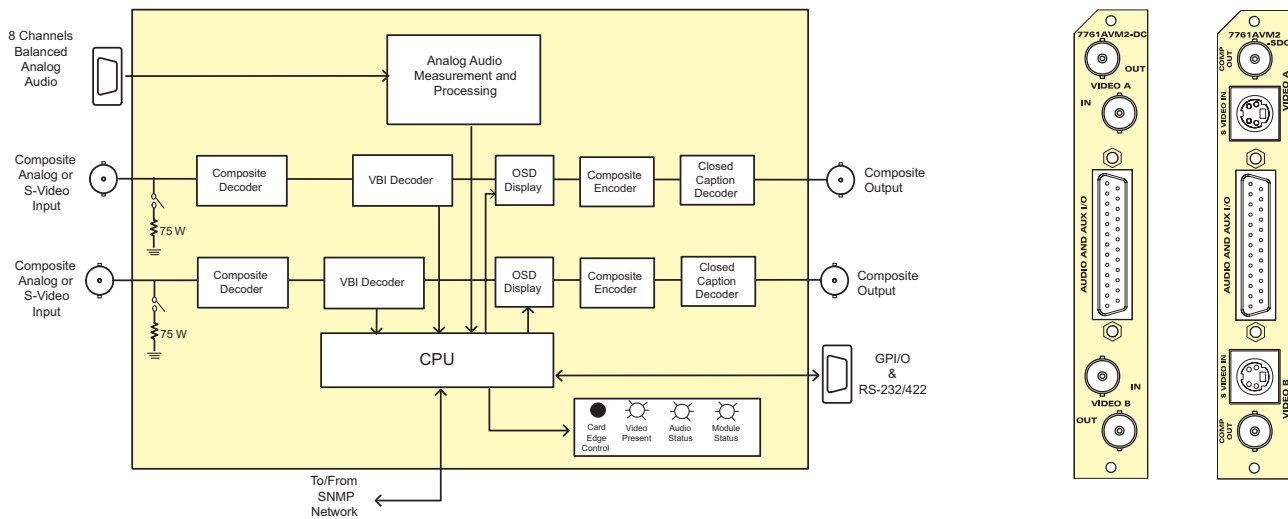
VistaLINK™ offers remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP) giving the flexibility to manage operations, including signal monitoring and module configuration, from SNMP-enabled control systems (Manager or NMS).

Features

- Two independent, composite analog (NTSC/PAL) video inputs (7761AVM2-DC)
- Two independent, S-Video inputs (7761AVM2-SDC) for direct connection to satellite IRD's for improved picture display quality
- Dual S-video output version (coming soon)
- One group (4 balanced audio inputs) per video input channel is analyzed and VU/PPM level indicators are keyed as bar graphs in over the video output
- Decodes vertical interval time code (VITC), VBI Source ID and Closed Captioning into the picture
- Provides peak video (Average Picture Level) and black level status and fault monitoring
- A comprehensive on screen display (OSD) is available to configure the various features of the module
- Flexible configuration of the text and audio bar graph information displays
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
- On screen messages can be triggered by the configured fault conditions
- Two independent composite analog (NTSC/PAL) video outputs
- Video output "black-out" option while maintaining audio, video and data parameter monitoring
- Two GPI inputs per video input are available to modify the display characteristics
- GPO output per video output is available to indicate user definable fault conditions
- Audio and GPI/Os are available on a female DB-25 connector
- RS-232 data logging port to log fault conditions
- 7761AVM-DC-BHP-15 Bulkhead Breakout Panel is available to facilitate wiring to the DB-25 connector (Up to 15 7761AVM2-DC or 7761AVM2-SDC cards can be wired per 3RU bulkhead panel)
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

Dual Channel Video and Analog Audio Monitoring

7761AVM2-DC/-SDC Block Diagram



Specifications

Analog Video Input:

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Inputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V +/- 1V
Input Impedance: 75Ω
Return Loss: >40dB up to 5MHz

S-Video Input (7761AVM2-SDC)

Number of Inputs: 2
Connector: IEC 933-5 (4-pin mini-DIN)
Signal Level: Y: 1.0Vp-p, C: 0.286Vp-p
Input Impedance: 75Ω

Analog Audio Input:

Number of Inputs: 8 (4 balanced inputs per video input channel)
Connector: Female DB-25
Input Impedance: 20 kΩ minimum (differential)
Sampling Frequency: 48kHz
Peak Signal and Common Mode Level: 30 dBu

Analog Video Output:

Standard: NTSC (SMPTE 170M) PAL (ITU624-4)
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V ±0.1V
Return Loss: >35dB up to 5 MHz
Frequency Response: 0.8dB to 4 MHz
Differential Phase: <0.9° (<0.6° typical)
Differential Gain: <0.9% (<0.5 % typical)
SNR: >56dB to 5 MHz (shallow ramp)

Audio Bar Graphs:

Number of Graphs: 4 (1 group) per video input channel, 2 phase meters
Ballistics: DIN, BBC and Nordic N9

General Purpose In/Out:

Number of Inputs: 1 or 2 (configurable) per video input
Number of Outputs: 1 or 2 (configurable) per video output
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: Female DB-25
Signal Level: +5V nominal (high), 0V (low)

Data Logging Serial Port:

Standard: RS-232
Connector: Female DB-25
Baud Rate: 57600
Format: 8 bits, no parity, 2 stop bits and no flow control

Electrical:

Voltage: + 12VDC
Power: 13 W
EMI/RFI: Complies with FCC Part 15 class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7761AVM2-DC	Dual Channel Video & Analog Audio Monitoring
7761AVM2-SDC	Dual S-Video & Analog Audio Monitoring
7761AVM2-SDC-S	Dual S-Video & Analog Audio Monitoring with Dual S-Video Outputs

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

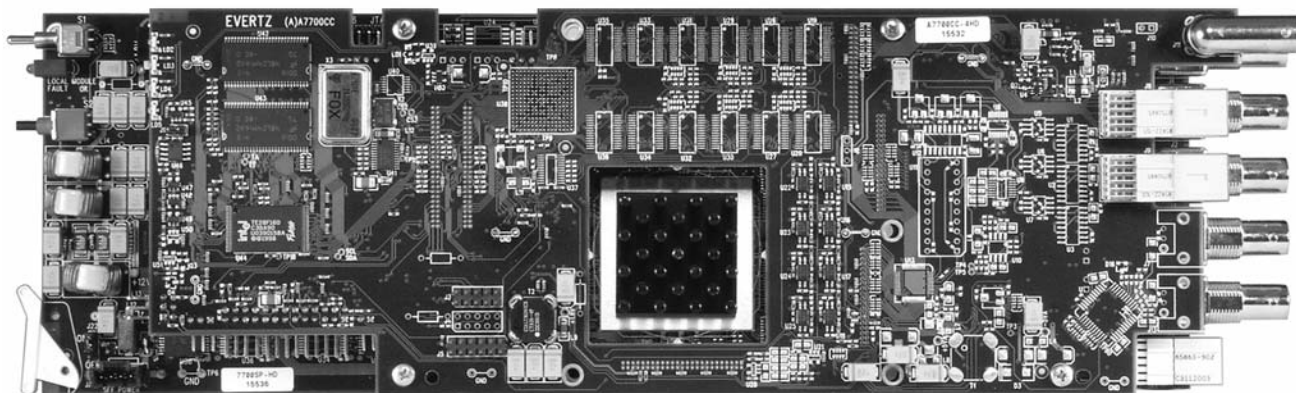
7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Breakout Panels and Cables:

7761AVM-BHP-15	Bulkhead Breakout Panel for 15 x 7761AVM-DC cards (includes 15-3ft cables)
WA7761AVMBHP3F	Breakout cable (3ft) for 7761AVM-DC models

Quattro™, Four SDI Video Quad Split Display with Digital Audio Monitoring

Model 7765AVM-4/-4A



Building on the popularity of the 7760AVM series of audio, video and data monitoring cards, Evertz's Quattro™ 7765AVM-4 SDI monitoring card increases the monitoring capacity by simultaneously accepting and analyzing four individual SDI/601 video signals. One multiplexed video output displays video, status and user-configurable fault condition alerts for each input in a 2x2-matrix format. Subsequently, the Quattro™ 7765AVM-4 SDI monitoring card provides a cost-effective solution not only for monitoring multiple channels in a broadcast facility, but also by offering facility managers the choice of using legacy or new output displays.

Equipped with standard audio and video (AVM) monitoring features including an on-screen, menu-driven display, user configurable audio level bar graphs and status windows, the 7765AVM-4 "Quattro" can simultaneously display four SDI/601 video signals with embedded audio through an HD (7765AVM-4-HD), SD (7765AVM-4-SD), Composite Analog (7765AVM-4-CA) or VGA (7765AVM-4-VGA) output, supporting 4:3 and 16:9 aspect ratios. Furthermore, the 7765AVM-4A "Quattro" series monitors the signal status of either embedded audio or externally supplied AES/EBU audio (3 AES/EBU inputs per video channel supported). Upon setting parameter thresholds and enabling fault conditions, any adverse behavior of any one input stream results in a clearly recognizable, user configurable on-screen, or GPI, fault alert message, immediately notifying operators of potential problems. The two-slot 7765AVM-4 and 7765AVM-4A cards fit conveniently into Evertz's 7700FR-C frame.

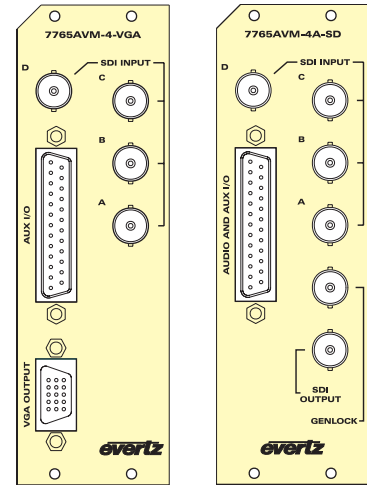
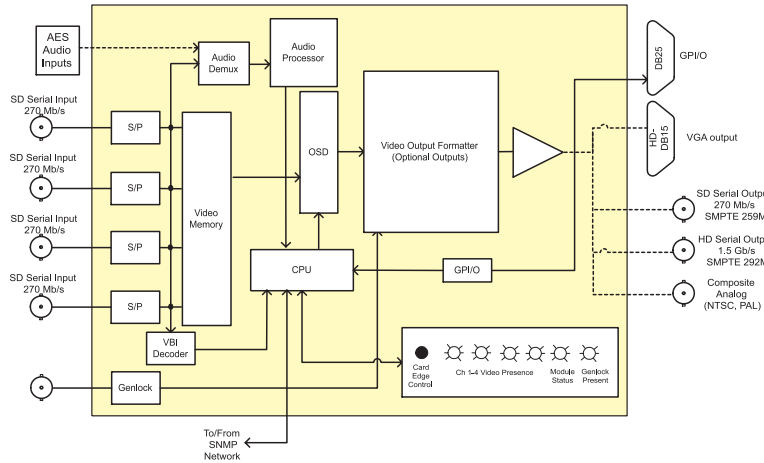
The 7765AVM-4 and -4A cards are also VistaLINK™-enabled, offering remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This product feature offers another solution to manage operations including signal monitoring and module configuration from SNMP-enabled control systems (Manager or NMS) locally or remotely.

Features

- Four SDI/601 525 line or 625 line, 270 Mb/s component digital video inputs with embedded audio on 7765AVM-4 versions and embedded or external AES/EBU audio on 7765AVM-4A versions. (-VGA -CA and -SD versions support either 525 or 625 line inputs, 525 line inputs for -HD version.)
- One group (4 channels of audio) is demultiplexed from the SDI source and VU/PPM level and phase graphs are keyed next to the video picture
- Genlock reference loop input for proper timing (N/A on -VGA version)
- Decodes vertical interval time code (VITC) and "burns" the time code into the picture
- Decodes PESA format Source ID (8 characters) or VITC Source ID (5 or 9 characters) and burns the ID into the picture
- Decodes and displays Line 21 XDS packets containing network name, call letters, program name and time of day
- A comprehensive on screen display is available to configure the various features of the module
- User-configurable on screen display for source ID/UMD
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
- On screen messages triggered by fault conditions
- Fault condition logic menu option
- Detects frozen video (patent pending) and black video
- Four user-configurable fault condition alert messages per video input with configurable background colors and opacities
- User-configurable tally indicators on source ID messages
- H/V delay viewing configuration
- Standard HD-SDI, SD-SDI, Composite Analog and VGA-type outputs
- Support for 4:3 or 16:9 video inputs and output video displays
- Twelve GPI inputs are available to modify the display characteristics (4 GPI inputs available on 7765AVM-4A versions)
- Four GPO outputs to indicate user definable fault conditions
- External AES audio and GPI I/Os are available on a DB-25 connector
- RS-232 or RS-422 serial port (jumper configurable) for interface to common UMD protocols
- Optional Bulkhead Breakout Panel accessory that provides a convenient connection for AES/EBU audio and GPI I/O signals into the DB-25 on 7765AVM-4A modules
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

Quattro™, Four SDI Video Quad Split Display with Digital Audio Monitoring

7765AVM-4/-4A Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C - 525 or 625 lines (525 only on -HD)
Number of Inputs: 4
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 225m @ 270 Mb/s with Belden equivalent)
Return Loss: > 15 dB up to 270 Mb/s
Embedded Audio: SMPTE 272M-A

Digital AES Audio Inputs (-4A):

Standard: SMPTE 276M, single ended AES
Number of Inputs: 3 per video input (total 12 inputs)
Connector: Female DB-25
Resolution: 24-bit
Sampling Rate: 48 kHz
Impedance: 75Ω unbalanced

Serial Video Output (7765AVM-4-HD and 7765AVM-4A-SD):

Standard: SMPTE 292M
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude

Serial Video Output (7765AVM-4-SD and 7765AVM-4A-CA):

Standard: SMPTE 259M-C
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 470ps nominal
Overshoot: <10% of amplitude

Analog Video Output (7765AVM-4-CA and 7765AVM-4A-CA):

Standard: NTSC, SMPTE 170M, PAL ITU624-4
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V ± 0.1V
Return Loss: >35dB up to 5MHz
Frequency Response: 0.8dB to 4MHz
Differential Phase: <0.9° (<0.6° typical)
Differential Gain: <0.9% (<0.5% typical)
SNR: >56dB to 5MHz (shallow ramp)

Analog RGB Video Output (-VGA):

Standard: VGA
Number of Outputs: 1
Connector: Female, High Density DB-15
Video: 1Vp-p YPrPb/RGB or 0.7Vp-p VGA, 60Hz refresh
Sync: 300 mV or 4V
Impedance: 75Ω

Genlock Input (-HD, -SD, -CA only):

Type: NTSC (SMPTE 170M) color black
Level: 1V p-p nominal
Connector: BNC per IEC 60169-8 Amendment 2

Audio Bar Graph Ballistics:

Number of Graphs: 4 (1 group) per video input
Ballistics: AES/EBU, DIN, BBC, Nordic N9

General Purpose Interface I/O (GPI/GPO):

Number of Inputs: 12 (-4), 4 (-4A)
Number of Outputs: 4
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: Female DB-25
Output Signal Level: +5V nominal (high), 0V (low)
Input Signal: Closure to ground

Data Input/Output Serial Port:

Number of Ports: 1 RS-232 or 1 RS-422 (jumper configurable)
Connector: Female DB-25
Baud Rate: Up to 1Mbaud
Format: RS-232: 8 bits, no parity, 2 stop bits and no flow control

Electrical:

Voltage: +12 VDC
Power: 24 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of Slots: 2

Ordering Information:

7765AVM-4-HD	} Quattro™, Four SDI Video Quad Split Display with Digital Audio Monitoring (Embedded Audio)
7765AVM-4-VGA	
7765AVM-4-SD	
7765AVM-4-CA	
7765AVM-4A-HD	} Quattro™, Four SDI Video Quad Split Display with Digital Audio Monitoring (Embedded and/or External AES/EBU)
7765AVM-4A-VGA	
7765AVM-4A-SD	
7765AVM-4A-CA	

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Accessories:

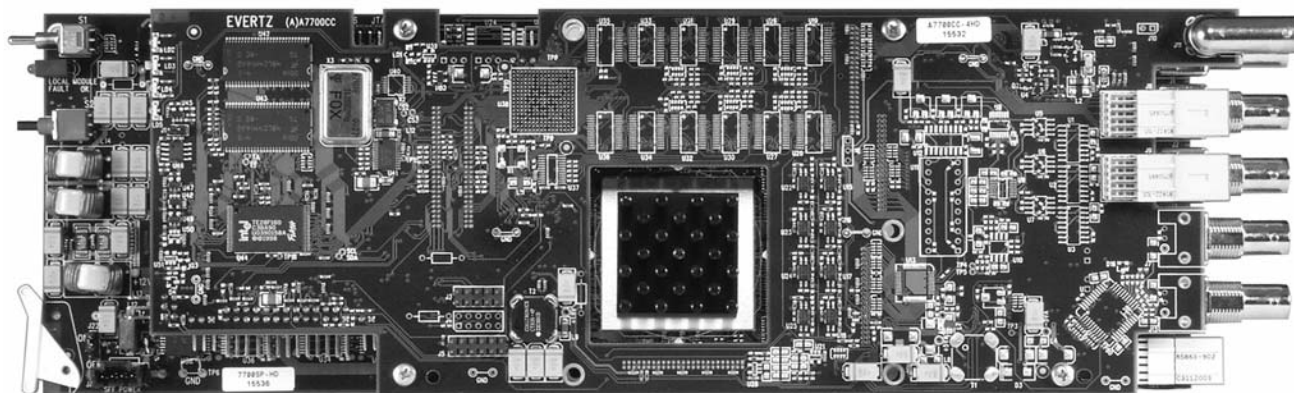
7765AVM-4A-BHP-7 Bulkhead Breakout Panel for 7x 7765AVM-4A (includes 7-3ft cables)

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Analog Quattro™, Four Analog Video & Quad Split with Analog Audio Monitoring

Model 7766AVM-4A



Evertz's 7766AVM-4A and 7766AVM-S4A Analog Quattro™ audio and video monitoring cards simultaneously accept and analyze up to four composite analog or S-Video inputs and optionally display up to four signals with alarm, status and audio level monitoring in a 2x2 matrix format. High resolution serial SD, analog RGB and composite analog outputs are available.

Equipped with standard features including an on-screen, menu-driven display, user configurable audio level and phase bar graphs, and status windows, the 7766AVM-4A/-S4A can simultaneously display four video signals and external analog audio with on-screen audio, video and data status information through SD, analog RGB and composite analog outputs. Upon setting parameter thresholds and enabling fault conditions, any adverse behavior of any one input stream results in a clearly recognizable, user configurable on-screen, or GPI fault alert message, immediately notifying operators of potential problems. The two-slot 7766AVM-4A/-S4A card fits conveniently into Evertz's 7700FR-C frame. Up to 28 signals can be monitored from the single 3RU frame.

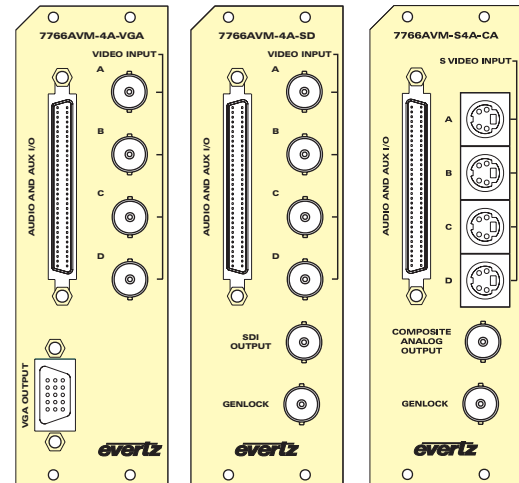
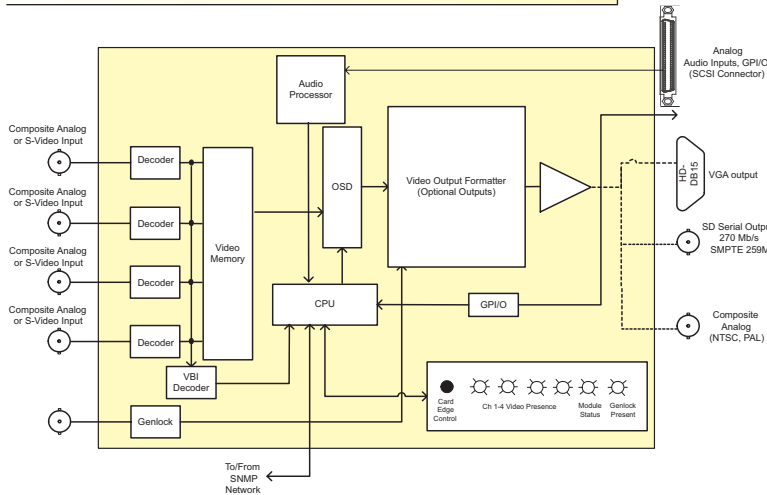
The 7766AVM-4A/-S4A cards are VistaLINK™ enabled offering remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage operations including signal monitoring and card configuration from SNMP-enabled control systems (Manager or NMS) locally or remotely.

Features

- Four composite analog (NTSC/PAL auto-detecting) inputs (BNC-type)
 - Optional four S-Video inputs
 - One analog RGB or Composite Analog output
 - 4 balanced audio inputs per video input channel is analyzed and VU/PPM level indicators are keyed as bar graphs beside the video output (16 analog audio channels per card)
 - H/V delay viewing configuration
 - Quadrant view or expanded display modes
 - Detects frozen and black video
 - Decodes vertical interval time code (VITC) and "burns" the time code into the picture
 - Decodes VITC Source ID (5 or 9 characters), PESA format Source ID (8 characters) or user-configurable default message (when not decoded) and burns the ID into the picture
 - A comprehensive on screen display is available to configure the various features of the module
 - Flexible configuration of the text and audio bar graph information displays
 - An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
 - Four user-configurable fault condition alert messages with independent fault threshold and duration settings
 - On screen messages can be triggered by the configured fault conditions
 - User-configurable tally indicators and configurable SID/UMD text and background colours
 - RS-232/RS-422 serial port (jumper configurable) for interface to common UMD protocols
 - Four GPI inputs (unassigned)
 - Four GPO outputs (dedicated 1 per video quadrant)
 - Audio and GPI/Os are available through SCSI connector
 - Fault condition logic menu option
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

Analog Quattro™, Four Analog Video & Quad Split with Analog Audio Monitoring

7766AVM-4A Block Diagram



Specifications

Analog Video Input:

Standard: NTSC (SMPTE 170M) PAL (ITU624-4)
Number of Inputs: 4
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V +/-1V
Input Impedance: 75Ω
Return Loss: > 40 dB up to 5MHz

S-Video Input (7766AVM-S4A-x):

Number of Inputs: 4
Connector: 4-pin mini DIN
Signal Level: Y: 1.0 Vp-p, C: 0.286 Vp-p
Input Impedance: 75Ω, sync negative, 75Ω terminated

Analog Audio Input:

Number of Inputs: 16 (2 balanced pair per video input)
Connector: 68-pin SCSI
Type: Balanced analog audio
Input Impedance: 20kΩ minimum (differential)
Sampling Frequency: 48kHz
Peak Signal and Common Mode Level: 30dBu

Serial Video Output (7766AVM-4A-SD & 7766AVM-S4A-SD):

Standard: SMPTE 259M-C
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 470ps nominal
Overshoot: <10% of amplitude

Analog Video Output (7766AVM-4A-CA & 7766AVM-S4A-CA):

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V +/-0.1V
Return Loss: > 35dB up to 5MHz
Frequency Response: 0.8dB to 4MHz
Differential Phase: < 0.9° (< 0.6° typical)
Differential Gain: < 0.9% (< 0.5% typical)
SNR: > 56dB to 5MHz (shallow ramp)

Analog Video Output (7766AVM-4A-VGA & 7766AVM-S4A-VGA):

Standard: VESA
Number of Outputs: 1
Connector: Female, high density DB-15
Video: 1Vp-p YPrPb/RGB or 0.7Vp-p VGA, 60Hz refresh
Impedance: 75Ω
Sync: 300 mV or 4V

Genlock Input:

Type: NTSC (SMPTE 170M) colour black
Level: 1Vp-p nominal
Connector: BNC per IEC 60169-8 Amendment 2

Audio Bar Graphs (per video output):

Number of Graphs: 4 (1 group) per video input channel, 2 phase meters
Ballistics: DIN, BBC and Nordic N9

General Purpose In/Out (GPI/GPO):

Number of Inputs: 4 (configurable)
Number of Outputs: 4 (dedicated)
Connector: 68-pin SCSI
Type: Opto-isolated, active low with internal pull-ups to +5V
Input Signal: Closure to ground
Signal Level: +5V nominal

Data Input/Output Serial Port:

Standard: 1 RS-232 or 1 RS-422 (jumper selectable)
Connector: 68-pin SCSI
Baud Rate: Up to 1 Mbaud
Format: RS-232: 8 bits, no parity, 2 stop bits and no flow control

Electrical:

Voltage: +12V DC
Power: 24 Watts
EM/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Number of slots: 2

Ordering Information:

7766AVM-4A-VGA	Analog Quattro™ Four Composite Analog Video (BNC) and Analog Audio Monitoring with analog RGB output
7766AVM-4A-CA	Analog Quattro™ Four Composite Analog Video (BNC) and Analog Audio Monitoring with Composite Analog output
7766AVM-4A-SD	Analog Quattro™ Four Composite Analog Video (BNC) and Analog Audio Monitoring with Serial Digital output
7766AVM-S4A-VGA	Analog Quattro™ Four S-Video and Analog Audio Monitoring with analog RGB output
7766AVM-S4A-CA	Analog Quattro™ Four S-Video and Analog Audio Monitoring with Composite Analog output
7766AVM-S4A-SD	Analog Quattro™ Four S-Video and Analog Audio Monitoring with Serial Digital output

Ordering Options:

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Breakout Panels and Cables:

7766AVM-4A-BHP-4	Bulkhead breakout panel, linking audio, GPI/O and comm port to up to four 7766AVM-4A/-S4A
7766AVM-4A-BHP-1	Bulkhead breakout panel, linking audio, GPI/O and comm port to one 7766AVM-4A/-S4A (included with every 7766AVM-4A and 7766AVM-S4A product)
WSCS133PEX4	Breakout cable (3ft) for 7766AVM-4A-BHP (will work for both "-4" or "-1" BHP models)

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

VIP™ Four Input Video Monitoring and Display

Model 7767VIP4-HSN



Building on the popularity of the Quattro™ series, Evertz's new 7767VIP4 signal monitoring module simultaneously accepts, auto-detects, analyzes and displays four synchronous or asynchronous HD/SD/Analog video signals. An additional fifth input is a computer graphic input for display of a dynamic background image. Ultimately displaying up to WUXGA (1920 x 1200) resolution, the 7767VIP4 module fits conveniently into Evertz's universally installed 7700FR-C frame and provides a cost-effective and space-efficient signal monitoring and display solution.

The 7767VIP4 module is VistaLINK™-enabled, offering remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This product feature offers another solution to manage operations including signal monitoring and module configuration from SNMP-enabled control systems (Manager or NMS) locally or remotely.

Features

Video Inputs:

- Up to four auto-sensing HD/SD/NTSC/PAL inputs (same BNC)
- Accepts either 4:3 or 16:9
- Auto-detects 525/625 format SD inputs (single frame rate conversion)
- A fifth input, (DVI-I up to UXGA resolution) source is used for background display, signal analyzer tools or for cascading multiple VIP modules together

Audio Inputs:

- Handles embedded, discrete unbalanced AES/EBU, and balanced analog audio (up to 16 AES and 4 L/R) via break-out panel
- VU/PPM level indicators

Video Output:

- One DVI-I output
 - Drive a single DVI-D and a single RGBHV (VGA-type) display simultaneously with same content up to WUXGA (1920x1200 resolution)
- One selectable HD/SD serial digital (BNC) video output, same content as DVI-I output, or select from input
- Minimal processing delay (~1 frame)
- Optional fiber output
- Optional support for "portrait" display via 2430GDAC-WARP
- Thumbnails of any or all selected inputs to VistaLINK™ PRO thumbnail server (or equivalent)

Graphics:

- User-configurable tally indicators and configurable UMD static and/or dynamically updated text, background colors
- User configurable borders
- LTC input drives digital clock display
- Count-up or down timer displays (GPI triggered)

Signal Monitoring:

- Extensive list of user-configurable signal fault conditions with "logic" settings
- Detects frozen video (patent pending) and black video
- User-configurable fault condition alert messages per video input with configurable background colors, opacities, thresholds and duration settings
- Closed caption presence detection

Auxiliary Inputs:

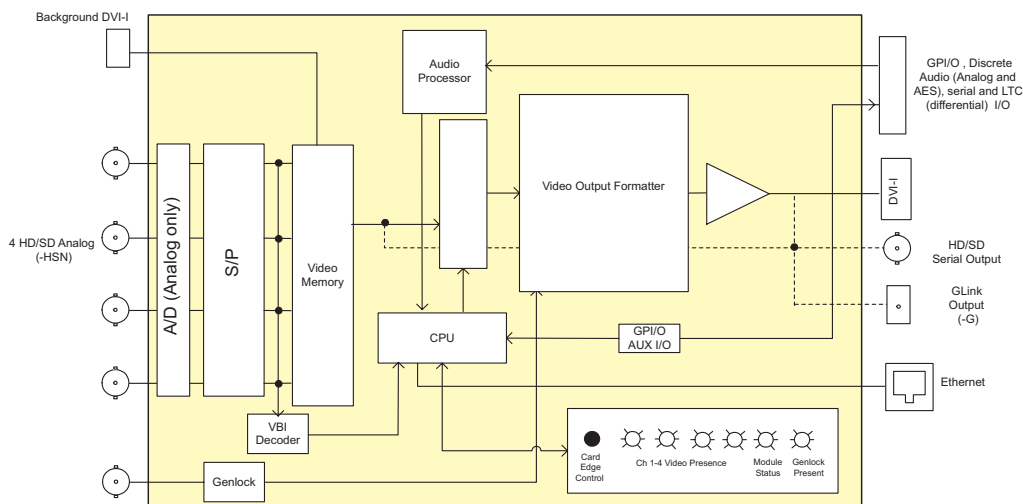
- RS-232/RS-422 communication port interface to common UMD protocols - TSL, Image Video
- 20 assignable GP inputs, 8 GP outputs

Physical:

- Number of slots - 3
- Genlock reference loop input for proper timing - 1 NTSC/PAL
- Fast power-cycle time (<3 seconds)

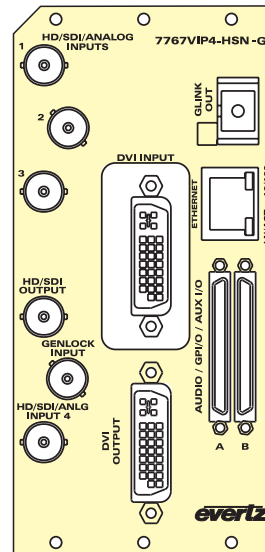
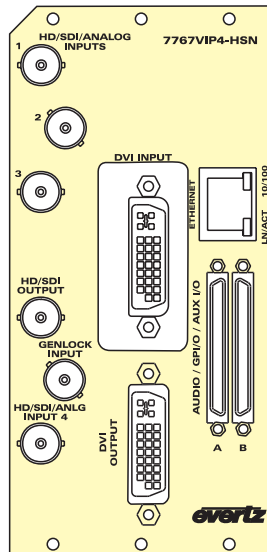
- Built-in VistaLINK™ support for remote monitoring and control via SNMP (using VistaLINK™ PRO)
- The 7767VIP module does not require a 7700FC VistaLINK™ Frame Controller. A direct Ethernet connection to the network for VistaLINK™ operations must be provided by user. Screen configurations via Maestro VIP GUI software (included)

7767VIP4 Block Diagram



VIP™ Four Input Video Monitoring and Display

Rear Panels



Specifications

Serial Video Inputs (-H, -S):

Standard: Auto-sensing HD-SDI (SMPTE 292M), SD-SDI (SMPTE 259M-C)
Number of Inputs: Up to 4
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 100m (Belden 1694A)
Return Loss: > 15 dB up to 270 Mb/s
Embedded Audio: SMPTE 272M-A

Composite Analog Video Inputs (-N):

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Inputs: Up to 4
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V \pm 0.1V
Input Impedance: 75 Ω
Return Loss: 40dB up to 5MHz

Background (Computer) Video Input:

Standard: Auto-detecting, VESA (DVI-I, for DVI and RGBHV inputs)
Number of Inputs: 1
Connector: DVI-I (Female)
Input Resolution: 640 x 480 (VGA) to 1600 x 1200 (UXGA)
Signal Level: 1V nominal

Discrete Digital AES Audio Inputs:

Standard: SMPTE 276M
Number of Inputs: 2 AES per video input
Connector: Dual SCSI (F)
Resolution: 24-bit
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced

Discrete Analog Audio Inputs:

Number of Inputs: 12 balanced stereo audio pairs
Connector: Female DB-25
Input Impedance: 20 k Ω minimum (differential)
Sampling Frequency: 48kHz
Peak Signal and Common Mode Level: 30 dBu

Display Video Output:

Standard: VESA (DVI-I) up to WUXGA (1920 x 1200)
Number of Outputs: 1
Connector: DVI (with DVI to RGBHV Adapter)
Video: 1Vp-p YPrPb/RGB or 0.7Vp-p VGA, 60Hz refresh
Impedance: 75 Ω

Serial Video Output:

Standard: Selectable HD/SD serial monitoring output (720p, 1080i, 625i, 525i)
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 200ps nominal (HD), 740ps nominal (SD)
Overshoot: <10% of amplitude

Genlock Input:

Type: NTSC/PAL color black
Level: 1V p-p nominal
Connector: BNC per IEC 60169-8 Amendment 2

General Purpose Interface I/O (GPI/GPO):

Number of Inputs: 20 (16 via 7767BHP-AUX breakout panel)
Number of Outputs: 8
Type:
GPI 1 Opto-isolated, active low with internal pull-ups to +5V
GPO 1 Relay closure to ground
Connector: Breakout panel TBlocks via SCSI connection to dual SCSI (F)
Input Signal: Closure to ground

Data Input/Output Serial Port:

Number of Ports: 1 RS-232 or 1 RS-422 (jumper configurable)
Connector: Breakout panel TBlocks via SCSI connection to dual SCSI (F)
Baud Rate: Up to 1Mb/s
Format: Configurable for various UMD interfaces

Ethernet:

Network Type: Fast Ethernet 100 Base-TX 1EEE 802.3U standard for 100Mbps baseband CSMA/CD local area network
Connector: RJ-45

Electrical:

Voltage: +12 VDC
Power: <39 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of Slots: 3

Ordering Information:

7767VIP4-HSN Up to four asynchronous HD/SD/NTSC/PAL inputs with embedded audio, one background DVI-I (DVI-D or RGBHV with adapter) input. Single DVI-I (DVI-D or RGBHV with adapter) or one serial monitor output. Includes VistaLINK VLPRO-C software configuration tool, GPI/O break-out panel (BHP-AUX) and Maestro-VIP display layout GUI
7767VIP4-HSN-G Up to four asynchronous HD/SD/NTSC/PAL inputs with embedded audio, one background DVI-I (DVI-D or RGBHV with adapter) input. Single DVI-I (DVI-D or RGBHV with adapter) or one serial monitor output. Includes VistaLINK VLPRO-C software configuration tool, GPI/O break-out panel (BHP-AUX) and Maestro-VIP display layout GUI. Single built-in fiber output (requires 2430GDAC on Rx end to display)
(For 7767VIP4-SN and 7767VIP4-N versions, contact factory)

Ordering Options & Accessories

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix
+3RU

3RU Rear Plate for use with 7700FR-C Multiframe

2430GDAC
2430GDAC-WARP
7767VIP-AI-U

GLink to DVI converter (extender requires -G module)
GLink to DVI converter (extender and portrait mode display, requires -G module)
Discrete unbalanced AES/EBU audio input (4 AES per video input) support with breakout panel

7767VIP-AI-BAL
3000MKT-AUX

Discrete balanced analog audio input support with breakout panel
Dual BHP-AUX auxiliary GPI/O and serial break-out panel rack mounting kit

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7702FR Standalone enclosure

VIP™ Eight Input Video Monitoring and Display

7767VIP8-HSN/HSN-G/SN



Building on the popularity of the MVP™ series, Evertz's new 7767VIP8-HSN signal monitoring module simultaneously accepts, auto-detects, analyzes and displays eight synchronous or asynchronous HD/SD/Analog video signals. An additional ninth input is a computer graphic input for display of a dynamic background image. Ultimately displaying up to WUXGA (1920 x 1200) resolution, the 7767VIP8-HSN module fits conveniently into Evertz's universally installed 7700FR-C frame and provides a cost-effective and space-efficient signal monitoring and display solution.

The 7767VIP8-HSN module is VistaLINK®- capable, offering remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This product feature offers another solution to manage operations including signal monitoring and module configuration from SNMP- capable control systems (Manager or NMS) locally or remotely.

Features

Video Inputs:

- Up to eight auto-sensing HD/SD/NTSC/PAL inputs (same BNC)
- Accepts either 4:3 or 16:9
- Auto-detects 525/625 format SD inputs (single frame rate conversion)
- A ninth input, (DVI-I up to UXGA resolution) is used for background display, signal analyzer tools or for cascading multiple VIP modules together

Audio Inputs:

- Handles embedded, discrete unbalanced AES/EBU, and balanced analog audio via break-out panel
- VU/PPM level indicators

Video Output:

- One DVI-I output
 - Drive a single DVI-D and a single RGBHV (VGA-type) display simultaneously with same content up to WUXGA (1920x1200 resolution)
- One selectable HD/SD serial digital (BNC) video output, same content as DVI-I output, or select from input
- Minimal processing delay (~1 frame)
- Optional fiber output
- Optional support for "portrait" display via 2430GDAC-WARP
- Thumbnails of any or all selected inputs to VistaLINK® PRO thumbnail server (or equivalent)

Graphics:

- User-configurable tally indicators and configurable UMD static and/or dynamically updated text, background colors
- User configurable borders

- LTC input drives digital clock display
- Count-up or down timer displays (GPI triggered)

Signal Monitoring:

- Extensive list of user-configurable signal fault conditions with "logic" settings
- Detects frozen video (patent pending) and black video
- User-configurable fault condition alert messages per video input with configurable background colors, opacities, thresholds and duration settings
- Closed caption presence detection
- WSS/AFD detection

Auxiliary Inputs:

- RS-232/RS-422 communication port interface to common UMD protocols - TSL, Image Video
- 20 assignable GP inputs, 8 GP outputs

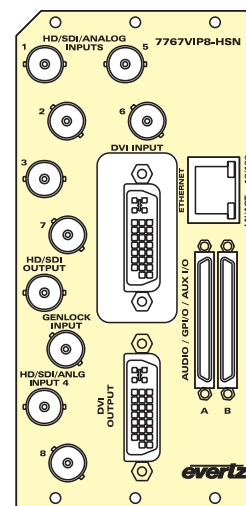
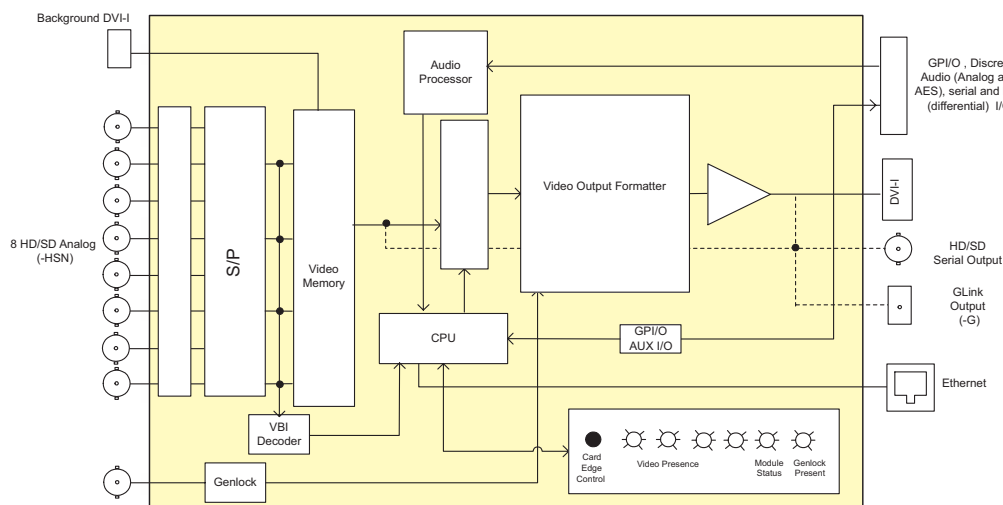
Physical:

- Number of slots - 3
- Genlock reference loop input for proper timing - 1 NTSC/PAL
- Fast power-cycle time (<30 seconds)

Network Management:

- Built-in VistaLINK® support for remote monitoring and control via SNMP (using VistaLINK® PRO)
- The 7767VIP module does not require a 7700FC VistaLINK® Frame Controller. A direct Ethernet connection to the network for VistaLINK® operations must be provided by user
- Screen configurations via Maestro VIP GUI software (included)
- Web browser interface allows for simple configuration without the need for additional software

7767VIP8-HSN Block Diagram & Rear Panel



Specifications

Serial Video Inputs:

Standard:	Auto-sensing HD-SDI (SMPTE 292M), SD-SDI (SMPTE 259M-C)
Number of Inputs:	Up to 8
Connector:	BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 100m (Belden 1694AA) HD-SDI
Return Loss:	> 15 dB up to 270 Mb/s
Embedded Audio:	SMPTE 272M-A

Composite Analog Video Inputs:

Standard:	NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Inputs:	Up to 8
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	1V nominal
DC Offset:	0V \pm 0.1V
Input Impedance:	75 Ω
Return Loss:	40dB up to 5MHz

Background (Computer) Video Input:

Standard:	Auto-detecting, VESA (DVI-I, for DVI and RGBHV inputs)
Number of Inputs:	1
Connector:	DVI-I (Female)
Input Resolution:	640 x 480 (VGA) to 1600 x 1200 (UXGA)
Signal Level:	1V nominal

Discrete Digital AES Audio Inputs:

Standard:	SMPTE 276M
Number of Inputs:	4 AES per video input
Connector:	Dual SCSI (F)
Resolution:	24-bit
Sampling Rate:	48 kHz
Impedance:	75 Ω unbalanced

Discrete Analog Audio Inputs:

Number of Inputs:	12 balanced stereo audio pairs
Connector:	Dual SCSI (F)
Input Impedance:	20 k Ω minimum (differential)
Sampling Frequency:	48kHz
Peak Signal and Common Mode Level:	30 dBu

Display Video Output:

Standard:	VESA (DVI-I) up to WUXGA (1920 x 1200)
Number of Outputs:	1
Connector:	DVI (with DVI to RGBHV Adapter)
Video:	1Vp-p YPrPb/RGB or 0.7Vp-p VGA, 60Hz refresh
Impedance:	75 Ω

Serial Video Output:

Standard:	Selectable HD/SD serial monitoring output (720p, 1080i, 625i, 525i)
Number of Outputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	200ps nominal (HD), 740ps nominal (SD)
Overshoot:	<10% of amplitude

Genlock Input:

Type:	NTSC/PAL color black
Level:	1V p-p nominal
Connector:	BNC per IEC 60169-8 Amendment 2

General Purpose Interface I/O (GPI/GPO):

Number of Inputs:	20 (16 via 7767BHP-AUX breakout panel)
Number of Outputs:	8
Type:	
GPI	1 Opto-isolated, active low with internal pull-ups to +5V
GPO	1 Relay closure to ground
Connector:	Breakout panel Terminal Blocks via SCSI connection to dual SCSI (F)
Input Signal:	Closure to ground

Data Input/Output Serial Port:

Number of Ports:	1 RS-232 or 1 RS-422
Connector:	Breakout panel TBlocks via SCSI connection to dual SCSI (F)
Baud Rate:	Up to 1Mbaud
Format:	Configurable for various UMD interfaces

Ethernet:

Network Type:	Fast Ethernet 100 Base-TX 1EEE 802.3U standard for 100Mbps baseband CSMA/CD local area network
Connector:	RJ-45

Electrical:

Voltage:	+12 VDC
Power:	< 39 Watts
Safety:	ETL Listed, complies with EU safety directives
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of Slots:	3
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Ordering Information:

7767VIP8-HSN	Up to eight asynchronous HD/SD/NTSC/PAL inputs with embedded audio, one background DVI-I (DVI-D or RGBHV with adapter) input. Single DVI-I (DVI-D or RGBHV with adapter) or one serial monitor output. Includes VistaLINK VLPRO-C software configuration tool, GPI/O break-out panel (BHP-AUX) and Maestro-VIP display layout GUI
7767VIP8-HSN-G	Up to eight asynchronous HD/SD/NTSC/PAL inputs with embedded audio, one background DVI-I (DVI-D or RGBHV with adapter) input. Single DVI-I (DVI-D or RGBHV with adapter) or one serial monitor output. Includes VistaLINK VLPRO-C software configuration tool, GPI/O break-out panel (BHP-AUX) and Maestro-VIP display layout GUI
7767VIP8-SN	Up to eight asynchronous SD/NTSC/PAL inputs with embedded audio, one background DVI-I (DVI-D or RGBHV with adapter) input. Single DVI-I (DVI-D or RGBHV with adapter) or one serial monitor output. Includes VistaLINK VLPRO-C software configuration tool, GPI/O break-out panel (BHP-AUX) and Maestro-VIP display layout GUI

Ordering Options & Accessories

Rear Plate must be specified at time of order
Eg: Model +3RU

Rear Plate Suffix +3RU	3RU Rear Plate for use with 7700FR-C Multiframe
2430GDAC	GLink to DVI converter (extender requires -G module)
2430GDAC-WARP	GLink to DVI converter (extender and portrait mode display, requires -G module)
7767VIP-AI-U	Discrete unbalanced AES/EBU audio input (4 AES per video input) support with breakout panel
7767VIP-AI-BAL	Discrete balanced analog audio input support with breakout panel
3000MKT-AUX	Dual BHP-AUX auxiliary GPI/O and serial break-out panel rack mounting kit

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7702FR	Standalone enclosure

VIP™ Twelve Input Video Monitoring and Display

Model 7767VIP12-HSN/-SN



Building on the popularity of both the Quattro™ series and MVM product lines, the VIP™ maintains the signal monitoring features common in both predecessors, offers additional display features and conveniently fits the universally installed 7700FR-C frame.

The VIP12 accepts, analyzes and displays up to 12 HD/SD analog video inputs, auto-sensing the format on the same BNC. An additional thirteenth input is a computer graphic input for a dynamically-updated background image. The VIP™ outputs up to WUXGA (1920 x 1200) resolution, providing an ideal solution to view a full-screen HD input signal in its native resolution. A user-configurable HD/SD serial output is also provided for facility routing or evidence monitoring & recording if desired, where both the DVI and serial outputs carry the same content simultaneously. The serial output can also output one of the selected inputs for analysis or streaming via encoder.

The VIP™ is VistaLINK™ -enabled, offering remote monitoring of faults as well as control and configuration through Simple Network Management Protocol (SNMP).

Features

Video Inputs:

- Twelve auto-sensing HD/SD/analog video inputs
- Accepts either 4:3 or 16:9
- Auto-detects 525/625 format SD inputs (single frame rate conversion)
- Computer graphic video input (DVI-I up to UXGA) for background display, signal analyzer tools or cascading multiple VIP modules

Audio Inputs:

- Handles embedded or unbalanced AES/EBU, and balanced analog audio (up to 48 AES and 12 L/R) via break-out panel
- VU/PPM level indicators

Video Output:

- One DVI-I output
 - Drive a single DVI-D and a single RGBHV (VGA-type) display simultaneously with same content up to WUXGA (1920x1200 resolution)
- One selectable HD/SD serial digital (BNC) video output, also carrying same content as DVI-I output or select from input
- Minimal processing delay (~1 frame)
- Optional fiber output
- Optional support for "portrait" display via 2430GDAC-WARP
- Thumbnails of any or all selected inputs to VistaLINK™ PRO Thumbnail Server (or equivalent)

Graphics:

- User-configurable tally indicators and configurable UMD static and/or dynamically updated text, background colors
- User configurable borders
- LTC input drives digital clock display
- Count-up or down timer displays (GPI triggered)

Signal Monitoring:

- Extensive list of user-configurable signal fault conditions with logic settings
- On screen messages triggered by fault conditions
- Detects frozen video (patent pending) and black video
- User-configurable fault condition alert messages per video input with configurable background colors, opacities, thresholds and durations
- Closed caption presence detection

Auxiliary Inputs:

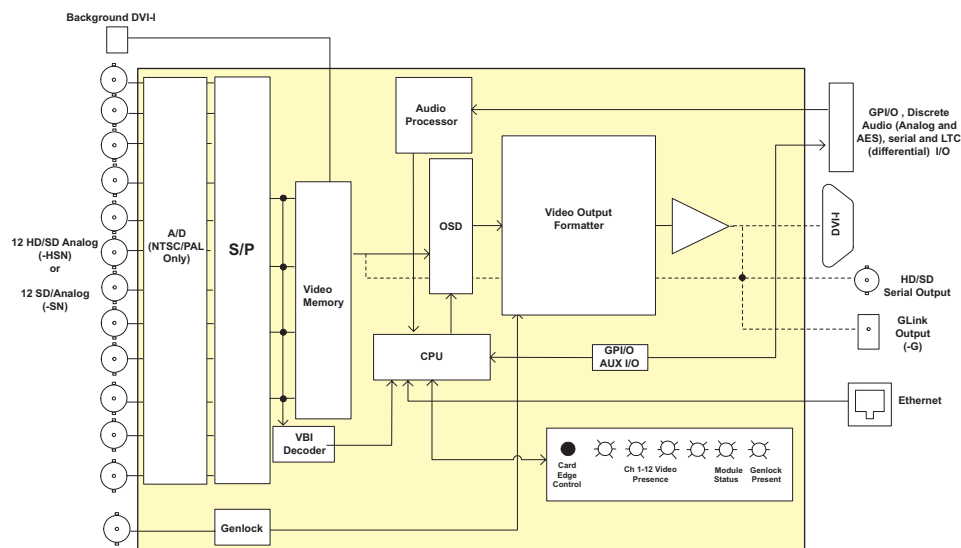
- RS-232/RS-422 communication port Interface to common UMD protocols - TSL, Image Video
- 20 assignable GP inputs, 8 GP outputs

Physical:

- Number of slots - 4
- Genlock reference loop input for proper timing - 1 NTSC/PAL
- Fast power-cycle time (<3 seconds)

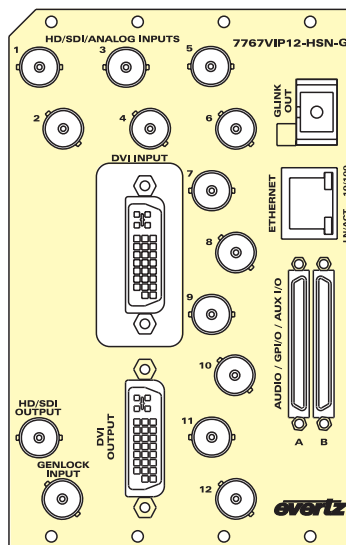
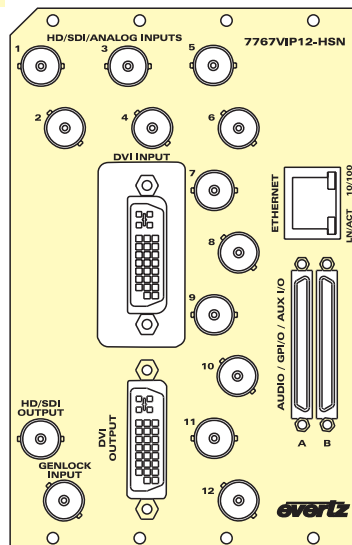
- Built-in VistaLINK™ support for remote monitoring and control via SNMP (using VistaLINK™ PRO)
- The 7767VIP module does not require a 7700FC VistaLINK™ Frame Controller. A direct Ethernet connection to the network for VistaLINK™ operations must be provided by user. Screen configurations via Maestro VIP GUI software (included)

7767VIP12 Block Diagram



VIP™ Twelve Input Video Monitoring and Display

Rear Panels



Specifications

Serial Video Inputs (-H, -S):

Standard: HD-SDI (SMPTE 292M), and/or SD-SDI (SMPTE 259M-C)
Number of Inputs: 12
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 100m (Belden 1694A)
Return Loss: > 15dB up to 270 Mb/s
Embedded Audio: SMPTE 272M-A

Composite Analog Video Inputs (-N):

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Inputs: 12
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V \pm 0.1V
Input Impedance: 75 Ω
Return Loss: 40dB up to 5MHz

Background (Computer) Video Input:

Standard: Auto-detecting, VESA (DVI-I, for DVI and RGBHV inputs)
Number of Inputs: 1
Connector: DVI-I (Female)
Input Resolution: 640 x 480 (VGA) to 1600 x 1200 (UXGA)
Signal Level: 1V nominal

Discrete Digital AES Audio Inputs:

Standard: SMPTE 276M
Number of Inputs: 2 AES per video input
Connector: Dual SCSI (F) with BHP
Resolution: 24-bit
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced

Discrete Analog Audio Inputs:

Number of Inputs: 12 balanced stereo audio pairs
Connector: Dual SCSI (F) with BHP
Input Impedance: 20k Ω min. (differential)
Sampling Frequency: 48kHz
Peak Signal and Common Model Level: 30dBu

Display Video Output:

Standard: VESA (DVI-I) up to WUXGA (1920 x 1200)
Number of Outputs: 1
Connector: DVI (with DVI to RGBHV Adapter)
Video: 1Vp-p YPrPb/RGB or 0.7Vp-p VGA, 60Hz refresh
Impedance: 75 Ω

Serial Video Output:

Standard: Selectable HD/SD serial monitoring output (720p, 1080i, 625i, 525i)
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 200ps nominal (HD), 740ps nominal (SD)
Overshoot: <10% of amplitude

Genlock Input:

Type: NTSC/PAL color black
Level: 1V p-p nominal
Connector: BNC per IEC 60169-8 Amendment 2

General Purpose Interface I/O (GPI/GPO):

Number of Inputs: 20 (16 on 7767BHP-AUX)
Number of Outputs: 8
Type:
GPI 1 Opto-isolated, active low with internal pull-ups to +5V
GPO 1 Relay closure to ground
Connector: Breakout panel TBLOCKS via SCSI connection to dual SCSI (F)
Input Signal: Closure to ground

Input/Output Serial Port:

Number of Ports: 1 RS-232 or 1 RS-422 (jumper configurable)
Connector: Breakout panel TBLOCKS via SCSI connection to dual SCSI (F)
Baud Rate: Up to 1Mbaud
Format: Configurable for various UMD interfaces

Ethernet:

Network Type: Fast Ethernet 100 Base-TX 1EEE 802.3U standard for 100Mbps baseband CSMA/CD local area network
Connector: RJ-45

Electrical:

Voltage: +12VDC
Power: <50 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of Slots: 4

Ordering Information:

7767VIP12-HSN	Up to twelve asynchronous HD/SD/NTSC/PAL inputs with embedded audio, one back ground DVH (DVI-D or RGBHV with adapter) input. Single DVH (DVI-D or RGBHV with adapter) or one serial monitor output. Includes VistaLINK VLPRO-C software configuration tool, GPI/O break-out panel (BHP-AUX) and Maestro-VIP display layout GUI.
7767VIP12-HSN-G	Up to twelve asynchronous HD/SD/NTSC/PAL inputs with embedded audio, one back ground DVH (DVI-D or RGBHV with adapter) input. Single DVH (DVI-D or RGBHV with adapter) or one serial monitor output. Includes VistaLINK VLPRO-C software configuration tool, GPI/O break-out panel (BHP-AUX) and Maestro-VIP display layout GUI. Single built-in fiber output (requires 2430GDAC on Rx end to display).
7767VIP12-SN	Up to twelve asynchronous SD/NTSC/PAL inputs with embedded audio, one back ground DVH (DVI-D or RGBHV with adapter) input. Single DVH (DVI-D or RGBHV with adapter) or one serial monitor output. Includes VistaLINK VLPRO-C software configuration tool, GPI/O break-out panel (BHP-AUX) and Maestro-VIP display layout GUI.
7767VIP12-SN-G	Up to twelve asynchronous SD/NTSC/PAL inputs with embedded audio, one back ground DVH (DVI-D or RGBHV with adapter) input. Single DVH (DVI-D or RGBHV with adapter) or one serial monitor output. Includes VistaLINK VLPRO-C software configuration tool, GPI/O break-out panel (BHP-AUX) and Maestro-VIP display layout GUI. Single built-in fiber output (requires 2430GDAC on Rx end to display).

(For 7767VIP12-N versions, contact factory)

Ordering Options & Accessories

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

2430GDAC 2430GDAC-WARP 7767VIP-AI-U

GLink to DVI converter (extender requires -G module)
GLink to DVI converter (extender and portrait mode display, requires -G module)
Discrete unbalanced AES/EBU audio input (4 AES per video input) support with breakout panel

7767VIP-AI-BAL 3000MKT-AUX

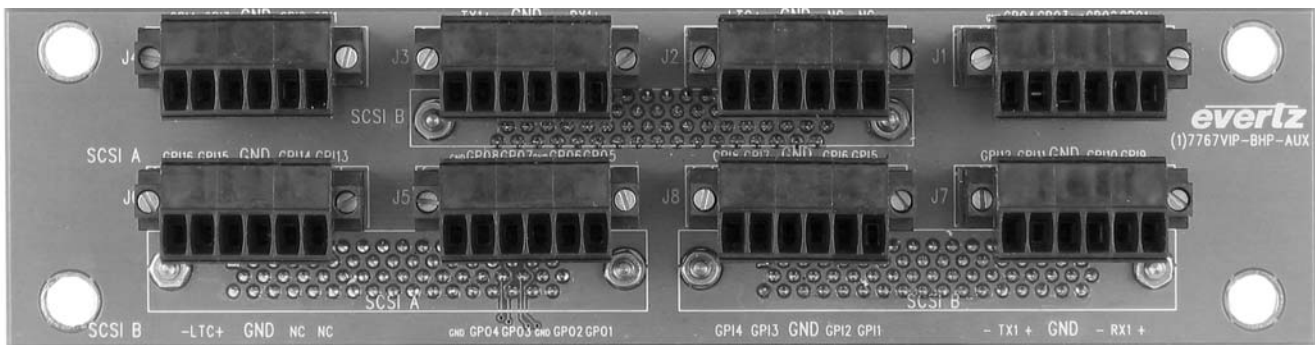
Discrete balanced analog audio input support with breakout panel
Dual BHP-AUX auxiliary GPI/O and serial break-out panel rack mounting kit

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

Models **7767BHP-AUX** **7767BHP-BAUX** **7767BHP-UAUX**

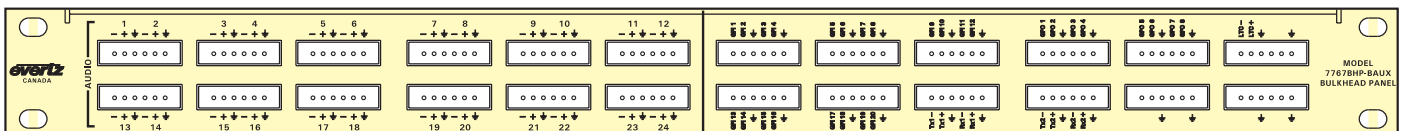
Bulkhead Breakout Panels (BHP) provide a convenient way of connecting audio and auxiliary input and output signals into VIP module SCSI rear plate connectors. BHPs may be outfitted with BNCs and/or terminal strips, extending AES, GPI/O, Tx/Rx, Analog Audio and GND connections as described below. BHPs occupy 1/2RU, 1RU or 2RU of rack space and are designed for mounting at the rear of the rack panel. BHPs are included with specific line item order options as defined below.



7767BHP-AUX (included with every VIP4 or VIP12 module)

The 7767BHP-AUX is outfitted with eight terminal blocks and provides connectivity for 16 GPI inputs, 8 GPI outputs, LTC, and serial RS-232/422. The 7767BHP-AUX is included with every VIP4 and VIP12 module. Furthermore, one 7767BHP-AUX has 2 modes of operation:

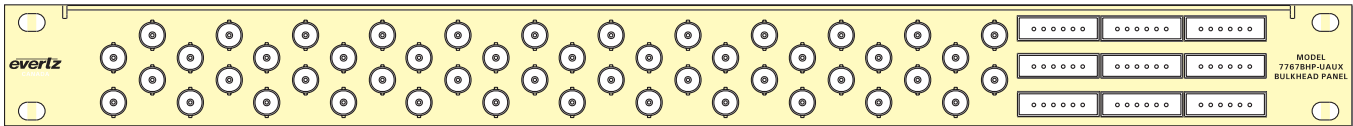
1. Single VIP module mode - provides full AUX I/O as described above per VIP module
2. Dual VIP modules mode - provides 4 GPI inputs, 4 GPI outputs, LTC and serial connections for 2 VIP modules



7767BHP-BAUX (included with 7767VIP-AI-BAL)

The 7767BHP-BAUX provides terminal blocks for mappable balanced analog audio inputs to the VIP module. In addition, this breakout panel is also outfitted with the complete set of GPI inputs (20), GPI outputs (8), LTC differential inputs, serial ports (RS-232/RS-422) and one group AES outputs. This breakout panel replaces the 7767BHP-AUX.

VIP™ Bulkhead Breakout Panels



7767BHP-UAUX (included with 7767VIP-AI-U)

The 7767BHP-UAUX provides unbalanced AES/EBU inputs via BNCs to the VIP module. It is possible to provide up to 4 unbalanced AES/EBU inputs per video input channel on the VIP. In addition, this breakout panel is also outfitted with the complete set of GPI inputs (20), GPI outputs (8), LTC differential inputs one serial port (RS-232/RS-422) and one group AES output. This breakout panel replaces the 7767BHP-AUX.



3000MKT-AUX

For mounting convenience, a BHP mounting kit (3000MKT-AUX) is available with mounting hardware. It is shown in the picture above with two mounted AUX-BHPs.

Ordering Information

- | | |
|-----------------------|---|
| 7767VIP-AI-U | Discrete unbalanced AES/EBU audio input (4 AES per video input) support with breakout panel |
| 7767VIP-AI-BAL | Discrete balanced analog audio input support with breakout panel |
| 3000MKT-AUX | Dual BHP-AUX auxiliary GPI/O and serial break-out panel rack mounting kit |

If additional breakout panels are required, contact factory for ordering information

Model 7771CS-HD

The 7771CS-HD, HDTV Compression Codec encodes one SMPTE 292M (1.485Gb/s) serial digital video signal with up to four AES channels of embedded or separate audio, into one 270Mb/s SDTi (SMPTE305M) compliant output stream. The 7771CS-HD also preserves VANC data in the incoming HD-SDI stream and transports this across the 270Mb/s SDTi interface. Automatic detection and support of 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94 field rates is provided.

The 7771CS-HD occupies two card slots and is housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which will hold up to 7 modules or a standalone enclosure which will hold up to 1 module.

Features

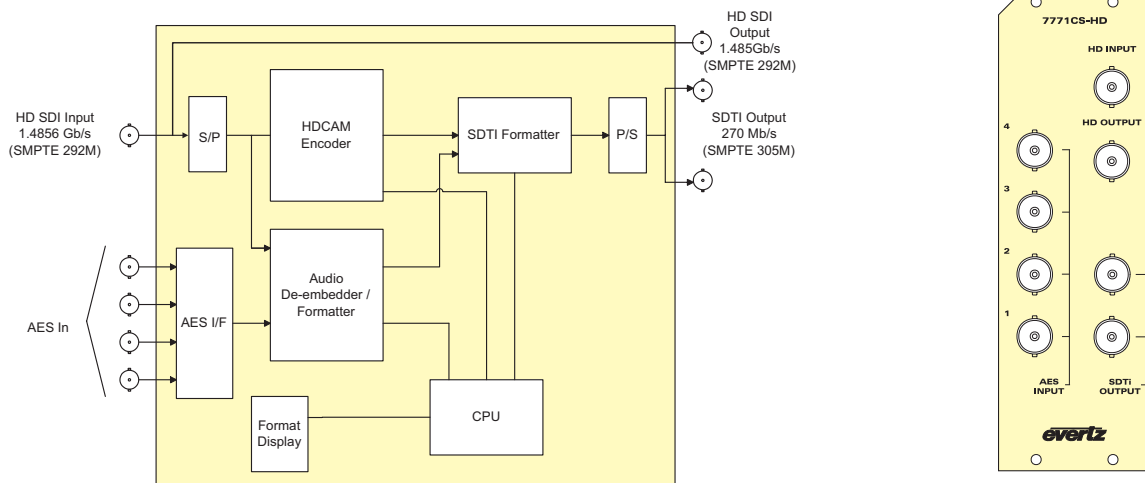
- Industry proven HDCAM video compression for origination quality video
- Supports 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94 field rates
- Automatic detection of 1035i/1080i active lines
- Accepts up to four channels of embedded or separate AES audio
- No compression applied to AES audio streams
- Preserves VANC from input HD-SDI stream

- SMPTE 305M compliant 270Mb/s output stream
- EDH insertion on SDTi output
- Fully hot swappable from front of frame

Status Indication:

- Input signal presence
- 1035i/1080i active lines
- Field rate

7771CS-HD Block Diagram



Specifications

HD Serial Video Input:

Standard: SMPTE 292M, (1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94)

Number of Inputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic to 125m @ 1.5Gb/s with Belden 1694A or equivalent

SDTi Video Output:

Standards: SMPTE 259M-C (270Mb/s), SMPTE 305M

Number of Outputs: 2

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V $\pm 0.5V$

Rise and Fall Time: 740ps nominal

Overshoot: <10% of amplitude

Return Loss: >15dB up to 270Mb/s

Wide Band Jitter: <0.2UI

Embedded VANC: One 20-bit group as per SMPTE337M

Embedded Audio: Two 24-bit groups as per SMPTE 272M-A source selectable from embedded audio on HD input or external AES inputs

SDTi Out to HDSDI In

Adjustment: 0 to -10.8ms (adjustable) relative to video delay (requires reference input)

AES Audio Inputs:

Standard: SMPTE 276M, single ended AES

Number of Inputs: 4

Signal Level: 200mv to 1100mv

Connector: BNC per IEC 60169-8 Amendment 2

Sampling Rate: 48kHz

Impedance: 75 Ω balanced

Return Loss: > 20dBm

Resolution: 24-bit

Reference Input:

Connector: 1 BNC per IEC 60169-8 Amendment 2

Type: HD Tri-level, NTSC/PAL Color Black (1 V p-p) or composite bi-level sync (525i/59.94 or 625i/50) 300mV

Termination: 75 Ω jumper selectable

Input to SDTi Delay:

Video: 3 frames

AES: < 2 ms

VANC: 9 fields

Electrical:

Voltage: +12VDC

Power: 12 Watts

EMI/RFI Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 frame mounting: 2 slots

7701 frame mounting: 1 slot

Ordering Information:

7771CS-HD HD Compression CODEC

Ordering Options:

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

7701FR 1RU Multiframe which holds 3 modules

S7701FR Standalone enclosure

HD Decompression CODEC

Model 7771DS-HD

The 7771DS-HD, HDTV Decompression Codec converts a 270Mb/s SDTi (SMPTE 305M) input signal containing HDCAM compressed data with embedded AES audio, into a SMPTE 292M (1.485Gb/s) component serial digital stream with embedded or separate AES audio. The 7771DS-HD also re-embeds VANC data that existed in the original HD-SDI stream. The 7771DS-HD supports 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.97sF, 1035i/59.94 field rates.

The 7771DS-HD occupies two card slots and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 7 modules or a standalone enclosure which will hold 1 module.

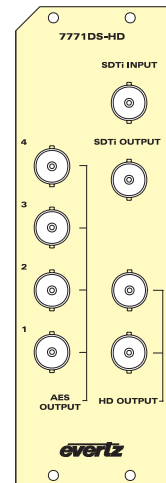
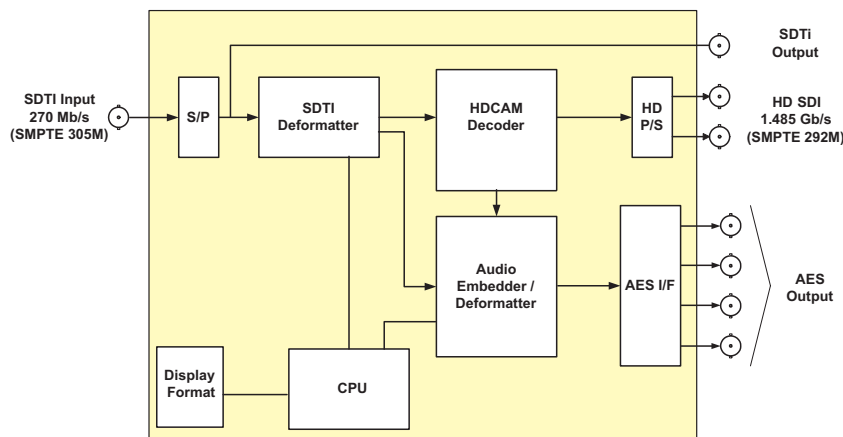
Features

- Industry proven HDCAM video decompression for origination quality video
- Supports 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94 field rates
- Automatic detection of 1035i/1080i active lines
- Detection of uncompressed SD or compressed HD input stream and outputs GPO control for downstream equipment
- Handles up to four channels of embedded AES audio
- Audio delay processing to match video decompression delay
- Re-embeds original VANC data in outgoing HD-SDI stream
- Four separate stereo AES unbalanced outputs
- Fully hot swappable from front of frame

Status Indication:

- Input signal presence
- 1035i/1080i active lines
- Field rate

7771DS-HD Block Diagram



Specifications

SDTi Video Input:

Standard: SMPTE 259M-C (270Mb/s), SMPTE 305M data formatting
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Return Loss: >15dB @ 270Mb/s

HD Serial Video Output:

Standard: SMPTE 292M (1080i/59.94, 1080i/50, 1080i/29.98sF, 1080i/25sF, 1080i/23.98sF, 1035i/59.94)
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: <200ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: <0.2UI

AES Audio Outputs:

Standard: SMPTE 276M, single ended AES, Dolby E
Number of Outputs: 4
Connector: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48khz
Impedance: 75 Ω
Resolution: 24-bit

GPO:

Number of Outputs: 1
Connector: 1 pin on DB9
Type: TTL

SDTi Input to HDSDI Output Delay:

Video: 2 frames
AES:
Evertz Source: 5 frames
Sony Source: 2 frames
VANC: 9 fields

Electrical:

Voltage: +12VDC
Power: 12 Watts
EMI/RFI Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 frame mounting: 2 slots
7701 frame mounting: 1 slot

Ordering Information:

7771DS-HD HD Decompression CODEC

Ordering Options:

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Model 7772MFC-HD



The 7772MFC-HD, HDTV Compression Codec encodes one SMPTE 292M (1.485Gb/s) serial digital video signal with up to four AES channels of embedded or separate audio, into one 270Mb/s compliant data output stream. The 7772MFC-HD also preserves VANC data in the incoming HD-SDI stream and transports this across the 270Mb/s interface. Automatic detection and support of 1080i/59.94, 1080i/50, 1035i/59.94, 720p/59.94 and 720p/50 field rates is provided. Card functions are controlled from the card edge or through the VistaLINK™ interface.

The 7772MFC-HD occupies two card slots and is housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which will hold up to 7 modules or a standalone enclosure which will hold up to 1 module.

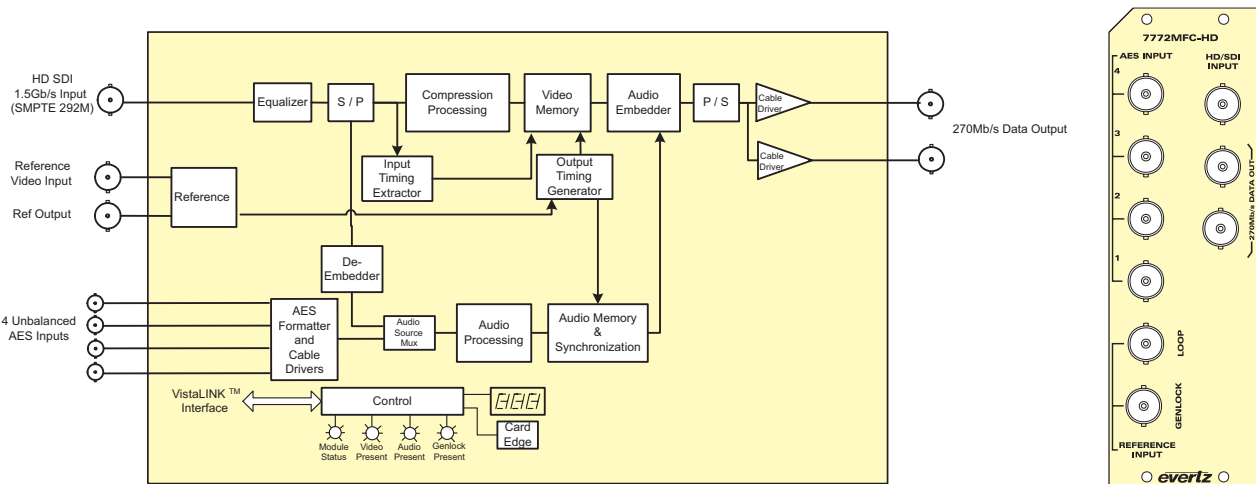
Features

- Supports 1080i/59.94, 1080i/50, 1035i/59.94, 720p/59.94, 720p/50 field rates
- Automatic detection of 1035i/1080i, 720p active lines
- Accepts up to four channels of embedded or separate AES audio
- No compression applied to AES audio streams
- Preserves VANC from input HD-SDI stream
- Fully hot swappable from front of frame

Status Indication:

- Input signal presence
- 1035i/1080i/720p active lines

7772MFC-HD Block Diagram



Specifications

HD Serial Video Input:

Standard: SMPTE 292M, (1080i/59.94, 1080i/50, 1035i/59.94, 720p/59.94, 720p/50)

Number of Inputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic to 125m @ 1.5Gb/s with Belden 1694A or equivalent

270Mb/s Data Output:

Standards: SMPTE 259M-C (270Mb/s)

Number of Outputs: 2

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V ±0.5V

Rise and Fall Time: 900ps nominal

Overshoot: <10% of amplitude

Return Loss: >15dB up to 270Mb/s

Wide Band Jitter: <0.10 UI

AES Audio Inputs:

Standard: SMPTE 276M, single ended AES

Number of Inputs: 4

Signal Level: 200mv to 1100mv

Connector: BNC per IEC 60169-8 Amendment 2

Sampling Rate: 48kHz

Impedance: 75Ω balanced

Return Loss: > 20dBm

Resolution: 24-bit

Reference Input:

Connector: 1 BNC per IEC 60169-8 Amendment 2

Type: HD Tri-level, NTSC/PAL Color Black (1 V p-p) or composite bi-level sync (525i/59.94 or 625i/50) 300mV

Termination: 75Ω jumper selectable

HD SDI Input to 270Mb/s Data:

Delay: ≤ 4 frames interlaced
≤ 8 frames progressive

Electrical:

Voltage: +12VDC

Power: 15 Watts

EMI/RFI Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 frame mounting: 2 slots

7701 frame mounting: 1 slot

Ordering Information:

7772MFC-HD HD Compression CODEC

Ordering Options:

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

7701FR 1RU Multiframe which holds 3 modules

S7701FR Standalone enclosure



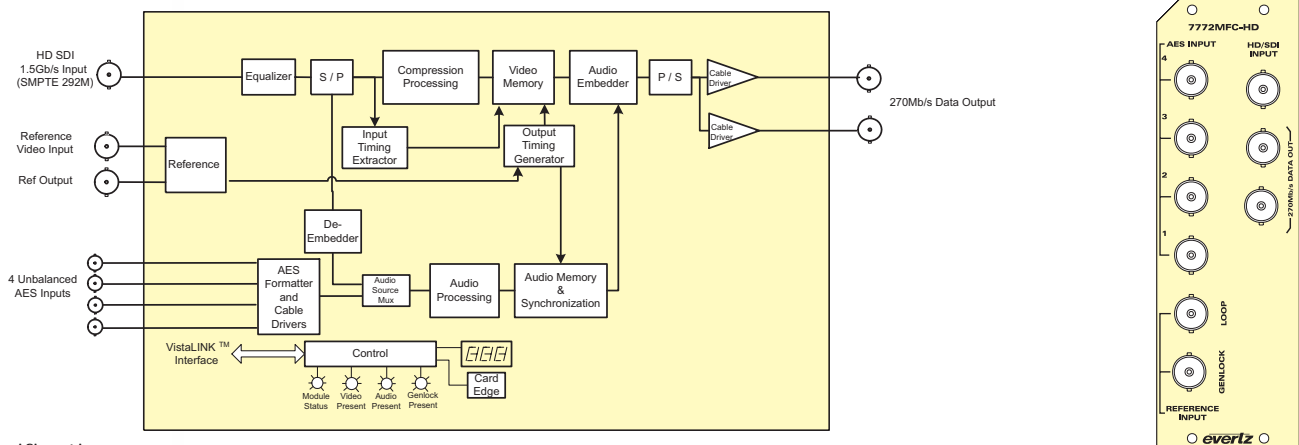
The 7772MFC-HD, HDTV Compression Codec utilizes JPEG 2000 technology to encode one SMPTE 292M (1.485Gb/s) serial digital video signal with up to four AES groups of embedded or separate audio, into one 270Mb/s compliant data output stream. The 7772MFC-HD also preserves VANC data in the incoming HD-SDI stream and transports this across the 270Mb/s interface. Automatic detection and support of 1080i/59.94, 1080i/50, 720p/59.94 and 720p/50 field rates is provided. Card functions are controlled from the card edge or through the VistaLINK® interface.

The 7772MFC-HD occupies two card slots and is housed in a 1RU frame which holds up to 3 modules, a 3RU frame which will hold up to 7 modules or a standalone enclosure which will hold 1 module.

Features

- Supports 1080i/59.94, 1080i/50, 720p/59.94, 720p/50 field rates
- Automatic detection of 1080i, 720p active lines
- Accepts up to four groups of embedded or separate AES audio
- No compression applied to AES audio streams
- Preserves VANC from input HD-SDI stream
- Fully hot swappable from front of frame
- VistaLINK® - capable offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK® is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame

7772MFC-HD Block Diagram & Rear Panel



Specifications

HD Serial Video Input:

Standard: SMPTE 292M, (1080i/59.94, 1080i/50, 720p/59.94, 720p/50)

Number of Inputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694A or equivalent

270Mb/s Data Output:

Standards: SMPTE 259M-C (270Mb/s)

Number of Outputs: 2

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V ±0.5V

Rise and Fall Time: 900ps nominal

Overshoot: <10% of amplitude

Return Loss: >15dB up to 270Mb/s

Wide Band Jitter: <0.20 UI

AES Audio Inputs:

Standard: SMPTE 276M, single ended AES

Number of Inputs: 8

Signal Level: 200mv to 1100mv

Connector: BNC per IEC 60169-8 Amendment 2

Sampling Rate: 48kHz

Impedance: 75Ω balanced

Return Loss: > 20dBm

Resolution: 24-bit

Reference Input:

Connector: 1 BNC per IEC 60169-8 Amendment 2

Type: HD Tri-level, NTSC/PAL Color Black (1 V p-p) or composite bi-level sync (525i/59.94 or 625i/50) 300mV

Termination: 75Ω jumper selectable

HD SDI Input to 270Mb/s Data:

Delay: ≤4 frames interlaced
≤8 frames progressive

Electrical:

Voltage: +12VDC

Power: 15 Watts

EMI/RFI Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 frame mounting: 2 slots

7701 frame mounting: 1 slot

Ordering Information:

7772MFC-HD HD JPEG 2000 Compression CODEC

Ordering Options:

Rear Plate must be specified at time of order
Eg: Model +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD Decompression CODEC



Model 7772MFD-HD

The 7772MFD-HD, HDTV Decompression Codec converts the 270Mb/s data input signal from the 7772MFC-HD into a SMPTE 292M (1.485Gb/s) component serial digital stream with embedded or separate AES audio. The 7772MFD-HD also re-embeds VANC data that existed in the original HD-SDI stream. The 7772MFD-HD supports 1080i/59.94, 1080i/50, 1035i/59.94, 720p/59.94 and 720p/50 field rates. Card functions are controlled from the card edge of through VistaLINK™ interface.

The 7772MFD-HD occupies two card slots and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 7 modules or a standalone enclosure which will hold 1 module.

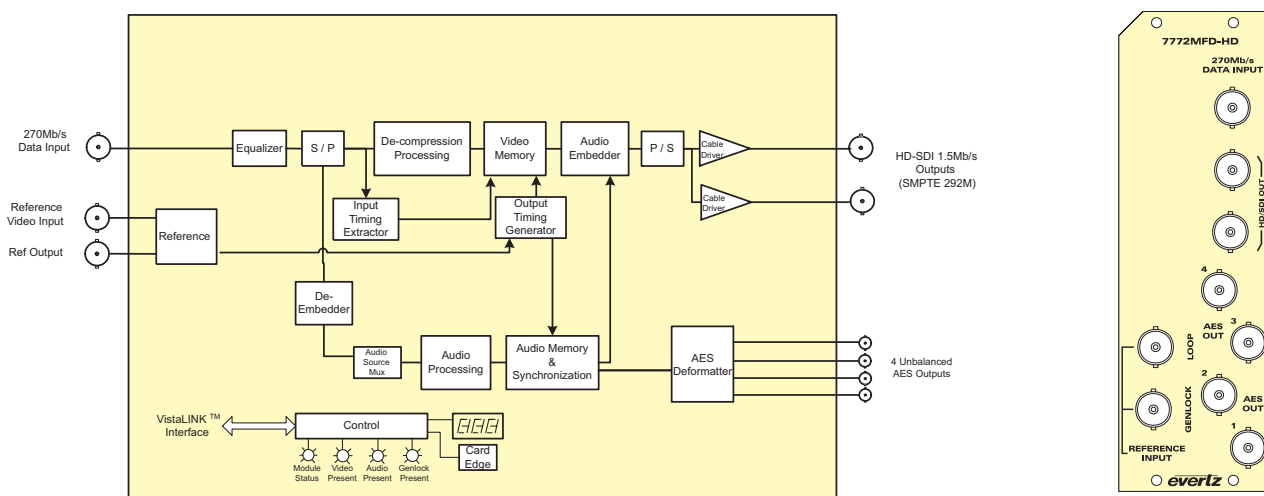
Features

- Supports 1080i/59.94, 1080i/50, 1035i/59.94, 720p/59.94 and 720p/50 field rates
- Automatic detection of 1035i/1080i/720p active lines
- Handles up to four channels of embedded AES audio
- Audio delay processing to match video decompression delay
- Re-embeds original VANC data in outgoing HD-SDI stream
- Four separate stereo AES unbalanced outputs
- Fully hot swappable from front of frame

Status Indication:

- Input signal presence
- 1035i/1080i/720p active lines

7772MFD-HD Block Diagram



Specifications

270Mb/s Data Input:

Standard: SMPTE 259M-C (270Mb/s)
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Return Loss: >15dB @ 270Mb/s

HD Serial Video Output:

Standard: SMPTE 292M (1080i/59.94, 1080i/50, 1035i/59.94, 720p/54.95, 720p/50)
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Rise and Fall Time: <200ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: <0.16UI

AES Audio Outputs:

Standard: SMPTE 276M, single ended AES, Dolby E
Number of Outputs: 4
Connector: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48kHz
Impedance: 75 Ω
Resolution: 24-bit

270Mb/s Data Input to HDSDI Output Delay:

Delay: ≤ 4 frames interlaced
 ≤ 8 frames progressive

Electrical:

Voltage: +12VDC
Power: 15 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 frame mounting: 2 slots
7701 frame mounting: 1 slot

Ordering Information:

7772MFD-HD HD Decompression CODEC

Ordering Options:

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD JPEG 2000 Decompression CODEC

7772MFD-HD



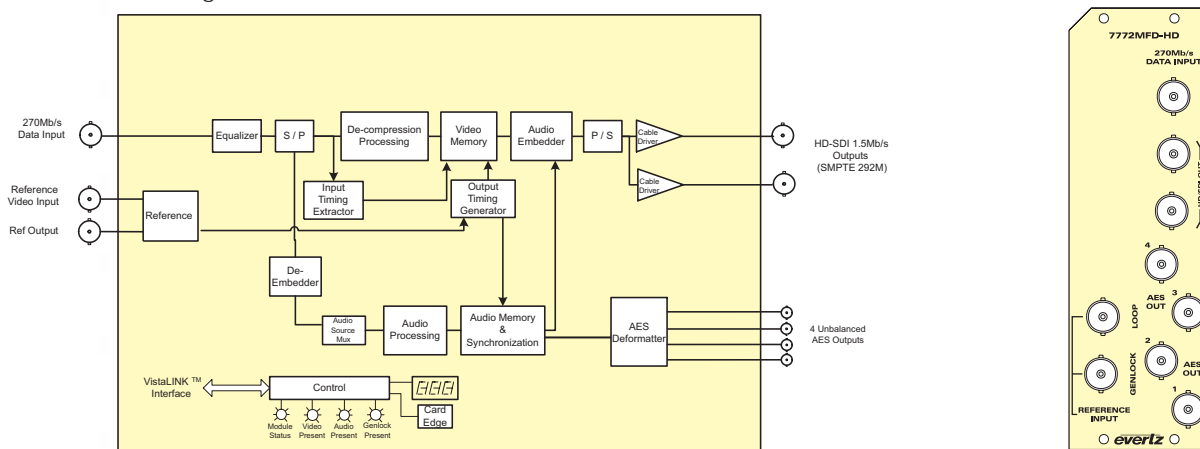
The 7772MFD-HD, HDTV Decompression Codec utilizes JPEG 2000 technology to convert the 270Mb/s data input signal from the 7772MFC-HD into a SMPTE 292M (1.485Gb/s) component serial digital stream with embedded or separate AES audio. The 7772MFD-HD also re-embeds VANC data that existed in the original HD-SDI stream. The 7772MFD-HD supports 1080i/59.94, 1080i/50, 720p/59.94 and 720p/50 field rates. Card functions are controlled from the card edge or through VistaLINK® interface.

The 7772MFD-HD occupies two card slots and can be housed in a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 7 modules or a standalone enclosure which will hold 1 module.

Features

- Supports 1080i/59.94, 1080i/50, 720p/59.94 and 720p/50 field rates
- Automatic detection of 1080i/720p active lines
- Handles up to four groups of embedded AES audio
- Audio delay processing to match video decompression delay
- Re-embeds original VANC data in outgoing HD-SDI stream
- Eight separate stereo AES unbalanced outputs
- Fully hot swappable from front of frame
- VistaLINK® - capable offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK® is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame

7772MFD-HD Block Diagram & Rear Panel



Specifications

270Mb/s Data Input:

Standard: SMPTE 259M-C (270Mb/s)
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Return Loss: >15dB @ 270Mb/s

HD Serial Video Output:

Standard: SMPTE 292M (1080i/59.94, 1080i/50, 720p/54.94, 720p/50)
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: <200ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: <0.2UI

AES Audio Outputs:

Standard: SMPTE 276M, single ended AES, Dolby E
Number of Outputs: 8
Connector: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48khz
Impedance: 75Ω
Resolution: 24-bit

Reference Input:

Connector: 1 BNC per IEC 60169-8 Amendment 2
Type: HD Tri-level, NTSC/PAL Color Black (1 V p-p) or composite bi-level sync (525i/59.94 or 625i/50) 300mV
Termination: 75Ω jumper selectable

270Mb/s Data Input to HDSDI Output Delay:

Delay: ≤ 4 frames interlaced
 ≤ 8 frames progressive

Electrical:

Voltage: +12VDC
Power: 15 Watts
EMI/RFI Complies with FCC Part 15, Class A
 EU EMC Directive

Physical:

7700 frame mounting: 2 slots
7701 frame mounting: 1 slot

Ordering Information:

7772MFD-HD HD JPEG 2000 Decompression CODEC

Ordering Options:

Rear Plate must be specified at time of order
 Eg: Model +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Compressed TS Automatic Smart Switch 7780CS-ASI

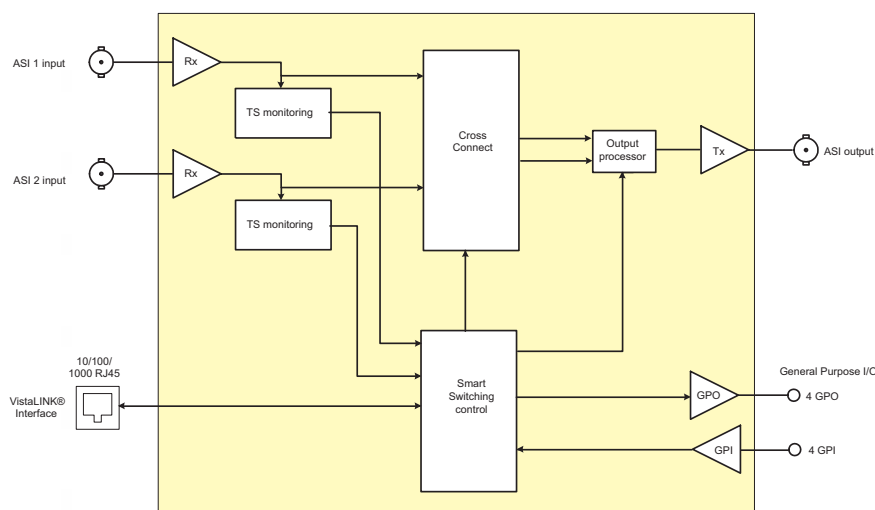
The 7780CS-ASI is a complete hardware base solution for MPEG-2 feed redundancy switching. By providing automatic smart switching of the main signal to a back up signal the 7780CS-ASI offers protection to any digital compressed signal.

Controlled by the industry leading VistaLINK® PRO, the 7780CS-ASI offers signal providers the capability to design automatic redundancy into their system and alarm the operator the second a problem arise. By constantly monitoring the incoming signal the 7780CS-ASI is capable of knowing when the signal reach a point when it is not suitable for broadcast anymore and automatically switch to the backup feed. The user can customizes all monitored and switching rules to meet Broadcast, Cable, Satellite and IPTV needs.

Features

- Fully integrated with the Industry leading Evertz VistaLINK® PRO NMS system
- 2 ASI inputs and 1 ASI output
- TR101290 monitoring bitrate measurement and component matching test on both inputs
- Smart configuration of error threshold and switching rules to avoid false switching
- GPI input for override and hard switch
- GPI output for other device control upon switching
- Delay of stream up to 3 seconds for perfect synchronization of incoming streams from different path
- Complete TS datarate measurement from 100Kbits/s to 213Mbits/s with settable measurement window
- Each PID bitrate measurement
- Display of Transport Stream tree
- Matching of PID assignment, TS-ID with predefine PID list
- Complete customization of status view and error report in VistaLINK® PRO
- Fits in 7700 Chassis

7780CS-ASI Block Diagram & Rear Panel



Specifications

Inputs and Outputs:

2xASI input per DVB TR 101 891-270Mbits/s
 Min ASI TS input bitrate 100Kbits/s,
 Max ASI TS input bitrate 213Mbits/s
 1xASI output per DVB TR 101 891-270Mbits/s
 Min ASI TS output bitrate 100Kbits/s,
 Max ASI TS output bitrate 213Mbits/s
 1xRG45 10/100 control port
 1xDB9 with 4 GPI input and 4 GPI output

TR101290 P1	TR101290 P2
1.1 TS_sync_loss	2.1 Transport_error
1.2 Sync_byte_error	2.2 CRC error
1.3 Pat_error	2.3 PCR_error
1.4 Continuity_count_error	2.4 PCR_accuracy_error
1.5 PMT_error	2.5 PTS_error
	2.6 CAT_error

Monitored parameters:

Tables and repetition:

DVB SI repetition error (NIT, SDT, EIT, RST, TDT)
 ATSC PSIP tables repetition error (MGT,TVCT,CVCT,EIT,RRRT,STT)

Ordering Information:

7780CS-ASI Compressed TS automatic Smart Switch

Ordering Options

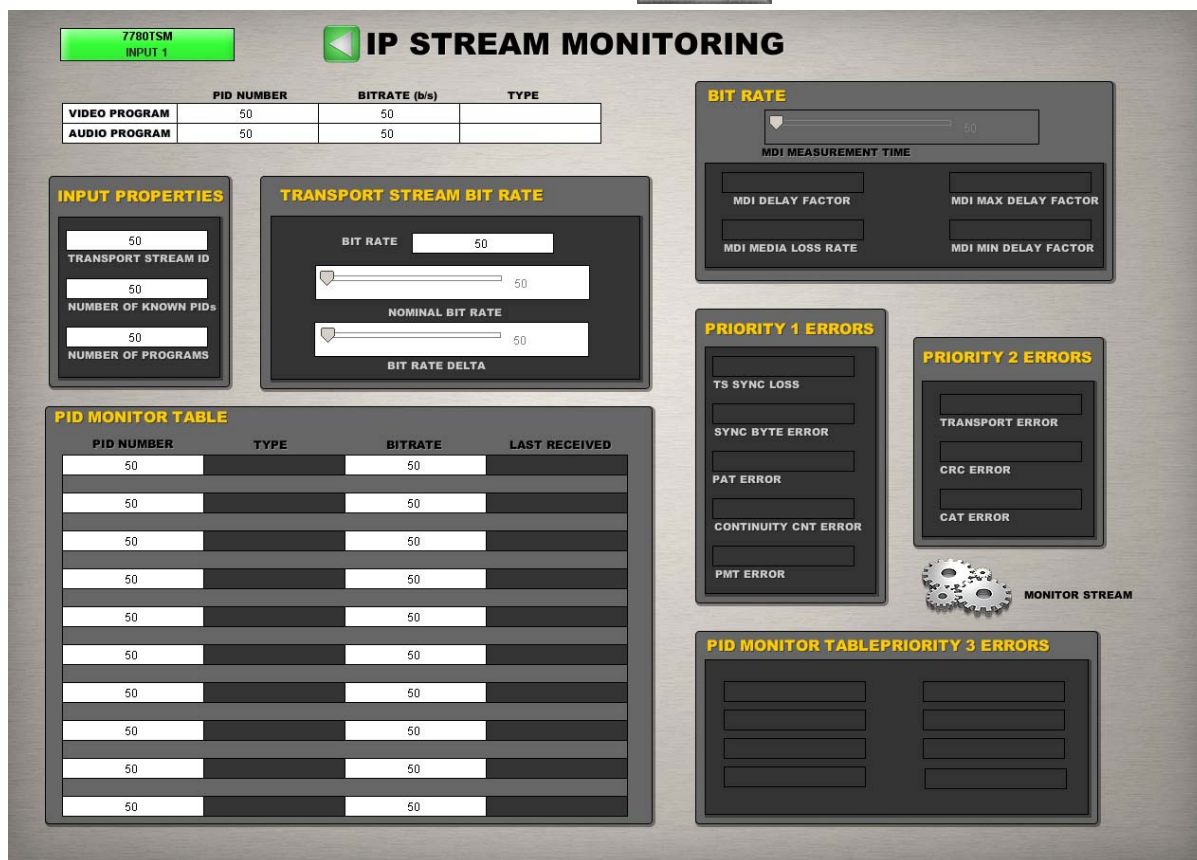
Rear Plate must be specified at time of order
 Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure



The 780TSM line of remote probes is a complete embedded hardware based solution for compressed network monitoring. By monitoring the MPEG Transport Stream at strategic points within the distribution network, in conjunction with the Industry Leading VistaLINK® PRO NMS (Network Management System), the 7780TSM offers service providers the tools to continuously and effectively have the confidence that their MPEG-2/H.264 signals within any IPTV, Satellite, terrestrial or cable network is being delivered properly.

The 7780TSM supports the two most popular interfaces ASI and IP. With support for up to 160Mb/s of MPEG-2/H.264 traffic on a single 7780TSM, these probes can, for example, in no time separate encoder errors to network delivery errors allowing the operator to act quickly and avoid down time.

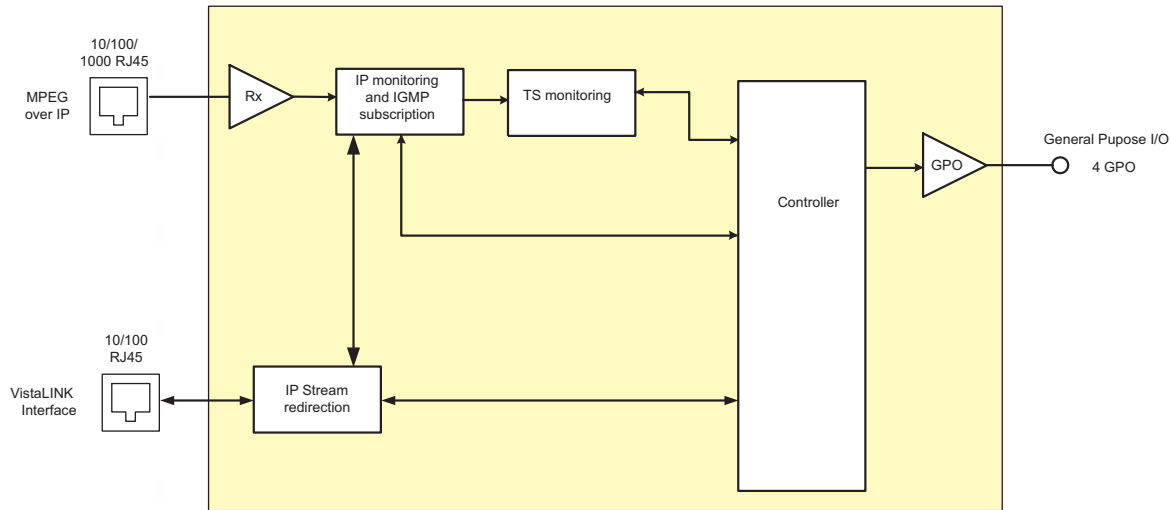
The Industry leading Evertz VistaLINK® PRO NMS offers a new dimension to TS monitoring by allowing a graphical customization of any measurement performed and a quick viewing of the different points in the system. It makes the 7780TSM probe system a valuable system in any operational environment.

Features

- 2 ASI inputs (7780TSM-ASI) or 1 IP input (7780TSM-IP)
- IGMP subscription and IP layer monitoring including MDI (7780TSM-IP)
- Transport Stream analysis: Presence, Bitrate analysis, table rate analysis
- TR101290 Level 1, level 2*, and partial level 3
- SNMP Enabled (control and Alarms for monitoring)
- GPI output for local error alarming
- Multicast stream redirect for decoding or detailed analysis of remote stream
- Up to 7 hot-swappable 7780TSM modules per chassis
- Fully Integrated with the Industry leading Evertz VistaLINK® PRO NMS
- Auto-Reponse Scripting Capability
- Complete TS and PID bitrate measurement from 100Kb/s to 160Mbits/s with settable limits
- Display of Transport Stream tree
- Display of video resolution, audio type, presence of Closed Caption, etc.
- Matching of PID assignment, TS-ID with pre-define PID list
- SCTE35 Ad insertion logging
- Complete customization of status view and error report in VistaLINK® Pro

* Only PCR accuracy and PCR repetition rate supported at this time. No jitter measurement.

7780TSM Block Diagram



Specifications

Inputs and outputs:

2xASI input per DVB TR 101 891-270Mbits/s (7780TSM-ASI)
 - Min ASI TS input bitrate 100Kbits/s,
 - Max ASI TS input bitrate 160Mbits/s
 1x IP input 10/100/1000 with 100Mbits/s of IP traffic (7780TSM-ASI)
 1xRJ45 10/100 control port
 1xDB15 with 4 GPI output

Monitored parameters:

IP Measurements
 MDI-Media Delivery Index DF:MLR (Delay Factor: Media Loss Rate)-(7780TSM-IP)

MPEG-2 TS measurement

TR101290 P1	TR101290 P2
1.1 TS_sync_loss	2.1 Transport_error
1.2 Sync_byte_error	2.2 CRC_error
1.3 Pat_error	2.3 PCR_error
1.4 Continuity_count_error	2.4 PCR_accuracy_error
1.5 PMT_error	2.5 PTS_error
	2.6 CAT_error

Table presence and repetition:

DVB SI repetition error (NIT, SDT, EIT, RST, TDT)
 ATSC PSIP tables repetition error (MGT, TVCT, CVCT, EIT, RRT, STT)

Ordering Information:

7780TSM-IP MPEG2/H.264 IP Transport Stream Monitor
 7780TSM-ASI MPEG2/H.264 ASI Transport Stream Monitor



Digital Source ID Encoder

Model 8010-SIE



The 8010-SIE series Source ID Encoders provide a cost-effective method of keying timecode, source ID and machine status information into the digital video. The 8010-SIE uses Digital VITC (D-VITC) to encode the source ID information into the video. The 8010-SIE series VITC generator's lines can be easily programmed from the front panel. The model 8010-SIE also contains a high speed reader for Linear Time Code (LTC) and Vertical Interval Time code (VITC) reader, and contains a high resolution character inserter which can insert onto the program output as well as an optional analog monitoring output.

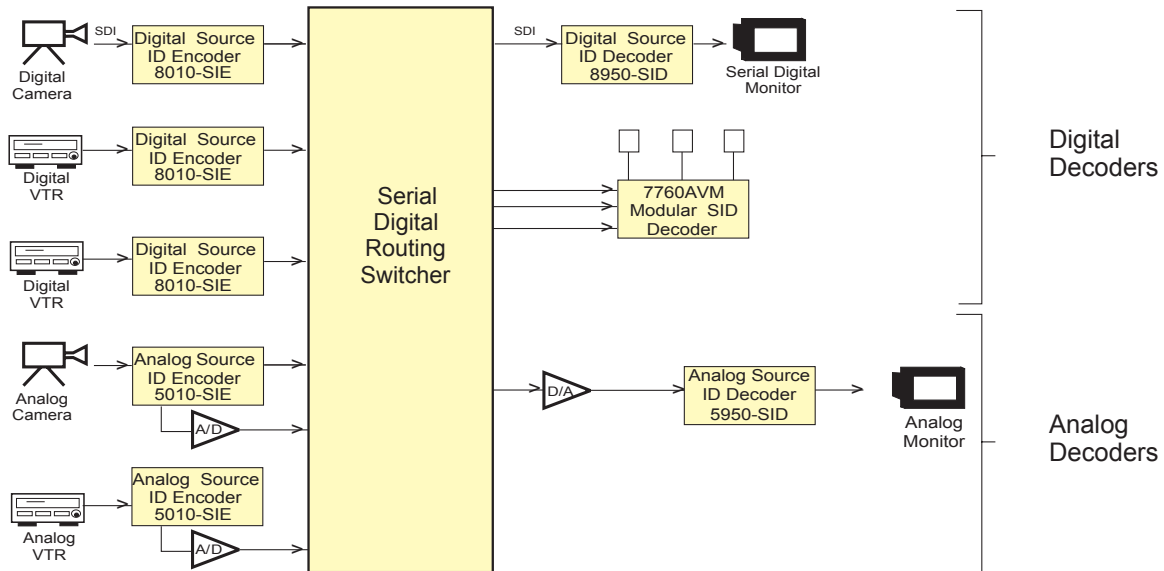
The 8010-SIE operates in one of four modes. In VTR mode, it is designed to listen to communications between a VTR and its controller, and take time code and machine status. In LVS mode, the 8010-SIE is designed to interface to a Profile Disk recorder running the LVS software. The serial port of the LVS device sends recorder status, scene and control information to the 8010-SIE. In RDR mode, the 8010-SIE takes time from its LTC or VITC reader and in GEN mode it allows the user to preset a time into the time code generator. In all modes, the source ID name is programmed from the front panel of the 8010-SIE and encoded into the user bits.

Features

- Accepts 4:2:2 (525 and 625 line) digital video
- Serial digital video input provides automatic cable equalization on cable lengths up to 200 meters of low loss coax such as Belden 8281
- Serial digital video bypass output activates on power loss
- Auxiliary serial digital video output (not bypass protected)
- Passes embedded audio and other ancillary data signals
- Character Inserter displays timecode, source ID and VTR status in the picture
- Separate positioning of each character window
- Active low 'VCG ON/OFF' GPI can be used to remotely turn the character generator on and off
- Serial interface reads status LVS info and CTL information from the Profile in LVS mode or Timecode and VTR status from a Sony protocol VTR in VTR mode
- LTC and VITC Time Code reader to supply time code in RDR modes
- 16 digit Alpha-numeric display, with 16 pushbuttons
- Rack mountable

Digital Source ID Encoder

8010-SIE Configuration Diagram



Specifications:

Serial Digital Video Input:

Standards: SMPTE 259M (270 Mb/s)
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 200m @ 270 Mb/s with Belden 8281 or equivalent cable 150m @ 270 Mb/s when bypass relay is active
Return Loss: > 15 dB up to 540 Mb/s

Serial Digital Video Outputs:

Number of Outputs: 1 with relay bypass, 1 additional output.
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800 mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 470 ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 540 Mb/s
Wide Band Jitter: < 0.2 UI

Analog Monitor Video Outputs (optional):

Standards: Analog composite NTSC if input is 525i/59.94 video
Analog composite PAL if input is 625i/50 video
Connectors: 2 BNC per IEC 60169-8 Amendment 2
Signal Level: 1 V p-p nominal, internally adjustable
DC Offset: 0V \pm 0.1V
Return Loss: >35dB up to 5 MHz
Frequency Response: 0.8dB to 4 MHz
Differential Phase: <0.9° (<0.6° typical)
Differential Gain: <0.9% (<0.5 % typical)
SNR: >56dB to 5 MHz (shallow ramp)
Impedance: 75 Ω

Electrical:

Voltage: 110 - 230 Volts AC, 50/60 Hz - unit auto senses input voltage
Fuse Rating: 250 V, 1/4 amp, time delay
Power: 30 VA
Safety: ETL Listed, complies with EU safety directives
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC directive

Physical:

Single Power Supply Version:

Dimensions: 19" W x 1.75" H x 7.75" D.
(483mm W x 45mm H x 196mm D)
Weight: 7 lbs. (3.2 Kg)

Dual Power Supply Version:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5 Kg)

Ordering Information:

8010-SIE	Digital Source ID Encoder
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Ordering Options:

+2PS	Redundant Power Supply
+MON	Analog Monitoring Option
+BP	Bypass Relay Option

SDI Time Code Generator/Reader with Character Inserter

Model 8010TM



The 8010TM SDI Time Code Master is a full function time code reader/generator system for serial digital video. The 8010TM is a combination generator/reader for Linear Time Code (LTC) and Digital Vertical Interval Time Code (D-VITC), and contains a high resolution character inserter that can burn the generator or reader numbers directly into the digital program output as well as an optional analog monitoring output. A 16 digit alphanumeric display can be quickly delegated to show the required data.

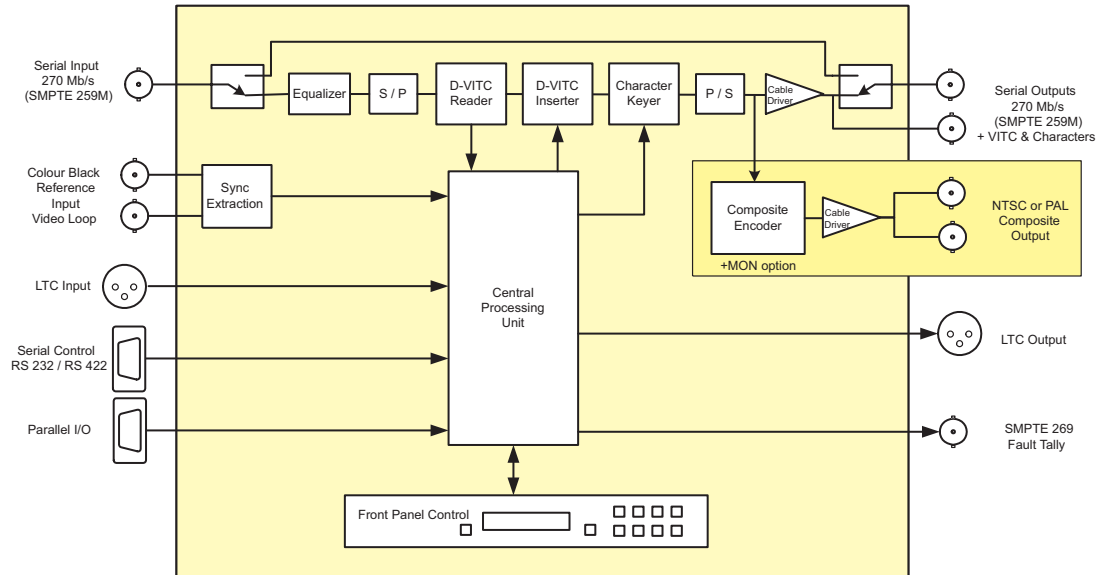
The 8010TM will accept 525 or 625 line component digital video. The 8010TM's time code generator can be preset to lock to the digital program video either by simple frame locking, or where necessary it will colour lock to an analog Colour Reference in accordance with the 4 field NTSC or 8 field PAL colour sequence.

Features

- Accepts 4:2:2 (525 and 625 line) digital video signals
- Serial digital video input provides automatic cable equalization on cable lengths up to 200 meters of low loss coax such as Belden 8281
- Optional bypass relay for program path protection on power loss
- Auxiliary serial digital video output (not bypass protected)
- Passes embedded audio and other ancillary data signals
- LTC and D-VITC Time Code reader with line select
- LTC and D-VITC Time Code generator with line select
- Character Inserter displays reader and generator time and user bits in the picture
- Separate positioning of each character window
- 16 digit Alpha-numeric display, with 16 pushbuttons
- Serial Remote Control of most functions - Broadcasts reader data or sends it on request.
- Rack mountable
- Momentary or continuous jam sync modes
- User bit transfer from reader time or user bits
- EBU/SMPTE Time Code Converter
- Optional composite monitor output converts digital video to analog
- GPI Remote Control mode allows user to pass remote control contact closure information in VITC user bits
- Recalculates EDH after VITC and character insertion

SDI Time Code Generator/Reader with Character Inserter

8010TM Block Diagram



Specifications:

Serial Digital Video Input:

Standards:	SMPTE 259M-C (270 Mb/s)
Connector:	1 BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic 200m @ 270 Mb/s with Belden 8281 or equivalent cable 150m @ 270 Mb/s when bypass relay is active
Return Loss:	> 15 dB up to 540 Mb/s

Serial Digital Video Outputs:

Number of Outputs:	1 with relay bypass, 1 additional output
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800 mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	900 ps nominal
Overshoot:	<10% of amplitude
Return Loss:	> 15 dB up to 540 Mb/s
Wide Band Jitter:	< 0.2 UI

Analog Monitor Video Outputs (with +MON option):

Standards:	Analog composite NTSC if input is 525i/59.94 video Analog composite PAL if input is 625i/50 video
Connectors:	2 BNC per IEC 60169-8 Amendment 2
Signal Level:	1 V p-p nominal, internally adjustable
DC Offset:	0V \pm 0.1V
Return Loss:	>35dB up to 5 MHz
Frequency Response:	0.8dB to 4 MHz
Differential Phase:	<0.9°(<0.6° typical)
Differential Gain:	<0.9% (<0.5 % typical)
SNR:	>56dB to 5 MHz (shallow ramp)
Impedance:	75 Ω

Electrical:

Power:	Auto ranging 100-240VAC 50/60Hz 30VA
Safety:	ETL listed Complies with EU safety directives
EMI/RFI:	Complies with FCC Part 15 Class A EU EMC Directive

Physical:

Dimensions:	19" W x 1.75" H x 18.75" D (483mm W x 45mm H x 477mm D)
Weight:	8 lbs. (3.5Kg)

Ordering Information:

8010TM	SDI Time Code Generator/Reader with Character Inserter
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Ordering Options:

+2PS	Redundant Power Supply
+MON	Analog Monitoring Option
+BP	Bypass Relay Option

SDI Time Code Master with IRIG Reader

Model 8010TM-IRIG

The 8010TM-IRIG SDI Time Code Master is a full function time code reader/generator system for serial digital video. The 8010TM-IRIG is a combination generator for SMPTE Linear Time Code (LTC) and Digital Vertical Interval Time Code (D-VITC), reader for IRIG-B code and D-VITC (standard SMPTE time code and special IRIG encoded VITC), and contains a high resolution character inserter which can be burn the generator or reader numbers directly into the digital program output as well as an optional analog monitoring output.

The 8010TM-IRIG reads IRIG-B code commonly in use within the United States government agencies and supporting private industries and provides a display of days, hours, minutes, seconds and milliseconds in the character inserter. This IRIG information is inserted into a special line of vertical interval time code which is protected by a unique cyclic redundancy checkword (CRC) so that (tape recorders and other devices) do not confuse it with standard SMPTE 12M D-VITC. This special D-VITC can be decoded by the 8010TM-IRIG's D-VITC reader to allow you to encode the IRIG information onto a 'clean' video tape and then display the IRIG information later on playback.

The 8010TM-IRIG SMPTE Time code generator can also be slaved to incoming IRIG code. The millisecond count will be converted to the closest frame number and can also be stored in the generator user bits along with the IRIG day of the year. In the continuous jam sync mode, the generator is slaved to the reader, and will follow code any discontinuities of the reader. The generator may also be momentarily synchronized to the reader, and then it continues to increment normally regardless of the reader code. Momentary jam is the recommended mode when synchronizing to IRIG-B sources so that the resulting SMPTE time code does not contain discontinuities due to the different time bases of 29.97 frame per second video and real time of the IRIG code. In NTSC related video systems, the SMPTE generator should be operated in the Drop Frame counting mode when trying to synchronize the SMPTE generator to IRIG.

The 8010TM-IRIG will accept 525 or 625 line component digital video. The 8010TM-IRIG's SMPTE time code generator can be preset to lock to the digital program video either by simple frame locking, or where necessary it will colour lock to an analog Colour Reference in accordance with the 4 field NTSC or 8 field PAL colour sequence.

In NTSC related color systems operation, with a frame rate of 29.97002618 Hz where the time of day is used for indexing, the generator may be operated in the drop frame mode. Special indicators in the front panel display and in the character inserter indicate that the unit is operating in the drop frame format.

Both the generator and reader are capable of working with the unassigned user bits. Several modes of operation are possible. The generator may be preset to insert hexadecimal values for each group in the generated code, and the reader will read hexadecimal values for each binary group. In addition, the user may select the transfer of either reader time or reader user bits into the generator user bits, thus, allowing pre-edit frame addresses to be preserved when new continuous time code is laid down.

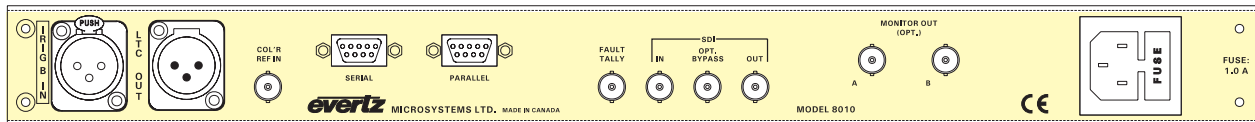
The high-resolution character inserter provides six independently positionable windows to show time and user bits for the generator and readers simultaneously. When the IRIG or VITC readers are operating in the IRIG DAY mode, there are two independently positionable windows for each reader to show the IRIG time to millisecond precision and the IRIG day respectively. Three character sizes and the choice of white or black characters with or without contrasting background mask are selected from the front panel.

Features

- Accepts 4:2:2 (525 and 625 line) digital video
- Serial digital video input provides automatic cable equalization on cable lengths up to 200 meters of low loss coax such as Belden 8281
- Optional Bypass relay for Serial digital video program output activates on power loss or from the front panel menu
- Auxiliary serial digital video output (not bypass protected)
- Passes embedded audio and other ancillary data signals
- LTC and D-VITC SMPTE Time Code generator
- IRIG data encoded to second line of VITC generator with special CRC
- SMPTE D-VITC Time Code or IRIG encoded D-VITC reader
- IRIG reader reads 1 kHz IRIG-B format sine wave amplitude modulated and pulse width modulated codes (formats B002 and B122)
- SMPTE Time Code LTC and D-VITC generators can be slaved momentarily or continuously to IRIG reader - converts milliseconds to closest video frame number. Milliseconds and days can be transferred to VITC user bits.
- Character Inserter displays IRIG day and time to millisecond resolution in the picture in IRIG modes
- Character Inserter displays time and user bits in the picture in SMPTE modes
- Separate positioning of each character window
- 16 digit Alpha-numeric display, with 16 pushbuttons
- Momentary and Continuous jam sync modes
- User bit transfer from reader time or user bits
- 25 \leftrightarrow 30 Fps Time code converter
- Optional composite monitor output converts digital video to analog
- GPI Remote Control mode allows user to pass remote control contact closure information in VITC user bits
- Recalculates and inserts EDH on the SDI output
- Serial Remote Control of most functions - Broadcasts reader data or sends it on request
- Rack mountable

SDI Time Code Master with IRIG Reader

8010TM-IRIG Rear Panel



Specifications:

Serial Digital Video Input:

Standards: SMPTE 259M (270 Mb/s)
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 200m @ 270 Mb/s with Belden 8281 or equivalent cable
150m @ 270 Mb/s when bypass relay is active
Return Loss: > 15 dB up to 540 Mb/s

Serial Digital Video Outputs:

Number of Outputs: 1 with relay bypass, 1 additional output.
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800 mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 900 ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 540 Mb/s
Wide Band Jitter: < 0.2 UI

Analog Monitor Video Outputs (optional):

Standards: Analog composite NTSC if input is 525i/59.94 video
Analog composite PAL if input is 625i/50 video
Connectors: 2 BNC per IEC 60169-8 Amendment 2
Signal Level: 1 V p-p nominal, internally adjustable
DC Offset: 0V \pm 0.1V
Return Loss: >35dB up to 5 MHz
Frequency Response: 0.8dB to 4 MHz
Differential Phase: <0.9° (<0.6° typical)
Differential Gain: <0.9% (<0.5 % typical)
SNR: >56dB to 5 MHz (shallow ramp)
Impedance: 75 Ω

LTC Generators:

Standard: SMPTE 12M
Frame Rate: 25 and 30 Fps nominal
Connector: 3 pin male XLR
Level: Adjustable, 0.5V to 4V p-p

IRIG Reader:

Standard: IRIG 200-95 Formats B002 and B122
Connector: 3 pin female XLR
Level: 0.2 to 4V p-p, balanced or unbalanced

General Purpose Inputs and Outputs:

Inputs: 6, programmable control functions
Outputs: 2, programmable tally functions
Connector: 9 pin female "D"
Type: Opto-isolated, active low
Signal Level: Pulled up to +5 volts. 3.3V DC provided

Serial Remote Control:

Standard: RS-232 or RS-422, programmable baud rate
Connector: 9 pin female "D"
Control: Firmware upgrade, serial remote control of all functions

Electrical:

Voltage: Autoranging 100 - 240 Volts AC, 50/60 Hz
Power: 30 VA
Fuse Rating: 250 V, 1 amp, time delay
Safety: ETL Listed, complies with EU safety directives
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Single Power Supply version:

Dimensions: 19" W x 1.75" H x 7.75" D.
(483mm W x 45mm H x 196mm D)
Weight: 7 lbs. (3.2 Kg)

Dual Power Supply version:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5 Kg)

Ordering Information:

8010TM-IRIG SDI Time Code Master with IRIG Reader

Ordering Options:

+2PS Redundant Power Supply
+MON Analog Monitoring Option
+BP Bypass Relay Option

Model 8083XDS-AD

The 8083XDS-AD is a full broadcast quality XDS Encoder which generates line 21 XDS data directly into both analog and digital video feeds. The 8084XDS-AD encodes Extended Data Service (XDS) packets into field 2 supporting such services as Transmission Signal Identifier (TSID), Copy Generation Management System (CGMS-A), station name, call letter identification, program name, classification, remaining air time and content advisory ratings (compatible with V-Chip decoders).

The 8083XDS-AD is highly configurable to guarantee maximum compatibility with a wide variety of applications and software packages. The encoder can be configured to individually manipulate each data stream independent of the others. The 8083XDS-AD is also compatible with various automation and traffic programs such as Enterprise's "BMS Traffic System".

Built-in bypass relays on both video paths, a fault reporting output and an optional redundant power supply ensure robust operation. Two separate analog monitor outputs display visible captions from any data channel, including many XDS packet types.

Features

- Keys directly into a 525 line or 625 line component (4:2:2) digital video bitstream and composite analog video signal
- Support for Extended Data Service (XDS) to encode program information including TSID, CGMS-A and V-Chip content advisory ratings
- V-Chip blocking codes selectable from front panel menus
- Selectable V-Chip default rating after timeout
- Bypass relays for both video paths can be activated by GPI, front panel or automatically on power failure to allow the input video to pass through the unit unprocessed
- Three RS-232/RS-422 serial ports allow simultaneous control of the 8083XDS from three computers, for applications such as multi-point XDS insertion
- Separate built-in composite analog monitoring decoders for each video path to provide real-time verification of encoded data. The decoded captions, text or XDS data is inserted as open captions on the monitoring video outputs
- Composite decoders can display these XDS packet types: Network Name, Call Letters, Program Name, Program Length, Time in Show, Program Type, Program Description and Program Rating
- Built in test message inserts data into all 9 data channels
- VBI Bridge function allows captions to be copied from one video source to another using two Evertz closed caption or TSID units
- EDH Packet checksum correction ensures SDI video integrity to downstream equipment
- SMPTE 269M fault reporting output
- Optional LTC input for setting internal clock

Specifications

Serial Digital Video:

Standard:	SMPTE 259M-C (270 Mb/s) Serial Component Video
Input:	BNC 75 Ω terminated
Output:	BNC with bypass relay
Preview:	BNC output without bypass
Fault Tally:	BNC SMPTE 269M compatible
Input Equalization:	Automatic up to 200m with Belden 8281 (or equivalent)
Decoder:	BNC 1V p-p composite analog video outputs with open captions

Communications and Control:

Serial:	3 DB-9 male RS-232/422 selectable 1200 baud to 38.4 kbaud 7 or 8 data bits
Parallel GPI:	DB-9 female

Composite Analog Video:

Standard:	SMPTE 170M
Input:	BNC 75 Ω terminated
Output:	BNC with bypass relay
Preview:	BNC output with open captions

Physical:

Dimensions:	19"W x 1.75"H x 18.75" (483mm W x 45mm H x 477mm D)
Weight:	8 lbs. (3.5Kg)

Electrical:

Power:	115/230 VAC 50/60 Hz, 30 VA
Safety:	ETL Listed Complies with EU safety directive
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Ordering Information:

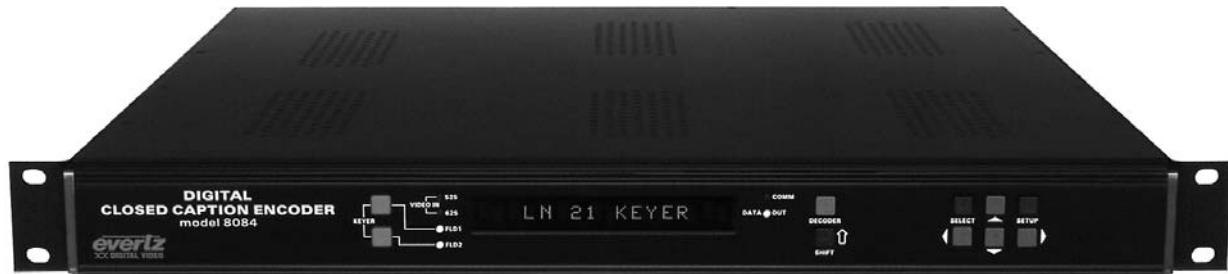
8083XDS-AD	Analog & SDI XDS Encoder
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Ordering Options:

+2PS	Redundant power supply
+LTC	Optional LTC input

SDI Closed Caption Encoder

Model 8084



The 8084 is a full broadcast quality Closed Caption Encoder which generates line 21 caption data directly into the digital bitstream. The 8084 allows data to be encoded into all caption and text channels in both field 1 and field 2 of the video. It can also encode Extended Data Service (XDS) packets into field 2 supporting such services as Transmission Signal Identifier (TSID), Copy Generation Management System (CGMS-A), station name, call letter identification, program name, classification, remaining air time and content advisory ratings (compatible with V-Chip decoders).

The 8084 is highly configurable to guarantee maximum compatibility with a wide variety of applications and software packages. The encoder can be configured to individually manipulate each data stream independent of the others. The 8084 is also compatible with various automation and traffic programs such as Enterprise's "BMS Traffic System".

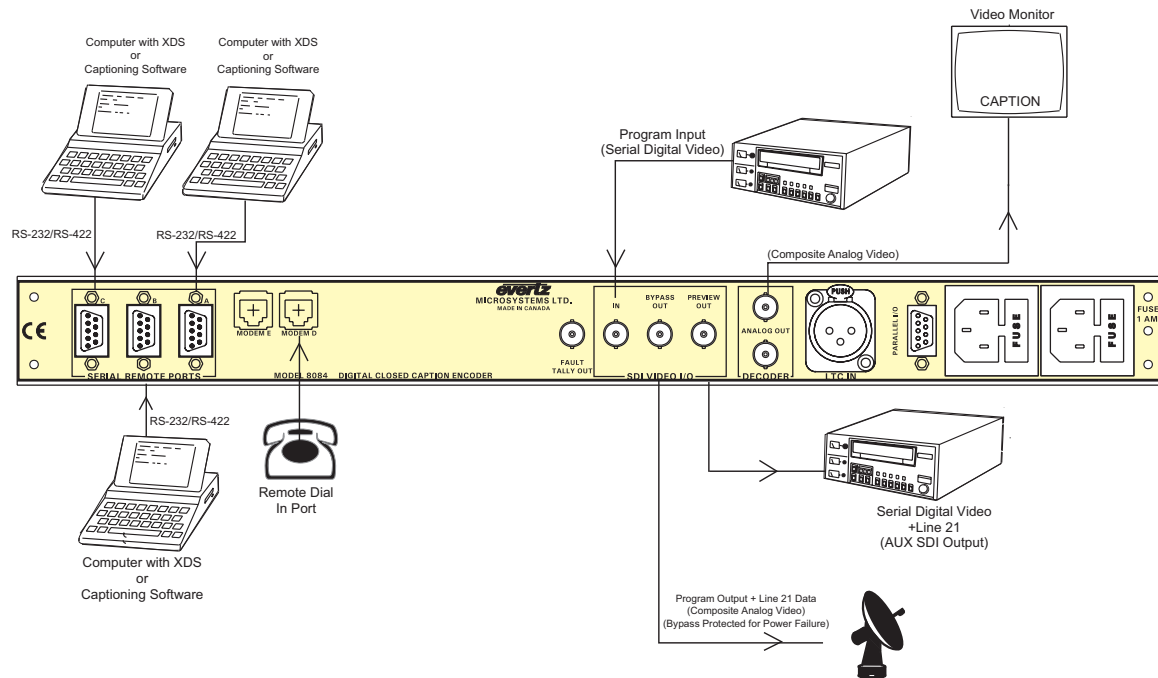
The built-in bypass relay, fault reporting output and optional redundant power supply ensure robust operation. The analog monitor output displays visible captions from any data channel, including many XDS packet types.

Features

- Keys directly into a 525 line or 625 line component (4:2:2) digital video bitstream
- Can add captions, text, web links or Extended Data Service information to previously captioned programs
- Individual caption and text data streams can be passed, modified or removed from the incoming video
- Support for text insertion from articles stored in the 8084 by the captioning software
- Support for Extended Data Service (XDS) to encode program information including TSID, CGMS-A and V-Chip content advisory ratings
- V-Chip blocking codes selectable from front panel menus.
- Selectable V-Chip default rating after timeout
- Bypass relay can be activated by GPI, front panel or automatically on power failure to allow the input video to pass through the unit unprocessed
- Three RS-232/RS-422 serial ports allow simultaneous control of the 8084 from three computers, for applications such as in house captioning, XDS insertion and more...
- Built in modem interface for dial-up real time captioning. Support for an optional second internal modem
- Built-in composite analog monitoring decoders provide real-time verification of encoded data. The decoded captions, text or XDS data is inserted as open captions on the monitoring video outputs
- Composite decoder can display these XDS packet types: Network Name, Call Letters, Program Name, Program Length, Time in Show, Program Type, Program Description and Program Rating
- Built in test message inserts data into all 9 data channels
- Ability to offset the effect of downstream component to composite encoders which add setup to line 21
- Monitor mode allows caption data to be read directly from line 21 and output on the serial port
- VBI Bridge function allows captions to be copied from one video source to another using two 8084 or 8084AD units
- GPI input to provide caption shift. This input can control the shift of rows 12 to 15 up to rows 1 to 4 when activated. Intended to provide compliance with FCC order prohibiting obstruction of weather warning text which often appears on the bottom of the screen
- Can encode captions on lines other than line 21 for specialized applications
- EDH Packet checksum correction ensures SDI video integrity to downstream equipment
- SMPTE 269M fault reporting output
- Optional LTC input for setting internal clock
- Supports a wide variety of caption software including the following:
 - The Captioning Center - CCSQ and CCMS, Captions Inc. - Smart Encoder V 1.0b, Evertz ProCAP, Cheetah Systems - Captivator Offline Edit Version 2.1, Captivator Offline PostCAP 2.1, VITAC PostCAP 2.1, Computer Prompting and Captioning Co. -CPC-700 Version 6.20, National Captioning Institute - Text Encoding and Display System (TED) version 1.7, Autograph Systems - View level XDS controller, Rapid Caption

SDI Closed Caption Encoder

8084 Connection Diagram



Specifications

Serial Digital Video:

Standard: SMPTE 259M-C (270 Mb/s) Serial Component Video

Input: BNC 75 Ω terminated

Output: BNC with bypass relay

Preview: BNC output without bypass

Fault Tally: BNC SMPTE 269M compatible

Input Equalization: Automatic up to 200m with Belden 8281 (or equivalent)

Composite Video Monitor:

Decoder: 2 BNC 1V p-p composite analog video outputs with open captions

Communications and Control:

Serial: 3 DB-9 male
RS-232/422 selectable
1200 baud to 38.4 kbaud
7 or 8 data bits

Modem: 2 RJ-11 telephone jacks
(2nd modem optional)
1200 baud to 14.4 kbaud
V.32BIS compatible

Parallel GPI: DB-9 female

Physical:

Dimensions: 19"W x 1.75"H x 18.75"
(483mm W x 45mm H x 477mm D)

Weight: 8 lbs. (3.5Kg)

Electrical:

Power: 115/230 VAC 50/60 Hz, 30 VA

Safety: ETL listed
Complies with EU safety directive

EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

8084 SDI Caption Encoder

Ordering Options:

+MDM2 Second internal modem option

+2PS Redundant power supply

+LTC Optional LTC input

Analog & SDI Closed Caption Encoder

Model 8084AD



The 8084AD is a full broadcast quality Closed Caption Encoder which generates line 21 caption data directly into both analog and digital video feeds. The 8084AD allows data to be encoded into all caption and text channels in both field 1 and field 2 of the video. It can also encode Extended Data Service (XDS) packets into field 2 supporting such services as Transmission Signal Identifier (TSID), Copy Generation Management System (CGMS-A), station name, call letter identification, program name, classification, remaining air time and content advisory ratings (compatible with V-Chip decoders).

The 8084AD is highly configurable to guarantee maximum compatibility with a wide variety of applications and software packages. The encoder can be configured to individually manipulate each data stream independent of the others. The 8084AD is also compatible with various automation and traffic programs such as Enterprise's "BMS Traffic System".

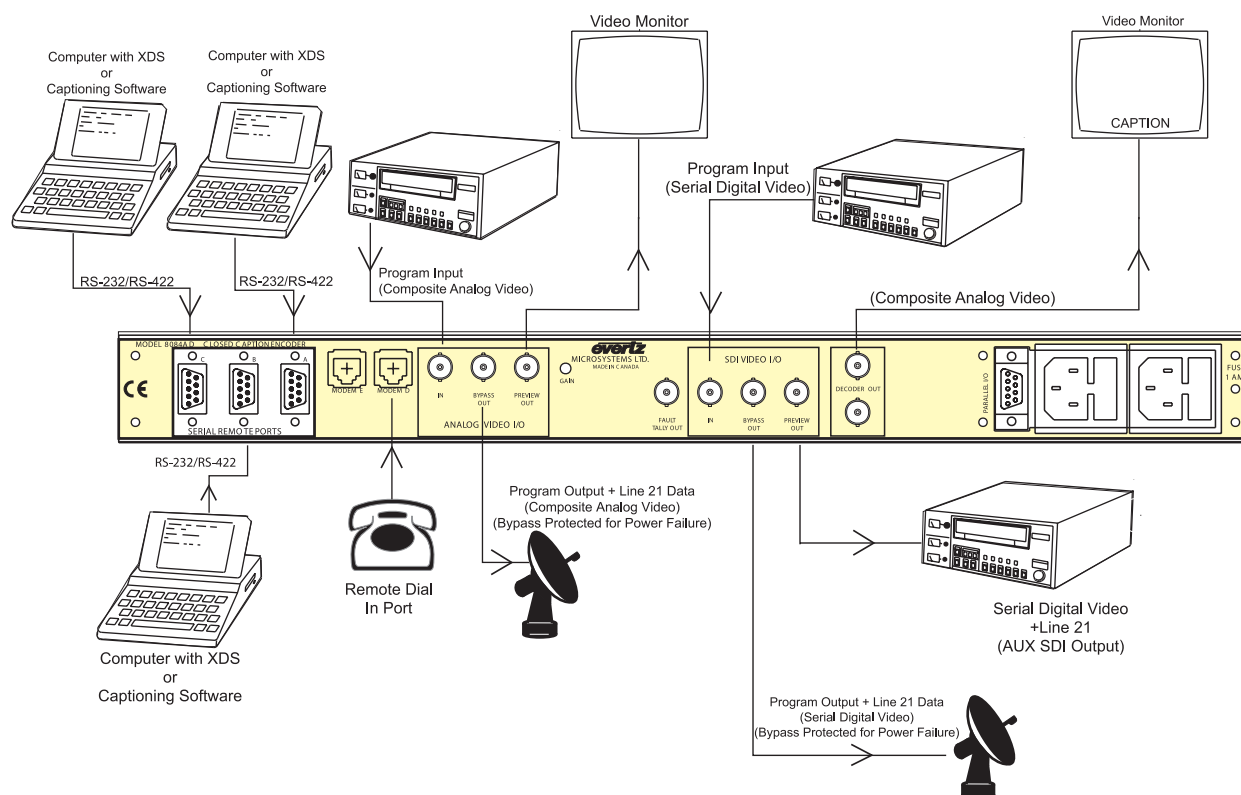
Built-in bypass relays on both video paths, a fault reporting output and an optional redundant power supply ensure robust operation. Two separate analog monitor outputs display visible captions from any data channel, including many XDS packet types.

Features

- Keys directly into a 525 line or 625 line component (4:2:2) digital video bitstream and composite analog video signal
- Upstream caption source is selectable between analog or digital video feeds
- Can add captions, text, web links or Extended Data Service information to previously captioned programs
- Individual caption and text data streams can be passed, modified or removed from the incoming video
- Support for text insertion from articles stored in the 8084AD by the captioning software
- Support for Extended Data Service (XDS) to encode program information including TSID, CGMS-A and V-Chip content advisory ratings
- V-Chip blocking codes selectable from front panel menus
- Selectable V-Chip default rating after timeout
- Bypass relays for both video paths can be activated by GPI, front panel or automatically on power failure to allow the input video to pass through the unit unprocessed
- Three RS-232/RS-422 serial ports allow simultaneous control of the 8084 from three computers, for applications such as in house captioning, XDS insertion and more...
- Built in modem interface for dial-up real time captioning. Support for an optional second internal modem
- Separate built-in composite analog monitoring decoders for each video path to provide real-time verification of encoded data. The decoded captions, text or XDS data is inserted as open captions on the monitoring video outputs
- Composite decoders can display these XDS packet types: Network Name, Call Letters, Program Name, Program Length, Time in Show, Program Type, Program Description and Program Rating
- Built in test message inserts data into all 9 data channels
- Ability to offset the effect of downstream component to composite encoders which add setup to line 21
- Monitor mode allows caption data to be read directly from line 21 and output on the serial port
- VBI Bridge function allows captions to be copied from one video source to another using two 8084 or 8084AD units
- GPI input to provide caption shift. This input can control the shift of rows 12 to 15 up to rows 1 to 4 when activated. Intended to provide compliance with FCC order prohibiting obstruction of weather warning text which often appears on the bottom of the screen
- Can encode captions on lines other than line 21 for specialized applications
- EDH Packet checksum correction ensures SDI video integrity to downstream equipment
- SMPTE 269M fault reporting output
- Optional LTC input for setting internal clock
- Supports a wide variety of caption software including the following: The Captioning Center - CCSQ and CCMS, Captions Inc. - Smart Encoder V 1.0b, Evertz ProCAP, Cheetah Systems - Captivator Offline Edit Version 2.1, Captivator Offline PostCAP 2.1, VITAC PostCAP 2.1, Computer Prompting and Captioning Co. - CPC-700 Version 6.20, National Captioning Institute - Text Encoding and Display System (TED) version 1.7, Autograph Systems - View level XDS controller, Rapid Caption

Analog & SDI Closed Caption Encoder

8084AD Connection Diagram



Specifications

Serial Digital Video:

Standard:	SMPTE 259M-C (270 Mb/s) Serial Component Video
Input:	BNC 75 Ω terminated
Output:	BNC with bypass relay
Preview:	BNC output without bypass
Fault Tally:	BNC SMPTE 269M compatible
Input Equalization:	Automatic up to 200m with Belden 8281 (or equivalent)
Decoder:	BNC 1V p-p composite analog video outputs with open captions

Communications and Control:

Serial:	3 DB-9 male RS-232/422 selectable 1200 baud to 38.4 kbaud 7 or 8 data bits
Modem:	2 RJ-11 telephone jacks (2nd modem optional) 1200 baud to 14.4 kbaud V.32BIS compatible
Parallel GPI:	DB-9 female

Composite Analog Video:

Standard:	SMPTE 170M
Input:	BNC 75 Ω terminated
Output:	BNC with bypass relay
Preview:	BNC output with open captions

Physical:

Dimensions:	19"W x 1.75"H x 18.75" (483mm W x 45mm H x 477mm D)
Weight:	8 lbs. (3.5Kg)

Electrical:

Power:	115/230 VAC 50/60 Hz, 30 VA
Safety:	ETL Listed Complies with EU safety directive
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Ordering Information:

8084AD	Analog & SDI Captioning Encoder
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Ordering Options:

+MDM2	Second internal modem option
+2PS	Redundant power supply
+LTC	Optional LTC input

Combo SDI Caption Encoder & EIA608 to EIA708 Translator

Model 8085



The model 8085 DTV Closed Caption Encoder expands on the existing digital video closed captioning technical expertise demonstrated in our model 8084 Closed Caption Encoder and further demonstrates Evertz leadership in the transition to HDTV. The model 8085 decodes line 21 caption data directly from the digital bitstream and translates EIA-608 captions to EIA-708 DTV captions.

The 8085 is also a full broadcast quality Digital Closed Caption Encoder which generates line 21 caption data directly into the digital bitstream. The 8085 allows data to be encoded into all caption and text channels in both field 1 and field 2 of the video. It can also encode Extended Data Service packets into field 2 which includes Transmission Signal Identifier (TSID), Copy Generation Management System (CGMS-A), Program Rating, Program Title, Station Call Letters, V-Chip, etc.

The 8085 is highly configurable to guarantee maximum compatibility with a wide variety of applications and software packages. The encoder can be configured to individually manipulate each data stream independent of the others. The 8085 is also compatible with various automation and traffic programs such as Enterprise's "BMS Traffic System".

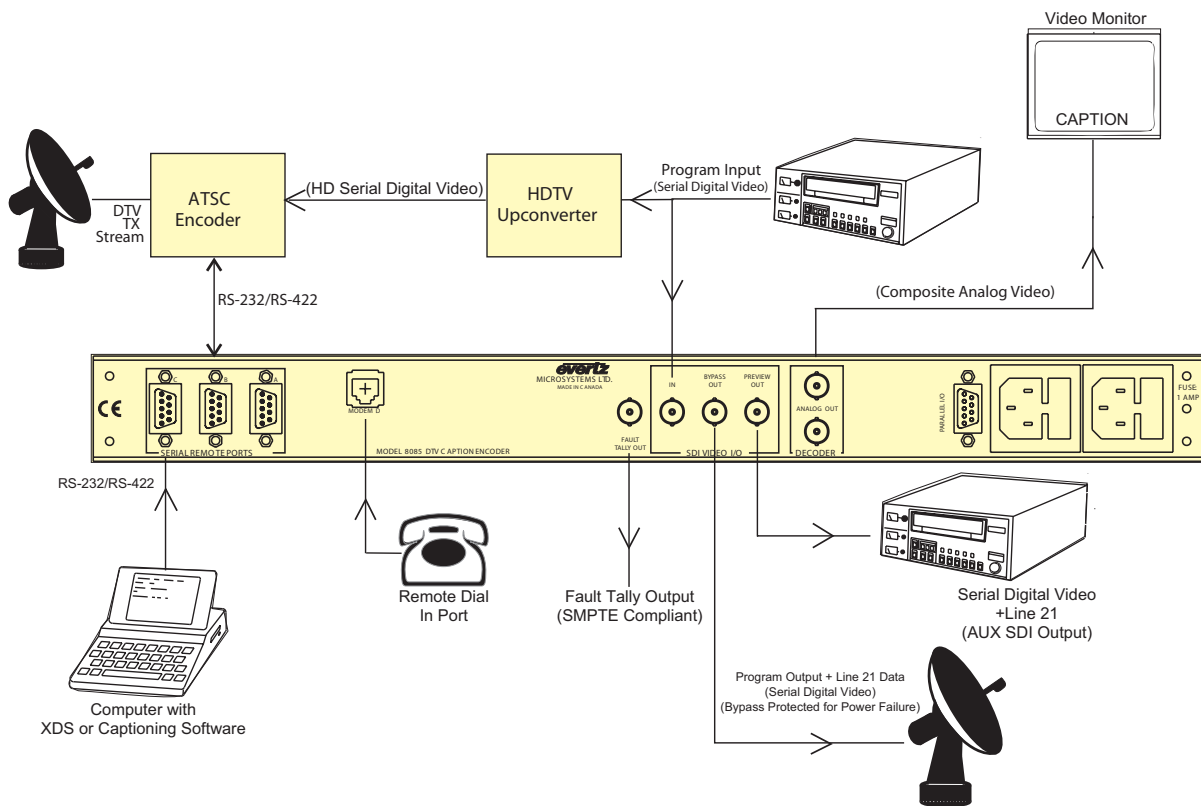
The built-in bypass relay, fault reporting output and optional redundant power supply ensure robust operation. The analog monitor output displays visible captions from any data channel, including many XDS packet types.

Features

- Transcodes standard EIA-608 captions to the equivalent advanced DTV EIA-708 captions
- Transmits EIA-608 caption data and DTV caption data to the DTV encoder via RS-232 or RS-422
- Supports the two common DTV encoder protocols - Grand Alliance "push" protocol and SMPTE 333M "pull" protocol
- Keys directly into a 525 line or 625 line component (4:2:2) digital video bitstream
- Can add captions, text, web links or Extended Data Service (XDS) information to previously captioned programs
- Support for text insertion from articles stored in the 8085 by the captioning software
- Support for Extended Data Service to encode program information including TSID, CGMS-A, V-Chip, Program ID, etc.
- Individual caption and text data streams can be passed, modified or removed from the incoming video
- Monitor mode allows caption data to be read directly from line 21 of the digital bitstream and output on the RS-232 serial port
- SMPTE 269M fault reporting output
- A front panel or GPI activated relay bypass mode is provided along with a bypass relay for power failure protection which allows the input video to pass through the 8085 unprocessed
- Three serial ports allow simultaneous control of the 8085 from three computers, for applications such as in house captioning, XDS (TSID/CGMS-A, V-Chip, URL, etc.) insertion and more...
- Built in modem interface for dial-up real time captioning
- Built in test message inserts data into all 9 data channels
- Ability to offset the effect of downstream component to composite encoders which add setup to line 21
- Real-time verification of encoded data via a built-in composite analog monitoring decoder. The decoded captions, text or XDS data are inserted as open captions on the analog video output
- Composite decoder can display these XDS packet types: Network Name, Call Letters, Program Name, Program Length, Time in Show, Program Type, Program Description, Program Rating
- EDH Packet checksum correction ensures SDI video integrity to downstream equipment
- Supports a wide variety of caption software including the following: The Captioning Center - CCSQ and CCMS, Captions Inc. - Smart Encoder V 1.0b, Evertz ProCAP, Cheetah Systems - Captivator Offline Edit Version 2.1, Captivator Offline PostCAP 2.1, VITAC PostCAP 2.1, Computer Prompting and Captioning Co. - CPC-700 Version 6.20, National Captioning Institute - Text Encoding and Display System (TED) version 1.7, Autograph Systems - View level XDS controller, Rapid Caption

Combo SDI Caption Encoder & EIA608 to EIA708 Translator

8085 Connection Diagram



Specifications

Serial Digital Video:

Standard:	SMPTE 259M-C (270 Mb/s) Serial Component Video
Input:	BNC 75 Ω terminated
Output:	BNC with bypass relay
Preview:	BNC output without bypass
Fault Tally:	BNC SMPTE 269M compatible
Input Equalization:	Automatic up to 200m with Belden 8281 (or equivalent)

Composite Video Monitor:

Decoder:	BNC 1V p-p composite analog video outputs with open captions
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Communications and Control:

Serial:	3 DB-9 male RS-232/422 selectable 1200 baud to 38.4 kbaud 7 or 8 data bits
Modem:	1 RJ-11 telephone jacks 1200 baud to 14.4 kbaud V.32BIS compatible
Parallel GPI:	DB-9 female

Physical:

Dimensions:	19"W x 1.75"H x 18.75" (483mm W x 45mm H x 477mm D)
Weight:	8 lbs. (3.5Kg)

Electrical:

Power:	115/230 VAC 50/60 Hz, 30 VA
Safety:	ETL listed Complies with EU safety directive Complies with FCC Part 15, Class A EU EMC Directive
EMI/RFI:	

Ordering Information:

8085	Combo SDI Caption Encoder & EIA608 to EIA708 Translator
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Ordering Options:

+2PS	Redundant power supply
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Model 8150



The 8150 Afterburner is a full featured SDI DVITC Time Code Reader, with a full function Character Inserter. The Afterburner reads SMPTE RP201 3 line VITC and keys field accurate video and audio time codes as well as KeyCode and 3:2 pulldown on material transferred from film, directly into the serial digital bitstream.

Features:

- SMPTE 259M-C
- Full speed VITC Reader with line select
- High resolution Character Inserter, with three character sizes: 8, 16 and 32 lines, time and user bits separately positionable on screen
- On-screen programming menu
- 16 digit alpha-numeric display
- Decodes 3:2 pulldown from RP201 3 line VITC
- Displays video and audio time code and keycode encoded by Evertz film footage encoders

Specifications:

Serial Digital Video Input:

Type: SMPTE 259M-C Serial component (270Mb/s)
Input Equalization: Automatic up to 200m with Belden 8281 (or equivalent)
Connector: 1 BNC per IEC 60169-8 Amendment 2

Serial Digital Outputs:

Connector: 2 BNC, (270 Mb/s) SMPTE 259M compliant.
Analog Monitor: (Optional) 1 BNC 1V p-p composite analog video with characters inserted

Parallel Remote Ctl:

Input: 5 TTL compatible inputs for control of selected functions

Physical:

Dimensions: 19"W x 1.75"H x 7.75"D
(483mm W x 45mm H x 196mm D)
Weight: 7 lbs. (3.5Kg)

Electrical:

Power: 115/230 V AC 50/60 Hz, 30 VA
Safety: ETL Listed
Complies with EU safety directive
Complies with FCC Part 15 Class A
EMI/RFI: EU EMC Directive

Ordering Information:

8150 SDI Afterburner

Ordering Option:

+MON Analog Monitoring Option

Dense WDM 1RU Optical Modules

Model 9000DWDM

The 9000DWDM are bi-directional Multiplexors/De-multiplexors that combine/separate 32 or 40 DWDM wavelengths over a single fiber.

The 9000DWDM are housed in an Evertz 1RU unit.

Features

- Bi-directional mux/demux of 32 or 40 wavelengths in the C-Band DWDM spectrum (ITU-T G.694.1 compliant)
- 0.8nm (100GHz) channel spacing
- Passive design for any bit rate
- Low insertion loss to conserve system power
- High optical isolation for low crosstalk
- SC/PC, ST/PC, FC/PC connector options

Applications

- Multi-channel transport of video, audio, data, control in fiber limited applications
- Cost reduction exercises through fewer leased fibers
- Studio and Facility extension / expansion
- L-Band & IF Link Transport
- STL and TSL Links
- Signal aggregation for outdoor and event coverage
- Signal aggregation for security and monitoring

Specifications

Optical Input/Output:

Connector:	SC/PC, ST/PC or FC/PC
Wavelength:	
9000DWDM-32:	ITU C28-C60 (1554.94 - 1529.55nm)
9000DWDM-40:	ITU C20-C60 (1561.42 - 1529.55nm)
Channel Spacing:	0.8nm (100GHz)
Passband @ 0.5dB:	± 0.11nm
Channel Uniformity:	< 1.5dB
Isolation Adjacent Channel:	> 25dB
Isolation Non-Adjacent Channel:	> 35dB
Directivity:	> 50dB
Fiber Size:	9 µm core / 125 µm overall
Return Loss:	> 45dB
Max Optical Power:	< 500mw (+27dBm)

Link Loss with Mux and Demux Combination:

9000DWDM-M32 & 9000DWDM-D32:	< 12dB Maximum Loss
9000DWDM-M40 & 9000DWDM-D40:	< 12dB Maximum Loss

Ordering Information

Dense Wave Division Multiplexing Optical Modules

9000DWDM-M32	32 Ch DWDM Mux, 100Ghz spacing, 1RU enclosure
9000DWDM-M40	40 Ch DWDM Mux, 100Ghz spacing, 1RU enclosure
9000DWDM-D32	32 Ch DWDM Demux, 100Ghz spacing, 1RU enclosure
9000DWDM-D40	40 Ch DWDM Demux, 100Ghz spacing, 1RU enclosure

Ordering Options:

Fiber Connector must be specified at time of order
Eg: Model +SC

Connector Suffix

+SC	SC/PC
+ST32	ST/PC Fiber connectors on all ports for 9000DWDM-X32
+ST40	ST/PC Fiber connectors on all ports for 9000DWDM-X40
+FC32	FC/PC Fiber connectors on all ports for 9000DWDM-X32
+FC40	FC/PC Fiber connectors on all ports for 9000DWDM-X40

Fiber Optic Patch Cable:

CB-FP1M-SCPC	Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC	Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC	Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC	Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC	Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC	Single mode fiber cable, 10m, ST/PC male termination

VistaLINK™ Network Control Panel (2RU)

Model 9000NCP2

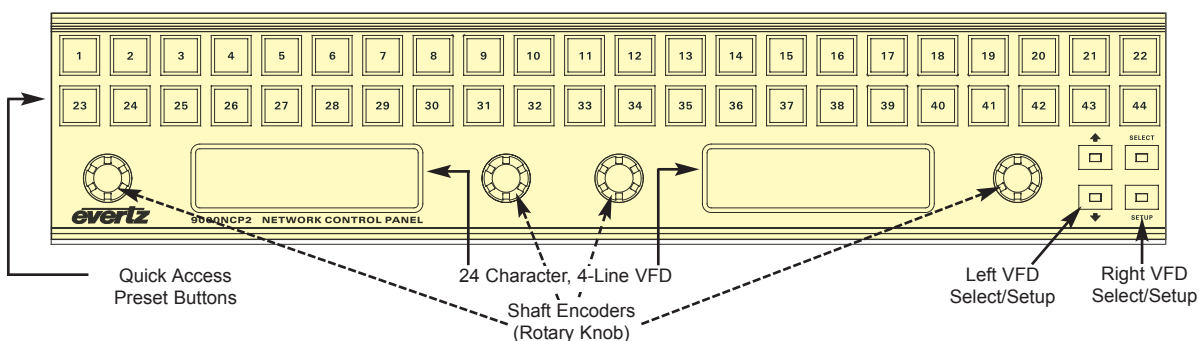


The 2RU 9000NCP2 VistaLINK™ Network Control Panel (NCP) is a low-powered, rack mounted control panel interfacing to VistaLINK™ enabled frames and modules, allowing for real-time selection and configuration control of enabled parameters.

The 9000NCP2 NCP connects to the network via Ethernet and communicates via Simple Network Management Protocol (SNMP). In its simplest network configuration, the NCP2 can be directly connected to a single frame via the frame controller using a cross-over network cable. In advanced systems, multiple NCPs can be connected within the same network, each capable of configuring all addressable parameters in every networked frame, or limited to a certain, user-defined set of frames, cards or parameters. With Evertz VistaLINK™ PRO server running on the same network, NCP units are further enabled with custom labels, preset quick-access configuration buttons and masking/privilege control.

Features

- Low power, rack-mountable, 2RU control panel
- Two, 4-line, 24 alphanumeric digit per line vacuum fluorescent display (VFD) featuring very high brightness and widest viewing angles
- 44 illuminated, tactile and full-size quick access pushbuttons with four position and selector rotary controls (shaft encoders)
- Provides convenient and fast configuration access for up to 4 simultaneous proc controls via split-screen display feature
- Built-in Simple Network Management Protocol (SNMP) communication interface over Ethernet connection
- Operational configuration control of key VistaLINK™ -enabled product parameters (visit www.evertz.com for updated list of modules and parameters)
- Quick access preset button, frame and card labels, and configuration privileges control available via VistaLINK™



Specifications

Serial I/O (COM1):

Standard: RS-232
Connector: Female DB-9
Baud Rate: 57600
Format: 8 bits, no parity, 2 stop bits, no hardware flow control (COM2 not available)

Ethernet Input/Output:

Standard: IEEE 802.3 (10BaseT), IEEE 8002.3u (100BaseTx)
Connector: 1 RJ45
Cable Requirements:
10 Base T: UTP category 3, 4 or 5 cable up to 328ft/100m (2 pairs)
100 Base Tx: UTP category 5 cable up to 328ft/100m (2 pairs)

Electrical:

Voltage: + 12VDC
Power: 11 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

9000NCP2 VistaLINK™ Network Control Panel (2RU)

VistaLINK™ Network Control Panel (1RU)

Model 9000NCP



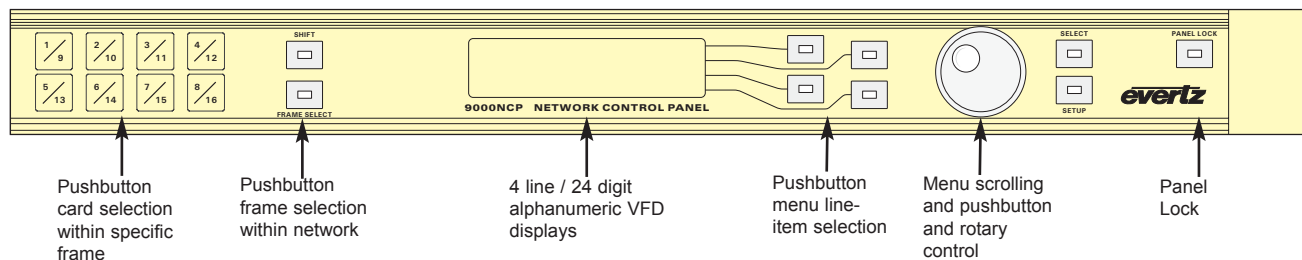
The 1RU 9000NCP VistaLINK™ Network Control Panel (NCP) is a low-powered, rack mounted control panel interfacing to VistaLINK™ enabled frames and modules, allowing for real-time selection and configuration control of enabled parameters.

The 9000NCP connects to the network via Ethernet and communicates via Simple Network Management Protocol (SNMP). In its simplest network configuration, the 9000NCP can be directly connected to a single frame's 7700FC VistaLINK™ Frame Controller via a cross-over network cable.

The 9000NCP is used to control a subset of an enabled module's full parameter set. Specifically "proc amp" functions such as video & audio level adjustments and gain control are adjustable through the 9000NCP.

Features

- Low power, rack-mountable and compact 1RU control panel
- Single, 4-line, 24 alphanumeric digit per line vacuum fluorescent display (VFD) featuring very high brightness and widest viewing angles
- 16 (8+Shift Key) illuminated, tactile and full-size quick-access pushbuttons with position and selector rotary control (shaft encoder)
- Built-in Simple Network Management Protocol (SNMP) communication interface over Ethernet connection
- Operational configuration control of key VistaLINK™ -enabled product parameters (visit www.evertz.com for updated list of modules and parameters)
- Quick access preset button, frame and card labels, and configuration privileges control available via VistaLINK™



Specifications

Serial I/O (COM1):

Standard: RS-232
Connector: Female DB-9
Baud Rate: 57600
Format: 8 bits, no parity, 2 stop bits, no hardware flow control (COM2 not available)

Electrical:

Voltage: + 12VDC
Power: 9 Watts
EMI/RFI: Complies with FCC Part 15, class A
EU EMC Directive

Ethernet Input/Output:

Standard: IEEE 802.3 (10BaseT), IEEE 802.3u (100BaseTx)
Connector: 1 RJ45

Cable Requirements:

10 Base T: UTP category 3, 4 or 5 cable up to 328ft/100m (2 pairs)
100 Base Tx: UTP category 5 cable up to 328ft/100m (2 pairs)

Ordering Information:

9000NCP VistaLINK™ Network Control Panel (1RU)

Model 9590



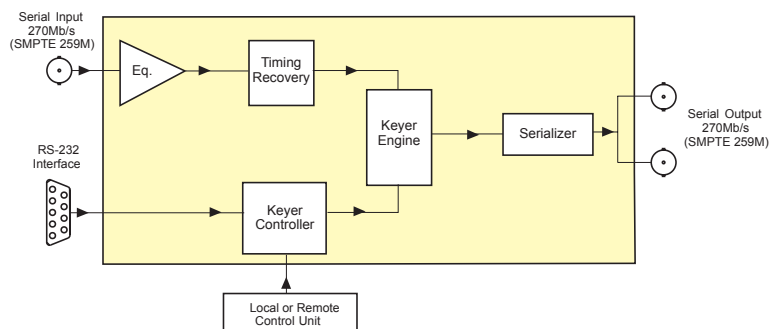
The 9590 is an easy to use, one rack unit, dual standard digital video graticule generator that keys various alignment markers over a standard definition video picture. These alignment markers facilitate film transfer, post production and quality control measurements relating to picture location for various film aspect ratios, safe action and safe title areas as well as picture center.

All of the functions of the 9590 are available from the control panel or one of two remote control panels. Choose from the many factory programmed presets or define your own. The 9590 allows for multiple user defined presets that can be re-called and re-defined at any time.

Features

- Keys graticule markers directly into SMPTE 259M-C serial digital video
- Auto detects between 525i/59.94 and 625i/50 video formats
- Two rectangular boxes that can be independently resized, reshaped and moved anywhere on the raster
- A grid consisting of horizontal and vertical line pairs that can be positioned independently or in pairs anywhere on the raster
- Programmable horizontal and vertical hard matte
- Adjustable mask starting line in vertical blanking interval to pass VITC or VITS
- Two user programmable cross markers positionable anywhere on the raster
- Circle creation for aspect ratio
- Automatic creation of aspect ratios for matte, box and circle objects
- On screen aspect ratio display
- Automatic centering control for all objects
- Switchable 16:9 or 4:3 pixel aspect ratios to allow easy alignment where anamorphic compression has taken place
- Single button keyer On/Off control
- Adjustable object brightness (white level)
- Front panel lock-out control
- Easy to operate control panel menu system gives access to advanced object control features for the most demanding application, while limiting normal day to day use to just a few preset buttons
- Factory presets allow quick setup to common object placements on the raster
- Ten user-definable presets with individual write protection
- Optional rack mount or desktop remote control unit

Block Diagram 9590



Specifications

Serial Video Input:

Standard: Serial component SMPTE 259M-C
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV ±10%
Equalization: Automatic to 200m @270 Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15dB up to 270Mb/s

Serial Video Output:

Standard: Serial component SMPTE 259M-C
Number of Outputs: 2 per frame.
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude (All outputs terminated)
Wide Band Jitter: <0.2UI

Serial Remote Ctl:

RS-232/422 interface, 9 pin "D" connector for software upgrades

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D.
 (483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60Hz 30VA
Safety: ETL listed
 Complies with EU safety directive
 Complies with FCC Part 15 Class A
 EU EMC Directive

Ordering Information:

9590 SDI Digital Graticule Generator

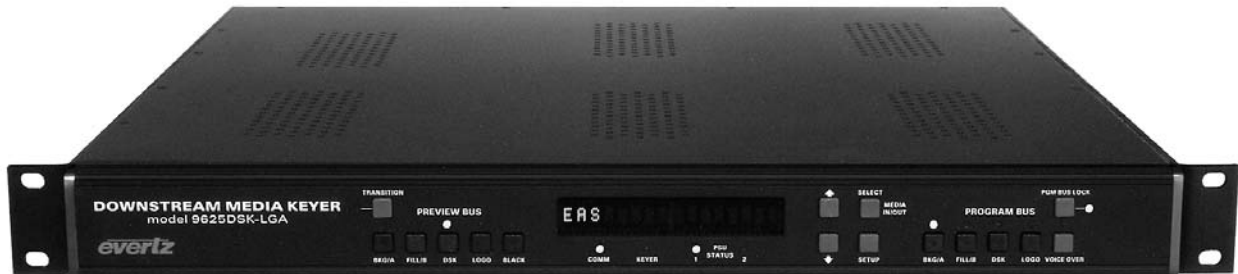
Ordering Options:

+RCP Rackmount remote control
+DCP Desktop remote control unit

SDI Downstream Media Keyer System

Model 9625DSK-LGA

METACAST 2 ENABLED



The 9625DSK-LGA has been designed to manage and store multiple media objects. The size of each is variable and range from 1/25th to full screen for on screen objects. The position of the logo, fade rates, clip association and animation rates are user controllable. Up to 16 logos can be keyed simultaneously with independent fade control for each logo. The onboard preview allows you to cue your logos for position and content verification prior to going "On Air". Audio objects are stored as stereo 16-bit, 48kHz WAV format.

Embedded and AES mixing

The Evertz Downstream Media Keyer is at the forefront in audio switching and embedded/de-embedded audio manipulation. This flexible platform allows you to select your upstream source channels and remap them to your output channels on a channel by channel basis. This flexibility allows you to move main program audio to the secondary audio channels while maintaining SAP channels and inserting audio clips and voice over inputs. Whatever your audio swapping needs are, you can be sure that the Evertz Downstream Media Keyer can handle it. The audio mixer can perform A/B/C/D mixing using 8 external AES channel inputs or 8 embedded AES channels. The 4 external voice over AES channels can be easily mapped to the desired embedded AES channels allowing for external audio device support. Add to this up to 2 Gigabytes of flash storage for audio clips and you can see why the Downstream Media Keyer has been chosen as the keyer of choice with major system integrators. Any embedded or external audio channels can be mapped to the preview channels for audio monitoring.

Audio storage

Up to 2 Gigabytes of digital audio clips can be stored and played out with the Compact Flash option. The stored audio is output as an AES stereo pair, which can be mixed with any of the other inputs to the audio mixer.

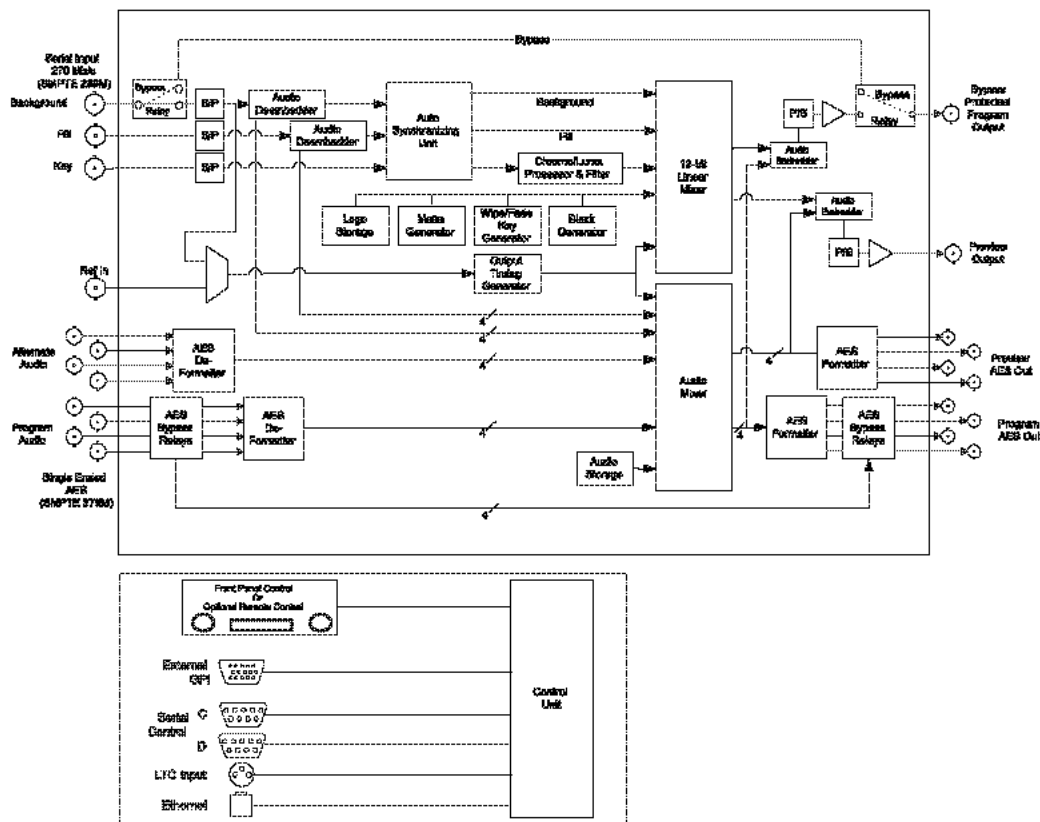
Audio files are loaded over the standard Ethernet interface or from the front panel Compact Flash port in 16-bit, 48kHz .WAV format using Evertz InstaLogo software.

Features

- Stores and inserts static or animated logos and audio clips
- Multiple simultaneous logos can be keyed with independent fade control
- Incorporates a high quality variable transparency mixer that provides various transparency levels to your logos
- Full 12-bit linear fade-in and fade-out control provided
- Free Windows media conversion software InstaLogo
- Ethernet for quick downloads
- Supports 625 line and 525 line video standards
- Fade all out capability provided on program output
- Standard 128MB internal flash storage
- Automatic equalization up to 250m (Belden 8281 or equivalent cable)
- Output bypass relay protected, video and audio, embedded and non
- Eight AES stereo pair inputs and eight AES stereo pair outputs
- Includes embedded audio mixing with 4 AES group de-embedding and re-embedding for voice over and clip inserts
- Automation control by RS422 plus programmable GPIs and GPOs
- SDI mixer or downstream keyer with full preview
- Full 4 AES channel audio mixing plus full 4 AES channel voice-over for Dolby 5.1
- Adjustable transition rates for cut, fade, horizontal and vertical wipes
- Fade to black and fade to silence
- Linear and additive keying using separate/external key/fill sources or self-keying (minimum 12-bit processing)
- Clip, gain, rate and transparency adjustment
- MetaCast 2 automation support
- Optional storage and playout for up to 1 Gigabyte of internal flash storage
- Optional front panel Compact Flash for additional 128MB or 1GB storage
- Optional temperature probe for temperature logos
- Optional redundant power supply for broadcast applications
- Optional rackmount or desktop remote control panels
- Optional EAS crawl support for Sage and TFT Decoders
- Optional crawl for scrolling text messages

SDI Downstream Media Keyer System

9625DSK-LGA Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C (270Mb/s)
Number of Outputs: 1 Background (input bypass protected) 1 Fill and 1 Key
Connectors: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic up to 200m @270 Mb/s with Belden 8281 (or equivalent)

Serial Video Output:

Standard: Same as input
Number of Outputs: 1 Program bypass protected, 1 Preview
Connectors: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude (All outputs terminated)
Jitter: <0.2UI

AES Audio Inputs:

Standard: SMPTE 276M single ended AES
Number of Inputs: 4 AES Channels Program (bypass protected)
4 AES Channels Voice Over
Connectors: BNC per IEC 60169-8 Amendment 2

AES Audio Outputs:

Standard: SMPTE 276M single ended AES
Number of Outputs: 4 AES Channels Program (bypass protected)
4 AES Channels Preview
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 1Vp-p

Genlock Input:

Type: NTSC or PAL color black 1V p-p
Composite bi-level sync (525 line or 625 line) 300mV
Connector: 1 BNC per IEC 60169-8 Amendment 2
Termination: 75Ω

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs (3.5Kg)

Electrical:

Power: Auto ranging 115/230 V AC 50/60 Hz 30 VA
Safety: ETL Listed
Complies with EU Safety Directive
Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

9625DSK-LGA SDI Downstream Media Keyer System

Ordering Options:

+DCP Optional desktop remote control panel
(Replaces front panel control)
+RCP Optional rack mount remote control panel
(Replaces front panel control)
+2PS Optional redundant power supply
+CWL Optional crawl support
+CF Compact Flash Optional Hardware (does not include compact flash memory card)
+1G Optional internal memory expansion to 1 Gigabyte
+TP Optional air temperature probe
+E Optional EAS crawl insertion

Accessories:

CF128 Optional card flash expansion port with 128MB card
CF1G Optional card flash expansion port with 1 Gigabyte card
WA-1525 Optional 15-25 Pin Adapter for GP10 port
9600LG-TP Optional air temperature probe for all 9625 & HD9625 products (for existing hardware)

Model 9625LG

METACAST 2 ENABLED

The 9625LG SDI Logo Inserter is a complete SDI Logo Insertion package that will key one, or many, static/animated "bugs" over a full bandwidth SDI program video signal. Media created in BMP, Tiff or TGA file formats can be imported into the InstaLogo software and transferred to the 9625LG. Media is stored in flash memory and can be quickly accessed via front panel, quick select keys, GPI inputs, automation and MetaCast. With the new removable Compact Flash option you can have access of up to 2 Gigabytes of on-line media storage space and virtually unlimited archived media storage.

The 9625LG has been designed to manage and store multiple logos. The size of each is variable and range from 1/25th to full screen. The position of the logo, fade rates and animation rates are user controllable. Up to 16 logos can be keyed simultaneously with independent fade control for each logo. The onboard preview allows you to cue your logos for position and content verification prior to going "On Air".

The EAS crawl support allows for connection to an existing EAS decoder. This RS232 connection allows weekly tests (white text on green), watch alerts (white on yellow) and warnings (white on red) to be scrolled across the native SDI video with no need for format conversion. The variable height text font can be positioned anywhere on the screen.

Features

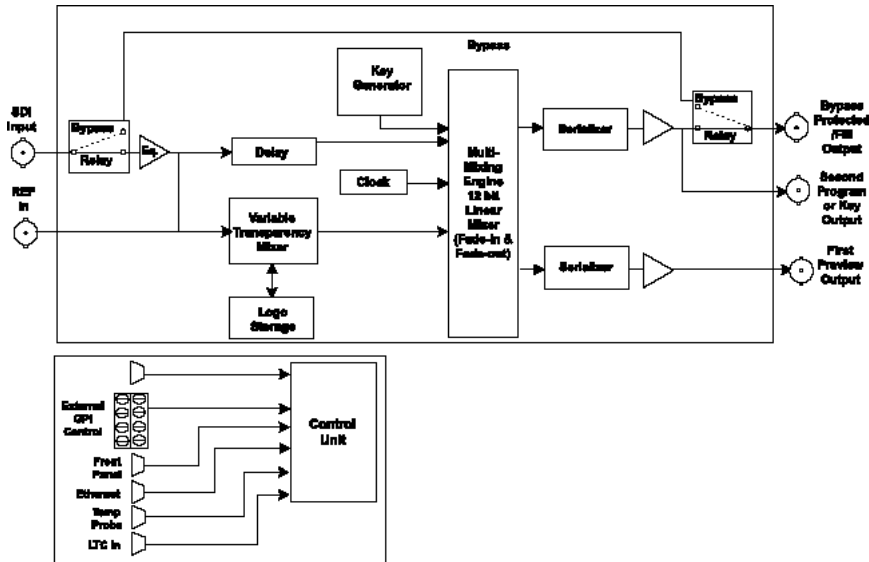
- Stores and inserts static and animated logos
- Multiple simultaneous logos can be keyed with independent fade control
- Incorporates a high quality variable transparency mixer that provides various transparency levels to your logos
- Full 12-bit linear fade-in and fade-out control provided
- Front panel or RS-232/RS-422 (Rack-mount or Desk-top) remote control
- 8 programmable GPI contact closures
- Download media from a standard Windows PC running InstaLogo™ software
- EAS supports all new alert codes including child abduction emergency
- FTP file transfer and maintenance
- Supports 625 line and 525 line video standards
- Fade all out capability provided on program video output
- Standard 128MB flash storage
- Automatic equalization up to 250m (Belden 8281 or equivalent cable)
- Program output bypass relay protected
- Optional 1GB internal flash storage
- Optional redundant power supply
- Optional removable 128MB or 1GB compact flash storage
- Optional rackmount or desktop remote control panels
- Optional EAS crawl support for Sage and TFT Decoders
- Optional crawl for scrolling text messages



NOMAD Lite is an easy to use graphical interface that integrates the speed of fast Ethernet, with the ease of drag and drop functionality to deliver a central access point to Evertz keyer products. Using this software allows you to upload media files to one or many units simply by clicking and dragging the item from the explorer like window, into the device tree. This powerful interface allows you to extract and move media items from one device to another using the same easy drag and drop style. For more complicated multi unit installations, you can set custom device groups. This allows for media content to be dropped on a custom grouping and automatically uploaded to the ganged units in one easy step.

Model 9625LG Block Diagram

METACAST 2 ENABLED



Specifications

Serial Video Input:

Standard: Serial component SMPTE 259M-C
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV ±10%
Equalization: Automatic up to 200m @270 Mb/s with Belden 8281 (or equivalent)

Serial Video Output:

Standard: Same as input
Number of Outputs: 2 Program (1 output bypass protected)
 1 Preview
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude (All outputs terminated)
Wide Band Jitter: <0.2UI

Genlock Input:

Type: NTSC or PAL color black 1V p-p composite bi-level sync (525 line or 625 line)
Connector: 1 BNC per IEC 60169-8 Amendment 2

Serial Remote Control:

RS-232 interface, 9 pin "D" Connector for automation control

General Purpose In/Out:

Number of inputs: 8
Number of outputs: 4
Type: Opto isolated, active low
Connector: Female High Density DB-15
Signal level: +5V nominal

LTC Reader:

Standard: SMPTE 12M
 25, 30Fps Drop & Non Drop Frame
Connector: XLR Type 3 pin female connector
Signal Level: 0.2 to 4V p-p, balanced or unbalanced
Speed: 1/30th to 70x play speed, forward and rev, machine dependent

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
 (483mm W x 45mm H x 477mm D)
Weight: 8 lbs (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60Hz 30VA
Safety: ETL Listed
 Complies with EU Safety Directive
EMI/RFI: Complies with FCC Part 15 Class A
 EU EMC Directive

Ordering Information:

9625LG SDI Logo Inserter

Ordering Options & Accessories:

+DCP Optional desktop remote control panel (Replaces front panel control)
+RCP Optional rack mount remote control panel (Replaces front panel control)
+2PS Optional redundant power supply
+CF Compact Flash Optional Hardware (does not include compact flash memory card)
+CWL Optional crawl support
+1G Optional internal memory expansion to 1 Gigabyte
+TP Optional air temperature probe
+E Optional EAS crawl insertion

Accessories:

CF128 Optional card flash expansion port with 128MB card
CF1G Optional card flash expansion port with 1 Gigabyte card
WA-1525 Optional 15-25 pin adapter for all 9625 & HD9625 products
9600LG-TP Optional air temperature probe for all 9625 & HD9625 products (for existing hardware)

SDI Media Keyer System

Model 9625LGA

METACAST 2 ENABLED



The 9625LGA Media Keyer system. A complete SDI Logo and Audio Insertion package that will key one, or many, static/animated "bugs" over a full bandwidth SDI program video signal. It will also "Duck" insert preformatted audio clips. Media created in BMP, Tiff, TGA or Wave file formats can be imported into the InstaLogo software and transferred to the 9625LGA. Media is stored in flash memory and can be quickly accessed via front panel, quick select keys, GPI inputs, automation and MetaCast. With the new removable Compact Flash option you can have access of up to 2 Gigabytes of on-line media storage space and virtually unlimited archived media storage.

The 9625LGA has been designed to manage and store multiple logos. The size of each is variable and range from 1/25th to full screen. The position of the logo, fade rates, clip association and animation rates are user controllable. Up to 16 logos can be keyed simultaneously with independent fade control for each logo. The onboard preview allows you to cue your logos for position and content verification prior to going "On Air". The Media Keyer Voice Over audio input allows for 1 button audio switching

The EAS crawl support allows for connection to an existing EAS decoder. This RS232 connection allows weekly tests (white text on green), watch alerts (white on yellow) and warnings (white on red) to be scrolled across the native SDI video with no need for format conversion. The variable height text font can be positioned anywhere on the screen.

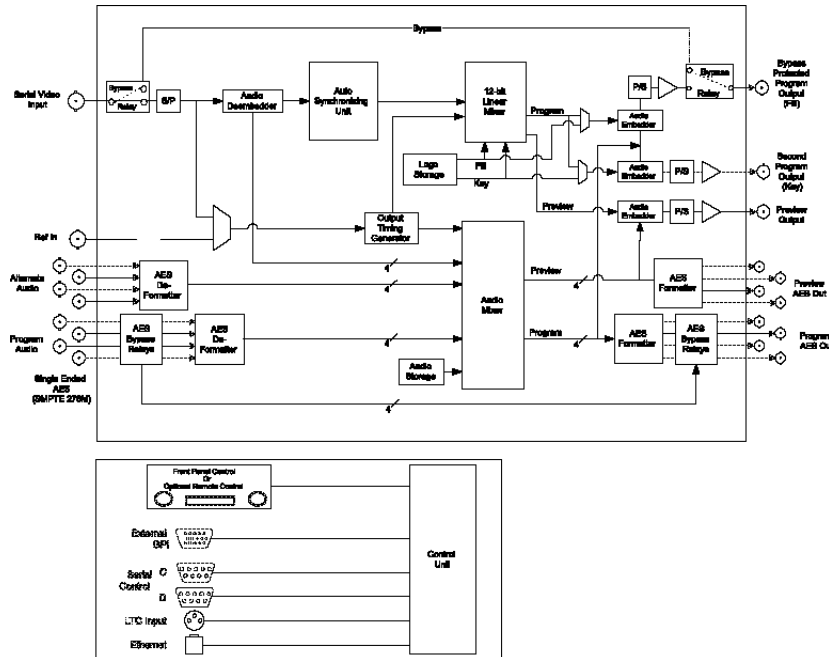
Features

- Stores and inserts static and animated logos and audio clips
- Multiple simultaneous logos can be keyed with independent fade control
- Incorporates a high quality variable transparency mixer that provides various transparency levels to your logos
- Full 12-bit linear fade-in and fade-out control provided
- Front panel or RS-232/RS-422 (Rack-mount or Desk-top) remote control
- 8 programmable GPI contact closures
- Download media from a standard Windows PC running InstaLogo™ software
- Audio clip to logo associations
- 1 button alternate audio voice overs
- EAS supports all new alert codes including child abduction emergency
- Quad AES for discreet 5-1 Dolby
- FTP file transfer and maintenance
- Supports 625 line and 525 line video standards
- Fade all out capability provided on program video output
- Standard 128MB flash storage
- Automatic equalization up to 250m (Belden 8281 or equivalent cable)
- Program output bypass relay protected
- Optional 1GB internal flash storage
- Optional redundant power supply
- Optional removable 128MB or 1GB compact flash storage
- Optional rackmount or desktop remote control panels
- Optional EAS crawl support for Sage and TFT Decoders
- Optional crawl for scrolling text messages



NOMAD Lite is an easy to use graphical interface that integrates the speed of fast Ethernet, with the ease of drag and drop functionality to deliver a central access point to Evertz keyer products. Using this software allows you to upload media files to one or many units simply by clicking and dragging the item from the explorer like window, into the device tree. This powerful interface allows you to extract and move media items from one device to another using the same easy drag and drop style. For more complicated multi unit installations, you can set custom device groups. This allows for media content to be dropped on a custom grouping and automatically uploaded to the ganged units in one easy step.

9625LGA Block Diagram



Specifications

Serial Video Input:

Standard: Serial component SMPTE 259M-C
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV ±10%
Equalization: Automatic up to 200m @270 Mb/s with Belden 8281 (or equivalent)

Serial Video Output:

Standard: Same as input
Number of Outputs: 2 Program (1 output bypass protected), 1 Preview
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude (All outputs terminated)
Wide Band Jitter: <0.2UI

AES Audio Inputs:

Standard: SMPTE 276M single ended AES
Number of Inputs: 4 Program, 4 Alternate
Connector: BNC per IEC 60169-8 Amendment 2

AES Audio Outputs:

Standard: SMPTE 276M single ended AES
Number of Outputs: 4 Program, 4 Preview
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1Vp-p

Genlock Input:

Type: NTSC or PAL color black 1V p-p composite bi-level sync (525 line or 625 line)
Connector: 1 BNC per IEC 60169-8 Amendment 2

Serial Remote Control:

RS-232 interface, 9 pin "D" Connector for automation control

General Purpose In/Out:

Number of inputs: 8
Number of outputs: 4
Type: Opto isolated, active low
Connector: Female High Density DB-15
Signal level: +5V nominal

LTC Reader:

Standard: SMPTE 12M
Connector: 25, 30Fps Drop & Non Drop Frame
Signal Level: XLR Type 3 pin female connector
Speed: 0.2 to 4V p-p, balanced or unbalanced
 1/30th to 70x play speed, forward and rev, machine dependent

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
 (483mm W x 45mm H x 477mm D)
Weight: 8 lbs (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60Hz 30VA
Safety: ETL Listed
 Complies with EU Safety Directive
EMI/RFI: Complies with FCC Part 15 Class A
 EU EMC Directive

Ordering Information:

9625LGA SDI Media Keyer System

Ordering Options & Accessories:

+RCP Optional rackmount remote control panel
+DCP Optional desk top remote control panel
+2PS Redundant power supply
+TP Optional Air Temperature Probe
+CF Compact Flash Optional Hardware (does not include compact flash memory card)
+E Optional EAS Crawl Insertion
+1G Optional internal flash expansion to 1 Gigabyte
+CWL Optional crawl support

Accessories:

CF128 Optional card flash expansion port with 128 Megabyte card
CF1G Optional card flash expansion port with 1 Gigabyte card
WA-1525 Optional 15-25 pin adapter for all 9625 & HD9625 products
9600LG-TP Optional air temperature probe for all 9625 & HD9625 products (for existing hardware)

Mini Master Desktop Control Panel

Model 9700DCP



Evertz is proud to offer the new 9700DCP Mini Master Desktop Control Panel. This robust control panel is a must for installations where operator control monitoring or interaction is required. The 9700DCP can control 1 or many Evertz Mini Master Control Switchers as well as the Evertz Downstream Media Keyers. Using fast Ethernet connectivity allows the 9700DCP panel to be added as a second control point for any of the network connected video processing devices. Automation, GPI, Remote Panel and now the new DCP option provides flexibility for every installation configuration imaginable.

The 9700 DCP includes a 640x480 TFT display screen with a touch pad overlay. The display is used to show audio levels that can be adjusted using the shaft encoder knobs directly below the display as well as set and save multiple user configurations. Custom programmable LED buttons offer status indications in 3 different colors as well as on-button display of source or function. A numeric keypad is provided for quick logo access.

Switching between channels is instantaneous. Auto discovery allows any channel to be added or removed without the need to restart the DCP panel. Custom configurable button layouts and on button LCD displays allow the operators to map the DCP layout to their own specifications. On panel control of logos is provided for Cue, In, Out, All Out, Horizontal, Vertical and Gain level settings.

Features

- Multi Channel Control
- Video Standard Independent
- Exceptional Ease of Use
- Outstanding channel branding
- Video/audio mixing control
- Full Size fully featured
- Integrated soft screen for set-up and monitoring
- Full color TFT touch screen display
- Active channel indication
- Multiple panels per channel
- Multi channel independent or ganged channel operation
- Multi User configurations
- Direct Program control
- Future proof for new feature additions
- Programmable LED source and function buttons
- Protected fade to black button
- Manual automation override
- Optional redundant power supply

Display:

TFT 640x480 integrated touch screen

Controls:

T-Bar for manual transitions
43 programmable LCD display buttons
59 illuminated control buttons
10 Shaft Encoders

Ethernet:

10/100 fast Ethernet

Serial:

Type RS-232 interface, 9 pin "D" connector for firmware updates

Electrical:

Power: 115/230V AC 50/60Hz 30VA
Safety: ETL Listed, Complies with EU Safety Directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Dimensions, surface 21"W x 12"H
Dimensions, tub 19.5"W x 9.5"H x 2.5"D (front) and
19.5"W x 9.5"H x 5.5"D (rear)

Weight:

15 lbs. (6.8 kg)

Ordering Information:

9700DCP Mini Master Desktop Control Panel

Ordering Options:

+2PS Redundant power supply

Evertz Introduces Latest 9725 Series Media Branding Solution

Evertz is pleased to introduce the latest 9725 series of logo and media insertion products. This system was designed to meet not only the immediate branding needs, but also provide for future expansion as stations transition to digital and HD. With extensive hardware and software interface options, the 9725 series has been designed to manage and store multiple logos, ranging in size from 1/25th to full screen, set position, fade and animation rates, and conveniently receive trigger information through the LIDIA 4 system. With the capability to key in up to 16 logos simultaneously, the 9725 logo and media insertion products are the most advanced branding devices available today.

AN9725LG-L4

The AN9725LG Analog Logo Inserter is a complete analog video insertion package that will key one or many static/animated "bugs" over a full bandwidth analog program video signal. Media is stored in flash memory and can be quickly accessed via front panel, quick select keys, GPI inputs, automation and MetaCast.

9725LG-L4 and 9725LGA-L4

The 9725LG and 9725LGA products provide a complete SDI Logo or SDI/Audio Insertion package that will key one or many static/animated "bugs" over a full bandwidth SDI program video signal. It will "Duck" insert preformatted audio clips. Media created in BMP, Tiff, TGA or WAVE file formats can be imported into the new Overture™ software and transferred to the insertion unit.

HD9725LG-L4 and HD9725LGA-L4

The HD9725LG and HD9725LGA provide a complete HD Logo and HD Logo/Audio Insertion package that will key one or many static/animated "bugs" over a full bandwidth HD program video signal. It will also "Duck" insert preformatted audio clips. This version handles both HD and SD video inputs.

The new 9725 series features:

- 16 level key sublayers used for static and dynamic logos, clocks and countdown timers, animations, temperature, crawls and text.
- User-configurable logo positioning and transparency and control
 - Transparency control through incorporated 12-bit linear keyer
 - 12-bit linear fade in and out control
- Key in full screen logo
- 32 GPIs and 16 GPOs for running script triggers, logo loads, keying and tallys

New OVERTURE™ Application Software

The OVERTURE™ graphical user interface software simplifies configuration and operation and is included with the media branding products. Overture provides a unified interface to:

- Create and upload custom crawls
- Create and deliver logos
- Build animation sequences including fade in, pause and fade out routines
- Adjust logo position and transparency levels
- Import TIFF, TARGA, BMP, GIF or JPG format graphic files
- Generate analog and digital clocks, dates, temperatures and slates
- Upgrade firmware for one or multiple units

9725 Series Upgrade Path

The latest 9725 series ranges from analog video input devices up to HD versions that handle both embedded & discrete audio. The 9725 series offers an inexpensive upgrade path for those clients who need to future-proof their media branding implementations.

VIP™ Four Video, Four Graphic Input Monitoring and Display Unit 9767VIP8-NGI



The 9767VIP8-NGI takes the popular VIP series of multi-image display processor and controller and combines video and graphics into one, and displays up to 8 inputs on a single monitor. Ideal for control rooms, surveillance and video teleconferencing applications, the 9767VIP8-NGI is a 1RU, rack mountable multi-image processor and controller.

Based on Evertz's MVP™ architecture, this VIP unit combines up to in 4 composite analog (NTSC/PAL) or S-Video inputs and 4 DVI/VGA computer/graphic inputs, along with a dynamically updated background DVI-I input and offers outstanding image quality up to WUXGA (1920 x 1200) resolution, built-in signal monitoring (on screen displays and SNMP), dynamic window sizing, borders, tally, text and digital clocks.

If additional video or computer inputs are required, VIP units (whether this 1RU version or modular 3RU VIPs) can be cascaded together, providing more windows to the ultimate display. With both factory and user-configurable (front panel and/or Maestro VIP software GUI) presets, serial port and contact closures, the VIP series provides an integrated, cost-efficient solution to display various video formats. The 9767VIP8-NGI is VistaLINK® -enabled, offering remote monitoring of faults as well as control and configuration through Simple Network Management Protocol (SNMP).

Features

Video Inputs:

- Four video inputs (NTSC/PAL) or four S-Video inputs and 4 graphic inputs
- Additional computer graphic video input (DVI-I up to WUXGA) for background display, signal analyzer tools or cascading multiple VIP units

Audio Inputs:

- Discrete balanced analog audio (1L/R per video)
- VU/PPM level indicators

Video Output:

- One DVI-I output
 - Drive a single DVI-D and a single RGBHV (VGA-type) display simultaneously with same content up to WUXGA (1920x1200 resolution)
- One selectable HD/SD serial digital (BNC) video output, also carrying same content as DVI-I output or select from input
- Minimal processing delay (~1 frame)
- Optional fiber output (contact factory)
- Thumbnails of any or all selected inputs to VistaLINK™ PRO Thumbnail Server (or equivalent)

Graphics:

- User-configurable tally indicators and configurable UMD static and/or dynamically updated text, background colors
- User configurable borders
- LTC input drives digital clock display
- Count-up or down timer displays (GPI triggered)

Signal Monitoring:

- Extensive list of user-configurable signal fault conditions with logic settings
- On screen messages triggered by fault conditions
- Detects frozen video (patent pending) and black video
- User-configurable fault condition alert messages per video input with configurable background colors, thresholds and durations

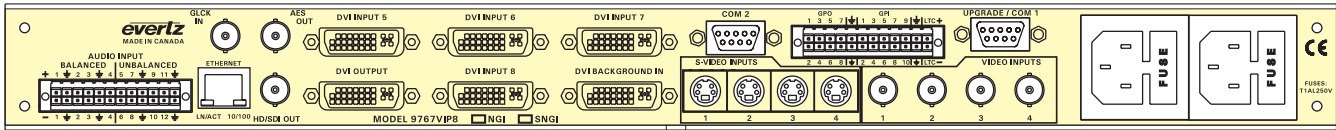
Auxiliary Inputs:

- RS-232/RS-422 communication port Interface to common UMD protocols
 - TSL, Image Video
- 20 assignable GPI inputs, 8 GPI outputs

Physical:

- 1RU
- Genlock reference input for proper timing - 1 NTSC/PAL
- Fast power-cycle time (<3 seconds)
- Built-in VistaLINK® support for remote monitoring and control via SNMP (using VistaLINK®PRO)
- The 9767VIP unit has a direct Ethernet connection to the network for VistaLINK® User must provide network cable. Screen configurations via Maestro GUI software (included)

9767VIP8-NGI Connection



Specifications

Composite Analog Video Inputs (-N):

Standard: NTSC (SMPTE 170M), PAL (ITU-R BT.1700-1)
Number of Inputs: 4
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V \pm 0.1V
Input Impedance: 75 Ω
Return Loss: 40dB up to 5MHz

S Video Inputs:

Number of Inputs: 4 + 1 background
Connector: IEC 933-S (4 pin mini DIN)
Signal Level: 1V nominal
Input Impedance: 75 Ω

Background (Computer) Video Input:

Standard: Auto-detecting, VESA (DVI-I, for DVI and RGBHV inputs)
Number of Inputs: 4
Connector: DVI-I (Female)
Input Resolution: 640 x 480 (VGA) to 1920 x 1200 (WUXGA)
Signal Level: 1V nominal

Discrete Analog Audio Inputs:

Number of Inputs: 1 L/R pair per video input
Connector: Terminal Block
Input Impedance: 20k Ω min. (differential)
Sampling Frequency: 48kHz
Peak Signal and Common Model Level: 30dBu

Display Video Output:

Standard: VESA (DVI-I) up to WUXGA (1920 x 1200)
Number of Outputs: 1
Connector: DVI-I (with DVI to RGBHV Adapter)
Video: 1Vp-p YPrPb/RGB or 0.7Vp-p VGA, 60Hz refresh
Impedance: 75 Ω

Serial Video Output:

Standard: Selectable HD/SD serial monitoring output (720p, 1080i, 625i, 525i)
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 200ps nominal (HD), 740ps nominal (SD)
Overshoot: <10% of amplitude

Genlock Input:

Type: NTSC/PAL color black
Level: 1V p-p nominal
Connector: BNC per IEC 60169-8 Amendment 2

General Purpose Interface I/O (GPI/GPO):

Number of Inputs: 20
Number of Outputs: 8
Type:
GPI Opto-isolated, active low with internal pull-ups to +5V
GPO Relay closure to ground
Connector: Terminal Block
Input Signal: Closure to ground

Input/Output Serial Port:

Number of Ports: 1 RS-232 or 1 RS-422
Connector: Terminal Block
Baud Rate: Up to 1Mbaud
Format: Configurable for various UMD interfaces

Ethernet:

Network Type: Fast Ethernet 100 Base-TX 1EEE 802.3U standard for 100Mbps baseband CSMA/CD local area network
Connector: RJ-45

Electrical:

Voltage: Auto-ranging 100-240 VAC 40 Watts
Safety: ETL Listed, complies with EU low voltage directive
EMI/RFI: Complies with FCC Part 15, Class A EU EMC Directive

Ordering Information:

9767VIP8-NGI

Up to four asynchronous DVI-I (DVI-D or RGBHV with adapter) inputs and four NTSC/PAL (or S-Video) inputs, one background DVI-I (DVI-D or RGBHV with adapter) input. Single DVI-I (DVI-D or RGBHV with adapter) or one serial monitoring output. Includes VistaLINK® VLPRO-C software configuration tool and Maestro-VIP display layout GUI

AES XLR BNC Bulk Impedance Converters

Model AESIMP-12M (XLR Male to BNC) & AESIMP-12F (XLR Female to BNC)

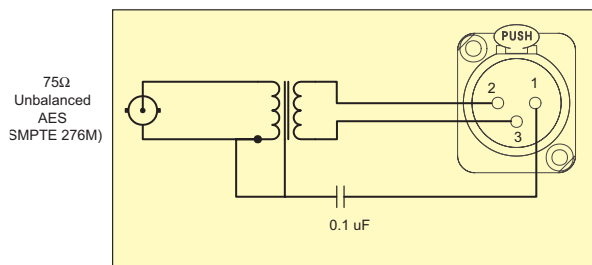
The AESIMP-12 series impedance converters allow transmission of AES/EBU digital audio signals, with sampling rates ranging from 22 kHz to 96 kHz, over 75Ω coaxial cables. The conversion transformer changes a balanced 110Ω transmission line to an unbalanced 75Ω transmission line.

The AESIMP-12 series provides twelve XLR-3 type connectors (male or female) on the balanced side and BNC type connector on the unbalanced side. Two versions of the AESIMP-12 are available. The AESIMP6F6M give 6 converters in each direction. The AESIMP-1M is a single channel converter.

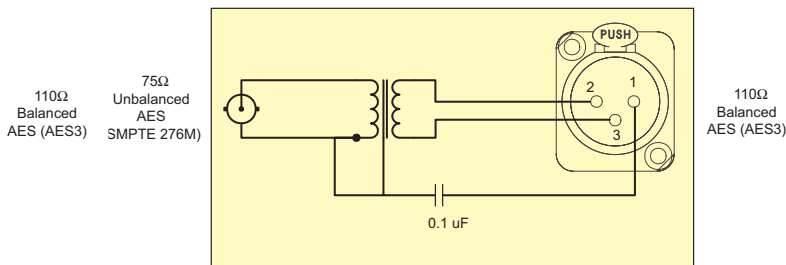
PART NUMBER	110Ω CONNECTOR		75Ω CONNECTOR
	3 PIN XLR FEMALE	3 PIN XLR MALE	
AESIMP-1M		1	1 BNC
AESIMP-6F6M	6	6	12 BNC
AESIMP-12F	12	BNC	12 BNC
AESIMP-12M		12	12 BNC

The rack mounting ears may be reversed to orient the panel for the greatest ease of installation. An identification strip holder is provided over the BNC connectors to assist in labeling sources and/or destinations.

Block Diagrams



Model AESIMP-12F Block Diagram



Model AESIMP-12M Block Diagram

Specifications

Number of Channels:	12
Coupling:	Transformer
Turns Ratio:	1.22:1
Unbalanced AES:	
Standard:	SMPTE 276M, single ended AES
Connectors:	BNC per IEC 60169-8 Amendment 2
Signal Level:	Approx. balanced level x 0.8, 5 V p-p maximum
Impedance:	75Ω unbalanced
Balanced AES:	
Standard:	AES3-1992 balanced AES
Connectors:	3 pin Male XLR (AESIMP-12M) or 3 pin Female XLR (AESIMP12F)
Signal Level:	Approx. unbalanced level x 1.22, 5 V p-p maximum
Impedance:	110Ω balanced

Ordering Information:

AESIMP-1M	In-line transformer with a single BNC to a single male
AESIMP-6F6M	AES Impedance changer for mobile fiber systems
AESIMP-12F	12 Channel female XLR to BNC AES Impedance Matching Panel
AESIMP-12M	12 Channel male XLR to BNC AES Impedance Matching Panel

CWDM & DWDM Wavelength Ordering Information

CWDM Transmitter Ordering Options - 20nm Channel Grid - Based on ITU G.694.2

Laser Ordering Number (xx)	Wavelength (nm)	Transmitter Module (Example)
27	1270	7707EO27
29	1290	7707EO29
31	1310	7707EO31
33	1330	7707EO33
35	1350	7707EO35
37	1370	7707EO37
43	1430	7707EO43
45	1450	7707EO45
47	1470	7707EO47
49	1490	7707EO49
51	1510	7707EO51
53	1530	7707EO53
55	1550	7707EO55
57	1570	7707EO57
59	1590	7707EO59
61	1610	7707EO61

DWDM Transmitter Ordering Options - 100GHz/0.8nm Channel Grid - Based on ITU G.694.1

Laser Ordering Number (Dyyy)	ITU Channel Number	Frequency (GHz)	Wavelength (nm)	Transmitter Module (Example)
D200	20	192,000	1561.42	Contact Factory
D210	21	192,100	1560.61	Contact Factory
D220	22	192,200	1559.79	Contact Factory
D230	23	192,300	1558.98	Contact Factory
D240	24	192,400	1558.17	Contact Factory
D250	25	192,500	1557.36	7707EOD250
D260	26	192,600	1556.55	7707EOD260
D270	27	192,700	1555.75	7707EOD270
D280	28	192,800	1554.94	7707EOD280
D290	29	192,900	1554.13	7707EOD290
D300	30	193,000	1553.33	7707EOD300
D310	31	193,100	1552.52	7707EOD310
D320	32	193,200	1551.72	7707EOD320
D330	33	193,300	1550.92	7707EOD330
D340	34	193,400	1550.12	7707EOD340
D350	35	193,500	1549.32	7707EOD350
D360	36	193,600	1548.51	7707EOD360
D370	37	193,700	1547.72	7707EOD370
D380	38	193,800	1546.92	7707EOD380
D390	39	193,900	1546.12	7707EOD390
D400	40	194,000	1545.32	7707EOD400
D410	41	194,100	1544.53	Contact Factory
D420	42	194,200	1543.73	Contact Factory
D430	43	194,300	1542.94	Contact Factory
D440	44	194,400	1542.14	Contact Factory
D450	45	194,500	1541.35	Contact Factory
D460	46	194,600	1540.56	Contact Factory
D470	47	194,700	1539.77	Contact Factory
D480	48	194,800	1538.98	Contact Factory
D490	49	194,900	1538.19	Contact Factory
D500	50	195,000	1537.40	Contact Factory
D510	51	195,100	1536.61	Contact Factory
D520	52	195,200	1535.82	Contact Factory
D530	53	195,300	1535.04	Contact Factory
D540	54	195,400	1534.24	Contact Factory
D550	55	195,500	1533.47	Contact Factory
D560	56	195,600	1532.68	Contact Factory
D570	57	195,700	1531.90	Contact Factory
D580	58	195,800	1531.12	Contact Factory
D590	59	195,900	1530.33	Contact Factory
D600	60	196,000	1529.55	Contact Factory

Remote Control Panel

CP-2404

The CP-2404 is the latest panel to be introduced into Quartz's extensive range of remote and local router control panels. The CP-2404 is a versatile programmable panel with 29 illuminated push buttons and two display windows.

The CP-2404 is fully programmable and therefore the operation of the panel is entirely dependent upon its configuration. It can be configured in a number of different ways including XY and multi-destination. The CP-2404 is configured using the WinSetup software. Each button can be individually configured for any combination of source, destination, breakaway or control functions.

The physical button layout of the CP-2404 guides its configuration but does not restrict it. For example the left hand block of 24 buttons can be programmed as sources. A number of these buttons can also be used for other functions such as level selection etc. The two display windows can be used to show the current selected destination and the selected source. The two buttons located next to the display windows can be used to scroll up or down through the source or destination list. The take button confirms the selection.

CP-2404 Remote Control Panel



Features

- 1RU panel with internal power supply. 15mm LED illuminated square buttons suitable for film legends
- Buttons with high quality positive action. Fully programmable to operate in a number of modes
- Buttons can be programmed for breakaways, level selection etc.
- Optional lock button protects against accidental or unauthorized selections
- Camera joystick override on any eight inputs with momentary or latching action

Specifications

Control:

Q-link

Serial RS232/422 (Optional)

Parallel - Joystick override

Power:

Supply: 100-132V, 180-240V, 50/60Hz

Power Consumption: 10 Watts

Physical:

Height: 1RU, 44mm

Width: 19" rack mount

Depth: 130mm

Weight: 1.55kg

Operating Temperature: 0-40°C

Ordering Information:

CP-2404

Remote Control Panel

Fiber-optic Enabled Camera Adapter System

Model ECAS, ECAS-HD, ECAP-HD, ECB, ECB-HD



The Evertz Camera Adapter system provides a versatile fiber-optic enabled accessory to Sony HDW/F900, Panasonic Varicam High Definition and Sony Standard definition camcorders. There are three components to the system; each linked via fiber optic cable.

The Camera adapter and Base Stations are available in several models to support a wide variety of cameras as shown below

Camera		Camera Adapter Model	Base Station Model
Manufacturer	Models		
Panasonic	HDC-27	ECAP-HD	ECB-HD
Sony	HDW-750, HDW-F900	ECAS-HD	ECB-HD
Sony	DVW series, DVW series, IMX series	ECAS	ECB

The non-fiber version of the camera-back adapter for the Sony HD cameras, and the fiber enabled high definition versions operating as a stand-alone units, provide HDSDI with embedded audio and time code, NTSC/PAL, SDI and IEEE1394A downconverted video, and 2 analog audio inputs for channels 3 and 4 (on Sony models). The standard definition camera-back adapters provide SDI with embedded audio and time code, NTSC/PAL and IEEE1394A video and 2 analog audio inputs for channels 3 and 4.

When the fiber enabled HD camera adapters are connected to the ECB-HD base station the camera video is transported to the base over fiber and broken out to HDSDI video with embedded audio and time code, analog or AES audio, LTC, NTSC/PAL, SDI and IEEE1394A downconverted video with time code. The base station has inputs for return HDSDI, NTSC/PAL, 4 channels of analog or AES audio, genlock, time code and IFB. The fiber also transports bi-directional RTS intercom, camera remote control (with viewfinder menus), and contact closure tallies. Standard definition models provide similar functionality except for the downconverter.

When the Camera power option is installed in the base station (-CP versions), the base station can send 125 watts of DC power over a hybrid copper/fiber optic cable to the camera adapter. This DC voltage is converted to battery voltage by the ECA-PS power module, which mounts on the camera adapter in place of a battery. When power is sent down the hybrid cable the camera and accessories can be powered over a distance up to 2kms.

Features

Camera-Back Adapter - Standalone and Non-Fiber Features:

- Sony models - connect directly to camera multi-pin connector, serial digital video output with embedded camera time code and audio.
- Panasonic models connect to serial digital output from camera - extra serial digital outputs
- Serial digital video input for connecting to "pool feeds"
- NTSC/PAL camera video out (On HD models, downconverted and aspect ratio converted - supports 4:3 center crop, anamorphic squeeze or 16:9 letter box)
- Auxiliary serial digital output switchable as second output from camera, (or downconverter on HD models)
- Sony models embed camera time code and audio on serial digital outputs
- IEEE 1394 port for output and control of DV devices.
- Sony models have inputs for audio 3 & 4 selectable as Line, Microphone (with phantom power) or AES
- Draws power from camera supply (battery connector or 4 pin XLR)
- Sony models available with Sony/IDX, PAG or Anton-Bauer battery connectors
- Panasonic models available with Sony/IDX or Anton-Bauer battery connectors
- 12 VDC accessory power outlet
- On Screen Display menu system

Additional Features when connected to Base Station:

- Serial digital return video available on Aux SDI output
- 4 channels of AES or Analog Return Audio
- NTSC/PAL Return Video
- Tri-level or bi-level genlock return to camera
- LTC to and from camera
- Camera control from control panel connected to base station (camera menu video input on Sony models).
- 2 channel Intercom - 5-pin XLR headset connector at camera adapter, RTS beltpack connection at base station
- IFB return channel to camera adapter
- Piezo electric speaker with volume control for intercom monitoring
- RS-422/232 channel to base station
- 4 GPI/O channels simple control or tally between camera and base station - 2 each direction
- Status LEDs for SDI and NTSC/PAL return video, Intercom Talk and Fiber Link OK
- Available with LEMO 3K or Fischer 1053HDTV series fiber-optic connector - contact factory for other connector options

Fiber-optic Enabled Camera Adapter System

Features..cont'd

Base Station Features:

- Camera serial digital video output
- Return serial digital video input
- NTSC/PAL camera video out (On HD models, downconverted and aspect ratio converted - supports 4:3 center crop, anamorphic squeeze or 16:9 letter box modes)
- HD models have serial digital output from downconverter.
- 4 channels of analog audio and AES out (de-embedded from camera serial digital video)
- IEEE 1394 port for output and control of DV devices.
- Remote control to camera (camera luminance video output with menus on Sony models).
- NTSC/PAL Return Video In
- Genlock In (Analog black burst or Tri-level)
- 4 channels of analog audio or AES in (return audio to camera adapter - selectable)
- Support for 2Ω RTS intercom - belt pack 3 pin XLR interface
- IFB return input to camera adapter
- RS-422/232 channel to camera adapter.
- 4 GPI/O channels simple control or tally between camera and base station - 2 each direction
- LTC In to camera from external Time code generator
- LTC Out from camera Time code generator
- Front panel control via pushbuttons and LED display.
- Status LEDs for Camera Video, Audio and Time code present, Return video, audio and time code, genlock, intercom, IFB present, and fiber links OK
- Status LEDs for camera power ON and Ground Fault on CP versions
- 1 rack unit main frame with 1 rack unit audio breakout panel
- Auto-ranging 90-250VAC 50/60 Hz power supply
- Optional high voltage DC supply to send camera power to ECA-PS power converter (-CP version)
- Front panel power switches for Base power and Camera power (-CP versions)
- Available with LEMO 3K or Fischer 1053HDTV series fiber-optic connector - contact factory for other connector options

Ordering Information:

CAMERA ADAPTER (Must specify Battery Bracket option)

For Sony HD Cameras with 50 pin connector (HDW-750, HDW-F900, etc.):

ECAS-HD	Camera Adapter for high definition Sony cameras
ECAS-1394-HD	Camera Adapter with 1394A I/O for high definition Sony cameras
ECAS-1394-LEMO-HD	Camera Adapter with 1394A I/O and fibre optic I/O for high definition Sony cameras - LEMO fiber connector

For Sony SD Cameras with 40 pin connector (DNW7, DVW700, MSW900, etc.):

ECAS	Camera Adapter for standard definition Sony cameras
ECAS-1394	Camera Adapter with 1394A I/O for standard definition Sony cameras
ECAS-1394-LEMO	Camera Adapter with 1394A I/O and fiber optic I/O for standard definition Sony cameras

For Panasonic HD Cameras with HDSDI output (AJ-HDC20A, AJ-HDC27 Varicam, etc.)

ECAP-HD	Camera Adapter for high definition Panasonic cameras
ECAP-1394-HD	Camera Adapter with 1394A I/O for HD Panasonic cameras
ECAP-1394-LEMO-HD	Camera Adapter with 1394A I/O and fibre optic I/O for HD Panasonic cameras - LEMO fiber connector

Power Converter (Must specify same Battery Bracket option as Camera Adapter):

ECA-PS	Camera Adapter DC-DC Power Converter - f or use with camera adapters with fiber optic I/O and Base Stations with Camera Power output (CP version).
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Base Station:

(Must Specify same Fiber Optic connector as Camera Adapter)

ECB-LEMO	Base Station for SD camera adapters - LEMO fiber connector
ECB-CP-LEMO	Base Station for SD camera adapters - with DC camera power (requires ECA-PS Power Converter)- LEMO fiber connector
ECB-LEMO-HD	Base Station for HD camera adapters - LEMO fiber connector
ECB-CP-LEMO-HD	Base Station for HD camera adapters - with DC camera power (requires ECA-PS Power Converter)- LEMO fiber connector

Ordering Options:

Battery Bracket Options:

(Must specify for Camera adapters and ECA-PS power converter)

+AB	Bracket for Anton Bauer batteries
+IDX	Bracket for IDX V-mount batteries
+PAG	Bracket for PAGlok batteries

Fiber Optic Connector Options:

Camera adapters and base stations are also available with the following fiber connectors:

Fischer 1053 HDTV series

Amphenol HFP series

(Contact factory for ordering information and availability)

"Specifications subject to change without notice"

For further detailed information contact factory

HD Source ID Encoder

Model HD9010-SIE

The HD9010-SIE HDTV Source ID Encoder provides a cost-effective method of inserting timecode, source ID and machine status information into the high definition digital video. The HD9010-SIE uses RP188 Ancillary Time Code (ATC) to encode the source ID information into the video. The HD9010-SIE is a combination dual generator/ dual reader for Linear Time Code (LTC) and RP188 Ancillary Time Code (ATC), and contains a high resolution character inserter which can be burn the generator or reader numbers and source ID directly into the serial digital program output.

The HD9010-SIE operates in one of four modes. In VTR mode, it is designed to listen to communications between a VTR and its controller, and take time code and machine status. In LVS mode, the HD9010-SIE is designed to interface to a Profile Disk recorder running the LVS software. The serial port of the LVS device sends recorder status, scene and control information to the HD9010-SIE. In RDR mode, the HD9010-SIE takes time from its LTC or VITC reader and in GEN mode it allows the user to preset a time into the time code generator. In all modes, the source ID name is programmed from the front panel of the HD9010-SIE and encoded into the user bits.

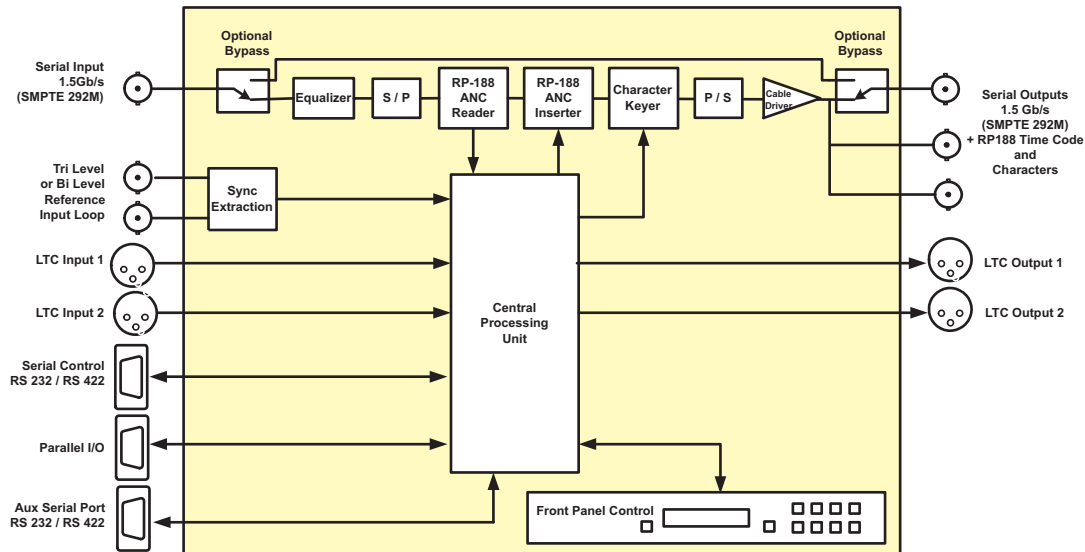
The HD9010-SIE will accept SMPTE 292M (1.5 Gb/s) high definition serial digital video. The HD9010-SIE generators can be slaved to incoming LTC or ATC or can be set to free run. The generators may also be momentarily synchronized to one of the readers, and then it continues to increment normally regardless of the reader code. The second LTC output normally follows the primary output, however the two generators can be operated at different frame rates to supply both 24Fps and 30Fps time code when shooting in a 1080p/24 environment.

The high-resolution character inserter provides independently positionable windows to show time, source ID, status, LVS info and control information on the program output. The choice of white or black characters with or without contrasting background mask is selected from the front panel menu.

Features

- Video formats supported: 1080i/60, 1080i/50, 1080p/30sF, 1080p/25sF, 1080p/24sF, 1035i/60, 720p/60, 720p/50 and the 1/1.001 divisor versions where applicable
- Embeds source ID information into RP188 LTC and VITC ancillary timecode packets on output video
- Read line auto detected, insertion line for RP188 programmable
- Two LTC readers and two LTC generators operate at 24, 25 or 30 Fps nominal rate in accordance with SMPTE 12M specification
- Genlocks to NTSC/PAL colour black or HD Tri-level sync
- Character Inserter displays timecode, source ID and VTR status in the picture. Windows can be positioned and turned off and on independently
- White or black characters on contrasting background,
- Serial interface reads status LVS info and CTL information from the Profile in LVS mode and Timecode and VTR status from a Sony protocol VTR in VTR mode
- LTC and ATC Time Code reader to supply time code in RDR modes
- Front panel display and control using menu system
- Optional: dual power supply configuration
- Parallel GPI/O and serial remote control
- Field upgradeable firmware as new features become available
- Optional input relay bypass for power failure bypass protection

HD9010-SIE Block Diagram



Specifications

HDTV Serial Digital Video Input:

Standard: 1.485 Gb/sec HDTV Serial component digital SMPTE 292M
Connector: BNC per IEC 60169-8 Amendment 2.
Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694 or equivalent cable

HDTV Serial Digital Video Outputs:

Standard: SMPTE 292M, same as input
Outputs: 2 Program video with RP188 Ancillary Time code embedded and optional characters
Connector: BNC per IEC 60169-8 Amendment 2.
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: < 0.15 UI

Reference Input:

Type: HD Tri-level Sync, NTSC or PAL Colour Black 1 V p-p, or Composite bi-level sync (525i/59.94 or 625i/50) 300 mV
Connector: BNC loop per IEC 60169-8 Amendment 2.
Termination: High Impedance

LTC Generators:

Standard: SMPTE 12M
Frame Rate: 24, 25 and 30 Fps nominal
Connector: 3 pin male XLR type connector.
Level: Adjustable, 0.5V to 4.5V p-p

LTC Readers:

Standard: SMPTE 12M
Frame Rate: 24, 25 and 30 Fps nominal
Connector: 3 pin female XLR type connector
Level: 0.2 to 4V p-p, balanced or unbalanced

Serial Ports:

Standard: RS-232
Number: 2 ports
Baud Rate:
COM1: 57600 baud (115,200 for Rev 2 hardware) for firmware upgrades
 Programmable for data broadcast applications
AUX COM: Programmable
Connector: 9 pin female "D"
Control:
COM1: Firmware upgrades, time code data broadcast
AUX COM: Programmable - future use

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D.
 (483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Power: Auto ranging, 100 to 240 VAC, 50/60 Hz 30 VA
Safety: ETL listed
 Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
 EU EMC Directive

Ordering Information:

HD9010-SIE HD Source ID Encoder

HD Time Code Generator/Reader

Model HD9010TM



The HD9010TM HDTV Time Code Master is a full function time code reader/generator system for high definition serial digital video. The HD9010TM is a combination dual generator/dual reader for Linear Time Code (LTC) and RP188 Ancillary Time Code (ATC), and contains a high resolution character inserter which can burn the generator or reader numbers directly into the serial digital program output.

The HD9010TM will accept SMPTE 292M (1.5 Gb/s) high definition serial digital video. The HD9010TM's time code generators can be preset to lock to the input video or to an analog colour black signal. When generating 24Fps timecode it will also lock to a 6Hz pulse.

The HD9010TM generators can be slaved to incoming LTC or ATC or can be set to free run. The generators may also be momentarily synchronized to one of the readers, and then continue to increment normally regardless of the reader code. The second LTC output normally follows the primary output, however the two generators can be operated at different frame rates to supply both 24Fps and 30Fps time code when used in a 1080p/24 environment.

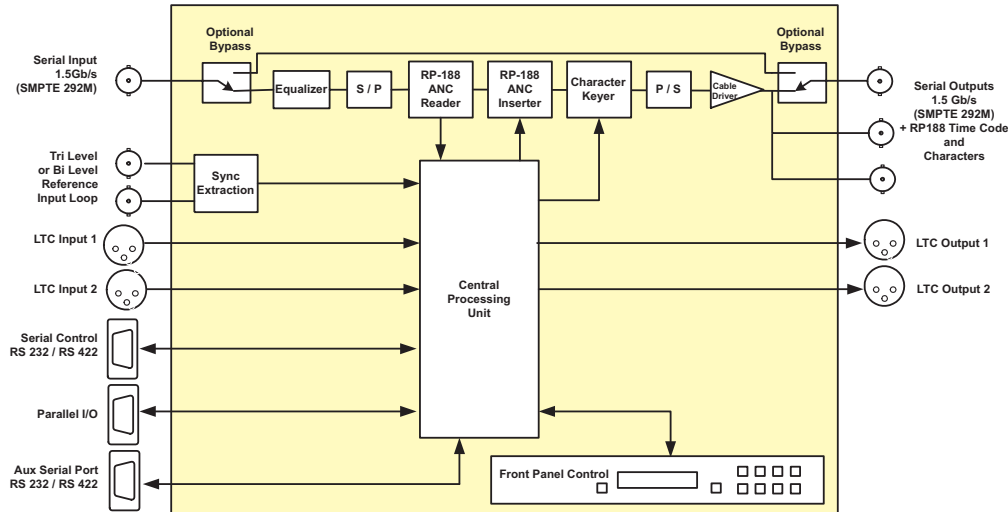
The high-resolution character inserter provides independently positionable windows to show time and user bits for the generator and readers simultaneously. One character size and the choice of white or black characters with or without contrasting background mask are available.

Features

- Video formats supported: 1080i/60, 1080i/50, 1080p/30sF, 1080p/25sF, 1080p/24sF, 1035i/60, 720p/60 and the 1/1.001 divisor versions where applicable
- Reads RP188 LTC and VITC ancillary time code packets from incoming video.
- Generates RP188 LTC and VITC ancillary time code packets on output video
- RP188 reader line auto detected, generator insertion line programmable
- Two LTC readers and two LTC generators operate at 24, 25 or 30 Fps nominal rate in accordance with SMPTE 12M specification
- Generates 24 Fps and 30 Fps simultaneously
- RP-188 ⇌ LTC translator
- Genlocks to NTSC/PAL color black
- Generates character burn in windows for the reader and generator time and user bit data. Windows can be positioned and turned off and on independently
- One vertical size of character windows, white or black on contrasting background,
- Front panel display and control using menu system
- Parallel GPI/O
- Field upgradeable firmware as new features become available
- Optional dual power supply configuration
- Optional input relay bypass for power failure bypass protection

HD Time Code Generator/Reader

HD9010TM Block Diagram



Specifications:

Serial Video Input:

Standard: SMPTE 292M (1.5 Gb/s), SMPTE 274M, SMPTE 296M, SMPTE 349M
1080i/60, 1080i/50, 1080p/30sF, 1080p/25sF, 1080p/24sF, 1035i/60, 720p/60, and the 1/1.001 divisor versions where applicable
software selectable or autodetect
BNC per IEC 60169-8 Amendment 2
Input Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694 or equivalent cable (50m with +HBP option)
Return Loss: >15 dB up to 1 GHz
>10 dB up to 1.5 GHz (with +HBP option)

Serial Video Output:

Number of Outputs: 1 relay bypassed with +HBP option
2 non bypassed
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Jitter: < 0.2 UI

LTC Generators:

Standard: SMPTE 12M
Number: 2
Frame Rate: 24, 25 and 30 Fps nominal
Connectors: 3 pin male XLR type connector
Level: Adjustable, 0.5V to 4.5V p-p
Rise Time: 40 \pm 10 μ s
Jitter: < 2 μ s

LTC Readers:

Standard: SMPTE 12M
Number: 2
Frame Rate: 24, 25 and 30 Fps nominal
Connectors: 3 pin female XLR type connector
Level: 0.2 to 4V p-p, balanced or unbalanced
Speed: 1/30th to 50 x play speed, VTR dependent

Video Reference:

Type: Menu selectable - depends on video format
NTSC or PAL Colour Black 1 V p-p
Composite Bi-level sync (525i/59.94 or 625i/50) 300 mV
Connectors: 2 BNC per IEC 60169-8 Amendment 2
Termination: High impedance loop through

General Purpose In/Out:

Number: 5 programmable input or output functions
Type: Active low with internal pull-ups to +5V
Connector: Female High Density DB-9
Signal Level: +5V nominal

Serial Remote Control:

Standard: RS-232, 57600 baud
Connector: 9 pin female "D"
Control: Firmware upgrade

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Power: Auto ranging 100-240 VAC 50/60 Hz 30VA
Safety: ETL listed
Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

HD9010TM HD Time Code Generator/Reader

Ordering Options:

+HBP Bypass Relay Protection
+2PS Redundant Power Supply

HD Time Code Master with IRIG Reader

Model HD9010TM-IRIG



The HD9010TM-IRIG HDTV Time Code Master with IRIG-B Reader is a full function time code reader/generator system for SMPTE 292M (1.5 Gb/s) high definition serial digital video. The HD9010TM-IRIG is a combination generator/reader for SMPTE 12M Linear Time Code (LTC) and SMPTE RP188 Ancillary Time Code (ATC), a reader for IRIG-B code, and a generator/reader of Vertical Ancillary Data (VANC) packets containing the IRIG-B code. The HD9010TM also contains a high resolution character inserter that can burn the generator or reader numbers directly into the serial digital program output.

The HD9010TM-IRIG reads IRIG-B code commonly in use within the United States government agencies and supporting private industries and provides a display of days, hours, minutes, seconds and milliseconds in the character inserter. This IRIG information is inserted into a special ancillary data packet in the vertical ancillary data space (VANC) of the SMPTE 292M serial bitstream. This special VANC packet be decoded by the HD9010TM-IRIG's VANC reader to allow you to encode the IRIG information onto a 'clean' video tape and then display the IRIG information later on playback.

The HD9010TM-IRIG SMPTE Time code generator is output as LTC and ATC and can also be slaved to incoming IRIG serial time code. The millisecond count will be converted to the closest frame number and can also be stored in the generator user bits along with the IRIG day of the year. In the continuous jam sync mode, the generator is slaved to the IRIG-B reader, and will follow code any discontinuities of the reader. The generator may also be momentarily synchronised to the IRIG-B reader, and then it continues to increment normally regardless of the reader code. Momentary jam is the recommended mode when synchronising to IRIG-B sources so that the resulting SMPTE time code does not contain discontinuities due to the different time bases of 29.97 frame per second video and real time of the IRIG code. In NTSC related video systems, the SMPTE generator should be operated in the Drop Frame counting mode when trying to synchronise the SMPTE generator to IRIG.

The HD9010TM-IRIG SMPTE Time code generator can also be slaved to incoming LTC or ATC, or can be set to free run. The generator may also be momentarily synchronised to one of the readers, and then continue to increment normally regardless of the reader code. The second LTC output normally follows the primary output, however the two generators can be operated at different frame rates to supply both 24Fps and 30Fps time code when used in a 1080p/24 environment.

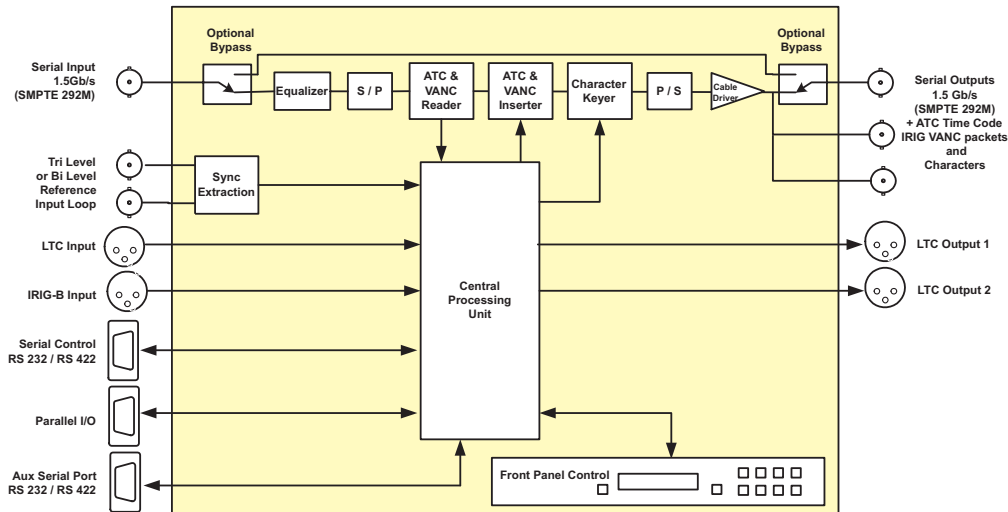
The high-resolution character inserter provides independently positionable windows to show time and user bits for the SMPTE generator and readers simultaneously. When the IRIG or VANC readers are operating in the IRIG DAY mode, there are two independently positionable windows for each reader to show the IRIG time to millisecond precision and the IRIG day respectively. The choice of white or black characters with or without contrasting background mask is available.

Features

- Video formats supported: 1080i/60, 1080i/50, 1080p/30sF, 1080p/25sF, 1080p/24sF, 1035i/60, 720p/60 and the 1/1.001 divisor versions where applicable
- IRIG reader reads 1 kHz IRIG-B format sine wave amplitude modulated and pulse width modulated codes (formats B122 and B022)
- Encodes IRIG data in VANC packets on output video.
- Reads IRIG data encoded in VANC packet from incoming video
- Generates RP188 LTC and VITC ancillary timecode packets on output video
- Reads RP188 LTC and VITC ancillary time code (ATC) packets.
- Insertion line for VANC packets programmable, read line auto detected
- One LTC reader and two LTC generators operate at 24, 25 or 30 Fps nominal rate in accordance with SMPTE 12M specification
- Generates to 24 Fps and 30 Fps LTC simultaneously
- RP-188 ↔ LTC translator
- Genlocks to NTSC/PAL color black or HD Tri-level sync (feature not implemented at this time)
- Character windows for the reader and generator time and user bit data. Windows can be positioned and turned off and on independently
- White or black characters on contrasting background
- Front panel display and control using menu system
- Optional: dual power supply configuration
- Parallel GPI/O and serial remote control
- Field upgradeable firmware as new features become available
- Optional input relay bypass for power failure bypass protection

HD Time Code Master with IRIG Reader

HD9010TM-IRIG Block Diagram



Specifications:

HDTV Serial Digital Video Input:

Standard: SMPTE 292M (1.5 Gb/s), SMPTE 274M, SMPTE 296M, SMPTE 349M
1080i/60, 1080i/50, 1080p/30sF, 1080p/25sF, 1080p/24sF, 1035i/60, 720p/60, and the 1/1.001 divisor versions where applicable software selectable or autodetect

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694A or equivalent cable

HDTV Serial Digital Video Outputs:

Standard: SMPTE 292M, same as input

Outputs: 2 Program video with RP188 Ancillary time-code embedded and optional characters

Connectors: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Wide Band Jitter: < 0.2 UI

Reference Input:

Type: NTSC or PAL Color Black 1 V p-p, or Composite bi-level sync (525i/59.94 or 625i/50) 300 mV

Connector: BNC loop per IEC 60169-8 Amendment 2

Termination: High Impedance

LTC Generator:

Standard: SMPTE 12M

Frame Rate: 24, 25 and 30 Fps nominal

Connectors: 3 pin male XLR type connector

Level: Adjustable, 0.5V to 4.5V p-p

LTC Reader:

Standard: SMPTE 12M

Frame Rate: 24, 25 and 30 Fps nominal

Connector: 3 pin female XLR type connector

Level: 0.2 to 4V p-p, balanced or unbalanced

IRIG Reader:

Standard: IRIG 200-95 Formats B002 and B122

Connector: 3 pin female XLR type connector

Level: 0.2 to 4V p-p, balanced or unbalanced

Serial Remote Control:

Standard: RS-232, 57600 baud

Connector: 9 pin female "D"

Control: Firmware upgrade

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)

Weight: 8 lbs. (3.5Kg)

Electrical:

Power: 115/230 V AC 50/60 Hz, 30 VA

Safety: ETL listed
Complies with EU safety directive

EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

Ordering Information:

HD9010TM-IRIG HD Time Code Master with IRIG Reader

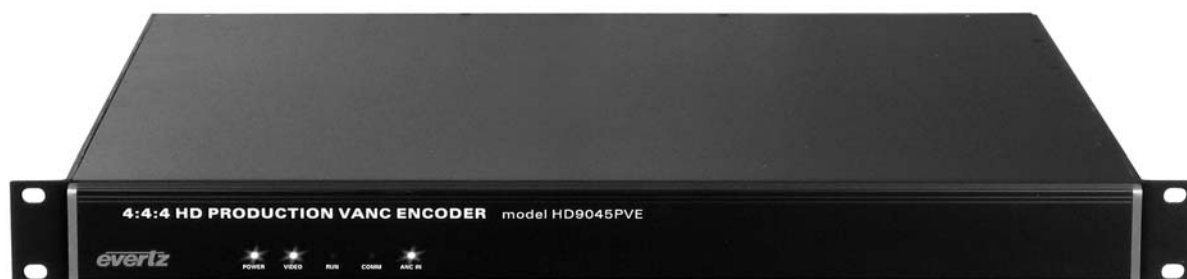
Ordering Options:

+HBP Bypass Relay Protection

+2PS Redundant Power Supply

4:4:4 Production VANC Encoder

Model HD9045PVE



The Evertz Production VANC Encoder is designed to simplify the management of your high definition video acquired production material for both 4:4:4 RGB and 4:2:2 YCrCb high definition video. Under control of the powerful KeyLog TRACKER™ software, the HD9045PVE Production VANC Encoder permits the seamless integration of video and audio timecodes, and production metadata such as camera, lens and dolly information, scene, take and roll numbers. During acquisition or after during an editorial dubbing process, KeyLog TRACKER™, Evertz logging and configuration management tool logs the essential metadata along with the relationships between the source and record timecodes, and outputs many industry standard interchange file formats for use by off-line editing systems.

The HD9045PVE encodes the timecodes and production metadata into industry standard vertical ancillary (VANC) data packets on the dual link RGB output. In addition the HD9045PVE converts the 4:4:4 RGB to a 4:2:2 YCrCb serial output with the VANC data and optional burned in characters for monitoring. The user can also apply one of 5 user programmable look up tables to either output. Separate LTC inputs and outputs for the audio and video timecodes, allows handling of mixed rate timecodes.

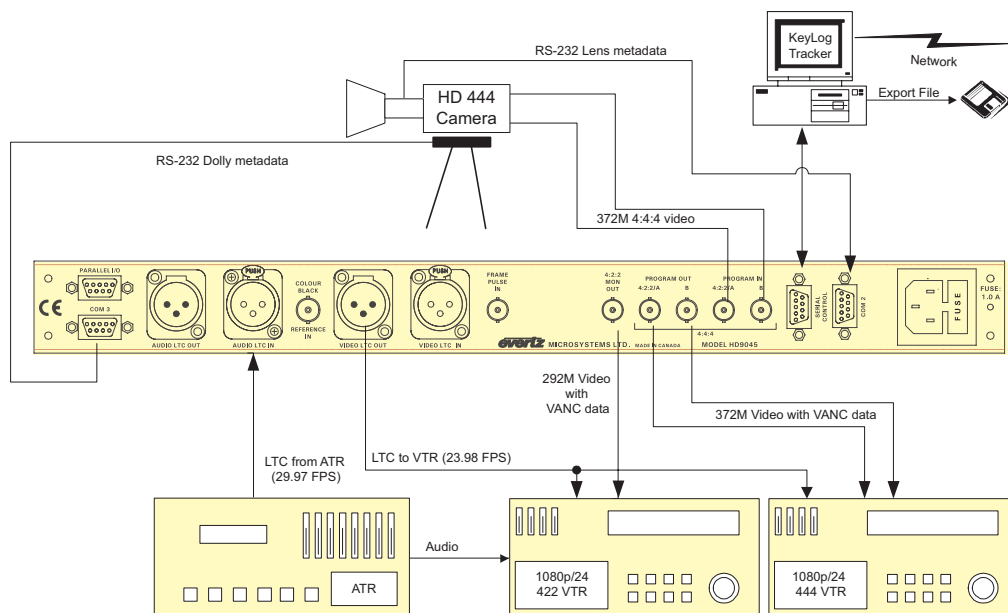
The HD9155Q Afterburner is a powerful device designed to facilitate the creation of off-line tapes from high definition telecine master tapes. The Afterburner downconverts the HDTV input video to SDI and analog standard definition video. When the input video is in the 1080p/24sF format the Afterburner also creates a 2:3 pulldown on the output video to create a 30Fps output. The Afterburner reads the ancillary data that was encoded by the HD9045PVE and makes burn-in windows. The essential timecodes are also converted into RP201 3-line VITC and output by the Afterburner. The Afterburner automatically generates video timecode for the standard definition VTR that is converted from 24 to 30Fps, and delayed to match the complete 'A' frame cycle of delay through the Afterburner.

The new multi-resolution version of Evertz popular KeyLog Tracker software allows the user to store multiple configurations for the HD9045PVE. A simple on screen control in the Tracker software performs switching between 4:4:4 and 4:2:2 modes in the HD9045PVE. Toolbar buttons allow the user to quickly choose which device is being addressed.

Features

- Accepts dual link 4:4:4 RGB SMPTE 372M (1.485 Gb/s) 1080i/59.94, 1080i/50 1080p/29.97sF, 1080p/25sF and 1080p/23.98sF digital video.
- Dual link 4:4:4 RGB SMPTE 372M outputs with VANC and characters keyed in
- Converts dual link 4:4:4 RGB SMPTE 372M to 4:2:2 SMPTE 292M with user programmable colour look up tables
- Can be operated in single link 4:2:2 SMPTE 292M mode.
- Separate LTC reader and generator for video and audio time codes operating at 30, 25 and 24 Fps
- Control from Evertz KeyLog TRACKER™ software
- Encodes production timecodes and metadata information in modified SMPTE RP215 VANC
- Character burns available on 4:4:4 and 4:2:2 outputs - can be independently turned on and off
- 3 serial ports to collect production metadata from lens and camera dolly

HD9045PVE Typical Application



Specifications

HDTV Dual Link Serial Digital Video Input:

Standard: Dual Link 4:4:4 GBRA 1.485 Gb/sec HDTV Serial component digital SMPTE 372M 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF and 1080p/23.98sF standards supported. Software selectable or autodetect 2 BNC per IEC 60169-8 Amendment 2.
Connector: Automatic to 75m @ 1.5Gb/s with Belden 1694A or equivalent cable
Equalization:

HDTV Dual Link Serial Digital Video Outputs:

Standard: Same as input
Outputs: Program video with RP215 Ancillary Data embedded and optional characters
Connectors: 2 BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: < 0.2 UI

HDTV 4:2:2 Serial Digital Video Outputs:

Standard: SMPTE 292M, same as input
Outputs: 1 Program video with RP215 Ancillary Data embedded and optional characters
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: < 0.2 UI

LTC Generators:

Standard: SMPTE 12M
Frame Rate: 24, 25 and 30 Fps nominal
Number of Outputs: 2
Connectors: 3 pin male XLR type connector.
Level: Adjustable, 0.5V to 4.5V p-p

LTC Readers:

Standard: SMPTE 12M
Frame Rate: 24, 25 and 30 Fps nominal
Number of Inputs: 2
Connectors: 3 pin female XLR type connector
Level: 0.2 to 4V p-p, balanced or unbalanced

Serial Remote Control:

Standard: RS-232, 57600 baud
Connector: 9 pin female "D"
Control: Computer control of all functions, firmware upgrade

MetaData Communications Ports:

Standard: RS-232; 38400 or 9600 baud
Connector: 9 pin female "D"
Number of Ports: 2
Protocol: Fujinon Lens Protocol compatible

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

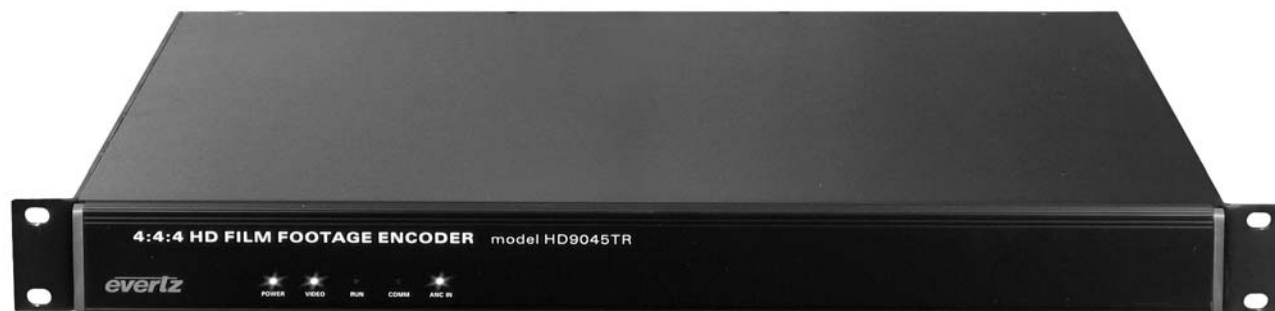
Power: Autoranging 100 to 240 VAC 50/60 Hz, 30 VA
Safety: ETL listed
Complies with EU safety directive
Complies with FCC Part 15 Class A, EU EMC Directive

Ordering Information:

HD9045PVE 4:4:4 HD Production VANC Encoder including KeyLog™ Tracker

4:4:4 HD Film Footage Encoder

Model HD9045TR



The Evertz 4:4:4 Film post production system is designed to simplify the management of your film to tape transfers for both 4:4:4 RGB and 4:2:2 YCrCb high definition video. At the heart of the system is the HD9045TR Film Footage Encoder. Under control of the powerful KeyLog TRACKER™ software, the HD9045TR Film Footage encoder permits the seamless integration of video and audio timecodes, film KeyCode and production information whether you are transferring to 24, 25 or 30Fps high definition video. During the transfer, KeyLog TRACKER™, Evertz telecine logging and configuration management tool logs the relationships between these important parameters and outputs many industry standard interchange file formats for use by off-line editing systems.

The HD9045TR encodes the timecodes, KeyCode and production information into industry standard SMPTE RP215 vertical ancillary (VANC) data packets on the dual link RGB output. In addition the HD9045TR converts the 4:4:4 RGB to a 4:2:2 YCrCb serial output with the VANC data and optional burned in characters for monitoring. The user can also apply one of 5 user programmable look up tables to either output. Separate LTC inputs and outputs for the audio and video timecodes, allows handling of mixed rate timecodes. The programmable telecine interface allows the encoder to interface to a wide variety of telecine configurations.

The HD9155Q Afterburner is a powerful device designed to facilitate the creation of off-line tapes from the 4:2:2 high definition telecine master tapes. The Afterburner downconverts the HDTV input video to SDI and analog standard definition video. When the input video is in the 1080p/24sF format the Afterburner also creates a 2:3 pulldown on the output video to create a 30Fps output. The Afterburner reads the RP215 film transfer data that was encoded by the HD9045TR during the telecine transfer and makes burn-in windows. The essential timecode and KeyCode data are also converted into RP201 3-line VITC and output by the Afterburner. The Afterburner automatically generates video timecode for the standard definition VTR that is converted from 24 to 30Fps, and delayed to match the complete 'A' frame cycle of delay through the Afterburner.

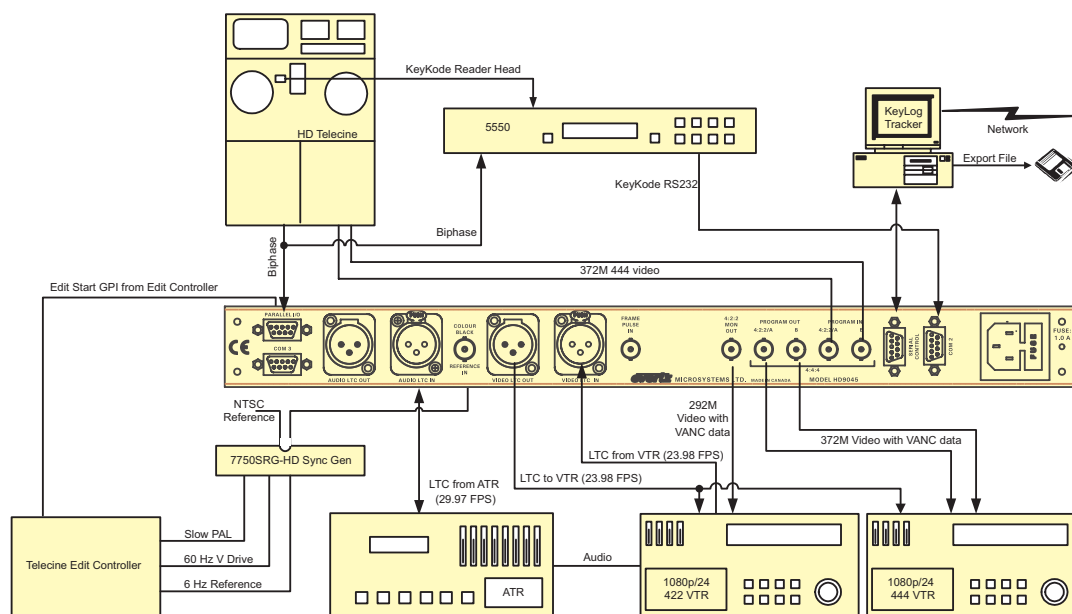
The new multi-resolution version of Evertz popular KeyLog Tracker software allows the user to store multiple configurations for both the 9025TR Film Footage Encoders and the Afterburners. A simple on screen control in the Tracker software performs switching between 4:4:4 and 4:2:2 modes in the HD9045TR. Toolbar buttons allow the user to quickly choose which device is being addressed.

Features

- Accepts dual link 4:4:4 RGB SMPTE 372M (1.485 Gb/s) 1080i/59.94, 1080i/50 1080p/29.97sF, 1080p/25sF and 1080p/23.98sF digital video
- Dual link 4:4:4 RGB SMPTE 372M outputs with RP215 VANC and characters keyed in
- Converts dual link 4:4:4 RGB SMPTE 372M to 4:2:2 SMPTE 292M with user programmable colour look up tables
- Can be operated in single link 4:2:2 SMPTE 292M mode
- Interfaces to Evertz 5550 or 5500 KeyCode Reader
- Separate LTC reader and generator for video and audio time codes operating at 30, 25 and 24 Fps
- Control from Evertz KeyLog TRACKER™ software
- Encodes film transfer information in SMPTE RP215 VANC
- Character burns and VANC available on 4:4:4 and 4:2:2 outputs - can be independently turned on and off

4:4:4 HD Film Footage Encoder

HD9045TR Typical Application



Specifications

HDTV Dual Link Serial Digital Video Input:

Standard: Dual Link 4:4:4 GBRA 1.485 Gb/sec HDTV Serial component digital SMPTE 372M 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF & 1080p/23.98sF standards supported. Software selectable or autodetect

Connector: 2 BNC per IEC 60169-8 Amendment 2

Equalization: Automatic to 75m @ 1.5Gb/s with Belden 1694A or equivalent cable

HDTV Dual Link Serial Digital Video Outputs:

Standard: Same as input

Outputs: Program video with RP215 Ancillary Data embedded and optional characters

Connectors: 2 BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Wide Band Jitter: < 0.2 UI

HDTV Serial Digital Video Outputs:

Standard: SMPTE 292M, same as input

Outputs: 1 Program video with RP215 Ancillary Data embedded and optional characters

Connectors: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Wide Band Jitter: < 0.2 UI

LTC Generators:

Standard: SMPTE 12M

Frame Rate: 24, 25 and 30 Fps nominal

Number of Outputs: 2

Connectors: 3 pin male XLR type connector

Level: Adjustable, 0.5V to 4.5V p-p

LTC Readers:

Standard: SMPTE 12M

Frame Rate: 24, 25 and 30 Fps nominal

Number of Inputs: 2

Connectors: 3 pin female XLR type connector

Level: 0.2 to 4V p-p, balanced or unbalanced

Serial Remote Control:

Standard: RS-232, 57600 baud

Connector: 9 pin female "D"

Control: Computer control of all functions, firmware upgrade

KeyCode Reader Port

Standard: RS-232; 38400 or 9600 baud

Connector: 9 pin female "D"

Protocol: Evertz 5550, 5500 KeyCode Decoder, RIM DigiSync

Telecine Interface:

Connector: 9 pin female "D"

Tach Input: Bi-phase quadrature pulses - 1,2,5, or 10 x film rate, TTL level

Frame Pulse:

Cintel: > 1.6 V p-p active low, 1 pulse per film frame, (BNC per IEC 60169-8 Amendment 2)

Thomson: TTL level SOF, 1 edge per film frame (9 pin female D)

Sony: > 1.6 V p-p active high, 1 pulse per film frame, (BNC per IEC 60169-8 Amendment 2)

GPIO Interface:

Connector: 9 pin female "D"

Type: Opto-isolated bi-directional I/O - TTL level

Number: 5

Function: user programmable

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)

Weight: 8 lbs. (3.5Kg)

Electrical:

Power: Autoranging 100 to 240 VAC 50/60 Hz, 30 VA

Safety: ETL listed
Complies with EU safety directive
Complies with FCC Part 15 Class A,
EU EMC Directive

EMI/RFI:

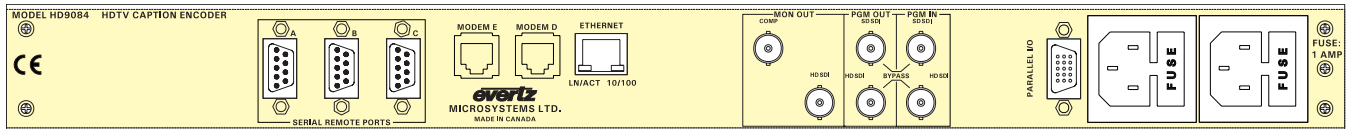
Ordering Information:

HD9045TR 4:4:4 HD Film Footage Encoder including KeyLog™ Tracker

HD9045TR/5550/UV-3 HD/SD Film Footage Encoder system including KeyLog Tracker™, KeyCode Decoder & UV-3 Head

HD DTV Caption Encoder

Model HD9084



HD9084 Rear Panel

The HD9084 DTVCC Caption Processor is a comprehensive, compact solution for all HD Advanced Closed Caption and SD Closed Caption requirements. Simultaneous HD-SDI and SD-SDI video I/O paths provide a one-box solution with the following functionality:

- * Simultaneous encoding of new EIA608/EIA708 captions onto SD and HD video
- * Encoding of Extended Data Service Packets into field 2 of the SD-SDI signal including Transmission Signal Identifier (TSID), Copy Generation Management System (CGMS-A), V-Chip, Station Name, etc.
- * Transcoding and translation of captions from an SD source (EIA-608) onto HD source (SMPTE 334M)
- * Transcoding of captions from an HD source (SMPTE 334M) onto SD source (EIA-608)
- * Processing of captions from SD-SDI video source (EIA-608) to send to a compression encoder (SMPTE 333M or Grand Alliance)
- * Processing of captions from HD-SDI video source (SMPTE 334M) to send to a compression encoder (SMPTE 333M or Grand Alliance)

The SMPTE-292M HD-SDI video path supports 720p, 480p, or 1080i video formats. Advanced Captions are stored in the VANC of HD-SDI as per SMPTE-334M. The SMPTE-259M SDI video path supports EIA-608 captions stored on line 21 of component digital video. Both SD and HD video paths include bypass relay protection.

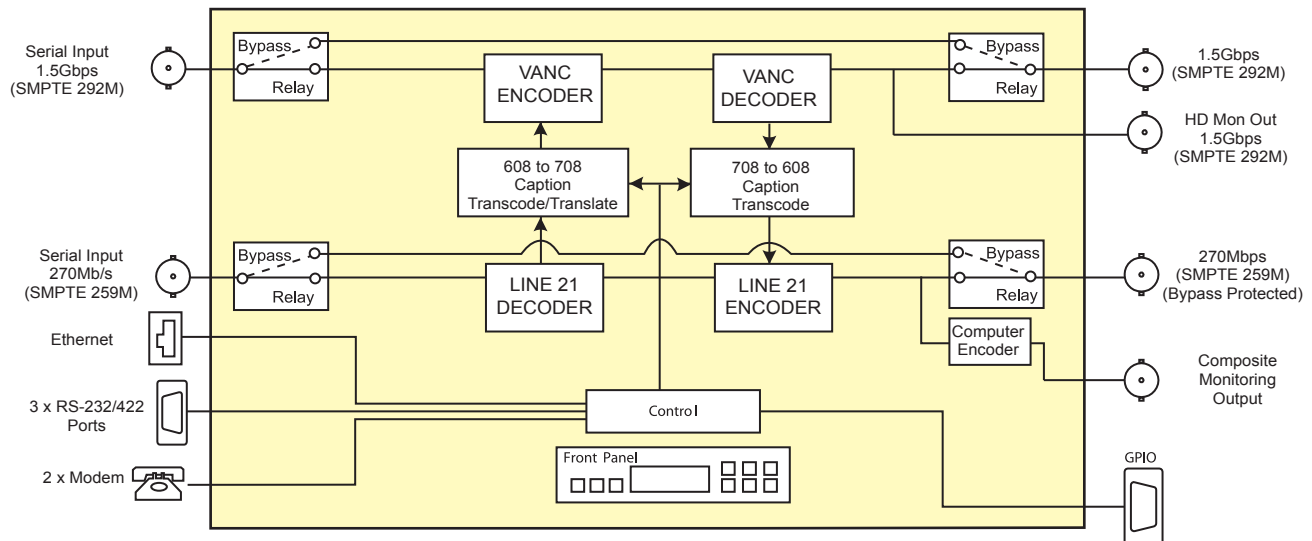
HD9084 supports various types of communications interface, including RS-232/422 serial, telephone modem, Ethernet TCP/IP, linear time code, and parallel GPI control. The HD9084 interfaces with all ATSC (MPEG) compression encoders and supports the following EIA-708 transfer formats: SMPTE 334M, SMPTE 333M and Grand Alliance. The built in HD and SD closed caption decoder allows confidence monitoring of EIA-708 and EIA-608 captions on any NTSC monitor.

The HD9084 also provides caption shifting for both SD and HD captions via GPI control. This provides compliance with FCC order prohibiting obstruction of weather warning text which often appears on the bottom of the screen

HD9084 is easily configured using the front panel, remotely through the various communications ports, or via On-Screen display.

HD DTV Caption Encoder

HD9084 Block Diagram



Specifications:

HDTV Serial Digital Video Input:

Standard: SMPTE 292M 1.485 Gb/s, 1080i, 720p, 480p
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic up to 75m @ 1.5 Gb/s with Belden 1694A (or equivalent). 24m with bypass relay installed
Impedance: 75Ω

HDTV Serial Digital Video Output:

Standard: Same as HD input
Number of Outputs: 1 program out (bypass relay protected)
1 monitoring out
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: <0.2 UI
Impedance: 75Ω

SDTV Serial Digital Video Input:

Standard: SMPTE 259M-C
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 200m @ 270Mb/s Belden 1694A (or equivalent). 24m with bypass relay installed

SDTV Serial Digital Video Output:

Standard: Same as Input
Number of Outputs: 1 program out (bypass relay protected)
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: 470ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB
Wide Band Jitter: < 0.2 UI

Composite Monitoring Output with OSD:

Standard: NTSC (SMPTE 170M)
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Impedance: 75Ω

General Purpose In/Out:

Number of Inputs: 7
Number of Outputs: 3
Type: Opto isolated, active low
Connector: Female High Density DB-15
Signal level: +5V nominal

Communications and Control:

Serial: 3 DB-9 male
RS232 /422 selectable
1200 baud to 57.6 kbaud
7 or 8 data bits
Modem: 2 RJ-11 telephone jacks
(2nd modem optional)
1200 baud to 14.4 kbaud
V.32BIS compatible
Ethernet: IEEE 802.3 (10 BaseT)
IEEE 802.3u (100 BaseTX)
RJ-45 connector

Physical:

Dimensions: 19"W x 1.75"H x 18.75"
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Power: 115/230 VAC 50/60 Hz, 30 VA
Safety: ETL Listed
Complies with EU safety directive
Complies with FCC part 15, class A
EU EMC Directive

Ordering Information:

HD9084 HD DTV Caption Encoder

Ordering Options:

+2PS Optional redundant power supply
+MDM2 Second internal modem option

HD Afterburner/Downconverter

Model HD9150Q



The HD9150Q Afterburner/Downconverter is a powerful device designed to facilitate the creation of off-line video tapes from HDTV masters. The Afterburner downconverts the HDTV input video to SDI and analog standard definition video. When the input video is in the 1080p/24sF format the HD9150Q also creates a 2:3 pulldown on the output video to create a 30 Fps output. The Afterburner can operate in a 'film mode' working with telecine masters or a 'video mode' working with field acquired HDTV.

In 'film mode' the Afterburner/Downconverter reads the film transfer data that was recorded in the VANC data area by the HD9025TR Film Footage Encoder (SMPTE RP215) during the telecine transfer and make burn-in windows. The essential time code and KeyKode data are also converted into 3-line VITC and output by the Afterburner. The 2:3 cadence can be controlled from the VANC data or from the LTC. The 2:3 cadence can also be locked to an external 6 Hz reference in telecine applications where the HD9150Q is directly reading the HD9025TR output.

In 'video mode' the Afterburner reads the RP188 ancillary time code, or LTC and makes burn-in windows and new 30 Fps time code that is in sync with the downconverted video. The original 24 Fps time code numbers can be placed in the user bits of the VITC and displayed as a burned-in window. The 2:3 cadence can be controlled from the ancillary time code or from the LTC.

The HD9150Q has a high quality downconverter and provides two clean SDI downconverted outputs with VITC suitable for creation of high quality viewing copies. The HD9150Q also provides one SDI and one analog monitoring output with VITC and Characters suitable for monitoring or creation of tapes for non-linear editing systems.

The Afterburner automatically generates video time code for the standard definition VTR that is converted from 24 to 30 Fps, and delayed to match the complete A frame cycle of delay through the Afterburner.

The HD9150Q can be easily configured using the new multi-resolution version of Evertz popular KeyLog Tracker™ software or from the 9150 Configware™ software tool supplied with the unit. These graphical software interfaces allow the user to store multiple configurations for the HD9150 series.

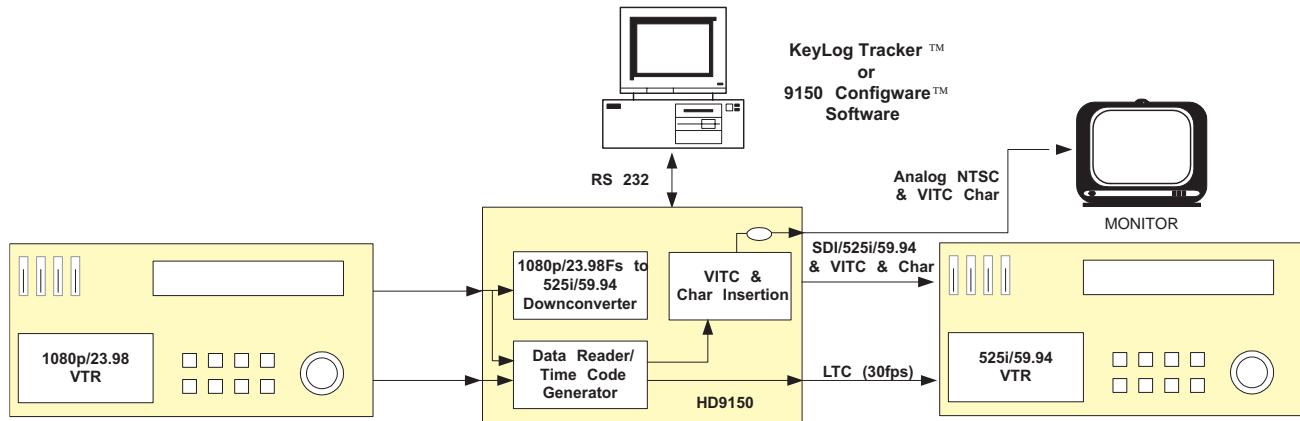
The HD9150 Afterburner/Downconverter has been discontinued in favour of the High Quality Version (Q).

Features

- Accepts SMPTE 292M 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF and 720p/59.94 serial digital video
- Downconverts HDTV inputs to SDTV and creates VITC and window burns on SDI and analog outputs
- Reads RP188 ancillary timecode, RP215 film ANC or LTC
- Character inserter for display of time and user bits as well as picture 2:3 pulldown
- Creates 2:3 pulldown when downconverting 1080p/23.98sF video to NTSC
- 2:3 cadence is determined from a 6Hz pulse input, RP188 time code or LTC
- Converts aspect ratio from 16:9 to 4:3 in anamorphic, letterbox or centre crop mode
- LTC time code reader and generator converts 24 Fps to 30 Fps and re-times the time code to the output video
- Reads film transfer information from RP215 vertical ancillary data in 'Film mode'
- Reads RP188 ancillary time code in 'Video mode'
- Control from Evertz KeyLog Tracker™ software or 9150 Configware™ software
- Configurable Virtual Slate uses double height character windows to enhance visibility of important information

HD Afterburner/Downconverter

HD9150Q Typical Application



Specifications

HDTV Serial Digital Video Input:

Standard: SMPTE 292M, 1080i/50, 1080i/59.94, 1080p/23.98sF, 1080p/25sF or 720p/59.94 software selectable or autodetect
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 130m @ 1.5Gb/s with Belden 1694A or equivalent cable

SDTV Serial Digital Video Output:

Standard: Serial component 270 Mb/s (SMPTE 259M-C) 525i/59.94 if input is 1080i/59.94, 1080p/23.98sF or 720p/59.94 625i/50 if input is 1080i/50 or 1080p/25sF
Connectors: BNC per IEC 60169-8 Amendment 2 2 program, 1 monitor
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB
Wide Band Jitter: < 0.2 UI

Analog Monitor Video Output:

Standard: Analog composite NTSC if input is 1080i/59.94, 1080p/23.98sF or 720p/59.94 video Analog composite PAL if input is 1080i/50 or 1080p/25sF video
Connectors: 1 BNC per IEC 60169-8 Amendment 2
Signal Level: 1 V p-p nominal, internally adjustable
DC Offset: 0V ±0.1V
Return Loss: > 35dB up to 5 MHz
Frequency Response: 0.8dB to 4 MHz
Differential Phase: <0.9°(<0.6° typical)
Differential Gain: <0.9%(<0.5% typical)
SNR: >56dB to 5 MHz (shallow ramp)
Impedance: 75Ω

LTC Generator:

Standard: SMPTE 12M
Frame Rate: 25 and 30 Fps nominal
Connector: 3 pin male XLR type connector.
Level: Adjustable, 0.5V to 4.5V p-p

LTC Reader:

Standard: SMPTE 12M
Frame Rate: 24, 25 and 30 Fps nominal
Connector: 3 pin female XLR type connector
Level: 0.2 to 4V p-p, balanced or unbalanced

Ancillary Time Code Reader:

Standard: SMPTE RP188 or RP215
Line Select: Autodetect valid lines in vertical interval
Frame Rate: 24, 25 and 30 Fps nominal

Serial Remote Control:

Standard: RS-232, 57600 baud
Connector: 9 pin female "D"
Control: Computer control of all functions

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D. (483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

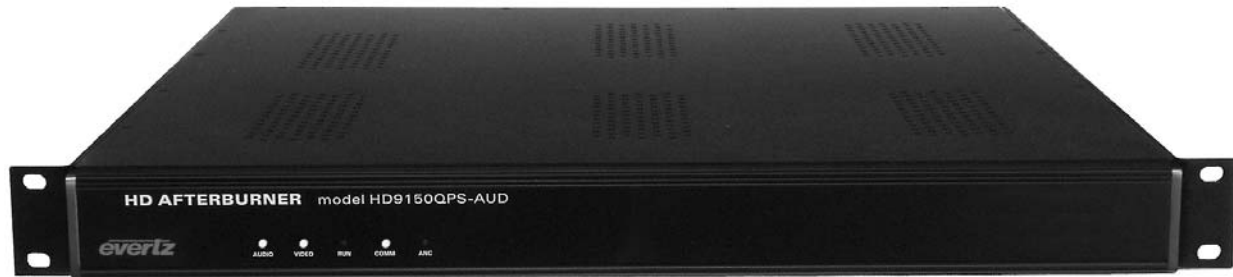
Power: Auto ranging 100-240VAC 50/60 Hz 30 VA
Safety: ETL listed
Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

HD9150Q HD Production Afterburner with High Quality Downconverter (includes 9150 Configware™ software)
HDQ UPGRADE Upgrade for all HD9150 products to HD9150Q

HD Post Slate Afterburner

Model HD9150QPS-AUD



The HD9150QPS-AUD Post Slate Afterburner is a powerful device designed to facilitate the creation and logging of off-line videotapes from field acquired HDTV masters. The HD9150QPS-AUD downconverts the HDTV input video to SDI and analog standard definition video. When the input video is in the 1080p/24sF format the HD9150QPS-AUD also creates a 2:3 pulldown on the output video to create a 30 Fps output. During the downconversion, the KeyLog Tracker™ software, Evertz logging and configuration management tool logs the relationships between video and audio time codes and outputs many industry standard interchange file formats for use by off-line editing systems.

The HD9150QPS-AUD Afterburner reads VTR time code from the embedded RP188 ancillary time code, audio time code from the slave Audio hard disk players LTC and make burn-in windows and new 30 Fps time code that is in sync with the downconverted video. The original 24 Fps time code numbers can be placed in the user bits of the VITC and displayed as a burned-in window. The 2:3 cadence is normally derived from the ancillary time code. The Afterburner automatically generates video time code for the standard definition VTR that is converted from 24 to 30 Fps, and delayed to match the complete A frame cycle of delay through the Production Afterburner.

The HD9150QPS-AUD has a high quality downconverter and provides two clean SDI downconverted outputs with VITC suitable for creation of high quality viewing copies. The HD9150QPS-AUD also provides one SDI and one analog monitoring output with VITC and Characters suitable for monitoring or creation of tapes for non-linear editing systems.

The HD9150QPS-AUD Afterburner has the ability to de-embed audio from the incoming HD bitstream, and delay it so that it is in time with the output video from the downconverter. Audio is output as two AES streams or four balanced analog audio signals.

The HD9150QPS-AUD Afterburner can be easily configured using the KeyLog Tracker™ software supplied with the unit. This graphical software interface allows the user to store multiple configurations for the HD9150PS. It is also the central core to the Post Slate logging system. In the field, audio time code is recorded on an analog track of the HD VTR, to facilitate syncing audio in post production. Scene and take information can be stored in the user bits of the audio time code which is also recorded on the Audio Record device. During the downconversion, the HD9150QPS-AUD detects discontinuities of Audio time code and logs each shot. The HD9150QPS-AUD uses scene/take information that was encoded into the audio LTC user bits on the set to display a virtual slate burn in at the beginning of each shot, eliminating the need for Time code slates on the set.

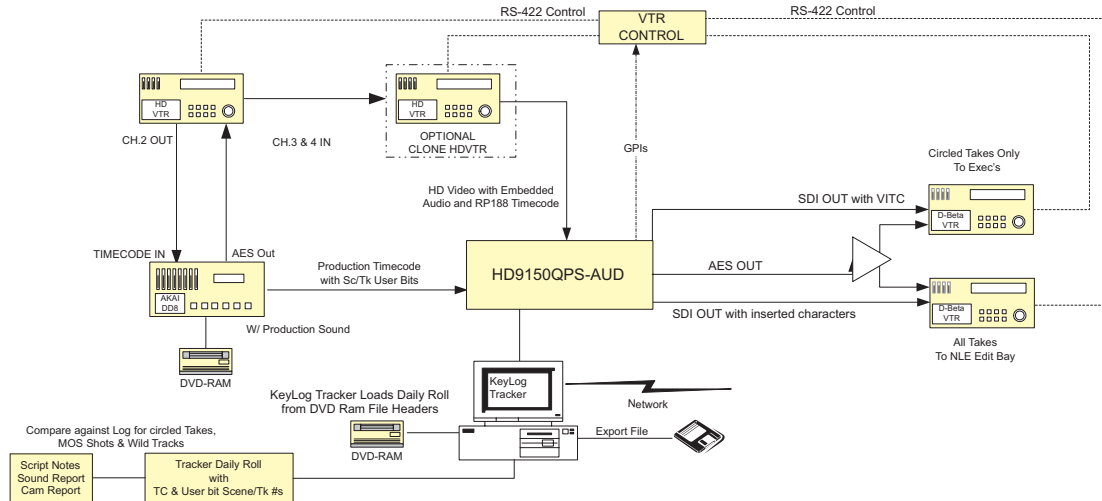
The HD9150PS-AUD has been discontinued in favour of the High Quality (Q) version

Features

- Accepts SMPTE 292M 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF and 720p/59.94 serial digital video
- Downconverts HDTV inputs to SDTV and creates VITC and window burns on SDI and analog outputs
- Reads RP188 ancillary time code or LTC
- Character inserter for display of time and user bits as well as picture 2:3 pulldown
- Creates 2:3 pulldown when downconverting 1080p/23.98sF video to NTSC
- 2:3 cadence is determined from a 6Hz pulse input, RP188 time code or LTC
- Converts aspect ratio from 16:9 to 4:3 in anamorphic, letterbox or centre crop mode
- LTC time code reader and generator converts 24 Fps to 30 Fps and re-times the time code to the output video
- Audio De-embedder gives AES and analog audio outputs in time with the downconverted video
- Easily configured using KeyLog Tracker™ software
- Detects time code breaks to log shots using KeyLog Tracker™ software
- Configurable Virtual Slate uses double height character windows to enhance visibility of important information

HD9150PS-AUD Typical Application

24P Dailies Downconversion System using Evertz HD9150QPS-AUD and KeyLog Tracker



Specifications

HDTV Serial Digital Video Input:

Standard: SMPTE 292M, 1080i/50, 1080i/59.94, 1080p/23.98sF, 1080p/25sF, 720p/59.94 software selectable or autodetect

Connector: 1 BNC per IEC 60169-8 Amendment 2

Equalization: Automatic to 130m @ 1.5Gb/s with Belden 1694A or equivalent cable

SDTV Serial Digital Video Output:

Standard: Serial component 270 Mb/s (SMPTE 259M-C) 525i/59.94 if input is 1080i/59.94, 1080p/23.98sF or 720p/59.94
625i/50 if input is 1080i/50 or 1080p/25sF

Connectors: BNC per IEC 60169-8 Amendment 2
2 program, 1 monitor

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 900ps nominal

Overshoot: <10% of amplitude

Return Loss: > 15 dB

Wide Band Jitter: < 0.2 UI

Analog Monitor Video Output:

Standard: Analog composite NTSC if input is 1080i/59.94, 1080p/23.98sF or 720p/59.94 video
Analog composite PAL if input is 1080i/50 or video

Connectors: 1 BNC per IEC 60169-8 Amendment 2

Signal Level: 1 V p-p nominal, internally adjustable

DC Offset: 0V \pm 0.1V

Return Loss: > 35dB up to 5 MHz

Frequency Response: 0.8dB to 4 MHz

Differential Phase: <0.9°(<0.6° typical)

Differential Gain: <0.9%(<0.5% typical)

SNR: >56dB to 5 MHz (shallow ramp)

Impedance: 75 Ω

LTC Generator:

Standard: SMPTE 12M

Frame Rate: 25 and 30 Fps nominal

Connector: 3 pin male XLR type connector.

Level: Adjustable, 0.5V to 4.5V p-p

LTC Reader:

Standard: SMPTE 12M

Frame Rate: 24, 25 and 30 Fps nominal

Connector: 3 pin female XLR type connector

Level: 0.2 to 4V p-p, balanced or unbalanced

Ancillary Time Code Reader:

Standard: SMPTE RP188

Line Select: Autodetect valid lines in vertical interval

Frame Rate: 24, 25 and 30 Fps nominal

AES Audio Outputs:

Number of Outputs: 2 AES

Standard: SMPTE 276M, single ended synchronous or asynchronous AES

Connectors: BNC per IEC 60169-8 Amendment 2

Sampling Rate: 48 kHz

Impedance: 75 Ω unbalanced

Analog Audio Outputs:

Number of Outputs: 4

Type: Balanced analog audio

Connector: Female HD DB15

Output Impedance: 66 Ω balanced

Sampling Frequency: 48kHz

Signal Level: 0dB FS \Rightarrow 8 to 24dBu into 10 k Ω loads
0dB FS \Rightarrow 8 to 22dBu into 600 Ω loads

Frequency Response: < \pm 0.1dB (20Hz to 20kHz)

THD+N: > 90dB RMS @ 1kHz, with 24dBu output
> 100dB RMS @ 20Hz to 20kHz, with 24dBu output

Crosstalk isolation: > 100dB RMS (20Hz to 20kHz)

Serial Remote Control:

Standard: RS-232, 57600 baud

Connector: 9 pin female "D"

Control: Computer control of all functions

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)

Weight: 8 lbs. (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60 Hz 30 VA

Safety: ETL listed
Complies with EU safety directive

EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

HD9150QPS-AUD HD Post Slate Afterburner with High Quality Downconverter, AES & Analog Audio (includes HD DB-15 to XLR breakout cable)

HDQ UPGRADE Upgrade for all HD9150PS products to HD9150QPS

HD9155 Series Production Afterburners

Model HD9155Q, HD9155Q-AUD



The HD9155Q Series Production Afterburners are a family of powerful devices designed to facilitate the creation of off-line videotapes from field acquired HDTV masters. The Production Afterburners downconvert the HDTV input video to SDI and analog standard definition video. When the input video is in the 1080p/24sF format the HD9155Q Series Production Afterburners also create a 2:3 pulldown on the output video to create a 30 Fps output.

The Production Afterburners read the LTC or RP188 ancillary time code and make burn-in windows and new time code that is in sync with the downconverted video. The original time code numbers can be placed in the user bits of the VITC and displayed as a burned-in window. The 2:3 cadence can be controlled from the ancillary time code or from the LTC. The Production Afterburners automatically generate video time code for the standard definition VTR that is converted from 24 to 30 Fps, and delayed to match the complete A frame cycle of video delay through the Production Afterburner.

The HD9155Q series Production Afterburners can be easily configured using 9150 Configware™ software utility supplied with the unit. This graphical software interface allow, the user to store multiple configurations for the HD9155 and load them as required.

The HD9155Q has a high quality downconverter and provides two clean SDI downconverted outputs with VITC suitable for creation of high quality viewing copies. The HD9155Q also provide one SDI and one analog monitoring output with VITC and Characters suitable for on the set monitoring or creation of tapes for non-linear editing systems.

When the AUD option is installed (model HD9155Q-AUD), the Production Afterburner now has the ability to de-embed AES audio from the incoming HD bitstream, and delay it so that it is in time with the output video from the downconverter. The AUD option provides 2 AES outputs and 4 analog audio outputs and a front panel headphone jack for monitoring the audio.

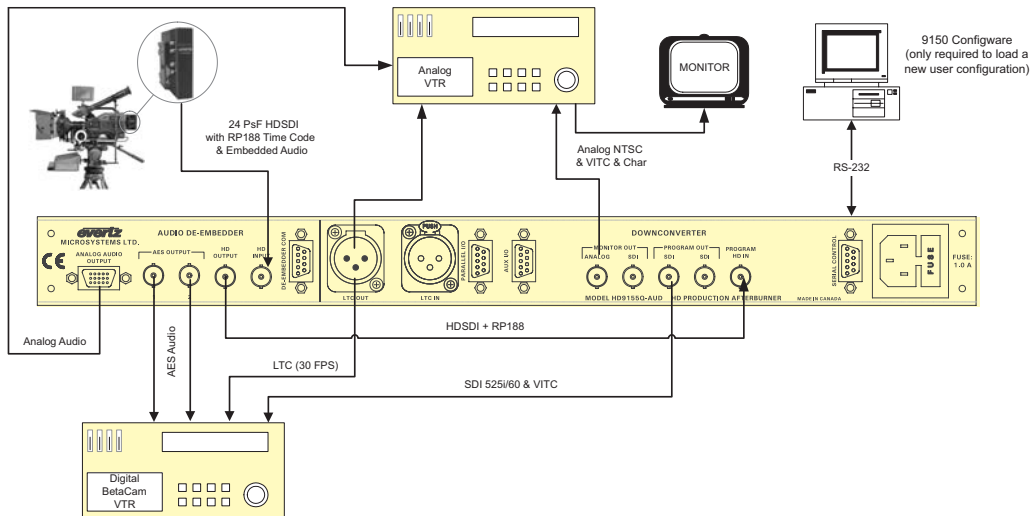
Models HD9155 and HD9155-AUD have been discontinued in favour of the High Quality (Q) versions.

Features

- Accepts SMPTE 292M 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF and 720p/59.94 serial digital video
- Downconverts HDTV inputs to SDTV and creates VITC and window burns on SDI and analog outputs
- Reads RP188 ancillary time code or LTC
- Character inserter for display of time and user bits as well as picture 2:3 pulldown
- Creates 2:3 pulldown when downconverting 1080p/23.98sF video to NTSC.
- 2:3 cadence is determined from a 6Hz pulse input, RP188 time code or LTC
- Converts aspect ratio from 16:9 to 4:3 in anamorphic, letterbox or centre crop mode
- LTC time code reader and generator converts 24 Fps to 30 Fps and re-times the time code to the output video
- AUD versions provide AES and analog audio delayed to match the video output
- AUD versions provide front panel monitoring of audio with volume control
- Front panel switches for downconverter mode, Char Inserter On/Off and Configuration Select, (and monitor volume & channel select on AUD version)
- User defined configurations can be downloaded using 9150 Configware™ software (included)
- Configurable Virtual Slate uses double height character windows to enhance visibility of important information

HD9155 Series Production Afterburners

HD9155 Configuration for 1080p/24sF



Specifications

HDTV Serial Digital Video Input:

Standard: SMPTE 292M, 1080i/50, 1080i/59.94, 1080p/23.98sF, 1080p/25sF, 720p/59.94 software selectable or autodetect
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 130m @ 1.5Gb/s with Belden 1694A or equivalent cable

SDTV Serial Digital Video Output:

Standard: Serial component 270 Mb/s (SMPTE 259M-C) 525i/59.94 if input is 1080i/59.94, 1080p/23.98sF or 720p/59.94
625i/50 if input is 1080i/50, 1080p/25sF
Connectors: BNC per IEC 60169-8 Amendment 2
2 program, 1 monitor
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB
Wide Band Jitter: < 0.2 UI

Analog Monitor Video Output:

Standard: Analog composite NTSC if input is 1080i/59.94, 1080p/23.98sF or 720p/59.94 video
Analog composite PAL if input is 1080i/50 or 1080p/25sF video
Connectors: 1 BNC per IEC 60169-8 Amendment 2
Signal Level: 1 V p-p nominal, internally adjustable
DC Offset: 0V $\pm 0.1V$
Return Loss: > 35dB up to 5 MHz
Frequency Response: 0.8dB to 4 MHz
Differential Phase: <0.9°(<0.6° typical)
Differential Gain: <0.9%(<0.5% typical)
SNR: >56dB to 5 MHz (shallow ramp)
Impedance: 75 Ω

LTC Generator:

Standard: SMPTE 12M
Frame Rate: 25 and 30 Fps nominal
Connector: 3 pin female XLR type connector.
Level: Adjustable, 0.5V to 4.5V p-p

LTC Reader:

Standard: SMPTE 12M
Frame Rate: 24, 25 and 30 Fps nominal
Connector: 3 pin female XLR type connector
Level: 0.2 to 4V p-p, balanced or unbalanced

Ancillary Time Code Reader:

Standard: SMPTE RP188
Line Select: Autodetect valid lines in vertical interval
Frame Rate: 24, 25 and 30 Fps nominal

AES Audio Outputs (HD9155Q-AUD Only):

Number of Outputs: 2 AES
Standard: SMPTE 276M, single ended synchronous or asynchronous AES
Connectors: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced

Analog Audio Outputs (HD9155Q-AUD Only):

Number of Outputs: 4
Type: Balanced analog audio
Connector: Female HD DB15
Output Impedance: 66 Ω balanced
Sampling Frequency: 48kHz
Signal Level: 0dB FS \Rightarrow 8 to 24dBu into 10 k Ω loads
0dB FS \Rightarrow 8 to 22dBu into 600 Ω loads
Frequency Response: < ± 0.1 dB (20Hz to 20kHz)
THD+N: > 90dB RMS @ 1kHz, with 24dBu output
> 100dB RMS @ 20Hz to 20kHz, with 24dBu output
Crosstalk isolation: > 100dB RMS (20Hz to 20kHz)

Serial Remote Control:

Standard: RS-232, 57600 baud
Connector: 9 pin female "D"
Control: Computer control of all functions

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60 Hz 30 VA
Safety: ETL listed
Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

HD9155Q	HD Production Afterburner with High Quality Downconverter
HD9155Q-AUD	HD Production Afterburner with High Quality Downconverter, AES & Analog Audio (includes HD DB-15 to XLR breakout cable)
HDQ UPGRADE	Upgrade for HD9155 products to HD9155Q

HD SDI Graticule Generator

Model HD9590



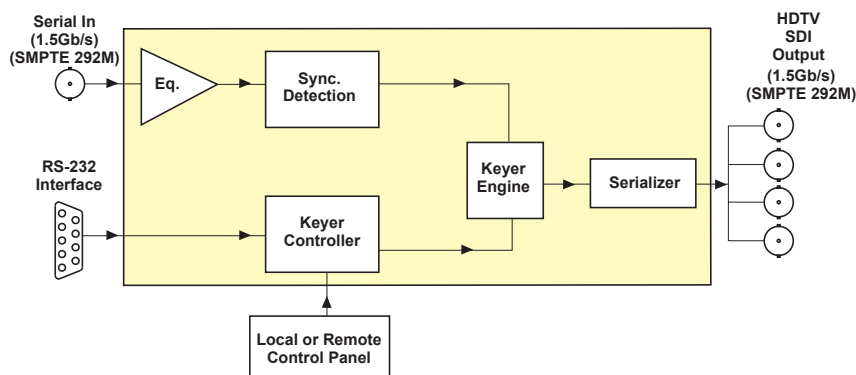
The HD9590 Graticule Generator is an easy to use, one rack unit, multi format digital video graticule generator that keys various alignment markers over a high definition video picture. These alignment markers facilitate film transfer, post production and quality control measurements relating to picture location for various film aspect ratios, safe action and title areas as well as picture center.

All of the functions of the HD9590 Graticule Generator are available from the front panel or one of two remote control panels. Choose from the many factory programmed presets or define your own. The HD9590 allows for multiple user defined presets that can be re-called and re-defined at any time.

Features

- Keys graticule markers directly into SMPTE 292M serial digital video
- Two rectangular boxes that can be independently resized, reshaped and moved anywhere on the raster
- A grid consisting of horizontal and vertical line pairs that can be positioned independently or in pairs anywhere on the raster
- Programmable horizontal and vertical hard matte
- Adjustable mask starting line in vertical blanking interval
- Two user programmable cross markers positionable anywhere on the raster
- Circle creation for aspect ratio
- Automatic creation of aspect ratios for matte, box and circle objects
- On screen aspect ratio display
- Automatic centering control for all objects
- Single button keyer On/Off control
- Adjustable object brightness (white level)
- Front panel lock-out control
- Easy to operate control panel menu system gives access to advanced object control features for the most demanding application, while limiting normal day to day use to just a few preset buttons
- Factory presets allow quick setup to common object placements on the raster
- Ten user-definable presets with individual write protection
- Optional rack mount or desktop remote control unit

HD9590 Block Diagram



Specifications

Serial Video Input:

Standard:	SMPTE 292M
SMPTE 274M:	1080i/60, 1080i/59.94, 1080i/50, 1080p/24(sF) 1080p/25(sF), 1080p/23.98(sF)
SMPTE 296M:	720p/60, 720p/59.94
Connector:	BNC per IEC 60169-8 Amendment 2
Impedance:	75Ω
Signal Level:	800mV ± 10%
Equalization:	Automatic 100m @ 1.5Gb/s with Belden 1694A (or equivalent)

Serial Video Output:

Number of Outputs:	4
Standard:	Same as input
Connector:	4 BNC per IEC 60169-8 Amendment 2
Impedance:	75Ω
Signal Level:	800mV nominal
DC Offset:	0V ± 0.5V
Rise and Fall Time:	200ps nominal
Overshoot:	<10% of amplitude
Wideband Jitter:	<0.2UI

Physical:

Dimensions:	19"W x 1.75"H x 18.75"D. (483mm W x 45mm H x 477mm D)
Weight:	8 lbs. (3.5Kg)

Electrical:

Power:	Auto ranging 100-240VAC 50/60Hz 30VA
Safety:	ETL listed Complies with EU safety directive Complies with FCC Part 15 Class A EU EMC Directive

EMI/RFI:

Ordering Information:

HD9590	HD SDI Graticule Generator
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Ordering Options:

- +RCP Rackmount remote control
- +DCP Desktop remote control unit

High Definition Downstream Keyer

Model HD9625DSK



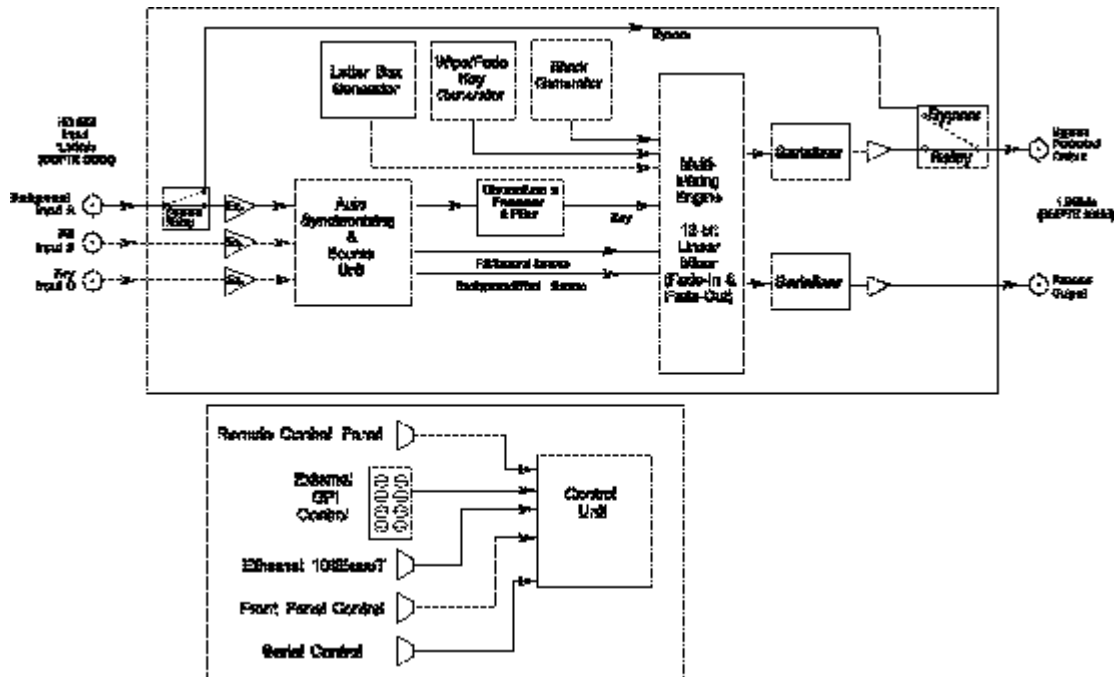
The Evertz HD9625DSK High Definition Downstream Keyer system incorporates the latest technology to provide an advanced fully digital keyer. The Evertz HD9625DSK is ideal for mixing key and fill HDTV signals in the “On-Air” environment. The system also features letter boxing, wipes, fades and more. The HD9625DSK provides storage and retrieval capabilities of several user setups and presets from the front panel, or from optional rackmount or desktop remote control panel. The HD9625DSK offers GPI control for fade and wipe transitions and RS-232/422 serial control from automation systems.

Features

- Both mix and additive keying modes provided
- Auto-timing HDTV key, fill, and background inputs (up to 1 line)
- GPI and RS-232/422 inputs for fade/transition control
- Internal black generator for fade to black applications
- Built-in letter box generator for non 16x9 aspect ratio cropping
- 12-bit processing linear keying providing high quality results for both transparency and soft edges
- Control of key gain and offset are provided
- Full control and status is provided from the front panel display
- Level triggered programmable GPI's
- User programmable presets are provided
- Optional rack mount or desktop remote control panel
- Optional redundant power supply
- Optional bypass relay for program output

High Definition Downstream Keyer

HD9625DSK Block Diagram



Specifications

Serial Digital Video Input:

Standard: SMPTE 292M 1.485 Gb/s
1080i/60, 1080i/59.94, 1080/50,
1080p/24(sF), 1080p/23.98(sF), 720p/60,
720p/59.94, 480p/60, 480p/59.94

Number of Inputs: 3

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic to 100m @1.5 Gb/s with Belden 1694A (or equivalent)
25m with bypass relay installed

Impedance: 75Ω

Digital Video Output:

Standard: Same as input

Number of Outputs: 2

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V ± 0.5V

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Wide Band Jitter: <0.2 UI

Impedance: 75Ω

Control:

Serial Control: RS-232/422, 8 bits, no parity
9600, 19200, 38400, 57600 baud
computer control of all functions

Upgrade: RS-232, 57600 baud, 8 bits, no parity for
firmware upgrades

General Purpose In/Out:

Number of inputs: 8

Number of outputs: 4

Type: Opto isolated, active low

Connector: Female High Density DB-15

Signal level: +5V nominal

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
(483mm W x 45mm H x 477mm D)

Weight: 8 lbs (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60Hz 30VA

Safety: ETL Listed
Complies with EU safety directive

EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

HD9625DSK HD Downstream Keyer

Ordering Options:

+DCP Optional Desktop Control Panel

+RCP Optional Rack Mount Remote Control Panel

+HBP Optional cable loop on program input and
bypass protected output up to 25m of
Belden 1694

+2PS Redundant power supply

HD Logo Inserter

Model HD9625LG

METACAST 2 ENABLED



The Evertz HD9625LG Logo Inserter system is a complete package that will key one or many “bugs” over a full bandwidth HDTV program video signal. Logos created in BMP, Tiff, or TGA file formats can be imported into the Instalogo software and uploaded to the HD9625LG via Ethernet. Logos are stored in flash memory and can be quickly accessed via front panel quick select keys, GPI inputs or automation.

The HD9625LG has been designed to manage and store multiple logos. The size of each is variable and can be as small as 1% of the display area (minimum width 128 luma samples, minimum height 2 lines). The position of the logo and fade rates are user controllable. Multiple logos can be keyed simultaneously with independent fade control for each logo. Motion and static logos are supported.

Now includes serial support for temperature probe input. This input allows for the insertion of air temperature readings and is controlled like any other logo.

The EAS crawl support allows for connection to an existing EAS decoder. The variable height text font can be positioned anywhere on the screen.

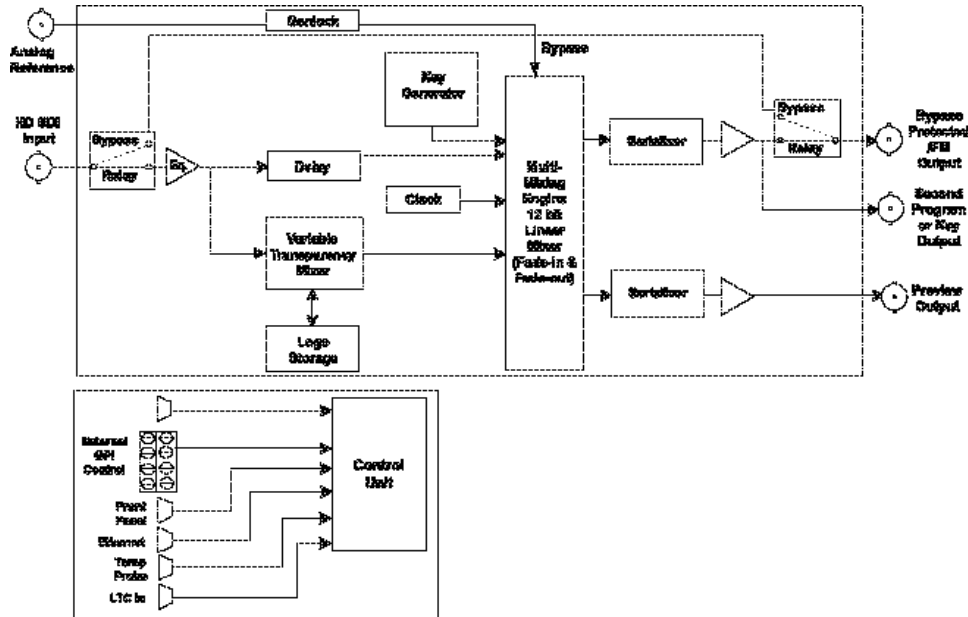
Features

- Stores and inserts animated and static logos
- Multiple simultaneous logos can be keyed with independent fade control
- Incorporates a full linear keyer
- Full 12-bit linear fade-in and fade-out control provided
- Front panel, RS422 remote control and GPI contact closure
- Download logos from standard PC using Ethernet with Evertz Software (provided)
- Supports 1080p, 1080i, 720p, 1035i, 1080psF, 480p video formats
- LTC input for digital or analog clocks
- EAS supports all new alert codes including child abduction emergency
- TTF support for CG functions
- Key/Fill output menu option for feeding master control
- Preview output for full logo preview
- Standard system has 128 MB of storage
- Automatic input equalization up to 100m of Belden 1694A (Cable length specifications are different if bypass option is purchased)
- FTP file transfer & maintenance
- Optional bypass relay for program output
- Optional redundant power supply
- Optional rack mount or desk top remote control panel
- Optional air temperature probe
- Optional EAS crawl support for Sage and TFT Decoders
- Optional crawl for scrolling text messages



NOMAD Lite an easy to use graphical interface that integrates the speed of fast Ethernet, with the ease of drag and drop functionality to deliver a central access point to Evertz keyer products. Using this software allows you to upload media files to one or many units simply by clicking and dragging the item from the explorer like window, into the device tree. This powerful interface allows you to extract and move media items from one device to another using the same easy drag and drop style. For more complicated multi unit installations, you can set custom device groups. This allows for media content to be dropped on a custom grouping and automatically uploaded to the ganged units in one easy step.

HD9625LG Block Diagram



Specifications

Serial Digital Video Input:

Standard: SMPTE 292M, 1.485Gb/s (1080i/59.94, 1080i/50, 720p/59.94, 480-/59.94)
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic up to 100m @1.5 Gb/s with Belden 1694A (or equivalent), 25m with bypass relay installed
Impedance: 75Ω

Digital Video Output:

Standard: Same as input
Number of Outputs: 2 Program (1 output bypass protected with +HBP option)
 1 Preview
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude (All outputs terminated)
Wide Band Jitter: <0.2UI

Genlock Input:

Type: NTSC or PAL color black 1V p-p
 Composite bi-level sync (525 line or 625 line) HD
 Tri Level Sync
Connector: 1 BNC per IEC 60169-8 Amendment 2

Control:

Serial Control: RS-232/422, 8 bits, no parity
 9600, 19200, 38400, 57600 baud computer control of all functions
Upgrade: RS-232, 57600 baud, 8 bits, no parity for firmware upgrades
Logo Transfer: TCP/IP, 100Base T

LTC Reader:

Standard: SMPTE 12M
 25, 30FPS Drop & Non Drop Frame
Connector: XLR Type 3 pin female connector
Signal Level: 0.2 to 4V p-p, balanced or unbalanced
Speed: 1/30th to 70x play speed, forward and rev, machine dependent

Serial Remote Control:

2 RS-232 or RS-422 interface, 9 pin "D" connector for automation control

General Purpose In/Out:

Number of inputs: 8
Number of outputs: 4
Type: Opto isolated, active low
Connector: Female High Density DB-15
Signal level: +5V nominal

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
 (483mm W x 45mm H x 477mm D)
Weight: 8lbs. (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60Hz 30VA
Safety: ETL Listed
 Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
 EU EMC Directive

Ordering Information:

HD9625LG HD Logo Inserter with front panel control

Ordering Options & Accessories:

+RCP Optional rackmount remote control panel
+DCP Optional desk top remote control panel
+2PS Redundant power supply
+TP Optional Air Temperature Probe
+CF Compact Flash Optional Hardware (does not include compact flash memory card)
+CLH Optional crawl support for HD9625 products
+E Optional EAS Crawl Insertion
+1G Optional internal flash expansion to 1 Gigabyte
+HBP Optional bypass relay

Accessories:

CF128 Optional card flash expansion port with 128 Megabyte card
CF1G Optional card flash expansion port with 1 Gigabyte card
WA-1525 Optional 15-25 pin adapter for all 9625 & HD9625 products
9600LG-TP Optional air temperature probe for all 9625 & HD9625 products (for existing hardware)
EAS-UPGRADE Upgrade of existing HD9625LG to HD9625LG+E

HD Media Keyer System

Model HD9625LGA

METACAST 2 ENABLED



The HD9625LGA Media Keyer system is a complete HD Logo and Audio Insertion package that will key one, or many, static/animated "bugs" over a full bandwidth HD program video signal. It will also "Duck" insert preformatted audio clips. Media created in BMP, Tiff, TGA or Wave file formats can be imported into the Evertz software and transferred to the HD9625LGA. Media is stored in flash memory and can be quickly accessed via front panel, quick select keys, GPI inputs, automation and MetaCast. With the Removable Compact Flash option you can have access of up to 2 Gigabytes of on-line media storage space and virtually unlimited archived media storage.

The HD9625LGA has been designed to manage and store multiple logos. The size of each logo is variable and ranges from 1/25th to full screen. The position of the logo, fade rates, clip association and animation rates are user controllable. Up to 16 logos can be keyed simultaneously with independent fade control for each logo. The onboard preview allows you to cue your logos for position and content verification prior to going "On Air". The Media Keyer Voice Over audio input allows for 1 button audio switching.

The optional EAS crawl support allows for connection to an existing EAS decoder. This RS232 connection allows weekly tests (white text on green), watch alerts (white on yellow) and warnings (white on red) to be scrolled across the native HD video with no need for format conversion. The variable height text font can be positioned anywhere on the screen and rendered with any windows true type font..

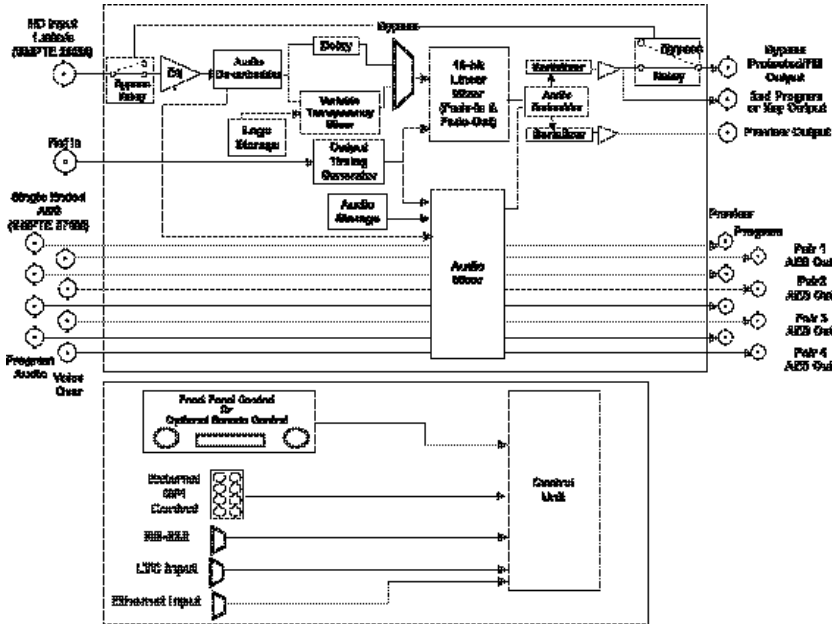
Features

- Stores and inserts static and animated logos and audio clips
- Multiple logos can be simultaneous keyed with independent fade control
- Incorporates a high quality mixer that provides independent transparency levels for each logo
- Full 12-bit linear fade-in and fade-out control provided
- Fade all out capability provided on program video output
- Audio clip to logo associations
- 1 button alternate audio voice overs
- Four AES pairs for discreet 5.1 Audio
- 8 programmable GPI contact closures
- Download media from a standard Windows PC running InstaLogo™ software
- FTP file transfer and maintenance
- Supports all common HD video standards
- Automatic equalization up to 100m (Belden 1694A or equivalent cable)
- Standard 128MB internal flash storage
- Optional 1GB internal flash storage
- Optional removable 128MB or 1GB compact flash storage
- Optional EAS crawl support for Sage and TFT Decoders
- Supports all alert codes including child abduction emergency
- Optional program output bypass relay protected
- Optional redundant power supply
- Optional rackmount or desktop remote control panels
- Optional crawl for scrolling text messages



NOMAD Lite PC is an easy to use graphical interface that integrates the speed of fast Ethernet, with the ease of drag and drop functionality to deliver a central access point to Evertz keyer products. Using this software allows you to upload media files to one or many units simply by clicking and dragging the item from the explorer like window, into the device tree. This powerful interface allows you to extract and move media items from one device to another using the same easy drag and drop style. For more complicated multi unit installations, you can set custom device groups. This allows for media content to be dropped on a custom grouping and automatically uploaded to the ganged units in one easy step.

HD9625LGA Block Diagram



Specifications

HD Video Input:

Standard: SMPTE 292M, 1.485Gb/s (1080i/59.94, 1080i/50, 720p/59.94, 480p/59.94)
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV ±10%
Equalization: Automatic up to 100m @ 1.5Gb/s with Belden 1694A (or equivalent) (25m with +HBP option)

HD Video Output:

Standard: Same as input
Number of Outputs: 2 Program (1 output bypass protected with +HBP option)
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude (All outputs terminated)
Wide Band Jitter: <0.2UI

AES Audio Inputs:

Standard: SMPTE 276M single ended AES
Number of Inputs: 4 Program, 4 Alternate
Connector: BNC per IEC 60169-8 Amendment 2

AES Audio Outputs:

Standard: SMPTE 276M single ended AES
Number of Outputs: 4 Program, 4 Preview
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1Vp-p

Genlock Input:

Type: NTSC or PAL color black 1V p-p
Composite bi-level sync (525 line or 625 line) HD
Tri Level Sync
Connector: 1 BNC per IEC 60169-8 Amendment 2

General Purpose In/Out:

Number of inputs: 8
Number of outputs: 4
Type: Opto isolated, active low
Connector: Female High Density DB-15
Signal level: +5V nominal

LTC Reader:

Standard: SMPTE 12M, 25, 30Fps Drop & Non Drop Frame
Connector: XLR Type 3 pin female connector
Signal Level: 0.2 to 4V p-p, balanced or unbalanced
Speed: 1/30th to 70x play speed, forward and rev, machine dependent

Serial Remote Control:

2 RS-232 or RS-422 interface, 9 pin "D" connector for automation control

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60Hz 30VA
Safety: ETL Listed
Complies with EU Safety Directive
Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

HD9625LGA HD Media Keyer System

Ordering Options & Accessories:

+RCP Optional rackmount remote control panel
+DCP Optional desk top remote control panel
+2PS Redundant power supply
+TP Optional Air Temperature Probe
+CF Compact Flash Optional Hardware (does not include compact flash memory card)
+CLH Optional crawl support for HD9625 products
+E Optional EAS Crawl Insertion
+1G Optional internal flash expansion to 1 Gigabyte
+HBP Optional bypass relay

Accessories:

CF128 Optional card flash expansion port with 128 Megabyte card
CF1G Optional card flash expansion port with 1 Gigabyte card
WA-1525 Optional 15-25 pin adapter for all 9625 & HD9625 products
9600LG-TP Optional air temperature probe for all 9625 & HD9625 products (for existing hardware)
EAS-UPGRADE Upgrade of existing HD9625LG to HD9625LG+E

High Definition Downstream Keyer

Model HD9626DSK



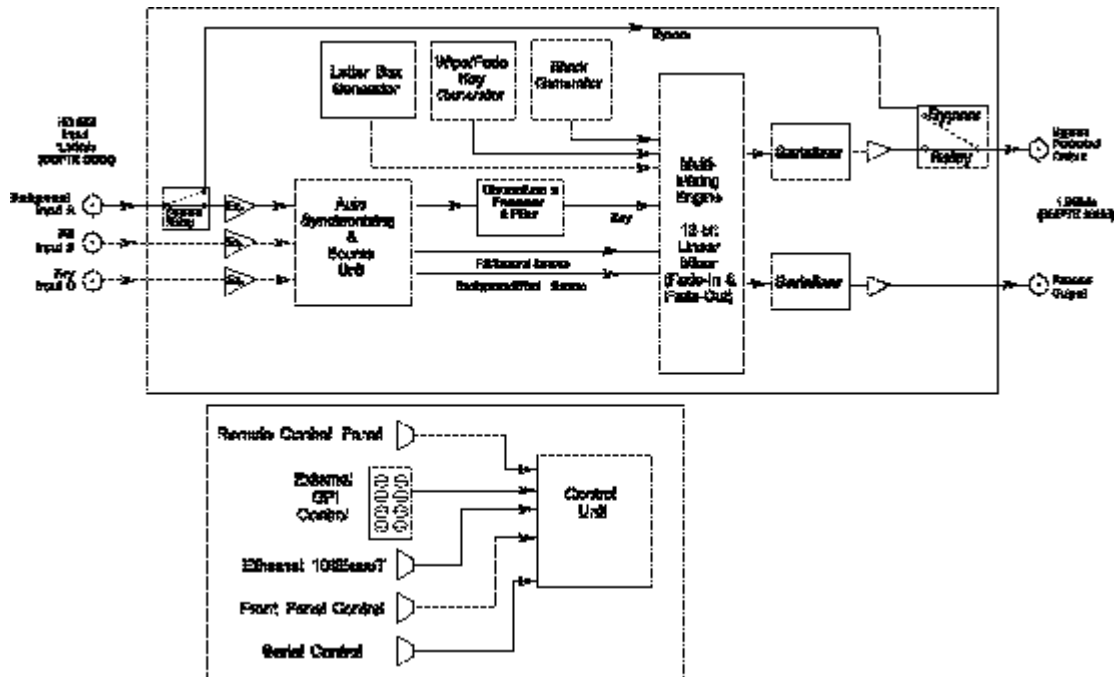
The Evertz HD9626DSK High Definition Downstream Keyer system incorporates the latest technology to provide an advanced fully digital keyer. The Evertz HD9626DSK is ideal for mixing key and fill HDTV signals in the “On-Air” environment. The system also features letter boxing, wipes, fades and more. The HD9626DSK provides storage and retrieval capabilities of several user setups and presets from the front panel, or from optional rackmount or desktop remote control panel. The HD9626DSK offers GPI control for fade and wipe transitions and RS-232/422 serial control from automation systems.

Features

- Both mix and additive keying modes provided
- Auto-timing HDTV key, fill, and background inputs (up to 1 line)
- GPI and RS-232/422 inputs for fade/transition control
- Internal black generator for fade to black applications
- Built-in letter box generator for non 16x9 aspect ratio cropping
- 12-bit processing linear keying providing high quality results for both transparency and soft edges
- Control of key gain and offset are provided
- Full control and status is provided from the front panel display
- Level triggered programmable GPI's
- User programmable presets are provided
- Optional rack mount or desktop remote control panel
- Optional redundant power supply
- Optional bypass relay for program output

High Definition Downstream Keyer

HD9626DSK Block Diagram



Specifications

Serial Digital Video Input:

Standard: SMPTE 292M 1.485 Gb/s
1080i/60, 1080i/59.94, 1080/50,
1080p/24(sF), 1080p/23.98(sF), 720p/60,
720p/59.94, 480p/60, 480p/59.94

Number of Inputs: 3

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic to 100m @ 1.5 Gb/s with Belden 1694A (or equivalent)
25m with bypass relay installed

Impedance: 75Ω

Digital Video Output:

Standard: Same as input

Number of Outputs: 2

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V ± 0.5V

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Wide Band Jitter: <0.2 UI

Impedance: 75Ω

Control:

Serial Control: RS-232/422, 8 bits, no parity
9600, 19200, 38400, 57600 baud
computer control of all functions

Upgrade: RS-232, 57600 baud, 8 bits, no parity for
firmware upgrades

General Purpose In/Out:

Number of inputs: 8

Number of outputs: 4

Type: Opto isolated, active low

Connector: Female High Density DB-15

Signal level: +5V nominal

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
(483mm W x 45mm H x 477mm D)

Weight: 8 lbs (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60Hz 30VA

Safety: ETL Listed
Complies with EU safety directive

EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

HD9626DSK HD Downstream Keyer

Ordering Options:

+DCP Optional Desktop Control Panel

+RCP Optional Rack Mount Remote Control Panel

+HBP Optional cable loop on program input and
bypass protected output up to 25m of
Belden 1694

+2PS Redundant power supply



The Evertz HD9690 & HD9690-444 Graticule Generators are multi format High Definition video graticule generators that key various alignment markers and mattes over a source video picture in a wide variety of applications. The HD9690-444 can be operated in a dual link mode for emerging 4:4:4 high definition applications, or a 4:2:2 mode for traditional high definition (1125 and 750 line) digital video. The model HD9690 can only be operated in a 4:2:2 mode.

Commonly used configurations, stored as factory presets simplify routine operation to just a few pushbuttons. The ability to customize these factory presets to your application and store them as USER PRESETS, gives the Graticule Generator tremendous flexibility while maintaining simple operation for day to day use.

Both units are a 1 RU chassis with integrated control panel. The HD9690 & HD9690-444 are also available in a remote control version, which has a blank front panel and either a rack mountable, or a desktop remote control panel.

Features

- Automatically senses between 1080i/60, 1080i/50, 1080p/24, 1080p/24sF, 720p/60 and 720p/50 video formats and the 1/1.001 divisor versions where applicable
- Model HD9690 keys Graticule markers directly into 4:2:2 SMPTE 292M High Definition Serial digital video
- DVI-I Output for display on flat screen or computer monitors
- Two rectangular boxes that can be independently resized reshaped and moved anywhere on raster
- A grid consisting of horizontal and vertical line pairs that can be positioned independently or in pairs anywhere on the raster
- Programmable horizontal and vertical hard matte
- Two User programmable cross markers, positionable anywhere on the raster (one on DCP version)
- Ellipse creation for aspect ratio
- Automatic creation of aspect ratios for mask, box and ellipse objects
- On screen display shows object size, position and aspect ratio
- Automatic centring of all objects or individual object by object control of centring
- Single button keyer on/off control
- Adjustable object brightness and color
- Front panel lock-out control

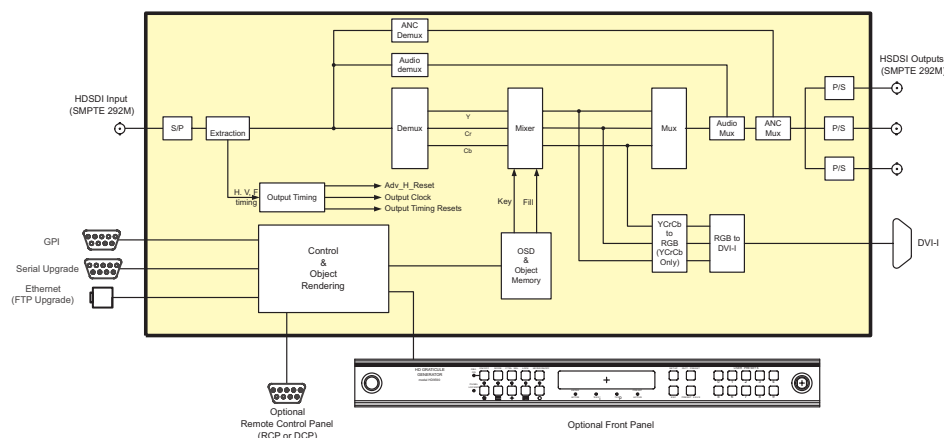
- Easy to operate front panel menu system gives access to advanced object control features for the most demanding application, while limiting normal day to day use to just a few preset buttons
- Factory Presets allow quick setup to common object placements on the raster
- Ten User-definable presets with user definable labels and individual write protect allow unlimited customization for any requirement
- Optional Rack mount or Desktop remote control chassis

Additional Features for the HD9690-444

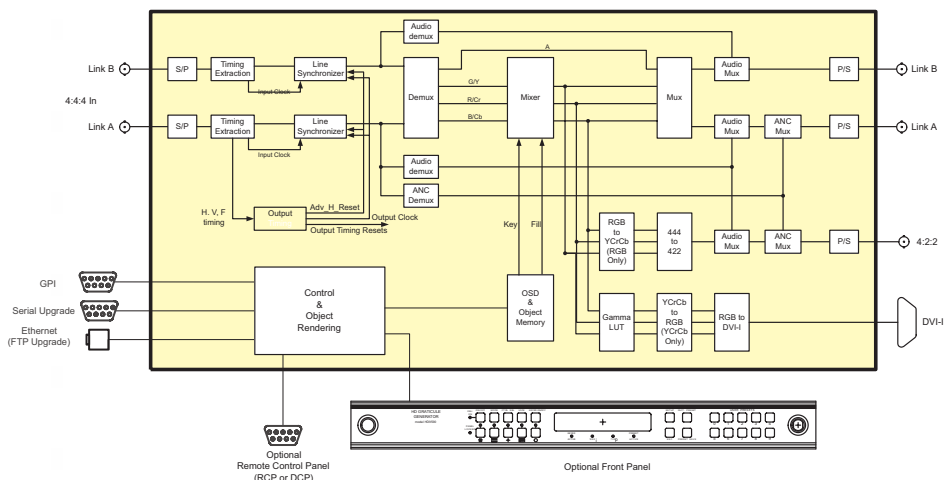
- Keys Graticule markers directly into SMPTE 372M and SMPTE 292M High Definition Serial digital video
- Can be operated in 4:4:4 RGB or YCbCr dual link mode with 4:2:2 output or 4:2:2 single link mode - manual select or autodetect
- Handles extended range (full scale) 4:4:4 RGB with conversion to full scale or legal ITU-R BT.709 YCbCr on the 4:2:2 single link output

HDTV Graticule Generator HD9690 & HD9690-444

HD9690 Block Diagram



HD9690-444 Block Diagram



Specifications

Serial Digital Video Input:

Standard:	HD9690 SMPT 292M 1.5Gb/s HD9690-444 SMPT 372M Dual link 1.5Gb/s or SMPT 292M 1.5Gb/s
Number of Inputs:	HD9690 1 HD9690-444 1 dual link
Connector:	BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic up to 50m with Belden 1694A or equivalent cable
Return Loss:	>15dB up to 1.0Gb/s, >10dB up to 1.5Gb/s

Serial Video Output:

Standard:	Same as input
Number of Outputs:	HD9690 3 HD9690-444 1 dual link, 1 single link
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	200ps nominal
Overshoot:	<10% of amplitude
Wideband Jitter:	<0.2UI
Output Return Loss:	>10dB up to 1.5Gb/s

Digital (DVI) Video Output:

Standards:	VESA (DVI-I, for DVI-D and RGBHV outputs)
Type:	DVI-I (female connector)
Resolution:	1920x1080 or 720x1280 - same as video input
Signal Level:	1V nominal

GPI Control Port:

Number of Inputs:	8 opto-isolated, active high or active low, programmable functions
Connector:	Female DB-9

Upgrade Control Port:

Standard:	RS 232
Connector:	Female DB-9
Baud Rate:	115200
Format:	8 bits, no parity, and 2 stop bits

Ethernet:

Network Type:	Fast Ethernet 100 Base-TX IEEE 802.3u standard for 100 Mb/s base band CSMA/CD local area network Ethernet 10 Base-T IEEE 802.3 standard for 10 Mb/s baseband CSMA/CD local area network
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Connector:

RJ-45

Remote Control Port:

Standard:	RS-422, 9600 baud rate
Connector:	Female DB-9
Protocol:	Remote Control Panel

Physical:

Main Unit:	19" W x 1.75" H x 18.75" D. (483mm W x 45mm H x 477mm D)
Rack Mount Control Panel:	19" W x 1.75" H x 4.25" D. (483mm W x 45mm H x 110mm D)
Desktop Control Panel:	7.75" W x 2.0" H x 6.5" D. (197mm W x 50mm H x 160mm D)
Weight:	8 lbs. (3.5kg)

Electrical:

Main Unit:	
Voltage:	Auto ranging 100 to 240 Volts AC, 50/60 Hz 40 Watts
Desktop + Rack Mount Control Panel:	
Voltage:	12 VDC, Auto ranging 100 to 240 Volts AC, 50/60 Hz adapter provided, 10 Watts

Safety:

EMI/RFI:	ETL Listed, complies with EU safety directives Complies with FCC Part 15 Class A regulations Complies with EU EMC directive
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Ordering Information:

HD9690	HD Graticule Generator
HD9690-444	4:4:4 Graticule Generator

Ordering Options:

+RCP	Rackmount remote control
+DCP	Desktop remote control unit

4:4:4 HDTV Graticule Generator

Model HD9690-444

The Evertz HD9690-444 Graticule Generator is multi format digital video graticule generator that keys various alignment markers and mattes over a source video picture in a wide variety of applications. The HD9690-444 can be operated in a dual link mode for emerging 4:4:4 high definition applications, or a 4:2:2 mode high definition (1125 and 750 line) digital video.

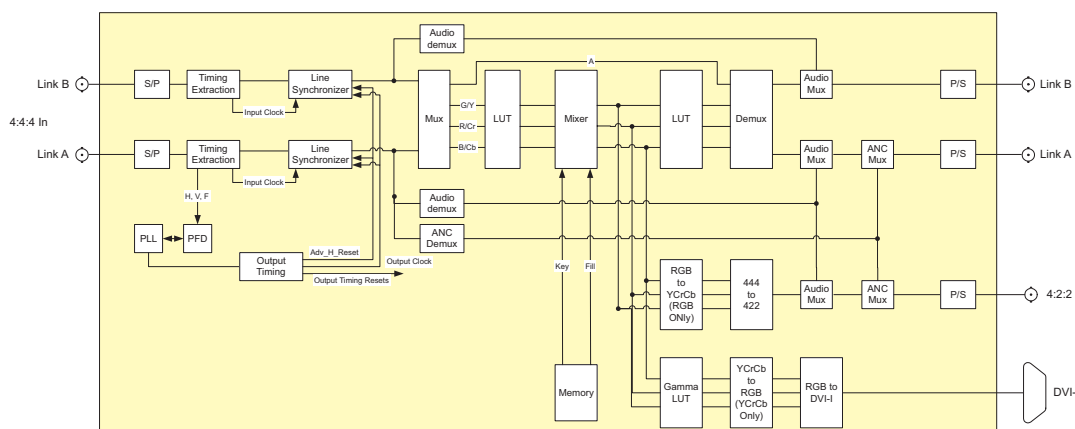
Commonly used configurations, stored as factory presets simplify routine operation to just a few pushbuttons. The ability to customize these factory presets to your application and store them as USER PRESETS, gives the Graticule Generator tremendous flexibility while maintaining simple operation for day to day use.

The standard Graticule Generator is a 1 RU chassis with integrated control panel. The Graticule Generator is also available in a remote control version, which has a blank front panel and either a rack mountable, or a desktop remote control panel.

Features

- Alignment of film images to the video raster during film to tape transfer
- Safe action and safe title and center marker for locating action point of interest and title graphics
- Aspect ratio measurements
- Letterbox or side marker cropping for image formats that do not match the video raster size
- Alignment of graphics objects
- Video tape quality control measurements
- One DVI-I output
 - Drive a single DVI-D and a single RGBHV (VGA-type) display simultaneously with same content up to WUXGA (1920 x 1200 resolution)

HD9690 Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 372M or SMPTE 292M 1.5Gb/s
SMPTE 274M: 1080i/60, 1080i/59.94, 1080i/50, 1080p/24(sF)
1080p/25(sF), 1080p/23.98(sF)
SMPTE 296M: 720p/60, 720p/59.94, 720p/50
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV ± 10%
Equalization: Automatic 100m @ 1.5Gb/s with Belden 1694A (or equivalent)

Serial Video Output:

Number of Outputs: 1 dual link pair, 1 single link
Standard: Same as input
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Wideband Jitter: <0.2UI

Display Video Output:

Standard: VESA (DVI-I) up to WUXGA (1920 x 1200)
Number of Outputs: 1
Connector: DVI (with DVI to RGBHV Adapter)
Video: 1Vp-p YPrPb/RGB or 0.7Vp-p VGA, 60Hz refresh
Impedance: 75Ω

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D.
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60Hz 30VA
Safety: ETL listed
Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

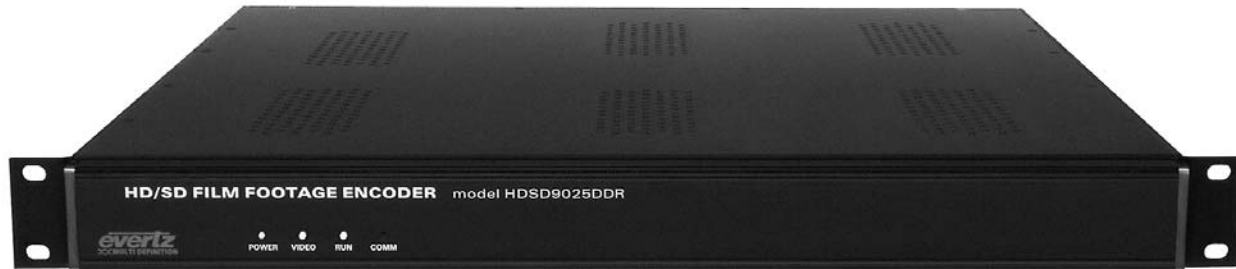
HD9690-444 4:4:4 Graticule Generator

Ordering Options:

+RCP Rackmount remote control
+DCP Desktop remote control unit

HD/SD DDR Film Footage Encoder

Model HDSD9025DDR



The HDSD9025DDR multi resolution Film post production system is designed to improve the throughput of your film to tape transfers by utilizing digital hard disk recorders (DDR). Complete rolls of film are transferred with little or no colour correction, and without time consuming audio syncing, to a DDR. During this process KeyCode information is encoded into the VANC data space using a 9025 series Film Footage Encoder. For DDRs that support recording at one speed and playout at another, the film can be transferred at 30 FPS realizing an immediate 25% increase in throughput in the telecine bay.

In a separate colour correction suite the DDR becomes a virtual telecine source during colour correction and audio syncing. KeyCode information recorded on the DDR is recovered by the HDSD9025DDR before it is removed by the colour corrector. The recovered Keycode, video and audio time codes, and production data associated with the material are re-encoded on the colour corrected video before it is recorded on the master VTR.

Under control of the powerful KeyLog TRACKER™ software, the HDSD9025DDR Film Footage encoders permit the seamless integration of video and audio timecodes, film KeyCode and production information whether you are transferring to 25 or 30Fps standard definition video, or to 24, 25 or 30Fps high definition video. During colour correction and audio syncing, KeyLog TRACKER™, Evertz telecine logging and configuration management tool logs the relationships between these important parameters and outputs many industry standard interchange file formats for use by off-line editing systems.

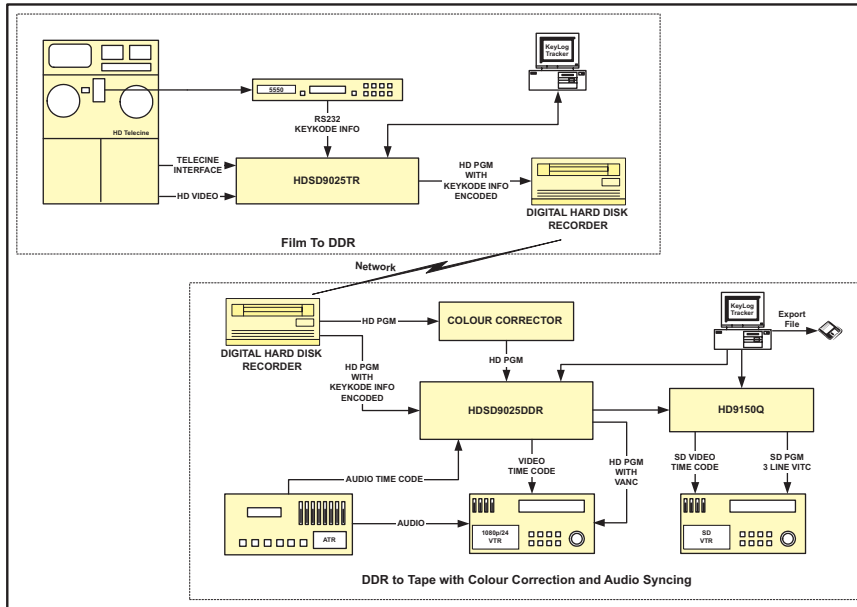
In standard definition mode, the HDSD9025DDR encodes the timecodes and KeyCode into industry standard SMPTE RP201 3-line VITC on one SDI output, and provides separate SDI and analog outputs with burned in characters for offline editing copies. In high definition mode, the HDSD9025DDR encodes the timecodes, KeyCode and production information into industry standard SMPTE RP215 vertical ancillary (VANC) data packets. Downconverted copies can be made for offline editing by connecting the HDSD9025DDR's second output to the HD9150Q HD Afterburner. Separate LTC inputs and outputs for the audio and video timecodes, allows handling of mixed film rate and video rate timecodes.

Features:

- HDSD9025DDR operating in high definition mode accepts SMPTE 292M (1.485 Gb/s) 1080i/59.94, 1080i/50 1080p/29.97sF, 1080p/25sF and 1080p/23.98sF digital video
- HDSD9025DDR operating in standard definition mode accepts SMPTE 259M (270 Mb/s) 525i/59.94 and 625i/50 digital video
- Interfaces to Specter Virtual Datacine and industry standard DDRs that record and play back RP215 VANC data
- Separate LTC reader and generator for video and audio time codes operating at 30, 25 and 24 Fps
- Control from Evertz KeyLog TRACKER™ software
- Encodes film transfer information in SMPTE RP215 VANC for high definition video and SMPTE RP201 3-Line VITC for standard definition video
- HDSD9025DDR has separate inputs and outputs for SDTV and HDTV video
- Auxiliary HD and SD video inputs read KeyCode encoded in VANC before it is removed by the colour corrector
- Character burns available on SDI and monitor Analog outputs for SDTV
- Programmable telecine interface also allows it to be used in traditional film to tape applications.

HD/SD DDR Film Footage Encoder

HDSD9025DDR Typical Configuration



Specifications

HDTV Serial Digital Video Inputs:

Standard: SMPTE 292M (1.485 Gi/s) 1080i/59.94, 1080i/50, 1080p/23.98
Number of Inputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694 (or equivalent)

HDTV Serial Digital Video Outputs:

Number of Outputs: 2 with RP215 VANC data and character burn-ins
Standard: Same as input
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: < 0.15 UI

SDTV Serial Digital Video Inputs:

Standard: SMPTE 259M-C (270 Mb/s) 525i/59.94 or 625i/50
Number of Inputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 200m @ 270 Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15 dB up to 270 Mb/s

SDTV Serial Digital Video Output:

Standard: Same as Input
Connectors: BNC per IEC 60169-8 Amendment 2
Outputs: 1 Program with RP201 3-line VITC
1 Character output with RP201 3-line VITC and Character Burn-ins
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 470ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB
Wide Band Jitter: < 0.15 UI

Analog Monitor Video Output:

Standard: Analog composite NTSC if input is 525i/59.94
Analog composite PAL if input is 625i/50
Connectors: BNC per IEC 60169-8 Amendment 2
Output: 1 Character output with RP201 3-line VITC and Character Burn-ins
Signal Level: 1 V p-p nominal, internally adjustable
DC Offset: 0V \pm 0.1V
Return Loss: > 35dB up to 5 MHz
Frequency Response: 0.8dB to 4 MHz
Differential Phase: <0.9°(<0.6° typical)
Differential Gain: <0.9%(<0.5% typical)
SNR: >56dB to 5 MHz (shallow ramp)

LTC Generators:

Standard: SMPTE 12M
Frame Rate: Video LTC: 24, 25 and 30 Fps nominal
Audio LTC: 25 and 30 Fps nominal
Connectors: 3 pin male XLR type connector
Level: Adjustable, 0.5V to 4.5V p-p

LTC Readers:

Standard: SMPTE 12M
Frame Rate: 24, 25 and 30 Fps nominal
Connectors: 3 pin female XLR type connector
Level: 0.2 to 4V p-p, balanced or unbalanced

Telecine Interface:

Bi-Phase Tach: 1, 2, 5 or 10 pulses per frame, TTL level
Frame Pulse: 1.6 V p-p active low, (1 pulse per film frame) or TTL Level FRID (1 edge per film frame)

Parallel I/O Interface:

Inputs (default): Film Transfer Rate (24/30 Fps)
Video Standard Select
Film Frame Centering
Event Log GPI
Connector: 9 pin female "D"

Connector:

KeyCode Reader/DataCine Interface:

Standard: RS-232, 9600 or 38400 baud, 7 bit even parity
Compatible with Evertz, ARRI, CP and RIM decoders
Connector: 9 pin female "D"

Connector:

KeyLog Tracker Interface:

Standard: RS-232, 57600 baud
Connector: 9 pin female "D"
Control: Computer control of all functions using KeyLog Tracker™ software

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Power: 115/230 V AC 50/60 Hz, 30 VA.
Safety: ETL Listed
Complies with EU safety directive
Complies with FCC Part 15 Class A
EU EMC Directive

EMI/RFI:

Ordering Information:

HDSD9025DDR HD/SD DDR Film Footage Encoder(for DDR Applications including KeyLog Tracker™)

HDSD9025DDR/5550/UV-3

HD/SD DDR Film Footage Encoder system including KeyLog Tracker™, KeyCode Decoder and UV-3 Head

Ordering Options:

Vista Vision
65/70MM
2 Perf
Vista Vision option for Film Footage Encoders
65mm/70mm option for Film Footage Encoders
35mm 2 perf option for Film Footage Encoders

HD/SD Film Footage Encoder

Model HDSD9025TR



The multi resolution HDSD9025TR Film Footage Encoder is designed to simplify the management of your film to tape transfers for both standard definition and high definition video. Under control of the powerful KeyLog Tracker™ software, the HDSD9025TR Film Footage encoder permits the seamless integration of video and audio time code, film KeyCode and production information whether you are transferring to 25 or 30Fps standard definition video, or to 24, 25 or 30Fps high definition video. During the transfer, KeyLog Tracker™, Evertz telecine logging and configuration management tool, logs the relationships between these important parameters and outputs many industry standard interchange file formats for use by off-line editing systems.

In standard definition mode, the HDSD9025TR encodes the time code and KeyCode into SMPTE RP201 3-line VITC on one SDI output, and provides separate SDI and analog outputs with burned in characters for offline editing copies. In high definition mode, the HDSD9025TR encodes the time code, KeyCode and production information in SMPTE RP215 data. Separate LTC inputs and outputs for the audio and video time code, allows handling of mixed film rate and video rate time code. The programmable telecine interface allows the encoder to interface to a wide variety of telecine configurations.

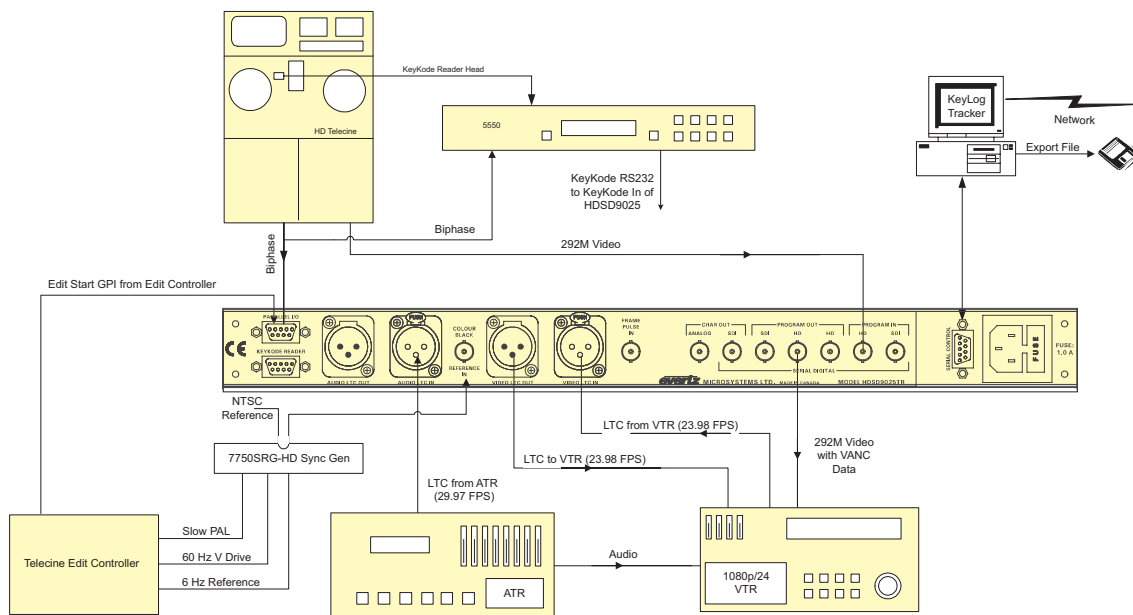
The HDSD9025TR can be easily configured using the KeyLog Tracker™ software supplied with the unit. This graphical user interface allows the user to store multiple configurations for the HDSD9025TR.

Features:

- Accepts SMPTE 259M (270 Mb/s) 525i/59.94 and 625i/50 digital video in standard definition mode
- Accepts SMPTE 292M (1.485 Gb/s) 1080i/59.94 and 1080i/50 and 1080p/23.98sF digital video in high definition mode
- Separate inputs and outputs for SDTV and HDTV video
- Separate SDI program output with VITC and offline SDI and analog video output with VITC and characters available for SDTV
- Encodes film transfer information in SMPTE RP215 vertical ancillary data for high definition video and SMPTE RP201 3-Line VITC for standard definition video
- Over 20 Character burn-in windows for time codes, KeyCode, and other film transfer information can be enabled continuously or as a virtual slate at the start of each event
- Interfaces to Evertz 5550 or 5500 KeyCode Readers
- Programmable Telecine interface supports all popular telecines
- Separate LTC generators for video and audio time code operating at 30, 25 and 24 Fps can be slaved to telecine bi-phase or incoming LTC on the video and audio LTC readers
- Multiple project configurations can be stored and recalled to facilitate easy setup of the system from job to job using the KeyLog Tracker™ software
- Transfers can be logged using GPI, Frame Grab or preselected log points using the KeyLog Tracker™ software

HD/SD Film Footage Encoder

HDSD9025TR Typical Configuration for 1080p/24sF



Specifications

HDTV Serial Digital Video Input:

Standard: SMPTE 292M (1.485 Gb/s) 1080i/59.94, 1080i/50, 1080p/23.98sF
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694A (or equivalent)

HDTV Serial Digital Video Outputs:

Number of Outputs: 2 with RP215 VANC data and character burn-ins
Standard: Same as input
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: < 0.15 UI

SDTV Serial Digital Video Input:

Standard: SMPTE 259M-C (270 Mb/s) 525i/59.94 or 625i/50
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 200m @ 270 Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15 dB up to 270 Mb/s

SDTV Serial Digital Video Output:

Standard: Same as Input
Connectors: BNC per IEC 60169-8 Amendment 2
Outputs: 1 Program with RP201 3-line VITC
1 Character output with RP201 3-line VITC and Character Burn-ins
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB
Wide Band Jitter: < 0.15 UI

Analog Monitor Video Output:

Standard: Analog composite NTSC if input is 525i/59.94
Analog composite PAL if input is 625i/50
Connectors: BNC per IEC 60169-8 Amendment 2
Output: 1 Character output with RP201 3-line VITC and Character Burn-ins
Signal Level: 1 V p-p nominal, internally adjustable
DC Offset: 0V \pm 0.1V
Return Loss: > 35dB up to 5 MHz
Frequency Response: 0.8dB to 4 MHz
Differential Phase: <0.9° (<0.6° typical)
Differential Gain: <0.9% (<0.5% typical)
SNR: >56dB to 5 MHz (shallow ramp)

LTC Generators:

Standard: SMPTE 12M
Frame Rate: Video LTC: 24, 25 and 30 Fps nominal
Audio LTC: 25 and 30 Fps nominal
Connectors: 3 pin male XLR type connector.
Level: Adjustable, 0.5V to 4.5V p-p

LTC Readers:

Standard: SMPTE 12M
Frame Rate: 24, 25 and 30 Fps nominal
Connectors: 3 pin female XLR type connector
Level: 0.2 to 4V p-p, balanced or unbalanced

Telecine Interface:

Bi-Phase Tach: 1, 2, 5 or 10 pulses per frame, TTL level
Frame Pulse: 1.6 V p-p active low, (1 pulse per film frame) or TTL Level
FRID (1 edge per film frame)

Parallel I/O Interface:

Inputs (default): Film Transfer Rate (24/30 Fps)
Video Standard Select
Film Frame Centering
Event Log GPI
Connector: 9 pin female "D"

KeyCode Reader Interface:

Standard: RS-232, 9600 or 38400 baud, 7 bit even parity
Compatible with Evertz, ARRI, CP and RIM decoders
Connector: 9 pin female "D"

KeyLog Tracker Interface:

Standard: RS-232, 57600 baud
Connector: 9 pin female "D"
Control: Computer control of all functions using KeyLog Tracker™ software

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60 Hz 30 VA
Safety: ETL listed
Complies with EU safety directive
Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

HDSD9025TR HD/SD Film Footage Encoder including KeyLog Tracker™
HDSD9025TR/5550/UV-3 HD/SD Film Footage Encoder system including KeyLog Tracker™, KeyCode Decoder and UV-3 Head

Ordering Options:

Vista Vision Vista Vision option for Film Footage Encoders
65/70MM 65mm/70mm option for Film Footage Encoders
2 perf 35mm 2 perf option for Film Footage Encoders

HD/SD Profanity Protection System-PRO

Model HDSD9545DLY-PRO



In live shows, there is always the risk that certain actions on the part of an artist or an intruder, might be offensive to certain viewers. The Evertz HDSD9545DLY-PRO Profanity Protection device has been designed to give an operator complete control over the program content being broadcast to air.

This new product, enables the operator to insert the desired time delay, via a front panel control and display panel. There are two program paths which are HD and SD compatible. The main program feed will usually be focused on the main detailed action. The secondary back-up path, will generally offer a wide angle shot or some suitable alternative picture to the main content. Both channels are delayed by the same amount. If an unscheduled offensive event occurs, the operator has only to hit one remote button to cause the program video and audio output to be clean switched to the alternative back-up channel. When the offending material is no longer present, the output can be returned to the main detailed image, without the audience noticing that an edit has occurred.

The delay can be adjusted to a maximum of 40 seconds for HDTV or 240 seconds for SDTV (with the HD40 option). This max delay can be allocated to primary and secondary paths as allocated by the user.

The HDSD9545DLY-PRO includes dual power supplies and a built-in HD/SD Quattro™ card which shows all four pictures on a single screen. The four pictures are as follows:

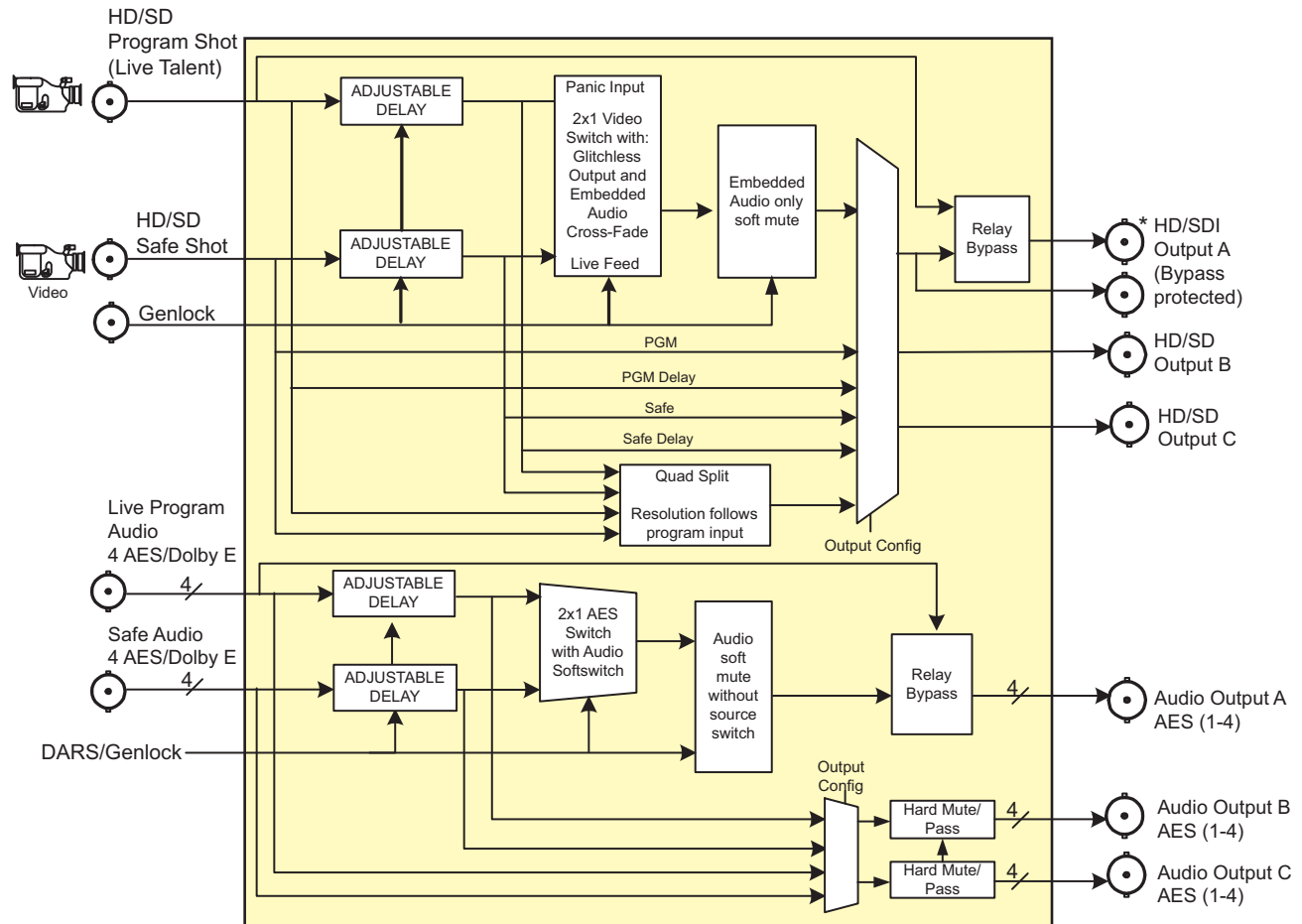
- Main program
- Delayed Main program
- Safe input
- Delayed safe input

Features

- HD or SD SDI compatible
- Embedded Audio and Discrete (4ch AES) Audio Support
- Monitoring outputs of delayed program and delayed backup can be provided
- Selectable quad split monitoring outputs
- Safe input frame capture
- Clean transition between program and backup feed
 - * SoftSwitch™ audio
 - * Clean switch video
- Relay bypass protection for video and audio
- Delay memory is solid state (no moving parts)
- No hard drive to fail or maintain
- Contact closure inputs for bypass triggering
- Programmable pre-trigger reaction time
- Delay on HDSD9545DLY-PRO:
 - 24 seconds for HD Delay or 24 seconds for SD Delay
- Delay on HDSD9545DLY-PRO-HD40:
 - 40 seconds for HD Delay or 240 seconds for SD Delay
- Delay is user allocated between primary & secondary back-up paths
- Dual power supplies

HD/SD Profanity Protection System-PRO

HDSD9545DLY-PRO Block Diagram



Specifications

Serial Video Inputs:

Standard:	SMPTE 259M-C (270 Mb/s), SMPTE 292M
Connector:	BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 50m with Belden 1694 or equivalent cable
Return Loss:	> 15dB up to 1 GHz > 10dB up to 1.5 GHz

Serial Video Outputs:

Number of Outputs:	1 with relay bypass, 2 additional outputs
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	740ps nominal SMPTE 259M 200ps nominal SMPTE 292M
Overshoot:	<10% of amplitude
Return Loss:	> 15dB up to 1 GHz > 10dB up to 1.5 GHz
Wide Band Jitter:	< 0.2 UI

Electrical:

Voltage:	Auto ranging 100 - 240 Volts AC, 50/60 Hz 30VA
Power:	40 Watts
Safety:	ETL Listed Complies with EU safety directives
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

19.00" W x 18.75" D x 3.50" H (483mm) x (477mm) x (89mm)

Ordering Information:

HDSD9545DLY-PRO	HD/SD Video and Audio Delay/Profanity Protection System with 24 seconds of HD or SD delay
HDSD9545DLY-PRO-HD40	HD/SD Video and Audio Delay/Profanity Protection System with 40 seconds of HD delay or 240 seconds of SD Delay

Keylog Tracker

The Evertz Film Post Production System helps you keep track of all aspects of your Film to Tape transfer session

KEYLOG TRACKER™ is an intuitive graphical user interface that provides more flexibility to the Evertz Film Post Production System than ever before. KeyLog TRACKER™ runs on standard Window 95 capable computer hardware gives you access to a host of new capabilities for the system including more character windows, simultaneous KeyCode and Ink number handling and several new Time code modes to mention a few.

The Evertz Film Post Production System uses function specific hardware units such as the 4025TR Film Footage Encoder, the 5500 KeyCode Reader and the 8025 Digital VITC Inserter to perform the bulk of the real time processing. This dedicated hardware reads and generates Video Time code, reads KeyCode and ARRI Film Time code, inserts Vertical Interval Time code and character burn-ins into analog and digital program video, and keeps track of the 3/2 pulldown.

KEYLOG TRACKER™ centralizes the control of your 4025TR Film Footage Encoder, performs frame accurate logging of Video and Audio Time code, KeyCode, Ink numbers, 3/2 pulldown and related production data and provides extensive data base management capabilities for the resulting project data.

Character Windows

KEYLOG TRACKER gives you access to 12 separate character windows to display Video Time code, Audio Time code, KeyCode, Ink numbers (feet & frames), Scene, Take, Slate, Lab roll, Camera roll, Sound roll, Date of Production, and a 32 character user definable text window.



Flexible Hardware Control

KeyLog TRACKER works with Evertz complete line of film footage encoders and HD Afterburners. With KEYLOG TRACKER's graphical configuration editor you choose the overall operating mode that fits your project. Within each mode you can adjust various hardware settings to achieve precisely the result your clients demand. An unlimited number of configurations can be saved and recalled, minimizing set up times for repeat clients and virtually eliminating operator error. A project's configuration is automatically recalled when the project is opened.

An electronic slate shows all the vital information at the start of each take, for master transfers where you cannot display the normal burn-ins throughout the take.

The status bar at the bottom of the screen allows you to see at a glance how your hardware is configured. In addition, the Encoder Status window constantly monitors KeyCode reading performance, incoming Time codes and other real time status information.

Data Logging

KEYLOG TRACKER allows you to choose the optimal method of logging transfer elements to the database. You let the project determine whether you will log only the head and tail of each roll for one light transfers, grab KeyCode or time code breaks for select take rolls, grab events on the fly from the keyboard, or interface to external edit controllers with the GPI interface. Pre-determined tag points can be entered into Daily Roll files to automate data capture on Synced Print transfers. Production data such as Scene and Take, Camera roll, Sound roll can be pre-entered before the telecine session to streamline the transfer process, or can be entered in real time during the transfer.

Data Management Functions

KEYLOG TRACKER's extensive data management capabilities are second to none. Projects can be organized by client, or production, or by operator - you decide. The spreadsheet style preview and editing of logged events allows you to quickly scan the transfer session and edit the database. Project wide viewing and sorting of events facilitates management of data on long form productions such as feature films. Reports can be sorted by VT roll, Camera roll, Scene/Take, KeyCode or Ink numbers to name a few.

The Event Tracker allows you to trim time codes, KeyCode and Ink numbers of in and out points together. Event cleanup functions remove unwanted events and overlaps from the list. KEYLOG TRACKER generates Film Transfer list files compatible with most non-linear editors.

- KEYLOG FTL, AVID ALE, TLC FLEx and Lightworks ODB formats are supported.

Desktop Configurability

The KEYLOG TRACKER desktop groups relevant information into separate windows, which can be positioned and sized to suit the colorist's preferences. A spreadsheet style display of logged events is fully configurable to view only the information that is needed for a client. Each user can save their favorite layout of the desktop when the system is shared by multiple colorists.

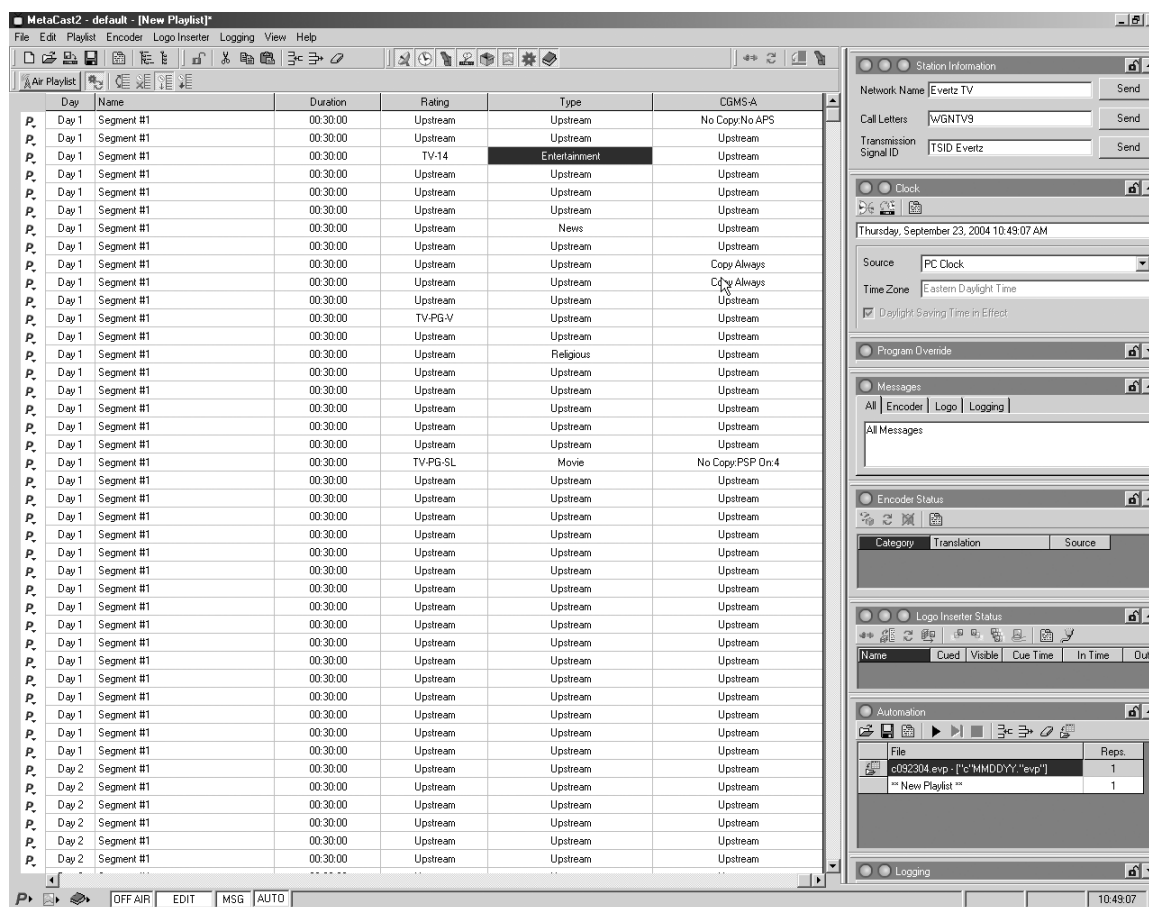
System Requirements

- CPU: Pentium II - 233 MHz or faster
- Operating System:
 - Win98 Second Edition (recommended)
 - WinNT 4 SP 4 or later, Win 2000, Win XPPro
- RAM: 128 MB recommended, 64 MB minimum
- mouse
- Video: 2 MB, 800 x 600 minimum
- CD-ROM
- Hard Disk: 20 MB Free
- Serial Ports: 2 available
- local or network printer for printing reports (recommended)
- sound card with speakers used to generate system sounds when logging (recommended)

Ordering Information:

Included with 4025TR and 9025 Series Film Footage Encoders. Upgrades available for older systems. Contact factory.

MetaCast 2 XDS/URL/Logo Schedule Software



Overview

This Windows™ application has been designed to simplify the encoding of XDS (V-Chip, TSID, CGMS-A, Program ID, etc.) and Logo information by gathering data from pre-compiled playlists or schedules. MetaCast 2 also eliminates the need for regular human intervention by automatically identifying the next day's playlist by using standard date related file names or the built-in scripting feature.

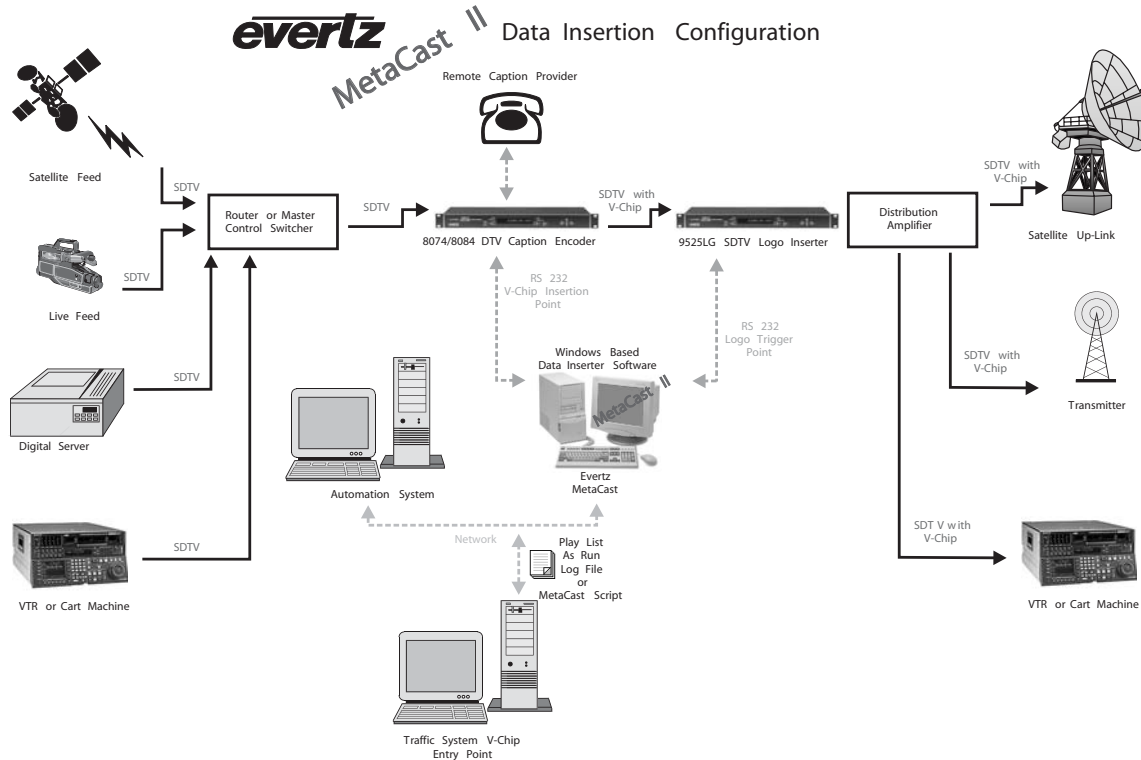
Setup

Metacast 2 requires a direct connection to an Evertz 8084/8084AD/HD9084 Digital Closed Caption Encoder and/or Logo Inserter and a playlist file supplied by either an Enterprise BMS Traffic System or created using the software's built-in schedule creation utilities.

Features

- MetaCast 2 can schedule a wide variety of information, including program rating, program title, program type, URL, network name, station call letters, Copy Generation Management System (CGMS-A), Transmission Signal Identifier (TSID), system time, time zone and Logos
- Ability to control multiple encoders and Logo Inserters by running additional instances of MetaCast 2 on the same computer (limited only by the number of available com ports). Basic purchase supports 4 units (NT or 2000 only)
- MetaCast 2 allows the user to create an unlimited number of configurations
- Multiple configurations are identified by a unique user selectable naming convention
- Multiple rating systems include US TV parental guidelines (TVPG), MPAA, Canadian English & Canadian French language
- Playlist or manual mode depends on the available source of program information
- Text based scripting allows other traffic systems to create files compatible with the MetaCast 2 schedules
- Multiple instances of MetaCast 2 are treated as unique and separate from one another. Use 1 PC to control multiple encoders running from separate sources (Playlist and/or schedule) and simultaneously encode different rating systems
- User defined offset time allows MetaCast 2 to broadcast in multiple time zones from one playlist as well as roll programs forward or back to accommodate programs that may run short or long
- Ability to block individual upstream channels so that only the desired XDS & Caption information leaves the encoder
- MetaCast 2's sophisticated error checking algorithms will monitor the encoder's & inserter's memory to ensure packets & logos are actually being broadcast all while clearly informing the user of any problems MetaCast 2 will intelligently attempt to re-send data & logo status to the device
- Program logging allows alert messages to be logged, saved and printed for later retrieval and verification
- A new edit mode allows for maintenance and creation of schedules while other schedules are running

MetaCast 2 XDS/URL/Logo Schedule Software



Playlist Mode:

- MetaCast 2 will gather program information from a playlist produced by an Enterprise BMS Traffic System (Requires Enterprise's Win DEI Interface)
- Automatic pickup of the next day's playlist according to a user-defined date-based file name
- Custom mapping files can assign user-defined playlist program types to those specified in the EIA-608 standard
- Override functions to change any parameter of the currently scheduled program or to queue changes for the next program
- Insert a default station/network web page without entering it into the traffic system

PC Hardware Recommendations:

- Windows™ operating system (2000, XP)
- 10 MB of hard drive space
- 2 MB video card
- 1024 x 768 monitor resolution (17" monitor)
- 1 free serial port per encoder or inserter
- Max 2 instances with Win 98SR2
- Max 4 instances with WIN2K or XP

Schedule Mode:

- MetaCast 2 will take program information from a schedule created with the built-in spreadsheet based editor
- Create and save schedules to disk to later be loaded on the broadcast date
- Flexible scripting language allows the user to create a week's worth of programming in multiple schedule files and tell the software to repeat that sequence indefinitely.
- MetaCast 2 will load and run each new schedule as the previous one expires
- Override functions allow the user to alter any parameter of the current program and have the MetaCast 2 return to the normal schedule when that show ends

Ordering Information:

MetaCast 2 Metacast 2 XDS/URL/Logo Schedule Software

Compatible Evertz Hardware:

- 8084 Closed Caption Encoder
- 8084AD Closed Caption Encoder
- HD9084 DTV Caption Encoder
- 9625DSK-LGA Downstream Media Keyer
- 9625LG Logo Inserter
- 9625LGA Media Keyer
- HD9625LG High Definition Logo Inserter
- HD9625LGA High Def Media Keyer
- PKGHD9625SW HD Mini Master Switcher
- PKG9625SW SD Mini Master Switcher

Mobile Fiber Optic Systems - Single & Dual Cases



Model PKG7700MFOS & PKG7700MFOS-2



The PKG7700MFOS Single and Dual Case Systems are portable fiber solutions which transmit various signals point to point via fiber. The single system includes a single Mobile Transit Case, 7700FR-C 3RU Multiframe, single Breakout Cable and a 300 meter fiber Cable Reel. The dual system includes (2) Mobile Transit Cases, (2) 7700FR-C 3RU Multiframe, (2) Breakout Cables and a single 300m Fiber Cable Reel. Both systems support multiple wavelengths over a single fiber and is fully bi-directional. Wavelength operation includes WDM, CWDM and DWDM support.

Key features include remote monitoring & control of all 77xx VistaLINK™ enabled cards via SNMP. Evertz's VistaLINK™ monitoring software offers confidence monitoring for mission critical field applications.

The 7700FR-C frame included in the system utilizes any Evertz 77xx series card. Additional options for the PKG7700MFOS system include redundant power supplies for the 7700FR-C frames, Anton Bauer Quad Battery Holder, and the 7700PCO AC/DC Power Changeover Unit.

Signal Types Supported:

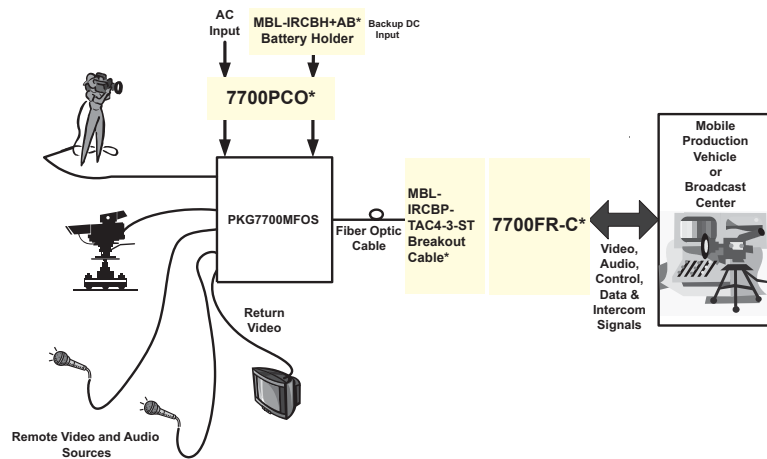
NOTE: All 77xx fiber cards must be ordered with ST/PC connectors for PKG7700MFOS system applications.

- SD-SDI, HD-SDI, Analog video, DVB-ASI
- AES Audio, Analog Audio, Dolby E Audio
- RS-232/422, GPI, GPO
- 10/100 Mbps, Gigabit Ethernet and Fiber Channel
- L-Band R.F. & 70/140 MHz I.F.
- DS-3/E3, T1/E1, Sonet OC3/12
- RTS & Clear-Com Intercom

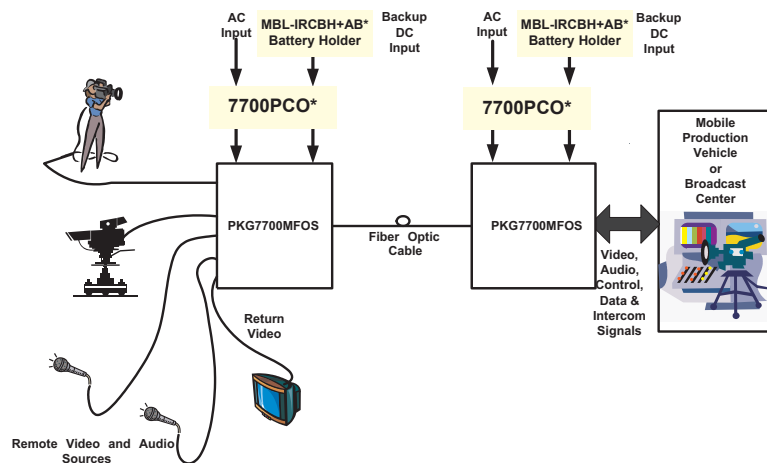
Features

- Ideal for mobile productions
- Capacity for multiple wavelengths over single fiber using WDM, CWDM or DWDM
- Fully bi-directional
- Immune to Interference and electromagnetic hum
- Multiple signal type support
- SNMP monitoring via VistaLINK™
- Easy to set up and use - replaces bulky cable harnesses
- TAC-4 single mode cables with hermaphroditic connectors
- Evertz frames utilize any Evertz 77xx series
- Optional redundant 7700PCO (Power changeover) unit for AC/DC backup
- Optional Anton Bauer quad battery holder for Evertz 7700PCO
- Optional breakout cable Delphi Hermaphroditic TAC4 to ST/PC with mounting plate (only for single case system)

Mobile Fiber Optic Systems - Single & Dual Cases



PKG7700MFOS
Typical Application Diagram



PKG7700MFOS-2
Typical Application Diagram

Ordering Information:

PKG7700MFOS: Mobile Fiber Optic System - Single Case

Includes:

7700FR-C	3RU Multiframe with power supply and rear plate
MBL-IRC-420	Mobile Transit Case
MBL-IRCBP-TAC4-3-ST	Breakout Cable Delphi Hermaphroditic TAC4 to ST/PC, 1 meter
MBL-FCR-TAC4-300	Cable Reel with 300 meters of cable

Ordering Information:

PKG7700MFOS-2: Mobile Fiber Optic System - Dual Case

Includes:

2 x 7700FR-C	3RU Multiframe with power supply and rear plate
2 x MBL-IRC-420	Mobile Transit Case
2 x MBL-IRCBP-TAC4-3-ST	Breakout Cable Delphi Hermaphroditic TAC4 to ST/PC, 1 meter
1 x MBL-FCR-TAC4-300	Cable Reel with 300 meters of cable

Ordering Options:

7700PS	Redundant power supply
7700PCO	AC/DC Power Changeover Unit
MBL-FCR-TAC4-450	Cable Reel and 450m TAC4, SMF fiber, Hermaphroditic Connectors
MBL-FCR-TAC4-500	Cable Reel and 500m TAC4, SMF fiber, Hermaphroditic Connectors
MBL-IRCBH+AB	Anton Bauer Quad Battery Holder for Evertz 7700PCO

(Only for Single Case System)

MBL-IRCBP-TAC4-3-ST Breakout cable Delphi Hermaphroditic TAC4 to ST/PC with mounting plate

Options:

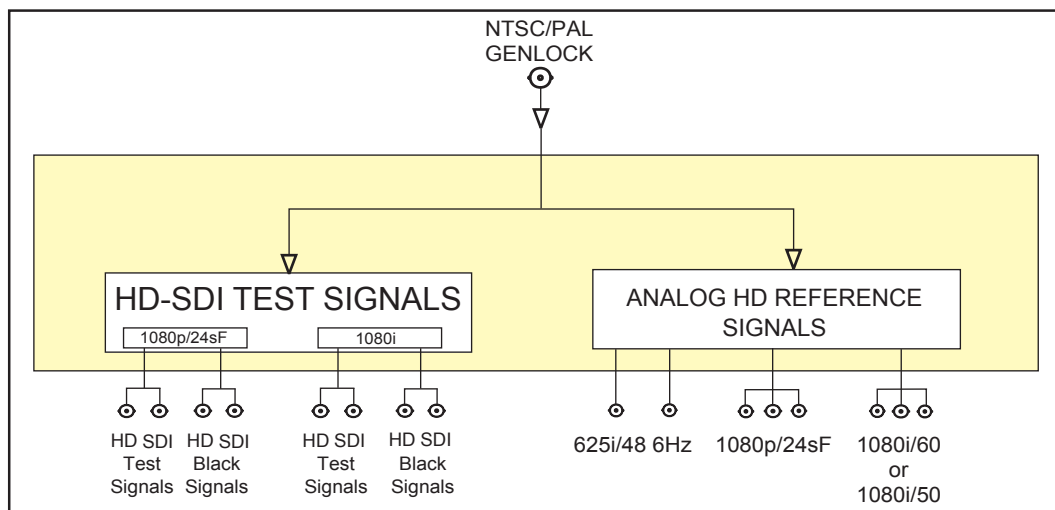
7700PS Redundant power supply

Note:

To obtain more detailed information on each item included in the 7752RGTS-HD system, please refer to the individual spec. sheets for the 7750TG2-HD, 7750SRG-HD, 7700ADA and 7700FR-C.

HD Reference Generator/Test Set System

Model PKG7752RGTS-HD

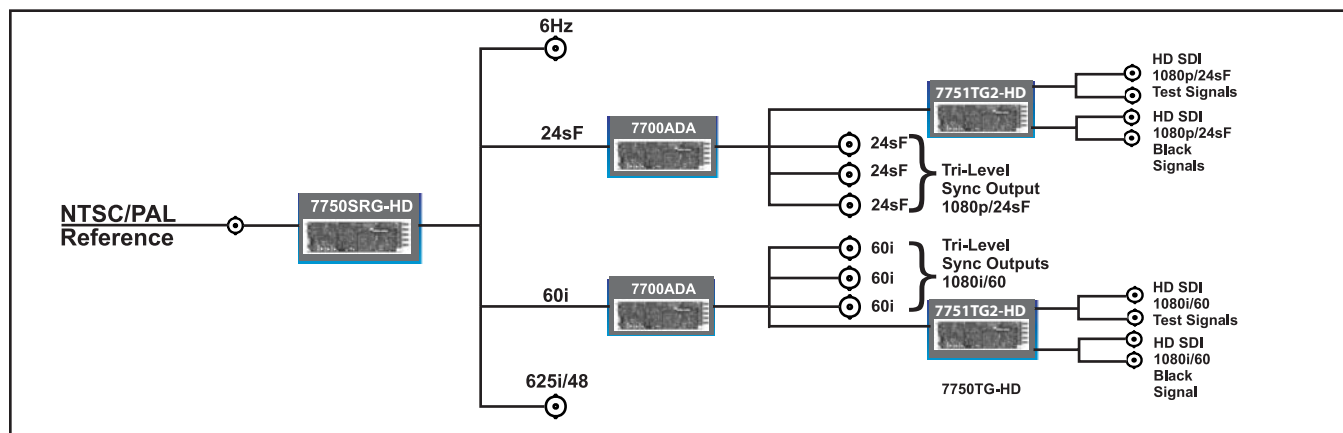


The HDTV Reference Generator Test Set System (PKG7752RGTS-HD) is based on the 7750SRG-HD card. This card locks to either an NTSC or PAL reference signal and generates HD tri-level sync as per SMPTE 274M (1080i, 1080p & 1080p/24sF) or SMPTE 296M (720p). The complete PKG7752RGTS-HD system also generates numerous HDTV test signals.

Features

- Multi-Format tri-level sync generation
- Genlocks to NTSC/59.94, PAL/50 or free-run
- Provides additional reference signals - 6Hz and 'slow PAL' (625i/48)
- LED indicators for NTSC and PAL reference
- Simultaneously generates 1080i and 1080p HD Tri-Level Sync and 'slow PAL' Sync signals (user configurable sync output combinations)
- Two independent selectable HD SDI test signals with embedded audio tones
- Two independent selectable HD SDI black signals

Typical Application Diagram



Ordering Information:

PKG7752RGTS-HD HD Reference Generator/Test Set System housed in the 7700FR-C 3RU Multiframe includes the following modules:

7751TG2-HD	Test Signal Generator	Qty. 2
7750SRG-HD	Slave Reference Generator	Qty. 1
7700ADA	Analog Equalizing DA for HD	Qty. 2
7700FR-C	3RU Multiframe with single power supply	Qty. 1

Options:

7700PS Redundant power supply

Note:

To obtain more detailed information on each item included in the 7752RGTS-HD system, please refer to the individual spec. sheets for the 7751TG2-HD, 7750SRG-HD, 7700ADA and 7700FR-C.

Please refer to our 5600MSC brochure for master sync and master clock applications

Multi-Format HDTV (720p/1035i/1080i) to 270Mb/s SDTi Compression CODEC



Model PKG7771MFC-HD

The PKG7771MFC-HD, multi-format Compression Codec compresses one SMPTE 292M (1.485Gb/s) serial digital video signal with up to four AES channels of embedded or external audio, into one 270Mb/s SDTi (SMPTE 305M) compliant output stream. The PKG7771MFC-HD also preserves VANC data in the incoming HD-SDI stream and transports this across the 270Mb/s SDTi interface. Automatic detection and support of 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94, 720p/59.94, 720p/50 field rates is provided.

The PKG7771MFC-HD occupies four card slots and is housed in a 3RU frame which will hold up to 3 modules.

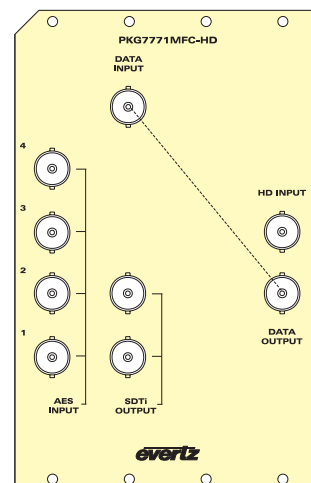
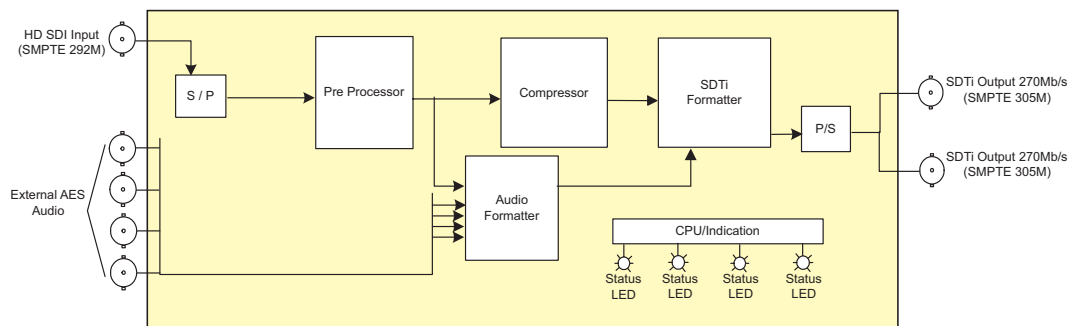
Features

- Automatic detection of 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94, 720p/59.94, 720p/50 field rates
- Transports up to four channels of embedded or external AES audio
- No compression applied to AES audio streams
- Preserves VANC from input HD-SDI stream
- SMPTE 305M compliant 270Mb/s output stream
- EDH insertion on SDTi output
- Fully hot swappable from front of frame

Status Indication:

- Input signal presence
- 1035i/1080i/720p active lines

PKG7771MFC-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M (1.485Gb/s)
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 100m @ 1.5 Gb/s with Belden 1694 or equivalent cable
Return Loss: > 15 dB up to 1.5 Gb/s

AES Audio Inputs:

Standard: SMPTE 276M, single ended AES, Dolby E
Number of Inputs: 4
Signal Level: 200mv to 1100mv
Connector: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48kHz
Impedance: 75Ω balanced
Resolution: 24-bit

SDTi Video Output:

Standard: SMPTE 259M-C (270Mb/s)
SMPTE 305M
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 740ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: <0.2UI
Embedded VANC: One 20-bit group as per SMPTE337M
Embedded Audio: Two 24-bit groups as per SMPTE 272M-A embedded audio on HD input

Input to SDTi Delay:

Video: 4 frames
AES: < 40 ms

Electrical:

Voltage: +12VDC
Power: 16 Watts

Physical:

7700 frame mounting: 2 slots
7701 frame mounting: 1 slot

Ordering Information:

PKG7771MFC-HD Multi-Format HDTV (720p/1035i/1080i) to 270Mb/s SDTi Compression CODEC

Ordering Options:

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

Multi-Format HDTV (720p/1035i/1080i) to 270Mb/s SDTi De-compression CODEC



Model PKG7771MFD-HD

The PKG7771MFD-HD, multi-format De-compression Codec converts a 270Mb/s SDTi (SMPTE 305M) input signal containing HDCAM compressed data with embedded AES audio, into a SMPTE 292M (1.485Gb/s) component serial digital stream with embedded or external audio. The PKG7771MFD-HD also re-embeds VANC data that existed in the original HD-SDI stream. The PKG7771MFD-HD supports 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94, 720p/59.94, 720p/50 field rates.

The PKG7771MFD-HD occupies four card slots and is housed in a 3RU frame which will hold up to 3 modules.

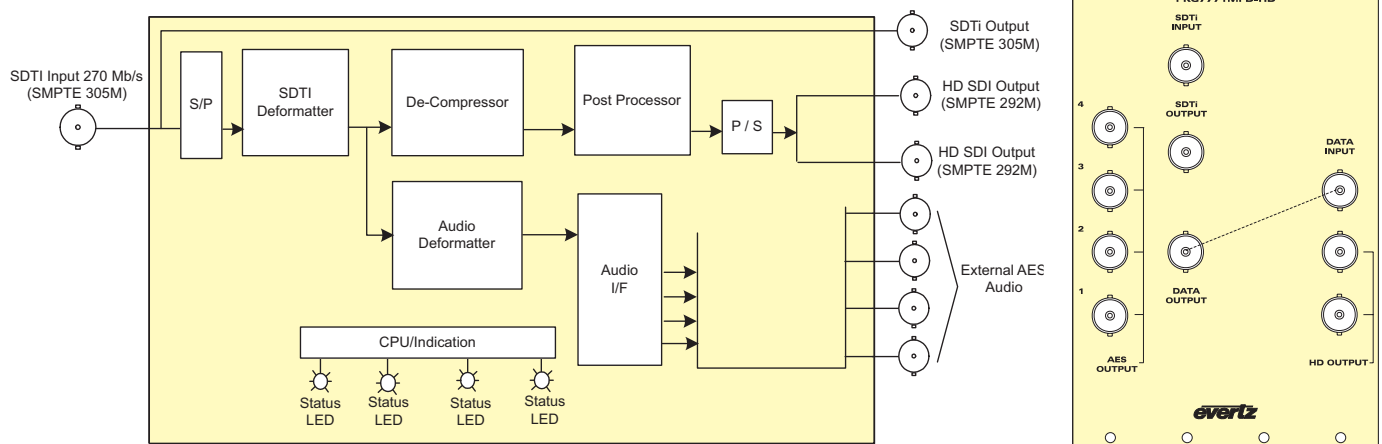
Features

- Automatic detection of 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94, 720p/59.94, 720p/50 field rates
- Up to four AES channels re-embedded in outgoing HD-SDI or available on separate AES outputs
- Re-embeds original VANC data in outgoing HD-SDI stream
- Fully hot swappable from front of frame

Status Indication:

- Input signal presence
- 1035i/1080i/720p active lines

PKG7771MFD-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C (270Mb/s)
SMPTE 305M data formatting
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Return Loss: >15dB @ 270Mb/s

Serial Video Output:

Standard: SMPTE 292M (1.485Gb/s)
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: <200ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB up to 1.5Gb/s

AES Audio Outputs:

Standard: SMPTE 276M, single ended AES, Dolby E
Number of Outputs: 4
Connector: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48kHz
Impedance: 75 Ω
Resolution: 24-bit

System Delay (Compress + Decompress):

Video: 7 Frames
Audio: 7 Frames
VANC: 7 Frames

GPO:

Number of Outputs: 1
Connector: 1 pin on DB9
Type: TTL

Electrical:

Voltage: +12VDC
Power: 16 Watts

Physical:

7700 frame mounting: 2 slots
7701 frame mounting: 1 slot

Ordering Information:

PKG7771MFD-HD Multi-Format HDTV (720p/1035i/1080i) to 270Mb/s SDTi De-compression CODEC package

Ordering Options:

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

SDI Mini Master Control Switcher Package

Model PKG9625SW

METACAST 2 ENABLED



The Evertz PKG9625SW Mini Master Control Switcher is an excellent addition to your Standard Definition control room. This dual unit solution incorporates the best switching technology with the proven transition and channel branding techniques that has brought Evertz to the forefront of Digital Television. Add to this, Emergency Alert Services and SoftSwitch™ audio processing, and you have the most advanced media switcher available today.

The Evertz PKG9625SW includes all the functionality found in our X Series Router, seamlessly married together with our advanced Logo Inserter and Downstream keyer. This complete system allows you to fully control up to 12 input video signals and up to 48 AES audio inputs. You can perform voice-overs, wipes, fades, fade to black and a host of other features, all from the convenience of the single remote control panel.

Features

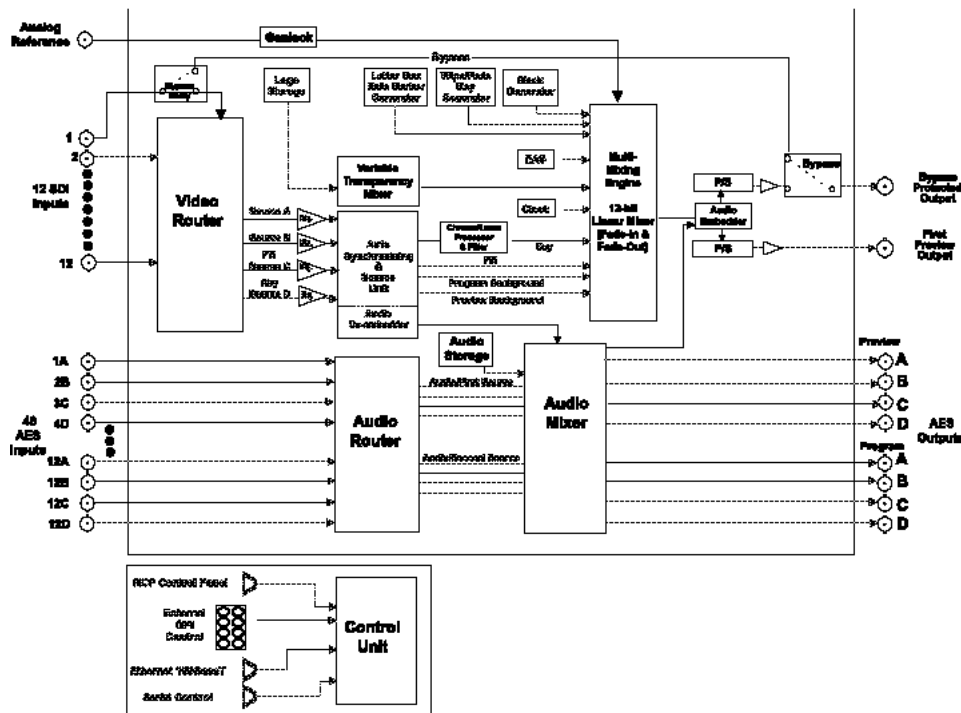
- 12 Input SD Video Switcher with Quad 12 input AES switcher for discrete 5.1 Dolby
- Program/Preview Transition Mixer for SD video and up to 4 audio pairs
- Downstream keyer with mix and additive modes
- Variety of smooth Transitions including Cut, Fade, Fade to-from Black and 8 angles of Wipes
- Optional EAS support - Emergency Alert Crawls from TFT or Sage systems
- SD Multiple Logo Inserter with Animation
- LTC input for digital or analog clocks
- Single Remote Control Panel for Router/Keyer/Logo functions
- Built-in Black Generator
- 12 Bit Video Processing
- Control of key gain & offset are provided
- Multiple Control Interface Options including GPI, RS232 and Rackmount Control Panel
- Built-in +/- 1/2 line autotimers for video
- "Pop" free AES Audio Switch with Evertz patented SoftSwitch™ Technology
- System comprised of two 1RU rack frames and a remote 1RU control panel
- Audio bypass mode for Dolby E
- Video and audio input bypass relay for power failure protection
- Optional crawl for scrolling text messages



NOMAD Lite is an easy to use graphical interface that integrates the speed of fast Ethernet, with the ease of drag and drop functionality to deliver a central access point to Evertz keyer products. Using this software allows you to upload media files to one or many units simply by clicking and dragging the item from the explorer like window, into the device tree. This powerful interface allows you to extract and move media items from one device to another using the same easy drag and drop style. For more complicated multi unit installations, you can set custom device groups. This allows for media content to be dropped on a custom grouping and automatically uploaded to the ganged units in one easy step.

SDI Mini Master Control Switcher Package

PKG9625SW Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C (270Mb/s)
Number of Inputs: 12
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic up to 100m @270Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15 dB up to 270Mb/s

Serial Video Output:

Standard: Same as input
Number of Outputs: 1 Program, 1 Preview
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 750ps nominal
Overshoot: <10% of amplitude
Jitter: <0.2 UI

AES Audio Inputs:

Standard: SMPTE 276M single ended AES
Number of Inputs: 12 per buss, 4 busses
Connector: BNC per IEC 60169-8 Amendment 2 on 2 breakout panels provided
Signal Level: 1Vp-p \pm 10%

AES Audio Outputs:

Standard: SMPTE 276M single ended AES
Number of Outputs: 4 Program, 4 Preview
Connector: BNC per IEC 60169-8 Amendment 2 on 2 breakout panels provided
Signal Level: 1Vp-p
Reference: From Video General Reference

Video Reference:

Type: Menu selectable - depends on video format
NTSC or PAL Color Black 1 V p-p
Composite Bi-level sync (525i/59.94 or 625i/50) 300 mV
2 BNC per IEC 60169-8 Amendment 2
Connectors: High impedance loop through
Termination:

Control:

Serial Control: RS-232/422, 8 bits, no parity, 9600, 19200, 38400, 57600 baud computer control of all functions
Upgrade: RS-232, 57600 baud, 8 bits, no parity for firmware upgrades

Remote Panel Port: RS-422, 9600 baud, 8 bits, no parity
Logo Transfer: RJ-45 TCP/IP, 100Base T

LTC Reader:

Standard: SMPTE 12M
25, 30Fps Drop & Non Drop Frame
Connector: XLR Type 3 pin female connector
Signal Level: 0.2 to 4V p-p, balanced or unbalanced
Speed: 1/30th to 70x play speed, forward and rev, machine dependent

General Purpose In/Out:

Number of inputs: 8
Number of outputs: 4
Type: Opto isolated, active low
Connector: Female High Density DB-15
Signal level: +3.3V DC nominal

Physical:

Dimensions:
Switcher Electronics: 19"W x 3.5"H x 18.75"D
(483mm W x 90mm H x 477mm D)
Control Panel: 19"W x 1.75"H x 4.25"
(483mm W x 45mm H x 110mm D)
Weight (total): 17lbs. (7.8Kg)

Electrical:

Power: Autoranging 100-240 V AC 50/60 Hz, 60 VA
Safety: ETL listed
Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

PKG9625SW SDI Mini Master Switcher Package

Ordering Options:

+2PS Redundant power supply
+CF Compact flash optional hardware (does not include compact flash memory card)
+CWL Optional crawl support
+1G Internal memory expansion to 1 Gigabyte
+TP Optional Air Temperature Probe
+E Optional EAS Crawl Insertion

Accessories:

CF128 Card Flash memory expansion with 128 Megabyte card
CF1G Card Flash memory expansion with 1 Gigabyte card
9600LG-TP Optional air temperature probe for all 9625 & HD9625 products (for existing hardware)

HD Mini Master Control Switcher Package

Model PKGHD9625SW

**METACAST 2
ENABLED**



The Evertz PKGHD9625SW Mini Master Control Switcher is an excellent addition to your High Definition control room. This dual unit solution incorporates the best switching technology with the proven transition and channel branding techniques that has brought Evertz to the forefront of High Definition Television. Add to this, Emergency Alert Services and SoftSwitch™ audio processing, and you have the most advanced media switcher available today.

The Evertz PKGHD9625SW includes all the functionality found in our X Series Router, seamlessly married together with our advanced Logo Inserter and Downstream keyer. This complete system allows you to fully control up to 12 input video signals and up to 48 AES audio inputs. You can perform voice-overs, wipes, fades, fade to black and a host of other features, all from the convenience of the single remote control panel. This unit is fully automation enabled.

Features

- 12 Input HD Video Switcher with 12 input AES switcher for discrete 5.1 Dolby
- Program/Preview Transition Mixer for HD video and up to 4 audio pairs
- Downstream keyer with mix and additive modes
- Variety of smooth Transitions including Cut, Fade, Fade to-from Black and 8 angles of Wipes
- Optional EAS support - Emergency Alert Crawls from TFT or Sage systems
- HD Multiple Logo Inserter with Animation
- LTC input for digital or analog clocks
- Single Remote Control Panel for Router/Keyer/Logo functions
- Built-in Black Generator
- 12 Bit Video Processing
- Control of key gain & offset are provided
- Multiple Control Interface Options including GPI, RS232 and Rackmount Control Panel, Automation, M2100 mini control panel
- Built-in +/- 1/2 line autotimers for video
- "Pop" free AES Audio Switch with Evertz patented SoftSwitch™ Technology
- System comprised of two 1RU rack frames and a remote 1RU control panel
- Audio bypass mode for Dolby E
- Optional video and audio input bypass relay for power failure bypass protection
- Optional crawl for scrolling text messages



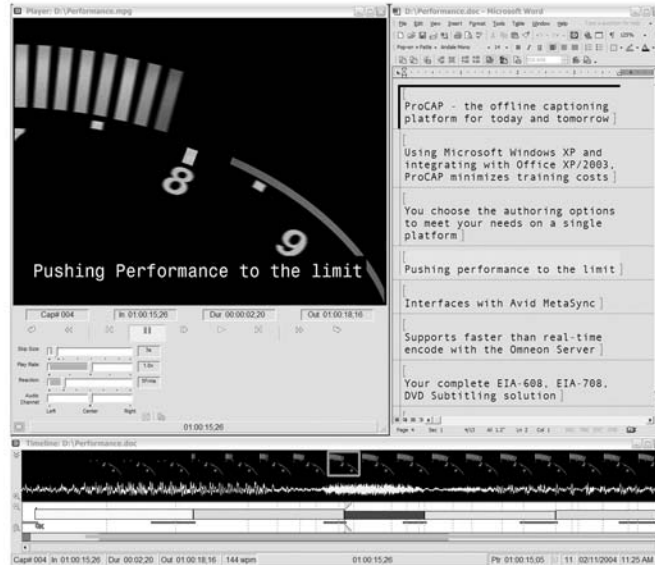
NOMAD Lite is an easy to use graphical interface that integrates the speed of fast Ethernet, with the ease of drag and drop functionality to deliver a central access point to Evertz keyer products. Using this software allows you to upload media files to one or many units simply by clicking and dragging the item from the explorer like window, into the device tree. This powerful interface allows you to extract and move media items from one device to another using the same easy drag and drop style. For more complicated multi unit installations, you can set custom device groups. This allows for media content to be dropped on a custom grouping and automatically uploaded to the ganged units in one easy step.

ProCAP Offline Captioning

The ProCAP Authoring System is a complete offline non-linear caption preparation system offering a cost-effective and flexible solution.

Player

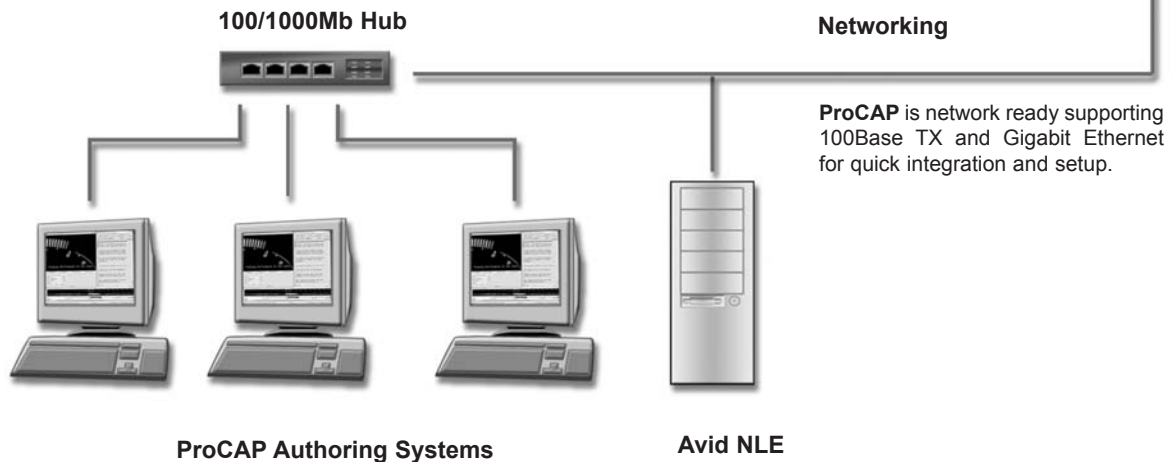
Using Windows® XP multimedia subsystem for playback, ProCAP adds caption and subtitle preview over video for WYSIWYG display, timing and positioning. Also supports Avid Quicktime reference clips.



Editor

Using Microsoft® Word ProCAP extends the functionality of the universal word processor allowing users to import or create transcripts, author and edit captions, caption styles, format and positioning.

Timeline- provides a pictorial view of the caption information. Shot change detection, a film strip and an audio waveform allows for precise alignment of captions.



ProCAP® Author

ProCAP Author saves time by supporting EIA-608 Line 21 captioning, EIA-708 DTV captioning and DVD Subtitling all in the same application - the work done for one standard can be applied to the next Cheetah .CAP, TDS, .SCC for DVD Line 21, DVD scripts and Image files are all supported

Avid NLE With MetaSync®

Avid NLE With MetaSync®

ProCAP Author seamlessly integrates with Avid NLEs. Avid Quicktime reference clips can be used directly. MetaSync® export scripts can be imported for finishing, or any available transcript used as a starting point. Completed work can be output for Transfer or as a Line 21 video clip to be taken back into the Avid project.

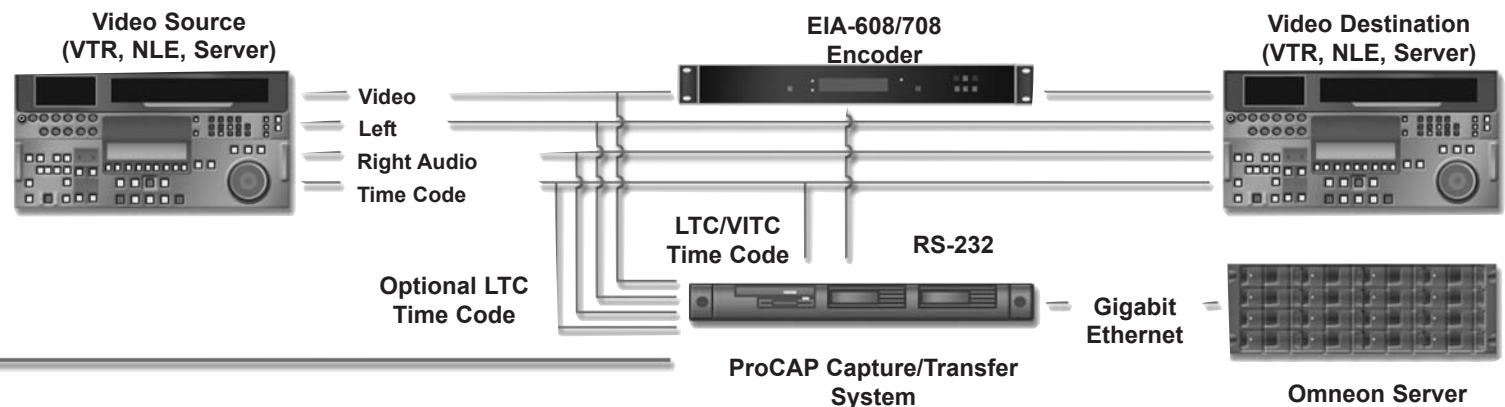
ProCAP Offline Captioning

Closed Caption Encoder

ProCAP Transfer supports any new or existing CTRL-A Protocol compliant Closed Caption encoder. For digital video applications, the Evertz HD9084 is a full broadcast quality EIA-608 and EIA-708 digital encoder.

ProCAP® Transfer

ProCAP Transfer ensures accurate and consistent encoding of captions to video. Support for various file formats including .TDS, Cheetah, .CAP, NCI, .CAP and NCI, .FLC. ProCAP Transfer can also capture existing Line 21 streams, and export them as .SCC files for DVD.



ProCAP® Capture

Using an industry standard capture card and a SCSI subsystem in a 1RU server, the resulting MPEG1 file is a frame-accurate capture of the source video. Lower cost capture solutions combined with the Author station are also available. Burn-in time code on the capture, or optional LTC capture, ensures frame-accurate results.

Omneon Server Support

ProCAP Transfer allows for off-line caption encoding directly into clips residing on an Omneon server. The typical speed is 4 to 6 times real-time. Because Line 21 data is inserted into the video clip, there is not generation loss. Clip caption status tagging allows simplified automation support.

Features

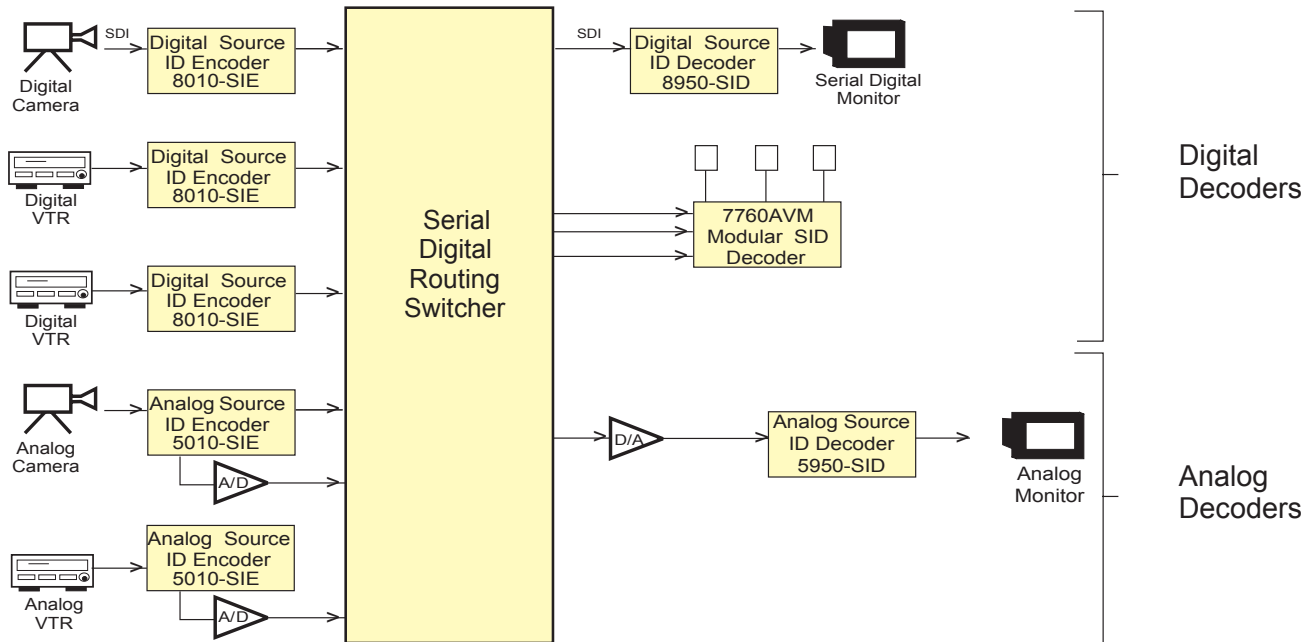
- Full customization of keyboard shortcuts and macros to suit the user
- WYSIWYG control over caption placement through drag-and-drop and shortcuts
- Resizeable player window. Windows® XP allows for multi-monitor display
- Timeline provides a pictorial view of caption reading rates, and any conflicts or errors during authoring, saving revision time and costs
- Shot scene detection with film strip and audio waveform allows for accurate positioning of captions
- Interfaces to Avid and Avid MetaSync®, allowing for rapid captioning of material
- Omneon Encode support delivers performance of 4 to 6 time real-time encode. Automation support through clip tagging.

Ordering Information:

PA-SW-708	ProCAP Author Software Only, 1 Station License, Adds 708 to Base
PA-SW-BASE	ProCAP Author Software Only, 1 Station License, Base EIA-608 Standard
PA-SW-DVD	ProCAP Author Software Only, 1 Station License, Adds DVD to Base
PA-SW-FULL	ProCAP Author Software Only, 1 Station License, All Options
PC-HW	ProCAP Capture Hardware and Third Party Software
PCT-HW-TC	ProCAP Transfer PCI Timecode Reader Board
PT-SW	ProCAP Transfer Software Only, 1 Station License, with 1 year support

Source Identification Systems

Vertical Interval Source ID Block Diagram



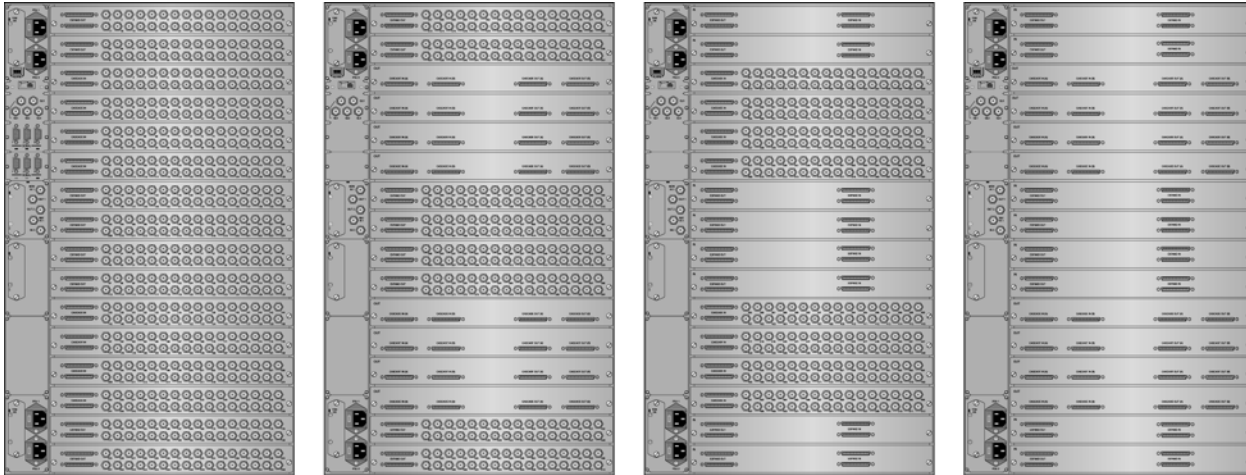
Block Diagram of Analog & Digital Source Identification Systems

Evertz has developed a line of analog and digital source identification encoders and decoders for use by broadcasters and other large facilities. These units have the ability to encode source ID, along with VTR time code and status into the vertical interval using Vertical Interval time code. Decoders at the monitors extract this information and display it in the picture or on under monitor displays. The range of equipment includes standalone encoders and decoders and modular decoders which are ideally suited for monitoring walls. The technology used in these devices can be readily adapted to specialized requirements for any facility.

(Contact factory for further information or to discuss specific applications)

While primarily designed as High Definition video router the input, crosspoint and output circuitry of the Q256-H equally supports the routing of Standard Definition digital video. While some routers only allow HD or SD routing within a defined I/O block the Q256-H allows an HD or SD source to be connected to any one of its inputs and to be switched through to any one of its outputs. There are no operational restrictions imposed by the Q256-H router. All outputs are reclocked with automatic sample rate selection.

Q256-HD Rear Panel (Configurations A, B, C & D)



Features Configuration

The Q256-H is housed in a 16RU frame, switching up to 256 sources to 256 destinations. The modular design of the Q256-H allows additional input and output modules to be installed in to the router at anytime in blocks of 32.

Control

The Q256-H requires an external control system that operates alongside its internal controller. The external controller can be either the SC-500 or SC-1000. The SC-500 is a simple non-redundant system controller suitable for non-critical installation while the SC-1000 is a comprehensive fully redundant system controller suitable for all critical on-air installations. The SC-1000 should always be used when 100% redundancy protection is required. The System Controller handles the management of the router as well as optionally providing additional redundancy features. It's an expandable platform that supervises all of the communication and interface requirements of the Q256-H router and its control panels.

Remote Control Panel: Any panel(s) from the entire range of Quartz remote control panels can be used with the Q256-H router connected via Q-Link and the System Controller.

External third party control: The Q256-H router can be remotely controlled via an external third party control device, such as an automation system, when connected to the routers serial port. Some automation systems have the ability to connect directly to the Q256-H while others connect via the System controller.

Router Expansion

The Q256-H router can be expanded by installing extra plug-in modules into a part-populated router frame or adding additional frames. The Q256-H router is scaled in steps of 32 from 32x32 through to 256x256 in a single 16RU frame.

Power Supply

The two power supplies for the Q256-H are internal. The 16RU Q256-H frame can be fitted with an optional redundant power supply configuration with separate AC power inlets and alarm outputs.

Feature Summary

- Automatic cable equalization on each input.
- Reclocking outputs with fully automatic sample rate selection.
- Can be controlled over an Ethernet network.
- Redundant controller option.
- Module, power supply and fan 'hot-swap' capability.
- Vertical interval switching, reverts to free running if no analog sync is detected.
- Basic signal presence detectors check each input, each output and the reference inputs.
- Transaction logging.
- Remote monitoring and diagnostics are possible via serial or Ethernet ports.
- Power supply voltage and temperature monitoring.
- Temperature inside the router is monitored at several points.
- Fans are monitored for rotation and rotation speed.
- Control ports are monitored for activity.

HD or SD Video Router

Q256-HD

Specifications

Configuration:

Inputs: Selectable in blocks of 32
Outputs: Selectable in blocks of 32

Standard Definition Video:

Inputs:

Signals Supported: SMPTE 259M
ASI DVB standard
Signal level: 800mV p-p nominal
Impedance: 75 Ω terminating
Return Loss at 5-270Mhz: 18dB typical

Cable equalization at 270Mhz:

Belden 8281

BBC PS1/2: 300m min, 350m typical

BBC PS1/3: 150m min, 175m typical

Connectors: BNC per IEC 60169-8-8 Amendant 2

Outputs:

Signal level: 800mV p-p \pm 10%
Impedance: 75 Ω
Return Loss at 5-270Mhz: 23dB typical
Reclocking Outputs
D.C. offset: 0 \pm 0.5V
Connectors: BNC per IEC 60169-8-8 Amendant 2

Signal Path:

Rise/fall times: 600 to 900ps
Path length: 45ns, typical
Output jitter: 0.2UI p-p with <300m input cable

Switching Reference:

Reference input: 2, analog 525 and 625
Signal level: 1V p-p \pm 3dB or 1-4V pulses
Impedance: 75 Ω terminated
Switching Line : 6/319 (625) 10/273 (525)
complies with SMPTE RP-168

High Definition Video:

Video Inputs:

Signals Supported: SMPTE 292M
Signal level: 800mV p-p nominal
Impedance: 75 Ω terminating
Return Loss at 5-270Mhz: better than 15dB
Cable equalization at 1485Mhz
Belden 8281: 100 meters
Belden 1694A: 150 meters
Connectors: BNC per IEC 60169-8-8 Amendant 2

Video Outputs:

Signal level: 800mV p-p \pm 10%
Impedance: 75 Ω
Return Loss at 5-270Mhz: better than 15dB
Reclocking Outputs
D.C. offset: 0 \pm 0.5V
Connectors: BNC per IEC 60169-8-8 Amendant 2

Signal Path:

Rise/fall times: <270ps
Path length: 25ns, typical
Path Inequality: <10ns

Switching Reference:

Reference input: 2, analog 525 and 625
Signal level: 1V p-p \pm 3dB or 1-4V pulses
Impedance: 75 Ω terminated
Line Switching: SMPTE RP-168

Control:

Q-Link to remote panels: 4x (75 Ω video cable)
500m max. length
Serial RS232/422: 3x (D9 female)
Ethernet: 2x (RJ45)

Power

Supply: Auto ranging 100 to 240 VAC 50/60 Hz
Power: 1600 Watts
Backup: Optional with alarm output

Physical

Height: 16RU 28" (719mm)
Width: 19" Rack mount (483mm)
Depth: 20.75" (515mm)
Weight: 220lbs (100kg)
Operating temperature: 0-40°C ambient
Ventilation: Fan cooled right to left

Ordering Information:

Q256-032032H+R32 32x32 HD/SD Video Router with
reclocked outputs

Ordering Options:

+2PS Redundant power supplies (2)
Q256-IP32H 32 HD/SD Inputs
Q256-OP32H+R32 32 HD/SD Reclocking Outputs
+FU Redundant controller module (required
for redundant operation)



evertz



The QMC range is a family of related products, offering intelligent solutions to the challenges of Master Control in today's ever-changing transmission environments.

Master Control is the heart of a broadcast facility. Traditional demands for reliability, signal protection, and serviceability continue to be essential. QMC offers bypass and emergency inputs, hot-swap boards, power supplies and runs solid field-proven software. QMC builds on this foundation to meet the latest playout and branding needs. Multiple keyers, internal DVEs, built-in Logo Store, a wide range of transitions and full audio capabilities.

QMC offers a unique approach to Master Control. With SD and HD channels, many options, and a broad selection of configurable control panels, Master Control systems can be assembled to meet any need and any size as systems can scale from a single channel, up to complex multi-channel installations. QMC allows all of this power to be easily controlled under automation, or with familiar manual control panels. Quartz's use of intelligent control panels with LCD pushbuttons gives operators a high level of flexibility in panel layout and function.

QMC Systems comprise an upstream router feeding a number of processing channels. Two different channel types are available and these may be used in any combination.

QMC-MCS:

Each QMC-MCS provides a complete program channel and a full "lookahead" preview of the next transition. Up to four linear key levels may be fitted, one fed from an optional internal Logo Store and the others fed from external key and fill sources. An internal dual-channel DVE may also be added with independent preview and program channels. Embedded and AES audio I/O is standard, with two independent stereo voice-overs that can be mapped to any or all of the output channels. Analogue audio I/O's can be added as an option. The QMC-MCS frame is 3RU and can hold an additional board which provides a second independent channel.

QMC-2:

QMC-2 supports high definition as well as standard definition video formats. This allows HD channels to be fully integrated into a QMC system. Each QMC-2 processes a complete 1.5Gb/s High Definition preset and program channel and provides a full "lookahead" preview of the next transition. Multiple standards are supported, including 720p and 1080i. With similar video capabilities to the QMC-MCS, the QMC-2 model also has enhanced audio, handling 16 channels as standard. QMC-2 also supports Dolby E signals, with the option of fitting Internal Dolby E decoders and encoders. The QMC-2 frame is also 3RU and can hold an additional board to add a complete second HD/SD channel.

QMC-2+MG:

The QMC-2+MG utilizes the Master Control features of the QMC and adds a complete Logo and Audio Insertion package that will key one, or many, static/animated "bugs" over a HD/SDI or SDI video signal. It will also "Duck" insert preformatted audio clips. Media created in BMP, Tiff, TGA or Wave file formats can be imported into the Evertz Overture software and transferred to the QMC-2+MG via Ethernet. Media is stored in flash memory and can be quickly recalled. With the removable Compact Flash option you can have access of up to 2 Gigabytes of on-line media storage space and virtually unlimited archived media storage.

The QMC-2+MG has been designed to manage and store multiple logos. The size of each logo is variable and ranges from 1/25th to full screen. The position of the logo, fade rates, clip association and animation rates are user controllable. Up to 16 logos can be keyed simultaneously with independent fade control for each logo. The onboard preview allows you to cue your logos for position and content verification prior to going "On Air".

Key Operational Features

Transitions

The standard QMC configuration includes a number of video and audio transitions such as Mixes, V-Fades and Split audio/video as well as optional wipe transitions. The video and audio transitions can be controlled via the QMC control panel or the automation system and can be customized at any time.

Keyers

Up to three key layers may be fitted to all QMC models. One keyer is standard while two additional keyers can be optionally added. They have a full range of user adjustments which are stored and recalled on a source-by-source basis. Keyers may be taken on and off air with other key levels or independently.

DVE

The DVE option provides live and dynamic visual effects, such as picture sizing and positioning, and is fully integrated within the QMC. The DVE may be controlled manually or from the automation system and is independent of the keys and logo (bug) layers.

Logo

The Logo store for the QMC is optional. It allows a station, channel or program ident to be keyed over the Program output. Logos can be transitioned onto the program output at any time using any of the standard video transitions. Multiple logos are stored within the QMC and can be called up from an automation system or from the control panel.

Control

Manual Control

Quartz designed the QMC system for ease of use in live and automated environments. The range of QMC control panels has been optimized for size and ease of use in single and multi-channel playout applications.

All QMC panels use LCD buttons, providing a dynamic control environment. Every button is user configurable. The panel layout and operation can be configured to suit individual needs with many aspects of the QMC operation user definable.

Automated Control

Each QMC channel can connect to an automation system through a dedicated serial port located on every channel. This gives low latency and maximum protection against on air problems. Crosspoint control of upstream routers is handled directly by the QMC so only a single port on the automation system is required for each active channel.



QMC-2 with Control Panel

Specifications - QMC-2 & QMC-2+MG

Video Connections:**Inputs:**

- 7 standard:** Program, Preset, Keyer-1 Fill, Keyer-1 Key Emergency, Program Bypass, Auxiliary Bypass
- 5 optional:** Keyer-2 Fill, Keyer-2 Key
Keyer-3 Fill, Keyer-3 Key
DVE Background

Outputs:

- 3 standard (dual):** Program, Preview, Auxiliary

Standard Definition (QMC-2-SD):**Video Inputs (apart from bypass inputs)**

- Signals supported:** SMPTE 259M 1997
- Signal Level:** 800mV p-p nominal
- Impedance:** 75Ω terminating
- Return Loss:** 5 - 270MHz: 15dB typical
- Cable equalization:** Belden 8281
- BBC PSF1/2:** 250m min
- BBC PSF1/3:** 150m min
- Timing window:** ± ½ line w.r.t. Reference input
- Connectors:** BNC, 75ohm terminating

Video Outputs:

- Signal Level:** 800mV p-p ± 10%
- Impedance:** 75Ω terminating
- Return Loss:** 5 - 270MHz: 15dB typical
- D.C. offset:** 0 ± 0.5V
- Rise/fall times:** <0.4ns
- Output jitter:** 0.2UI p-p
- Connectors:** BNC, 75Ω

Switching Reference:

- Reference input:** Analog 525/625
- Signal level:** 1V p-p ± 3dB
- Connector:** BNC, 75Ω with looping connector

High Definition (QMC-2-HD):**Video Inputs (apart from bypass)**

- Signals supported:** SMPTE 292M-1998
- Signal Level:** 800mV p-p nominal
- Impedance:** 75Ω terminating
- Return Loss:** 5 - 1485MHz: 15dB typical
- Cable equalization:** Belden 1694AA: 90m min
- Timing window:** ± ½ line w.r.t. Reference input
- Connectors:** BNC, 75 ohm terminating

Video Outputs:

- Signal Level:** 800mV p-p ± 10%
- Impedance:** 75Ω terminating
- Return Loss:** 5 - 1485MHz: 15dB typical
- DC offset:** 0 ± 0.5V
- Connectors:** BNC, 75ohm
- Rise/fall times:** <0.270ns
- Output jitter:** 0.2UI p-p at 100kHz, 1UI at 10Hz

Switching Reference:

- Reference input (HD/SD):** Analog 525/625 or Tri-level 50/59.94/60Hz
- Signal level:** 1V p-p ± 3dB
- Connector:** BNC, 75Ω with looping connector

Audio Connections (Balanced frame):**Inputs:**

- 18 standard:** Program (A1/A2, A3/A4, A5/A6, A7/A8)
Preset (A1/A2, A3/A4, A5/A6, A7/A8)
Emergency (A1/A2, A3/A4, A5/A6, A7/A8)
Voice Over-1 (A1/A2, A3/A4)
Voice Over-2 (A1/A2, A3/A4)
Program Bypass (A1/A2, A3/A4)

Outputs:**8 standard:**

- Program (A1/A2, A3/A4, A5/A6, A7/A8)
Preview (A1/A2, A3/A4, A5/A6, A7/A8)

Audio Inputs:

- Signals supported:** AES-3
- Signal Frequency:** 32 - 96kHz
- Audio Resolution:** 24bit
- Signal Level:** 200mV - 10V p-p
- Impedance:** 110Ω terminating
- Return Loss:** 0.1 - 6MHz: >20dB
- Connectors:** D50 female

Audio Outputs:

- Signal Level:** 2V - 7V, nominally 5V p-p ± 10%
- Signal Frequency:** 48kHz
- Impedance:** 110Ω
- Return Loss:** 0.1 - 6MHz: 20dB typical
- Intrinsic Jitter:** <.025UI
- Connectors:** D50 female

Audio Connections (Unbalanced frame):**Inputs:**

- 10 Standard:** Program (A1/A2, A3/A4), Preset (A1/A2, A3/A4), Emergency (A1/A2, A3/A4)
Voice Over-1 (A1/A2), Voice Over-2 (A1/A2)
Program Bypass (A1/A2, A3/A4)

Outputs:

- 8 Standard:** Program (A1/A2, A3/A4), Preview (A1/A2, A3/A4), Program (A1/A2, A3/A4)

Audio Inputs:

- Signals supported:** AES-3id, SMPTE 276M unbalanced
- Signal Frequency:** 32 - 96kHz
- Audio Resolution:** 24bit
- Signal Level:** 320mV - 1.2V p-p
- Impedance:** 75Ω terminating
- Return Loss:** 0.1 - 6MHz: >15dB
- Connectors:** BNC, 75ohm

Audio Outputs:

- Signal Level:** 1V p-p ± 20%
- Signal Frequency:** 48kHz
- Impedance:** 75Ω
- Return Loss:** 0.1 - 6MHz: 15dB typical
- Intrinsic Jitter:** <.025UI
- Connectors:** BNC

Metadata Connections (with Dolby-E decoder option):

- Serial:** 2 x 8 pin RJ45 RS232/ RS422 link selectable

Control:

- Q-Link:** 2 x BNC with loop-through connections, 75Ω (max length 500m)
- Serial:** 1x D9 female, 3 x 8 pin RJ45 RS232/RS422 link selectable.

Ethernet 10BaseT:

- Tally:** 1x D25 female
- Inputs:** 7 or 8 TTL inputs, <0.8V for logic low, >3.5V for logic high
- Outputs:** 7 or 8 normally open contact pairs
Contact rating 24A @0.5A D.C. resistive load

Bypass control and Alarm:

- 4 way Klippon, mating connector supplied

Specifications - QMC-2

Physical:

Height: 3RU, 133mm
Width: 19" Rack mount
Depth: 485mm
Weight:
 Single channel: 9Kg
 Dual channel: 10.5Kg
Operating Temperature: 0 - 40°C
Ventilation: Fan cooled, air drawn from front, exhaust at rear and sides

Electrical:

Supply: 90-264VAC universal 50/60Hz
Power:
 Single channel: 125 Watts
 Dual channel: 250 Watts
Backup: Optional
EMC: Meets CE requirements

Ordering Information:

QMC-2-SD-U	SD Master Control Switcher Single channel SDI switcher/mixer unbalanced
QMC-2-SD-B	SD Master Control Switcher Single channel SDI switcher/mixer balanced
QMC-2-SD-CH2	Additional Switcher/Mixer Channel
QMC-2-HD-U	HD Master Control Switcher Single channel HD SDI switcher/mixer unbalanced
QMC-2-HD-B	HD Master Control Switcher Single channel HD SDI switcher/mixer balanced AES audio
QMC-2-HD-CH2	Additional Switcher/Mixer Channel

Ordering Options:

+AES8	Upgrade to 8 mono AES audio I/O's Only available for the balanced QMC-2 frame (QMC-2-SD-B)
+DVE	DVE Option for QMC-2-SD Includes Background Option
+KEY1	Additional Key Layer Add a 2nd level of Key & Fill
+KEY2	2 Additional Key Layers Adds a 2nd & 3rd level of Key & Fill. Note: cannot be ordered with +KEY1 option
+LG	Internal Logo store & keyer. (NOTE: Maximum 2 logos per channel) Stores logos and keys onto PGM output. Includes 256 MB Media Store
+MG	Media insertion option
+WIPE	Wipes Option Horizontal, vertical and diagonal wipes with colored borders with hard or soft edges
+DD	Dolby E decoder Option (Program & Preview Pair) Decodes an incoming Dolby E signal. Must be ordered in pairs. Up to two pairs can be fitted to each QMC-2 channel
+2PS	Power Supply - QMC Master Control Switcher May be used as redundant power supply or as a spare
QMC-CP-A	QMC Control Panel Standard panel using buttons with integral LCD ten character displays. 2RU rack-mount
QMC-CP-1000A	QMC Auxiliary Control Panel Fully programmable panel using buttons with integral LCD ten character displays. 1RU rack-mount
QMC-CP-FS-FP	QMC FS Control Panel Traditional style control panel with integral LCD multi character displays. T-bar fader arm and user assignable rotary controls. Redundant power supply
QMC-2-MG-Upgrade	Exiting QMC-2 upgrade to add media insertion capability



Specifications - QMC-MCS

Video Connections Inputs:

6 standard:	Program, Preset, Keyer-1 Fill, Keyer-1 Key Emergency, Program Bypass
4 optional:	Keyer-2 Fill, Keyer-2 Key, Keyer-3 Fill Keyer-3 Key

Video Connections Outputs:

3 standard (dual):	Program, Preview, Auxiliary
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Standard Definition Video Inputs (apart from bypass input):

Signals supported:	SMPTE 259M 1997
Signal Level:	800mV p-p nominal
Impedance:	75Ω, terminating
Return Loss:	5 - 270MHz: 15dB typical
Cable equalization:	Belden 8281
BBC PSF1/2:	250m min
BBC PSF1/3:	150m min
Timing window:	± ½ line w.r.t. Reference input
Connectors:	BNC, 75Ω, terminating

Video Outputs:

Signal Level:	800mV p-p ± 10%
Impedance:	75Ω, terminating
Return Loss:	5 - 270MHz: 15dB typical
D.C. offset:	0 ± 0.5V
Rise/fall times:	<0.4ns
Output jitter:	0.2UI p-p
Connectors:	BNC, 75ohm

Switching Reference:

Reference input:	Digital - SDI 525/625
Signal level:	800m V p-p nominal
Connector:	BNC, 75Ω, terminating

Audio Connections (Balanced):

Inputs:	Program (A1/2, A3/4) Preset (A1/A2, A3/A4) Emergency (A1/A2, A3/A4) Voice Over-1 (A1/A2) Voice Over-2 (A1/A2) Program Bypass (A1/A2, A3/A4)
Outputs:	Program (A1/A2, A3/A4) Preview (A1/A2, A3/A4)

Audio Inputs:

Signals supported:	AES-3
Signal Frequency:	32 - 48kHz
Audio Resolution:	20bit
Signal Level:	200mV - 10V p-p
Impedance:	110Ω, terminating
Return Loss:	0.1 - 6MHz: >20dB
Connectors:	D50 female

Audio Outputs:

Signal Level:	2V - 7V, nominally 5V p-p ± 10%
Signal Frequency:	48kHz
Impedance:	110Ω,
Return Loss:	0.1 - 6MHz

Intrinsic Jitter:	<.025UI
Connectors:	D50 female

Control:

Q-Link:	2 x BNC with loop-through connections, 75Ω, (max length 500m)
Serial:	1x D9 female, 3 x 8 pin RJ45 RS232/RS422 link selectable
Tally:	1x D25 female

Inputs:	7 or 8 TTL inputs <0.8V for logic low, >3.5V for logic high
Outputs:	7 or 8 normally open contact pairs Contact rating 24A @0.5A D.C. resistive load

Bypass control and Alarm:	4 way Klippon, mating connector supplied
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Physical:

Height:	3RU, 133mm
Width:	19" Rack mount
Depth:	485mm
Weight:	
Single channel:	10Kg
Dual channel:	12Kg
Operating Temp:	0 - 40°C
Ventilation:	Fan cooled, air drawn from front, exhaust at rear and sides

Electrical:

Supply:	90-264 VAC universal 50/60Hz
Power:	Single Channel 60W Dual Channel 120W
Backup:	Optional
EMC:	Meets CE requirements

Ordering Information:

QMC-MCS	Master Control Switcher
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Ordering Options:

QMC-CH2	Additional Switcher/Mixer Channel. Adds second channel, available with same options as first channel. Supplied complete with controller module
+KEY	Additional Key Layer. Up to two additional key layers may be added to each switcher/mixer channel unless the DVE is fitted then only one additional key layer may be added
+AA	Analog Audio Option. Adds four channel analog audio PGM & PST plus stereo voice-over inputs, plus four channel PGM & PV outputs
+LG	Logo OptionStores logos and keys onto PGM output
+2PS	Power Supply - QMC Master Control SwitcherMay be used as redundant power supply or as a spare.
+DVE	DVE OptionDual channel 2D DVE including colored borders with hard or soft edges. Includes two input simms.
+WIPE	Wipes OptionHorizontal, vertical and diagonal wipes with colored borders with hard or soft edges.
QMC-CP-A	QMC Control PanelStandard panel using buttons with integral LCD ten character displays. 2RU rack-mount.
QMC-CP-1000A	QMC Auxiliary Control Panel Fully programmable panel using buttons with integral LCD ten character displays.
QMC-CP-FS-FP	QMC FS Control Panel Traditional style control panel with integral LCD multi character displays. T-bar fader arm and user assignable rotary controls. Redundant power supply.

QUARTZ QMC-2-MG at NAB 2006

Evertz, the leaders in HDTV, unveils at NAB 2006 a new and exciting channel branding facility for the worlds leading HDTV Master Control switcher, the Quartz QMC-2.

The graphics playback capability of the QMC-2 moves in to top gear with the release of the new Media Graphics option. Housed within the QMC-2 frame the MG option further enhances the existing Key and Logo facilities of the QMC-2.

The new plug-in MG option increases the logo capability of the QMC-2 by adding up to 16 additional static or animated logo's (bug's) including a clock, date and temperature display. The position, fade rate and animation rate of each logo is independently controlled while audio enabled units have the ability to simultaneously insert a digitally stored audio clip.

The new MG option for the QMC-2 also supports dynamic text crawls with user defined elements such as transparency, colour, position and font. When connected to an EAS decoder the MG option provides full EAS functionality, supporting all of the latest alert codes. Audio enabled units have the ability to duck insert the audio portion of the alert message at the desired mix ratio.

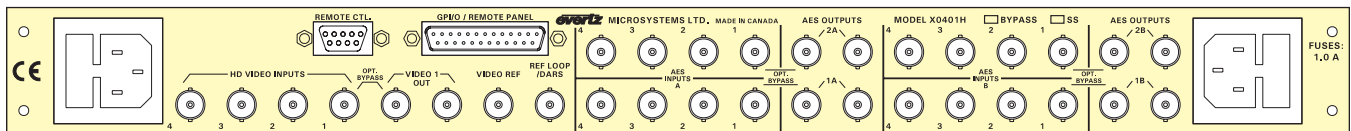
Evertz designs, manufactures and markets high quality video, audio and film equipment used by professional production and post-production facilities and television broadcasters worldwide.

For complete and detailed product and pricing information, please contact Evertz SALES at +1-905.335.3700, by fax at +1-905.335.3573, or by email at: sales@evertz.com. You can also visit our website at www.evertz.com



4 X I HDTV Router With Quad 4xI AES Audio

Model X-0401H



X-0401H-AES4 Rear Panel

The X-0401H HDTV four input routing switcher provides a convenient, low cost way to route high definition and standard definition serial digital signals. The X-0401H routers are used for 1.5Gb/s, 270Mb/s, 360Mb/s, 540Mb/s and DVB-ASI serial digital signals. The unit can also be used for SMPTE 310M(19.4Mb/s) signals with the reclocker turned off. When the unit is ordered with the Quad 4x1 AES router option the AES output busses can be used in an “audio follow video” mode, or can be broken away from the video buss. The routers features redundancy protection by providing dual power supply and bypass relay options.

The router electronics are housed in a 1RU rackmount frame and is controlled from the built-in front panel controls. Each model can also be purchased with an optional rack mount remote control panel that replaces the built-in control panel. All units can also be controlled by contact closures on the GPI control port or through the RS-232 or RS-422 serial remote control port using industry standard switcher protocols.

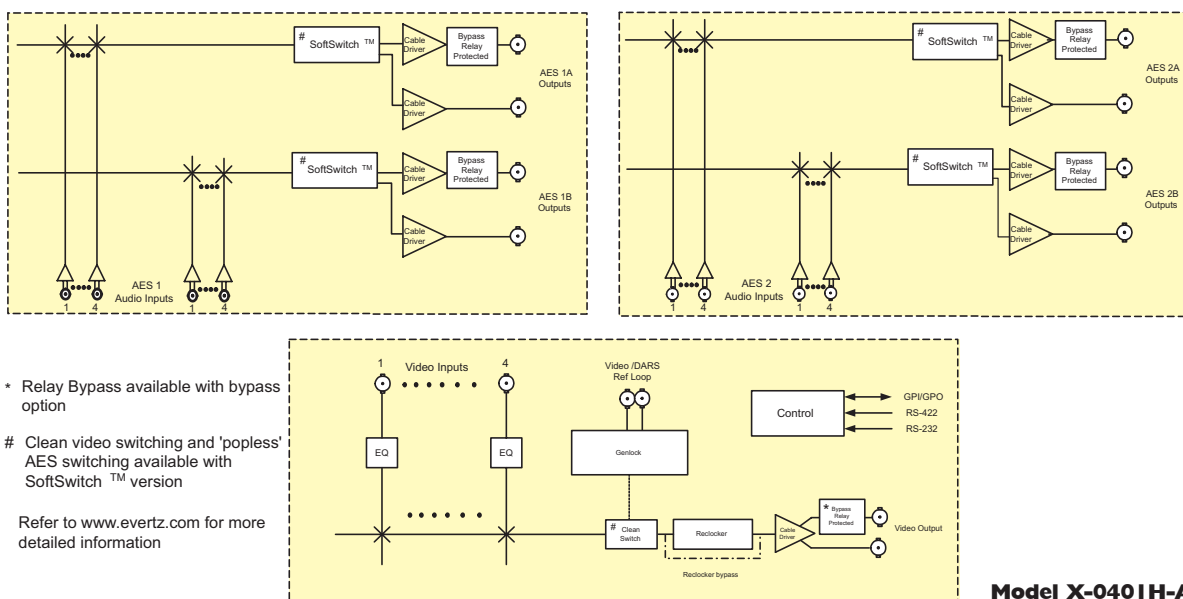
SoftSwitch™ Features (X-0401H-AES4-HSS)

Routers equipped with SoftSwitch™ have the following additional features. The video output has adjustable vertical timing with respect to the genlock input, and line synchronizers on the video inputs can accommodate differences in timing up to approximately +/- one half line providing clean video switches on the video output. All the AES outputs will have a continuous AES carrier locked to either the video genlock or DARS reference (when the DARS reference is used, Z bit alignment of the AES outputs is also guaranteed). The AES outputs use Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed on synchronous audio sources.

Features

- Supports SMPTE 292M (1.5Gb/s), SMPTE 259M (270, 360 or 540Mb/s) and DVB-ASI video signals
- Supports SMPTE 310M (19.4Mb/s) signals with reclocker turned off
- Switch point is fully controllable from the front panel
- Video input presence detection displayable on the front panel
- Front panel or remote control panel version available. Second control panel can be ordered for any version
- Programmable source input names available on the front panel
- Bypass verification test using main menu
- Field upgradeable firmware as new features become available
- Programmable tally output bus
- RS-422 remote control via GVG TEN-XL protocol
- SoftSwitch™ model provides clean video and popless AES switching
- Optional video and audio input relay bypass for power failure bypass protection
- Optional dual power configuration

4 X I HDTV Router With Quad 4xI AES Audio



* Relay Bypass available with bypass option

Clean video switching and 'popless' AES switching available with SoftSwitch™ version

Refer to www.evertz.com for more detailed information

Model X-0401H-AES4

Specifications

Video Inputs:

Standard: SMPTE 292M (1.5Gb/s), SMPTE 259M (270Mb/s, 360Mb/s, 540Mb/s) and DVB-ASI
SMPTE 310M with reclocker turned off

Number of Inputs: 4

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic up to 100m @1.485Gb/s with Belden 1694A (or equivalent) cable (50m on input 1 when the +HBP is installed) > 15 dB up to 1.5 Gb/s

Return Loss: Measured with respect to the Genlock reference

Input Timing (On X-0401H-AES4-HSS Routers): Measured with respect to the Genlock reference

Input Range: $\pm 1/2$ line when *Course phase* = 1, *Fine phase* = 0

Video Outputs:

Standard: Same as Input

Number of Outputs: 2 per buss, 1 buss

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V $\pm 0.5V$

Rise and Fall Time: 200ps for SMPTE 292
950ps for SMPTE 259M

Overshoot: <10% of amplitude

Return Loss: > 15 dB up to 1 Gb/s, > 12dB up to 1.5Gb/s

Jitter: < 0.2 UI

Output Timing (On X-0401H-AES4-HSS Routers): Measured with respect to the Genlock reference Adjustable 1 line to a full frame of delay - set by *Coarse phase* parameter. The active video content will align to the nearest line

Output Phase: Measured with respect to the Genlock reference Adjustable 1 line to a full frame of delay - set by *Coarse phase* parameter. The active video content will align to the nearest line

AES Audio Inputs (AES4 versions only):

Standards: SMPTE 276M single ended AES

Number of Inputs: 4 per buss, 4 busses

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1 V p-p $\pm 10\%$

AES Audio Outputs (AES4 versions only):

Standards: SMPTE 276M single ended AES

Number of Outputs: 2 per bus, 4 busses

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1V p-p

Reference: From Video Reference

On SoftSwitch™ model: menu selectable to Video or DARS

Video Reference:

Type: Menu selectable - depends on video format NTSC or PAL Color
Black 1 V p-p
Composite Bi-level sync (525i/59.94 or 625i/50) 300 mV
HD Tri-level Sync

Connectors: 2 BNC per IEC 60169-8 Amendment 2

Termination:

Standard models: High impedance loop through

SoftSwitch™ model: High impedance loop through or non-looping or 75 Ω non-looping (jumper selectable)

DARS Reference (X-0401H-AES4-HSS Routers):

(DARS reference requires jumper configuration inside the router)

Standard: SMPTE 276M single ended AES

Type: Digital Audio Signal with 48KHz sample rate

Connector: BNC per IEC 60169-8 Amendment 2

Termination: Inactive or High impedance non-looping or 75 Ω non-looping (jumper selectable)

Signal Level: 1V p-p

Freq. Lock Range: ± 100 ppm from nominal

GPI Control Port:

Number of Inputs: 8 opto-isolated, programmable functions

Number of Outputs: 4 sets of relay contacts, normally closed, programmable functions

Relay Max Current: 1 A at 30 V DC

Serial Remote Control:

Standard: RS-232 or RS-422, programmable baud rate

Connector: 9 pin female "D"

Protocol: GVG Ten XL ASCII, master or slave or Remote Control Panel

Remote Control Panel Port:

Standard: RS-422, 9600 baud rate

Connector: 6 pins on GPIO 25 pin female "D"

Protocol: Remote Control Panel

Physical:

Dimensions: 19" W x 1.75" H x 7.75" D.
(483mm W x 45mm H x 196mm D)

Weight: 8 lbs. (3.5Kg)

Electrical:

Voltage: Auto ranging 100 - 240 Volts AC, 50/60 Hz 30VA

Fuse Rating: 250 V, 1 amp time delay

Safety: ETL Listed, complies with EU safety directives

EMI/RFI: Complies with FCC Part 15 Class A regulations
Complies with EU EMC Directive

Ordering Information:

X-0401H 4x1 HDTV video router

X-0401H-AES4 4x1 HDTV video router with 4 (4x1) AES busses

X-0401H-AES4-HSS 4x1 HDTV video router with 4 (4x1) AES busses and SoftSwitch™

Ordering Options:

+HBP Optional bypass relay

+2PS Redundant power supply

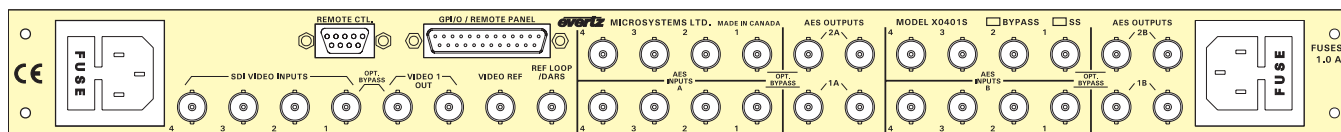
+RCP Rackmount remote control panel (replaces front control panel)

Accessories:

X-0401H-PANEL Additional Remote Control Panel (works in addition to front control panel)

4 X I SDI Router With Quad 4x1 AES Audio

Model X-0401S



X-0401S-AES4 Rear Panel

The X-0401S SDTV four input routing switcher provides a convenient, low cost way to route standard definition serial digital signals. The X-0401S router is used for 270, 360, 540Mb/s and DVB-ASI serial digital signals. The unit can also be used for SMPTE 310M(19.4Mb/s) signals with the reclocker turned off. When the unit is ordered with the Quad 4x1 AES router options the AES output busses can be used in an “audio follow video” mode, or can be broken away from the video buss. The routers feature redundancy protection by providing dual power supply and bypass relay options.

The router electronics are housed in a 1RU rackmount frame and is controlled from the built-in front panel controls. Each model can also be purchased with an optional rack mount remote control panel that replaces the built-in control panel. All units can also be controlled by contact closures on the GPI control port or through the RS-232 or RS-422 serial remote control port using industry standard switcher protocols.

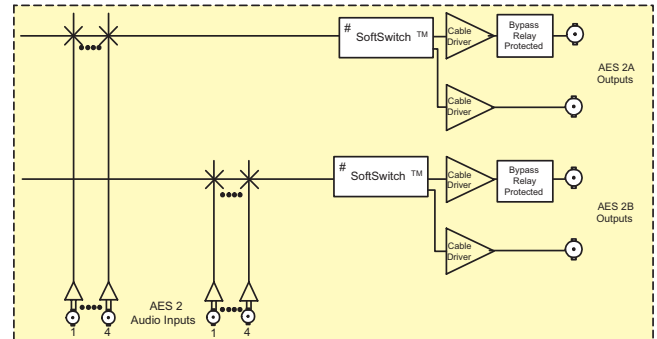
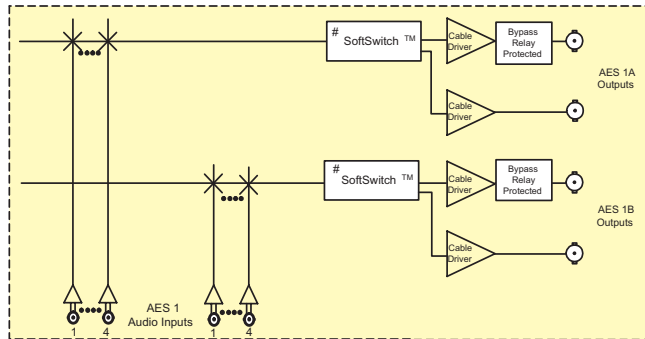
SoftSwitch™ Features (X-0401S-AES4-SS)

Routers equipped with SoftSwitch™ have the following additional features. The video output has adjustable vertical timing with respect to the genlock input, and line synchronizers on the video inputs can accommodate differences in timing up to approximately +/- one half line providing clean video switches on the video output. All the AES outputs will have a continuous AES carrier locked to either the video genlock or DARS reference (when the DARS reference is used, Z bit alignment of the AES outputs is also guaranteed). The AES outputs use Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed on synchronous audio sources.

Features

- Supports SMPTE 259M (270Mb/s,360Mb/s,540Mb/s) or DVB-ASI video signals
- Units support SMPTE 310M (19.4 Mb/s) with reclocker turned off
- Units can be genlocked to an external source so that a "clean switch" can be achieved.
- SoftSwitch™ equipped models provide clean video switches and popless AES switching audio outputs
- Switch point is fully controllable from the front panel.
- Video input presence detection displayable on the front panel.
- Front panel or Remote control panel versions available. Second control panel can be ordered for either version
- Programmable source input names available on the front panel.
- Programmable parallel GPI control and tallies.
- Serial remote control via GVG TEN-XL protocol (master or slave)
- Field upgradeable firmware as new features become available
- Optional video and audio input relay bypass for power failure bypass protection. (Bypass verification test from front panel menu)
- Optional dual power supplies.

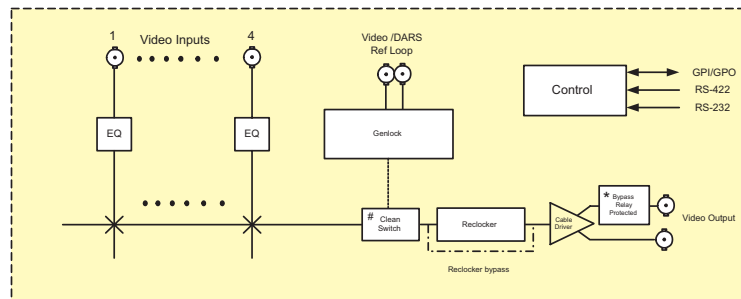
4 X 1 SDI Router With Quad 4x1 AES Audio



* Relay Bypass available with bypass option

Clean video switching and 'popless' AES switching available with SoftSwitch™ version

Refer to www.evertz.com for more detailed information



Model X-0401S

Specifications

SD Video Inputs:

Standard: SMPTE 259M (270Mb/s, 360Mb/s, 540Mb/s) and DVB-ASI
SMPTE 310M with reclocker turned off

Number of Inputs: 4

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic up to 250m @ 270 Mb/s with Belden 8281 (or equivalent) cable

Return Loss: > 15 dB up to 540 Mb/s

Input Timing (On X-0401S-AES4-SS Routers):

Input Range: Measured with respect to the Genlock reference
 $\pm 1/2$ line when *Course phase* = 1, *Fine phase* = 0

SD Video Outputs:

Standard: Same as Input

Number of Outputs: 2 per buss, 1 buss

Input 1 bypass protected with +BP option

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V $\pm 0.5V$

Rise and Fall Time: 950ps nominal

Overshoot: <10% of amplitude

Return Loss: > 15 dB up to 540 Mb/s

Jitter: < 0.2 UI

Output Timing (On X-0401S-AES4-SS Routers):

Output Phase: Measured with respect to the Genlock reference
Adjustable 1 line to a full frame of delay - set by *Coarse phase* parameter. The active video content will align to the nearest line

AES Audio Inputs (AES4 versions only):

Standards: SMPTE 276M single ended AES

Number of Inputs: 4 per buss, 4 busses

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1V p-p $\pm 10\%$

AES Audio Outputs (AES4 versions only):

Standards: SMPTE 276M single ended AES

Number of Outputs: 2 per buss, 4 busses

Input 1 bypass protected with +BP option

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1V p-p

Reference: From Video Reference
On SoftSwitch™ model, menu selectable to Video or DARS

Video Reference:

Type: Menu selectable - depends on video format
NTSC or PAL Color Black 1 V p-p
Composite Bi-level sync (525i/59.94 or 625i/50) 300 mV
2 BNC per IEC 60169-8 Amendment 2

Connectors:

Termination

Standard models: High impedance loop through

SoftSwitch™ model: High impedance loop through or non-looping or 75 Ω non-looping (jumper selectable)

DARS Reference (On X0401S-AES4-SS Routers):

(DARS reference requires jumper configuration inside the router)

Type: Digital Audio Signal with 48khz sample rate.

Standard: SMPTE 276M single ended AES

Connector: BNC per IEC 60169-8 Amendment 2

Termination: Inactive or High impedance non-looping or 75 Ω non looping (jumper selectable)

Signal Level: 1V p-p

Freq. Lock Range: +/- 100ppm from nominal

GPI Control Port:

Number of Inputs: 8 opto-isolated, programmable functions

Number of Outputs: 4 sets of relay contacts, normally closed, programmable functions

Relay Max Rating: 1 A at 30 V DC

Serial Remote Control:

Standard: RS-232 or RS-422, programmable baud rate

Connector: 9 pin female "D"

Protocol: GVG Ten XL ASCII, master or slave or remote control panel

Remote Control Panel Port:

Standard: RS-422, 9600 baud rate

Connector: 6 pins on GPIO 25 pin female "D"

Protocol: Remote Control Panel

Physical:

Dimensions: 19" W x 1.75" H x 7.75" D.
(483mm W x 45mm H x 196mm D)

Weight: 8 lbs. (3.5Kg)

Electrical:

Voltage: Auto ranging 100 - 240 Volts AC, 50/60 Hz 30VA

Fuse Rating: 250 V, 1 amp time delay

Safety: ETL Listed, complies with EU safety directives
Complies with FCC Part 15 Class A regulations
Complies with EU EMC Directive

Ordering Information:

X-0401S 4X1 SDI video router

X-0401S-AES4 4x1 SDI video router with 4 (4x1) AES busses

X-0401S-AES4-SS 4x1 SDI video router with 4 (4x1) AES busses and SoftSwitch™

X-0401S-ATSC

Ordering Options:

+BP Optional bypass relay

+2PS Redundant power supply

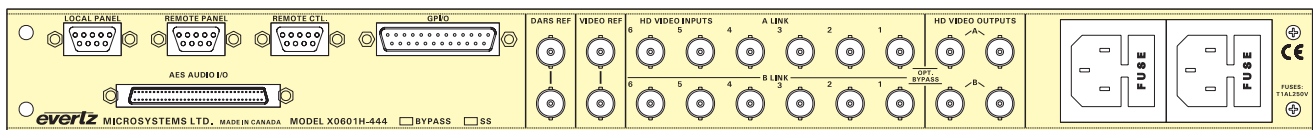
+RCP Rackmount remote control panel (replaces front control panel)

Accessories:

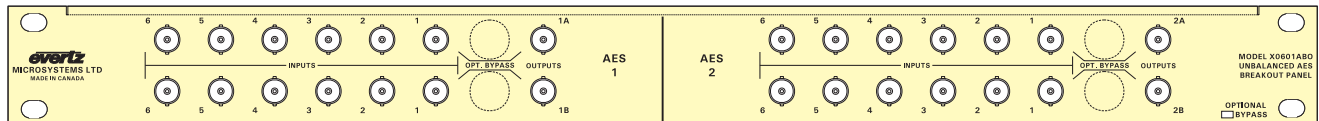
X-0401S-PANEL Additional Remote Control Panel (works in addition to front control panel)

6 X I HDTV Dual Link Router With Quad 6xI AES Audio

Model X-0601H-444



X-0601H Rear Panel



X0601 Audio AES Breakout Panel

(Qty 1 with AES4 option, Note: the bypass relay is optional)

The X-0601H-444 HDTV six input video router provides a convenient, low cost way to route dual link 1.5Gb/s HDTV serial digital signals. When the unit is ordered with the 6x1 AES router option the AES output busses can be used in an “audio follow video” mode, or can be broken away from the video buss. The routers feature redundancy protection by providing dual power supply and bypass relay options.

The router electronics are housed in a 1RU rackmount frame and is controlled from the built-in front panel controls. Each model can also be purchased with an optional rack mounted remote control panel that replaces the built-in control panel. All units can also be controlled by contact closures on the GPI control port or through the RS-232 serial remote control port using industry standard switcher protocols.

Optional SoftSwitch™ Feature (+HSS Option)

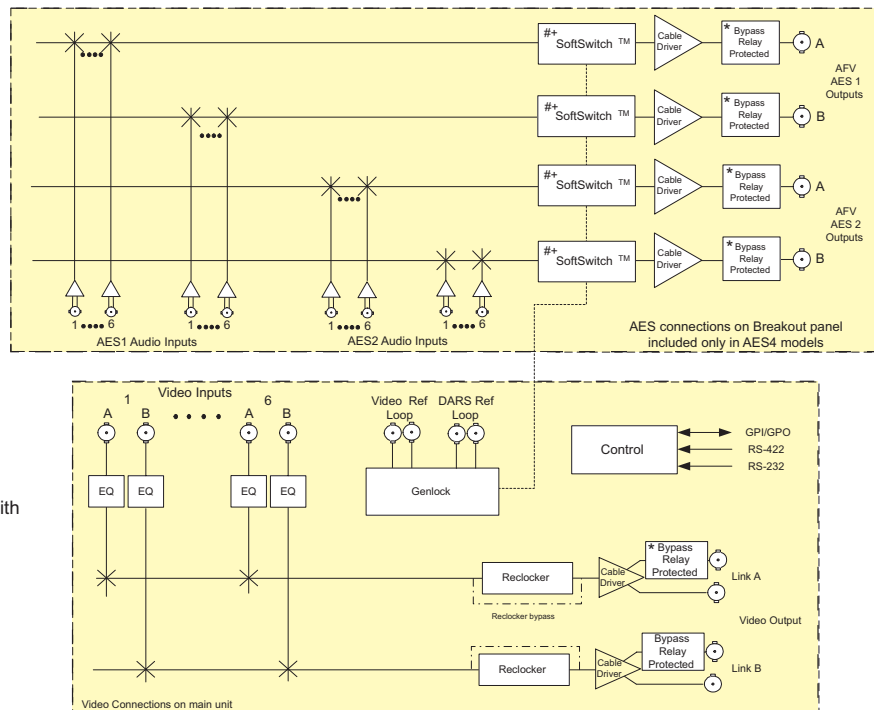
Routers equipped with the SoftSwitch™ option have the following additional features. All the AES outputs will have a continuous AES carrier locked to either the video genlock or DARS reference (when the DARS reference is used, Z bit alignment of the AES outputs is also guaranteed). The AES outputs use Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed on synchronous audio sources.

Features

- Supports dual link SMPTE 372M and single link SMPTE 292M (1.5 Gb/s) video signals
- Can be operated in a non-reclock mode to pass SMPTE 259M video signals
- Optional SoftSwitch™ technology eliminates hot-switch audio pops on AES outputs
- Switch line is fully controllable from the front panel
- Video input presence detection displayable on the front panel
- Front panel or remote control panel versions available. Second control panel can be ordered for either version
- Parallel GPI and RS-232 serial control
- Programmable source input names available on the front panel
- Optional video and audio input relay bypass for power failure bypass protection
- Optional dual power supplies
- Field upgradeable firmware as new features become available

6 X I HDTV Dual Link Router With Quad 6xI AES Audio

Model X-0601H-444



* Relay Bypass available with bypass option

'Popless' AES switching available with SoftSwitch™ version

Refer to www.evertz.com for more detailed information

Specifications

HD Video Inputs:

Standard: SMPTE 372M dual link (1.5 Gb/s) or 292M (1.5 Gb/s)
SMPTE 259M with reclocker and embedded SoftSwitch™ turned off

Number of Inputs: 6 dual link pairs

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic 100m @ 1.485Gb/s with Belden 1694A (or equivalent) (50m on input 1 with +HBP option)

Return Loss: > 15dBV up to 1.5Gb/s

HD Video Outputs:

Standard: Same as input

Number of Outputs: 2 dual link pairs

Input 1 bypass protected with +HBP option

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V ±0.5V

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Return Loss: > 15dB up to 1Gb/s, >12dB up to 1.5Gb/s

Jitter: <0.2UI

AES Audio Inputs (on AES4 versions):

Standard: SMPTE 276M single ended AES

Number of Inputs: 6 per buss, 4 busses optional

Connector: BNC per IEC 60169-8 Amendment 2 on breakout panels provided

AES Audio Outputs (on AES4 versions):

Standard: SMPTE 276M single ended AES

Number of Outputs: 2 per buss, 4 busses optional

Input 1 bypass protected with +HBP option

Connector: BNC per IEC 60169-8 Amendment 2 on breakout panels provided

Signal Level: 1V p-p

Reference: From Video General Reference
DARS reference available with +HSS option

Video Reference:

Type: Menu selectable - depends on video format
HD Tri-level Sync
NTSC or PAL Color Black 1 V p-p
Composite Bi-level sync (525i/59.94 or 625i/50) 300 mV

Connectors: 2 BNC per IEC 60169-8 Amendment 2

Termination: High impedance loop through

DARS Reference (On +HSS Optioned Routers):

Type: Digital Audio Signal with 48kHz sample rate

Standard: SMPTE 276M single ended AES

Connector: 2 BNC per IEC 60169-8 Amendment 2

Termination: High impedance loop through

Signal Level: 1V p-p

Freq. Lock Range: +/- 100ppm from nominal

GPI Control Port:

Number of Inputs: 14 opto-isolated, programmable functions

Number of Outputs: 4 sets of relay contacts, normally closed, programmable functions

Relay Max Rating: 1A at 30VDC

Serial Remote Control:

Standard: RS-232 or RS422, programmable baud rate

Connector: 9 pin female "D"

Protocol: GVG Ten XL ASCII, master or slave or remote control panel

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
(483mm W x 45mm H x 477mm D)

Weight: 8 lbs. (3.5Kg)

Electrical:

Voltage: Auto ranging 100-240VAC 50/60 Hz 30VA

Fuse Rating: 250 V, 1 amp time delay

Safety: ETL Listed
Complies with EU safety directives

EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

X-0601H-444 6x1 Dual Link HDTV Router

X-0601H-444-AES4 6x1 Dual Link HDTV video router with 4(6x1) AES busses (includes 1 AES breakout panel)

Ordering Options:

+HSS SoftSwitch™ Option

+HBP Bypass Relay Protection

+2PS Redundant Power Supply

+RCP Rack Mount Remote Control Panel (replaces front control panel)

+B Balanced AES Audio Breakout Panel (must choose when ordering AES4 version)

+U Unbalanced AES Audio Breakout Panel (must choose when ordering AES4 version)

Accessories:

X-0601H-444-PANEL Additional Remote Control Panel (works in addition to front control panel)

X-0601ABO Unbalanced AES Audio Breakout Panel

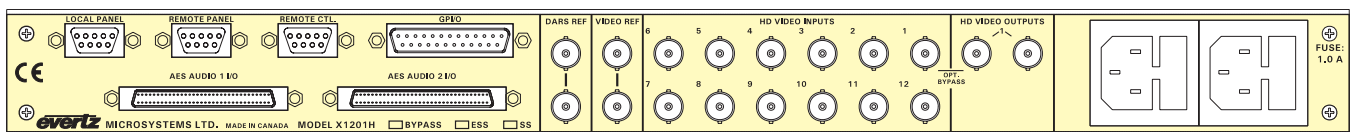
X-0601ABOB Balanced AES Audio Breakout Panel

X-0601ABOB-BP Balanced AES Audio Breakout Panels (with Bypass Relays)

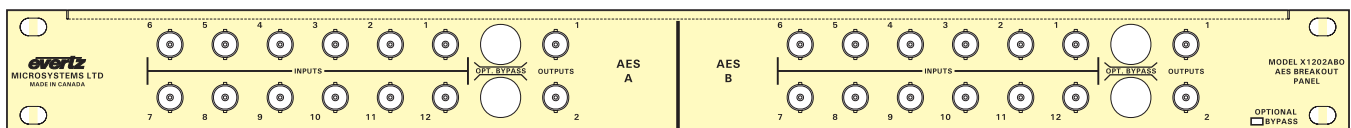
X-0601ABO-BP Unbalanced AES Audio Breakout Panel (with Bypass Relays)

I2 X I HDTV Router With Dual or Quad 12x1 AES Audio

Model X-1201H



X-1201H Rear Panel



X1201 Audio AES Breakout Panel

(Qty 1 with AES option, Qty 2 with AES4 option, Note: the bypass relay is optional)

The X-1201H HDTV twelve input video router provides a convenient, low cost way to route standard and high definition serial digital signals. The X-1201H routers are used for 1.5Gb/s HDTV serial digital signals. When the unit is ordered with the Dual 12x1 AES router or Quad 12x1 AES router options the AES output busses can be used in an "audio follow video" mode, or can be broken away from the video buss. The routers feature redundancy protection by providing dual power supply and bypass relay options.

The router electronics are housed in a 1RU rackmount frame and is controlled from the built-in front panel controls. Each model can also be purchased with an optional rack mounted remote control panel that replaces the built-in control panel. All units can also be controlled by contact closures on the GPI control port or through the RS-232 serial remote control port using industry standard switcher protocols.

Optional SoftSwitch™ Features (+HSS Option)

Routers equipped SoftSwitch™ option have the following additional features. The video output has adjustable vertical timing with respect to the genlock input, and line synchronizers on the video inputs can accommodate differences in timing up to approximately +/- one half line providing clean video switches on the video output (for HD video only). All the AES outputs will have a continuous AES carrier locked to either the video genlock or DARS reference (when the DARS reference is used, Z bit alignment of the AES outputs is also guaranteed). The AES outputs use Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed on synchronous audio sources.

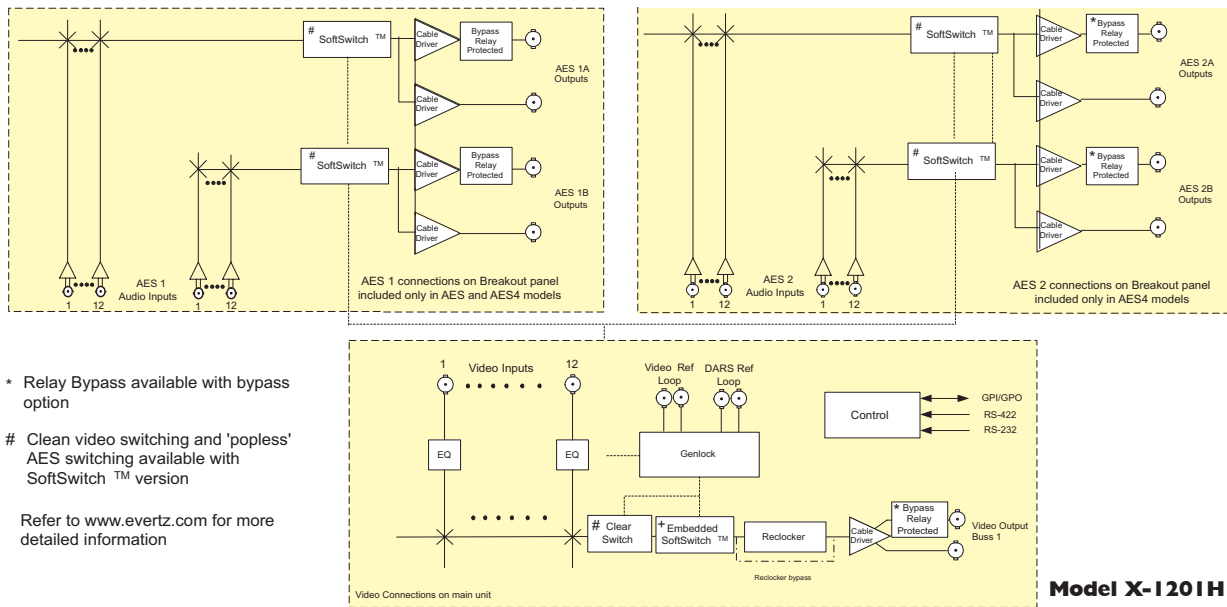
Optional Embedded SoftSwitch™ Features (+HES Option)

Routers equipped with the Embedded SoftSwitch™ option have all the features of the SoftSwitch™ versions as well as the following additional features. The embedded audio on the Video 1 buss uses Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed. Embedded SoftSwitch™ is performed on all 4 audio groups.

Features

- Supports SMPTE 292M (1.5 Gb/s) video signals
- Can be operated in a non-relock mode to pass SMPTE 259M video signals
- Units can be genlocked to an external source so that a "clean switch" can be achieved.
- Autotiming of V1 buss inputs to perform a clean video switch when SoftSwitch™ or Embedded SoftSwitch™ option is installed
- Optional SoftSwitch™ technology eliminates hot-switch audio pops on AES outputs following V1 buss
- Optional Embedded SoftSwitch™ technology eliminates hot-switch audio pops on embedded audio on V1 buss
- With embedded SoftSwitch™ option, SoftSwitch™ is performed on all 4 audio groups
- Switch line is fully controllable from the front panel.
- Video input presence detection displayable on the front panel.
- Front panel or remote control panel versions available. Second control panel can be ordered for either version
- Parallel GPI and RS-232 serial control.
- Programmable source input names available on the front panel.
- Optional video and audio input relay bypass for power failure bypass protection.
- Optional dual power supplies.
- Field upgradeable firmware as new features become available

12 X 1 HDTV Router With Dual or Quad 12x1 AES Audio



Specifications

HD Video Inputs:

Standard: SMPTE 292M (1.5 Gb/s)
SMPTE 259M with line synchronizer, reclocker and embedded SoftSwitch™ turned off

Number of Inputs: 12

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic 100m @ 1.485Gb/s with Belden 1694A (or equivalent) (50m on input 1 with +HBP option)

Return Loss: > 15dBV up to 1.5Gb/s

Input Timing (On +HSS and +HES Optional Routers)

Input Range: Measured with respect to the Genlock reference $\pm 1/2$ line when *Course phase* = 1, *Fine phase* = 0
Auto timer for HD Video only

HD Video Outputs:

Standard: Same as input

Number of Outputs: 2 per buss, 1 buss
Input 1 bypass protected with +HBP option

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V $\pm 0.5V$

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Return Loss: > 15dB up to 1Gb/s, >12dB up to 1.5Gb/s

Jitter: <0.2UI

Output Timing (On +HSS and +HES Optional Routers)

Output Phase: Measured with respect to the Genlock reference
Adjustable 1 line to a full frame of delay - set by *Course phase* parameter. The active video content will align to the nearest line only. Output phasing for HD Video only

AES Audio Inputs:

Standard: SMPTE 276M single ended AES

Number of Inputs: 12 per buss, 2 or 4 busses optional

Connector: BNC per IEC 60169-8 Amendment 2 on breakout panels provided

AES Audio Outputs:

Standard: SMPTE 276M single ended AES

Number of Outputs: 2 per buss, 2 or 4 busses optional
Input 1 bypass protected with +HBP option

Connector: BNC per IEC 60169-8 Amendment 2 on breakout panels provided

Signal Level: 1V p-p

Reference: From Video General Reference
DARS reference available with +HSS or +HES options

Video Reference:

Type: Menu selectable - depends on video format
HD Tri-level Sync
NTSC or PAL Color Black 1 V p-p
Composite Bi-level sync (525/59.94 or 625/50) 300 mV

Connectors: 2 BNC per IEC 60169-8 Amendment 2

Termination: High impedance loop through

DARS Reference (On +HSS and +HES Optional Routers):

Type: Digital Audio Signal with 48kHz sample rate

Standard: SMPTE 276M single ended AES

Connector: 2 BNC per IEC 60169-8 Amendment 2

Termination: High impedance loop through

Signal Level: 1V p-p

Freq. Lock Range: ± 100 ppm from nominal

GPI Control Port:

Number of Inputs: 14 opto-isolated, programmable functions

Number of Outputs: 4 sets of relay contacts, normally closed, programmable functions

Relay Max Rating: 1A at 30VDC

Serial Remote Control:

Standard: RS-232 or RS422, programmable baud rate

Connector: 9 pin female "D"

Protocol: GVG Ten XL ASCII, master or slave or remote control panel

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
(483mm W x 45mm H x 477mm D)

Weight: 8 lbs. (3.5Kg)

Electrical:

Voltage: Auto ranging 100-240VAC 50/60 Hz 30VA

Fuse Rating: 250 V, 1 amp time delay

Safety: ETL Listed
Complies with EU safety directives

EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

X-1201H 12X1 HDTV video router

X-1201H-AES 12x1 HDTV video router with 2(12x1) AES busses (includes 1 AES breakout panel)

X-1201H-AES4 12x1 HDTV video router with 4(12x1) AES busses (includes 2 AES breakout panels)

Ordering Options:

+HSS SoftSwitch™ Option

+HES Embedded SoftSwitch™ Option

+HBP Bypass Relay Protection

+2PS Redundant Power Supply

+RCP Rack Mount Remote Control Panel (replaces front control panel)

+B Balanced AES Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)

+U Unbalanced AES Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)

Accessories:

X-1201H-PANEL Additional Remote Control Panel (works in addition to front control panel)

X-1201ABO Unbalanced AES Audio Breakout Panel (for all 1201 series routers)

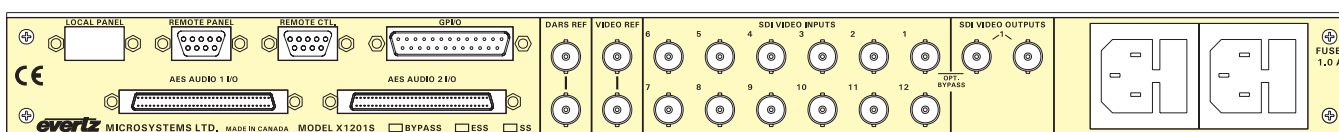
X-1201ABOB Balanced AES Audio Breakout Panel (for all 1201 series routers)

X-1201ABOB-BP Balanced AES (with Bypass Relays) Audio Breakout Panels (for all 1201 series routers)

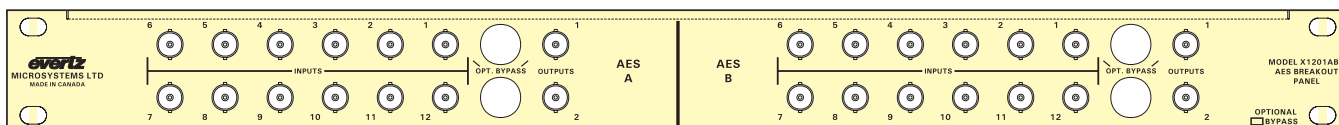
X-1201ABO-BP Unbalanced AES (with Bypass Relays) Audio Breakout Panel (For all 1201 series routers)

12 X 1 SDI Router With Dual or Quad 12x1 AES Audio

Model X-1201S



X1201S Rear Panel



X1201 Audio AES Breakout Panel

(Qty 1 with AES option, Qty 2 with AES4 option, Note: the bypass relay is optional)

The X-1201S SDTV twelve input routing switcher provides a convenient, low cost way to route standard definition serial digital signals. The X-1201S routers are used for 270, 360, 540Mb/s and DVB-ASI serial digital signals. When the unit is ordered with the Dual 12x1 AES router or Quad 12x1 AES router options the AES output busses can be used in an "audio follow video" mode, or can be broken away from the video buss. The routers feature redundancy protection by providing dual power supply and bypass relay options.

The router electronics are housed in a 1RU rackmount frame and is controlled from the built-in front panel controls. Each model can also be purchased with an optional rack mount remote control panel that replaces the built-in control panel. All units can also be controlled by contact closures on the GPI control port or through the RS-232 or RS-422 serial remote control port using industry standard switcher protocols.

Optional SoftSwitch™ Features (+SS Option)

Routers equipped with the SoftSwitch™ option have the following additional features. The video output has adjustable vertical timing with respect to the genlock input, and line synchronizers on the video inputs can accommodate differences in timing up to approximately +/- one half line providing clean video switches on the video output. All the AES outputs will have a continuous AES carrier locked to either the video genlock or DARS reference (when the DARS reference is used, Z bit alignment of the AES outputs is also guaranteed). The AES outputs use Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed on synchronous audio sources.

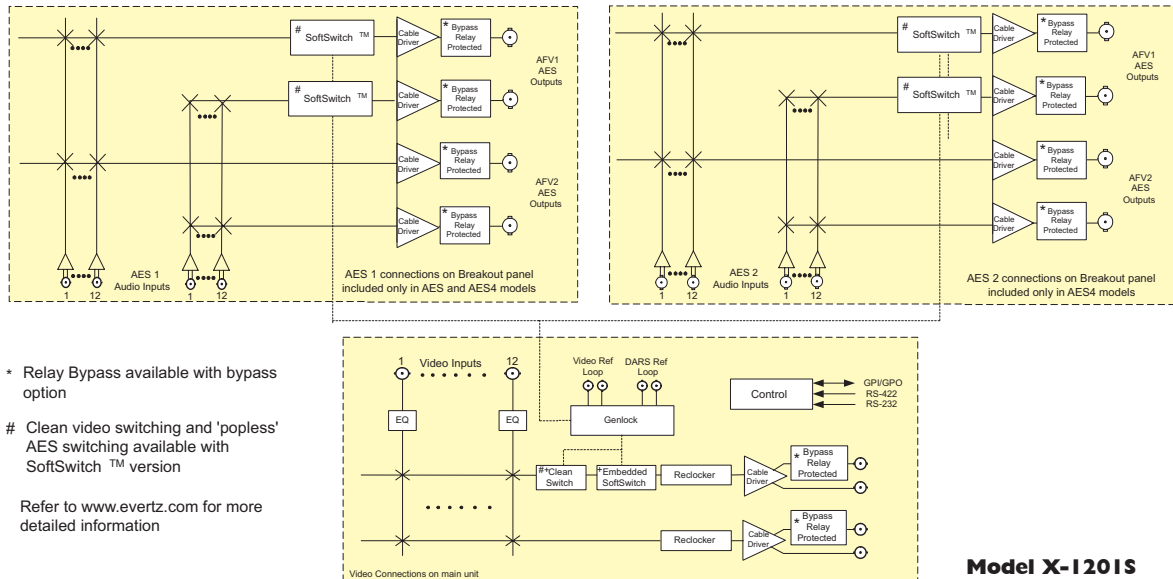
Optional Embedded SoftSwitch™ Features (+ES Option)

Routers equipped with the Embedded SoftSwitch™ option have all the features of the SoftSwitch™ versions as well as the following additional features. The embedded audio on the Video 1 buss uses Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed. Embedded SoftSwitch™ is performed on all 4 audio groups.

Features

- Supports SMPTE 259M (270Mb/s, 360Mb/s, 540Mb/s) video signals
- Units can be genlocked to an external source so that a "clean switch" can be achieved.
- Autotiming of V1 buss inputs to perform a clean video switch when SoftSwitch™ or Embedded SoftSwitch™ option is installed
- Optional SoftSwitch™ technology eliminates hot-switch audio pops on AES outputs following V1 buss
- Optional Embedded SoftSwitch™ technology eliminates hot-switch audio pops on embedded audio on V1 buss
- With embedded SoftSwitch™ option, SoftSwitch™ is performed on all 4 audio groups
- Switch line is fully controllable from the front panel.
- Video input presence detection displayable on the front panel.
- Front panel or remote control panel versions available. Second control panel can be ordered for either version
- Parallel GPI and RS-232 serial control.
- Programmable source input names available on the front panel.
- Optional video and audio input relay bypass for power failure bypass protection.
- Optional dual power supplies.
- Field upgradeable firmware as new features become available

12 X 1 SDI Router With Dual or Quad 12x1 AES Audio



* Relay Bypass available with bypass option

Clean video switching and 'popless' AES switching available with SoftSwitch™ version

Refer to www.evertz.com for more detailed information

Model X-1201S

Specifications

SDI Video Inputs:

Standard: SMPTE 259M (270Mb/s, 360Mb/s, 540Mb/s) and DVB-ASI
Number of Inputs: 12
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic up to 250m @ 270 Mb/s with Belden 8281 (or equivalent) cable
Return Loss: > 15 dB up to 540 Mb/s
Input Timing (On +SS and +ES Optioned Routers):
Input Range: Measured with respect to the Genlock reference
 $\pm 1/2$ line when *Course phase* = 1, *Fine phase* = 0

SDI Video Outputs:

Standard: Same as Input
Number of Outputs: 2 per buss, 1 buss
 Input 1 bypass protected with +BP option
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 540 Mb/s
Jitter: < 0.2 UI
Output Timing (On +SS and +ES Optioned Routers):
Output Phase: Measured with respect to the Genlock reference
 Adjustable 1 line to a full frame of delay - set by *Course phase* parameter. The active video content will align to the nearest line only.

AES Audio Inputs:

Standard: SMPTE 276M single ended AES
Number of Inputs: 12 per buss, 2 or 4 busses optional
Connector: BNC per IEC 60169-8 Amendment 2 on breakout panels provided

AES Audio Outputs:

Standard: SMPTE 276M single ended AES
Number of Outputs: 2 per buss, 2 or 4 busses optional
 Input 1 bypass protected with +BP option
Connector: BNC per IEC 60169-8 Amendment 2 on breakout panels provided
Signal Level: 1V p-p
Reference: Video Genlock Reference
 DARS reference available with +SS or +ES options

Video Reference:

Type: Menu selectable - depends on video format
 NTSC or PAL Color Black 1 V p-p
 Composite Bi-level sync (525i/59.94 or 625i/50) 300 mV
Connectors: 2 BNC per IEC 60169-8 Amendment 2
Termination: High impedance loop through

DARS Reference (On +SS and +ES Optioned Routers):

Type: Digital Audio Signal with 48kHz sample rate
Standard: SMPTE 276M single ended AES
Connector: 2 BNC per IEC 60169-8 Amendment 2
Termination: High impedance loop through
Signal Level: 1V p-p
Freq. Lock Range: +/- 100ppm from nominal

GPI Control Port:

Number of Inputs: 14 opto-isolated, programmable functions
Number of Outputs: 4 sets of relay contacts, normally closed, programmable functions
Relay Max Rating: 1A at 30VDC

Serial Remote Control:

Standard: RS-232 or RS422, programmable baud rate
Connector: 9 pin female "D"
Protocol: GVG Ten XL ASCII, master or slave or remote control panel

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
 (483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Voltage: Auto ranging 100-240VAC 50/60 Hz 30VA
Fuse Rating: 250 V, 1 amp time delay
Safety: ETL Listed
 Complies with EU safety directives
 Complies with FCC Part 15 Class A
 EU EMC Directive

Ordering Information:

X-1201S 12X1 SDI video router
X-1201S-AES 12x1 SDI video router with 2(12x1) AES busses (includes 1 AES breakout panel)
X-1201S-AES4 12x1 SDI video router with 4(12x1) AES busses (includes 2 AES breakout panels)

Ordering Options:

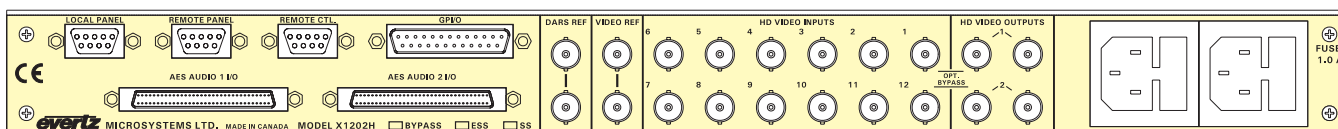
+SS SoftSwitch™ Option
+ES Embedded SoftSwitch™ Option
+BP Bypass Relay Protection
+2PS Redundant Power Supply
+RCP Rack Mount Remote Control Panel (replaces front control panel)
+B Balanced AES Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)
+U Unbalanced AES Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)

Accessories:

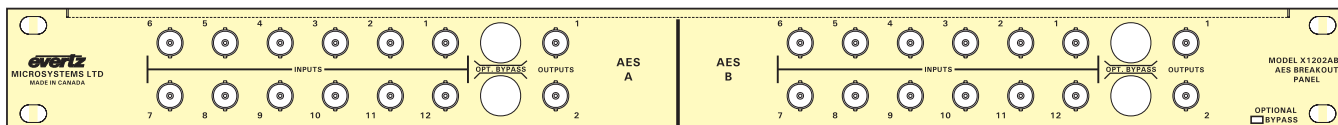
X-1201S-PANEL Additional remote control panel (works in addition to front control panel)
X-1201ABO Unbalanced AES Audio Breakout Panel (for all 1201 series routers)
X-1201ABOB Balanced AES Audio Breakout Panel (for all 1201 series routers)
X-1201ABOB-BP Balanced AES (with Bypass Relays) Audio Breakout Panels (for all 1201 series routers)
X-1201ABO-BP Unbalanced AES (with Bypass Relays) Audio Breakout Panel (For all 1201 series routers)

12 X 2 HDTV Router With Dual or Quad 12x2 AES Audio

Model X-1202H



X-1202H Rear Panel



X1202 Audio AES Breakout Panel

(Qty 1 with AES option, Qty 2 with AES4 option, Note: the bypass relay is optional)

The X-1202H HDTV twelve input video router provides a convenient, low cost way to route standard and high definition serial digital signals. The X-1202H routers are used for 1.5Gb/s HDTV serial digital signals. It features redundancy protection by providing optional dual power supply and relay bypass options. When the unit is ordered with the Dual 12x2 AES router or Quad 12x2 AES router options the AES output busses can be used in an "audio follow video" mode, or can be broken away from the video buss. The routers feature redundancy protection by providing dual power supply and bypass relay options.

The router electronics are housed in a 1RU rackmount frame and is controlled from the built-in front panel controls. Each model can also be purchased with an optional rack mounted remote control panel that replaces the built-in control panel. All units can also be controlled by contact closures on the GPI control port or through the RS-232 or RS-422 serial remote control port using industry standard switcher protocols.

Optional SoftSwitch™ Features (+HSS Option)

Routers equipped SoftSwitch™ option have the following additional features. The Video 1 output has adjustable vertical timing with respect to the genlock input, and line synchronizers on the video inputs can accommodate differences in timing up to approximately +/- one half line providing clean video switches on the V1 output (for HD Video only). All the AES outputs will have a continuous AES carrier locked to either the video genlock or DARS reference (when the DARS reference is used, Z bit alignment of the AES outputs is also guaranteed). The AES outputs that follow the Video 1 buss use Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed on synchronous audio sources.

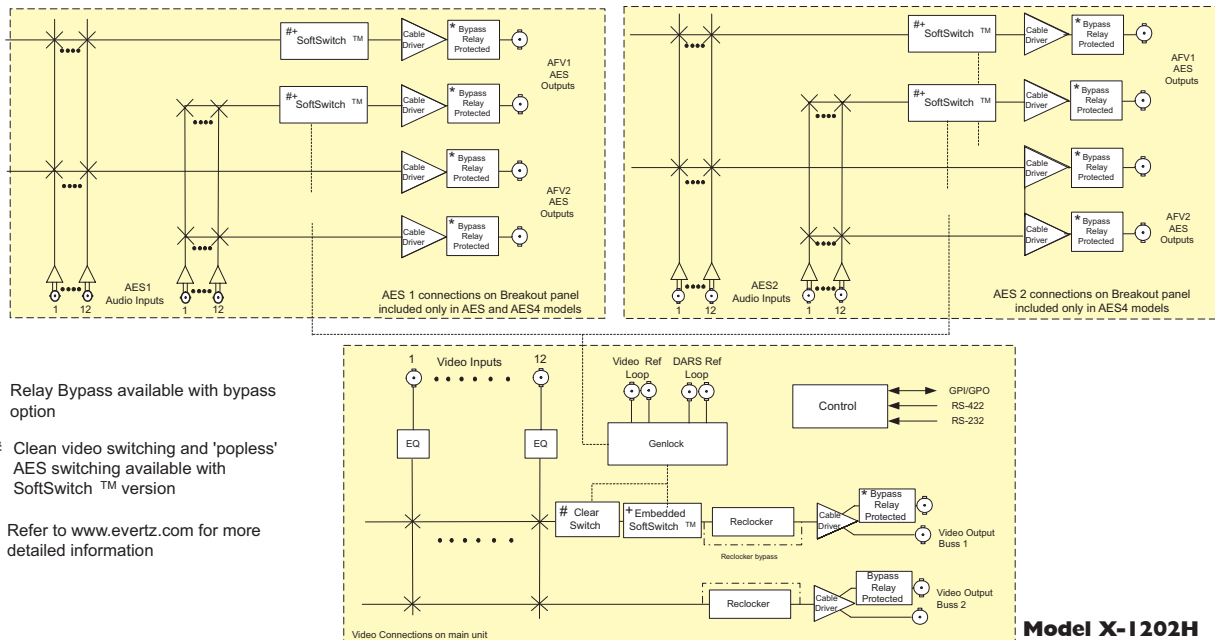
Optional Embedded SoftSwitch™ Features (+HES Option)

Routers equipped with the Embedded SoftSwitch™ option have all the features of the SoftSwitch™ versions as well as the following additional features. The embedded audio on the Video 1 buss uses Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed. Embedded SoftSwitch™ is performed on all 4 audio groups.

Features

- Supports SMPTE 292M (1.5 Gb/s) video signals
- Can be operated in a non-reclock mode to pass SMPTE 259M video signals
- Units can be genlocked to an external source so that a "clean switch" can be achieved.
- Autotiming of V1 buss inputs to perform a clean video switch when SoftSwitch™ or Embedded SoftSwitch™ option is installed
- Optional SoftSwitch™ technology eliminates hot-switch audio pops on AES outputs following V1 buss
- Optional Embedded SoftSwitch™ technology eliminates hot-switch audio pops on embedded audio on V1 buss
- With embedded SoftSwitch™ option, SoftSwitch™ is performed on all 4 audio groups
- Switch line is fully controllable from the front panel.
- Video input presence detection displayable on the front panel.
- Front panel or remote control panel versions available. Second control panel can be ordered for either version
- Parallel GPI and RS-232 serial control.
- Programmable source input names available on the front panel.
- Optional video and audio input relay bypass for power failure bypass protection.
- Optional dual power supplies.
- Field upgradeable firmware as new features become available

12 X 2 HDTV Router With Dual or Quad 12x2 AES Audio



* Relay Bypass available with bypass option

Clean video switching and 'popless' AES switching available with SoftSwitch™ version

Refer to www.evertz.com for more detailed information

Model X-1202H

Specifications

HD Video Inputs:

Standard: SMPTE 292M (1.5 Gb/s)
SMPTE 259M with line synchronizer, reclocker and embedded SoftSwitch™ turned off

Number of Inputs: 12

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic 100m @ 1.485Gb/s with Belden 1694A (or equivalent) (50m on inputs 1 and 12 with +HPB option)

Return Loss: > 15 dB up to 1.5 Gb/s

Input Timing (On +HSS and +HES Optioned Routers): Measured with respect to the Genlock reference
Input Range: ±1/2 line when *Course phase* = 1, *Fine phase* = 0
Auto timer for HD Video only

HD Video Outputs:

Standard: Same as input

Number of Outputs: 2 per buss, 2 busses

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V ±0.5V

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Return Loss: > 15dB up to 1Gb/s, >12dB up to 1.5Gb/s

Jitter: <0.2UI

Output Timing (On +HSS and +HES Optioned Routers)

Output Phase: Measured with respect to the Genlock reference
Adjustable 1 line to a full frame of delay - set by *Course phase* parameter. The active video content will align to the nearest line
Output phasing for HD Video only

AES Audio Inputs:

Standard: SMPTE 276M single ended AES

Number of Inputs: 12 per buss, 2 or 4 busses optional

Connector: BNC per IEC 60169-8 Amendment 2 on breakout panels provided

AES Audio Outputs:

Standard: SMPTE 276M single ended AES

Number of Outputs: 2 per buss, 2 or 4 busses optional

Connector: BNC per IEC 60169-8 Amendment 2 on breakout panels provided

Signal Level: 1V p-p

Reference: From Video General Reference
DARS reference available with +HSS or +HES options

Video Reference:

Type: Menu selectable - depends on video format
HD Tri-level Sync
NTSC or PAL Color Black 1 V p-p
Composite Bi-level sync (525/59.94 or 625/50) 300 mV

Connectors: 2 BNC per IEC 60169-8 Amendment 2

Termination: High impedance loop through

DARS Reference (On +HSS and +HES Optioned Routers):

Type: Digital Audio Signal with 48kHz sample rate

Standard: SMPTE 276M single ended AES

Connector: 2 BNC per IEC 60169-8 Amendment 2

Termination: High impedance loop through

Signal Level: 1V p-p

Freq. Lock Range: +/- 100ppm from nominal

GPI Control Port:

Number of Inputs: 14 opto-isolated, programmable functions

Number of Outputs: 4 sets of relay contacts, normally closed, programmable functions

Relay Max Rating: 1A at 30VDC

Serial Remote Control:

Standard: RS-232 or RS422, programmable baud rate

Connector: 9 pin female "D"

Protocol: GVG Ten XL ASCII, master or slave or remote control panel

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
(483mm W x 45mm H x 477mm D)

Weight: 8 lbs. (3.5Kg)

Electrical:

Voltage: Auto ranging 100-240V AC 50/60 Hz 30 VA

Fuse Rating: 250 V, 1 amp time delay

Safety: ETL Listed
Complies with EU safety directives
Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

X-1202H 12X2 HDTV video router

X-1202H-AES 12x2 HDTV video router with 2(12x2) AES busses (includes 1 AES breakout panel)

X-1202H-AES4 12x2 HDTV video router with 4(12x2) AES busses (includes 2 AES breakout panels)

Ordering Options:

+HSS SoftSwitch™ Option

+HES Embedded SoftSwitch™ Option

+HPB Bypass Relay Protection

+2PS Redundant Power Supply

+RCP Rack Mount Remote Control Panel (replaces front control panel)

+B Balanced AES Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)

+U Unbalanced AES Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)

Accessories:

X-1202H-PANEL Additional Remote Control Panel(works in addition to front control panel)

X-1202ABO Unbalanced AES Audio Breakout Panel (for all 1202 series routers)

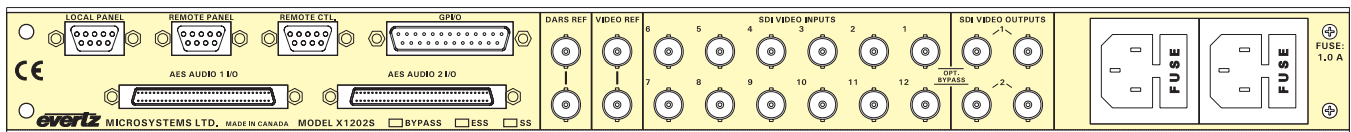
X-1202ABOB Balanced AES Audio Breakout Panel (for all 1202 series routers)

X-1202ABOB-BP Balanced AES (with Bypass Relays) Audio Breakout Panels (for all 1202 series routers)

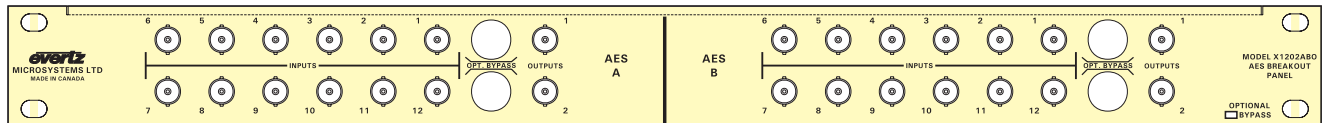
X-1202ABO-BP Unbalanced AES (with Bypass Relays) Audio Breakout Panel (For all 1202 series routers)

12 X 2 SDI Router With Dual or Quad 12x2 AES Audio

Model X-1202S



X1202S Rear Panel



X1202 Audio AES Breakout Panel

(Qty 1 with AES option, Qty 2 with AES4 option, Note: the bypass relay is optional)

The X-1202S SDTV twelve input routing switcher provides a convenient, low cost way to route standard definition serial digital signals. The X-1202S routers are used for 270, 360, 540Mb/s and DVB-ASI serial digital signals. When the unit is ordered with the Dual 12x2 AES router or Quad 12x2 AES router options the AES output busses can be used in an "audio follow video" mode, or can be broken away from the video buss. It features redundancy protection by providing dual power supply and bypass relay options.

The router electronics are housed in a 1RU rackmount frame and is controlled from the built-in front panel controls. Each model can also be purchased with an optional rack mount remote control panel that replaces the built-in control panel. All units can also be controlled by contact closures on the GPI control port or through the RS-232 or RS-422 serial remote control port using industry standard switcher protocols.

Optional SoftSwitch™ Features (+SS Option)

Routers equipped with the SoftSwitch™ option have the following additional features. The Video 1 output has adjustable vertical timing with respect to the genlock input, and line synchronizers on the video inputs can accommodate differences in timing up to approximately +/- one half line providing clean video switches on the V1 output. All the AES outputs will have a continuous AES carrier locked to either the video genlock or DARS reference (when the DARS reference is used, Z bit alignment of the AES outputs is also guaranteed). The AES outputs that follow the Video 1 buss use Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed on synchronous audio sources.

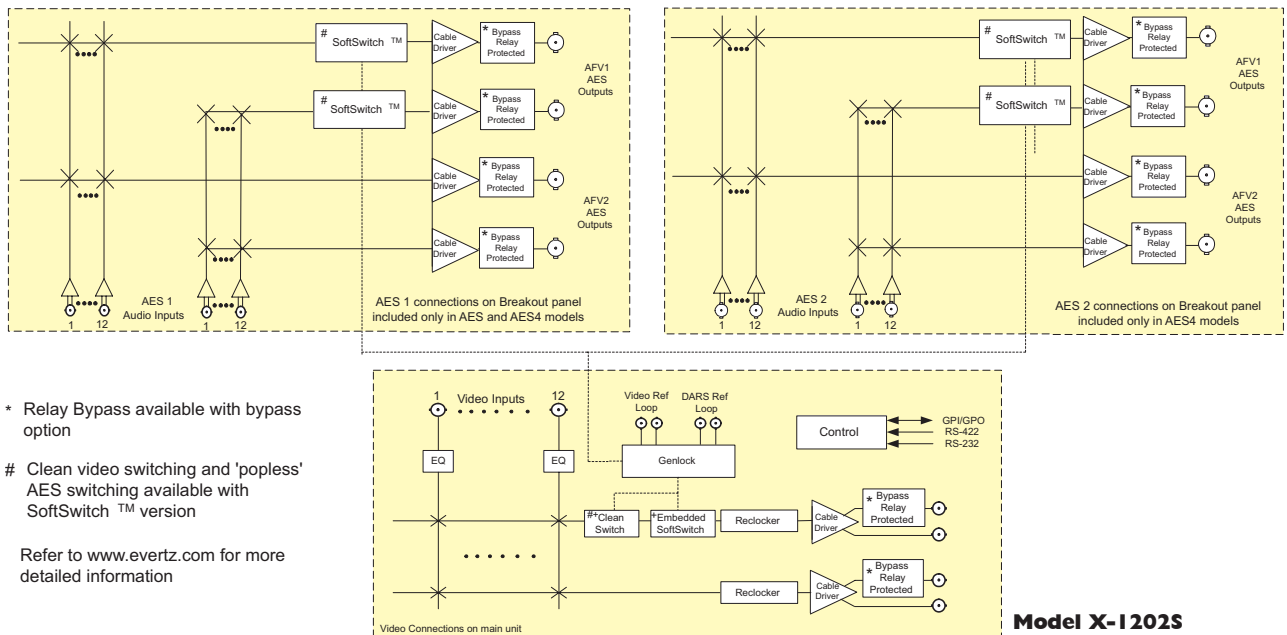
Optional Embedded SoftSwitch™ Features (+ES Option)

Routers equipped with the Embedded SoftSwitch™ option have all the features of the SoftSwitch™ versions as well as the following additional features. The embedded audio on the Video 1 buss uses Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed. Embedded SoftSwitch™ is performed on all 4 audio groups.

Features

- Supports SMPTE 259M (270Mb/s, 360Mb/s, 540Mb/s) video signals
- Units can be genlocked to an external source so that a "clean switch" can be achieved
- Autotiming of V1 buss inputs to perform a clean video switch when SoftSwitch™ or Embedded SoftSwitch™ option is installed
- Optional SoftSwitch™ technology eliminates hot-switch audio pops on AES outputs following V1 buss
- Optional Embedded SoftSwitch™ technology eliminates hot-switch audio pops on embedded audio on V1 buss
- With embedded SoftSwitch™ option, SoftSwitch™ is performed on all 4 audio groups
- Switch line is fully controllable from the front panel
- Video input presence detection displayable on the front panel.
- Front panel or remote control panel versions available. Second control panel can be ordered for either version
- Parallel GPI and RS-232 serial control
- Programmable source input names available on the front panel.
- Optional video and audio input relay bypass for power failure bypass protection
- Optional dual power supplies
- Field upgradeable firmware as new features become available

I2 X 2 SDI Router With Dual or Quad I2x2 AES Audio



Model X-1202S

Specifications

SDI Video Inputs:

Standard: SMPTE 259M (270Mb/s, 360Mb/s, 540Mb/s) and DVB-ASI
Number of Inputs: 12
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic up to 250m @ 270 Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15 dB up to 540 Mb/s
Input Timing (On +SS and +ES Optioned Routers):
Input Range: Measured with respect to the Genlock reference
 $\pm 1/2$ line when *Course phase* = 1, *Fine phase* = 0

SDI Video Outputs:

Standard: Same as Input
Number of Outputs: 2 per buss, 2 busses
 Inputs 1 & 12 bypass protected with +BP option
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 540 Mb/s
Jitter: < 0.2 UI
Output Timing (On +SS and +ES Optioned Routers):
Output Phase: Measured with respect to the Genlock reference
 Adjustable 1 line to a full frame of delay - set by *Coarse phase* parameter. The active video content will align to the nearest line only

AES Audio Inputs:

Standard: SMPTE 276M single ended AES
Number of Inputs: 12 per buss, 2 or 4 busses optional
Connector: BNC per IEC 60169-8 Amendment 2 on breakout panels provided

AES Audio Outputs:

Standard: SMPTE 276M single ended AES
Number of Outputs: 2 per buss, 2 or 4 busses optional
 Input 1 and 12 bypass protected with +BP option
Connector: BNC per IEC 60169-8 Amendment 2 on breakout panels provided
Signal Level: 1V p-p
Reference: From Video General Reference
 DARS reference available with +SS or +ES options

Video Reference:

Type: Menu selectable - depends on video format
 NTSC or PAL Color Black 1 V p-p
 Composite Bi-level sync (525i/59.94 or 625i/50) 300 mV
Connectors: 2 BNC per IEC 60169-8 Amendment 2
Termination: High impedance loop through

DARS Reference (On +SS and +ES Optioned Routers):

Type: Digital Audio Signal with 48kHz sample rate
Standard: SMPTE 276M
Termination: High impedance loop through
Connector: 2 BNC per IEC 60169-8 Amendment 2
Signal Level: 1V p-p
Freq. Lock Range: +/- 100ppm from nominal

GPI Control Port:

Number of Inputs: 14 opto-isolated, programmable functions
Number of Outputs: 4 sets of relay contacts, normally closed, programmable functions
Relay Max Rating: 1A at 30VDC

Serial Remote Control:

Standard: RS-232 or RS422, programmable baud rate
Connector: 9 pin female "D"
Protocol: GVG Ten XL ASCII, master or slave or remote control panel

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
 (483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Voltage: Auto ranging 100-240VAC 50/60 Hz 30VA
Fuse Rating: 250 V, 1 amp time delay
Safety: ETL Listed
 Complies with EU safety directives
 Complies with FCC Part 15 Class A
EMI/RFI: EU EMC Directive

Ordering Information:

X-1202S 12X2 SDI video router
X-1202S-AES 12x2 SDI video router with 2(12x2) AES busses (includes 1 AES breakout panel)
X-1202S-AES4 12x2 SDI video router with 4(12x2) AES busses (includes 2 AES breakout panels)

Ordering Options:

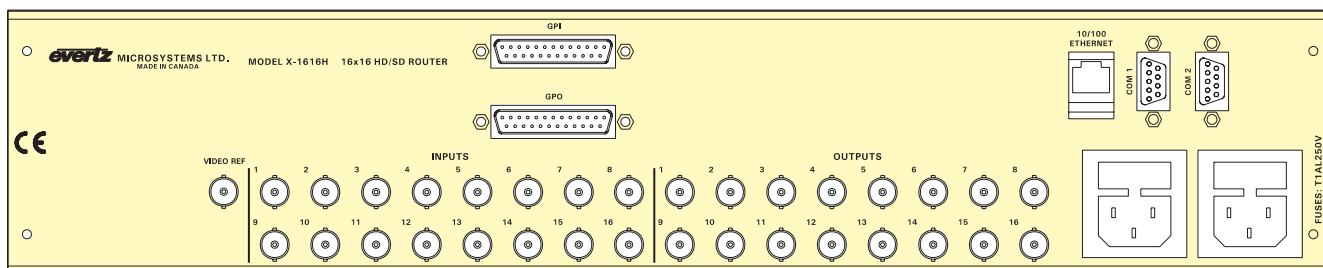
+SS SoftSwitch™ Option
+ES Embedded SoftSwitch™ Option
+BP Bypass Relay Protection
+2PS Redundant Power Supply
+RCP Rack Mount Remote Control Panel (replaces front control panel)
+B Balanced AES Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)
+U Unbalanced AES Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)

Accessories:

X-1202H-PANEL Additional Remote Control Panel (works in addition to front control panel)
X-1202ABO Unbalanced AES Audio Breakout Panel (for all 1202 series routers)
X-1202ABOB Balanced AES Audio Breakout Panel (for all 1202 series routers)
X-1202ABOB-BP Balanced AES (with Bypass Relays) Audio Breakout Panels (for all 1202 series routers)
X-1202ABO-BP Unbalanced AES (with Bypass Relays) Audio Breakout Panel (For all 1202 series routers)

X-1616 HD/SD Router

Model X-1616H



X-1616H Rear Panel

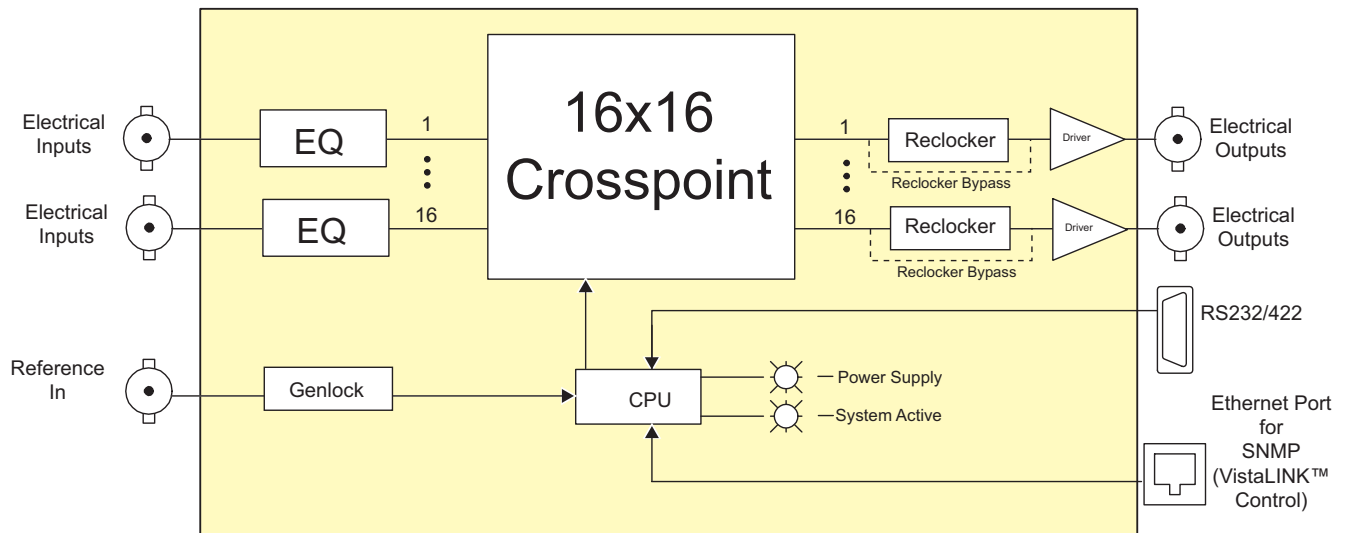
The X-1616H digital video routing switcher is ideal for routing SDI, HDSDI, and other compatible digital signals. A non-blocking router architecture allows any input to be routed to any combination of outputs. The router systems may be controlled through the VistaLINK™ graphical user interface, an NCP2 control panel, GPI contact closures or through an RS232/RS422 port.

The X-1616H is housed in a 2RU frame.

Features

- Supports SMPTE 259M (143Mb/s, 270Mb/s, 360Mb/s, 540Mb/s), SMPTE 292M (1.5Gb/s), and DVB-ASI video signals
- Accepts non-video signal rates from 19.3 Mb/s to 1.5 Gb/s
- Fully non-blocking router architecture
- VistaLINK™ control enabled
- SNMP remote router control via NCP-2 control panels
- Parallel GPI and RS232/422 serial control
- 16 coaxial inputs and outputs
- Dual power supply option
- Compact 2RU size

X-1616H Block Diagram:



Specifications

Signal Inputs:

Standard: SMPTE 259M, SMPTE292M, or any compatible 8b/10b or similarly encoded, scrambled signal from 19.3Mb/s to 1.5 Gb/s

Number of inputs: 16

Connector: BNC per IEC 60169-9 Amendment 2

Impedance: 75Ω

Signal Level: 800mV p-p nominal

Equalization: Automatic

Signal Outputs:

Standard: SMPTE 259M, SMPTE 292M, or any compatible 8b/10b or similarly encoded, scrambled signal from 19.2 Mb/s to 1.5Gb/s

Number of outputs: 16

Connector: BNC per IEC 60169-9 Amendment 2

Impedance: 75Ω

Signal Level: 800mV p-p nominal, terminated into 75 ohms

DC offset: 0V +/- 0.5V

Rise and Fall time: 200ps nominal

Communication and Control:

Serial: RS232/422, DB9 male

Ethernet: IEEE 802.3/U (10/100 Base Tx), RJ45 connector

Physical:

Dimensions: 19"W x 3.5"H x 18"D
(483mm W x 90mm H x 457mm D)

Weight: 8 lbs. (3.5 kg)

Electrical:

Voltage: 110-230 Volts AC, 50/60 Hz

Fuse Rating: 250V, 1 amp, time delay

Power: 100 Watts maximum

Ordering Information:

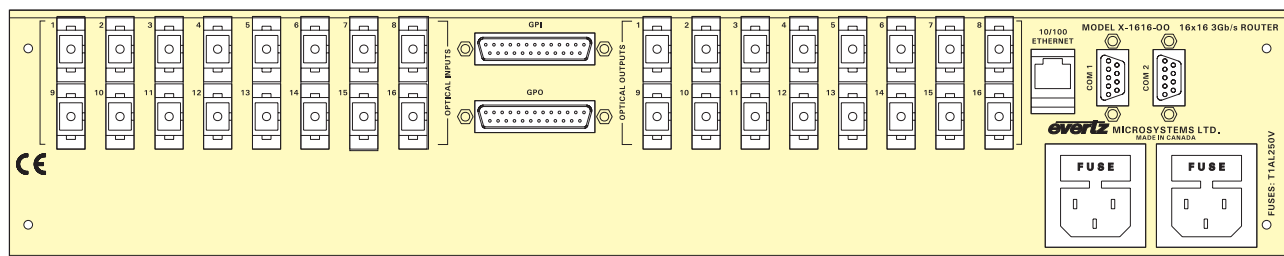
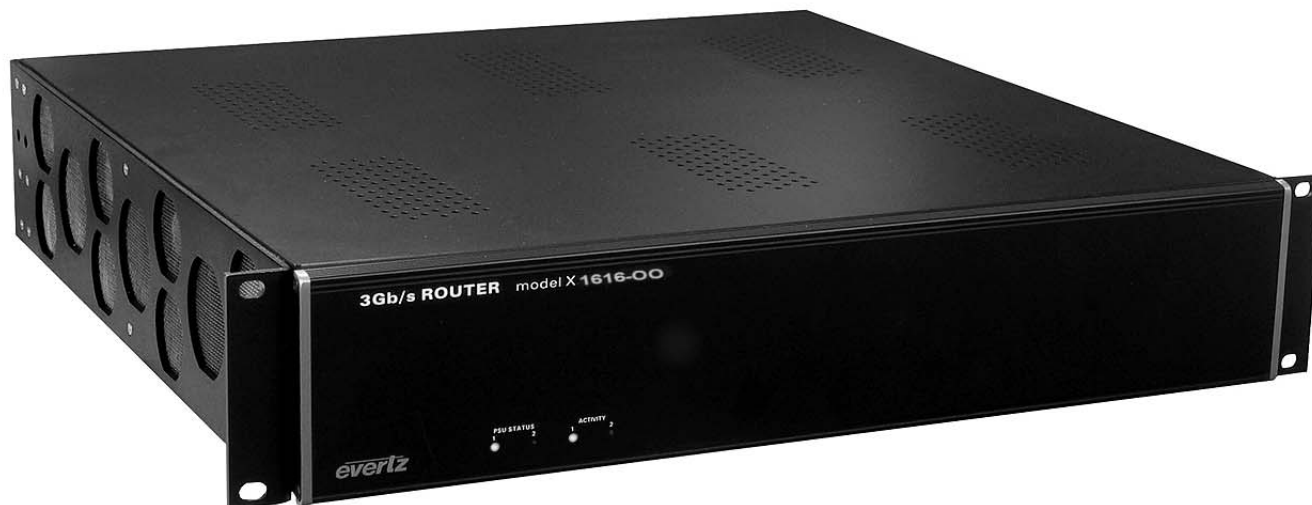
X-1616H	HD/SD router, 16 x 16 matrix, BNC inputs and outputs
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Ordering Options

+2PS	Redundant power supply
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X-1616-00 Optical Router

Model X-1616-00



X-1616 Rear Panel

The X-1616-00 is a VistaLINK™ -enabled optical router for digital optical signals with rates up to 3Gb/s. The X-1616-00 can accept signals on any of its 16 optical inputs and route them to any number of its 16 optical outputs. The X-1616-00 is ideal for signal regeneration, routing and wavelength management in your optical system.

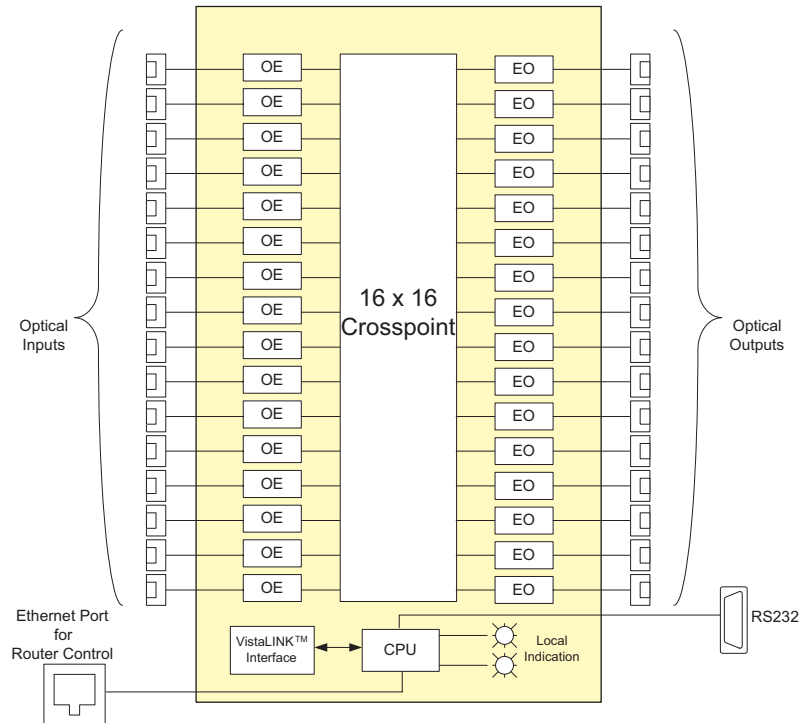
The optical outputs are available in 1310nm, CWDM or DWDM wavelengths. The X-1616-00 is housed in a 2RU frame.

Features

- 16 fiber optic inputs and outputs
- Provides optical regeneration (amplification, reshaping), routing and wavelength management
- Data rate independent to 3Gb/s
- Handles Video, Audio, Datacom and Telecom signals
- Fully non-blocking architecture
- Broadcast mode capability (any input to any number of outputs)
- Accepts any input wavelength (1270nm to 1610nm)
- Outputs available with 1310nm, CWDM (ITU G.694.2) or DWDM (ITU G.694.1) wavelengths
- SNMP monitoring and remote router control via Model 9000NCP control panel
- Compatible with single-mode or multi-mode fiber optic cable
- Compact 2RU size

X-1616-00 Optical Router

X-1616-00 Block Diagram:



Specifications

Optical Input:

Number of Inputs:	16
Connector:	SC/PC, ST/PC, FC/PC Female housing
Operating Wavelength:	1270nm - 1610nm
Maximum Input Power:	-1dBm
Optical Sensitivity:	-21dBm

Optical Output:

Number of Outputs:	16
Connector:	SC/PC, ST/PC, FC/PC Female housing
Return Loss:	>14dB
Output Wavelength:	
X-1616-OO13	1310nm
X-1616-OOCWDM	1270nm - 1610nm (16 wavelengths, 20nm spacing)
X-1616-ODWDM	1545.32-1557.36nm (ITU C40-C25, 16 wavelengths, 0.8nm spacing)

Output Power:

X-1616-OO13	-7dBm
X-1616-OOCWDM	0dBm
X-1616-ODWDM	7dBm

Communication and Control:

Serial:	RS232/422, DB9 Male
Ethernet:	IEEE 802.3/U (10/100 BaseTx) RJ45 connector

Physical:

Dimensions:	19"W x 3.5"H x 18"D (483mm W x 90mm H x 457mm D)
Weight:	8lbs. (3.5Kg)

Electrical:

Voltage:	110 - 230 Volts AC, 50/60 Hz
Fuse Rating:	250 V, 1 amp time delay
Power:	100 Watts (Max.)

Ordering Information:

X-1616-OO13	16 x 16 Optical Router with 16 1310nm optical outputs
X-1616-OOCWDM	16 x 16 Optical Router with 16 CWDM (1270nm - 1610nm) optical outputs
X-1616-ODWDM	16 x 16 Optical Router with 16 DWDM (ITU C40-C25) optical outputs

Ordering Options

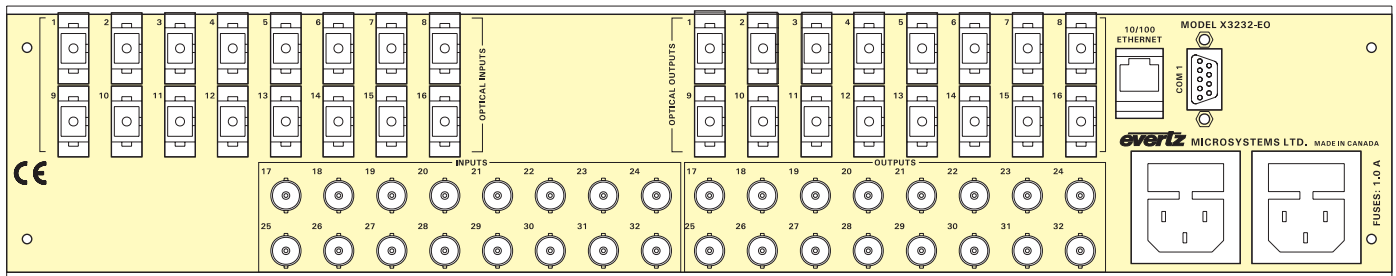
Fiber Connector must be specified at time of order
Eg: Model +SC

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

X-3232-EO Electrical/Optical Router

Model X-3232-EO



X-3232 Rear Panel

The X-3232-EO is a VistaLINK™ -enabled electrical/optical router for digital electrical or optical signals with rates up to 3Gb/s. The X-3232-EO can accept signals on any of its 16 optical or 16 electrical inputs and route them to any number of its 16 optical and 16 electrical outputs. The X-3232-EO is ideal for signal regeneration, routing and wavelength management in your optical system.

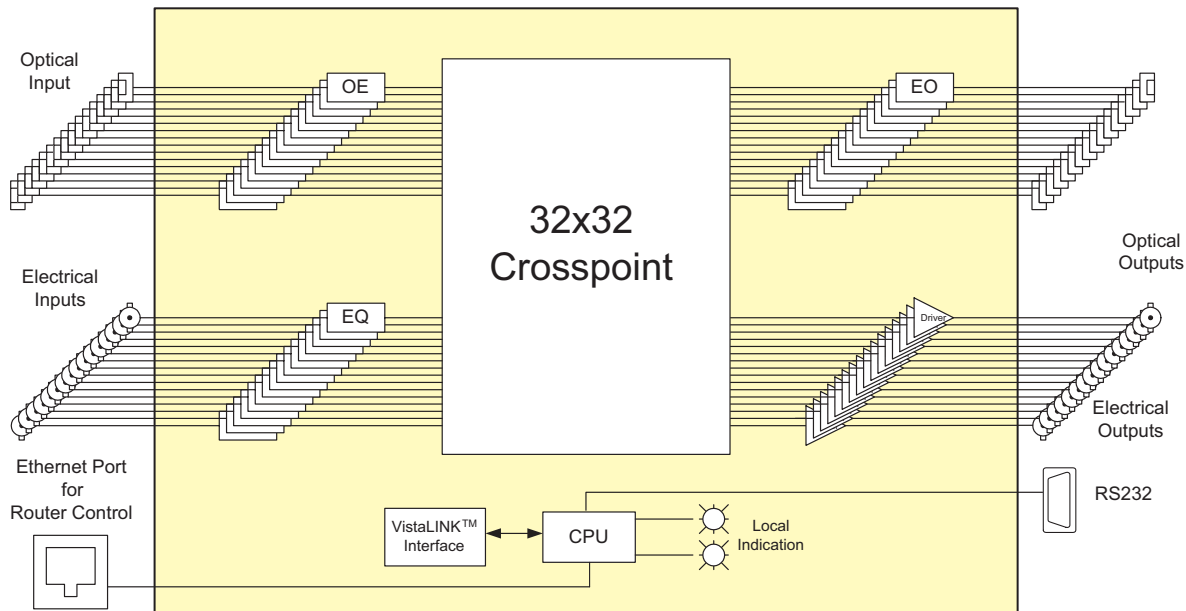
The optical outputs are available in 1310nm, CWDM or DWDM wavelengths. The X-3232-EO is housed in a 2RU frame.

Features

- 16 fiber optic inputs and outputs
- 16 coaxial inputs and outputs
- Provides optical regeneration (amplification, reshaping), routing and wavelength management
- Data rate independent to 3Gb/s
- Handles Video, Audio, Datacom and Telecom signals
- Fully non-blocking architecture
- Broadcast mode capability (any input to any number of outputs)
- Allows EO/OE conversion in one platform
- Provides ADD, DROP and MUX capabilities
- Accepts any input wavelength (1270nm to 1610nm)
- Outputs available with 1310nm, CWDM (ITU G.694.2) or DWDM (ITU G.694.1) wavelengths
- SNMP monitoring and remote router control via model 9000NCP control panel
- Compatible with single-mode or multi-mode fiber optic cable
- Compact 2RU size

X-3232-EO Electrical/Optical Router

X-3232-EO Block Diagram:



Specifications

Optical Input:

Number of Inputs:	16
Connector:	SC/PC, ST/PC, FC/PC Female housing
Operating Wavelength:	1270nm - 1610nm
Maximum Input Power:	-1dBm
Optical Sensitivity:	-21dBm

Optical Output:

Number of Outputs:	16
Connector:	SC/PC, ST/PC, FC/PC Female housing
Return Loss:	>14dB
Output Wavelength:	
X-3232-EO13	1310nm
X-3232-EOCWDM	1270nm - 1610nm (16 wavelengths, 20nm spacing)
X-3232-EODWDM	1545.32-1557.36nm (ITU C40-C25, 16 wavelengths, 0.8nm spacing)

Output Power:

X-3232-EO13	-7dBm
X-3232-EOCWDM	0dBm
X-3232-EODWDM	7dBm

Electrical Input:

Standard:	Any scrambled, 8b/10b or similarly encoded signal from 155Mb/s to 3.125Gb/s
Number of Inputs:	16
Connector:	BNC per IEC 60169-8 Amendment 2
Return Loss:	>12dB
Signal Level:	800mV nominal

Electrical Output:

Standard:	Any scrambled, 8b/10b or similarly encoded signal from 155Mb/s to 3.125Gb/s
Number of Outputs:	16
Connector:	BNC per IEC 60169-8 Amendment 2
Return Loss:	>12dB
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V

Communication and Control:

Serial:	RS232/422, DB9 Male
Ethernet:	IEEE 802.3/U (10/100 BaseTx) RJ45 connector

Physical:

Dimensions:	19"W x 3.5"H x 18"D (483mm W x 90mm H x 457mm D)
Weight:	8lbs. (3.5Kg)

Electrical:

Voltage:	110 - 230 Volts AC, 50/60 Hz
Fuse Rating:	250 V, 1 amp time delay
Power:	100 Watts (Max)

Ordering Information:

X-3232-EO13	32 x 32 Electrical/Optical Router with 16 1310nm optical outputs
X-3232-EOCWDM	32 x 32 Electrical/Optical Router with 16 CWDM (1270nm - 1610nm) optical outputs
X-3232-EODWDM	32 x 32 Electrical/Optical Router with 16 DWDM (ITU C40-C25) optical outputs

Ordering Options

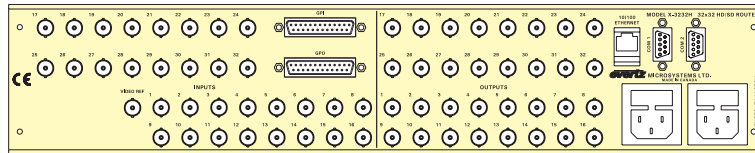
Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

X-3232 HD/SD Router

Model X-3232H



X-3232H Rear Panel

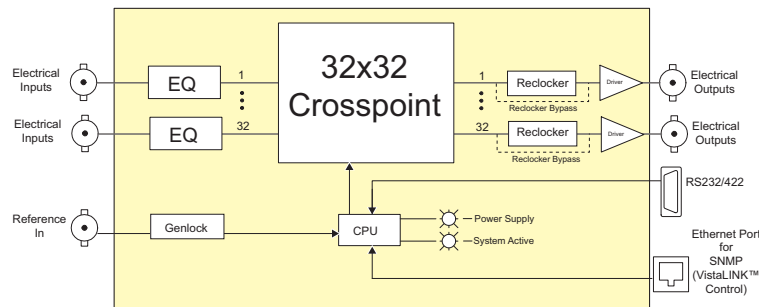
The X-3232H digital video routing switcher is ideal for routing SDI, HDSDI, and other compatible digital signals. A non-blocking router architecture allows any input to be routed to any combination of outputs. The router system may be controlled through the VistaLINK™ graphical user interface, an NCP-2 control panel, GPI contact closures or through an RS232/RS422 port.

The X-3232H is housed in a 2RU frame.

Features

- Supports SMPTE 259M (143Mb/s, 270Mb/s, 360Mb/s, 540Mb/s), SMPTE 292M (1.5Gb/s), and DVB-ASI video signals
- Accepts non-video signal rates from 19.3 Mb/s to 1.5 Gb/s
- Fully non-blocking router architecture
- VistaLINK™ control enabled
- SNMP remote router control via NCP-2 control panels
- Parallel GPI and RS232/422 serial control
- 32 coaxial inputs and outputs
- Dual power supply option• Compact 2RU size

X-3232H Block Diagram:



Specifications

Signal Inputs:

Standard: SMPTE 259M, SMPTE292M, or any compatible 8b/10b or similarly encoded, scrambled signal from 19.3Mb/s to 1.5 Gb/s

Number of inputs: 32

Connector: BNC per IEC 60169-9 Amendment 2

Impedance: 75Ω

Signal Level: 800mV p-p nominal

Equalization: Automatic

Signal Outputs:

Standard: SMPTE 259M, SMPTE 292M, or any compatible 8b/10b or similarly encoded, scrambled signal from 19.2 Mb/s to 1.5Gb/s

Number of outputs: 32

Connector: BNC per IEC 60169-9 Amendment 2

Impedance: 75Ω

Return Loss: >12 db up to 1.5GHz

Signal Level: 800mV p-p nominal, terminated into 75 ohms

DC offset: 0V +/- 0.5V

Rise and Fall time: 200ps nominal

Communication and Control:

Serial: RS232/422, DB9 male

Ethernet: IEEE 802.3/U (10/100 Base Tx), RJ45 connector

Physical:

Dimensions: 19"W x 3.5"H x 18"D
(483mm W x 90mm H x 457mm D)

Weight: 8 lbs. (3.5 kg)

Electrical:

Voltage: 110-230 Volts AC, 50/60 Hz

Fuse Rating: 250V, 1 amp, time delay

Power: 100 Watts maximum

Ordering Information:

X-3232H Video router, 32 x 32 matrix, BNC inputs and outputs

Ordering Options

+2PS

Redundant power supply

Router Control Panel X-NCP2



Evertz 2RU X-NCP2 provides real-time control and configuration of Evertz XRF1 and XRF6 series routers, allowing access to configuration parameters such as gain control, AGC mode, and LNB power generation.

Multiple control panels may reside on a single Ethernet network. The unit includes two 4-line displays, programmable quick-access pushbuttons, a direct-entry 0-9 keypad, and four rotary shaft encoders.

When combined with Evertz VistaLINK®, the X-NCP2 can be used to configure and display custom source/destination labels, program and execute quick-access configuration buttons, and set passcode protection on features such as input channel configuration menus and destination or salvo locks.

Features

- Provides control and configuration of router crosspoint matrices for the entire range of Evertz' RF routers
- Two, 4-line, 24 alphanumeric digit per line vacuum fluorescent display (VFD) featuring very high brightness and wide viewing angles
- Panel pushbuttons are illuminated, tactile and full-size
- 26 pushbuttons are programmable for quick-access to channels and features
- VistaLINK® - capable for advanced system features such as custom labels and passcode protections
- Low-powered, rack-mountable, 2RU router control panel

Specifications

Ethernet Input/Output:

Standard: IEEE 802.3 (10BaseT), IEEE 8002.3u (100BaseTx)
Connector: 1 RJ45

Serial I/O (COM1):

Standard: RS-232/RS-422
Connector: Female DB9
Baud Rate: 57600
Format: 8 bits, no parity, 2 stop bits, no hardware flow (COM2 not available)

Physical:

19" W x 4 3/8" D x 3 1/2" H
(483mm x 111mm x 89mm)

Weight:

3 lbs. (1.36 kg)

Temperature:

0 to 50 deg. C. (Operating)

Electrical:

Voltage: + 12VDC
Power: 11 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

X-NCP2 2RU VistaLINK® Router Control Panel



16x16 RF L-Band and IF Router XRF1-16x16



The XRF1-16x16 is an RF signal routing matrix for L-Band and IF satellite communications signals. Housed in a compact 1RU chassis, the XRF1-16x16 is a full-featured routing matrix with automatic or manual gain control and RF power meters on each input channel, as well as optional LNB power supplies. Advanced capabilities, such as destination and salvo locks ensure secure uninterrupted matrix paths for critical content. Salvos allow multiple matrix path changes with the push of a button.

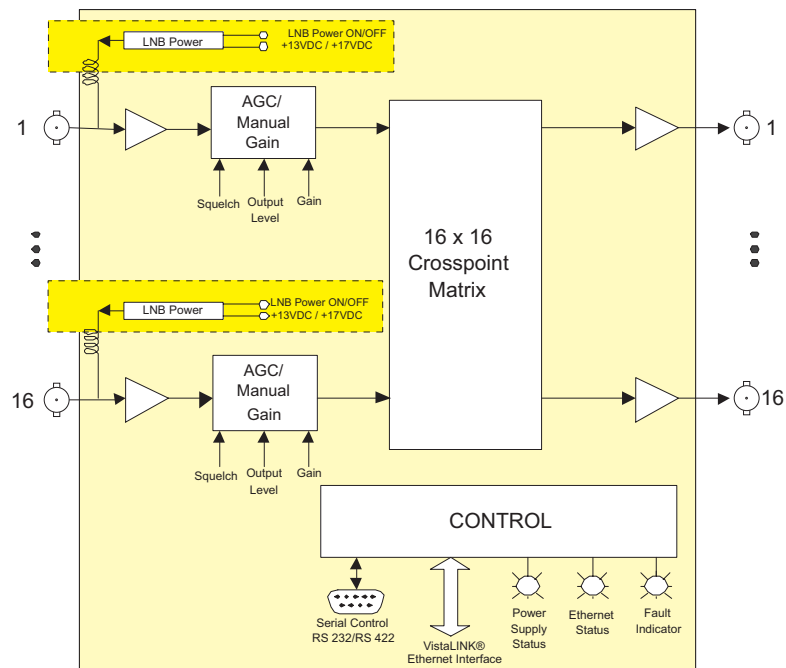
The XRF1-16x16 is offered with local and/or remote control panel options for crosspoint control and system configuration. Additionally, this flexible routing matrix can be controlled, configured and monitored via serial control and/or SNMP control over Ethernet using Evertz VistaLINK® or other M&C software.

The XRF1-16x16 may be expanded from a 16x16 matrix to a 32x32 matrix by connecting multiple frames in conjunction with Evertz SCRF series passive RF splitters/combiners, providing matrix expansion without compromising system reliability.

Features

- Wide passband for extended L-Band and IF applications
- Passes all modulation formats
- Passcode protection for configuration parameters, destination locks, and salvo locks
- Up to 8 programmable salvos
- Internal redundant power supply option
- LNB power generation option with short circuit protection
- External system expansion capability up to 32x32 using additional frames and Evertz SCRF series passive splitters/combiners
- Automatic or manual gain control on all input channels
- RF power monitoring on all input channels
- Adjustable output level in AGC mode
- Matrix crosspoint control using local control panel, X-NCP2 remote control panel, VistaLINK®, or 3rd party control software
- System configuration, alarm monitoring, event logging, and email notification available through VistaLINK® or 3rd party control software

XRF1-16x16 Block Diagram



16x16 RF L-Band and IF Router

XRF1-16x16

Specifications

System:

Matrix Sizes:	16x16 , up to 32x32 using additional frames and SCRF splitters/combiners in groups of 16 inputs/outputs 75Ω (50Ω optional)
Impedance:	75Ω (50Ω optional)
Connector Type:	BNC per IEC 60169-8 Amendment 2 (F-type connector optional)
Number of Inputs:	16
Number of Outputs:	16
Gain Range (Manual):	-9 to +18dB in 1dB steps
Output AGC Level:	-20 to -50dBm

RF Specifications: L Band

Bandwidth:	850 to 2250 MHz*
Freq Response:	± 1.5dB over bandwidth ± 0.5dB over any 36 MHz channel
Isolation:	> 55dB (input to input, output to output, input to input)
RF Input Power:	-10 to -70dBm
Max RF Output Power:	-10dBm
Input P1dB:	+2 dBm (1500MHz) typ
OIP3:	+12dBm (1500MHz) typ
Noise Figure:	6dB (1500MHz, Gain = +18dB) typ 20dB (1500MHz, Gain = 0dB) typ
Return Loss:	> 15dB (input and output)
LNB Bias (-LNB Version):	
Voltage:	+13VDC/+17VDC ± 5% (selectable)
Max. Current:	400mA (overload protected)

RF Specifications: IF

Bandwidth:	40 to 200 MHz*
Frequency Response:	± 0.5dB over 50-90MHz and 120-160MHz
Isolation:	> 60dB (input to output, output to output, input to input)
RF Input Power:	-15 to -70dBm
Max RF Output Power:	-10dBm
Input P1dB:	-4 dBm (70MHz) typ
OIP3:	+10dBm (70MHz) typ
Return Loss:	>13dB (input), >15dB (output)

Communication and Control:

Serial:	RS232/RS422 selectable
Ethernet:	SNMP over IEEE 802.3/U (10/100 BaseTx) RJ45 connector
Control:	Local front panel, XNCP2 Network control panel or VistaLINK®

Electrical:

AC Input:	40 Watts max. w/o LNB power option 175 Watts max. with LNB power option
Max Power Consumption:	Auto ranging 100 to 250 VAC, 50/60 Hz
Connector:	IEC 60320 - 1 per power supply
Fuses:	2 amp

Compliance:

Safety:	CSA Listed to CSA C22.2 No. 60065-03, UL 60065-03 IEC 60065-(2001-12) 7th Edition Complies with CE Low voltage Directive 93/68/EEC
EMC:	Complies with FCC part 15, Class A Complies with EU EMC directive 89/336/EEC

Physical:

Dimensions:	19"Wx 1.75"H x 18.75"D (483mm x 45mm x 477mm)
Weight:	Approx. 9.5lbs. (4.3kg) with 2 power supplies, -LNB version

Ordering Information: (Sample Systems)

XRF1-16x16:	1RU 16x16 RF Router
XRF1-16x16-LNB:	1RU 16x16 RF Router with LNB power supply
PKGXRF1-32x32	32x32 L Band Routing System

Ordering Options:

+LCP	Local control panel
+2PS	Redundant power supply
+50	50Ω I/O impedance on all 16 inputs and outputs
+F75	75Ω F-Type rear connector on all 16 inputs and outputs

Contact Evertz sales for other matrix sizes and packages

* All specifications over specified bandwidth unless noted.

XRF1616

The XRF1616 is an RF signal routing matrix for L-Band and IF satellite communications signals. Housed in a compact, 1RU chassis, the XRF1 is a full-featured routing matrix with automatic or manual gain control and RF power meters on each input channel, as well as optional LNB power supplies. Advanced capabilities, such as programmable destination and salvo locks insure secure, uninterrupted matrix paths for critical content. Salvos allow multiple matrix path changes with the push of a button.

The XRF1616 is offered with local and/or remote control panel options for crosspoint control and system configuration. Additionally, this flexible routing matrix can be controlled, configured, and monitored via serial control and/or SNMP control over Ethernet, using Evertz' VistaLINK or other M&C software.

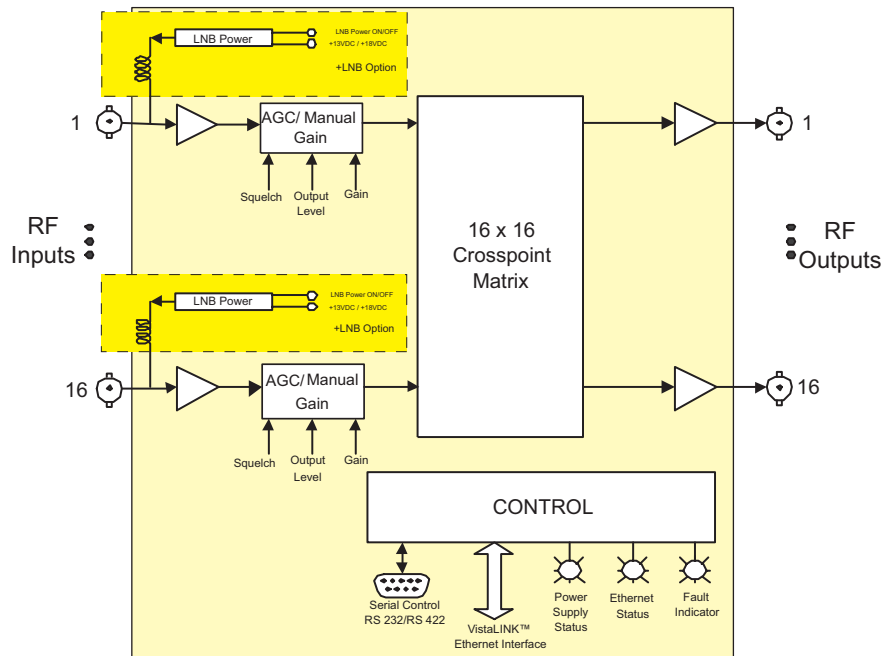
The XRF1616 frame may be expanded from a 16x16 matrix to a 32x32 matrix by connecting multiple frames in conjunction with Evertz SCRF series passive RF splitters/combiners, providing matrix expansion without compromising system reliability.

Features

- Wide passband for extended L-Band and IF applications
- Passes all modulation protocols
- External system expansion capability up to 32x32 using additional frames and Evertz' SCRF series passive splitters/combiners
- Automatic or manual gain control on all input channels
- RF power monitoring on all input channels
- Adjustable output level in AGC mode
- Matrix crosspoint control using local control panel, X-NCP2 remote control panel, VistaLINK™, or 3rd party control software
- System configuration, alarm monitoring, event logging, and email notification available through VistaLINK™ or 3rd party control software
- Passcode protection for configuration parameters, destination locks, and salvo locks
- Up to 8 programmable salvos
- Internal redundant power supply option
- LNB power generation option



XRF1616 Block Diagram



Specifications

Input:

Number of Inputs: 16
Connector: BNC per IEC 169-8 (F connector option)
Max. L-Band Input Level: -10dBm
Max. IF Input Level: -15dBm
Input AGC Hold Range: -6dB to +20dB, relative to output level setting

L-Band Input P1dB: +2dBm (1500MHz) typ
IF Input P1dB: -4dBm (70MHz) typ
L-Band OIP3: +12dBm (1500MHz) typ
IF OIP3: +10dBm (70MHz) typ
L-Band Input Return Loss: >15dB
IF Input Return Loss: >13dB

Output:

Number of Outputs: 16
Connector: BNC per IEC 169-8 (F connector option)
Output Gain Range: -6dB to +20dB, relative to input signal (manual gain mode)
Output Level Range: -20dBm to -50dBm (ACG mode)
Max RF Output Level: -10dBm
Output Return Loss: >15dB

System:

Frequency Response: 200MHz to 2250MHz +/-1.5dB, +/-0.5dB over any 36MHz channel
 50MHz to 90MHz +/-0.5dB
 120MHz to 160MHz +/-0.5dB
L-Band Channel Isolation: >50dB
IF Channel Isolation: >60dB
Noise Figure: 6dB (1500MHz, Gain = +20dB) typ
 20dB (1500MHz, Gain = 0dB) typ

L-Band Group Delay: 0.5 nS, 200MHz to 2250 MHz
IF Group Delay: 0.5 nS, 120MHz to 140MHz, 3 nS, 50MHz to 90 MHz

Impedance: 75Ω (50Ω optional)

External Expansion: Up to 32x32 matrix, using additional frames and SCRF splitters/combiners, in groups of 16 inputs/outputs

Communication and Control:

Serial: RS232/RS422 selectable
Ethernet: SNMP over IEEE 802.3/U (10/100 BaseTx) RJ45 connector
Control: Local front-face panel, or X-NCP2 remote control panel

Physical:

Dimensions: 19"Wx 1.75"H x 20.5"D
 (482mm x 44mm x 520mm)

Electrical:

Power: Auto ranging 100 to 250 VAC, 50/60 Hz
AC Mains Input: 40 Watts maximum without LNB power option
 175 Watts maximum with LNB power option

Ordering Information: (Sample Systems)

PKGXR1616-16x16: 16x16 RF Routing System
PKGXR1616-16x32: 16x32 RF Routing System
PKGXR1616-32x32: 32x32 RF Routing System

Ordering Options:

+LNB LNB Power supply
+LCP Local control panel
+PS Redundant power supply
+F75 "F" type connectors, 75Ω

Contact Evertz sales for other matrix sizes

XRF6464

The XRF6464 is a modular RF signal matrix ideal for routing and monitoring RF L-band and IF signals within a satellite communications facility. Built upon a modular architecture, all active components are hot-swappable and front-loading, insuring ease of maintenance and matrix expansion. Advanced features such as automatic gain control and salvo operations allow for flexible RF signal management.

The XRF6464 is offered with a remote control panel option for crosspoint control and system configuration. Additionally, this flexible routing matrix can be controlled, configured, and monitored via serial control and/or SNMP control over Ethernet, using Evertz' VistaLINK or other M&C software.

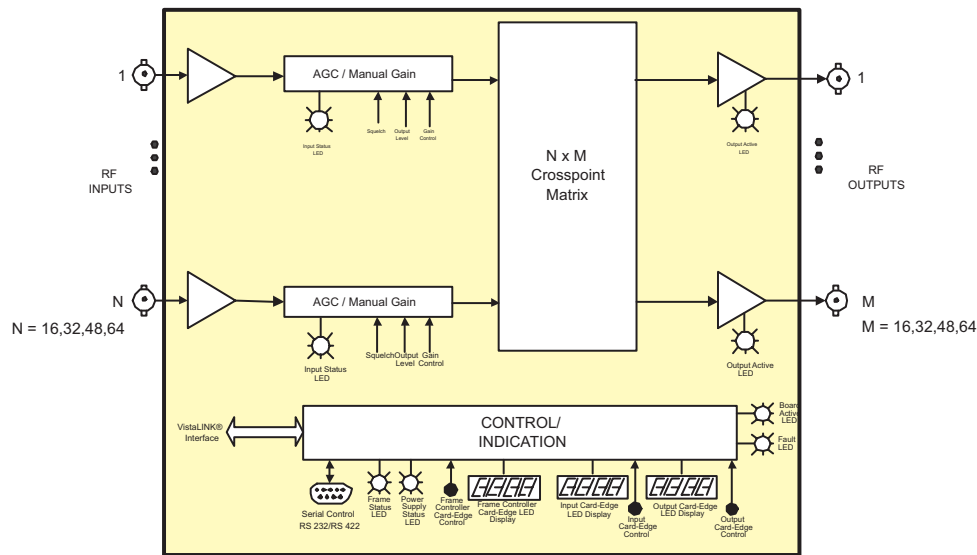
The XRF6464 houses up to a 64x64 routing matrix within a 6RU chassis. Matrix sizes range from 16x16 to 64x64 in increments of 16 inputs and outputs, within one frame. External expansion to 512x512 is available with the addition of multiple frames and SCRF series passive splitters/combiners. Input cards and output cards can be added independently for non-square matrix sizes. Ultra-high reliability is insured by low component count per signal path, optional dual power supplies, and redundant system controllers.

Features

- Wide bandwidth passes extended L-Band and IF signals
- Passes all modulation protocols
- Modular design; all cards are front-loading and hot-swappable
- External system expansion capability up to 512x512 using additional frames and Evertz SCRF series passive splitters/combiners
- Automatic or manual gain control on all input channels
- RF power monitoring on all input channel
- Adjustable output level in AGC mode
- Matrix crosspoint control using card-edge interface, X-NCP2 remote control panel, VistaLINK®, or 3rd party control software
- System configuration, alarm monitoring, event logging, and email notification available through VistaLINK® or 3rd party control software
- Passcode protection for configuration parameters, destination locks, and salvo locks
- Up to 32 programmable salvos
- Redundant power supply and frame controller options



XRF6464 Block Diagram



Specifications

Input:

Number of Inputs:	16, 32, 48, or 64
Connector:	BNC per IEC 169-8 (F connector option)
Max. L-Band Input Level:	-10dBm
Max. IF Input Level:	-15dBm
Input AGC Hold Range:	-6dB to +20dB, relative to output level setting
L-Band Input P1dB:	+2dBm (1500MHz) typ
IF Input P1dB:	-4dBm (70MHz) typ
L-Band OIP3:	+12dBm (1500MHz) typ
IF OIP3:	+10dBm (70MHz) typ
L-Band Input Return Loss:	>15dB
IF Input Return Loss:	>13dB

Output:

Number of Outputs:	16, 32, 48, or 64
Connector:	BNC per IEC 169-8 (F connector option)
Output Gain Range:	-6dB to +20dB, relative to input signal (manual gain mode)
Output Level Range:	-20dBm to -50dBm (ACG mode)
Max RF Output Level:	-10dBm
Output Return Loss:	>15dB

System:

Frequency Response:	200MHz to 2250MHz +/-3dB, +/-0.5dB over any 36MHz channel 50MHz to 90MHz +/-0.5dB 120MHz to 160MHz +/-0.5dB
L-Band Channel Isolation:	>50dB
IF Channel Isolation:	>60dB
Noise Figure:	6dB (1500MHz, Gain = +20dB) typ 20dB (1500MHz, Gain = 0dB) typ
L-Band Group Delay:	0.5 nS, 200MHz to 2250 MHz
IF Group Delay:	0.5 nS, 120MHz to 140MHz, 3 nS, 50MHz to 90 MHz
External Expansion:	Up to 512x512 matrix, using external distribution and combining

Communication and Control:

Serial:	RS232/RS422 selectable
Ethernet:	SNMP over IEEE 802.3/U (10/100 BaseTx) RJ45 connector
Control:	Card-edge interface, VistaLINK™, or X-NCP2 remote control panel

Physical:

Dimensions:	10.5"H x 19"W x 20.5"D (266mm x 44mm x 620mm)
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Electrical:

Power:	Auto ranging 100 to 250 VAC, 50/60 Hz
AC Mains Input:	250Ω maximum

Ordering Information: (Sample Systems)

PKGXR6464L-32x32:	32x32 L-Band Routing System
PKGXR6464L-32x64:	32x64 L-Band Routing System
PKGXR6464L-64x64:	64x64 L-Band Routing System
PKGXR6464L-128x128:	128x128 L-Band Routing System
PKGXR6464S-32x64:	32x64 L-Band Routing System limited to a matrix size of 32x64 within one 6RU frame

Ordering Options:

+PS	Redundant power supply
+F75	"F" type connectors, 75Ω

Contact Evertz sales for other matrix sizes

64x64 RF L-Band and IF Router XRF6-64X64



The XRF6-64x64 is a modular RF signal matrix for routing and monitoring L-band and IF signals within a satellite communications facility. Built on a modular architecture, all active components are hot-swappable and front-loading, ensuring ease of maintenance and matrix expansion. Advanced features such as automatic gain control, salvo operations, monitoring, and alarm reporting of critical signal parameters such as input signal presence and signal level provide flexible RF signal management.

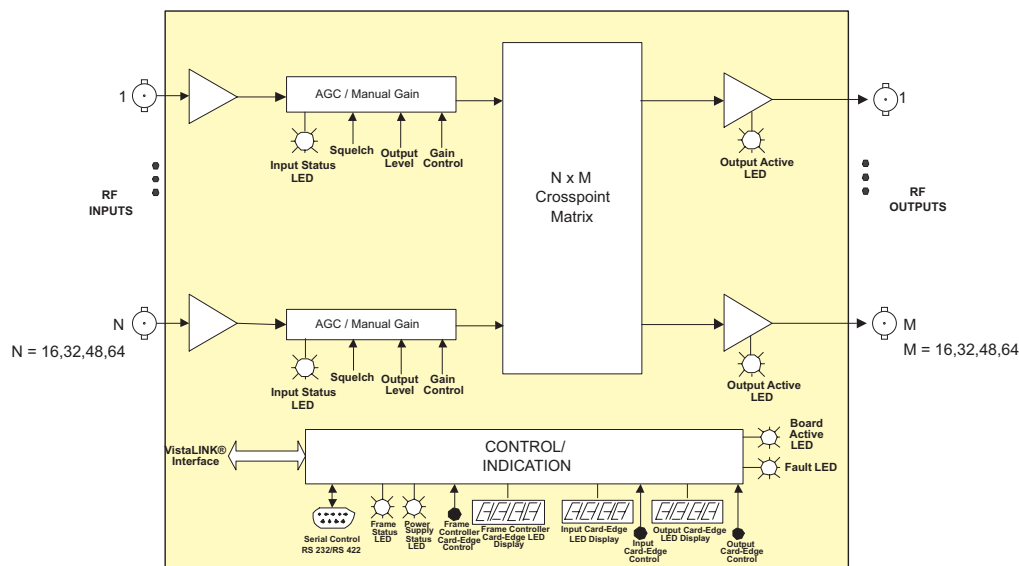
The XRF6-64x64 is offered with the X-NCP2 remote control panel option for crosspoint control and system configuration. Additionally, this flexible routing matrix can be controlled, configured, and monitored via serial control and/or SNMP control over Ethernet, using Evertz' VistaLINK® or other monitoring and control software.

The XRF6-64x64 houses up to a 64x64 routing matrix within a 6RU chassis. Matrix sizes range from 16x16 to 64x64 in increments of 16 inputs and outputs, within one frame. External expansion to 512x512 is available with the addition of multiple frames and SCRF series passive splitters/combiners. Input cards and output cards can be added independently for non-square matrix sizes. Ultra-high reliability is ensured by low component count per signal path, optional dual power supplies, and redundant system controllers.

Features

- Wide bandwidth passes extended L-Band and IF signals
- Passes all modulation formats
- Modular design; all cards are front-loading and hot-swappable
- Passcode protection for configuration parameters, destination locks and salvo locks
- Up to 32 programmable salvos
- External system expansion capability up to 512x512
- Redundant power supply and frame controller options
- Automatic or manual gain control on all input channels
- RF power monitoring on all input channels
- Adjustable output level in AGC mode
- Matrix crosspoint control using card-edge interface, X-NCP2 remote control panel, VistaLINK®, or 3rd party control software
- System configuration, alarm monitoring, event logging, and email notification available through VistaLINK® or 3rd party control software

XRF6-64x64 Block Diagram



Specifications

System:

Matrix Sizes: 16x16 to 64x64 in a 6RU frame
512x512 maximum expanded system size

System Expansion: Inputs or outputs are expandable in increments of 16
Expansion beyond 64x64 requires additional frames and external splitting/combining

Impedance: 75Ω (50Ω BNC optional)
Connector Type: BNC per IEC 60169-8 Amendment 2 (F-type connector optional)

Gain Range (manual gain mode): -6 to +20dB in 1dB steps
Output AGC level: -20 to -50dBm

RF Specifications: L Band

Bandwidth: 850 to 2250 MHz*
Freq Response: ± 1.5dB over the passband,
± 0.5dB over any 36 MHz channel
Isolation: > 55dB (input to output, output to output, input to input)
RF Input Power: -10 to -70dBm
Max RF Output Power: -10dBm
Input P1dB: +2 dBm (1500MHz) typ
OIP3: +12dBm (1500MHz) typ
Noise Figure: 6dB (1500MHz, Gain = +20dB) typ
20dB (1500MHz, Gain = 0dB) typ
Return Loss: > 15dB (input and output)

RF Specifications: IF

Bandwidth: 40 to 200 MHz*
Frequency Response: ± 0.5dB over 50-90MHz and 120-60MHz
Isolation: > 60dB (input to output, output to output, input to input)
RF Input Power: -15 to -70 dBm
Max RF Output Power: -10dBm
Input P1dB: -4 dBm (70MHz) typ
OIP3: +10dBm (70MHz) typ
Return Loss: > 13 dB (input), > 15dB (output)

* All specifications over specified bandwidth unless noted.

Communication and Control:

Serial: RS232/RS422 selectable - Female 9 pin D connector
Ethernet: SNMP over IEEE 802.3/U (10/100 BaseTx) RJ45 connector
Control: X-NCP2 Network Control Panel, VistaLINK®, card edge interface

Electrical:

AC Input: Auto ranging, 100 ⇔ 240 VAC, 50/60 Hz
Max Power Consumption: 350 W (Fully loaded frame)
Connector: IEC 60320 - 1 per power supply
Fuses: 4 amp, 250 Volt time delay 5 x 20 mm. - 2 per power supply
Status Indicators (each power supply):
PSU status LED
Local Error/Failure LED

Compliance:

Safety: CSA Listed to CSA C22.2 No. 60065-03, UL 60065-03
IEC 60065-(2001-12) 7th Edition
Complies with CE Low voltage Directive 93/68/EEC
Complies with FCC part 15, class A.
Complies with EU EMC directive 89/336/EEC

EMC:

Physical:

Dimensions: 10.5"W x 19"H x 20.5"D
(266 mm) x (483 mm) x (520 mm)
Module Capacity: 4 input slots, 4 output slots
Weight: Approx. 17.4 lbs. (7.9 Kg) with 2 power supplies, no slots occupied
Approx. 32 lbs. (14.5 Kg) with 2 power supplies all slots occupied

Ordering Information: (Sample Systems)

PKGXRFL-32x32: 32x32 L-Band Routing System
PKGXRFL-32x64: 32x64 L-Band Routing System
PKGXRFL-64x64: 64x64 L-Band Routing System
PKGXRFL-128x128: 128x128 L-Band Routing System
PKGXRFL-512x512: 512x512 L-Band Routing System

Ordering Options:

+2PS Redundant power supply
+F75 "F" type connectors, 75Ω
+50 50Ω impedance on all input & outputs
XNCP2 Router control panel
+FU Redundant frame controller

Contact Evertz sales for other matrix sizes

evertz

*Sezione per Gruppo
di Prodotti*

Combo HD & SD Digital Auto Signal 2x1 Change Over

Model 500ACO2-HD/SD



The Evertz 500ACO2-HD/SD dual SDI Autochangeover is designed to provide extension to the 5600ACO for HD or SD SDI, or DVB-ASI. The unit can also be operated as a standalone changeover unit with two independent 2X1 switchers. The 500ACO uses latching relays to ensure maximum reliability and minimal disruption in the event of any failure.

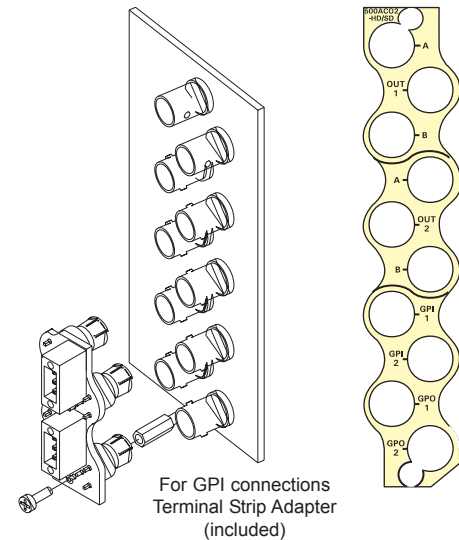
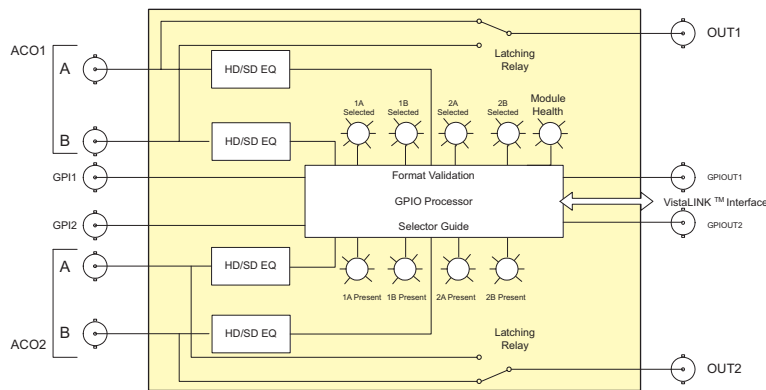
The 500ACO2-HD/SD is housed in the 500FR *exponent* Frame that will hold up to 16 modules.

Features

- Auto detection of signal standard
- Four modes of operation
 - Auto changeover - two standalone auto changeovers
 - Manual DIP switch control - two independently controlled 2x1 switchers
 - GPI Control - two independently GPI controlled 2x1 switchers
 - ACO Extension - slave unit of the 5600ACO (requires 5600ACO firmware version 1.2 or higher)

- Fully hot-swappable from front of frame with no BNC disconnect required
- Tally output on Frame Status bus upon loss of input signal for quality monitoring
- VistaLINK® -capable for remote monitoring via SNMP (using VistaLINK® PRO) when installed in 500FR frame with 500FC VistaLINK® Frame Controller

500ACO2-HD/SD Block Diagram



Specifications

Serial Video Input:

Standards:	SMPTE 292M, SMPTE 259M A, B, C, D (143 to 540 Mb/s) or DVB-ASI
Connector:	4 BNC per IEC 60169-8 Amendment 2
Maximum Cable Length:	100m of Belden 1694A or equivalent cable combined input and output
Return Loss:	10 dB up to 1.5 Gb/s

Serial Video Outputs:

Number of Outputs:	2 passive relay outputs
Connector:	BNC per IEC 60169-8 Amendment 2
Maximum Cable Length:	100m of Belden 1694A or equivalent cable combined input and output
DC Offset:	0V \pm 0.5V
Return Loss:	10 dB up to 1.5 Gb/s

AES Input:

Standard:	AES-1992
Number of Inputs:	1
Connector:	3 pin removable terminal strip
Level:	2V to 7V p-p
Coupling:	Transformer
Impedance:	1100
Return Loss:	> 14dB 100kHz to 6MHz
Equalization:	Automatic to 300m with Belden 1800B (or equivalent) @ 48kHz AES signal
Sampling Frequency:	32kHz, 44.1kHz, 48kHz and 96kHz

AES Output

Type:	Balanced AES reclocked
Number of Outputs:	4
Connector:	3 pin removable terminal strip (screwdown adapter module included)
Level:	5V p-p
Impedance:	1100
Return Loss:	> 30dB 100kHz to 6MHz

General Purpose Inputs and Outputs:

Type:	
Inputs:	Opto-isolated input with internal pull-up to + 5Volts.
Outputs:	Normally 10k internal pull-up to + 5Volts. Ground to rear panel when relay is in active position.
Connector:	Two 3 pin terminal blocks with one ground each.
Signal Level:	+5V nominal

Physical:

Number of slots:	1
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Electrical:

Voltage:	+12VDC
Power:	6 Watts
EMI/RFI:	Complies with FCC Part 15 Class A EU EMC Directive

Ordering Information:

500ACO2-HD/SD	Combo HD & SD Digital Auto Signal Change Over
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Enclosures:

500FR	<i>exponent</i> Compact High Density Distribution Frame
S501FR	Standalone enclosure

Analog Video Distribution Amplifier

500ADA



The 500ADA Analog Distribution Amplifier is a general purpose amplifier for distributing 75 Ω analog signals. The 500ADA features one balanced input with nine outputs.

The 500ADA has been designed to distribute a wide range of analog video signals. It can also distribute other pulses and signals that do not exceed 2Vp-p.

The 500ADA is housed in the 3RU 500FR *exponent* frame that will hold up to 16 modules.

Features

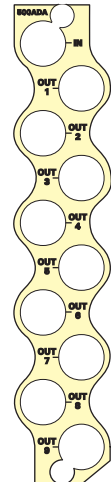
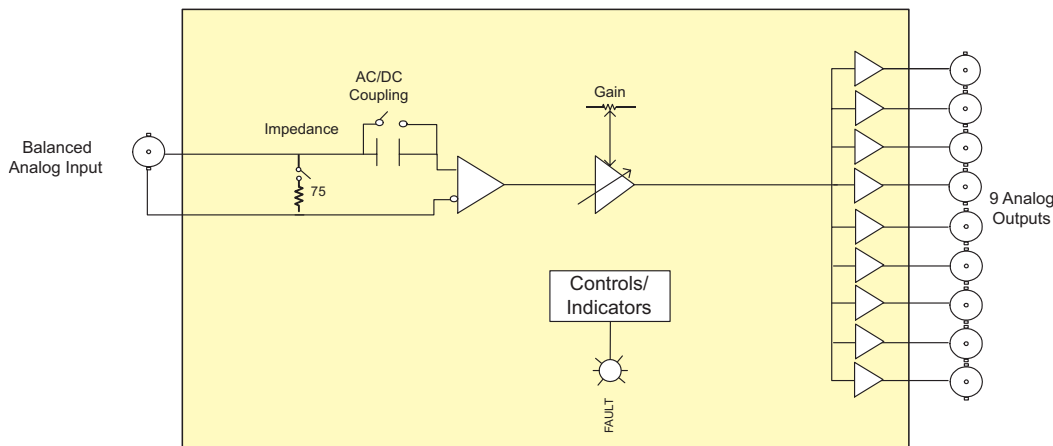
- 75 Ω or high impedance input (jumper selectable)
- High common mode range and common mode rejection ratio (CMRR)
- Gain control
- Jumper selectable AC or DC coupling
- Looping feature with external "T" connector
- Consistent input impedance if card power is lost

Card Edge LEDs:

- Module status/Local Fault
- Power supply status

- VistaLINK[®] -capable for remote monitoring via SNMP (using VistaLINK[™] PRO) when installed in 500FR frame with 500FC VistaLINK[®] Frame Controller

500ADA Block Diagram



Specifications

Analog Video Input:

Standards:	Any analog video format, up to 2Vp-p and 30MHz bandwidth
Connector:	1 BNC per IEC 60169-8 Amendment 2
Common mode range:	>6Vp-p
CMRR:	>70dB to 1kHz
Signal amplitude:	2.5Vp-p max
Impedance:	75 Ω terminated, 35k Ω Hi-Z (jumper selectable)
Coupling:	AC or DC (jumper selectable)
Return loss:	>40dB to 10MHz, >30dB to 30MHz

Analog Video Outputs:

Number of Outputs:	9 Per Card
Connector:	BNC per IEC 60169-8 Amendment 2
Output impedance:	75 Ω
Gain control range:	\pm 5dB
Freq. Response:	<+/-0.05dB (to 5.5MHz)
Differential Gain:	<0.17 %
Differential Phase:	< 0.19°
C/L gain inequality:	<+/-0.1%

C/L Delay:

Output isolation:	<+/-2ns
Output return loss:	42dB to 10MHz, 32dB to 30MHz
Noise performance:	>40dB to 30MHz
	<-78dB RMS NTC7 weighting
	<-70dB RMS 15kHz to 5.5MHz

Electrical:

Voltage:	+12VDC
Power:	1.2 Watts
EMI/RFI:	Complies with FCC Part 15 Class A, EU EMC Directive

Physical:

Number of Slots:	1
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Ordering Information:

500ADA	Analog Video Distribution Amplifier (1 x 9)
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Enclosures:

500FR	<i>exponent</i>
S501FR	Compact High Density Distribution Frame
	Standalone enclosure

Analog Audio Distribution Amplifier

500ADA-AUD



The 500ADA-AUD Analog Audio Distribution Amplifier is a general purpose 1x4 amplifier for distributing analog audio signals.

The 500ADA-AUD can be operated with either differential or single ended inputs and offers a wide range of gain adjustment to handle a wide variety of input signals.

The 500ADA-AUD is housed in the 500FR *exponent* frame that will hold up to 16 modules.

Features

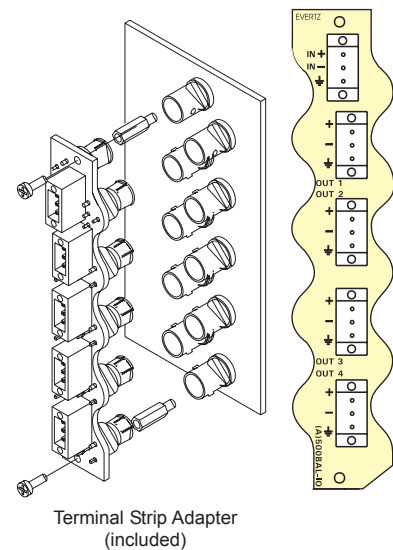
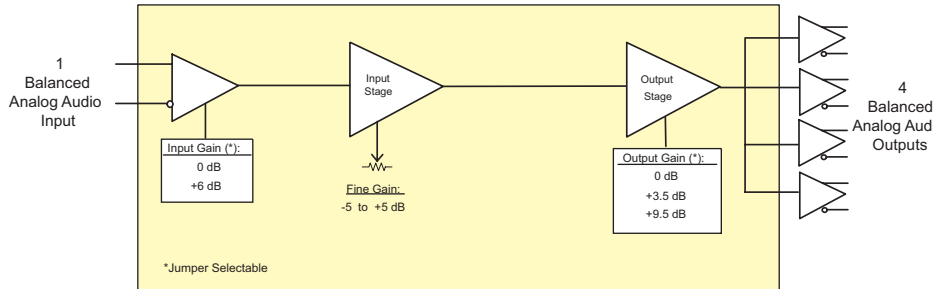
- Differential and single ended input (automatic single ended to differential conversion)
- High impedance inputs
- Low impedance outputs
- Wide gain adjustment range
- High common mode range and common mode rejection ratio
- Very high SNR
- Very low THD+N

Card Edge LEDs:

- Module status/Local Fault
- Power supply status
- VistaLINK® -capable for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK® Frame Controller

4

500ADA-AUD Block Diagram



Specifications

Analog Audio Input:

Standards:	Any analog audio signal
Number of inputs:	1 (Balanced or Single ended)
Connectors:	3 pin removable terminal strips
Input step gain:	0 dB or +6 dB (configurable with jumpers)
Fine gain control:	-5 to +5 dB (card edge pot adjustable)
Maximum input level:	
0 dB input gain	+34 dBu
+6 dB input gain	+28 dBu
Common mode rejection:	> 105 dB @ 60 Hz
Common mode range:	
0 dB input gain:	> ± 22 V
+6 dB input gain:	> ± 7 V
Input impedance:	
0 dB input gain:	44 kW
+6 dB input gain:	26 kW

Analog Audio Outputs:

Number of Outputs:	4
Connectors:	3 pin removable terminal strips
Output step gain:	0, 3.5 or 9.5 dB (configurable with jumpers)

Max. output level:	+28 dBu across hi-impedance load +24 dBu into 600 Ω load
Output impedance:	66 Ω
Freq. Response:	+/-0.03 dB 20 Hz to 20 kHz
THD+ Noise:	0.001% 20 Hz to 20 kHz @ 28 dBu, unweighted RMS
Output Isolation:	> 100 dB @ 1 kHz, 100 dB @ 20 kHz

Electrical:

Voltage:	+ 12VDC
Power:	6 Watts

Physical:

Number of slots:	1
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Ordering Information:

500ADA-AUD	Analog Audio Distribution Amplifier (1 x 4)
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Enclosures:

500FR	<i>exponent</i> Compact High Density Distribution Frame
S501FR	Standalone enclosure

Analog Video Distribution Amplifier with Cable Equalization

500ADA-EQ



The 500ADA-EQ Analog Distribution Amplifier is a general purpose amplifier for distributing 75 Ω analog video signals.

The 500ADA-EQ features one balanced equalized input with nine unbalanced outputs. The 500ADA-EQ amplifier has been designed to distribute a wide range of analog video signals. It can also distribute other pulses and signals that are less than 2Vp-p.

The 500ADA-EQ is housed in the 3RU 500FR **exponent** frame that will hold up to 16 modules.

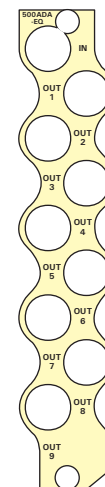
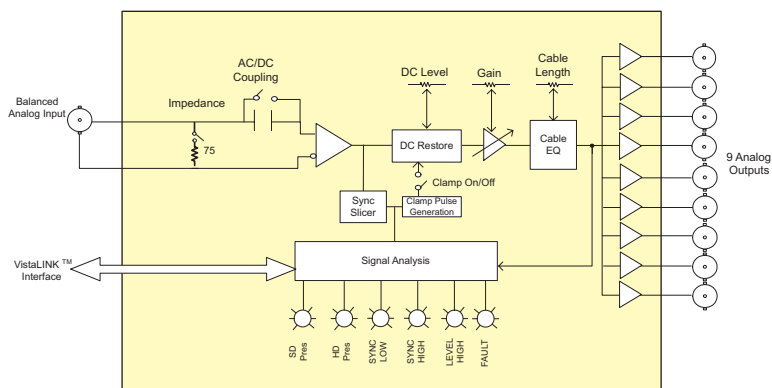
Features

- 75 Ω or high impedance input (jumper selectable)
- High common mode range and common mode rejection ratio (CMRR)
- Gain control
- Jumper selectable AC or DC coupling
- Jumper selectable fast or slow back porch clamp
- DC level control when clamp is enabled
- Cable equalizer adjustment range: 0 to 300m of 8281 or 1694
- Looping feature with external "T" connector
- Consistent input impedance if card power is lost

Card Edge LEDs:

- Module status/Local Fault
- Power supply status
- EQ Warning
- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

500ADA-EQ Block Diagram



Specifications

Analog Video Input:

Standards:	Any analog video format, up to 2Vp-p and 30MHz bandwidth
Connector:	1 BNC per IEC 60169-8 Amendment 2
Common mode range:	>6Vp-p
CMRR:	>70dB to 1kHz
Signal amplitude:	2.5Vp-p max
Cable equalizer:	0 to 300m of Belden 8281 or 1694 cable
Impedance:	75 Ω terminated, 35k Ω Hi-Z (jumper selectable)
Coupling:	AC or DC (jumper selectable)
Return loss:	> 40dB to 10MHz, >30dB to 30MHz
Clamp range:	>+/- 600mV
Fast clamp attenuation of 60Hz:	>36dB

Analog Video Outputs:

Number of Outputs:	9 Per Card
Connector:	BNC per IEC 60169-8 Amendment 2
Output impedance:	75 Ω
Gain control range:	\pm 5dB
DC Level:	< +/- 100mV (with DC Coupling active and back porch clamp disabled) < +/- 200mV (with back porch clamp enabled)
DC Level Control range:	< +/- 200mV (with back porch clamp enabled)
Freq. Response:	< \pm 0.05dB no equalization < \pm 0.09dB for 5 to 100m Belden 8281 or 1694A (to 5.5MHz) < \pm 0.15dB for 100 to 300m Belden 8281 or 1694A (to 5.5MHz)
Differential Gain:	<0.17 % 0 to 300m

Differential Phase:

Differential Phase:	< 0.19° 0 to 300m
C/L gain inequality:	< +/- 0.1% for all cable lengths
C/L Delay:	< +/- 2ns
Output isolation:	>42dB to 10MHz, >32 dB to 30MHz
Output return loss:	>40dB to 30MHz
Noise performance:	<-78dB RMS NTC7 weighting, <-70dB RMS 15kHz to 5.5MHz

Electrical:

Voltage:	+12VDC
Power:	1.2 Watts
EMI/RFI:	Complies with FCC Part 15 Class A EU EMC Directive

Physical:

Number of Slots:	1
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Ordering Information:

500ADA-EQ	Analog Video Distribution Amplifier with Cable Equalization (1 x 9)
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Enclosure:

500FR	Compact High Density Distribution Frame
S501FR	Standalone enclosure

exponent

Word Clock Distribution Amplifier (1x9)

500ADA-W

The 500ADA-W is a SDIF-2 Word Clock distribution amplifier. The input can be configured to be high impedance or terminated to 75Ω. The 500ADA-W provides continuous voltage gain adjust from -6dB to +6dB. The module supports a maximum output signal of 5V.

The 500ADA-W is housed in the 3RU 500FR *exponent* frame that will hold up to 16 modules.

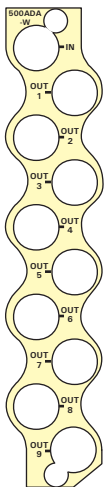
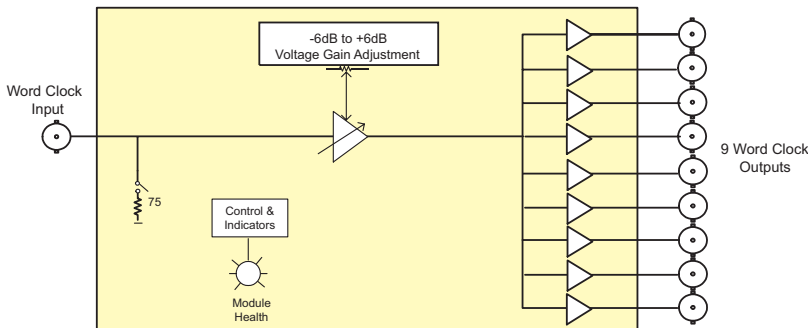
Features

- Jumper selectable 75Ω or high impedance (1kΩ typical) input
- DA has voltage gain adjustment range from -6dB to +6dB
- Outputs can drive into 75Ω loads

Card Edge LEDs:

- Module status/Local Fault
- Power supply status

500ADA-W Block Diagram



Specifications

Word Clock Input:

Standard:	SDIF-2 Word Clock
Level:	0 to 5V (terminated or unterminated)
Connector:	BNC per IEC 60169-8 Amendment 2
Impedance:	Selectable 75Ω or high impedance (1kΩ typical)

Word Clock Outputs:

Number of outputs:	9 BNC per IEC 60169-8 Amendment 2
Output impedance:	75Ω
Maximum Output levels:	5V into 75Ω load 10V into high impedance load
Minimum Output Level:	0V
Voltage Gain Range:	-6dB to +6dB
Frequency range:	28 kHz - 50kHz

Electrical:

Voltage:	+12VDC
Power:	1.2 Watts
EMI/RFI:	Complies with FCC Part 15 Class A, EU EMC Directive

Physical:

Number of Slots:	1
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Ordering Information:

500ADA-W	Word Clock Distribution Amplifier (1x9)
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Enclosures:

500FR	<i>exponent</i> Compact High Density Distribution Frame Standalone enclosure
S501FR	

Unbalanced AES Audio DAC & Distribution Amplifier

Model 500AMDA-AESU



The 500AMDA-AESU is a five output reclocking and auto equalizing AES Audio DAC & Distribution Amplifier for unbalanced 75Ω AES signals. It is also a high quality 24-bit audio DAC. The 500AMDA-AESU automatically equalizes up to 1000m of Belden 1694A coax and provides reclocked outputs. The 500AMDA-AESU also converts AES/EBU digital signal to 2 balanced analog audio outputs. The input sample rates supported are 32kHz, 44.1kHz and 48kHz. Analog audio output levels may be set individually from the front panel.

Level control is provided via a card edge toggle. The full scale digital signal can be calibrated to produce analog peak levels ranging from 12dBu to 24.8dBu with 0.1dB resolution. The 500AMDA-AESU card edge LED indicators provide quick and accurate assessment of the incoming signal integrity. Balanced analog audio is provided via a terminal strip adapter.

The 500AMDA-AESU is housed in the 3RU 500FR **exponent** frame that will hold up to 16 modules.

Features

- 24-bit, high-quality D/A conversion
- 44.1kHz, 32kHz and 48kHz sampling rates supported
- 0dBFS programmable from 12dBu to 24.8dBu
- Support for 2 channels of balanced analog audio (1 AES/EBU)

Inputs:

- SMPTE 276M standard for AES audio on 75Ω coax
- EQ and reclock provide extended cable length compensation (>1000m)

Outputs:

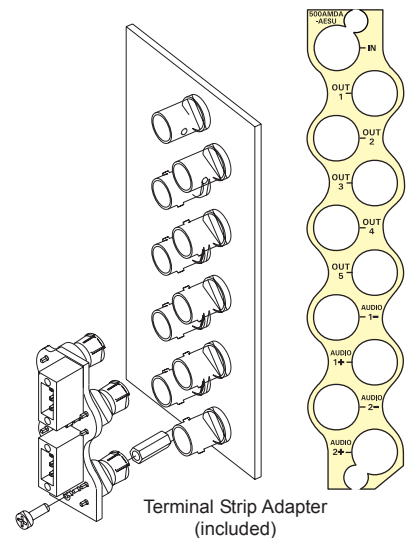
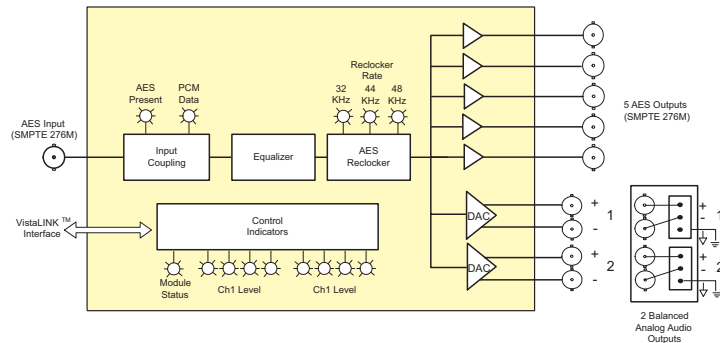
- Five 75Ω coax outputs
- 2 balanced analog audio outputs

Card Edge LEDs:

- Module Health Status
- AES signal present
- Detected AES sample rate
- PCM versus non-PCM data
- Audio level bargraph with ballistics

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

500AMDA-AESU Block Diagram



Specifications

AES Audio Input:

Number of Inputs: 1
Standard: SMPTE 276M, unbalanced AES
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 0.1 to 2.5 Vp-p
Equalization: >1000m @ 48kHz with 1 Vp-p drive and Belden 1694A or equivalent coax cable
Resolution: 24 bits
Sample Rate: 32, 44.1, 48 kHz; ± 100 ppm
Input Impedance: 75Ω, AC-coupled
Return Loss: > 25 dB, 100 kHz to 6.0 MHz
BNC Grounding: AC-coupled (for 60 Hz ground loop current protection)

AES Audio Outputs:

Number of Outputs: 5
Standard: SMPTE 276M, unbalanced AES
Connectors: BNC per IEC 60169-8 Amendment 2
Sample Rate: Same as input
Impedance: 75Ω unbalanced
Return Loss: > 25 dB, 100 kHz to 6.0 MHz

Analog Audio Outputs:

Number of Outputs: 2
Type: Balanced analog audio
Connector: Two 3 pin removable terminal strips on BNC adapter panel
Output Impedance: 66Ω
Output Load: 600Ω or high impedance (10 kΩ)
Signal Level: 0dB FS => +12 to +24.8 dBu into 10 kΩ load (user settable)

DC Offset: < ± 30 mV
Frequency Response: < ± 0.05 dB (20Hz to 20kHz)
Dynamic Range: 24 bits
THD+N: < -100dB RMS @ 1kHz, with 24dBu output
SNR: > 110dB RMS (20Hz to 20kHz), "A" weighted
Inter-Channel Phase Error: < $\pm 1^\circ$ (20Hz to 20kHz)
Crosstalk Isolation: > 110dB RMS (20Hz to 20kHz), unweighted
Digital to Analog Delay: 0.95m sec

Electrical:

Voltage: + 12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

500AMDA-AESU Unbalanced AES Audio DAC & Distribution Amplifier (5 AES out & 2 balanced analog out)

Enclosure:

500FR Compact High Density Distribution Frame
S501FR Standalone enclosure

exponent

Compact High Density Distribution Frame
Standalone enclosure

SDI Dual Reclocking Distribution Amplifier (2 1x4 SDI DA's in 3RU Rack Space)

Model 500DA2Q



The Evertz 500DA2Q Reclocking Distribution Amplifier provides the highest density DA in the industry allowing up to 32 SDI distribution amplifiers in a 3RU rack space. It provides inexpensive distribution of your SMPTE 259M (143 to 360 Mb/s), SMPTE 344M (540Mb/s), or SMPTE 310M (19.4 Mb/s) signals. The 500DA2Q features two auto-equalized inputs and can be configured either as a single DA with eight reclocked outputs or as two separate DAs with four outputs each. In the case of dual operation, each DA can be individually set via jumpers for either SMPTE 259M/344M or SMPTE 310M reclocking.

The 500DA2Q is housed in the 500FR *exponent* frame that will hold up to 16 modules.

Features

- Normal mode for SMPTE 259M (143-360 Mb/s), SMPTE 344M (540Mb/s) or DVB-ASI signals - autodetects correct bit rate
- Jumper selectable mode for SMPTE 310M (19.4 Mb/s) signals
- Configurable as 1 DA with 8 outputs or 2 DAs with 4 outputs each
- Fully hot-swappable from front of frame with no BNC disconnect required
- Independent isolated output drivers to ensure no cross channel loading effects (i.e. no need to terminate unused outputs)
- Module health and 2 x 4 Mode status LEDs
- Reclocker(s) Locked, Cable Length Warning and Video Standard LEDs for each DA channel
- Tally output on Frame Status bus upon loss of input signal

Card Edge LEDs:

- Module Health Status
- 2x4 mode operation
- Reclocker rate (detection)
- Reclocker Locked
- Max. Equalization Warning

Inputs:

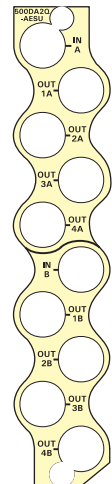
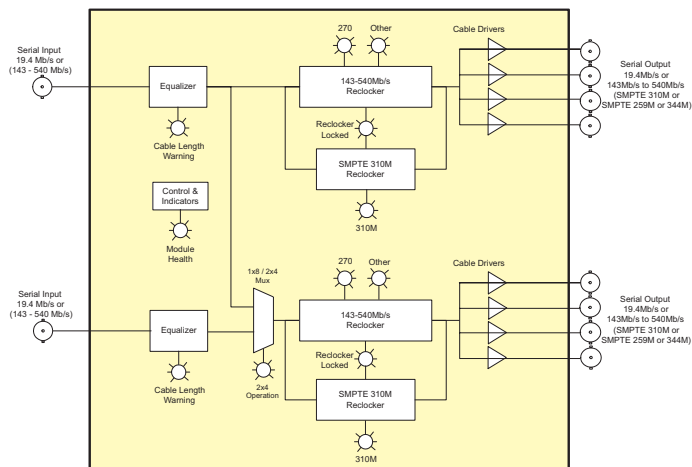
- 2 inputs
- SMPTE 259M (143 to 360Mb/s), SMPTE 344M (540Mb/s), DVB-ASI or SMPTE 310M (19.4Mb/s)
- Return loss > 15dB up to 540Mb/s
- 300m auto eq. at 270Mb/s (Belden 8281)
- 210m auto eq. at 540Mb/s (Belden 8281)

Outputs:

- 4 reclocked outputs per input
- Return loss > 15dB up to 540Mb/s
- Jitter < 0.2UI

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

500DA2Q Block Diagram



Specifications

Serial Video Input: Standards

- Reclocked:** SMPTE 259M (143 to 360 Mb/s)
SMPTE 344M (540 Mb/s), SMPTE 310M (19.4 Mb/s) DVB-ASI
Any SDI signal in the 143Mb/s to 540 Mb/s range
- Non-reclocked:** Any SDI signal in the 143Mb/s to 540 Mb/s range
- Connectors:** 2 BNC per IEC 60169-8 Amendment 2
- Equalization:** Automatic to 400m @ 270 Mb/s with Belden 1694A or equivalent cable (325m in mixed HD-SDI/SD-SDI frame applications)
- Return Loss:** > 15 dB up to 270 Mb/s

Serial Video Output:

- Number of Outputs** (mode set by jumper)
- 2 x 4 Mode:** 4 reclocked from each input
- 1 x 8 Mode:** 8 reclocked from Input A (1)
- Connector:** BNC per IEC 60169-8 Amendment 2
- Signal Level:** 800mV nominal
- DC Offset:** 0V ±0.5V
- Rise and Fall Time:** 740ps nominal
- Overshoot:** < 10% of amplitude
- Return Loss:** > 15 dB up to 270 Mb/s
- Jitter:** < 0.2 UI

Physical:

Number of slots: 1

Electrical:

- Voltage:** + 12V DC
- Power:** 6 Watts
- EMI/RFI:** Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

500DA2Q SDI Dual Reclocking Distribution Amplifier (2 - 1 x 4)

Enclosure:

- 500FR** *exponent* Compact High Density Distribution Frame
- S501FR** Standalone enclosure

Dual Unbalanced AES Audio Distribution Amplifier

Model 500DA2Q-AESU



The 500DA2Q-AESU provides an economical method of distribution for your AES digital audio signals. The DA's feature two auto-equalized inputs with four re-clocked outputs each. The module can also be configured for one input with eight re-clocked outputs for applications where a larger numbers of outputs is required.

The 500DA2Q-AESU is housed in the 500FR **exponent** frame that will hold up to 16 modules.

Features

- Supports SMPTE 276M standard for AES audio on 75Ω coax
- 2 independent distribution amplifiers with 4 re-clocked outputs each provides jitter reduction
- Can be configured as one 8 output distribution amplifier
- Automatic equalization provides extended cable length capabilities
- Card edge indicators for PLL out of lock, parity error or bi-phase coding errors
- Tally output of input error conditions

Card Edge LEDs:

- Module Health Status
- Error LED indication for input PLL out of lock, parity error or biphas coding error
- Reclocker locked

Inputs:

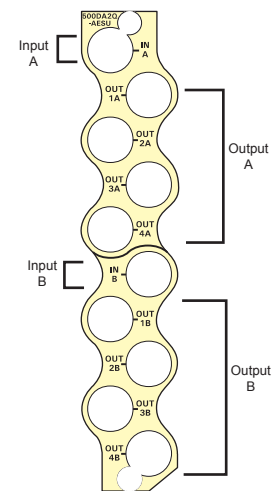
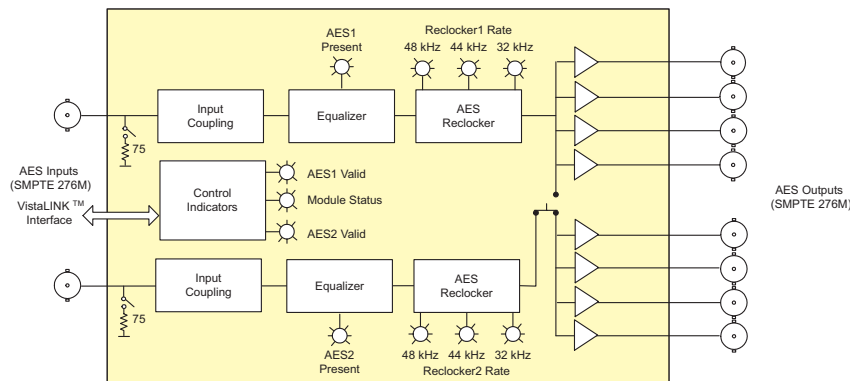
- 2 inputs
- SMPTE 276M standard for AES audio on 75Ω coax
- EQ and reclock provide extended cable length compensation (>1500m)
- Transformer coupled 75Ω unbalanced input

Outputs:

- 4 re-clocked outputs per input

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

500DA2Q-AESU Block Diagram



Specifications

AES Audio Inputs:

Number of Inputs: 2
Standard: SMPTE 276M, single ended AES
Connectors: BNC per IEC 60169-8 Amendment 2
Coupling: Transformer
Signal Level: 1V p-p ±0.1V
Equalization: Automatic 1500m @48kHz with Belden 1694A or equivalent cable
Impedance: 75Ω
Return Loss: >25 dB 100 kHz to 6 MHz
Sampling Rate: 32 kHz, 44.1 kHz, 48 kHz and 96 kHz

AES Audio Outputs:

Number of Outputs: 4 re-clocked outputs per input (normal)
8 outputs from input 1 (jumper selectable)
Standard: SMPTE 276M, single ended AES
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V p-p ±0.1V
Impedance: 75Ω unbalanced
Return Loss: >25 dB 100 kHz to 6 MHz

Electrical:

Voltage: + 12VDC
Power: 1.2 Watts

Physical:

Number of slots: 1

Ordering Information:

500DA2Q-AESU SDI Dual Reclocking Distribution Amplifier (2 - 1 x 4)

Enclosure:

500FR
S501FR

exponent

Compact High Density Distribution Frame
Standalone enclosure

Combo HD/SD SDI Dual Reclocking Distribution Amplifier (32 1x4 DA's in 3RU Rack Space)



Model 500DA2Q-HD

The Evertz 500DA2Q-HD Dual HD Reclocking Distribution Amplifier provides the highest density DA in the industry allowing up to 32 HD or SDI Distribution amplifiers in a 3RU rack space. It provides inexpensive distribution of your SMPTE 292M (1.5 Gb/s), SMPTE 259M (143 to 360 Mb/s), SMPTE 344M (540 Mb/s), DVB-ASI or SMPTE 310M (19.4 Mb/s) or any other SDI signal within the 143 Mb/s to 1.5 Gb/s range. The 500DA2Q-HD features two auto-equalized inputs and can be configured either as a single DA with eight reclocked outputs or as two separate DAs with four outputs each. In the case of dual operation, each DA can be individually set via jumpers for either reclocking or non-reclocking.

The 500DA2Q-HD is housed in the 500FR **exponent** frame that will hold up to 16 modules.

Features

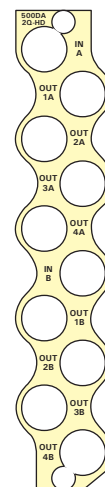
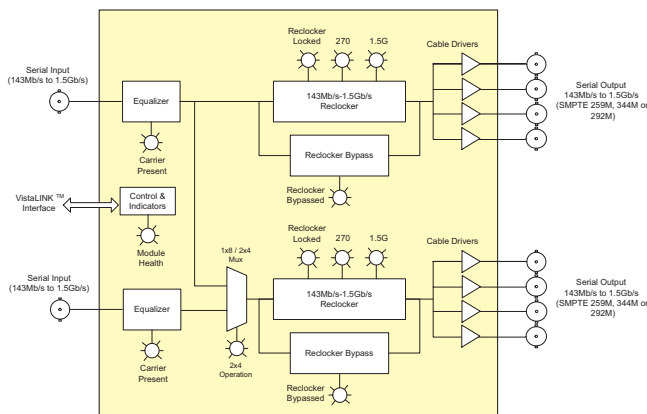
- Normal mode for SMPTE 292M (1.5 Gb/s) SMPTE 259M (143 - 360 Mb/s) or SMPTE 344M (540 Mb/s) signals - autodetects correct bit rate
 - Jumper selectable mode for DVB-ASI
 - Jumper selectable non-reclock mode for SMPTE 310M (19.4Mb/s) signals or any other SDI signal within the 143 Mb/s to 1.5 Gb/s range
 - Configurable as 1 DA with 8 outputs or 2 DAs with 4 outputs each
 - Fully hot-swappable from front of frame with no BNC disconnect required
 - Independent isolated output drivers to ensure no cross channel loading effects (i.e. no need to terminate unused outputs)
 - Module health and 2 x 4 Mode Status LEDs
 - Reclocker(s) Locked, Carrier Present and Video Standard LEDs for each DA channel
 - Tally output on Frame Status bus upon loss of input signal
 - Reclocker Locked
 - Carrier Present
- Inputs:**
- 2 inputs
 - SMPTE 292M (1.5 Gb/s), SMPTE 259M (143 to 360Mb/s), SMPTE 344M (540Mb/s), DVB-ASI or SMPTE 310M(19.4Mb/s)
 - Auto equalization to 100m Input A, 90m Input B(Belden 1694) @1.5Gb/s
- Outputs:**
- 4 reclocked outputs per input
 - Jitter < 0.2UI

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

Card Edge LEDs:

- Module Health Status
- 2x4 mode operation
- Reclocker rate detection

500DA2Q-HD Block Diagram



Specifications

Serial Video Input:

Standards

Reclocked:

SMPTE 292M (1.5 Gb/s), SMPTE 259M (143 to 360 Mb/s), SMPTE 344M (540 Mb/s), DVB-ASI SMPTE 310M (19.4 Mb/s)

Non-reclocked:

Any SDI signal in the 143Mb/s to 1.5 Gb/s range 2 BNC per IEC 60169-8 Amendment 2

Connectors:

Equalization:

Input A:

Automatic to 100m @1.5Gb/s with Belden 1694A or equivalent cable

Input B:

Automatic to 90m @1.5Gb/s with Belden 1694A or equivalent cable

Return Loss:

>10 dB up to 1.5 Gb/s

Serial Video Outputs:

Number of Outputs:

2 x 4 Mode:

(mode set by jumper)
4 reclocked from each input
Reclockers can be bypassed separately for each input
8 reclocked from Input A (1)
Reclockers can be bypassed

1 x 8 Mode:

BNC per IEC 60169-8 Amendment 2
800mV nominal

Connector:

Signal Level:

DC Offset:

0V ±0.5V

Rise and Fall Time:

200ps nominal

Overshoot:

<10% of amplitude

Return Loss:

>10 dB up to 1.5 Gb/s

Jitter:

< 0.2 UI

Electrical:

Voltage:

+ 12VDC

Power:

6 Watts

EMI/RFI:

Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Number of slots:

1

Ordering Information:

500DA2Q-HD

Combo HD/SD SDI Dual Reclocking Distribution Amplifier (2 - 1 x 4)

Enclosure:

500FR

S501FR

exponent

Compact High Density Distribution Frame
Standalone enclosure

SDI Reclocking Distribution Amplifier

Model 500DA



The Evertz 500DA Reclocking Distribution Amplifier provides inexpensive distribution of your SMPTE 310M and SMPTE 259M serial digital video signal at rates of 19.4 Mb/s and 143 Mb/s to 540 Mb/s. Ideal in applications where a large quantity of outputs are required, the DA features an auto-equalized input with nine isolated reclocked outputs.

The 500DA has been designed for use as a SMPTE 310M (19.4 Mb/s), DVB-ASI or SMPTE 259M distribution product. SMPTE 310M support is selected by setting a rate select jumper.

The 500DA is housed in the 3RU 500FR **exponent** frame that will hold up to 16 modules.

Features

- Normal mode for SMPTE 259M (143 to 540 Mb/s) or DVB-ASI signals - autodetects correct bitrate
- Jumper Selectable mode for SMPTE 310M (19.4 Mb/s)
- Fully hot-swappable from front of frame with no BNC disconnect required
- Independent isolated output drivers to ensure no cross channel loading effects (i.e. no need to terminate unused outputs)
- Outputs maintain polarity from input to output for DVB-ASI applications
- Tally output on Frame Status bus upon loss of input signal for quality monitoring

Input:

- SMPTE 259M A, B, C, D (143 Mb/s to 540Mb/s), DVB-ASI, SMPTE 310M (19.4 Mb/s) (jumper selectable)
- Return loss > 15dB up to 540Mb/s
- 440m auto eq. at 270Mb/s (Belden 1694A)
- 380m auto eq. at 270Mb/s (Belden 1694A) with HD SDI modules within 500FR

Outputs:

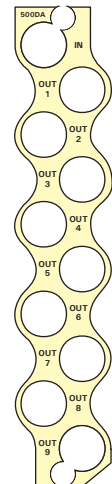
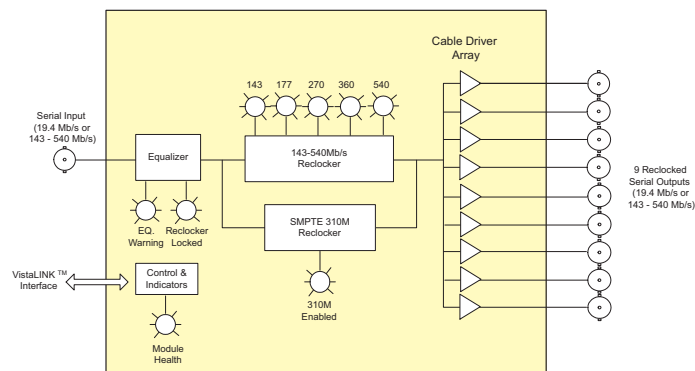
- 9 reclocked outputs
- Return loss > 15dB up to 540Mb/s
- Wideband jitter <0.2 UI

Card Edge LEDs:

- Reclocker rate (6 LEDs)
- Reclocker Locked
- Max. Equalization Warning
- 310M Reclocker Enable
- Module Health Status

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

500DA Block Diagram



Specifications

Serial Video Input:

Standard:

259 Mode

SMPTE 259M A, B, C, D (143 to 540Mb/s) or DVB-ASI

310 Mode

SMPTE 310M (19.4Mb/s)

Connector:

BNC per IEC 60169-8 Amendment 2

Equalization:

Automatic to 440m @ 270Mb/s with Belden 1694A
Automatic to 380m @ 270Mb/s
Belden 1694A with HD SDI modules within 500FR

Return Loss:

> 15dB up to 540Mb/s

Serial Video Output:

Number of Outputs:

9 Reclocked

Connector:

BNC per IEC 60169-8 Amendment 2

Signal Level:

800mV nominal

DC Offset:

0V ± 0.5V

Rise and Fall Time:

470ps nominal

Overshoot:

<10% of amplitude

Return Loss:

>15 dB up to 540Mb/s

Wideband Jitter:

<0.2 UI

Physical:

Number of Slots:

1

Electrical:

Voltage:

+12VDC

Power:

6 Watts

EMI/RFI:

Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

500DA

SDI Reclocking DA - (1 x 9)

Enclosures:

500FR

exponent

Compact High Density Distribution Frame

S501FR

Standalone enclosure

Balanced AES Audio Distribution Amplifier

Model 500DA-AESB



The 500DA-AESB is a four output reclocking and auto equalizing DA for balanced 110Ω AES signals. The DA automatically equalizes up to 300m of Belden 1800B cable and provides reclocked outputs with sampling frequencies of 32kHz, 44.1kHz, 48kHz and 96kHz.

The 500DA-AESB card edge LED indicators provide quick and accurate assessment of the incoming signal integrity.

The 500DA-AESB is housed in the 3RU 500FR *exponent* frame that will hold up to 16 modules.

Features

- Data reclocking provides jitter reduction

Inputs:

- AES3-1992 standard for AES audio on 110Ω twisted pair cable
- EQ and reclock provide extended cable length compensation (>300m)
- Transformer coupled 110Ω balanced input

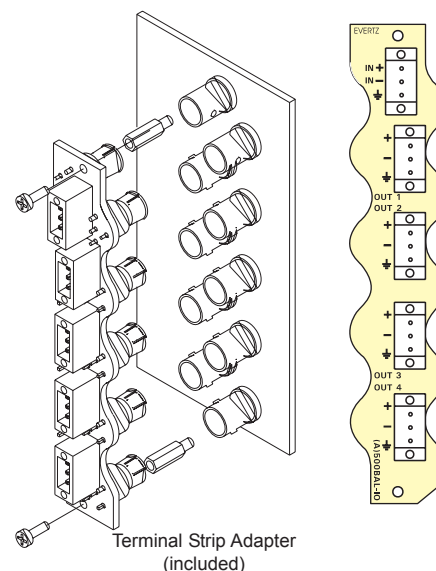
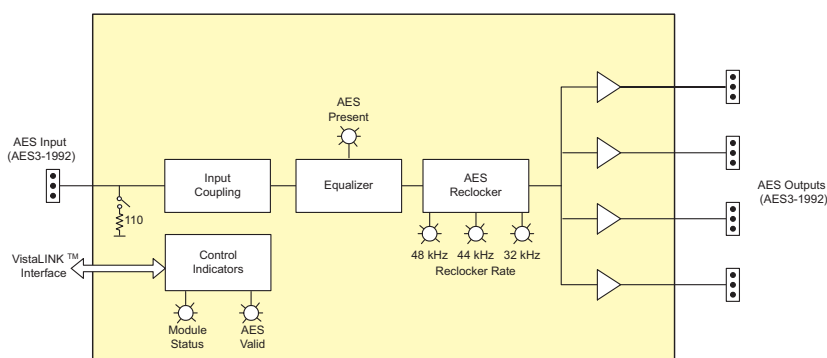
Outputs:

- Four 110Ω balanced

Card Edge LEDs:

- Module Health Status
- Error LED indication for input PLL out of lock, parity error or biphas coding error
- Reclocked locked
- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

500DA-AESB Block Diagram



Specifications

AES Input:

Standard:	AES3-1992
Number of Inputs:	1
Connector:	3 pin removable terminal strip
Input Level:	2 to 7V p-p
Coupling:	Transformer
Input Impedance:	110Ω
Return Loss:	>14dB 100kHz to 6MHz
Equalization:	Automatic to 300m with Belden 1800B (or equivalent) @ 48kHz AES signal
Sampling Frequency:	32kHz, 44.1kHz, 48kHz and 96kHz

AES Output:

Number of Outputs:	4 Balanced AES reclocked
Connector:	3 pin removable terminal strip (screwdown adapter module included)
Output Level:	5V p-p
Output Impedance:	110Ω
Return Loss:	>30dB 100kHz to 6MHz

Physical:

Number of Slots:	1
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Electrical:

Voltage:	+12VDC
Power:	5 Watts
EMI/RFI:	Complies with FCC Part 15 Class A EU EMC Directive

Ordering Information:

500DA-AESB	Balanced AES Audio Distribution Amplifier (1x4)
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Enclosure:

500FR	<i>exponent</i> Compact High Density Distribution Frame
S501FR	Standalone enclosure

Unbalanced AES Audio Distribution Amplifier

Model 500DA-AESU



The 500DA-AESU is a nine output reclocking and auto equalizing DA for unbalanced 75Ω AES signals. The DA automatically equalizes up to 1500m of Belden 1694A coax and provides reclocked outputs with sampling frequencies of 32kHz, 44.1kHz, 48kHz and 96kHz.

The 500DA-AESU card edge LED indicators provide quick and accurate assessment of the incoming signal integrity.

The 500DA-AESU is housed in the 3RU 500FR *exponent* frame that will hold up to 16 modules.

Features

- Data reclocking provides jitter reduction

Inputs:

- SMPTE 276M standard for AES audio on 75Ω coax
- EQ and reclock provide extended cable length compensation (>1500m)
- Transformer coupled 75Ω unbalanced input

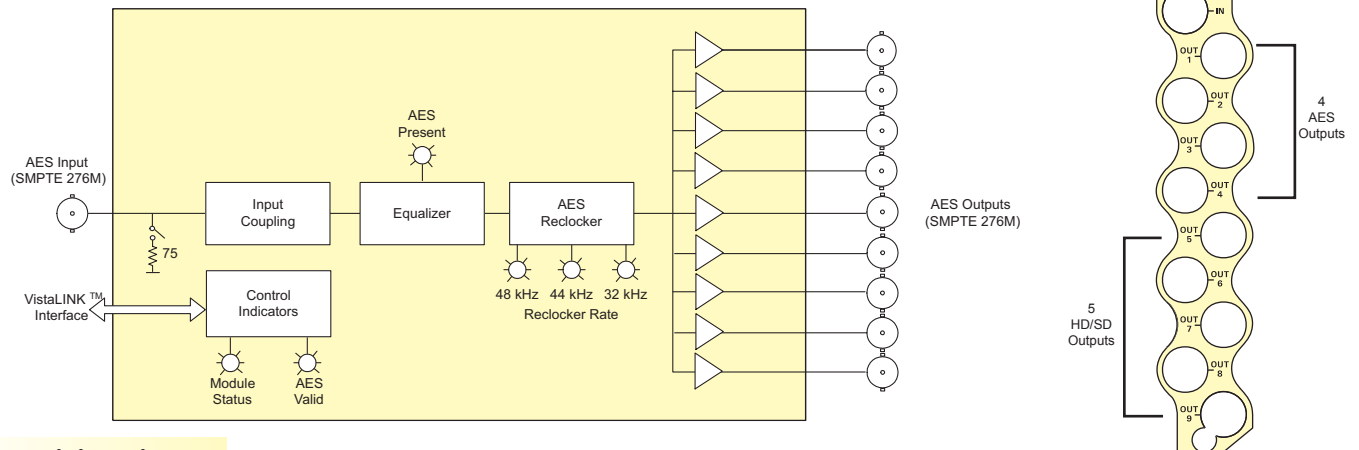
Outputs:

- Nine 75Ω coax outputs

Card Edge LEDs:

- Module Health Status
- Error LED indication for input PLL out of lock, parity error or biphas coding error
- Reclocker locked
- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

500DA-AESU Block Diagram



Specifications

AES Input:

Standard: SMPTE 276M
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Input Level: 1V p-p
Coupling: Transformer
Input Impedance: 75Ω
Return Loss: >25dB 100kHz to 6MHz
Equalization: Automatic to 1500m with Belden 1694A (or equivalent) @ 48kHz AES signal
Sampling Frequency: 32kHz, 44.1kHz, 48kHz and 96kHz

AES Output:

Number of Outputs: 9 Unbalanced AES
Connector: BNC per IEC 60169-8 Amendment 2
Output Level: 1V p-p
Output Impedance: 75Ω
Return Loss: >25dB 100kHz to 6MHz

Physical:

Number of Slots: 1

Electrical:

Voltage: +12VDC
Power: 5 Watts
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

500DA-AESU Unbalanced AES Audio Distribution Amplifier (1x9)

Enclosure:

500FR *exponent*
S501FR Compact High Density Distribution Frame
Standalone enclosure

Combo HD/SD SDI Reclocking Distribution Amplifier

Model 500DA-HD/500DA-HD-L



The Evertz 500DA-HD and 500DA-HD-L Reclocking Distribution Amplifiers provide reliable distribution of your HD and SD SDI video signal at rates of 1.5 Gb/s and 143Mb/s to 540Mb/s. They both feature an auto-equalized input with eight serial outputs. The outputs can also be configured to be optionally re-clocked or not.

When inserted into a 500FR-L (Compact High Density Distribution Frame with Loop Thru), the 500DA-HD-L allows a single HD SDI input signal to be distributed up to 96 serial outputs, by looping up to 12 modules.

They have been designed for use as a SMPTE 292M (1.5 Gb/s), DVB-ASI, SMPTE 259M, or SMPTE 310M distribution product.

The 500DA-HD DA's are housed in the 3RU 500FR **exponent** frame that will hold up to 16 modules and the 500DA-HD-L DA's are housed in the 3RU 500FR-L **exponent** frame..

Features

- Fully hot-swappable from front of frame with no BNC disconnect required
- Tally output on Frame Status bus upon loss of input signal for quality monitoring

Inputs:

- Auto detects SMPTE 259M (143 to 540Mb/s), SMPTE 292M(1.5 Gb/s) signals or DVB-ASI signals

Outputs:

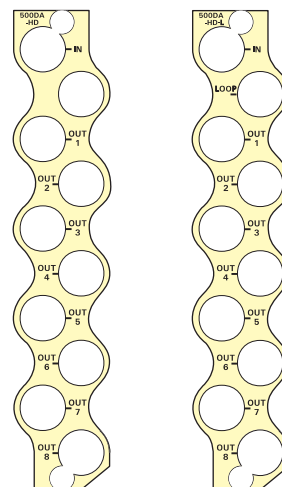
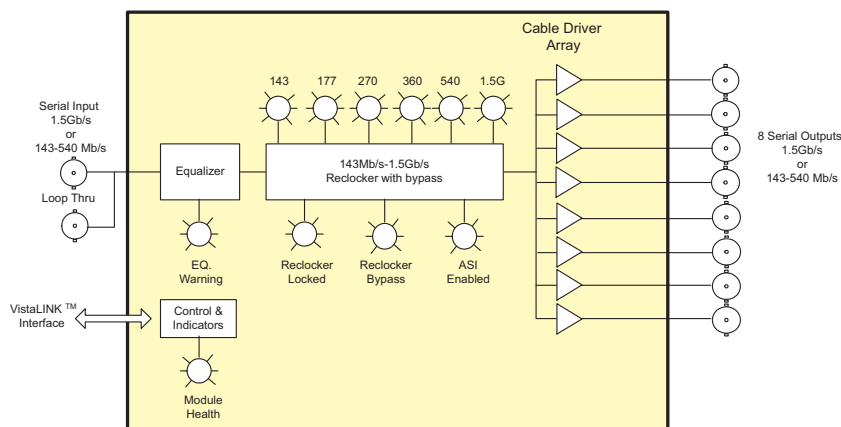
- Independent isolated output drivers to ensure no cross channel loading effects (i.e. no need to terminate unused outputs)

Card Edge LEDs:

- Module Health Status
- Max. Equalization Warning
- Reclocker Locked
- Bitrate Indication

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

500DA-HD Block Diagram



Specifications

Serial Video Input: Standard:

SMPTE 292M, SMPTE 259M-A, B, C, D (143 to 540Mb/s), SMPTE 310M or DVB-ASI

Connector:

BNC per IEC 60169-8 Amendment 2 Automatic to 350m @ 270Mb/s, 110m @1.5Gb/s with Belden 1694 (or equivalent)

Return Loss:

> 15dB up to 1.0 Gb/s
> 10dB up to 1.5 Gb/s

Serial Video Outputs:

Number of Outputs:

8 Reclocked

Connector:

BNC per IEC 60169-8 Amendment 2

Signal Level:

800mV nominal

DC Offset:

0V ±0.5V

Rise and Fall Time:

200ps nominal

Overshoot:

< 10% of amplitude

Return Loss:

> 15dB to 1.0 Gb/s
> 10db up to 1.5 Gb/s

Wideband Jitter:

< 0.2 UI

Physical:

Number of Slots:

1

Electrical:

Voltage:

+ 12V DC

Power:

5 Watts

EMI/RFI:

Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

500DA-HD

Combo HD/SD SDI Reclocking
Distribution Amplifier (1 x 8)

500DA-HD-L

Combo HD/SD SDI Reclocking
Distribution Amplifier (1 x 8) with Loop Thru

Enclosure:

500FR

exponent

Compact High Density Distribution Frame
Compact High Density Distribution Frame with
Loop Thru (500DA-HD-L only)
Standalopne enclosure

500FR-L

S501FR

HD Downconverter & Distribution Amplifier

Model 500DCDA-HD



The 500DCDA-HD is a reclocking high definition serial digital video distribution amplifier and a high quality downconverter for 1.5 Gb/s HDTV signals. It can also function as a monitoring distribution amplifier for standard definition 270Mb/s signals. The 500DCDA-HD provides 5 reclocked DA outputs and 4 downconverted SDI or composite analog NTSC/PAL outputs (selectable). The 500DCDA-HD accepts all the popular international SMPTE 292M video formats. When the 500DCDA-HD down converts 1080p/23.98sF input video to 525i/59.94 with a 3:2 pulldown, the 3:2 pulldown cadence can be free running or locked to embedded RP188 time code.

The 500DCDA-HD has color space conversion from ITU rec. 709 to ITU rec. 601, and will provide various down converted formats such as 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze. Full 10 bit processing is provided throughout the signal path to achieve excellent downconversion quality. The module allows for selectable horizontal and vertical filters to control picture sharpness. It also de-embeds two groups of audio and re-embeds the audio on the SDI output in time with the video. All parameters may be controlled by use of the on screen display menu.

The 500DCDA-HD has a closed caption monitoring capability that decodes EIA-608 or EIA-708 captions that have been encoded into the VANC data space of an HD video input, or EIA-608 captions from a SD video input.

The 500DCDA-HD provides card edge LEDs to indicate signal present, cable length warning and audio groups present. The 500DCDA-HD occupies one card slot in the 500FR **exponent** frame that will hold up to 16 modules.

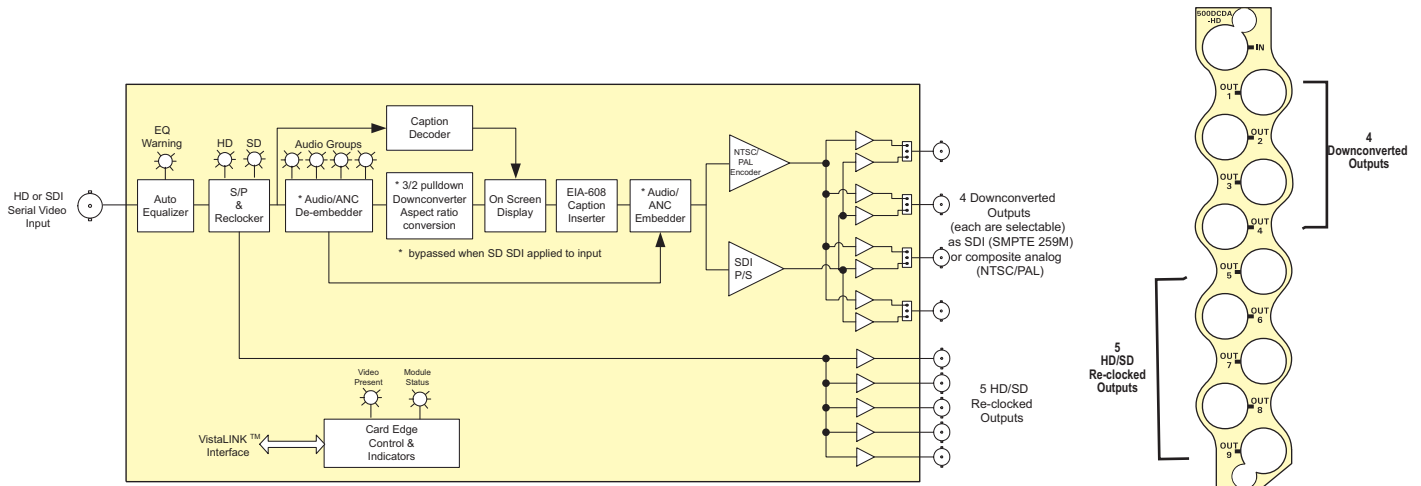
Features

- Serial digital 1.5 Gb/s HD input per SMPTE 292M
- Supports most international standards including 1080i/60, 1080i/59.94, 1080i/50, 1080p/24, 1080p/23.98, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94, 480p/60, and 480p/59.94
- Will also accept 270Mb/s SD input SDI per SMPTE 259M in a pass through mode - auto senses HD or SD inputs
- 5 Reclocked DA outputs (HD if HD inputs applied, SD if SD inputs applied)
- 4 Selectable SDI or Composite Outputs (downconverted from HD if HD input applied), (from reclocked SD if SD input applied)
- High quality HD -> SD down conversion
- Supports 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze aspect ratio conversions.
- 1080p/23.98sF conversion to 525i/59.94 with 3:2 pulldown sequence
- HD to SD colour space conversion (ITU rec. 709 to ITU rec. 601)
- On screen display used to configure the operating modes
- De-embeds Audio from HD video and embeds into standard definition SDI video (2 groups)
- Decodes and displays EIA-608 or EIA-708 captions from incoming video
- Moves ANC data (e.g. captioning, timecode) from HD video to standard definition SDI video
- On Screen aspect ratio marker
- Card Edge LEDs for signal presence, equalization warning, audio groups present, module status

• VistaLINK™ - enabled offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK™ is available when modules are used with the 3RU 500FR-C frame and a 500FC VistaLINK™ Frame Controller module in slot 1 of the frame using the Evertz VistaLINK™ PRO or other third party SNMP manager software

HD Downconverter & Distribution Amplifier

500DCDA-HD Block Diagram



Specifications

Serial Video Input:

Standard:	SMPTE 259M - Pass through mode SMPTE 292M (1.5 Gb/s), SMPTE 260M, SMPTE 274M, SMPTE 296M, SMPTE 349M 1080i/60, 1080i/50, 1080p/30sF, 1080p/25sF, 1080p/24sF, 1035i/60, 720p/60, 480p/60 and the 1/1.001 divisor versions where applicable software selectable or autodetect
Connector:	BNC per IEC 60169-8 Amendment 2
Input Equalization:	Automatic to 100m @ 1.5Gb/s with Belden 1694A or equivalent cable.
Return Loss:	>15 dB up to 1.5GHz

Reclocked Serial Video DA Outputs:

Standard:	Same as input (SMPTE 259M or SMPTE 292M)
Number of Outputs:	5 Per Card relocked
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	200ps nominal for HD 750ps nominal for SD
Overshoot:	<10% of amplitude
Return Loss:	> 15dB at 1.5 Gb/s
Jitter:	< 0.2 UI

Downconverted Composite Analog Video Outputs:

Standards:	Analog composite NTSC (SMPTE 170M) or Analog composite PAL (ITU-R BT 470)
Number of Outputs:	Up to 4 Per Card (jumper selectable)
Connectors:	BNC per IEC 60169-8 Amendment 2
Signal Level:	1 V p-p nominal
DC Offset:	0V \pm 0.1V
Return Loss:	>35dB up to 5 MHz
Frequency Response:	0.1dB to 4 MHz, 015dB to 5.5 MHz
Differential Phase:	<0.5° (<0.3° typical)
Differential Gain:	<0.8% (<0.5 % typical)
SNR:	>78dB to 5 MHz (shallow ramp)
Impedance:	75 Ω

Downconverted Serial Video Outputs:

Standard:	SMPTE 259M-C (270Mb/s)
Number of Outputs:	Up to 4 Per Card (jumper selectable)
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	750ps nominal
Overshoot:	<10% of amplitude
Return Loss:	> 15dB at 270Mb/s
Jitter:	< 0.2 UI

Input to Output Processing Delay (HD Input Video):

Video Delay:	Just less than 1 to 2 frames depending on input video format, processing mode and phase setting (refer to table 3 in manual) i.e. with 1080i/59.94 input the delay is < 1 Frame delay)
Audio Delay:	Audio is delayed and re-embedded in time with the output picture

Electrical:

Voltage:	+12VDC
Power:	10 Watts
EMI/RFI:	Complies with FCC Part 15 Class A EU EMC Directive

Physical:

Number of slots:	1
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Ordering Information:

500DCDA-HD	HD Downconverter and Distribution Amplifier
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Enclosures:

500FR	exponent Compact High Density Distribution Frame
S501FR	Standalone enclosure

Frame Controller

Model 500FC Frame Controller



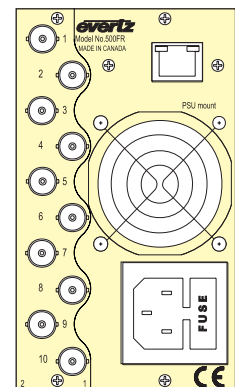
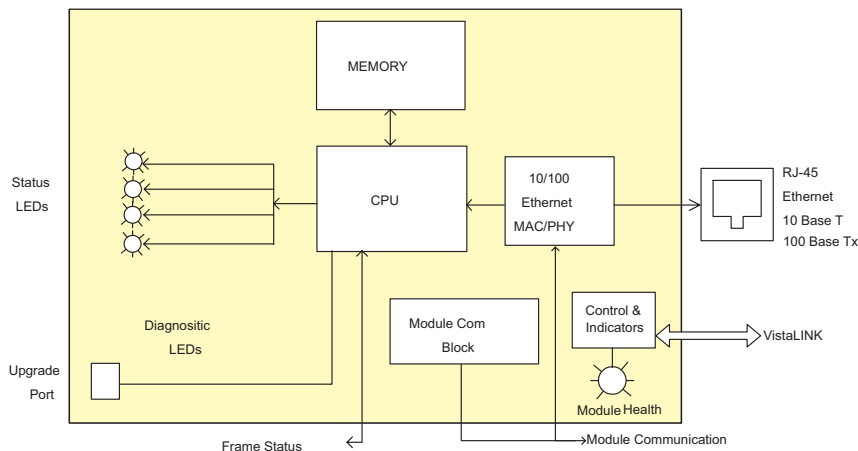
The 500FC VistaLINK™ Frame Controller card provides a single point of access to communicate with VistaLINK™-enabled 500 series modules. The 500FC VistaLINK™ Frame Controller provides a 10Base-T/100Base-TX Ethernet port and communication is facilitated through the use of Simple Network Management Protocol (SNMP). The 500FC VistaLINK™ Frame Controller handles all SNMP communications between the frame (500FR) and the network manager (NMS), and serves as a gateway to individual cards in the frame.

The 500FC is a TRUE SNMP Agent. No external intermediate translator application servers or PC based protocol translators are required. This means you attach the 500FR directly to your Ethernet/SNMP Network.

Features

- Complies with IEEE 802.3 100Base-TX and 10Base-T Ethernet standards
- 100 Mbps Fast Ethernet or 10 Mbps Ethernet data transfer, selected by auto-negotiation
- Full duplex or half-duplex operation, selected by auto negotiation
- RJ-45 connector for network cable connection
- Front panel LEDs indicate module status
- Rear panel LEDs indicate Ethernet link, activity and speed
- Provides frame/chassis status information through enabled hardware via SNMP (using VistaLINK™ PRO) including power supply status, frame status, card insertion/removal counters, 500FC software version number, LED control
- Comprehensive signal and status monitoring through SNMP and VistaLINK™ -enabled capability

Model 500FC Block Diagram



Specifications

Ethernet:

Network Type: Fast Ethernet 100 Base-TX IEEE 802.3u standard for 100 Mbps baseband CSMA/CD local area network
Ethernet 10 Base-T IEEE 802.3 standard for 10 Mbps baseband CSMA/CD local area network

Connector: RJ-45

Electrical:

Voltage: + 12VDC

Power: 7 Watts

EMI/RFI: Complies with FCC Part 15 Class A
EU EMC directive

Physical:

Number of slots: 1 - occupies slot 1 of the 500FR Frame

Ordering Information:

500FC Frame Controller

Enclosure:

500FR

exponent

Compact High Density Distribution Frame

Frame Controller/Reclocking DA



Model 500FC-DA Frame Controller/Reclocking DA

The 500FC-DA Frame Controller with Distribution Amplifier card provides a single point of access to communicate with VistaLINK™-enabled 500 series of cards. The 500FC-DA provides a 10Base-T/100Base-TX Ethernet port and communication is facilitated through the use of Simple Network Management Protocol (SNMP). The 500FC-DA handles all SNMP communications between the frame (500FR) and the network manager (NMS), and serves as a gateway to individual cards in the frame. The 500FC-DA also provides an RS-232 serial port at the card edge to set up the network addresses.

In addition the 500FC-DA provides an on board reclocking distribution amplifier for HDTV and serial digital video signal at rates of 1.5 Gb/s and 143 Mb/s to 540 Mb/s. The DA features an auto-equalized input with eight reclocked outputs and has been designed for use as a SMPTE 292M (1.5 Gb/s), DVB-ASI or SMPTE 259M distribution product.

Features

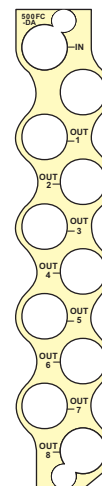
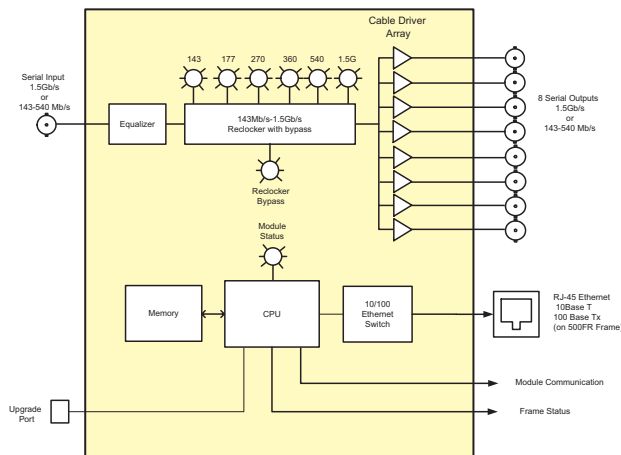
Frame Controller Features:

- Complies with IEEE 802.3 100Base-TX and 10Base-T Ethernet standards
- 100 Mbps Fast Ethernet or 10 Mbps Ethernet data transfer, selected by auto-negotiation
- Full duplex or half-duplex operation, selected by auto negotiation
- RJ-45 connector for network cable connection
- Card edge RS-232 serial control port for configuration
- Front panel LEDs indicate module fault
- Rear panel LEDs indicate Ethernet link, activity and speed
- Provides frame/chassis status information through enabled hardware via VistaLINK™ including frame status, card insertion/removal counters, and 500FC-DA software version number

DA Features:

- Normal mode for SMPTE 259M (143 to 540 Mb/s) or SMPTE 292M (1.5 Gb/s) signals - autodetects correct bit rate
- Configurable for DVB-ASI and Non-Reclock mode using VistaLINK™ control
- Fully hot-swappable from front of frame with no BNC disconnect required
- Independent isolated output drivers to ensure no cross channel loading effects (i.e. no need to terminate unused outputs)

Model 500FC/DA Block Diagram



Specifications

Serial Video Inputs:

Standards: SMPTE 292M, SMPTE 259M A, B, C, D (143 to 540 Mb/s) or DVB-ASI
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 350m @ 270Mb/s, 140m @ 1.5Gb/s with Belden 1694A (or equivalent)
Return Loss: > 15 dB up to 1.0 Gb/s, > 10 dB up to 1.5 Gb/s

Serial Video Outputs:

Number of Outputs: 8 Reclocked
Connector: BNC per 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15 dB up to 1.0 Gb/s
> 12 dB up to 1.5 Gb/s
Wide Band Jitter: < 0.2 UI

Ethernet:

Network Type: Fast Ethernet 100 Base-TX IEEE 802.3u standard for 100 Mbps baseband CSMA/CD local area network
Ethernet 10 Base-T IEEE 802.3 standard for 10 Mbps baseband CSMA/CD local area network
Connector: RJ-45

Serial Communications:

Standard: RS-232
Connector: 9 Pin Female D connector on upgrade breakout cable (provided with 500FR)
Baud Rate: 57600
Format: 8 bits, no parity, 2 stop bits, no flow control

Electrical:

Voltage: + 12VDC
Power: 5.5 Watts
EMI/RFI: Complies with FCC Part 15 Class A and EU EMC directive

Physical:

Number of slots: 1 (must be in slot 1 of 500FR)

Ordering Information:

500FC-DA Frame Controller/Reclocking DA

Enclosure:

500FR

exponent

Compact High Density Distribution Frame

exPonent

Compact High Density Distribution Frame

Model 500FR/500FR-L



Specifications

Electrical :	
AC Mains Input:	Auto ranging, 100 to 240 VAC, 50/60 Hz
Maximum Power Dissipation:	160 W
Fuses:	3 amp, 250 Volt time delay 5x20mm - 2 per power supply
Power Supply Configuration:	External power supply adapter
Physical:	
Dimensions:	19"W x 5.25"H x 9.25"D
Module Capacity:	16 single slot modules
Weight:	32 lbs. (14.5 Kg) (Full)
Certification:	
Safety:	ETL Listed Complies with CE Safety Directive Complies with FCC part 15, Class A EU EMC Directive
EMC:	

Status Indicators: PSU status LED,
Local Error/Failure LED

Tally Output Connector: 4 pin terminal, relay N/O,
N/C for status/fault alarm

Temperature: 0 - 40° C optimal performance
0 - 50° C operating

Ordering Information:	exPonent
500FR	Compact High Density Distribution Frame
500FR-L	Compact High Density Distribution Frame with Loop Thru

Accessories:

+5PS	Redundant power supply option for 500FR
500PS	Additional power supply for 500FR

Model S501FR



S501FR

Electrical :	
Voltage:	12VDC Nominal Auto ranging, 100 to 240VAC power adapter
Power:	10 W
Fuse:	Internal self resetting fuse
Connector:	2.5 mm DC power jack
Certification:	
Safety:	ETL Listed Complies with EU Safety Directive Complies with FCC part 15, Class A Complies with EU EMC Directives
EMC:	

S501FR-RP

Physical:	
Dimensions:	4.9"W x 1.2"H x 10.5"D (124mm W x 30mm H x 267mm D)
Module Capacity:	1 single slot
Weight:	1 lb

Ordering Information:	exPonent
S501FR	Standalone Compact High Density Distribution Frame

Accessories:

S501FR-RP	Rackmount panel mounts 3, S501FR enclosures in 1RU rack space (Includes two blank panels for unfilled slots)
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exPonent

Compact High Density Distribution Frame

An Industry Comparison

(based on 6RU of Rack Space)

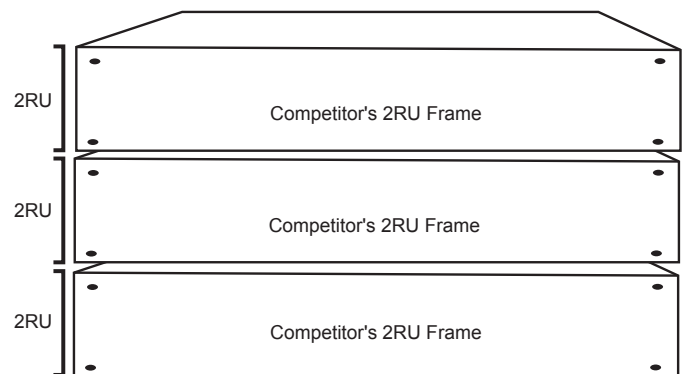
Evertz *exPonent* DA Frame



Total Number of Output BNC'S per 6RU= 288

VS

Competitor's DA Frame



Total Number of Output BNC'S per 6RU=240-270
(Depending on manufacturer)

NOTES:

- 1) ***exPonent*** achieves the highest density with 288 BNC outputs (per 6RU)
- 2) ***exPonent*** uses less power supplies thus less points of failure (per 6RU)
- 3) ***exPonent*** provides a direct connection to an SNMP network. Some competitive pseudo SNMP solutions require intermediate application servers or protocol translators which add latency, single point of failure issues, cost and complexity

SDI Monitoring Reclocking Distribution Amplifier

Model 500VMDA



The Evertz 500VMDA Reclocking Distribution Amplifier provides inexpensive distribution and monitoring of your SMPTE 259M (270MB/s) serial digital video signal. The DA features an auto-equalized input with nine outputs that can be selected as either SDI or composite analog. The 500VMDA in conjunction with the 500DCDA-HD gives an upgrade path to monitoring future HD SDI signals without having to re-wire your installation.

The 500VMDA is housed in the 500FR *exponent* frame that will hold up to 16 modules.

Features

- Fully hot-swappable from front of frame with no BNC disconnect required
- Tally output on Frame Status bus upon loss of input signal

Output:

- 9 outputs selectable as SDI or composite analog (NTSC/PAL)
- Independent isolated output drivers to ensure no cross channel leading effects (i.e. no need to terminate unused outputs)
- Selectable NTSC pedestal on/off

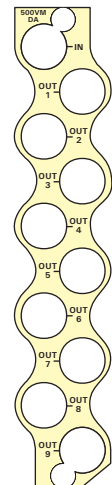
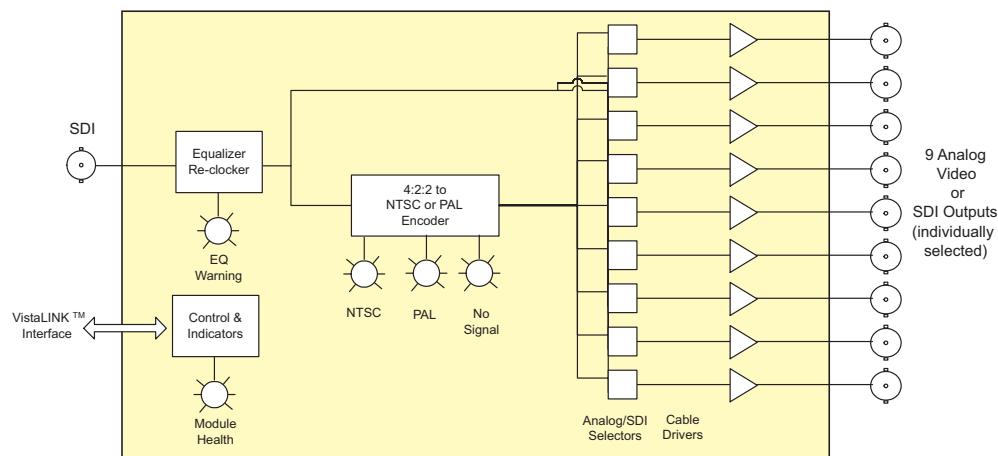
Input:

- Supports SMPTE 259 (270Mb/s) video

Card Edge LEDs:

- Reclocker Locked
- Max. Equalization Warning
- Module Health Status
- Video present, cable length warning and video standard LEDs
- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

500VMDA Block Diagram



Specifications

Serial Video Input:

Standards: SMPTE 259M-C (270 Mb/s) 525 or 625 line.
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 430m @ 270 Mb/s with Belden 1694A or equivalent cable (340m with HD-SDI modules within 500FR frame)
Return Loss: > 15 dB up to 270 Mb/s

Serial Video Output:

Number of Outputs: Up to 9 reclocked outputs (jumper selectable)
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 470ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15 dB up to 270 Mb/s
Wide Band Jitter: < 0.2 UI

Analog Video Output:(User selectable as additional SDI Outputs)

Number of Outputs: Up to 9 (jumper selectable)
Standards: NTSC, SMPTE 170M if input is 525i/59.94
PAL-B ITY 624-4 if input is 625i/50

Connectors:

Signal Level: BNC per IEC 60169-8 Amendment 2
DC Offset: 1 V p-p nominal
Return Loss: 0V ±0.1V
> 35 dB up to 5 MHz

Electrical:

Voltage: +12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information

500VMDA SDI Monitoring Reclocking Distribution Amplifier

Enclosure:

500FR *exponent*
S501FR Compact High Density Distribution Frame
Standalone enclosure

Aspect Ratio Converter

Model 510ARC



The 510ARC Aspect Ratio Converter is a dual standard (525/625) serial digital 270Mb/s high quality motion adaptive video aspect ratio converter designed for use in Television production facilities, DBS satellite operations, Outside broadcast vans/trucks, MSO Cable facilities, Production and post-production facility.

With full 10 bit processing, the 510ARC converts any aspect ratio picture input to any other aspect ratio picture output maintaining excellent image quality.

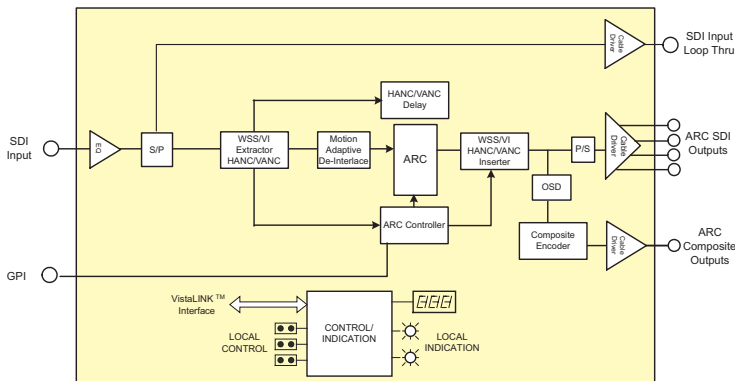
The 510ARC supports input side Wide Screen Signaling (WSS) and Video Index (VI) handling to automatically steer aspect ratio conversion. The module also supports full WSS and VI insertion capability on the output side, along with transfer of all HANC and VANC from the input to the output.

The 510ARC can be configured and controlled from Evertz SNMP control system via VistaLINK™ PRO, 9000NCP, Card Edge, or GPI.

Features

- Any aspect ratio to any aspect ratio, with standard support for 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze aspect ratio conversions
- Flexible ARC control: Slave to incoming WSS/VI, Fixed Output WSS/VI, GPI, Remote SNMP configuration
- Motion adaptive de-interlace for exceptional vertical resolution
- High quality 10-bit video processing
- Full VI and WSS input handling and output insertion
- Full VANC and HANC transfer from input to output
- Continuously variable ARC with cut or smooth transitioning between resize configurations
- 16 User presets for storing custom module configurations
- GPI input for recall of a module configuration
- Auto detecting 525 or 625 SD video (SMPTE 259M) inputs with a loop-through output
- On screen display
- Card Edge Control and LEDs for signal presence, equalization warning, audio groups present, and module status
- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

Model 510ARC Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M
Connector: 1 BNC per IEC 60169-8 Amendment 2
Input Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694A or equivalent cable
Return Loss: >15dB up to 270MHz

Active Loop Output:

Standard: SMPTE 259M
Connector: 1 BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Rise and Fall Time: 750ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB up to 270MHz
Jitter: < 0.2 UI

ARC Outputs:

Standard: SMPTE 259M
Number of Outputs: 4 Per module
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Rise and Fall Time: 750ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB up to 270MHz
Jitter: < 0.2 UI

Composite Outputs:

Standards: Analog composite NTSC (SMPTE 170M) or PAL (ITU-R BT 470)
Number of Outputs: Up to 4 Per Card (jumper selectable)
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 1 V p-p nominal
DC Offset: 0V $\pm 0.1V$
Return Loss: >35dB up to 5 MHz
Impedance: 75 Ω

GPI Input:

Number of Inputs: 1 BNC closure to ground
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: Inactive: Floating or TTL level, Active: Closure to Ground

Electrical:

Voltage: +12VDC
Power: 10 Watts
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

510ARC SD Aspect ratio converter

Enclosures:

500FR
S501FR

exponent

Compact High Density Distribution Frame
Standalone enclosure

Model 520AD4



VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

- SMPTE 259M
- 4 Channel AES (unbalanced)
- 1 BNC for Dolby metadata (RS422/485)

- Module Status
- Video Signal presence
- AES input presence/errors

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

Figure 1 is a block diagram of the 52004-D4-DD-HD. It shows a vertical sequence of components connected by arrows. The components are: 52004-D4-DD-HD, HD IN, BYP HD-OUT, HD OUT, META/AES IN, GLCK IN, META/LTC OUT, AES 1 OUT, AES 2 OUT, AES 3 OUT, and AES 4 OUT. Arrows indicate the flow of data between these components.

Enclosures:
500FR
S501FR

exponent
Compact High Density Distribution Frame
Standalone enclosure

HD/SD Audio De-embedder

Model 520AD4-HD



The 520AD4-HD Audio De-embedder extracts embedded audio from 2 specified groups as defined by SMPTE 299M from a 1.5 Gb/s serial HDTV or as defined by SMPTE 272M from a 270Mb/s serial SDTV video signal.

Up to 8 selected channels may be de-embedded and directed to 4 AES outputs. Video output may be optionally delayed up to 7 frames to alleviate any lip sync system issues. The selected channels may be delayed up to 3 sec. mixed with selected voice-over input and re-embedded.

This device also handles the Dolby E Metadata. Metadata is optionally de-embedded from VANC and can be provided as an output for downstream devices (i.e. Dolby E or Dolby AC3 Encoders etc.). Dolby E metadata may be de-embedded, processed externally and re-embedded on the same card.

VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

The 520AD4-HD is housed in the 3RU 500FR *exponent* frame that will hold up to 16 modules.

Features

- Flexible embedded audio channels router
- Voice-over processor
- Adjustable video delay (up to 7 frames) and audio delay (3 seconds)
- Headphone jack with monitoring stereo channel
- Card edge display for status & audio channel peak levels bargraphs
- VANC decode and output of Dolby Metadata
- Dolby Metadata input & VANC embedder

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

Controls:

- Audio group selection
- Audio channel selection

Inputs:

- SMPTE 292M - (1.5Gb/s serial digital), or SMPTE 259M
- AES input (for voice-over or direct embedding)
- Dolby Metadata input

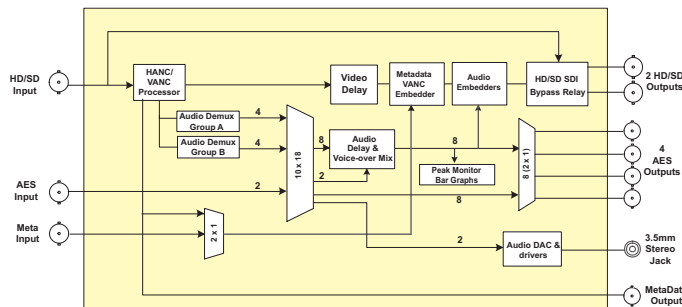
Outputs:

- 2 processed HD outputs (1 is relay protected)
- 1 BNC Dolby Metadata output (RS422/485)
- 4 AES de-embedded outputs

Card Edge LED's:

- Module Status
- Video Signal presence
- Selected audio group presence/errors
- AES signal presence

Model 520AD4-HD Block Diagram



Numbers refer to discrete audio channels

Specifications

Serial Video Input:

Standard: SMPTE 292M, (1080i/60, 1080i/59.94, 1080i/50, 1080p/30(sF), 1080p/29.97(sF), 1080p/25(sF), 1080/24(sF), 1080/23.98(sF), 720p/60, 720p/59.94, 1035i/60, 1035i/59.94
SMPTE 259M-C (270 Mb/s) 525 or 625 line component
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 100m @ 1.5Gb/s with Belden 1694 (or equivalent), 25m with bypass relay active

Processed Serial Video Output:

Standard: Same as input or user controlled
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: Per standard
Overshoot: <10% of amplitude
Wide Band Jitter: <0.2 UI

Metadata Input/Output:

Type: Dolby E Metadata
Connector: *1 BNC per IEC 60169-8 Amendment 2
(*BNC to DB9 dongles are provided)
Baud Rate: 115,200 baud

AES Audio Input:

Standard: SMPTE 276M single ended AES
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Input Level: 0.1 to 2.5 Vp-p (5 Vp-p tolerant)
Input Impedance: 75Ω
Return Loss: >25dB 100kHz to 6MHz with external termination
Equalization: Automatic to 1000m with Belden 1694A (or equivalent) @ 48kHz AES signal
Sample Rate: 48kHz ± 100ppm

AES Audio Output:

Standard: SMPTE 276M, single ended AES
Number of Outputs: 4
Connector: BNC per IEC 60169-8 Amendment 2
Sample Rate: 48kHz
Impedance: 75Ω
Resolution: Up to 24-bit

System Performance:

De-embedding Latency: 600µs nominal
Additional Audio Delay: 0 to 3 seconds (user programmable)
Additional Video Delay: 0 to 7 frames (user programmable)

Electrical:

Voltage: +12V DC
Power: 10 Watts
EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

Physical:

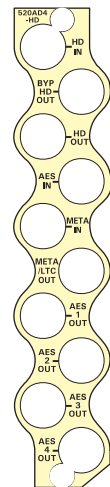
Number of Slots: 1

Ordering Information:

520AD4-HD HD/SD Audio De-embedder with 4 unbalanced AES outputs (2 audio groups)

Enclosures:
500FR
S501FR

exponent
Compact High Density Distribution Frame
Standalone enclosure



HD/SD Audio De-embedder

Model 520AD8-HD



The 520AD8-HD Audio De-embedder extracts embedded audio from all 4 groups as defined by SMPTE 299M from a 1.5 Gb/s serial HDTV or as defined by SMPTE 272M from a 270Mb/s serial SDTV video signal. Up to 16 selected channels may be de-embedded and directed to 8 AES outputs.

This device also handles the Dolby E Metadata. Metadata is optionally de-embedded from VANC and can be provided as an output for downstream devices (i.e. Dolby E or Dolby AC3 Encoders etc.).

VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

The 520AD8-HD is housed in the 3RU 500FR *exponent* frame that will hold up to 16 modules.

Features

- Flexible de-embedded audio channels router (16 x 16)
- Headphone jack with monitoring stereo channel
- Card edge display for status & audio channel peak levels bargraphs
- VANC decode and output of Dolby Metadata

Controls:

- Audio channel routing selection

Inputs:

- SMPTE 292M - (1.5Gb/s serial digital), or SMPTE 259M

Outputs:

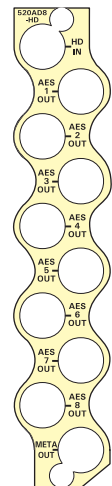
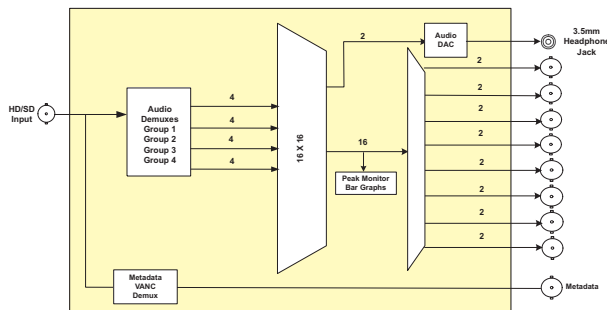
- 1 BNC Dolby Metadata output (RS422/485)
- 8 AES de-embedded outputs

Card Edge LED's:

- Module Status
- Video Signal presence
- Selected audio group presence/errors

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

Model 520AD8-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M, (1080i/60, 1080i/59.94, 1080i/50, 1080p/30(sF), 1080p/29.97(sF), 1080p/25(sF), 1080/24(sF), 1080/23.98(sF), 720p/60, 720p/59.94, 1035i/60, 1035i/59.94
SMPTE 259M-C (270 Mb/s) 525 or 625 linecomponent

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic 100m @ 1.5Gb/s with Belden 1694 (or equivalent)

Metadata Output:

Type: Dolby E Metadata

Connector: *1 BNC per IEC 60169-8 Amendment 2 (*BNC to DB9 dongles are provided)

Baud Rate: 115,200 baud

AES Audio Output:

Standard: SMPTE 276M, single ended AES

Number of Outputs: 8

Connector: BNC per IEC 60169-8 Amendment 2

Sample Rate: 48kHz

Impedance: 75Ω

Resolution: Up to 24-bit

System Performance:

De-embedding

Latency: 600μs nominal

Electrical:

Voltage: +12V DC

Power: 10 Watts

EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

520AD8-HD HD/SD Audio De-embedder with 8 unbalanced AES outputs (4 audio groups)

Enclosures:

500FR Compact High Density Distribution Frame

S501FR Standalone enclosure

exponent

Model 520AE4



The 520AE4 Audio Embedder embeds 4 stereo AES channels into 2 specified groups as defined by SMPTE 272M in a 270Mb/s serial SDTV video signal.

Several optional processing steps can be applied to the input audio before it is embedded. If needed, the 4 stereo AES input channels can be processed by 4 on-board sample rate converters (SRC's). The SRC's can be configured to automatically respect Dolby E & Dolby Digital adding to ease of use & flexibility. The 8 discrete audio channels can be re-arranged in any arbitrary manner with on-board 8 x 8 router. The audio channels may be optionally and independently delayed up to 3 seconds.

This device also handles the Dolby E Metadata. Metadata is optionally embedded in VANC for downstream devices.

VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

Features

- Fast locking AES receivers
- Configurable or automatic SRC's on AES inputs
- Headphone jack with monitoring stereo channel
- Card edge display for status & audio channel peak levels bargraphs
- Audio channel router (8 x 8)

Controls:

- Audio group selection
- Audio channel selection

Inputs:

- SMPTE 259M
- 4 Channel AES (unbalanced)
- 1 BNC for Dolby metadata (RS422/485)

Outputs:

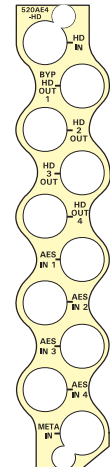
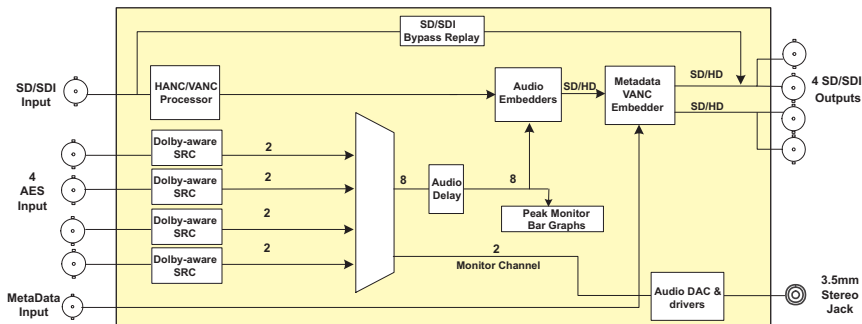
- 4 processed outputs
- Program output bypass relay protected

Card Edge LED's:

- Module Status
- Video Signal presence
- AES input presence/errors

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

Model 520AE4 Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C (270 Mb/s) 525 or 625 line component
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic >200m @ 270Mb/s with Belden 8281 (or equivalent), 25m with bypass relay installed

Processed Serial Video Output:

Standard: Same as input or user controlled
Number of Outputs: 4
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: Per standard
Overshoot: <10% of amplitude
Wide Band Jitter: <0.2 UI

AES Input:

Standard: SMPTE 276M
Number of Inputs: 4
Connector: BNC per IEC 60169-8 Amendment 2
Input Level: 0.1 to 2.5 Vp-p
Input Impedance: 75Ω
Return Loss: >25dB 100kHz to 6MHz
Equalization: Automatic to 1000m with Belden 1694A (or equivalent) @ 48kHz AES signal
Sample Rate: 48kHz ± 100ppm

Metadata Input:

Type: DOLBY E Metadata
Connector: 1 BNC per IEC 60169-8 Amendment 2
Baud Rate: 115,200 baud

System Performance:

Embedding Latency: 600μs nominal
Audio Delay Range: 0 to 3 seconds

Electrical:

Voltage: +12V DC
Power: 10 Watts
EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

520AE4 SD Audio Embedder with 4 unbalanced AES inputs (2 audio groups)

Enclosures:

500FR Compact High Density Distribution Frame
S501FR Standalone enclosure

exponent

Model 520AE4-HD



The 520AE4-HD Audio Embedder embeds 4 stereo AES channels into 2 specified groups as defined by SMPTE 299M in a 1.5 Gb/s serial HDTV or as defined by SMPTE 272M in a 270Mb/s serial SDTV video signal.

Several optional processing steps can be applied to the input audio before it is embedded. If needed, the 4 stereo AES input channels can be processed by 4 on-board sample rate converters (SRC's). The SRC's can be configured to automatically respect Dolby E & Dolby Digital adding to ease of use & flexibility. The 8 discrete audio channels can be re-arranged in any arbitrary manner with on-board 8 x 8 router. The audio channels may be optionally and independently delayed up to 3 seconds.

This device also handles the Dolby E Metadata. Metadata is optionally embedded in VANC for downstream devices.

VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

Features

- Fast locking AES receivers
- Configurable or automatic SRC's on AES inputs
- Headphone jack with monitoring stereo channel
- Card edge display for status & audio channel peak levels bargraphs
- Audio channel router (8 x 8)

Controls:

- Audio group selection
- Audio channel selection

Inputs:

- SMPTE 292M - (1.5Gb/s serial digital), or SMPTE 259M
- 4 Channel AES (unbalanced)
- 1 BNC for Dolby metadata (RS422/485)

Outputs:

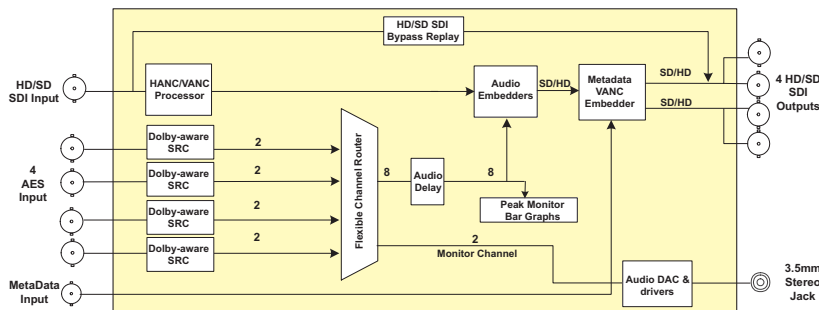
- 4 processed HD outputs
- Program output bypass relay protected

Card Edge LED's:

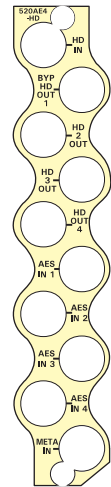
- Module Status
- Video Signal presence
- AES input presence/errors

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

Model 520AE4-HD Block Diagram



Numbers refer to discrete audio channels



Specifications

Serial Video Input:

Standard: SMPTE 292M, (1080i/60, 1080i/59.94, 1080i/50, 1080p/30(sF), 1080p/29.97(sF), 1080p/25(sF), 1080/24(sF), 1080/23.98(sF), 720p/60, 720p/59.94, 1035i/60, 1035i/59.94)

Connector: SMPTE 259M-C (270 Mb/s) 525 or 625 line component

Equalization: BNC per IEC 60169-8 Amendment 2

Automatic 100m @ 1.5Gb/s with Belden 1694A (or equivalent), 25m with bypass relay installed

Processed Serial Video Output:

Standard: Same as input or user controlled

Number of Outputs: 4

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V ±0.5V

Rise and Fall Time: Per standard

Overshoot: <10% of amplitude

Wide Band Jitter: <0.2 UI

AES Input:

Standard: SMPTE 276M

Number of Inputs: 4

Connector: BNC per IEC 60169-8 Amendment 2

Input Level: 0.1 to 2.5 Vp-p

Input Impedance: 75Ω

Return Loss: >25dB 100kHz to 6MHz

Equalization: Automatic to 1000m with Belden 1694A (or equivalent) @ 48kHz AES signal

Sample Rate: 48kHz ± 100ppm

Metadata Input:

Type: DOLBY E Metadata

Connector: 1 BNC per IEC 60169-8 Amendment 2

Baud Rate: 115,200 baud

System Performance:

Embedding Latency: 600μs nominal

Audio Delay Range: 0 to 3 seconds

Electrical:

Voltage: +12V DC

Power: 10 Watts

EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

520AE4-HD HD/SD Audio Embedder with 4 unbalanced AES inputs (2 audio groups)

Enclosures:

500FR

S501FR

exponent

Compact High Density Distribution Frame
Standalone enclosure

Model 520AE8-HD



The 520AE8-HD Audio Embedder embeds 8 stereo AES channels into 4 groups as defined by SMPTE 299M in a 1.5 Gb/s serial HDTV or as defined by SMPTE 272M in a 270Mb/s serial SDTV video signal.

This device also handles the Dolby E Metadata. Metadata maybe input instead of the last AES channel and optionally embedded in VANC for downstream devices.

VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

Features

- Fast locking AES receivers
- Headphone jack with monitoring stereo channel
- Card edge display for status & audio channel peak levels bargraphs
- Dolby-aware SRC (sample rate converters)
- Flexible audio channel router (16 x 16)

Controls:

- Audio channel selection
- Embedded group enable/disable

Inputs:

- SMPTE 292M - (1.5Gb/s serial digital), or SMPTE 259M
- 8 Channel AES (unbalanced)
- Dolby metadata (RS422/485)

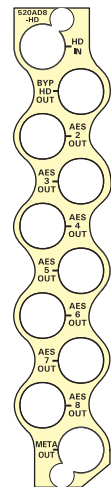
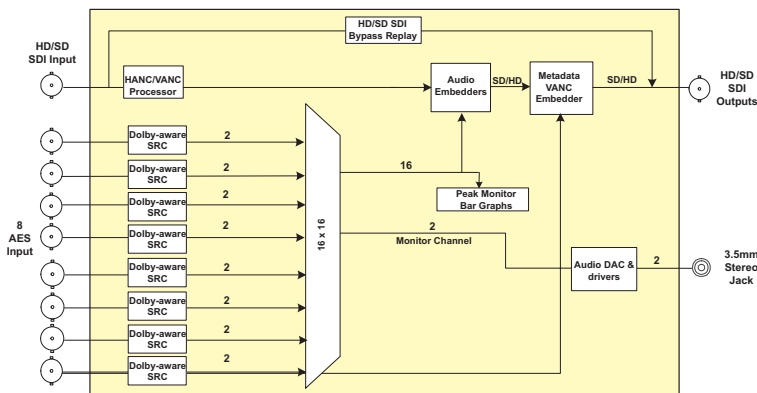
Outputs:

- Program output bypass relay protected
- 1 processed HD output

Card Edge LED's:

- Module Status
- Video Signal presence
- AES input presence/errors
- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

Model 520AE8-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M, (1080i/60, 1080i/59.94, 1080i/50, 1080p/30(sF), 1080p/29.97(sF), 1080p/25(sF), 1080/24(sF), 1080/23.98(sF), 720p/60, 720p/59.94, 1035i/60, 1035i/59.94
SMPTE 259M-C (270 Mb/s) 525 or 625 line component
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 100m @ 1.5Gb/s with Belden 1694A (or equivalent), 25m with bypass relay installed

Processed Serial Video Output:

Standard: Same as input or user controlled
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: Per standard
Overshoot: <10% of amplitude
Wide Band Jitter: <0.2 UI

AES Input:

Standard: SMPTE 276M
Number of Inputs: 8
Connector: BNC per IEC 60169-8 Amendment 2
Input Level: 0.1 to 2.5 Vp-p
Input Impedance: 75Ω
Return Loss: >25dB 100kHz to 6MHz
Equalization: Automatic to 1000m with Belden 1694A (or equivalent) @ 48kHz AES signal
Sample Rate: 48kHz ± 100ppm

Metadata Input/Output:

Type: DOLBY E Metadata
Connector: 1 BNC per IEC 60169-8 Amendment 2
Baud Rate: 115,200 baud

System Performance:

Embedding Latency: 600μs nominal

Electrical:

Voltage: +12V DC
Power: 10 Watts
EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

520AE8-HD HD/SD Audio Embedder with 8 unbalanced AES inputs (4 audio groups)

Enclosures:

500FR Compact High Density Distribution Frame
S501FR Standalone enclosure

exponent

HD/SD Audio De-embedder & Dolby E/AC-3 Decoder & Re-embedder

Model 520AD4-DD-HD



The 520AD4-DD-HD Audio De-embedder and Dolby Decoder & Re-embedder extracts embedded audio from 2 specified groups as defined by SMPTE 299M from a 1.5 Gb/s serial HDTV or as defined by SMPTE 272M from a 270Mb/s serial SDTV video signal.

One selected channel is processed by the on-card Dolby Decoder. If the channel contains Dolby E or Dolby Digital (AC3), it will yield up to 8 additional discrete audio channels and the associated Dolby E metadata. Up to 8 selected channels may be optionally delayed up to 3 seconds and re-embedded into the output video and/or directed to 4 AES outputs. Video output may be optionally delayed up to 7 frames to help with lip sync. If PCM audio is embedded, the device acts as a simple 2 group audio de-embedder.

This device also handles the Dolby E Metadata. Metadata is optionally embedded in VANC and can be provided as an output for downstream devices (i.e. Dolby Encoders, Multichannel Audio Tool, etc.). Dolby-E is capable of carrying LTC data embedded within its stream. It can be selected as an output, instead of metadata.

For lip sync cohesion and ease of editing, Dolby-E data is organized in blocks with lengths matching the associated video frame. The decoder will match the beginning of each output block with the start of video, as provided with the genlock input. Additional delay can be dialed up by the user, up to 3 secs. An extra AES input is provided that can be configured as a backup channel, in the event the primary is lost, or as a voice-over source. This input can be re-configured as a metadata input which can be embedded in VANC, instead of the metadata coming from Dolby Decoder.

VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

The 520AD4-DD-HD is housed in the 3RU 500FR **exponent** frame that will hold up to 16 modules.

Features

- Automatic switchover to backup audio source on loss of selected Dolby stream
- Adjustable video delay to match Dolby decoder audio delay (up to 7 frames)
- Headphone jack with monitoring stereo down-mix
- Dolby Metadata is embedded in HD VANC for downstream device decoding (refer to 520AD4-HD brochure)
- Secondary AES input with backup, voice-over or Dolby E/AC3 content
- Card edge display for Dolby decoder status & audio channel peak levels bargraphs
- Flexible audio channel router

Controls:

- Audio group selection
- Audio channel selection

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

Inputs:

- Program output bypass relay protected
- SMPTE 292M - (1.5Gb/s serial digital), or SMPTE 259M
- Genlock NTSC-M, PAL-B, any tri-level
- AES input for backup/voice-over source
- Metadata input

Outputs:

- 2 processed HD outputs (1 protected with bypass relay)
- 4 AES de-embedded and processed outputs
- 1 BNC configurable as LTC or Dolby metadata (RS422/485)

Card Edge LED's:

- Module Status
- Video Signal presence
- Selected audio group presence/errors
- Dolby decoder processing status
- Genlock health/compatibility
- AES signal presence

Unbalanced AES Word Clock Extractor Audio Distribution Amplifier



520DARS-W

The 520DARS-W provides a compact method of extracting word clock from your AES digital audio reference signals. The 520DARS-W features one auto-equalized input with 4 word clock outputs and 5 reclocked AES audio outputs.

The 520DARS-W can be used in conjunction with the 5600MSC Master Clock/SPG system

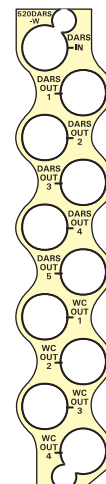
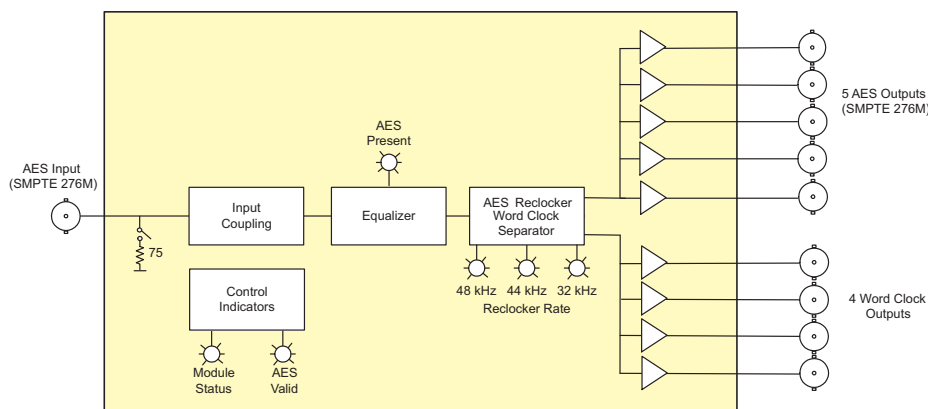
The 520DARS-W is housed in the 500FR *exponent* Frame that will hold up to 16 modules.

Features

- Supports AES audio over 75Ω coax (SMPTE 276M)
- 4 word clock outputs (AES11-2003)
- 5 reclocked AES outputs provides jitter reduction (SMPTE 276M)
- Automatic equalization provides extended cable length capabilities
- High impedance or 75Ω termination on input (jumper selectable)
- Card edge indicators for AES present, reclocker rate, and AES validity bit
- Tally output of input error conditions

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

520DARS-W Block Diagram



Specifications

AES Input:
Standard: SMPTE 276M
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Input Level: 1V p-p
Coupling: Transformer
Input Impedance: 75Ω
Return Loss: >25dB 100kHz to 6MHz
Equalization: Automatic to 1500m with Belden 1694A (or equivalent) @ 48kHz AES signal
Sampling Frequency: 32kHz, 44.1kHz, 48kHz and 96kHz

AES Output:
Number of Outputs: 5 Unbalanced AES
Connector: BNC per IEC 60169-8 Amendment 2
Output Level: 1V p-p
Output Impedance: 75Ω
Return Loss: >25dB 100kHz to 6MHz

Word Clock Outputs:
Standard: AES11-2003
Number of Outputs: 4
Connectors: BNC per IEC 169-8
Signal Level: 5Vpp square wave (0-5V) ±0.5V

Physical:
Number of Slots: 1

Electrical:
Voltage: +12VDC
Power: 5 Watts
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:
520DARS-W Unbalanced AES Word Clock Extractor Audio Distribution Amplifier (1x9)

Enclosure: *exponent*
500FR Compact High Density Distribution Frame
S501FR Standalone enclosure

Dolby E Decoder

520DD-AESU



The 520DD-AESU is a professional Dolby audio decoder that automatically detects Dolby-E, Dolby Digital (AC3), and PCM streams in the AES input, and translates them to PCM (linear) audio. Up to 8 discrete audio channels may be contained in 1 AES stream when encoded as Dolby-E, yielding up to 4 AES PCM outputs.

So that the multi-channel outputs in PCM form can be re-assembled back into Dolby-E or Dolby Digital further downstream, an additional output with metadata is provided. It contains information about the assumed inter-channel relationships (whether they are 5.1, or 4 stereo pairs, etc.), their expected dialogue levels, etc.

Dolby-E is capable of carrying LTC data embedded within its stream. It can be selected as an output, instead of metadata.

For lipsync cohesion and ease of editing, Dolby-E data is organized in blocks with lengths matching associated video frame. The decoder will match the beginning of each output block with the start of video, as provided with the genlock input. Additional delay can be dialed up by the user, up to 3 seconds. Reference video frame rate must match that assumed by the Dolby-E stream. An extra AES input is provided that can be configured as a backup channel, in the event the primary is lost, or as a voice-over source. VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

Features

- Headphone jack with monitoring stereo down-mix
- Secondary AES input with backup contents or voice-over
- Card edge display for Dolby decoder status & audio channel peak levels bargraphs
- Adjustable delay up to 3 seconds

Inputs:

- 2 AES (SMPTE 276M standard version on coax) with Dolby-E, Dolby Digital or PCM (autodetect)
- Video genlock - composite black or tri-level (autodetects)
- Genlock input for lip-sync management, Dolby E style

Outputs:

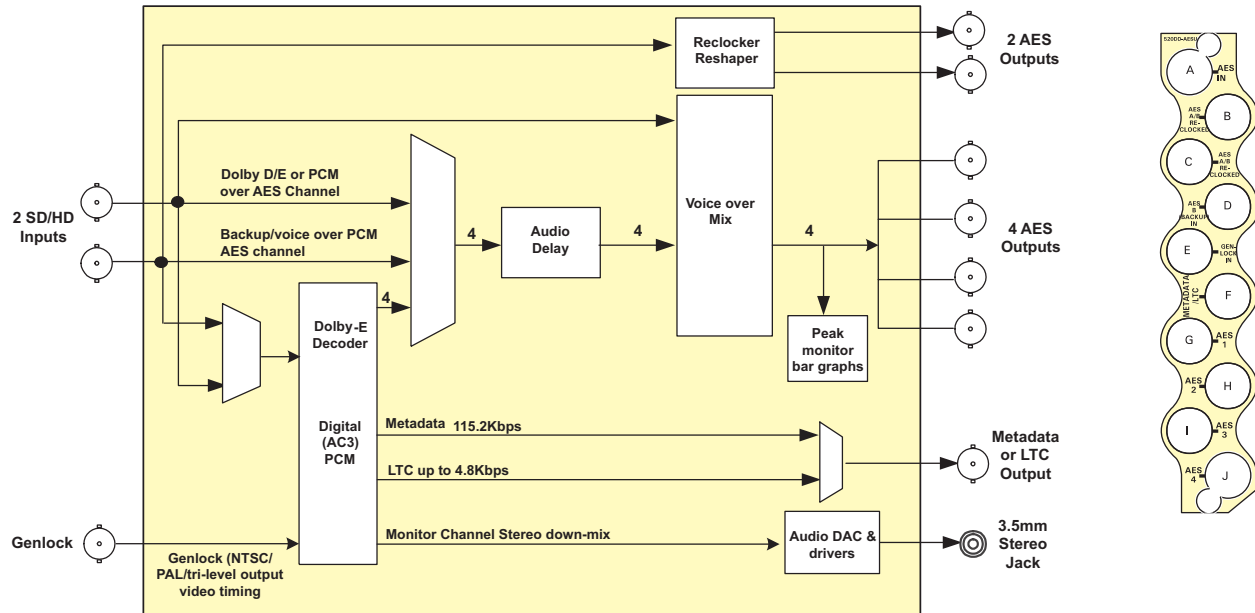
- 2 outputs with reclocked AES input
- 4 AES (SMPTE 276M) output with decoded PCM audio
- Metadata or LTC

Card Edge LED's:

- Module status
- Selected AES input health
- Dolby decoder processing status
- Genlock health

- VistaLINK™ -enabled for remote monitoring via SNMP (using VistaLINK™ PRO) when installed in 500FR frame with 500FC VistaLINK™ Frame Controller

520DD-AESU Block Diagram



Specifications

AES Audio Input:

Number of Inputs: 2 (program, backup)
Standard: SMPTE 276M, unbalanced AES
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 0.1 to 2.5 Vp-p
Equalization: Auto >1000m with 1 Vp-p drive and Belden 1694A or equivalent coax cable
Resolution: 24 bits
Sample Rate: 48 kHz; ± 100 ppm
Input Impedance: 75 Ω
Return Loss: > 25 dB, 100 kHz to 6.0 MHz

AES Audio Outputs:

Number of Outputs: 6 (2 reclocked & 4 PCM decodes)
Standard: SMPTE 276M, unbalanced AES
Connectors: BNC per IEC 60169-8 Amendment 2
Sample Rate: 48kHz
Impedance: 75 Ω unbalanced
Return Loss: > 25 dB, 100 kHz to 6.0 MHz

Genlock Input:

Type: NTSC or PAL colour black 1V p-p composite bi-level sync (525 line or 625 line)
Connector: 1 BNC per IEC 60169-8 Amendment 2
Impedance: hi-Z or 75 jumper configurable
Return Loss: >40dB to 10MHz

Metadata Output:

Number of Outputs: 1
Standard: Contents per Dolby
Connector: BNC per IEC 60169-8 Amendment 2 (shared with LTC output as per user selection)
Signal Level: < $\pm 3V$ @ 1k Ω load
Output Impedance: 50 Ω , DC coupled
Load Impedance: 50 Ω , up to hi-Z
Rise Times: 200ns

LTC Output:

Number of Outputs: 1
Standard: SMPTE 12M
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: Adjustable from 0.5 to 4.0Vp-p @1k Ω load
Output Impedance: 50 Ω
Rise Times: 40 $\mu s \pm 10\mu s$

Headphone Audio Outputs:

Number of Outputs: 1
Type: Stereo 3.5mm jack
Output Load: 32 Ω
Signal Level: 100mW max, soft adjustable over 40dB range
THD+N: 1%
SNR: 90dB RMS, "A" weighted

Electrical:

Voltage: + 12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15 Class A
 EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

520DD-AESU Dolby E Decoder

Enclosures:

500FR Compact High Density Distribution Frame
S501FR Standalone enclosure

exponent

HD/SD SDI, 8 Channel AES & RS232/RS422 Auto Change Over

Model 7700ACO-HD



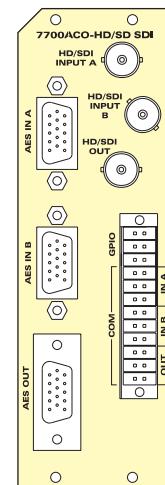
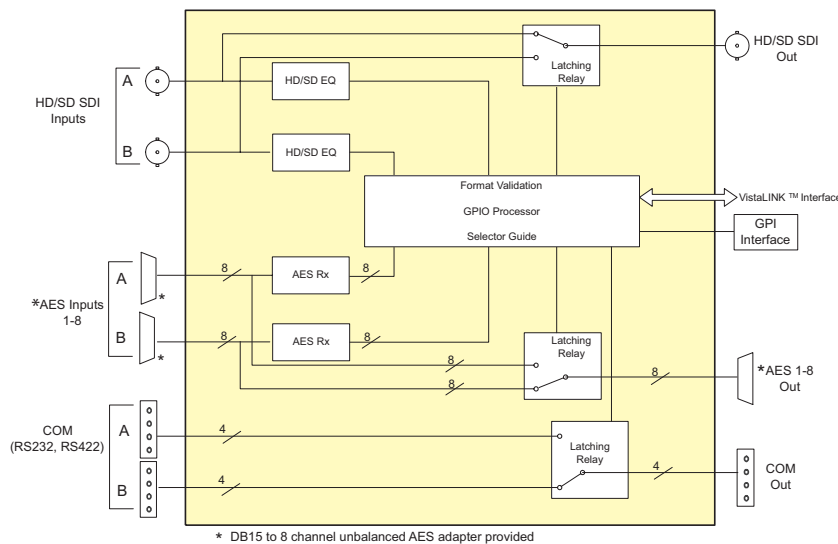
The Evertz 7700ACO-HD/SD SDI Auto change over is designed to provide a HD/SD SDI video, multi channel aes audio and RS422/RS232 change over in one device. The unit can be controlled via GPI, remotely via VistaLINK™ PRO or set in autochangeover mode. It is an all in one ACO package aimed towards protecting a complete channel.(protecting the video, 8 channels of discrete AES and associated control channel (RS232 or RS422). The unit features latching relays that maintain state through loss.

Features

- Auto detection of signal standard
- Four modes of operation
 - Auto changeover - two standalone auto changeovers
 - Manual DIP switch control - two independently controlled 2x1 switchers
 - GPI Control - two independently GPI controlled 2x1 switchers
 - Tally output provided

- VistaLINK™ -enabled offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK™ is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame

7700ACO-HD Block Diagram



Specifications

Serial Video Input:

Standards: SMPTE 292M, SMPTE 259M A, B, C, D (143 to 540 Mb/s) or DVB-ASI
Connector: 2 BNC per IEC 60169-8 Amendment 2
Maximum Cable Length: 100m of Belden 1694A or equivalent cable combined input and output
Return Loss: 10 dB up to 1.5 Gb/s

Serial Video Outputs:

Number of Outputs: 1 passive relay output
Connector: BNC per IEC 60169-8 Amendment 2
Maximum Cable Length: 60m of Belden 1694A or equivalent cable combined input and output
DC Offset: 0V \pm 0.5V
Return Loss: 10 dB up to 1.5 Gb/s

General Purpose Inputs and Outputs:

Type:
Inputs: Opto-isolated input with internal pull-up to + 5Volts
Outputs: Normally 10k internal pull-up to + 5Volts. Ground to rear panel when relay is in active position
Connector: Screw down terminal blocks
Signal Level: +5V nominal

Signal Present and Changeover Conditions:

SDI: Valid TRS timing, CRC, and EDH
DVB-ASI: Valid SMPTE sync word
Sync: H timing detect
AES: Sync word error

Communications and Control:

Serial Port: RS232/RS422 - 4 wire, terminal block
Connector: 4 BNC per IEC 60169-8 Amendment 2

AES Input:

Standard: SMPTE 276M
Number of Inputs: 8 unbalanced AES
Connector: Female High Density DB-15 (breakout cable to BNC provided)
Input Level: 1V p-p
Input Impedance: 75 Ω
Return Loss: >25dB 100kHz to 600MHz
Equalization: Automatic to 1500m with Belden 1694A (or equivalent) @ 48kHz AES signal

AES Output:

Number of Outputs: 8 Unbalanced AES
Connector: Female High Density DB-15 (breakout cable to BNC provided)
Output Level: 1V p-p
Output Impedance: 75 Ω
Return Loss: >25dB 100kHz to 6MHz

Physical:

Number of slots: 2

Electrical:

Voltage: +12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

7700ACO-HD HD/SD SDI, 8 Channel AES & RS232/422 Auto Change Over

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone Enclosure

Analog Video Distribution Amplifier

7700ADA7

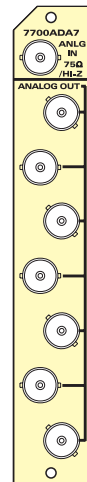
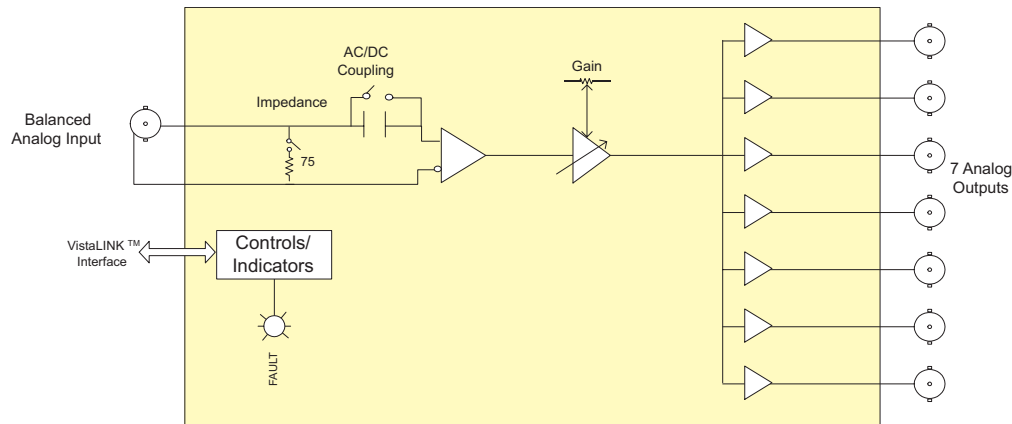
The 7700ADA7 Analog Distribution Amplifier is a general purpose amplifier for distributing analog video signals. The 7700ADA7 features one balanced input with seven outputs. The 7700ADA7 amplifier has been designed to distribute a wide range of analog video signals. It can also distribute other pulses and signals that are less than 2Vp-p.

The 7700ADA7 occupies one card slot in the 3RU frame, which will hold up to 15 modules or the 1RU frame, which will hold up to three modules.

Features

- 75Ω or high impedance input (jumper selectable)
- High common mode range and common mode rejection ratio (CMMR)
- Gain control
- Jumper selectable AC or DC coupling
- Looping feature with external "T" connector
- Consistent input impedance if card power is lost

7700ADA7 Block Diagram



Specifications

Analog Video Input:

Standards:	Any analog video format, up to 2Vp-p and 30MHz bandwidth
Connector:	BNC per IEC 60169-8 Amendment 2
Common mode range:	>6Vp-p
CMMR:	> 70dB to 1kHz
Signal amplitude:	2.5Vp-p max
Impedance:	75Ω terminated, 35kΩ Hi-Z (jumper selectable)
Coupling:	AC or DC (jumper selectable)
Return loss:	>40dB to 10MHz, >30dB to 30MHz

Analog Video Outputs:

Number of Outputs:	7 Per Card
Connector:	BNC per IEC 60169-8 Amendment 2
Output impedance:	75Ω
Gain control range:	± 5dB DC level (DC Coupling active) < +/- 100mV
Freq. Response:	<+/-0.05dB (to 5.5MHz)
Differential Gain:	<0.17 %
Differential Phase:	< 0.19 deg
C/L gain inequality:	<+/-0.1%
C/L Delay:	<+/-2nsec
Output isolation:	42dB to 10MHz, 32 dB to 30MHz
Output return loss:	>40dB to 30MHz
Noise performance:	<-78dB RMS NTC7 weighting, <-70dB RMS 15kHz to 5.5MHz

Electrical:

Voltage:	+ 12VDC
Power:	1.2 Watts
EMI/RFI:	Complies with FCC Part 15, Class A, EU EMC Directive

Physical:

Number of Slots:	1
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Ordering Information:

7700ADA7	Analog Video Distribution Amplifier
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Equalizing Analog Video Distribution Amplifier

7700ADA7-EQ

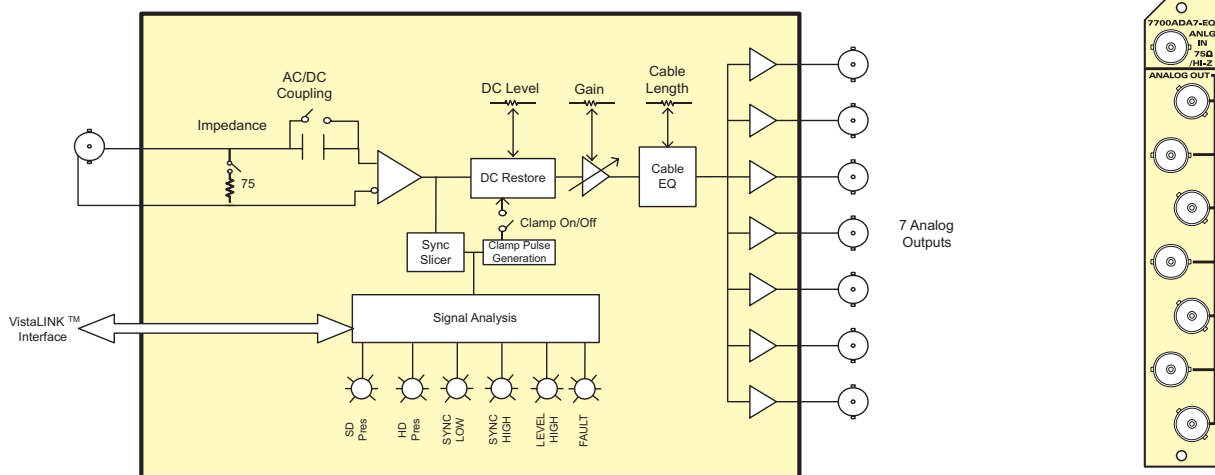
The 7700ADA7-EQ Equalizing Analog Distribution Amplifier is a general purpose amplifier for distributing analog video signals. The 7700ADA7-EQ features one balanced equalized input with seven outputs. The 7700ADA7-EQ amplifier has been designed to distribute a wide range of analog video signals. It can also distribute other pulses and signals that are less than 2Vp-p.

The 7700ADA7-EQ is housed in the 3 RU frame, which will hold up to 15 modules or the 1RU frame, which will hold up to three modules.

Features

- 75Ω or high impedance input (jumper selectable)
- High common mode range and common mode rejection ratio (CMMR)
- Gain control
- Jumper selectable AC or DC coupling
- Jumper selectable fast or slow back porch clamp
- DC level control when clamp is enabled
- Cable equalizer adjustment range: 0 to 300m of 8281 or 1694A
- Looping feature with external "T" connector and external termination
- Consistent input impedance if card power is lost

7700ADA7-EQ Block Diagram



Specifications

Analog Video Input:

Standards: Any analog video format, up to 2Vp-p and 30MHz bandwidth
Connector: 1 BNC input per IEC 60169-8 Amendment 2
Common mode range: >6Vp-p
CMRR: >70dB to 1kHz
Signal amplitude: 2.5Vp-p max
Cable equalizer: 0 to 300m of Belden 8281 or 1694A cable
Impedance: 75Ω terminated, 35kOhms Hi-Z (jumper selectable)
Coupling: AC or DC (jumper selectable)
Return loss: > 40dB to 10MHz, >30dB to 30MHz
Clamp range: >+/- 600mV
Fast clamp attenuation of 60Hz: >36dB

Analog Video Outputs:

Number of Outputs: 7
Connector: BNC per IEC 60169-8 Amendment 2
Output impedance: 75Ω
Gain control range: ± 5dB
DC level: < +/- 100mV (with DC Coupling active and back porch clamp disabled)
DC level Control range: < +/- 200mV (with back porch clamp enabled)
Freq. Response: < ±0.05dB no equalization (to 5.5MHz)
< ±0.09dB for 5 to 100m Belden 8281 or 1694 (to 5.5MHz)
< ±0.15dB for 100 to 300m Belden 8281 or 1694 (to 5.5MHz)
< 0.17 % 0 to 300m
Differential Gain: < 0.19 deg 0 to 300m
Differential Phase: < +/- 0.1% for all cable lengths
C/L gain inequality: < +/- 2nsec
C/L Delay:

Output isolation: >42dB to 10MHz, >32 dB to 30MHz
Output return loss: >40dB to 30MHz
Noise performance: <-78dB RMS NTC7 weighting
<-70dB RMS 15kHz to 5.5MHz

Electrical:

Voltage: + 12VDC
Power: 5 Watts

Physical:

Number of slots: 1

Ordering Information:

7700ADA7-EQ Analog Video Equalizing Distribution Amplifier, with 7 outputs

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Analog Video Distribution Amplifier

Model 7700ADA

The 7700ADA Analog Distribution Amplifier is a general purpose amplifier for distributing analog signals. The 7700ADA features one balanced input with four outputs. The 7700ADA has been designed to distribute a wide range of analog video signals. It can also distribute other pulses and signals that do not exceed 2Vp-p.

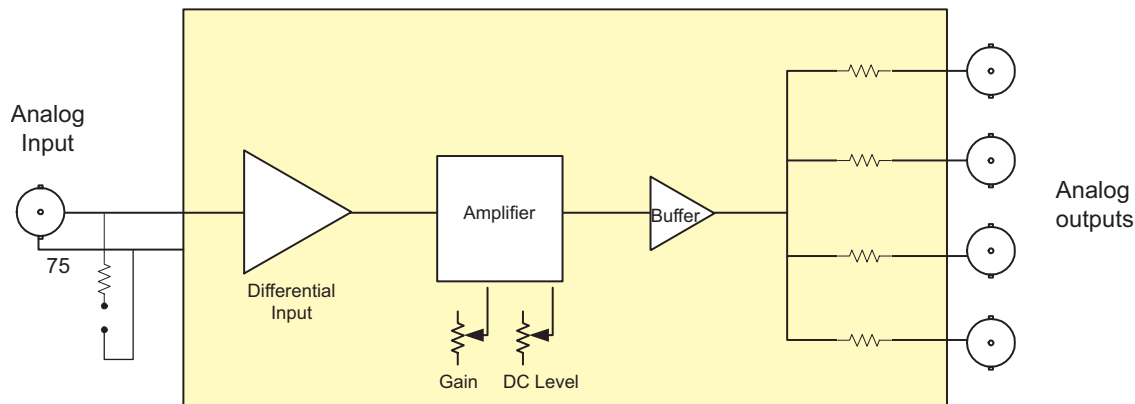
Features

- 75 Ω or high impedance input (jumper selectable)
- Looping feature with external "T" connector
- Consistent input impedance if card power is lost
- High common mode range and common mode rejection ratio (CMRR)

Card Edge LEDs:

- Module status/Local Fault
- Power supply status

7700ADA Block Diagram



Specifications

Analog Video Input:

Standard: Any analog video format up to 2Vp-p and 30MHz bandwidth

Number of Inputs: 1

Connector: 1 BNC per IEC 60169-8 Amendment 2

Equalization: None

Common mode range: 6Vp-p

CMRR: >75dB at 60Hz

>45dB at 100kHz

Return Loss: >30dB up to 30MHz

Signal Amplitude: 2.5Vp-p max

Analog Video Outputs:

Number of Outputs: 4 per card

Connector: BNC per IEC 60169-8 Amendment 2

Gain Level: 1x +3.5dB, -2.5dB

DC Offset: OV \pm 200mV (Adjustable)

Electrical:

Voltage: +12VDC

Power: 1.2 Watts

EMI/RFI: Complies with FCC Part 15, Class A, EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7700ADA Analog Video Distribution Amplifier

Ordering Options

Rear Plate must be specified at time of order

Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Dual Analog Audio Distribution Amplifier

Model 7700ADA-AUD

The 7700ADA-AUD Dual Analog Audio distribution amplifier is a general purpose amplifier for distributing analog audio signals. It can be operated as two independent 4 output amplifiers for stereo signals, or as a single amplifier with 8 outputs where higher fanout is required. The 7700ADA-AUD can be operated with either differential or single ended inputs and offers a wide range of gain adjustment to handle a wide variety of input signals.

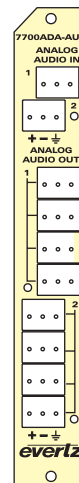
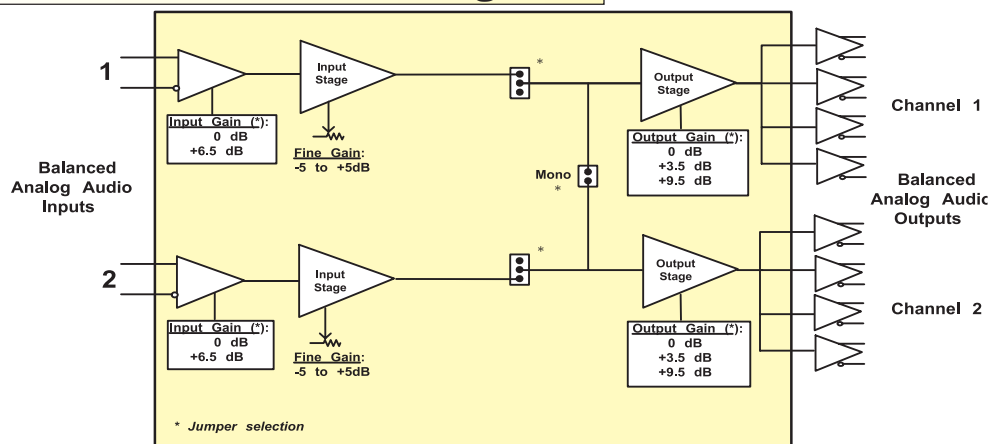
Features

- Differential and single ended input (automatic single ended to differential conversion)
- Configurable for stereo or mono
- High impedance input
- Low impedance outputs
- Wide gain adjustment range
- High common mode range and common mode rejection ratio (CMRR)
- Very high SNR
- Very low THD+N

Card Edge LEDs

- Module status/Local fault

7700ADA-AUD Block Diagram



Specifications

Analog Audio Input:

Standards:	Any analog audio signal
Number of inputs:	2 (Balanced or Single ended)
Connectors:	3 pin removable terminal strips
Input step gain:	0 dB or +6.5 dB (configurable with jumpers)
Fine gain control:	-6.5 to +9.5dB (card edge pot adjustable)
Maximum input level:	
0 dB input gain	+34 dBu
+6.5 dB input gain	+28 dBu
Noise floor:	-87 dBu (0 dB input gain), -91 dBu (+6.5 dB input gain jumper setup)
Common mode rejection:	> 115 dB @ 60 Hz, 90 dB @ 20 kHz (tested with +28 dBu CM input)
Common mode range:	
0 dB input gain	> ± 22 V
+6.5 dB input gain	> ± 7 V
Input impedance:	
0 dB input gain	33 k Ω
+6.5 dB input gain	15 k Ω

Analog Audio Outputs:

Number of Outputs:	
Stereo Mode:	4 outputs each on left and right channels
Mono Mode:	8 Outputs
Connectors:	3 pin removable terminal strips
Output step gain:	0, 3.5 or 9.5 dB (configurable with jumpers)
Maximum output level:	+28 dBu across hi-impedance load +24 dBm into 600 Ω load
Output impedance:	66 Ω
Frequency Response:	± 0.02 dB 20 Hz to 20 kHz
Stereo phase mismatch:	< 1° @ 20 kHz
SNR:	
0dB input gain	115 dB
+6.5 dB input gain	119 dB

THD+ Noise:	0.001% 20 Hz to 20 kHz @ 28 dBu, unweighted RMS, Hi-Z load 0.01% with 600 Ω up to 24dBm
Intermodulation Distortion:	0.001% - SMPTE @ 18 dBu
Stereo crosstalk:	>115 dB @ 1 kHz, >93 dB @ 20 kHz
Output Isolation:	> 110 dB @ 1 kHz, 100 dB @ 20 kHz

Electrical:

Voltage:	+12VDC
Power:	12 Watts
EMI/RFI:	Complies with FCC Part 15, Class A, EU EMC Directive

Physical:

Number of Slots:	1
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Ordering Information:

7700ADA-AUD	Dual Analog Audio Distribution Amplifier
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Analog Video Equalizing Distribution Amplifier

7700ADA-EQ

The 7700ADA-EQ Equalizing Analog Distribution Amplifier is a general purpose amplifier for distributing analog video signals. The 7700ADA-EQ features one balanced equalized input with four outputs. The 7700ADA-EQ amplifier has been designed to distribute a wide range of analog video signals. It can also distribute other pulses and signals that do not exceed 2Vp-p.

Features

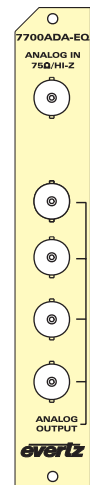
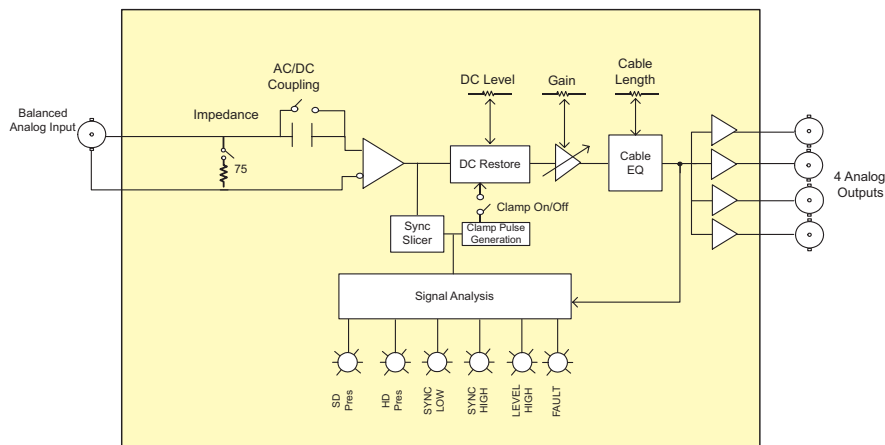
- 75 Ω or high impedance input (jumper selectable)
- High common mode range and common mode rejection ratio (CMMR)
- Gain control
- Jumper selectable AC or DC coupling
- Jumper selectable fast or slow back porch clamp
- DC level control when clamp is enabled
- Cable equalizer adjustment range: 0 to 300m of 8281 or 1694

- Looping feature with external "T" connector
- Consistent input impedance if card power is lost

Card Edge LEDs:

- Module status/Local Fault
- Power supply back status
- EQ Warning

7700ADA-EQ Block Diagram



Specifications

Analog Video Input:

Standards:	Any analog video format, up to 2Vp-p and 30MHz bandwidth
Connector:	1 BNC per IEC 60169-8 Amendment 2
Common mode range:	>6Vp-p
CMRR:	>70dB to 1kHz
Signal amplitude:	2.5Vp-p max
Cable equalizer:	0 to 300m of Belden 8281 or 1694 cable
Impedance:	75 Ω terminated, 35k Ω Hi-Z (jumper selectable)
Coupling:	AC or DC (jumper selectable)
Return loss:	> 40dB to 10MHz, >30dB to 30MHz
Clamp range:	>+/- 600mV
Fast clamp attenuation of 60Hz:	>36dB

Analog Video Outputs:

Number of Outputs:	4 Per Card
Connector:	BNC per IEC 60169-8 Amendment 2
Output impedance:	75 Ω
Gain control range:	\pm 5dB
DC level:	< +/- 100mV (with DC Coupling active and back porch clamp disabled)
DC level Control range:	< +/- 200mV (with back porch clamp enabled)
Freq. Response:	< \pm 0.05dB no equalization (to 5.5MHz) < \pm 0.09dB for 5 to 100m Belden 8281 or 1694 (to 5.5MHz) < \pm 0.15dB for 100 to 300m Belden 8281 or 1694 (to 5.5MHz) < 0.17 % 0 to 300m
Differential Gain:	< 0.19 deg 0 to 300m
Differential Phase:	< +/- 0.1% for all cable lengths
C/L gain inequality:	

C/L Delay:	< +/- 2ns
Output isolation:	>42dB to 10MHz, >32 dB to 30MHz
Output return loss:	>40dB to 30MHz
Noise performance:	< -78dB RMS NTC7 weighting, < -70dB RMS 15kHz to 5.5MHz

Electrical:

Voltage:	+12VDC
Power:	1.2 Watts
EMI/RFI:	Complies with FCC Part 15, Class A, EU EMC Directive

Physical:

Number of Slots:	1
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Ordering Information:

7700ADA-EQ	Analog Video Equalizing Distribution Amplifier
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

143-540 Mb/s, DVB-ASI, SMPTE 310M Reclocking Distribution Amplifier

Model 7700DA7

The 7700 series Distribution Amplifier provides inexpensive distribution of your serial digital video signal at rates of 19.4 Mb/s and 143 Mb/s to 540 Mb/s. The 7700DA7 features an auto-equalized input with seven reclocked outputs. The 7700DA7 has been designed for use as a SMPTE 310M (19.4 Mb/s), DVB-ASI, M2S or SMPTE 259M distribution product. SMPTE 310M support is selected by setting a rate select jumper.

Features

- Supports up to 540Mb/s operation
- DVB-ASI compatible
- Non reclocking mode for SMPTE 310M
- Features independent isolated output drivers to ensure no cross channel loading effects (i.e. no need to terminate unused outputs)
- VistaLINK™ control

Card Edge LEDs:

- Signal presence
- Module Health Status

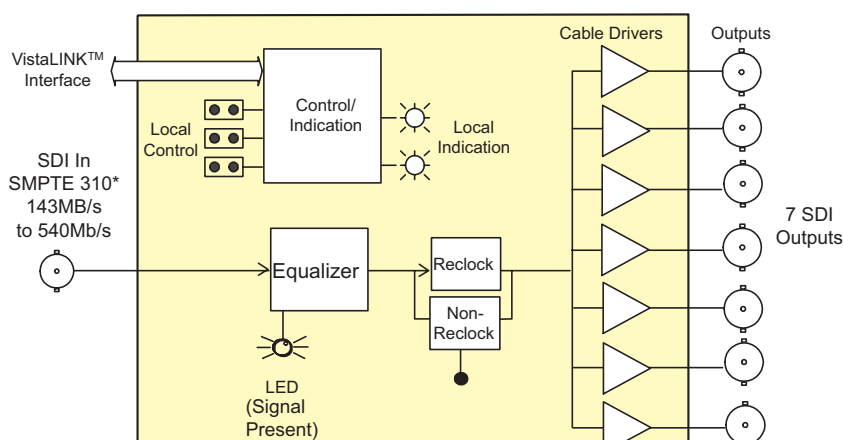
Input:

- SMPTE 259M (143 Mb/s to 540Mb/s), DVB-ASI, M2S, SMPTE 310M (19.4 Mb/s) - Non-reclocking mode
- Return loss > 15dB up to 540Mb/s
- 300m auto eq. at 270Mb/s (Belden 8281)
- 210m auto eq. at 540Mb/s (Belden 8281)

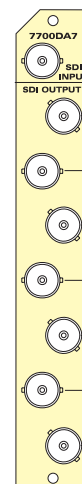
Outputs:

- 7 reclocked outputs
- Return loss > 15dB up to 540Mb/s
- Wideband jitter < 0.2 UI

7700DA7 Block Diagram



*Note: Non-Reclocking Mode will operate 19.4Mb/s to 540Mb/s



Specifications

Serial Video Input:

Standard: SMPTE 259M A, B, C, D, DVB-ASI, M2S, SMPTE 310M (19.4Mb/s-jumper selected)
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 300m @ 270Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15dB up to 540Mb/s

Serial Video Output:

Number of Outputs: 7
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: 740ps nominal
Overshoot: <10% of amplitude
Return Loss: >15 dB up to 540Mb/s
Wideband Jitter: <0.2 UI

Physical:

Number of Slots: 1

Electrical:

Voltage: +12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7700DA7 143-540 Mb/s, DVB-ASI, SMPTE 310M, M2S
Reclocking Distribution Amplifier (with 7 outputs)

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD SDI Reclocking Distribution Amplifier

Model 7700DA7-HD

The 7700 HD series Distribution Amplifiers provide reliable distribution of your 1.5 Gb/s HDTV serial digital signal. The 7700DA7-HD features one auto-equalized input with seven reclocked outputs. The 7700DA7-HD is housed in the Evertz 7700FR-C Multiframe, which is available in either a 3RU or 1RU version. The DA has been designed to reclock at 1.5Gb/s and 270Mb/s. However, in non-reclocking mode it can also be used as a SMPTE 310M distribution product.

Features

- Reclocking mode for SMPTE 292M (1.5 Gb/s), SMPTE 259M (270Mb/s), DVB-ASI or HD/SD auto sensing
- Non-reclocking mode for SMPTE 310M DA (nominal 19.4 Mb/s to 1.5Gb/s)
- VistaLINK™ control

Status LEDs:

- Signal presence
- Module Health Status

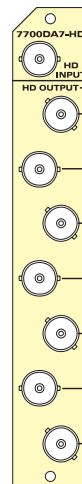
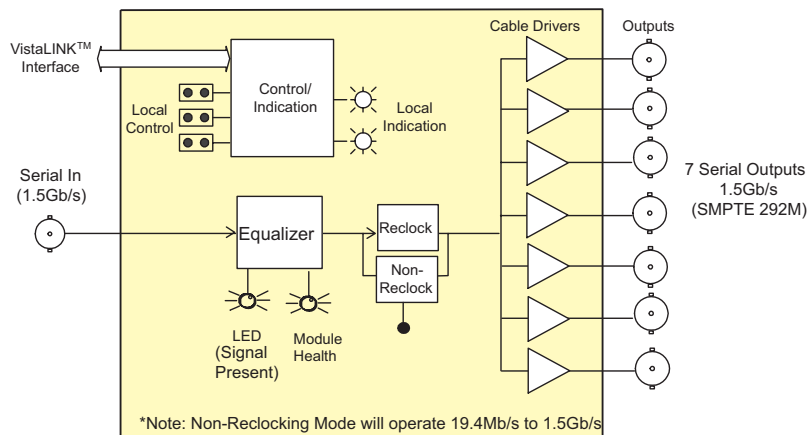
Input:

- SMPTE 292M (1.5 Gb/s) Reclocking mode
- SMPTE259M (270Mb/s) DVB-ASI - Reclocking mode
- SMPTE 310M - Non-reclocking mode
- Auto equalization to 130m (Belden 1694)

Output:

- 7 reclocked outputs
- Wideband jitter <0.2UI

7700DA7-HD Block Diagram



Specifications

Serial Video Input:

Standard:	SMPTE 292M, SMPTE 259M-A, B, C, D, DVB-ASI or M2S
In Non-Reclock Mode:	SMPTE 310M
Connector:	1 BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 130m @ 1.5Gb/s with Belden 1694 (or equivalent)
Return Loss:	>15dB to 1.56 Gb/s,

Serial Video Outputs:

Number of Outputs:	7 Per Card
Standard:	SMPTE 292M, SMPTE 259M-A, B, C, D M2S, DVB-ASI
In Non-Reclock Mode:	SMPTE 310M
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	200ps nominal
Overshoot:	<10% of amplitude
Return Loss:	>15dB to 1.56 Gb/s
Wideband jitter:	<0.2UI

Physical:

Number of Slots:	1
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Electrical:

Voltage:	+ 12V DC
Power:	5 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Ordering Information:

7700DA7-HD	HD/SD SDI reclocking DA, 7 outputs
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

143-540 Mb/s, SMPTE 310M Reclocking Distribution Amplifier

Model 7700DA10

The Evertz 7700DA10 Distribution Amplifier provides inexpensive distribution of your serial digital signal at rates of 19.4Mb/s and 143Mb/s to 540Mb/s. The DA features an auto-equalized input with ten reclocked outputs.

Although the 7700DA10DA has been designed for use as a reclocking SMPTE 259M distribution product, it also supports SMPTE310M (19.4Mb/s), DVB-ASI (270Mb/s) and M2S. SMPTE 310M support is selected by setting a rate select jumper.

Features

- Mode to run SMPTE 310M (nominal 19.4Mb/s with reclocking)
- Six of ten outputs are DVB-ASI compliant
- Supports up to 540Mb/s operation
- Tally output upon loss of input signal for quality monitoring

Card Edge LEDs:

- Signal presence
- Max. equalization warning
- Module health status

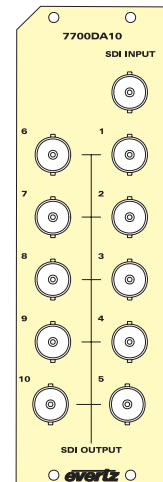
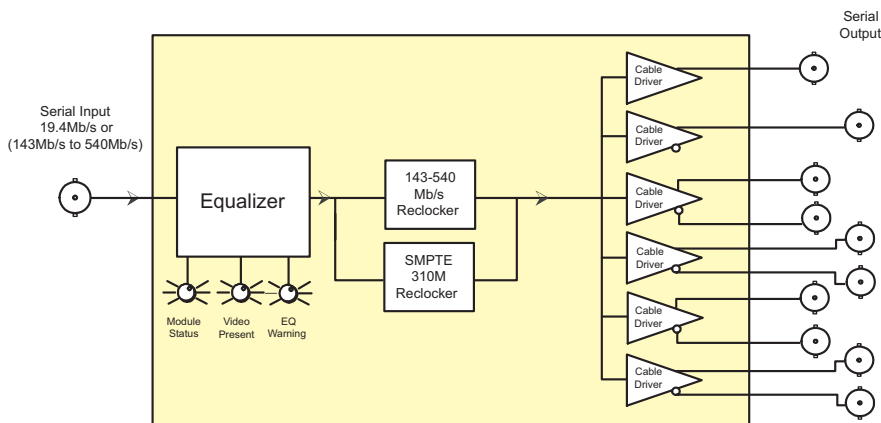
Input:

- SMPTE 259M (143Mb/s to 540Mb/s), SMPTE 310M (19.4Mb/s), DVB-ASI (270Mb/s) and M2S compliant
- Return loss >15dB up to 540Mb/s
- 300m auto eq. at 270Mb/s (Belden 8281)
- 200m auto eq. at 540Mb/s (Belden 8281)

Outputs:

- 10 reclocked outputs
- 6 DVB-ASI/M2S compliant outputs
- Return loss > 15dB up to 540Mb/s
- Wideband jitter <0.2UI

7700DA10 Block Diagram



Specifications

Serial Video Input:

Standard:

- 259 Mode:** SMPTE 259M A, B, C, D (143-540Mb/s), DVB-ASI (270Mb/s) or M2s
- 310 Mode:** SMPTE 310M (19.4Mb/s)

Serial Video Output:

- Number of Outputs:** 10
- Number of DVB-ASI Compliant Outputs:** 6
- Connector:** BNC per IEC 60169-8 Amendment 2
- Signal Level:** 800mV nominal
- DC Offset:** 0V ± 0.5V
- Rise and Fall Time:** 470ps nominal
- Overshoot:** <10% of amplitude
- Return Loss:** >15 dB to 540Mb/s
- Wideband Jitter:** <0.2 UI

Physical:

- Number of Slots:** 2

Electrical:

- Voltage:** +12V DC
- Power:** 6 Watts
- EMI/RFI:** Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

- 7700DA10** 143-540 Mb/s, SMPTE 310M, DVB-ASI, M2S
Reclocking Distribution Amplifier (with 10 outputs)

Ordering Options

- Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

- +3RU** 3RU Rear Plate for use with 7700FR-C Multiframe
- +1RU** 1RU Rear Plate for use with 7701FR Multiframe
- +SA** Standalone Enclosure Rear Plate

Enclosures:

- 7700FR-C** 3RU Multiframe which holds 15 modules
- 7701FR** 1RU Multiframe which holds 3 modules
- S7701FR** Standalone enclosure

143-540 Mb/s, DVB-ASI, SMPTE 310M Reclocking Distribution Amplifier

Model 7700DA

The Evertz 7700 series Distribution Amplifier provides inexpensive distribution of your serial digital video signal at rates of 19.4 Mb/s and 143 Mb/s to 540 Mb/s. The DA features an auto-equalized input with four reclocked outputs. The 7700DA has been designed for use as a SMPTE 310M (19.4 Mb/s), DVB-ASI, M2S or SMPTE 259M distribution product. SMPTE 310M support is selected by setting a rate select jumper.

Features

- Mode to run SMPTE 310M DA (nominal 19.4 Mb/s with reclocking)
- Supports up to 540Mb/s operation
- DVB-ASI compatible
- Tally output upon loss of signal for quality monitoring
- Features independent isolated output drivers to ensure no cross channel loading effects (i.e. no need to terminate unused outputs)

Card Edge LEDs:

- Signal presence
- Max. Equalization Warning
- Module Health Status

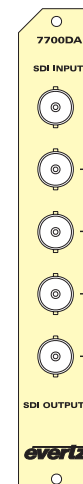
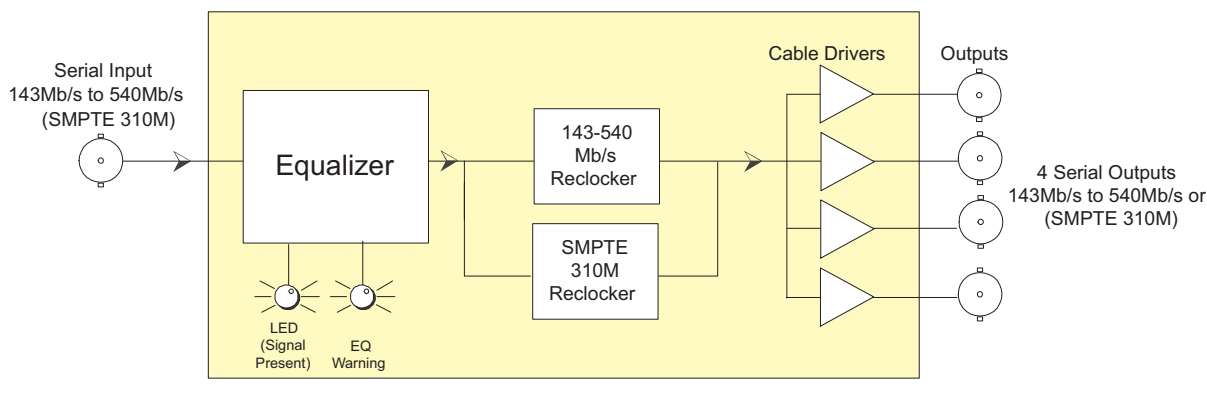
Input:

- SMPTE 259M (143 Mb/s to 540Mb/s), DVB-ASI, M2S, SMPTE 310M (19.4 Mb/s)
- Return loss > 15dB up to 540Mb/s
- 300m auto eq. at 270Mb/s (Belden 8281)
- 210m auto eq. at 540Mb/s (Belden 8281)

Outputs:

- 4 reclocked outputs
- Return loss > 15dB up to 540Mb/s
- Wideband jitter < 0.2 UI

7700DA Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M A, B, C, D, DVB-ASI, M2S, SMPTE 310M (19.4Mb/s-jumper selected)
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 300m @ 270Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15dB up to 540Mb/s

Serial Video Output:

Number of Outputs: 4 Per Card Reclocked
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 740ps nominal
Overshoot: <10% of amplitude
Return Loss: >15 dB up to 540Mb/s
Wideband Jitter: <0.2 UI

Physical:

Number of Slots: 1

Electrical:

Voltage: +12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7700DA 143-540 Mb/s, DVB-ASI, SMPTE 310M, M2S
Reclocking Distribution Amplifier (with 4 outputs)

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Auto Equalizing Balanced AES Distribution Amplifier

Model 7700DA-AESB

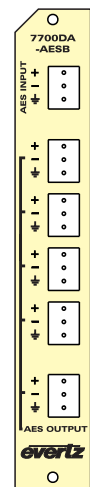
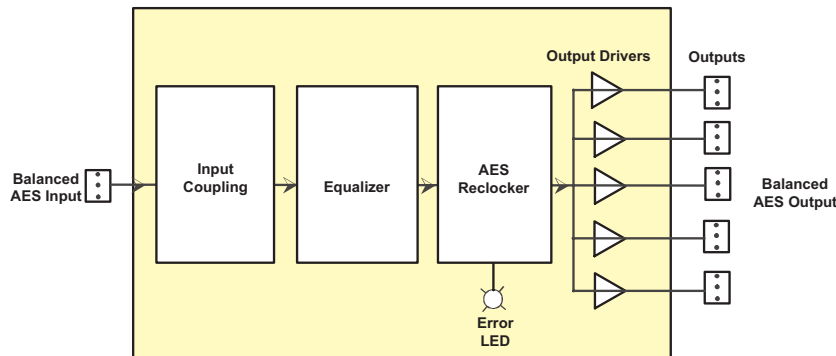
The 7700DA-AESB is a five output DA with auto equalizing input and reclocking for 110Ω balanced AES signals. The DA will automatically equalize AES signals on Belden 1800B cable when the drive signal is 7V p-p. The DA will reclock data with sampling frequencies of 32kHz, 44.1kHz, 48kHz and 96kHz.

The 7700DA-AESB card edge LED indicators provide quick and accurate assessment of the incoming signal integrity. The 7700DA-AESB also provides a contact closure output that can be configured using on-board jumpers to assert when an input error condition exists.

Features

- AES3-1992 standard for AES audio on 110Ω twisted pair cable
- Transformer coupled 110Ω balanced input (selectable Hi-Z)
- Data reclocking provides jitter reduction
- Automatic equalization
- EQ and reclock provide extended cable length compensation
- Five 110Ω balanced outputs
- Error LED indication for input PLL out of lock, parity error or biphasic coding error
- External indication of input error condition using contact closure output

7700DA-AESB Block Diagram



Specifications

AES Input:

Standard:	AES3-1992
Connector:	3 pin removable terminal strip
Number of inputs:	1
Input Level:	2 to 7V p-p
Coupling:	Transformer
Input Impedance:	110Ω (selectable Hi-Z)
Return Loss:	>14dB 100kHz to 6MHz
Equalization:	Automatic to 300m with Belden 1800B (or equivalent) @ 48kHz AES signal
Sampling Frequency:	32kHz, 44.1kHz, 48kHz and 96kHz

AES Output:

Number of Outputs:	5 Per Card Reclocked
Connector:	3 pin removable terminal strip
Output Level:	5 V p-p
Output Impedance:	110Ω
Return Loss:	30 dB 100 KHz to 6 MHz

Electrical:

Voltage:	+12VDC
Power:	1.8 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of Slots:	1
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Ordering Information:

7700DA-AESB	Autoequalizing Balanced AES/EBU Distribution Amplifier
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Auto Equalizing Unbalanced AES/EBU Distribution Amplifier

Model 7700DA-AESU

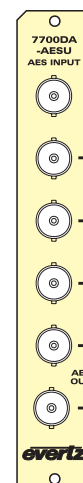
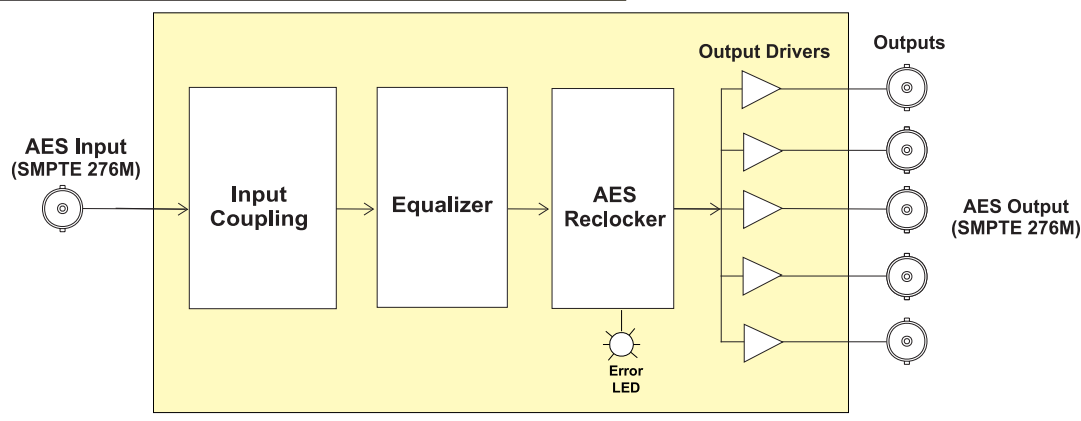
The 7700DA-AESU is a five output reclocking and auto equalizing DA for 75Ω unbalanced AES signals. The DA will automatically equalize AES signals on Belden 1694A coax to 1500m. The DA will reclock data with sampling frequencies of 32kHz, 44.1kHz, 48kHz and 96kHz.

The 7700DA-AESU card edge LED indicators provide quick and accurate assessment of the incoming signal integrity. The 7700DA-AESU also provides a contact closure output that can be configured using on-board jumpers to assert when an input error condition exists.

Features

- SMPTE 276M standard for AES audio on 75Ω coax
- Transformer coupled 75Ω unbalanced input (selectable Hi-Z)
- Data reclocking provides jitter reduction
- Automatic equalization
- EQ and reclock provide extended cable length compensation (>1500m)
- Five 75Ω coax outputs
- Error LED indication for input PLL out of lock, parity error or biphas coding error
- External indication of input error condition using contact closure output

7700DA-AESU Block Diagram



Specifications

AES Input:

Standard: SMPTE 276M (jumper selectable)
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Input Level: 1V p-p
Coupling: Transformer
Input Impedance: 75Ω (Selectable Hi-Z)
Return Loss: >25dB at 100kHz to 6MHz
Equalization: Automatic to 1500m with Belden 1694A (or equivalent) @ 48kHz AES signal
Sampling Frequency: 32kHz, 44.1kHz, 48kHz and 96kHz

AES Output:

Number of Outputs: 5 Per Card Reclocked
Connector: BNC per IEC 60169-8 Amendment 2
Output Level: 1V p-p
Output Impedance: 75Ω
Return Loss: >25dB 100kHz to 6MHz

Physical:

Number of Slots: 1

Electrical:

Voltage: +12VDC
Power: 1.2 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7700DA-AESU Auto Equalizing Unbalanced AES/EBU Distribution Amplifier

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

DS3 Distribution Amplifier

7700DA-DS3

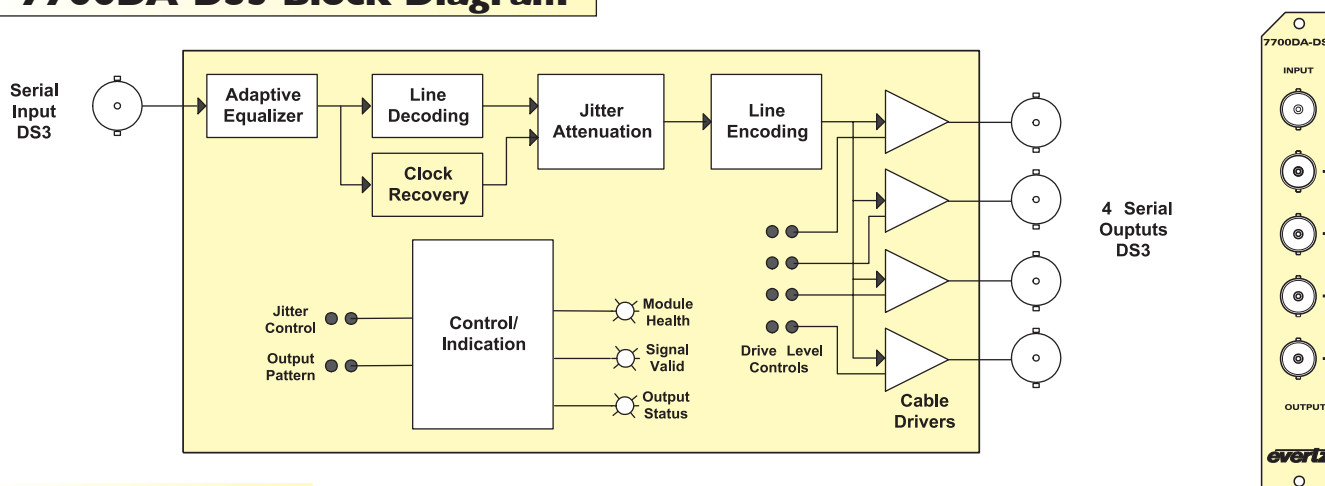
The 7700DA-DS3 Distribution Amplifier provides automatic coaxial cable equalization, reclocking and signal distribution of DS3 (44.736 Mb/s), signals. The 7700DA-DS3 accepts a B3ZS-encoded Alternate Market Inversion (AMI) input signal and provides four reclocked outputs.

The 7700DA-DS3 occupies one card slot and can be housed in either a 1RU frame that will hold up to three modules or a 3RU frame that will hold up to 15 modules

Features

- Supports DS3 (44.736 Mb/s)
- Accepts B3ZS AMI input signals
- Automatic cable equalization for up to 1000ft of high quality 75Ω cable
- Signal reclocking and optional jitter attenuator
- Output wave shaping for DS3 standards compliance
- High/Low output amplitude setting for long/short cable lengths
- Loss of signal (LOS) detection/indication
- Outputs 1's pattern generation upon loss of input signal
- Electrical output drive level control for enhanced distance
- Transformer coupled inputs/outputs
- Input/output transient protection

7700DA-DS3 Block Diagram



Specifications

Inputs:

Standard:	DS3 (44.7346 Mb/s)
Number of Inputs:	1
Connector:	Isolated BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 300m with Belden 8281 or equivalent cable
Return Loss:	> 20 dB up to 44 Mb/s

Outputs:

Number of Outputs:	4 Per Card Reclocked
Connector:	BNC per IEC 60169-8 Amendment 2
Waveform:	Conforms to G.703 compliant masks
Return Loss:	> 18 dB up to 44 Mb/s

Physical:

Number of Slots:	1
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Electrical:

Voltage:	+12VDC
Power:	6 Watts
EMI/RFI:	Complies with FCC Part 15, Class A Complies with EU EMC Directive

Ordering Information:

7700DA-DS3	DS3 Distribution Amplifier
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

HD SDI Reclocking Distribution Amplifier

Model 7700DA-HD / 7700DA8-HD

The 7700 HD series Distribution Amplifiers provide reliable distribution of your 1.5 Gb/s HDTV serial digital signal. The DA's feature one auto-equalized input with either four or eight reclocked outputs. The 7700 HD DA's are housed in the Evertz Multiframe, which is available in either a 3RU or 1RU version. The DA has been designed to reclock at 1.5Gb/s. However, in non-reclocking mode it can also be used as a SMPTE 292M, SMPTE 310M, DVB-ASI, M2S or SMPTE 259M distribution product.

Features

- Reclocking mode for SMPTE 292M (1.5 Gb/s) signals
- Non-reclocking mode for SMPTE 292M, SMPTE 310M DA (nominal 19.4 Mb/s), SMPTE 259M, DVB-ASI or M2S
- Tally output upon loss of signal for quality monitoring

Status LEDs:

- Signal presence
- Max. Equalization Warning
- Module Health Status

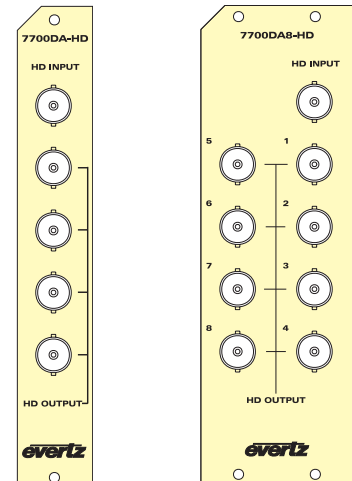
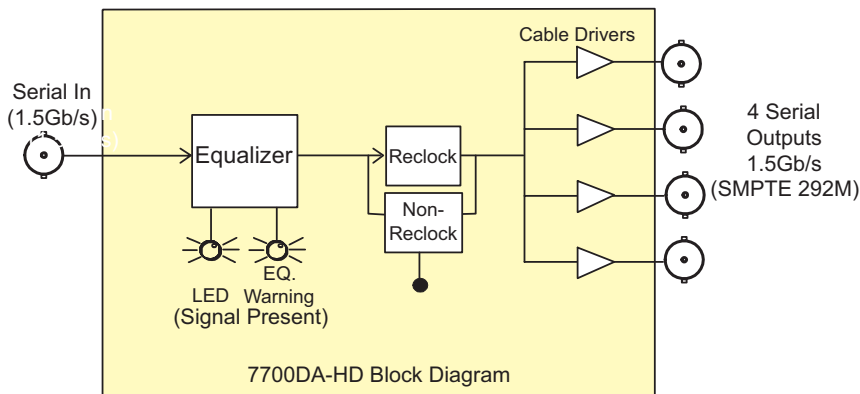
Input:

- SMPTE 292M (1.5 Gb/s) - Reclocking mode
- SMPTE 292M, SMPTE310M, SMPTE259M, M2S or DVB-ASI - Non-reclocking mode
- Auto equalization to 130m (Belden 1694)

Output:

- 4 or 8 reclocked outputs
- Wideband jitter <0.2UI

7700DA-HD / 7700DA8-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M
In Non-Reclock Mode: SMPTE 292M, SMPTE 310M, SMPTE 259M-A, B, C, D, DVB-ASI or M2S
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 130m @ 1.5Gb/s with Belden 1694 (or equivalent)
Return Loss: >15dB to 1.0 Gb/s, >12db up to 1.5 Gb/s

Serial Video Outputs:

Number of Outputs: 4 or 8 Per Card
Standard: SMPTE 292M
In Non-Reclock Mode: SMPTE 292M, SMPTE 310M, SMPTE 259M-A, B, C, D, M2S, DVB-ASI
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB to 1.0 Gb/s, >12db up to 1.5 Gb/s]
Wideband jitter: <0.2UI

Physical:

Number of Slots: 1 (7700DA-HD)
2 (7700DA8-HD)

Electrical:

Voltage: + 12V DC
Power: 5 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7700DA-HD HD SDI reclocking DA, 4 outputs
7700DA8-HD HD SDI reclocking DA, 8 outputs

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

VistaLINK™ Frame Controller



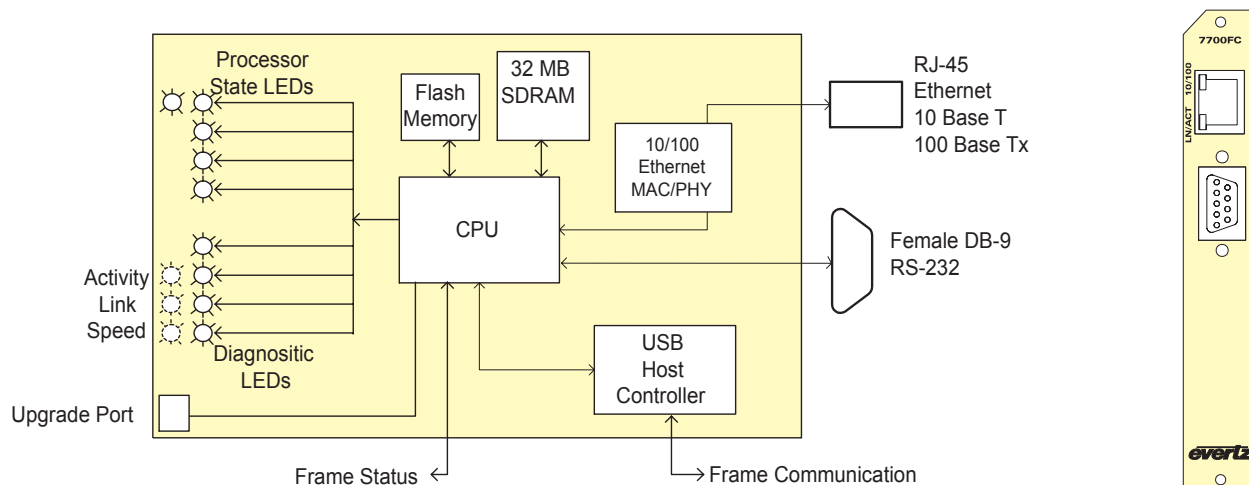
Model 7700FC VistaLINK™ Frame Controller

The 7700FC VistaLINK™ Frame Controller card provides a single point of access to communicate with VistaLINK™-enabled modules. The 7700FC VistaLINK™ Frame Controller provides a 10Base-T/100Base-TX Ethernet port and communication is facilitated through the use of Simple Network Management Protocol (SNMP). The 7700FC VistaLINK™ Frame Controller handles all SNMP communications between the frame (7700FR-C) and the network manager (NMS), and serves as a gateway to individual cards in the frame. The 7700FC VistaLINK™ Frame Controller also provides an RS-232 serial port interface for customer configurations.

Features

- Complies with IEEE 802.3 100Base-TX and 10Base-T Ethernet standards
- 100 Mbps Fast Ethernet or 10 Mbps Ethernet data transfer, selected by auto-negotiation
- Full duplex or half-duplex operation, selected by auto negotiation
- RJ-45 connector for network cable connection
- RS-232 serial control port for configuration
- Card edge LEDs indicate module fault, microprocessor state, activity and link status
- Rear panel LEDs indicate Ethernet link, activity and speed
- Supports "ftp" upgrades for frame-wide firmware upgrades (product specific)
- Includes VistaLINK™ PRO (VLPRO-C) module software configuration tool
- Provides frame/chassis status information through -enabled hardware via VistaLINK™ including power supply status, frame status, card insertion/removal counters, 7700FC software version number and LED control

Model 7700FC VistaLINK™ Frame Controller Block Diagram



Specifications

Ethernet:

Network Type: Fast Ethernet 100 Base-TX IEEE 802.3u standard for 100 Mbps baseband CSMA/CD local area network
Ethernet 10 Base-T IEEE 802.3 standard for 10Mbps baseband CSMA/CD local area network

Connector: RJ-45

Serial I/O:

Standard: RS-232

Connector: Female DB-9

Baud Rate: 57600

Format: 8 bits, no parity, 2 stop bits, no flow control

Electrical:

Voltage: + 12VDC

Power: 7 Watts

EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Physical:

Number of slots: 1 (must be in slot 1 of 7700FR-C)

Dimensions: 14 " L x 4.5 " W x 1.9 " H
(355 mm L x 114 mm W x 48 mm H)

Weight: approx. 0.5 lbs. (~0.2 kg)

Ordering Information:

7700FC: VistaLINK™ Frame Controller

Ordering Options:

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

Enclosure:

7700FR-C 3RU Multiframe only

Evertz Multiframes - 7700 Series

Model 7700FR-C, 7701FR or S7701FR



7700FR-C



7701FR



S7701FR (with rackmount tray)

The Evertz 7700FR-C, 7701FR & S7701FR Multiframes are ideal solutions to today's vast digital video and audio processing and distribution requirements. They provide flexibility to handle the high-speed requirements of HDTV as well as Analog and SDTV. The Multiframes support extraction of the modules from the front without compromising performance even at 1.5Gb/s. Hot extraction is supported on various types of interfaces including VIDEO, AUDIO and FIBER.

The 7700FR-C Multiframes are 3RU frames designed to house up to 15 single slot modules, the 7701FR Multiframe is a 1RU frame designed to house up to 3 single or dual slot modules both in various combinations and configurations and the S7701FR Multiframe is a single frame designed to house 1 single slot module or dual slot module.

Features

- Power supply and cooling fan are front extractable
- Houses up to 15 front loading processing modules with I/O for the 7700FR-C and 3 for the 7701FR
- Each slot has individually configurable inputs and outputs
- Monitoring window for verifying modules status and power supply status
- 7700FR-C can house a 7700FC VistaLINK™ Frame Controller in slot 1 which will allow for remote control and monitoring of VistaLINK™ - enabled products via SNMP over TCP/IP
- Frame status contact closure/open on power supply failure, fan failures and user selectable module alarms
- A relay based contact closure is provided with common, ground, normally open and normally closed contacts

- High-speed bussing and control system provided for modular applications
- No recabling required when hot swapping modules
- Optional redundant power supply for the 3RU 7700FR-C and 1RU 7701FR
- 7700FR-C may be ordered with 48VDC power supplies

Single Module Standalone Enclosure:

- Portable
- Powered by an external 12V DC adapter (included)
- Supports both single slot and dual slot modules
- Optional rack mount panel mounts 3 S7701FR enclosures in 1RU rack space

Evertz Multiframes - 7700 Series

Specifications

Electrical :

Power Supply Configuration:

7700FR-C:	Dual, redundant, separate AC inlets
7700FR-C-48VDC:	Dual, redundant, separate DC inlets on terminal strips
7701FR:	Standard single, optional external redundant
S7701FR:	External power supply adapter

Voltage:

7700FR-C:	Auto ranging, 100 to 240 VAC, 50/60 Hz
7700FR-C-48VDC:	36V to 60VDC
7701FR:	Auto ranging, 100 to 240 VAC, 50/60 Hz
S7701FR:	12VDC Nominal Auto ranging, 100 to 240VAC power adapter included

Maximum Power Dissipation:

7700FR-C:	200 W
7700FR-C-48VDC:	200 W
7701FR:	80 W
S7701FR:	30 W

Fuses:

7700FR-C:	4 amp, 250 Volt time delay 5x20mm - line and neutral
7700FR-C-48VDC:	10 amp, 250 Volt time delay 5x20mm
7701FR:	2 amp, 250 Volt time delay 5x20mm - line and neutral
S7701FR:	Internal self resetting fuse

Connectors:

7700FR-C:	IEC 60320
7700FR-C-48VDC:	3 position terminal strip
7701FR:	IEC 60320
S7701FR:	2.5 mm DC power jack

Certification:

Safety:	ETL Listed Complies with EU Safety Directive
EMC:	Complies with FCC part 15, Class A Complies with EU EMC Directives

Front Panel Indicators:

PSU status LED, Local Error/Failure

Tally Output:	4 pin terminal, relay N/O, N/C for status/fault alarm
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Physical:

Dimensions:

7700FR-C:	19"W x 5.25"H x 14.5"D (483mm W x 133mm H x 368mm D)
7700FR-C-48VDC:	19"W x 5.25"H x 14.5"D (483mm W x 133mm H x 368mm D)
7701FR:	19"W x 1.75"H x 14.5"D (483mm W x 45mm H x 368mm D)
S7701FR:	5"W x 1.75"H x 14.5"D 127mm W x 45mm h x 368mm D

Temperature:	0-40°C optimal performance 0-50°C operating
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Module Capacity:

7700FR-C:	15 single slot modules
7700FR-C-48VDC:	15 single slot modules
7701FR:	3 single or dual slot modules
S7701FR:	1 single or dual slot module

Weight:

7700FR-C:	32 lbs. (14.5 Kg) (Full) 17.4 lbs (8 Kg) (Empty)
7700FR-C-48VDC:	32 lbs. (14.5 Kg) (Full) 17.4 lbs (8 Kg) (Empty)
7701FR:	10 lbs. (14.5 Kg) (Full) 7 lbs. (3.1 Kg) (Empty)
S7701FR:	1.3 lbs. (.58 Kg)

Ordering Information:

7700FR-C	3RU Multiframe which holds up to 15 single slot modules with AC power supply
7700FR-CR	3RU Multiframe which holds up to 15 single slot modules without power supply
7700FR-C-48VDC	3RU Multiframe which holds up to 15 single slot modules with 48DC power supply
7701FR	1RU Multiframe which holds up to 3 single or dual slot modules
S7701FR	Standalone frame which holds 1 single slot or 1 dual slot module with power supply (Must order +SA for rear plate separately)

Ordering Options and Accessories:

For 7700FR-C & 7700FR-C-48-VDC Frames:

+7PS	Redundant power supply for 7700FR-C
7700PS	Additional power supply for 7700FR
+48PS	Redundant power supply for 7700FR-C-48VDC
7700PS-48VDC	Additional power supply for 7700FR-C-48VDC

For 7701FR Frame:

+PSX	Optional external redundant power supply for 7701FR when ordered with frame
7701PSX	Optional external power supply for 7701FR for existing hardware
7701PS	Internal power supply for 7701FR (replacement or spare orders only)

For S7701FR Frame:

S7701P	Rear connector plate for Standalone frame (price applies when ordered separately; discounted when ordered with module)
S7701FR-RP	Rackmount panel mounts 3 S7701FR enclosures in 1RU rack space

Note: Some 7700 series modules cannot be accommodated in the 1RU standalone enclosure. See individual product brochure or contact factory.

VistaLINK™ General Purpose (GPI I/O) Interface Module

Model 7700GPI



The 7700GPI VistaLINK™ General Purpose Interface module links third-party equipment and Evertz VistaLINK™ Network Management System (NMS). Third-party equipment with fault alarming capabilities through General Purpose Interface outputs (GPO) can communicate fault alarm conditions to the VistaLINK™ application software through this GPO to SNMP translator thereby extending fault monitoring capabilities across the broadcast network.

Equipped with a Linear Time Code (LTC) input, the 7700GPI module can synchronize logged fault alarms within the VistaLINK™ application software with the facility clock for accurate alarm acknowledgement and record-keeping. In addition it is possible to label each GPI input for easier notification. The label follows the fault message (trap) through to the VistaLINK™ PRO server and onto email/pager notifications (if enabled).

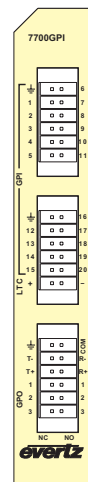
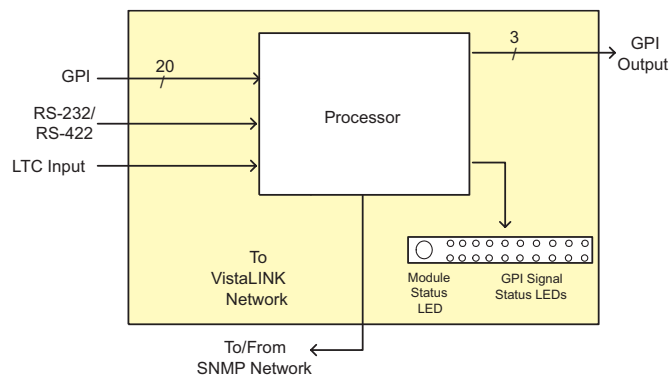
The GPI module is also equipped with three NC/NO GPI outputs (GPO) and can be utilized to relay a "message" from the VistaLINK™ system to connect-eed gear. Configuration changes or additional fault alarming are possible through this interface.

VistaLINK™ offers remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP) giving the flexibility to manage operations, including signal monitoring and module configuration from SNMP-enabled control systems (Manager or NMS).

Features

- 20 opto-isolated General Purpose Interface inputs (GPI)
- Enabled GPI inputs/alerts translated and reported to Network Management System (NMS) user interface via SNMP
- Selectable +5V or +12V supply for driving GPI over longer cable runs
- 3 relay closure General Purpose Interface outputs (GPO)
- GPI/GPO easily accessed through pin-headers (2x6 Phoenix Terminal Blocks) on rear plate
- 1 LTC input for module synchronization of fault alarms to facility time
- Modular, conveniently fits into 7700FR-C 3RU frame
- Module status LED and 20 GPI LEDs for simple GPI input diagnostics
- Frame status trigger
- Jumper-configurable RS-232/RS-422 input serial COM port for serial protocol interface translation
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

7700GPI Block Diagram



Specifications

General Purpose Interface Input:

Number of Inputs: 20
Type: Opto-isolated, active low with jumper selectable +5V or +12V supplied voltage
Connector: Phoenix Terminal Block (2x6)
Signal Level: Jumper selectable +5V or +12V

General Purpose Interface Output:

Number of Outputs: 3
Type: "Dry Contact" relay closure
Connector: 2 pins per output on Phoenix Terminal Block (2x6)
Signal Level: Normally closed and normally open

LTC Input:

Number of Inputs: 1(+/- pair)
Type: Balanced
Level: 100 mVp-p
Connector: Phoenix Terminal Block pins (2x6)

Data Input Serial Port:

Number of Ports: 1 RS-232 or 1 RS-422 (jumper selectable)
Connector: Phoenix Terminal Block pins (2x6)

Baud Rate: Up to 1 Mbaud
Electrical:
Voltage: + 12VDC
Power: <6W
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:
Number of slots: 1

Ordering Information:

7700GPI VistaLINK™ General Purpose Interface

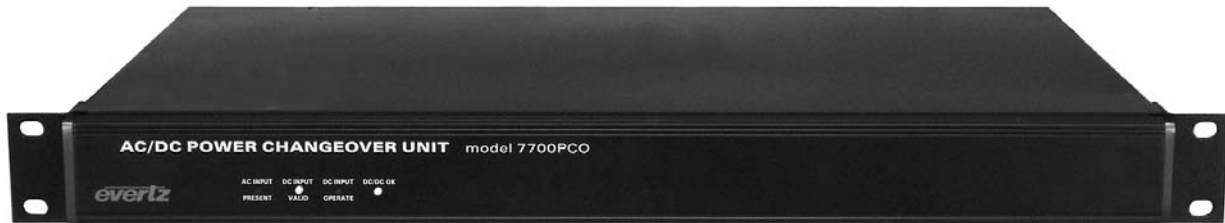
Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

Enclosures:
7700FR-C 3RU Multiframe which holds 15 modules

Model 7700PCO



The 7700PCO is a 1 rack-unit high rack frame designed to fit into a standard 19-inch rack. Special care was taken during the design process to ensure that the unit meets the demanding needs of professional video users and applications. It is intended to be used only with Evertz's line of 7700 Multiframe to provide reliable and high quality back-up power switching. This is ideal for remote applications where main power can be intermittent or where a program feed must be guaranteed at all times.

Features

- Seamless, auto switching to external DC supply in case of AC failure
 - Standard AC input cord
 - Fused DC input on terminal block
 - Direct output connection to 7700 frame power supplies
 - Dual power outlets to 7700 frame
 - Front panel status LED's
 - 30 minutes operation on fully loaded 7700 frame (200 Watt) with dual Anton Bauer Hytron 100 batteries (requires quad battery holder), 60 minutes operation on 100 Watt load (7700 frame about half full dependent on card types)
- NOTE:**
Operation times dependent upon type of battery used.
Operation times will vary

Specifications

Electrical:

Power Supply

Configuration: Input A: Auto ranging, 95 ⇄ 264 VAC,
47-63 Hz

Input B: 10 ⇄ 18 VDC

Output: 115 ⇄ 370 VDC

Maximum Output

Power Dissipation: 300 Watts

Fuse: DC input fuse - rated for 32V min. at 40 amps

Status Indicators: AC Input Present LED (green)

Valid DC Present LED (green)

DC Operate LED (green)

DC/DC OK LED (green)

Temperature: 0 ⇄ 55°C ambient

Physical

Height: 1.75" (44.5 mm)

Width: 19" (483 mm)

Depth: 11.2" (285 mm)

Weight: Approx. 7 lbs (3.2 Kg)

Ordering Information:

Note: Enclosure with side mount flanges ships standard

7700PCO	Power Changeover Unit
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Ordering Options:

IRCBH+AB	Anton Bauer Quad Battery Holder
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SDI Monitoring Reclocking Distribution Amplifier



Model 7700VMDA/7700VMDA-2Q

The 7700VMDA Reclocking Distribution Amplifier provides inexpensive distribution and composite encoder monitoring of your SMPTE 259M (270MB/s) serial digital video signal. The 7700VMDA features an auto-equalized input with seven outputs that can be selected as either SDI or composite analog. The 7700VMDA-2Q has 2 channels, each with 3 selectable outputs. The 7700VMDA, in conjunction with the 7710DCDA-HD provides an upgrade path for monitoring future HD SDI signals without having to re-wire your installation.

The 7707VMDA occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- Features independent isolated output drivers to ensure no cross channel loading effects (i.e. no need to terminate unused outputs)

Card Edge LEDs:

- Signal presence
- Module Health Status

Input:

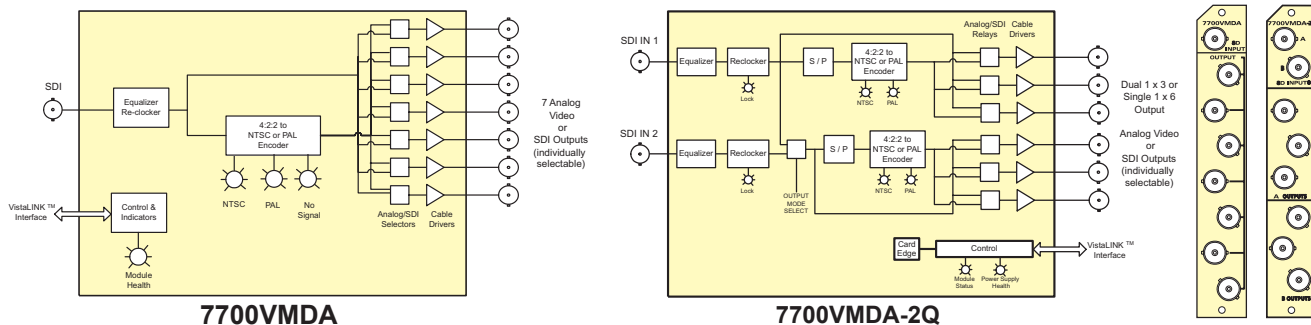
- SMPTE 259M
- Return loss > 15dB up to 540Mb/s
- 300m auto eq. at 270Mb/s (Belden 8281)

Outputs:

- Selectable reclocked/composite encoder outputs
- Return loss > 15dB up to 540Mb/s
- Wideband jitter < 0.2 UI

- VistaLINK™ -enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller

7700VMDA/7700VMDA-2Q Block Diagrams



Specifications

Serial Video Input:

Standard: SMPTE 259M
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 300m @ 270Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15dB up to 540Mb/s

Serial Video Output:

Number of Outputs: Up to 7 (jumper selectable)(7700VMDA)
3 per channel (7700VMDA-2Q)
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: 740ps nominal
Overshoot: <10% of amplitude
Return Loss: >15 dB up to 540Mb/s
Wideband Jitter: <0.2 UI

Analog Video Output:

Number of Outputs: Up to 7 (jumper selectable)(7700VMDA)
3 per channel (7700VMDA-2Q)
Standards: NTSC, SMPTE 170M if input is 525i/59.94
PAL-B ITY 624-4 if input is 625i/50
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 1 V p-p nominal
DC Offset: 0V ±0.1V
Return Loss: > 35 dB up to 5 MHz

Physical:

Number of Slots: 1

Electrical:

Voltage: +12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7700VMDA Video Monitoring Reclocking DA, 1 channel, 7 outputs
7700VMDA-2Q Video Monitoring Reclocking DA, 2 channels, 3 outputs per channel

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

2 x 1 RF Protection Switch for IF Frequencies



Model 7702BPX-IF & 7703BPX-IF

The 7702BPX-IF and 7703BPX-IF 2 x 1 RF protection switches for IF frequencies provide automatic changeover functionality to protect against link failure for RF signals from 10MHz to 850MHz. Typical applications include failover protection for 70/140MHz applications.

The 7703BPX-IF has integrated VistaLINK™ technology for remote control and monitoring capability via SNMP. This provides the ability to locally or remotely configure and monitor parameters such as module status, selected input, power level and switching threshold.

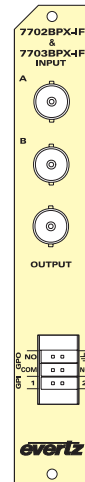
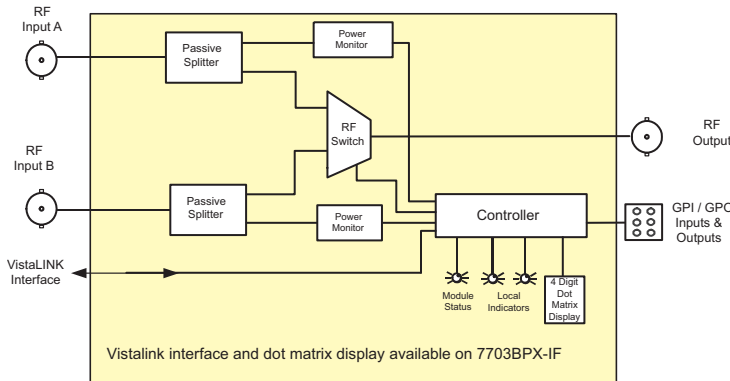
In the application of automatic changeover, the 7702BPX-IF and 7703BPX-IF can be configured to have a MAIN input and a STANDBY input. In this configuration, it will automatically switch to the Standby input when the Main input power is weak or lost. It can be also be configured to have auto or manual switch back to the Main input when the signal is re-established.

The 7702BPX-IF and 7703BPX-IF occupy one card slot and can be housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which holds up to 15 modules or a standalone enclosure which holds 1 module.

Features

- Wide operating frequency range, 10MHz to 850MHz
- Intelligent auto switching with input power detection
- User definable threshold levels on 7703BPX-IF version
- Maintains switch state and RF channel on loss of power to card or frame
- Supports automatic or manual control via GPI or SNMP on 7703BPX-IF
- Switch state indication via GPO
- Card edge LEDs indicate active input channels, output channel and power levels below threshold
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability on 7703BPX-IF version

Model 7702 & 7703BPX-IF Block Diagram



Specifications

RF Input/Output:

Inputs:	2
Outputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	75Ω
Frequency Response:	
10-200MHz	<±0.25dB
10-850MHz	<±0.5dB
Insertion Loss:	<4dB
Return Loss:	
10-200MHz	<15dB
10-850MHz	<17dB
Isolation:	>50dB (10-850MHz)
Input Power Range:	0dBm to -50dBm

General Purpose Inputs:

Number of Inputs:	2
Type:	Opto-isolated, active low with internal pull-ups to +5V
Connector:	2 pins plus ground on 6 pin terminal strip
Signal Level:	
+5V Pullup:	Low: -5 to +2.5 VDC, High: 3.5 to 10 VDC
+12V Pullup:	Low: -5 to +9.5 VDC, High: 10.5 to 15 VDC
Max Sink Current:	(input shorted to ground) 15 mA
Max Leakage Current for input High:	200 μA

General Purpose Outputs:

Number of Outputs:	1
Type:	"Dry Contact" relay contacts - normally open & normally closed contact provided

Connector: 3 pins on 6 pin terminal strip

Electrical:

Voltage:	+12V DC
Power:	3 Watts

Physical:

Number of Slots:	1
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Ordering Information:

7702BPX-IF:	2 x 1 RF Protection Switch for IF Frequencies
7703BPX-IF:	2 x 1 RF Protection Switch for IF Frequencies, with VistaLINK monitoring

Ordering Options

Rear Plate and optional connector type must be specified at time of order
Eg: Model +3RU (if 75Ω F-type connector required, order optional +F75)

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix:

+F75	75Ω, F-Type Rear Connector
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Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

2 x 1 RF Protection Switch for L band Frequencies

Model 7702BPX-LB & 7703BPX-LB



The 7702BPX-LB and 7703BPX-LB 2 x 1 RF protection switches for L-Band frequencies provide automatic changeover functionality to protect against link failure for RF signals from 950MHz to 2250MHz.

The 7703BPX-LB has integrated VistaLINK™ technology for remote control and monitoring capability via SNMP. This provides the ability to locally or remotely configure and monitor parameters such as module status, selected input, power level and switching threshold.

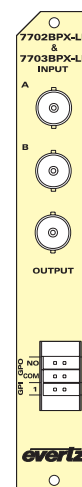
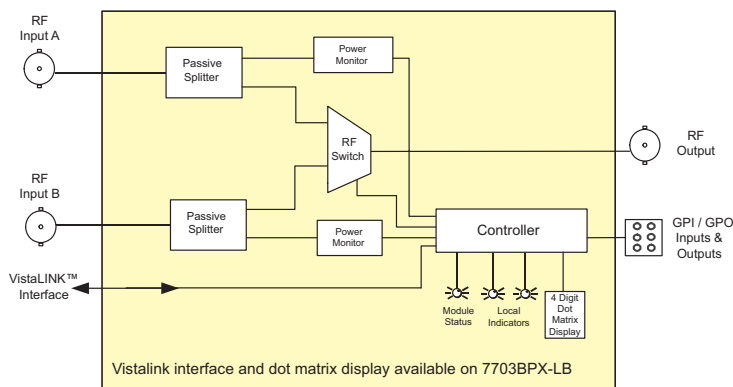
In the application of automatic changeover, the 7702BPX-LB and 7703BPX-LB can be configured to have a MAIN input and a STANDBY input. In this configuration, it will automatically switch to the Standby input when the Main input power is weak or lost. It can be also be configured to have auto or manual switch back to the Main input when the signal is re-established.

The 7702BPX-LB and 7703BPX-LB occupy one card slot and can be housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which holds up to 15 modules or a standalone enclosure which holds 1 module.

Features

- Wide operating frequency range, 950MHz - 2250MHz
- Intelligent auto switching with input power detection
- User definable threshold levels on 7703BPX-LB version
- Maintains switch state and RF channel on loss of power to card or frame
- Supports automatic or manual control via GPI or SNMP on 7703BPX-LB
- Switch state indication via GPO
- Card edge LEDs indicate active input channels, output channel and power levels below threshold
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability on 7703BPX-LB version

Model 7702 & 7703BPX-LB Block Diagram



Specifications

RF Input/Output:

Inputs:	2
Outputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	75Ω
Frequency Response:	
950MHz to 2250MHz	<±1.5dB
Insertion Loss:	<4dB
Return Loss:	>10dB
Isolation:	>50dB
Input Power Range:	0dBm to -50dBm

General Purpose Inputs:

Number of Inputs:	2
Type:	Opto-isolated, active low with internal pull-ups to +5V
Connector:	2 pins plus ground on 6 pin terminal strip
Signal Level:	
+5V Pullup:	Low: -5 to +2.5 VDC, High: 3.5 to 10 VDC
+12V Pullup:	Low: -5 to +9.5 VDC, High: 10.5 to 15 VDC
Max Sink Current:	(input shorted to ground) 15 mA
Max Leakage Current for input High:	200 μA

General Purpose Outputs:

Number of Outputs:	1
Type:	"Dry Contact" relay contacts - normally open & normally closed contact provided
Connector:	3 pins on 6 pin terminal strip

Electrical:

Voltage:	+12V DC
Power:	4 Watts

Physical:

Number of Slots:	1
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Ordering Information:

7702BPX-LB:	2 x 1 RF Protection Switch for L-Band Frequencies
7703BPX-LB:	2 x 1 RF Protection Switch for L-Band Frequencies, with VistaLINK™ Monitoring

Ordering Options

Rear Plate and optional connector type must be specified at time of order
Eg: Model +3RU (if 75Ω F-type connector required, order optional +F75)

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix:

+F75	75Ω, F-Type Rear Connector
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Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

10MHz-3GHz RF 1x4 Active Splitter

Model 7702DA4-RF & 7703DA4-RF



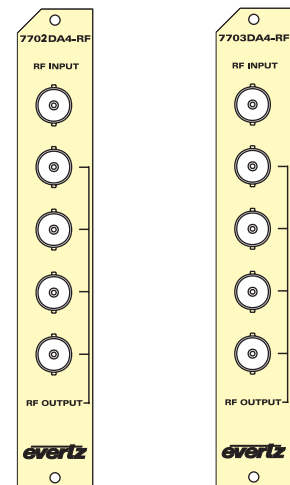
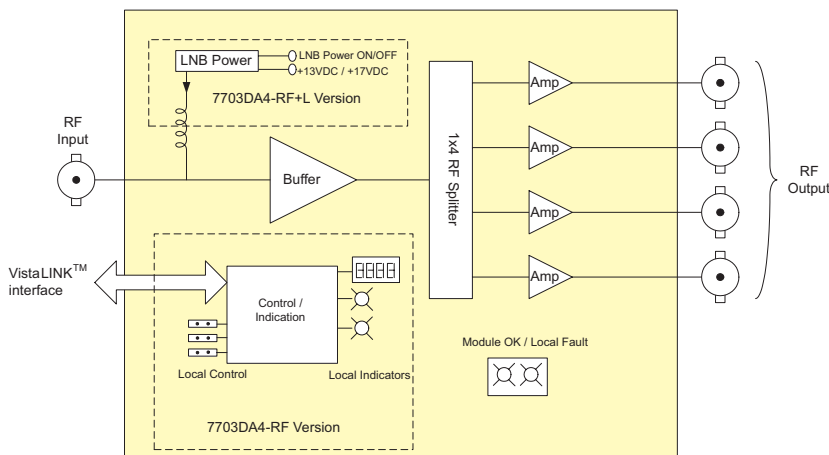
The 7702DA4-RF / 7703DA4-RF 1x4 Active Splitters provide inexpensive amplification and distribution of RF signals from 10MHz to 3GHz. The 7702DA4-RF / 7703DA4-RF handle any RF input modulation format and provide 4 buffered isolated outputs for further signal distribution. Typical applications include amplification and distribution of 950MHz - 2150MHz L Band and 70MHz-140MHz IF signals. Monitoring of RF input power, card status and control of gain / attenuation is provided remotely via Vistalink capability on the 7703DA4-RF version. Optional LNB power is available at the input connector on the 7703DA4-RF version.

The 7702DA4-RF / 7703DA4-RF occupy one card slot and can be housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which holds up to 15 modules or a standalone enclosure which holds 1 module.

Features

- Low noise amplification and distribution of RF signals from 10MHz to 3GHz
- Wide dynamic range (-10 to -60dBm)
- Adjustable output gain of -8dB to +14dB on 7703DA4-RF version. Fixed gain of 0dB on 7702DA4-RF version.
- Protocol independent - handles all modulation formats
- Input RF signal strength indication on 7703DA4-RF version
- Fully hot-swappable from front of frame
- Optional LNB power (at +13 or +17Vdc with built in current limiting) into RF input cable on 7703DA4-RF version
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability on 7703DA4-RF version only

7702DA4-RF & 7703DA4-RF Block Diagram



Specifications

RF Input:	
Connector:	1 BNC per IEC 60169-8 Amendment 2 (F-Type optional)
I/O Impedance:	75Ω
Return Loss:	>12dB
Input Frequency Range:	
Standard:	10MHz - 3GHz
+L option:	950MHz-3GHz
Input Power Range:	-10 to -60dBm

RF Output:	
Number of outputs:	4
Connector:	BNC per IEC 60169-8 Amendment 2 (F-Type optional)
I/O Impedance:	75Ω
Return Loss	
10MHz to 2200MHz:	>15dB
2200MHz to 3GHz:	>10dB
Gain:	
7702DA4-RF:	0dB
7703DA4-RF:	-8dB to +14dB
Intermodulation Products:	<-50dBc (@ -20dBm input power)
Signal To Noise:	>55dB (@ -20dBm input power)
Frequency Response	
Standard Version:	
10MHz to 2.7GHz:	<±1.5dB
2.7GHz to 3GHz:	<±2dB
+L Version:	
950MHz to 2.7GHz	<±1.5dB
2.7GHz to 3GHz	<±2dB
Isolation (Output to Output):	
10MHz to 350MHz:	>15dB
350MHz to 3GHz:	>20dB

Physical:	
Number of Slots:	1
Electrical:	
Voltage:	+12VDC
Power:	6 Watts

Ordering Information:	
7702DA4-RF	10MHz - 3GHz RF 1x4 Active Splitter
7703DA4-RF	10MHz - 3GHz RF 1x4 Active Splitter with VistaLINK™ Monitoring

Ordering Options
Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix	
+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

LNB Power Suffix:	
+L	LNB Power option (L Band Operation only) (7703DA4-RF version only)

Connector Suffix	
+F75	75Ω, F-Type rear connector

Enclosures:	
7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

10MHz-3GHz RF 1x8 Active Splitter

Model 7702DA8-RF & 7703DA8-RF



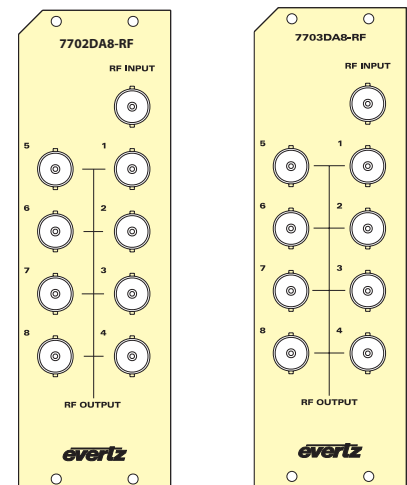
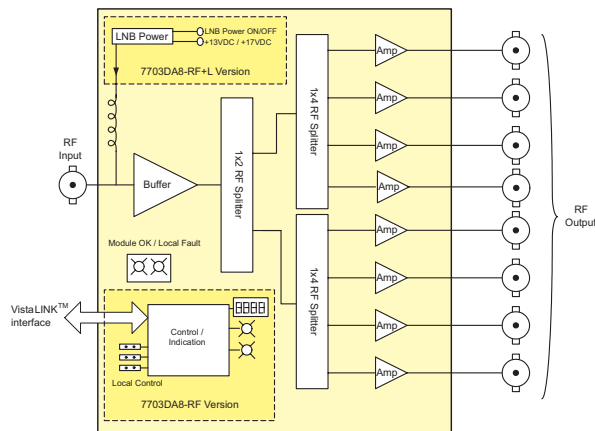
The 7702DA8-RF / 7703DA8-RF 1x 8 Active Splitters provide inexpensive amplification and distribution of RF signals from 10MHz to 3GHz. The 7702DA8-RF / 7703DA8-RF handle any RF input modulation format and provide 8 buffered isolated outputs for further signal distribution. Typical applications include amplification and distribution of 950MHz - 2150MHz L Band and 70MHz-140MHz IF signals. Monitoring of RF input power, card status and control of gain / attenuation is provided remotely via Vistalink capability on the 7703DA8-RF version. Optional LNB power is available at the input connector on the 7703DA8-RF version.

The 7702DA8-RF / 7703DA8-RF occupy two card slots and can be housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which holds up to 15 modules or a standalone enclosure which holds 1 module.

Features

- Low noise amplification and distribution of RF signals from 10MHz to 3GHz
- Wide dynamic range (-10 to -60dBm)
- Adjustable output gain of -8dB to +14dB on 7703DA8-RF version. Fixed gain of 0dB on 7702DA8-RF version.
- Protocol independent - handles all modulation formats
- Input RF signal strength indication on 7703DA8-RF version
- Fully hot-swappable from front of frame
- Optional LNB power (at +13 or +17Vdc with built in current limiting) into RF input cable on 7703DA8-RF version
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and Vistalink-enabled capability on 7703DA8-RF version only

7702DA8-RF & 7703DA8-RF Block Diagram



Specifications

RF Input:

Connector:	1 BNC per IEC 60169-8 Amendment 2 (F-Type optional)
I/O Impedance:	75Ω
Return Loss	>12dB
Input Frequency Range:	
Standard:	10MHz - 3GHz
+L option:	950MHz-3GHz
Input Power Range:	-10 to -60dBm

RF Output:

Number of outputs:	8
Connector:	BNC per IEC 60169-8 Amendment 2 (F-Type optional)
I/O Impedance:	75Ω
Return Loss	
10MHz to 2200MHz:	>15dB
2200MHz to 3GHz:	>10dB
Gain:	
7702DA8-RF:	0dB
7703DA8-RF:	-8dB to +14dB
Intermodulation Products:	< -50dBc (@ -20dBm input power)
Signal To Noise:	>55dB (@ -20dBm input power)
Frequency Response	
Standard Version:	
10MHz to 2.7GHz:	<±1.5dB
2.7GHz to 3GHz:	<±2dB
+L Version:	
950MHz to 2.7GHz	<±1.5dB
2.7GHz to 3GHz	<±2dB
Isolation (Output to Output):	
10MHz to 350MHz:	>15dB
350MHz to 3GHz:	>20dB

Physical:

Number of Slots:	2
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Electrical:

Voltage:	+12VDC
Power:	10 Watts

Ordering Information:

7702DA8-RF	10MHz - 3GHz RF 1x8 Active Splitter
7703DA8-RF	10MHz - 3GHz RF 1x8 Active Splitter with VistaLINK™ Monitoring

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

LNB Power Suffix:

+L	LNB Power option (L Band Operation only) (7703DA8-RF version only)
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Connector Suffix

+F75	75Ω, F-Type rear connector
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Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

SDI AES Audio De-embedder

Model 7720AD-A4, 7720AD4, 7720AD4-B, 7720AD-B-A4-LTC



The 7720AD4 series Audio De-embedders extract embedded audio as specified by SMPTE 272M from a 270 Mb/s serial digital video signal. The companion 7720AE4 Audio Embedder facilitates audio multiplexing at the source. The 7720AD4 is available in 4 different versions.

SMPTE 272M allows for up to four groups (4 channels/group) to be embedded within a serial digital signal. The 7720AD4 can de-embed two audio groups onto four unbalanced AES outputs. The 7720AD4-B can de-embed two audio groups onto four balanced AES outputs. The 7720AD-A4 can de-embed one audio group onto two unbalanced AES outputs and 4 balanced analog audio outputs. The 7720AD-B-A4-LTC can de-embed one audio group onto two balanced AES outputs and 4 balanced analog audio outputs and can also be used as a VITC to LTC translator.

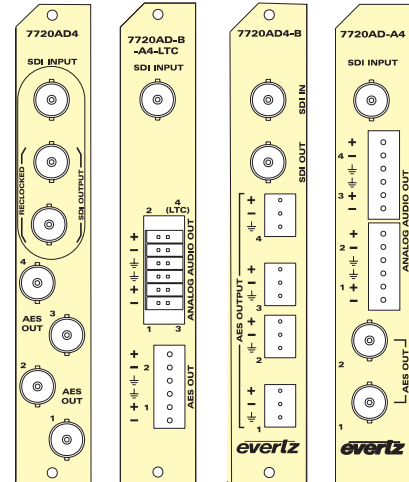
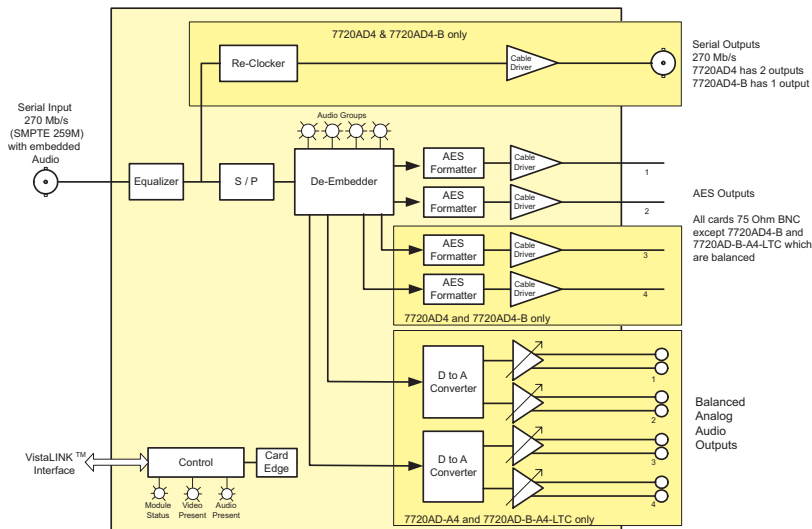
Model	Audio Outputs		Video 270Mb/s SDI Re-clocked Outputs
	AES	Analog	
7720AD-A4	2 Unbalanced	4	--
7720AD-B-A4-LTC	2 Balanced	3 +LTC or 4	--
7720AD4	4 Unbalanced	--	2
7720AD4-B	4 Balanced	--	1

Features

- Card edge LEDs indicating module status, video presence, selected audio group data is present
- LED indication for the presence of each of the 4 audio groups within the input video
- Audio group selection via card edge DIP switches
- Audio channel swapping selection via card edge DIP switches (not on 7720AD-A4)
- Analog audio output models have independent volume controls for each of the audio channel outputs
- 7720AD-B-A4-LTC has 4 balanced audio outputs or 3 audio outputs and one VITC to LTC translator output - selection of VITC reader line
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

SDI AES Audio De-embedder

7720AD Series Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M C - 525 and 625 component
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 300m @ 270 Mb/s with Belden 8281 or equivalent cable
Return Loss: > 15 dB up to 540 Mb/s

Reclocked Serial Video Outputs:

Standard: Same as input
Number of Outputs: 1 on 7720AD4-B, 2 on 7720AD4
0 on 7720AD-A4 & 7720AD-B-A4-LTC
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 700ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 270 Mb/s
Wide Band Jitter: < 0.2 UI

Unbalanced AES Audio Outputs (Not on -B versions):

Standard: SMPTE 276M, single ended synchronous AES
Number of Outputs: 2 on 7720AD-A4, 4 on 7720AD4
Connectors: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced
Dynamic Range: 20-bit

Balanced AES Audio Outputs (B-versions only):

Standard: AES3-1992
Number of Outputs: 2 on 7720AD-B-A4-LTC
4 on 7720AD4-B
Connector: Terminal strip
Sampling Rate: 48 kHz
Impedance: 110 Ω
Dynamic Range: 20-bit

Input to Output Processing Delay:

SDI to AES: 1.35 ms (A4 versions)
600 μ s all other versions
SDI to Analog: 2.25 ms (A4 versions)

Analog Audio Outputs (A4 Versions Only):

Number of Outputs: 4
Type: Balanced analog audio
Connector: Terminal strip
Output Impedance: 66 Ω balanced
Sampling Frequency: 48kHz
Signal Level: 0dB FS \Rightarrow 8 to 24dBu into 10 k Ω loads
(user settable)
0dB FS \Rightarrow 8 to 22dBu into 600 Ω loads
(user settable)
Frequency Response: < \pm 0.1dB (20Hz to 20kHz)
THD+N: > 90dB RMS @ 1kHz, with 24dBu output
> 100dB RMS @ 20Hz to 20kHz, with 24dBu output
Crosstalk isolation: > 100dB RMS (20Hz to 20kHz)

Electrical:

Voltage: + 12VDC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7720AD-A4 SDI AES Audio De-embedder with 2 unbalanced AES outputs and 4 analog audio outputs
7720AD-B-A4-LTC SDI AES Audio De-embedder with 2 balanced AES outputs, 4 analog audio outputs and VITC to LTC Translator
7720AD4 SDI AES Audio De-embedder with 4 unbalanced AES outputs (2 audio groups)
7720AD4-B SDI AES Audio De-embedder with 4 balanced AES outputs (2 audio groups)

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD/SD Audio De-embedder & Dolby E/AC-3 Decoder & Re-embedder

Model 7720AD8-DD-HD



The 7720AD8-DD-HD Audio De-embedder and Dolby Decoder & Re-embedder extracts embedded audio from 4 specified groups as defined by SMPTE 299M from a 1.5 Gb/s serial HDTV or as defined by SMPTE 272M from a 270Mb/s serial SDTV video signal.

One selected channel is processed by the on-card Dolby Decoder. If the channel contains Dolby E or Dolby Digital (AC3), it will yield up to 8 additional discrete audio channels and the associated Dolby E metadata. Up to 16 selected channels may be optionally delayed up to 1.2 seconds and re-embedded into the output video and/or directed to AES outputs. Video output may be optionally delayed to help with lip sync. If PCM audio is embedded, the device acts as a simple 4 group audio de-embedder.

This device also handles the Dolby E Metadata. Metadata is optionally embedded in VANC and can be provided as an output for downstream devices (i.e. Dolby Encoders, Multichannel Audio Tool, etc.).

For lip sync cohesion and ease of editing, Dolby-E data is organized in blocks with lengths matching the associated video frame. The decoder will match the beginning of each output block with the start of video, as provided with the genlock input. Additional delay can be dialed up by the user, up to 1.2 secs. AES inputs are can be configured as a backup, in the event the primary is lost, or as a voice-over source.

VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

Features

- Automatic switchover to backup audio source on loss of selected Dolby stream
- Adjustable video delay to match Dolby decoder audio delay
- Headphone jack with monitoring stereo down-mix
- Dolby Metadata is embedded in HD VANC for downstream device decoding
- AES input with backup, voice-over or Dolby E/AC3 content
- Card edge display
- Flexible audio channel router

Controls:

- Audio group selection
- Audio channel selection

Inputs:

- Program output bypass relay protected
- SMPTE 292M - (1.5Gb/s serial digital), or SMPTE 259M
- Genlock NTSC-M, PAL-B, any tri-level
- 8 AES inputs for backup/voice-over source
- Metadata input

Outputs:

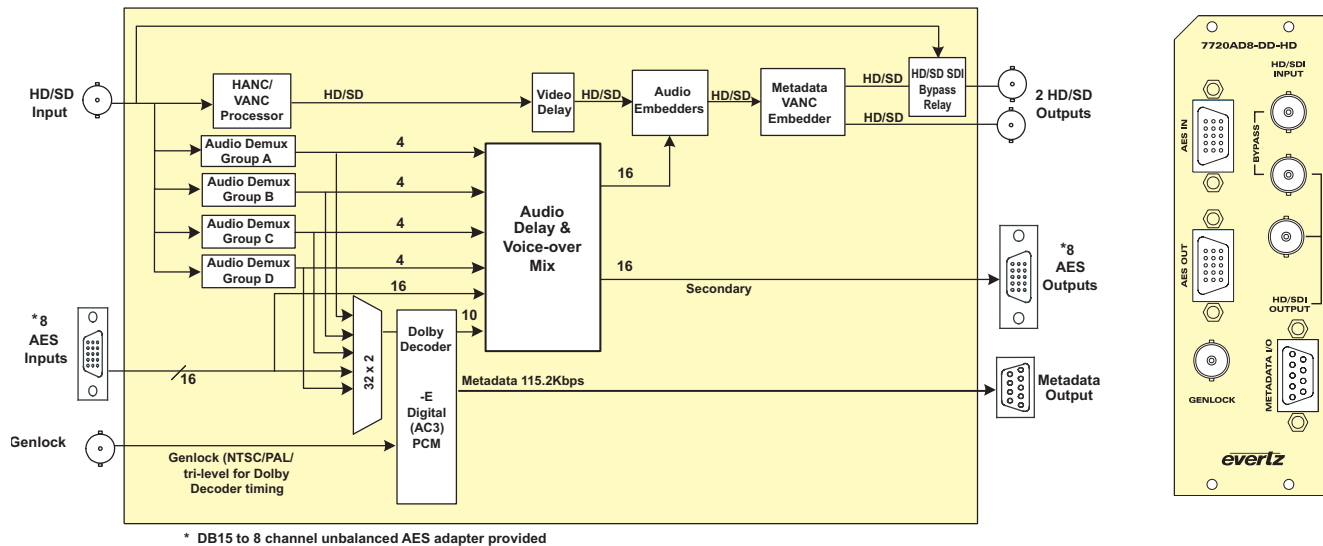
- 2 processed HD outputs (1 protected with bypass relay)
- 8 AES de-embedded and processed outputs
- 1 DB-9 Dolby metadata (RS422/485)

Card Edge LED's:

- Module Status
- Video Signal presence
- Selected audio group presence/errors
- Dolby decoder processing status
- Genlock health/compatibility
- AES signal presence

HD/SD Audio De-embedder & Dolby E/AC-3 Decoder & Re-embedder

Model 7720AD8-DD-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M, (1080i/60, 1080i/59.94, 1080i/50, 1080p/30(sF), 1080p/29.97(sF), 1080p/25(sF), 1080/24(sF), 1080/23.98(sF), 720p/50, 720p/60, 720p/59.94, 1035i/60, 1035i/59.94)
SMPTE 259M-C (270Mb/s) 525 or 625 line component

Connector: BNC per IEC 60169-8 Amendment 2

Equalization:

HD: 115m @1.5Gb/s with Belden 1694A
SD: 300m @270MB/s with Belden 1694A

Processed Serial Video Output:

Standard: Same as input or user controlled
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Rise and Fall Time: Per standard
Overshoot: <10% of amplitude
Wide Band Jitter:
HD: <0.16 VI
SD: <0.10 VI

Metadata Output:

Type: Dolby E Metadata
Connector: Female High Density DB-9 ((breakout cable to BNC provided)
Baud Rate: 115,200 baud

AES Audio Input:

Standard: SMPTE 276M
Number of Inputs: 8 unbalanced
Connector: Female High Density DB-15 (breakout cable to BNC provided)
Input Level: 0.1 to 2.5 Vp-p (5Vp-p tolerant)
Input Impedance: 75 Ω
Return Loss: >25dB 100kHz to 6MHz
Equalization: Automatic to 1000m with Belden 1694A (or equivalent) @ 48kHz AES signal
Sample Rate: 48kHz \pm 100ppm

AES Audio Output:

Standard: SMPTE 276M, single ended AES
Number of Outputs: 8 unbalanced
Connector: Female High Density DB-15 (breakout cable to BNC provided)
Sample Rate: 48kHz
Impedance: 75 Ω
Resolution: Up to 24-bit

Genlock Input:

Type: NTSC, PAL, black or any tri-level, all autodetect
Connector: 1 BNC per IEC 60169-8 Amendment 2
Impedance: hi-Z or 75 Ω (jumper configurable)
Return Loss: >40dB to 10MHz

System Performance:

AC3 Decode Delay: 32ms nominal
Dolby E Decode Delay: 1 frame nominal
De-embedding Latency: 600 μ s nominal
Additional Audio Delay: 0 to 1.2 seconds (user programmable)
Additional Video Delay: 0 to 7 frames (user programmable)

Electrical:

Voltage: +12V DC
Power: 16 Watts
EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

Physical:

Number of Slots: 2

Ordering Information:

7720AD8-DD-HD HD/SD Audio De-embedder & Dolby E/AC-3 Decoder & Re-embedder

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone Enclosure

Quad Analog Audio to Dual AES Converter

Model 7720ADC-A4



The 7720ADC-A4 is a high-quality, 24-bit, analog to digital audio converter which provides digital conversion of 4 balanced analog audio channels and provides 2 unbalanced AES/EBU channels out.

The sampling clock may free run at 48kHz or may be locked to either a DARS (Digital Audio Reference Signal) reference or composite video reference. Level control is provided via a card edge toggle switch. The input gain level can be read out from a card edge display for convenience. The full scale digital signal can be calibrated to accommodate peak levels ranging from 8dBu to 27dBu with 0.5 dB resolution.

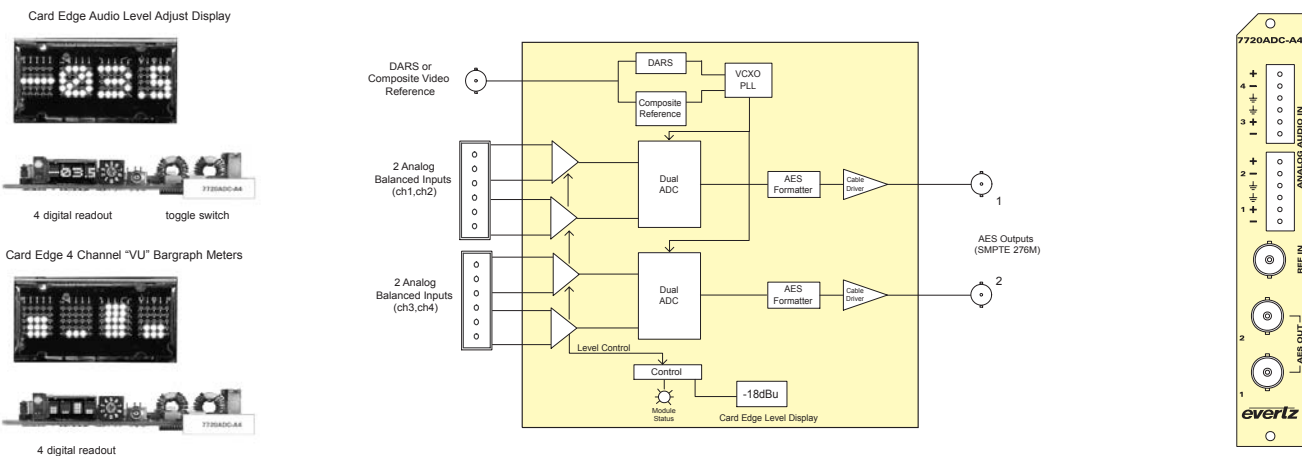
The audio ADC features a card edge VU meter for quick confidence monitoring. Four separate level indicators are provided via bargraphs for quick validation of audio program material.

Features

- Auto detect composite video or DARS on the reference input
- 24-bit, high-quality analog to digital audio conversion
- Support for 4 channels of analog audio (2 AES/EBU)
- Local card edge display and control of input gain
- 0dBFS programmable from 8dBu to 27dBu
- A card edge display provides a 4 channel bargraph type level indicator display for confidence monitoring
- Automatic DC removal

- VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel. VistaLINK™ is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller

7720ADC-A4 Block Diagram



Specifications

Analog Audio Input:	4
Number of Inputs:	Balanced analog audio
Type:	Removable terminal strip
Connector:	10kΩ minimum (differential)
Input Impedance:	48kHz (freerun or locked to the reference)
Sampling Frequency:	0dB FS = 8dBu to 27dBu (programmable via 0dB/+6dB jumper and card edge fine gain with -10... +10dB range)
Signal Level:	+/- 0.1dB (20Hz to 20kHz)
Frequency Response:	100dB with input at -1dBFS
SNR:	<0.001% (>100dB) @ 20Hz to 20kHz, -1 dB FS
THD+N:	>100dB @ 1kHz
CMRR:	< -100dB @ 20Hz-20kHz
Crosstalk:	< 1°, 20Hz-20kHz
Inter-channel Phase error:	
Reference Input:	
Standard:	NTSC (SMPTE 170M), PAL (ITU624-4), DARS
Number of Inputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	
Video:	Max: 2Vp-p video (composite only)
	Min: Sync level 150m (composite only)
	SMPTE 276M, 1Vp-p
	±100ppm from nominal
DARS:	High Impedance
Frequency Lock Range:	>25dB to 10MHz
Input Impedance:	(with external 75Ω termination)
Return Loss:	

AES Audio Output:	SMPTE 276M single ended AES
Standard:	
Number of Outputs:	2
Connectors:	BNC per IEC 60169-8 Amendment 2
Resolution:	24-bits
Sampling Rate:	48 kHz
Impedance:	75 Ω unbalanced
I/O Delay:	0.87ms

Electrical:	
Voltage:	+ 12VDC
Power:	10 Watts (nominal)
EM/RFI:	Complies with FCC Part 15, Class A
	EU EMC Directive

Physical:	
Number of slots:	1

Ordering Information:	
7720ADC-A4:	Quad Analog Audio to Dual AES Converter

Ordering Options
Rear Plate must be specified at time of order
Eg: Rear + 3RU

Rear Plate Suffix	
+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:	
7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

SDI 4 AES Pair Audio Embedder

Model 7720AE4



The 7720AE4 Audio Embedder inserts AES audio signals into a 270 Mb/s SDI video signal as specified in SMPTE 272M. The companion 7720AD4 Audio De-embedder facilitates audio demultiplexing at the destination.

SMPTE 272M allocates four groups of four audio channels that can be embedded into the SMPTE 259M bitstream. The 7720AE4 embeds up to 4 AES audio signals into two groups on the SDI outputs for discrete 5.1 audio applications. The 7720AE4 is Dolby E compliant when the sample rate converters are turned off.

VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ PRO locally or remotely.

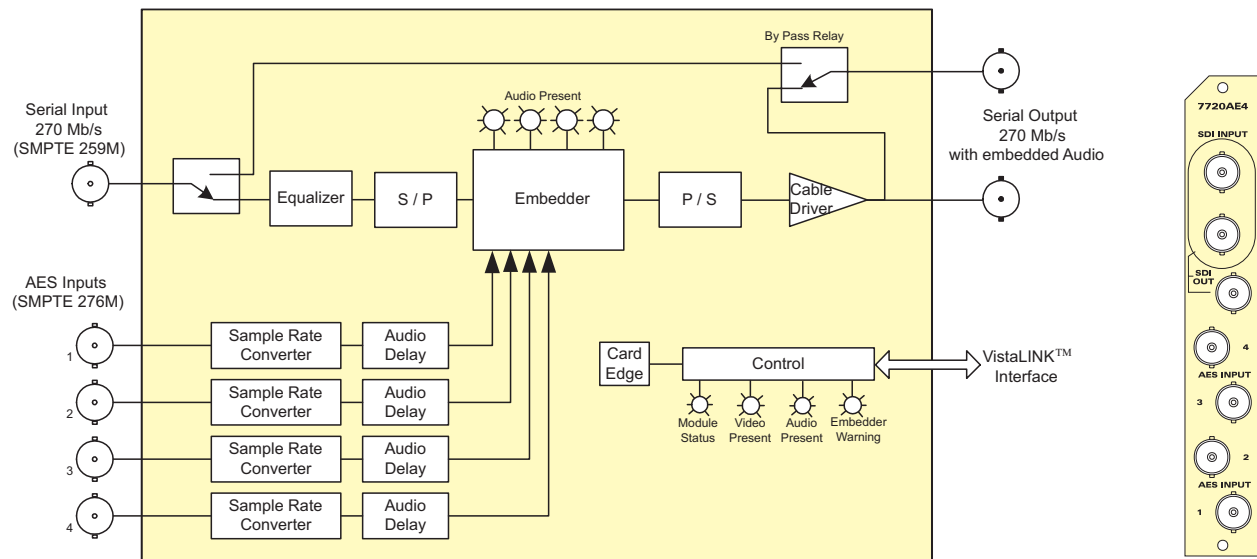
Features

- Automatic detection of 525 line and 625 line input
- Bypass relay protection on one SDI output for power failures
- 20-bit AES input and audio embedding
- Individual audio group assignment for each group
- Group lock mode maintains phase relationship between the groups for 5.1 audio applications
- Sample rate conversion disable on AES inputs to permit Dolby E embedding
- Programmable audio delays (up to 7 frames in ½ video field increments using DIP switches or up to 1.3 sec in 1 sample increments with VistaLINK™ control)
- Ancillary packet cleaning mode removes all audio before embedding
- Ancillary packet reformatting mode left justifies and removes unused packets before embedding
- Embeds audio on internally generated black or blue video when there is no video input
- Card edge LEDs indicate video and audio signal presence, and module fault

• VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

SDI 4 AES Pair Audio Embedder

7720AE4 Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C (270 Mb/s) 525 or 625 line component.

Connector: 1 BNC per IEC 60169-8 Amendment 2

Equalization: Automatic 210m @ 270 Mb/s with Belden 8281 or equivalent cable

Return Loss: > 15 dB up to 540 Mb/s

Serial Video Outputs with Embedded Audio:

Standard: same as input

Number of Outputs: 2 (1 output bypass relay protected)

Embedded Audio: SMPTE 272M - 20 bit 48 kHz synchronous

Connectors: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V $\pm 0.5V$

Rise and Fall Time: 900ps nominal

Overshoot: <10% of amplitude

Return Loss: > 15 dB up to 540 Mb/s

Wide Band Jitter: < 0.2 UI

AES Audio Inputs:

Number of Inputs: 4

Standard: SMPTE 276M, single ended AES

Connector: BNC per IEC 60169-8 Amendment 2

Resolution: 20 bits

Sampling Rate: 32 to 96 kHz synchronous or asynchronous (48 kHz synchronous AES required when sample rate converter is disabled.)

Impedance: 75 Ω unbalanced

Signal Level: 1V p-p $\pm 0.1V$

System Performance:

Embedding Latency: 1.3 to 3 ms

Audio Delay

DIP Switch Control: Up to 7 frames, $\frac{1}{2}$ frame increments (delay applied to all AES channels)

VistaLINK™ or Serial

Port Control: Up to 1.35 seconds in 1 sample increments (independent control of delay for each channel)

Electrical:

Voltage: + 12VDC

Power: 9 Watts

EMI/RFI: Complies with FCC Part 15, Class A EU EMC Directive

Physical:

7700 or 7701 frame mounting:

Number of slots: 1

Ordering Information:

7720AE4 SDI 4 AES Pair Audio Embedder

Ordering Options:

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

+SA Standalone Enclosure Rear Plate

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

7701FR 1RU Multiframe which holds 3 modules

S7701FR Standalone enclosure

Quad AES Audio Mixer



Model 7720AM-AES4

The 7720AM-AES4 Audio Mixer accepts 4 AES/EBU digital audio inputs (eight channels) and synchronously mixes all channels and routes them to any of the four AES outputs. The 7720AM-AES4 performs channel swapping, over mixes, mix downs and on-air breakaways. All processing is at 24-bit resolution.

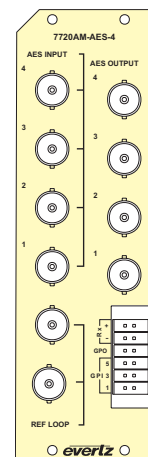
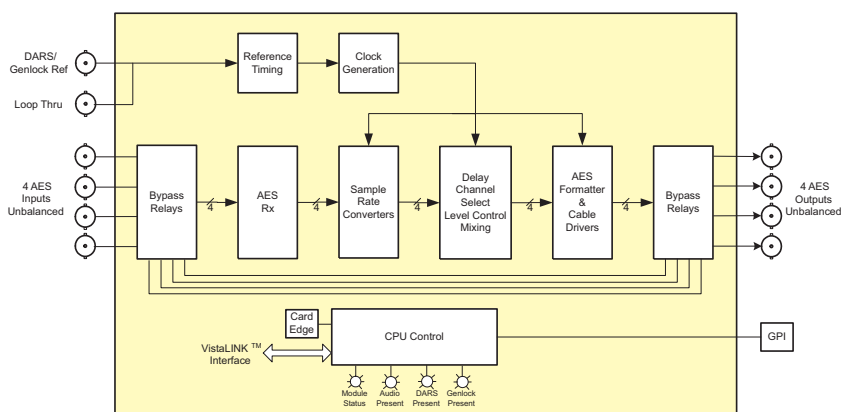
The 7720AM-AES4 provides eight channels of independent audio delay control making it ideal for retiming AES audio.

A non-PCM data mode is provided in order to pass Dolby-E or AC3 data. In this mode, channel swapping and delay is supported (mixing is not) with the requirement that the inputs are 48kHz synchronous and locked (a reference is required to be used in this mode)

Features

- 24-bit audio processing for high fidelity
 - Flexible sample rate of 28 kHz to 108kHz (will be resampled to 48kHz locked to reference on output)
 - Audio Sample Rate Converters can be disabled
 - GPI control
 - Dolby-E/AC3 pass through mode
 - Card edge LEDs indicate: module fault, audio, genlock and DARS present
 - Maximum delay of 2.54 seconds with sample accuracy
 - Bypass relay outputs at the loss of power
- Additional Features when controlled through VistaLINK™:**
- Provides 2:1 audio mixing capability, ideal for "ducking" audio or voiceovers
 - Can be used at the inputs of an audio console to expand inputs and add mixing capacity
 - Performs voice overs, mix downs and on-air breakaways
 - Reassignment of audio channels
 - +12 to -12dB gain control on each mixer input in 0.25 dB steps
 - Continuous and independent channel delay adjustment up to 2.54 seconds
 - VistaLINK™ -enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller

7720AM-AES4 Block Diagram



Specifications

AES Audio Inputs and Outputs:

Number of Inputs:	4
Number of Outputs:	4
Standard:	SMPTE 276M, single ended synchronous or asynchronous AES
Connectors:	BNC per IEC 60169-8 Amendment 2
Resolution:	24 bits
Sampling Rate:	48 kHz
Impedance:	75Ω unbalanced
Signal Level:	1 V p-p nominal

Genlock Input:

Type:	HD Tri-level syncs, NTSC or PAL Colour Black 1 V p-p, or Composite bi-level sync (525i/59.94 or 625i/50) 300 mV
Connector:	BNC loop per IEC 60169-8 Amendment 2
Termination:	75Ω (jumper selectable)

DARS Reference:

Type:	Digital Audio Signal with 48kHz sample rate.
Standard:	SMPTE 276M-1995 single ended AES, AES-11
Connectors:	BNC loop per IEC 60169-8 Amendment 2
Termination:	75Ω (jumper selectable)

Input to Output Processing:

Gain:	+/- 12 dB in 0.25 dB steps
Delay:	Min 7 samples with sample rate converters disabled Min 92 samples with sample rate converters enabled Adjustable to approximately 2.54 seconds (see Table 1 in the manual)

General Purpose In/Out:

GP Inputs:	Load user preset configurations
GP Output:	GPO1: Low when video input is missing Opto-isolated, active low with internal pull-ups to +5V
Type:	8 pins on 12 pin removable terminal block
Connector:	+5V nominal
Signal Level:	

Data Logging Serial Port:

Standard:	RS 422
Connector:	5 pins on 12 pin removable terminal block (not used at this time)
Function:	
Electrical:	
Voltage:	+ 12VDC
Power:	8 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

7700 frame mounting:	
Number of slots:	2
7701 frame mounting:	
Number of slots:	1

Ordering Information:

7720AM-AES4	Quad AES Audio Mixer
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Ordering Options:

Rear Plate must be specified at time of order
Eg. Model +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules

Dual AES to Quad Analog Audio Converter

Model 7720DAC-A4



The 7720DAC-A4 is a high-quality, 24-bit, digital to analog audio converter which converts 2 AES/EBU digital signals to 4 balanced analog audio signals. The 7720DAC-A4 has two independent AES/EBU converters. The input sample rates supported are 44.1kHz and 48kHz. All analog audio outputs levels may be set individually from the front panel.

Level control is provided via a card edge toggle and the set gain level can be read out from a card edge display for convenience. The full scale digital signal can be calibrated to product analog peak levels ranging from 12dBu to 25dBu with 0.1 dB resolution.

The audio DAC features a card edge VU meter for quick confidence monitoring. Four separate level indicators are provided via bargraphs for quick validation of audio program material.

Features

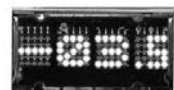
- AES3/IEC-958 or AES3/SMPTE276/S/PDIF
- 24-bit, high-quality conversion
- 44.1 and 48kHz sampling rate
- 0dBFS programmable from 12dBu to 25dBu
- Support for 4 channels of balanced analog audio (2 AES/EBU)
- Clock recovery via VCXO for extra stable sample clock generation
- A card edge display provides a 4 channel bargraph type level indicator display for confidence monitoring

- Local card edge display for level setup
- Drives directly 600Ω loads

- VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel. VistaLINK™ is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller

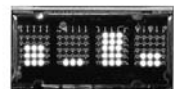
7720DAC-A4 Block Diagram

Card Edge Audio Level Adjust Display

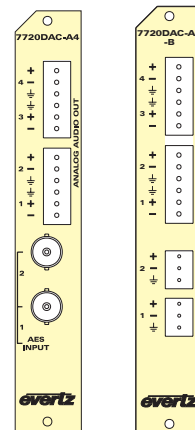
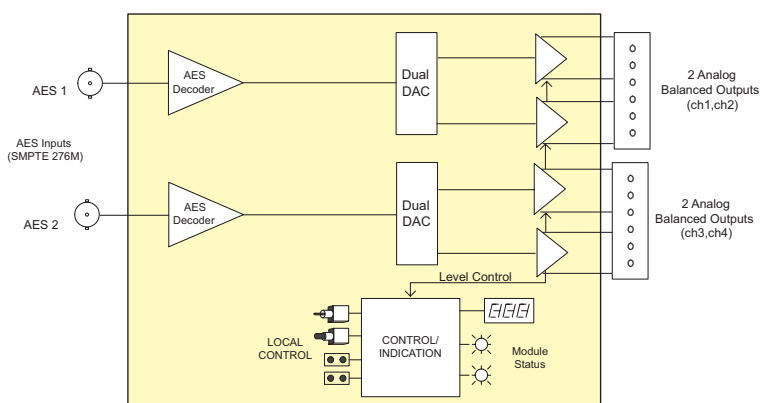


4 digital readout toggle switch

Card Edge 4 Channel "VU" Bargraph Meters



4 digital readout



Specifications

AES Audio Inputs (7720DAC-A4):

Number of inputs: 2
Standard: SMPTE 276M, AES3-2001
Connector: BNC per IEC 60169-8 Amendment 2
Input type: Unbalanced, isolated ground
Impedance: 75Ω, -25 dB return loss to 6MHz
Accepted levels: 0.1Vp-p to 2.5Vp-p
Cable distance: > 4000 ft. (with 1Vp-p cable drive)
Sample rates: 48kHz and 44.1kHz +/-100ppm

AES Audio Inputs (7720DAC-A4-B):

Number of inputs: 2
Standard: AES3-1992 (ANSI S4.40-1992), IEC-958 (except connectors)
Connector: 3 pin removable terminal strip
Input type: Balanced pair, shield, transformer-coupled
Equalization: >400m @48kHz with 2 to 10 Vp-p drive and Belden 1800B or equivalent shielded twisted pair cable
Impedance: 110Ω, +/-10%
Accepted signal levels: 0.2Vp-p to 10Vp-p
Cable distance: > 1300 ft. (with 2Vp-p to 7Vp-p cable drive)
Sample rates: 48kHz and 44.1kHz +/-100ppm

Analog Audio Outputs:

Number of Outputs: 4 balanced
Connector: Two 6 pin removable terminal strips
Output Impedance: 66Ω
Output Loads: Hi-Z or 600Ω
Peak Conversion Level: 0dB FS => 12 to 25dBu (user settable)
Frequency Response: 110dB (20Hz to 20kHz)
Dynamic Range: 24 bits
THD+N: <0.001% (>100dB) @ 20Hz to 20kHz, @-1dB FS, unweighted
Crosstalk: 110dB (20Hz to 20kHz)
DC Offset: < ± 30mV
SNR: > 110dB "A" weighted
Inter-Channel Phase Error: < ± 1° (20Hz to 20kHz)
Digital to Analog Delay: 0.95ms

Electrical:

Voltage: +12V DC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7720DAC-A4: Dual AES to Quad Analog Audio Converter with unbalanced AES inputs
7720DAC-A4-B: Dual AES to Quad Analog Audio Converter with 2 balanced AES inputs

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

7700FC

9000NCP

9000NCP2

VistaLINK™ Frame Controller
1RU VistaLINK™ General Purpose Network Control Panel
2RU VistaLINK™ General Purpose Network Control Panel

Accessories:

Enclosures:

7700FR-C

7701FR

S7701FR

3RU Multiframe which holds 15 modules
1RU Multiframe which holds 3 modules
Standalone enclosure

SDI GPI Decoder

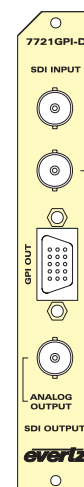
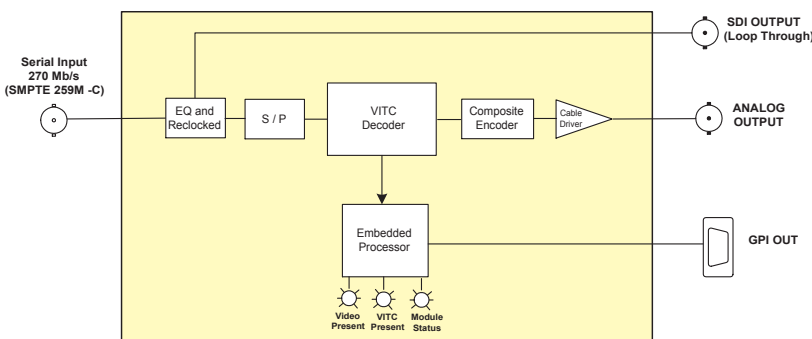
Model 7721GPI-D

The 7721GPI-D SDI GPI Decoder extracts GPI data that has been embedded into a 270 Mb/s SDI video signal by the Evertz 8010TM GPI embedder. The GPI data is decoded from the user bits on a specified VITC line and 6 general purpose opto-isolated outputs are provided.

Features

- Automatic detection of 525 and 625 line SDI video input
- Six TTL level GPO signals activate when corresponding GPI inputs on 8010TM are activated
- One reclocked SDI video output
- Card edge LEDs indicate video signal and data presence and module fault
- A composite video output with on-screen display is provided for card edge setup
- Timecode, user bits and GPO status shown on on-screen display

7721GPI-D Block Diagram



Specifications

Serial Video Input:

Standard:	SMPTE 259M-C - 525 or 625 line component
Connector:	BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic 150m @ 270Mb/s with Belden 8281 (or equivalent)
Return Loss:	> 15 dB up to 270 Mb/s

Serial Video Outputs (Reclocked):

Number of Outputs:	1
Standard:	Same as input
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	740ps nominal
Overshoot:	<10% of amplitude
Return Loss:	>15 dB up to 270 Mb/s
Wide Band Jitter:	<0.2 UI

General Purpose Outputs:

Number of Outputs:	6
Type:	Opto-isolated, active low with internal pull-ups to user supplied voltage (provides +5V which may be used for this purpose)
Connector:	Female High Density DB-15
Signal Level:	+5V nominal

Analog Monitoring Video Output:

Standard:	NTSC, (SMPTE 170M), PAL (ITU624-4)
Number of Outputs:	1 with on screen display
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	1V nominal

DC Offset:	0V \pm 0.1V
Return Loss:	> 35dB up to 5MHz
Frequency Response:	0.8dB to 4 MHz
Differential Phase:	< 0.9° (<0.6° typical)
Differential Gain:	< 0.9% (<0.5 % typical)
SNR:	>56dB to 5 MHz (shallow ramp)

Electrical:

Voltage:	+12VDC
Power:	6 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of Slots:	1
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Ordering Information:

7721GPI-D	SDI GPI Decoder
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
57701FR	Standalone enclosure

HD SDI AES Audio De-embedder

Model 7721AD-A4-HD & 7721AD4-HD



The 7721AD-HD series Audio De-Embedders extract embedded audio as specified by SMPTE 299M from a 1.5 Gb/s serial HDTV video signal. The companion 7721AE4-HD Audio Embedder facilitates audio multiplexing at the source. The 7721AD-HD is available in 2 different versions.

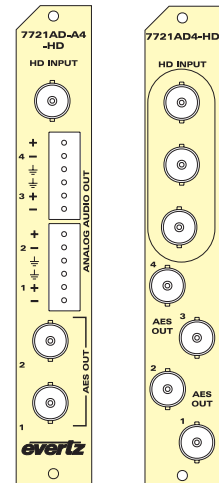
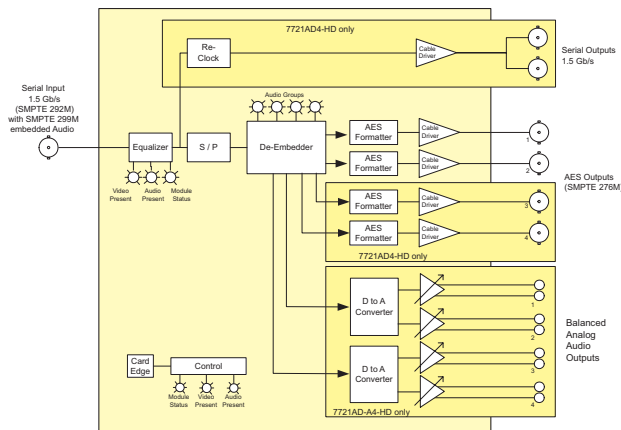
SMPTE 299M allows for up to four groups (4 channels/group) to be embedded within a serial digital signal. The 7721AD4-HD can de-embed two audio groups onto four unbalanced AES outputs. The 7721AD-A4-HD can de-embed one audio group onto two unbalanced AES outputs and 4 balanced analog audio outputs.

Model	Audio Outputs		Video 1.5Gb/s Reclocked Outputs
	AES	Analog	
7721AD4-HD	4	--	2
7721AD-A4-HD	2	4	--

Features

- Automatic detection of video input format
- Card edge LEDs indicating module status, video presence, selected audio group data is present
- LED indication for the presence of each of the 4 audio groups within the input video
- Audio group selection via card edge DIP switches
- 7721AD-A4-HD has independent volume controls for each of the audio channel outputs
- VistaLINK™ -enabled for remote monitoring and control via SNMP. (using VistaLINK™ PRO) when installed in the 7700FR-C frame with a 7700FC VistaLINK™ Frame Controller

7721AD-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M, (1080i/60, 1080i/59.94, 1080i/50, 1080p/30(sF), 1080p/29.97(sF), 1080p/25(sF), 1080/24(sF), 1080/23.98(sF), 720p/60, 720p/59.94, 1035i/60, 1035i/59.94)
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 100m @ 1.5Gb/s with Belden 1694 (or equivalent)
Return Loss: > 10 dB up to 1.5 Gb/s

Reclocked Serial Video Output (7721AD4-HD only):

Standard: Same as input
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Return Loss: > 10 dB up to 1.5 Gb/s
Wide Band Jitter: <0.2 UI

AES Audio Output:

Standard: SMPTE 276M, single ended synchronous or asynchronous AES
Number of Outputs: 4 on 7721AD4-HD & 2 on 7721AD-A4-HD
Connector: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48kHz
Impedance: 75 Ω
Delay: 9 samples to approx. 3 seconds (user adjustable)
Resolution: 24-bit

Analog Audio Output (7721AD-A4-HD Only):

Number of Outputs: 4
Type: Balanced analog audio
Connector: Two 6 pin terminal strip
Output Impedance: 68 Ω balanced
Sampling Frequency: 48kHz
Signal Level: 0dB FS \Rightarrow 8 to 24dBu into 10k Ω load (user settable)
0dB FS \Rightarrow 8 to 22dBu into 600 Ω load (user settable)

Frequency Response:

< \pm 0.1dB (20Hz to 20kHz)
Dynamic Range: 24-bit
THD+N: > 90dB RMS @ 1kHz with 24dBu output
Crosstalk: > 90dB RMS (20Hz to 20kHz)

System Performance:

De-embedding Latency: 1.35ms (7721AD-A4-HD)
600 μ s (7721AD4-HD)
HD SDI to AES: 2.25ms (7721AD-A4-HD)
HD SDI to Analog:

Electrical:

Voltage: +12V DC
Power: 8 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7721AD-A4-HD HD SDI Audio De-embedder with 2 unbalanced AES and 4 analog audio outputs
7721AD4-HD HD SDI Audio De-embedder with 4 unbalanced AES outputs (2 audio groups)

Ordering Options:

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD 4 AES Pair Audio Embedder



Model 7721AE4-HD

The 7721AE4-HD Audio Embedder inserts AES audio signals into a 1.5Gb/s HD video signal as specified in SMPTE 299M. The companion 7721AD4-HD Audio De-embedder facilitates audio demultiplexing at the destination.

SMPTE 299M allocates four groups of four audio pairs that can be embedded into the SMPTE 292M bitstream. The 7721AE4-HD embeds up to 4 AES audio signals into two groups on the HD-SDI outputs for discrete 5.1 audio applications. The 7721AE4-HD is Dolby E compliant when the sample rate converters are turned off.

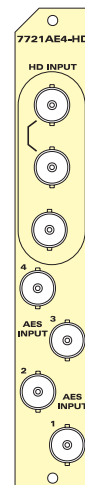
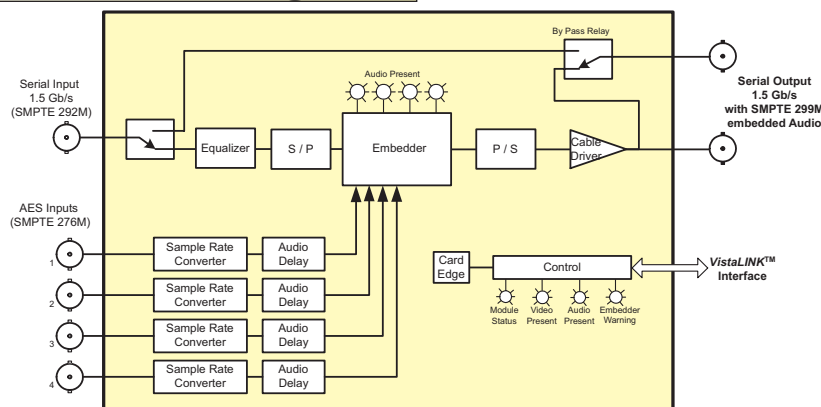
VistaLINK™ enables control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage the module status monitoring and configuration from SNMP enabled control systems such as Evertz VistaLINK™ Pro locally or remotely.

Features

- Automatic detection of video standard
- Bypass relay protection on one SDI output for power failures
- 24-bit AES inputs and audio embedding
- Individual audio group assignment for each group
- Group lock mode maintains phase relationship between the groups for 5.1 audio applications
- Sample rate conversion disable on AES inputs to permit Dolby E embedding
- Programmable audio delays (up to 7 frames in ½ video field increments using DIP switches or up to 1.3 sec in 1 sample increments with VistaLINK™ control)
- Ancillary packet cleaning mode removes all audio before embedding
- Ancillary packet reformatting mode left justifies and removes unused packets before embedding
- Embeds audio on internally generated black or blue video when there is no video input
- Card edge LEDs indicate video and audio signal presence, and module fault

• VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ Pro) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

7721AE4-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M (1.5Gb/s), (1080i/60, 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94)
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 100m @ 1.5Gb/s with Belden 1694 or equivalent cable
Return Loss: > 10 dB up to 1.5Gb/s

Serial Video Outputs with Embedded Audio:

Standard: same as input
Number of Outputs: 2 (1 output bypass relay protected)
Embedded Audio: SMPTE 299M - 24 bit 48 kHz synchronous
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Return Loss: > 10 dB up to 1.5Gb/s
Wide Band Jitter: < 0.2 UI

AES Audio Inputs:

Number of Inputs: 4
Standard: SMPTE 276M, single ended AES
Connector: BNC per IEC 60169-8 Amendment 2
Resolution: 24 bits
Sampling Rate: 32 to 96 kHz synchronous or asynchronous (48 kHz synchronous AES required when sample rate converter is disabled.)
Impedance: 75Ω unbalanced
Signal Level: 1V p-p ±0.1V

System Performance:

Embedding Latency: 1.3 to 3 ms

Audio Delay

DIP Switch Control: Up to 7 frames, ½ frame increments (delay applied to all AES channels)
VistaLINK™ or Serial Port Control: Up to 1.35 seconds in 1 sample increments (independent control of delay for each channel)

Electrical:

Voltage: + 12VDC
Power: 11 Watts
EMI/RFI: Complies with FCC Part 15, Class A EU EMC Directive

Physical:

7700 or 7701 frame mounting:
Number of slots: 1

Ordering Information:

7721AE4-HD HD 4 AES Pair Audio Embedder

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Quad Serial Data De-embedder

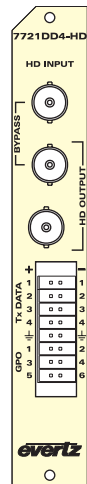
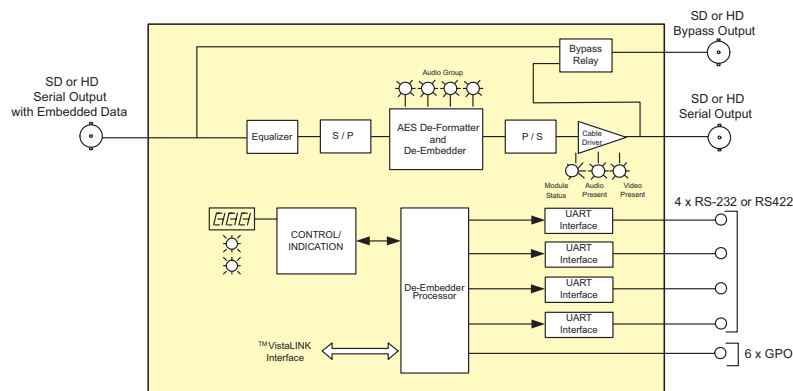
Model 7721DD4-HD

The 7721DD4-HD Quad Serial data de-embedder extracts 4 x RS-232 or RS422 serial data streams and GPI contact closure information from a 270 Mb/s SD-SDI or 1.5Gb/s HD-SDI video signal. A data error detection and correction scheme is also applied to maintain data integrity on the output of the data de-embedder. At the embedded packet layer, data packets resemble and have the same group DIDs as embedded audio packets. The data is un-packetized and extracted from the AES sub-frame according to SMPTE 337M.

Features

- Automatic detection of SD-SDI or HD-SDI video input
- 4 x RS232/422 serial outputs with selectable baud rate
- Parity selection: none, even or odd
- Packetize data into sub-frame AES format according to SMPTE 337M
- Share the same group DIDs as for embedded audio, selectable from group 1 to 4
- Group selection for extracting data from one of four Audio Groups
- Six GPI outputs to embed simple control information into the video input
- Card edge LEDs indicate video signal and data presence, cable equalization and module fault
- Valid video output on loss of input
- Compatible with 7721DE4-HD

7721DD4-HD Block Diagram



Specifications

Serial Video Input with Embedded Data:

Standard: SMPTE 259M C, SMPTE 292M
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 300m @ 270 Mb/s, 100m @ 1.5Gb/s with Belden 8281 or equivalent cable
Return Loss: > 15 dB up to 1.5Gb/s

Serial Video Outputs:

Number of Outputs: 2 outputs (1 with bypass relay protected)
Standard: Same as input
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 600ps nominal SD-SDI, 200ps nominal HD-SDI
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 1.5Gb/s (Relay Protected)
> 10 dB up to 1.5Gb/s
Wide Band Jitter: < 0.2 UI

Data Output:

Standard: 4 x RS-232 or RS-422
Connector: Terminal Block
Baud Rate: 110, 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, or 155200
Format: 5-8 data bits, parity (none, even or odd), 1 or 2 stop bits

General Purpose Outputs:

Number of Outputs: 6
Type: Opto-isolated
Connector: Terminal Block
Signal Level: +3.3/+12V, jumper selectable

Delay For Data De-embedding - Serial Output

Baud Rate: All
Average latency (μ s) +/- 20% 1200

Delay For Data De-embedding - GPO Signals

GPO Outputs: All
Average latency (μ s) +/- 20% 1200

Electrical:

Voltage: + 12VDC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7721DD4-HD Quad Serial Data De-embedder

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

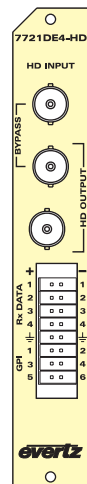
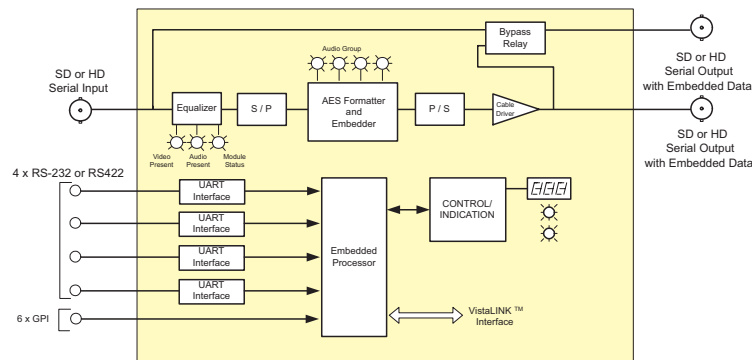
Model 7721DE4-HD

The 7721DE4-HD Quad Serial data embedder inserts 4 x RS-232 or RS422 serial data streams and GPI contact closure information into a 270 Mb/s SD-SDI or 1.5Gb/s HD-SDI video signal. The RS-232/422 serial data and GPI information are first formatted into an AES audio signal, packetized and inserted into the AES sub-frame according to SMPTE 337M, then embedded into the video stream according to SMPTE 272M-A for SD-SDI and SMPTE 299M for HD-SDI. A data error detection and correction scheme is also applied to maintain data integrity for the data de-embedder at the receiver end. At the embedded packet layer, data packets resemble and have the same group DIDs as embedded audio packets.

Features

- Automatic detection of SD-SDI or HD-SDI video input
- 4 x RS232/422 serial inputs with selectable baud rate
- Parity selection: none, even or odd
- Packetize data into sub-frame AES format according to SMPTE 337M
- Share the same group DIDs as for embedded audio, selectable from group 1 to 4
- Group selection for mapping data into one of four Audio Groups
- Six GPI inputs to embed simple control information into the video input
- Card edge LEDs indicate video signal and data presence, cable equalization and module fault
- Valid video output on loss of input
- Compatible with 7721DD4-HD

7721DE4-HD Block Diagram



Specifications

Serial Video Input::

Standard: SMPTE 259M C, SMPTE 292M
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 300m @ 270 Mb/s, 100m@1.5Gb/s with Belden 8281 or equivalent cable
Return Loss: > 15 dB up to 1.5Gb/s

Serial Video Outputs with Embedded Data:

Number of Outputs: 2 outputs (1 with bypass relay protected)
Standard: Same as input
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 600ps nominal SD-SDI
200ps nominal HD-SDI

Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 1.5Gb/s (Relay Protected)
> 10 dB up to 1.5Gb/s

Wide Band Jitter: < 0.2 UI

Data Input:

Standard: 4 x RS-232 or RS-422
Connector: Terminal Block
Baud Rate: 110, 300, 600, 1200, 2400, 4800, 9600, 14400, 19200, 38400, 57600, or 115200
Format: 5-8 data bits, parity (none, even or odd), 1 or 2 stop bits

General Purpose Inputs:

Number of Inputs: 6
Type: Opto-isolated, active low
Connector: Terminal Block
Signal Level: Active Low (no signal level required)

Embedding Delay:

Video I/O Delay Approximately 12ms

Delay For Data Embedding - Serial Input

Baud Rate: All
Average latency (µs) +/- 20% 1200

Delay For Data Embedding - GPI signals

Baud Rate: All
Average latency (µs) +/- 20% 1200

Electrical:

Voltage: + 12VDC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7721DE4-HD Quad Serial Data Embedder

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

SDI VBI Sidechain Bridge

Model 7725VBI-K

The 7725VBI-K module is a multi-function VBI keyer. Every program input vertical interval video line can be programmed to pass upstream video, blank the line, insert any VBI line from the SDI Key input, insert a selectable VITS (vertical interval test signal), or insert a user captured test signal. The unit provides the capability to store different VBI configurations as presets and recall them from the card edge control or via 8 opto-isolated GPI inputs. The 7725VBI-K is setup via a card edge control and an on screen display.

This unit is often used in critical on-air applications and hence bypass relay protection of the program video path is provided.

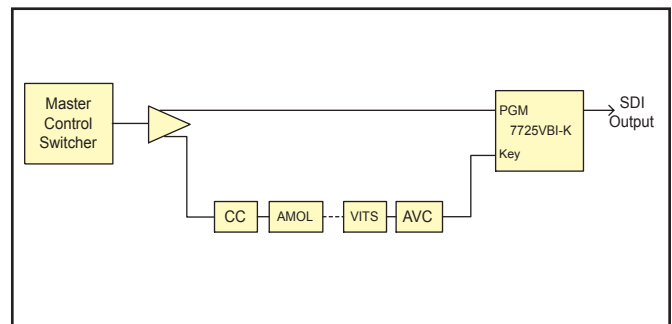
Features:

- One SDI 525 or 625, 270 Mb/s component digital program video input
- Video input relay bypass for power failure bypass protection
- One SDI 525 or 625, 270 Mb/s component digital Key video input
- One composite analog video output with On Screen Menu text
- A comprehensive on screen menu is available to configure the various features of the module
- 128 different Preset VBI keying configurations
- Up to 64 line patterns may be captured from any line and stored in User Memories for later insertion on any VBI line
- Extensive library of Factory preset test signals
- Each line of VBI independently programmable to pass, blank, insert from key signal, insert from user memory or insert factory test signals
- On Air Preset configuration selected with GPI or Menu selection
- Non-volatile memory protects current configuration in case of power loss
- Fully hot swappable from front of frame.

Applications:

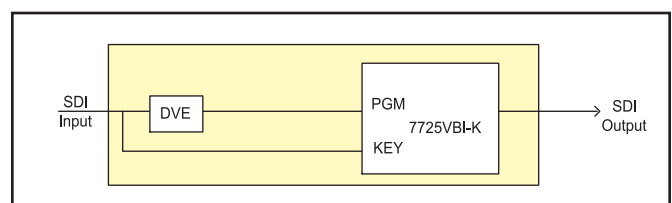
Master control output chain protection

Typically there are several units "chained" together on the output of a master control switcher. Units such as caption encoders, AMOL encoders, VITS inserters, data encoders, etc. are typically connected in series so that if one unit fails the network output will fail. The 7725VBI-K provides the capability to create a "side chain" whereby the main program path feeds directly into the program input of the device and the "chained" string of VBI insertion products feed the secondary key input.



Line 21 caption squeeze back bypass (VBI bridging)

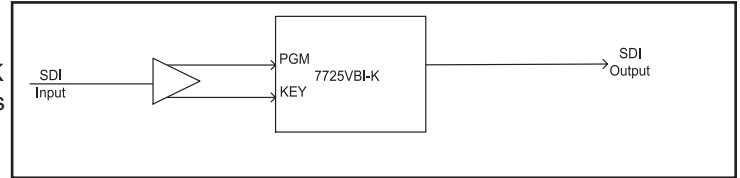
Some processing devices modify or destroy VBI data such as captioning or VITC. An example of this occurs with some DVE's during a squeeze back application. The 7725VBI-K device will provide a bypass of VBI around the processing device.



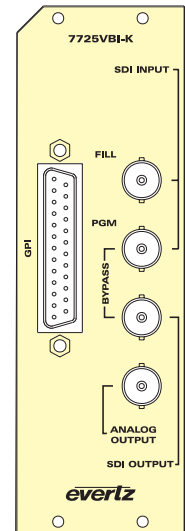
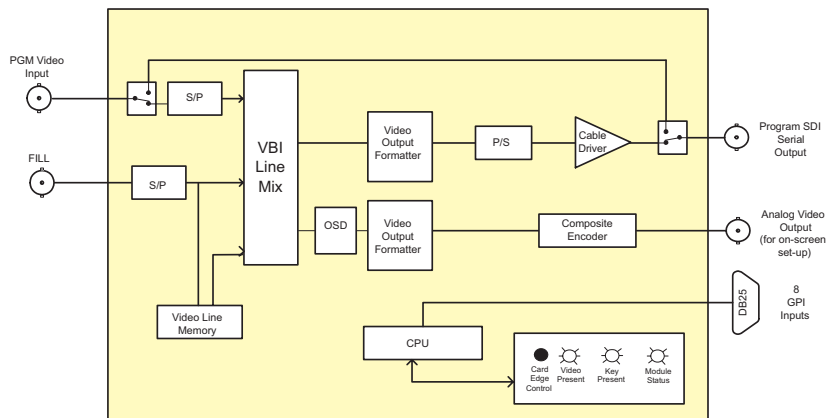
SDI VBI Sidechain Bridge

VBI Line Shuffler

By providing the same feed to both inputs of the 7725VBI-K the unit will allow the user to modify the VBI and move lines as necessary.



7725VBI-K Block Diagram



Specifications:

Serial Video Input:

Standard: SMPTE 259M-C
Number of Inputs: 1 for Program video (PGM)
1 for Key Signal to insert (FILL)
PGM and FILL need to be synchronous and timed w.r.t. each other (+/- 1/2 line)
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 250m (min) @ 270Mb/s with Belden 8281 or equivalent cable
Return Loss: > 15dB

Serial Video Output:

Number of Outputs: 1 (Bypass Protected)
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 740ps nominal
Overshoot: 10% of amplitude
Wide Band Jitter: < 0.2 UI (Reclocked)
Return Loss: > 15dB

Analog Video Output:

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V +/- 0.1V
Return Loss: >35dB up to 5MHz
Frequency Response: 0.8dB to 4 MHz
Differential Phase: <0.9° (<0.6° typical)
Differential Gain: <0.9% (<0.5% typical)
SNR: >56dB to 5MHz (shallow ramp)

General Purpose In/Out:

Number of Inputs: 8
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: Female DB-25
Input signal: Closure to ground
Signal Level: +5V nominal

Electrical:

Voltage: +12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC directive

Physical:

Number of slots: 2

Ordering Information:

7725VBI-K SDI VBI Sidechain Bridge

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Component Analog Video to SDI Converter

Model 7730ADC



The 7730ADC line of component analog video to serial digital converters are broadcast quality A to Ds with an extensive list of additional features. High quality analog to digital conversion of audio inputs can be packaged with the video to create a A to D frame synchronizer with audio embedder. In addition, Evertz fault monitoring processing will analyze and report video and audio problems via an On-Screen-Display, or remotely via VistaLINK™ SNMP.

The 7730ADC (1 slot module) and the 7730ADC-A4 (2 slot module) are housed in the 7700FR-C (15 slots) or in the 7701FR Multiframe (houses 3 modules).

Features

Features of the A to D process:

- 10 bit, 54MHz sampling of input video
- Internal processing to maintain 10 bit digital video quality
- Y, Pb, Pr or G, B, R input support
- Black level clamp on all components
- User adjustable input video processing functions: black level control on all 3 components, gain control on all 3 components, inter-channel delay control in 18 ns increments
- Sync on green or separate sync input
- 300mV or 4V separate sync support

Features of all 7730ADC's are:

- Three input BNCs for YPbPr or RGB input
- One sync input BNC for separate sync
- Two SDI 525 or 625, 270Mb/s component digital video output WITHOUT OSD text or audio bargraphs
- One combination output that can either be an extra SDI output or composite analog video output. When configured as a composite analog output it can either be a clean output (no OSD), or have the OSD text and bargraph graphics for monitoring
- EDH encoding on SDI output
- One combination input BNC that can either be an LTC input or a composite analog reference input (NTSC or PAL-B). 75Ω or high-Z, jumper configurable input impedance
- One frame video synchronizer (with +S option)
- Infinitely variable output phase (27MHz clock increments)
- Freeze modes: black, freeze, pass
- Menu adjustable free running frequency
- VU/PPM bargraph level Indicators

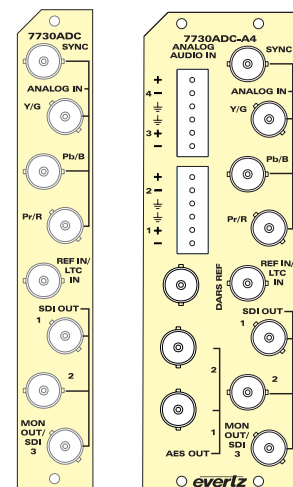
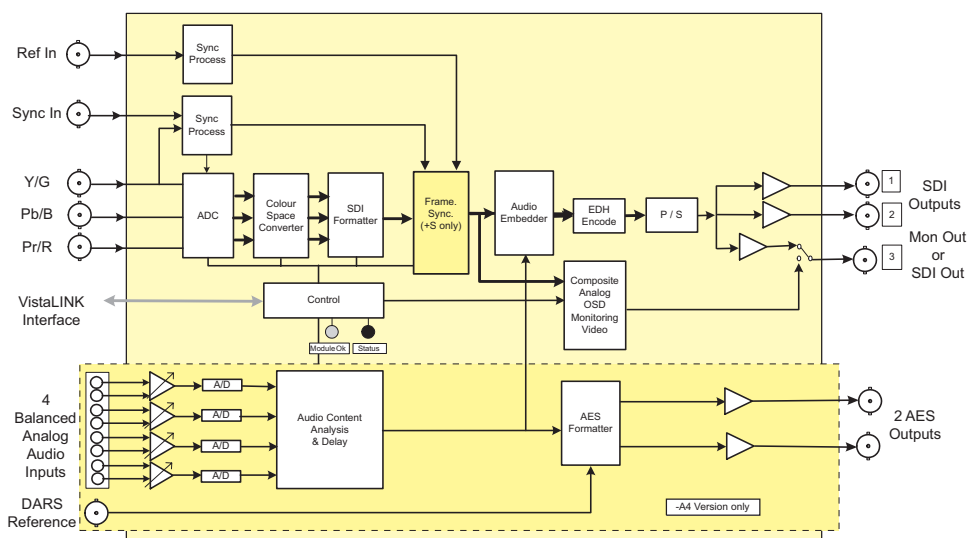
- Decodes vertical interval time code (VITC) and "burns" the time code into the OSD Monitoring output
- A comprehensive on screen display is available to configure the various features of the module
- Flexible configuration of the text and audio bar graph information displays
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
- On screen messages can be triggered by the configured fault conditions
- Fault conditions are reported via VistaLINK™ SNMP

- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

Features of -A4 option are:

- 4 balanced analog audio inputs on 2 removable barrier strips
- High impedance inputs (user supplies termination resistors for other impedance's)
- Analog audio input levels are adjustable. Jumpers set coarse input levels, fine input levels are set by software control
- Audio delay equivalent video delay (with +S option)
- Additional audio delay of up to 5 seconds
- Audio advance of up to 1 frame less 3 microseconds
- One group (4 channels of audio) is multiplexed on the outgoing digital video
- 2 unbalanced AES audio outputs delayed equivalently to the video delay
- 75Ω coaxial (unbalanced) DARS reference input on BNC
- Loss of video modes: pass audio, mute audio

7730ADC Block Diagram



Component Analog Video to SDI Converter

Specifications

Analog Video Input:

Standard: Y, Pb, Pr or G, B, R : SMPTE/EBU N10, Betacam™, MII, and other NTSC related
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Frequency Lock Range: ±75ppm from nominal
Input level control range: ±15%
Black level control range: ±5 IRE
Input Impedance: 75Ω
Return Loss: >30dB to 30MHz

Reference Video Input:

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Frequency Lock Range: ±75ppm from nominal
Input Impedance: 75Ω or High impedance (jumper selectable)
Return Loss: >35dB to 10MHz

Analog Video Output:

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75Ω
Return Loss: >35dB to 10MHz

Serial Video Output:

Standard: SMPTE 259M-C - 525 or 625 line component.
Number of Outputs: 3
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB to 270MHz
Embedded Audio: SMPTE 272M-A

Video Performance (SDI outputs only):

Frequency Response: <±??dB (100kHz to 4.1MHz)
Noise Floor: < -??dBms (15kHz to 5MHz)
Inter-channel Delay: <±9ns
Minimum Delay: 3 μsec
Maximum Delay: 1 frame plus 3 μsec

Analog Audio Input (-A4 only):

Number of Inputs: 4
Type: Balanced analog audio
Connector: Removable terminal strip
Input Impedance: 20kΩ minimum (differential)
Sampling Frequency: 48kHz
Signal Level: 0dB FS => 18 or 24dBu (jumper selectable)
Level Control Range: +/- 10dB
Frequency Response: +/- 0.1dB (20Hz to 20kHz) (broadcast quality)
SNR: 100dB with input at -0.5dBFS
THD+N: <0.001% (>100dB) @ 20Hz to 20kHz, -0.5 dB FS (input video locked to genlock video)
CMRR: >100dB @ 1kHz

AES Outputs (-A4 only):

Number of Outputs: 2
Output Standard: SMPTE 276M, single ended synchronous AES 48kHz
Connectors: BNC per IEC 60169-8 Amendment 2
Resolution: 24 bits
Sampling Rate: Synchronous 48kHz
User Bits: Transferred to output in a non-real-time, non-block-contiguous manner

Minimum I/O Delay: 2.1μs
Maximum I/O Delay: 5 seconds

Electrical:

Voltage: + 12VDC
Power: 11 Watts ADC + 9 Watts (-A4 option) = 20 Watts total
EMI/RFI: Complies with FCC Part 15, class A EU EMC Directive

Physical:

7700 frame mounting:
Number of slots: 1 for non-audio versions
2 for audio version (-A4)
Stand Alone Enclosure:
Dimensions: 14 " L x 4.5 " W x 1.9 " H
(355 mm L x 114 mm W x 48 mm H)
Weight: Approx. 1.5 lbs. (0.7 Kg)

Ordering Information:

7730ADC: Component Analog Video to SDI Converter
7730ADC-A4: Component Analog Video to SDI Converter with a four-channel Analog Audio converter/embedder

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

+S Optional frame synchronizer

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD Component Analog Video to HD SDI Converter

Model 7730ADC-HD



The 7730ADC-HD line of component analog video to serial digital converters are broadcast quality high definition A to Ds with an extensive list of additional features. High quality analog to digital conversion of audio or AES inputs can be packaged with the video to create an A to D with audio embedder. In addition, Evertz fault monitoring processing will analyze and report video and audio problems via an On-Screen-Display, or remotely via VistaLINK™ SNMP.

Features

The Features of the A to D process:

- 10 bit, 74.25MHz/(1.001) sampling of input video.
- Internal processing to maintain 10 bit digital video quality.
- Y, Pb, Pr or G, B, R input support.
- Black level clamp on all components.
- User adjustable input video processing functions: black level control on all components, gain control on all components, inter-channel delay and picture position control in 13.5 ns increments.
- Sync on green or separate sync input.

The Features of all 7730ADC-HD's are:

- Three input BNCs for Y, Pb, Pr or G, B, R input.
- One sync input BNC for separate sync.
- Two HD SDI 74.25 or 74.176 Mb/s component digital video output WITHOUT OSD text or audio bargraphs.
- One combination output that can either be an extra HD SDI output or composite analog video output. When configured as a composite analog output it will be a clean output (no picture), and have the OSD text and bargraph graphics for monitoring.
- One line video synchronizer.
- Variable output phase (in clock increments).
- Loss of video modes: black, pass
- A comprehensive on screen display is available to configure the various features of the module

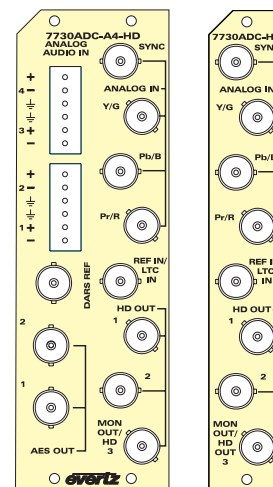
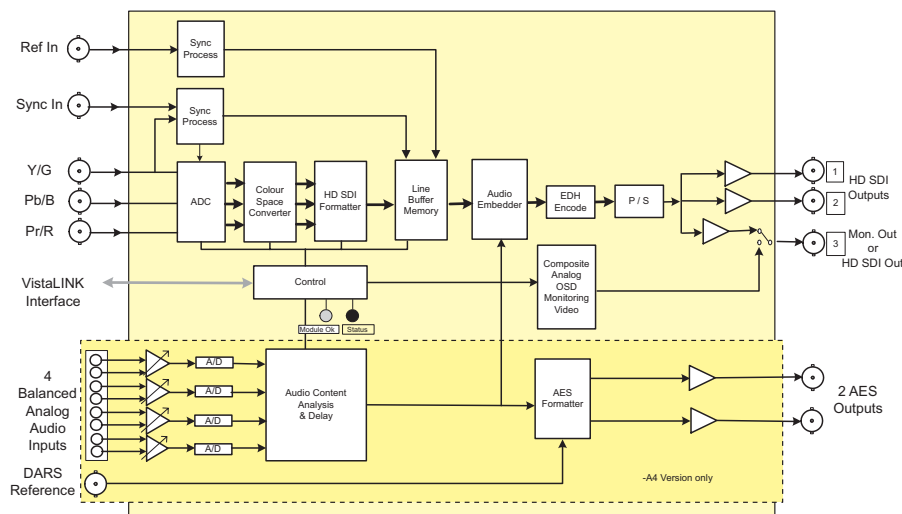
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

The Features of "-A4" option are:

- 4 balanced analog audio inputs on 2 removable barrier strips.
- High impedance inputs (user supplies termination resistors for other impedance's)
- Analog audio input levels are adjustable. Jumpers set coarse input levels, fine input levels are set by software control.
- Audio delay of up to 5 seconds.
- One group (4 channels of audio) is multiplexed on the outgoing digital video.
- 2 unbalanced AES audio outputs delayed equivalently to the embedded audio delay.
- 75Ω coaxial (unbalanced) DARS reference input on BNC.
- Loss of video modes: pass audio, mute audio

HD Component Analog Video to HD SDI Converter

7730ADC-HD Block Diagram



Specifications

Analog Video Input:

Standard: SMPTE 274M, 296M(analog), 1080i/59.94, 720p/59.94, 1080i/50 GBR or YPbPr
Input formats:
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Frequency Lock Range: ± 75 ppm from nominal
Input level control range: $\geq \pm 15\%$
Black level control range: $\geq \pm 10$ IRE
Input Impedance: 75 Ω
Return Loss: > 30 dB to 30MHz

Reference Video Input:

Standard: Tri-level sync, analog SMPTE 274M, 296M NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Frequency Lock Range: ± 75 ppm from nominal
Input Impedance: 75 Ω or High impedance (jumper selectable)
Return Loss: > 35 dB to 10MHz

Monitoring Analog Video Output:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75 Ω
Return Loss: > 30 dB to 10MHz

Serial Video Output:

Standard: SMPTE 292M (274M, 296M)
Number of Outputs: 2+1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5 V
Rise and Fall Time: 180ps nominal
Overshoot: $< 10\%$ of amplitude
Return Loss: > 13 dB to 1.5GHz
Embedded Audio: SMPTE 299M

Video Performance (HD SDI outputs only):

Frequency Response: (Y, Pb, Pr input)
Y: $< \pm 0.05$ dB to 30MHz
Cb, Cr: $< \pm 0.05$ dB to 15MHz
Inter-channel Delay: $< \pm 5$ ns
Minimum Delay: 0.5 μ s
Maximum Delay: 1 line plus 0.5 μ s

Analog Audio Input(-A4 only):

Number of Inputs: 4
Type: Balanced analog audio
Connector: Removable terminal strip
Input Impedance: 20k Ω minimum (differential)
Sampling Frequency: 48kHz

Signal Level:

0dB FS \Rightarrow 18 or 24dBu (jumper selectable)

Level Control Range:

± 10 dB

Frequency Response:

± 0.1 dB (20Hz to 20kHz) (broadcast quality)

SNR:

100dB with input at -0.5 dBFS

THD+N:

$< 0.001\%$ (> 100 dB) @ 1kHz, -0.5 dB FS (rev 2)

$< 0.001\%$ (> 100 dB) @ 20Hz to 20kHz, -0.5 dB FS (input video locked to genlock video)

CMRR:

> 100 dB @ 1kHz

AES Outputs (-A4 only):

Number of Outputs:

2

Output Standard:

SMPTE 276M, single ended synchronous AES 48kHz

Connectors:

BNC per IEC 60169-8 Amendment 2

Resolution:

24 bits

Sampling Rate:

Synchronous 48kHz

User Bits:

Transferred to output in a non-real-time, non-block-contiguous manner

Minimum I/O Delay:

2.1 μ s

Maximum I/O Delay:

5 seconds

Electrical:

Voltage:

+ 12VDC

Power:

14 Watts ADC + 9 Watts (-A4 option) = 23 Watts

EMI/RFI:

Complies with FCC Part 15, Class A

EU EMC Directive

Physical:

7700 frame mounting:

Number of slots:

1 for non-audio versions
2 for audio versions (-A4)

Stand Alone Enclosure:

Dimensions:

14 " L x 4.5 " W x 1.9 " H
355 mm L x 114 mm W x 48 mm H
Approx. 1.5 lbs. (0.7 Kg)

Weight:

Ordering Information:

7730ADC-HD:

HD Component Analog Video to HD SDI Converter

7730ADC-A4-HD:

HD Component Analog Video to HD SDI Converter with a four-channel Analog Audio converter/embedder

Ordering Options

Rear Plate must be specified at time of order

Eg: Model + 3RU

Rear Plate Suffix

+3RU

3RU Rear Plate for use with 7700FR-C Multiframe

+1RU

1RU Rear Plate for use with 7701FR Multiframe

+SA

Standalone Enclosure Rear Plate

Enclosures:

7700FR-C

3RU Multiframe which holds 15 modules

7701FR

1RU Multiframe which holds 3 modules

S7701FR

Standalone enclosure

SDI D to A Component Analog Video Converter

Model 7730DAC



The 7730DAC line of serial digital video to component analog converters are broadcast quality D to A's with an extensive list of additional features. High quality digital to analog conversion of audio can be packaged with the video to create a D to A frame synchronizer with audio demux. In addition, Evertz fault monitoring processing will analyze and report video and audio problems via an On-Screen-Display, or remotely via VistaLINK™ SNMP.

Features

The Features of the D to A process:

- 12 bit, over sampled video DACs
- SMPTE/EBU N10, Betacam, MII and NTSC specific standards supported
- Y, Pb, Pr or G, B, R output format
- Selectable setup pedestal
- Black level and gain controls of all components
- 300mV separate composite sync output

The Features of all 7730DAC's are:

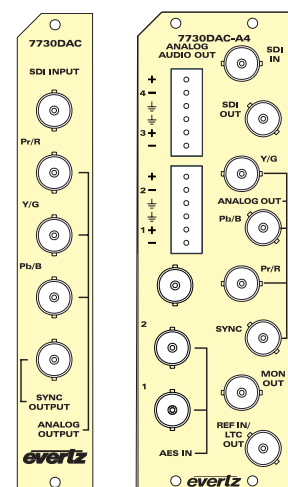
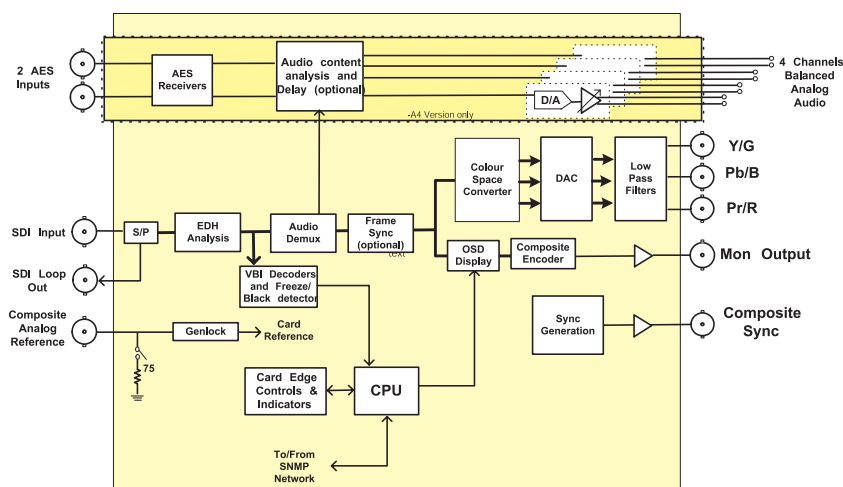
- SDI 525 or 625, 270 Mb/s component digital video input
- One 270 Mb/s re-clocked SDI output
- Four output BNCs for Y, Pb, Pr or G, B, R and composite sync
- One composite analog output on BNC for monitoring and control
- One frame video synchronizer (with +S option)
- Infinitely variable output phase (27MHz clock increments)
- Freeze modes: black, freeze, pass
- Menu adjustable free running frequency
- VU/PPM bargraph level Indicators
- Decodes vertical interval time code (VITC), and "burns" the time code into the monitoring output picture
- A comprehensive on screen display is available to configure the various features of the module
- Flexible configuration of the text and audio bar graph information displays
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
- On screen messages can be triggered by the configured fault conditions

- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

The Features of "-A4" option are:

- One group (4 channels) of synchronous 20-bit audio is de-multiplexed from the incoming digital video
- 2 unbalanced AES audio inputs (up to 48kHz, 24 bits) on BNC
- User selects EITHER the de-embedded audio or the input AES audio
- The selected audio is delayed equivalently to the video delay with the +S option
- 4 high quality 24 bit audio channels are output (analog) as balanced on 2 removable barrier strips
- Low impedance outputs (66Ω)
- Analog audio output levels are adjustable
- Additional audio delay of up to 5 seconds
- Additional audio advance of up to 1 frame, depending on video delay
- Loss of video modes: pass audio, mute audio

7730DAC Block Diagram



SDI D to A Component Analog Video Converter

Specifications

Serial Video Input:

Standard:	SMPTE 259M-C - 525 or 625 line component.
Number of Inputs:	1
Number of Reclocked Outputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2
Return Loss:	>15dB to 270MHz
Embedded Audio:	SMPTE 272M-A
Frequency Lock Range:	±75ppm from nominal

Analog Video Output:

Standards:	SMPTE/EBU N10, Betacam, MII and NTSC specific standards. GBR or YPbPr formats with or without setup
Number of outputs:	1
Connectors:	4 BNCs per IEC 169-8
Video signal Level:	1V nominal
Sync signal Level:	300mV nominal
Output level control range:	>± 7.5% (All components)
Black level control range:	±10 IRE
Input Impedance:	75Ω
Return loss:	>40dB to 10MHz

Reference Video Input:

Standard:	NTSC, SMPTE 170M PAL, ITU624-4
Number of Inputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	1V nominal
Frequency Lock Range:	±75ppm from nominal
Input Impedance:	75Ω or High impedance (jumper selectable)
Return Loss:	>35dB to 10MHz

Video Performance:

Frequency Response:	<±0.1dB (100kHz to 4.1MHz)
Noise Floor:	< -73dBms (15kHz to 5MHz)
Inter-channel Delay:	<±5ns
Minimum Delay:	3μsec
Maximum Delay:	1 frame plus 3μsec

Analog Audio Outputs (-A4 only):

Number of Outputs:	4
Type:	Balanced analog audio
Connector:	Two 6 pin removable terminal strips
Output Impedance:	66Ω balanced
Sampling Frequency:	48kHz
Signal Level:	0dBFS => 12 to 25dBu (user settable)
Frequency Response:	<+/- 0.05dB (20Hz to 20kHz)
Dynamic range:	24 bits when AES inputs selected, 20 bits when embedded audio selected
THD+N:	<0.001% (>100dB) @ 1kHz, -1dBFS
Crosstalk:	<-105dB (20Hz to 20kHz)
DC Offset:	<+/- 30mV
SNR:	>110dB "A" Weighting
Inter-Channel Phase Error:	<+/-1° (20Hz to 20kHz)

AES Audio Inputs (-A4 only):

Number of Inputs:	2
Input Standard:	SMPTE 276M, single ended synchronous or asynchronous PCM AES
Connector:	BNC per IEC 60169-8 Amendment 2
Resolution:	24 bits when AES inputs selected, 20 bits when embedded audio is selected
Input Sampling Rate:	32kHz to 48 kHz when AES inputs selected, Synchronous 48kHz when embedded audio is selected
Minimum I/O Delay:	3.5μsec

Electrical:

Voltage:	+12VDC
Power:	10 Watts DAC + 7.5 Watts (-A4 option) = 17.5 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

7700 frame mounting:	
Number of slots:	1 for non-audio versions 2 for audio versions (-A4)

Stand Alone Enclosure:

Dimensions:	14 " L x 4.5 " W x 1.9 " H (355 mm L x 114 mm W x 48 mm H)
Weight:	Approx. 1.5 lbs. (0.7 Kg)

Ordering Information:

7730DAC:	SDI D to A Component Analog Video Converter
7730DAC-A4:	SDI D to A Component Analog Video Converter with a four-channel Analog Audio converter/embedder

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

+S	Optional frame synchronizer
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Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

HD SDI to HD Component Analog Video Converter

Model 7730DAC-HD

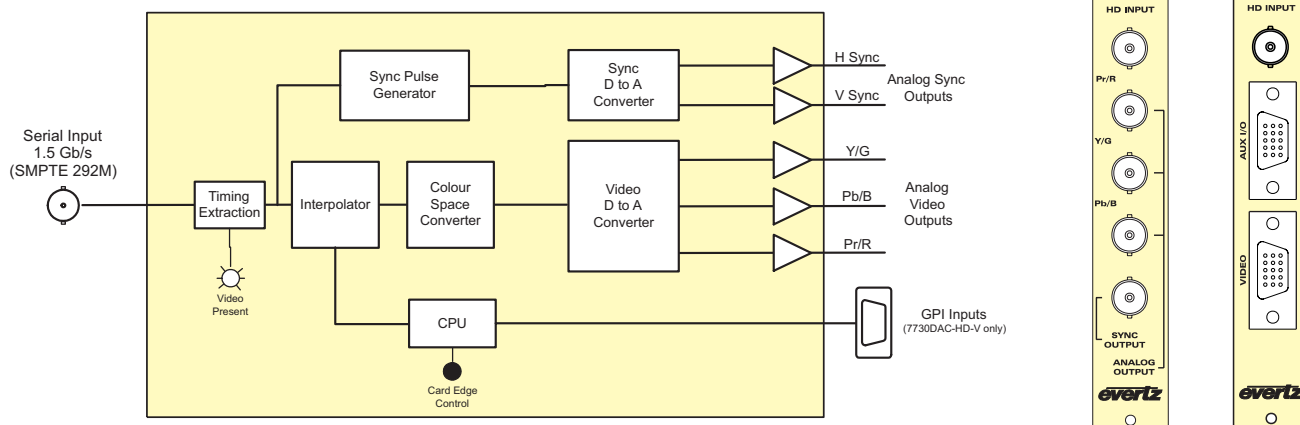
The 7730DAC-HD is a professional quality digital to analog converter for HDTV. The 7730DAC-HD supports all signal standards specified in SMPTE 274M and SMPTE 296M.

Card edge control allows the user to select RGB, YPrPb or VGA outputs. User controlled 4:3 alignment markers also allow for convenient framing of the video signal. The 7730DAC-HD is available in two versions to easily interface to standard broadcast monitors or VGA computer monitors.

Features

- Support for all SMPTE 274M and 296M video formats
- Full 10-bit Broadcast quality
- 4:4:4 Interpolated Component Output
- Card edge selectable YPrPb/RGB/VGA outputs
- GPI controllable 4:3 alignment markers
- Optional rear connector plates for use with VGA computer monitors

7730DAC-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 125m @ 1.5Gb/s with Belden 1694 (or equivalent)

Analog Video Outputs:

Standard: SMPTE 274M, 296M per nominal
Video: 1V p-p YPrPb/RGB or 0.7V p-p VGA
Sync: 300mV or 4V per nominal
Impedance: 75Ω
Connector: 4 BNC per IEC 60169-8 Amendment 2 (7730DAC-HD)
Female High Density DB15 (7730DAC-HD-V)
DC Offset: 0V ±0.1V

General Purpose Inputs (7730DAC-HD-V only):

Number of Inputs: 4
Type: Opto-isolated, active low with internal pull-ups to Vext pin.
May be internally jumped to +5V
Connector: Male High Density DB-15
Signal Level: +5V nominal

Electrical:

Voltage: +12V DC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7730DAC-HD: HD D to A Converter, YPrPb/RGB +Sync via BNC Outputs

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

+V VGA output

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Accessories:

WPGVABNC5: VGA to BNC - 6' Monitor Adapter Cable

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HDTV Progressive Format Translator

Model 7732PFT-HD

The 7732PFT-HD Progressive Format Translator converts 1.5 Gb/s HDTV digital video in the 1080p/24sF (1080p/23.98sF) format to 1080i/60 (1080i/59.94), thus allowing the source material to be viewed at a higher video refresh eliminating the annoying 24 Hz flicker. The 7732PFT-HD inserts extra fields to create a 3:2 pulldown of the picture content thus, increasing the video frame rate from 24 to 30 frames per second.

When an input video feed of 1080p/24sF (1080p/23.98sF) is detected, a 3:2 pulldown of the picture is inserted resulting in a 1080i/60 (1080i/59.94) output. Determination of the output sequence of the fields is determined from a 6 Hz input pulse or from RP188 ancillary time code if it is present. Dip switches allow the user to determine how the output pulldown aligns to the 6 Hz input or ancillary time code. If an input video feed of any other HD format is detected, it is simply passed through. When the 3:2 pulldown mode is turned off with a DIP switch or GPI input, the output video remains the same as the input video. An output tally indicates when the 3:2 pulldown mode is active and may be used to control external audio delay devices.

Features

- Automatic detection of 1080p/24sF video or 1080i/60 video input
- 3:2 cadence of output set from 6 Hz pulse input or incoming RP188 ANC time code
- 4:3 and 2.4:1 aspect ratio markers
- GPI Control of pulldown & aspect ratio markers
- Tally output indicates 3:2 pulldown insertion

Card Edge LEDs

- Video signal presence
- Pull down active
- Module status
- Local fault

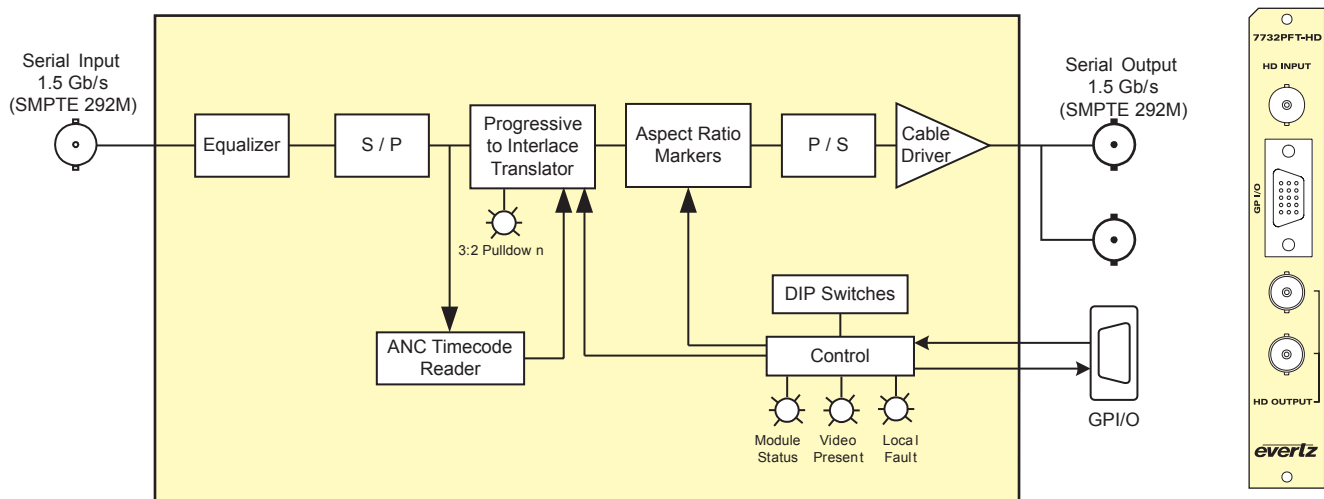
Input:

- SMPTE 292M - 1.5Gb/s serial digital 1080p/24sF (23.98Fps)
- Transparent pass-through input for all other SMPTE 292M HD video formats
- Auto equalization to 130m

Outputs:

- 2 serial HD SDI processed outputs
- When 3:2 pull down mode is active the 1080p/24sF (23.98Fps) input video is format converted to 1080i/60 (29.97Fps) on the output

7732PFT-HD Block Diagram



Specifications

Serial Video Input (1080p/24sF):

Standard:	SMPTE 292M
Connector:	BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 130m @ 1.5Gb/s with Belden 1694 (or equivalent)

Serial Video Outputs with 3:2 pulldown (1080i/60):

Connectors:	2 BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	200ps nominal
Overshoot:	<10% of amplitude
Wide Band Jitter:	<0.2UI

GPI/O:

Connector:	Female High Density DB-15
Impedance:	Opto- isolated, High Z
Inputs:	2 for Aspect Ratio markers 1 for 6 Hz input or pulldown disable 1 for 3:2 pulldown tally
Outputs:	

Electrical:

Voltage:	+12VDC
Power:	6 watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of Slots:	1
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Ordering Information:

7732PFT-HD	HDTV Progressive Format Translator
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

SDI Video D to A with Line Buffer, Quad Audio DAC with SoftSwitch™



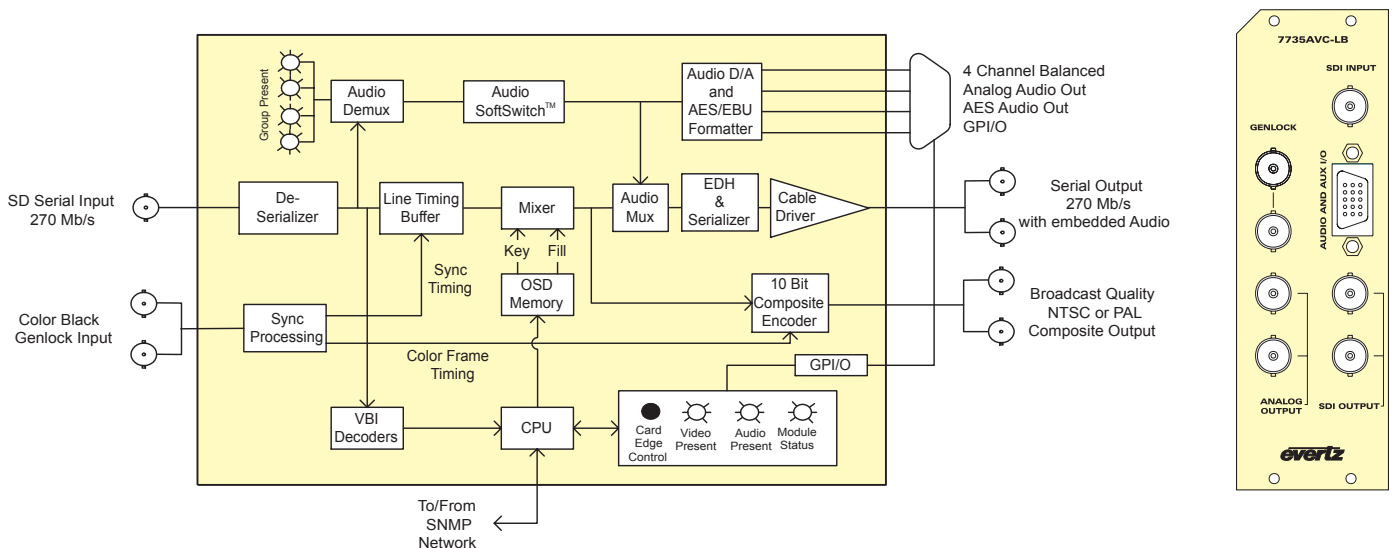
Model 7735AVC-LB

The 7735AVC-LB is a 10-bit component SDI to composite analog converter with line synchronizing buffer, audio demultiplex and digital to analog converter. The 7735AVC-LB is also equipped with Evertz SoftSwitch™ technology which mitigates audio pops during hot-switching while maintaining consistent video and audio sequences and formats. In addition, 7735AVC-LB modules are VistaLINK™ - enabled offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK™ is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame.

Features

- One SDI 525 or 625, 270 Mb/s component digital video input
- Two SDI 525 or 625, 270 Mb/s component digital video outputs
- Two composite analog video outputs
- Genlock reference loop input for proper timing and color framing
- Line synchronizing buffer allows re-timing of output video up to one line
- Embedded audio on input is de-embedded and re-embedded after re-timing
- Hot-switch audio pop mitigation through SoftSwitch™ technology
- One group (4 channels of audio) is de-multiplexed from the incoming digital video
- 4 adjustable analog audio outputs can be set so both are a mono mix of the selected channel pair
- Two pair of stereo balanced analog outputs and 2 AES digital audio outputs
- VistaLINK™ monitoring of an extensive list of error and fault conditions including freeze or black video, etc.
- RS-232 data logging port to log fault conditions
- Two GPI and one GPO to control and report user definable fault conditions through high density DB15 connector
- Bulkhead panel is available to facilitate wiring to the high density DB15 connector (up to 10 - 7735AVC-LB modules can be wired to each bulkhead panel)
- Comes with ConfigSet software to upload or download board configurations to a PC. Setups can be copied from one module to another to facilitate configuration of large numbers of modules
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

7735AVC-LB Block Diagram



SDI Video D to A with Line Buffer, Quad Audio DAC with SoftSwitch™

Specifications

Serial Digital Video Input:

Standard: SMPTE 259M-C 525 or 625 line
Connector: BNC per IEC 60169-8 Amendment 2
Termination: 75Ω
Equalization: Automatic >200m @ 270Mb/s with Belden 8281 (or equivalent)
Return Loss: >15dB up to 270MHz
Embedded Audio: SMPTE 272M-A

Serial Digital Video Output:

Standard: SMPTE 259M-C 525 or 625 line
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 470ps nominal
Overshoot: <10% of amplitude
Embedded Audio: SMPTE 272M-A

Genlock Input:

Type: NTSC (SMPTE 170M) Color black 1V p-p
Number of Inputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Termination: High impedance loop through
Return Loss: >35dB up to 10MHz
SNR: >50dB
Levels: Min: 0.5Vp-p, Max: 1.5Vp-p
Max Subcarrier Jitter: < 3°

Analog Video Output:

Standard: NTSC, SMPTE 170M, PAL, ITU624-4
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal (user adjustable from menu)
DC Offset: 0V ±0.05V
Return Loss: > 35dB up to 5MHz
Frequency Response: 0.1dB to 4 MHz, 0.15dB to 5.5 MHz
Differential Phase: < 0.5° (<0.3° typical)
Differential Gain: < 0.5% (<0.3 % typical)
SNR: > 78dB to 5 MHz
Minimum Delay: 3μsec

Analog Audio Output:

Number of Outputs: 4
Type: Balanced analog audio
Connector: Female High Density DB-15
Output Impedance: 33Ω
Sampling Frequency: 48kHz
Signal Level: 0dB FS =>8 to 24dBu (user settable)
NOTE: High impedance loads only (10 kΩ) Not for use with low impedance loads (i.e. 600Ω)
Frequency Response: < 0.05dB (20Hz to 15kHz)
< 0.1dB (20Hz to 20kHz)
Dynamic Range: > 84dB RMS
THD+N: > 74dB RMS @ 1kHz, relative to 14dBu
> 63dB RMS @ 20Hz to 20kHz, relative to 14dBu
Crosstalk: < -75dB RMS (20Hz to 20kHz)

AES Audio Outputs:

Number of Outputs: 2
Standard: SMPTE 276M, single ended synchronous or asynchronous AES
Connectors: High-density female DB-15
Resolution: 20 bits (from embedded audio)
Sampling Rate: 48 kHz
Impedance: 75Ω unbalanced

General Purpose Interface I/O (GPI/GPO):

Number of Inputs: 2
Number of Outputs: 1
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: Female High Density DB-15
Signal Level: +5V nominal

Control and Data Logging Serial Port:

Standard: RS-232
Connector: Female High Density DB-15
Format: As per AVC Control/Status Protocol Document (contact factory)

Electrical:

Voltage: + 12VDC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 2

Ordering Information:

7735AVC-LB SDI Video D to A with Line Buffer, Quad Audio DAC with SoftSwitch™

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Composite Video A to D with optional Frame Synchronizer, Quad Audio ADC & Audio Embedder



Model 7735CDM (-A4, -AES)

The 7735CDM line of composite analog video to serial digital video converters are broadcast quality decoders with an extensive list of additional features. Composite analog video is converted to 10-bit parallel data and decoded to 4:2:2 digital component video using Faroudja patented technology. In addition, high quality audio analog to digital conversion or AES inputs can be packaged with the decoder to create a video/audio frame synchronizer with audio embedder.

The 7735CDM product features various video processing functions such as VITC, closed captioning and Source Identification decoding and monitoring, as well as monitoring for black and freeze conditions. The audio is processed, by the CPU, to extract level information for creating and displaying level and phase bar graphs. In addition, the audio is analyzed for periods of high level, silence, mono, and out-of-phase conditions. All of this status information is displayed on the monitoring composite analog composite output via on-screen display (OSD) overlay.

VistaLINK™ - enables remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage operations including signal monitoring and module configuration from SNMP enabled control systems (Manager or NMS) locally or remotely.

Features

- 10-bit, 8fsc sampling of input video
- Internal processing to maintain 10-bit digital video quality
- Patented Faroudja adaptive 2D comb filtering technology
- Chroma AGC available, if desired
- User adjustable input video processing functions: black level, gain, hue, saturation (when chroma AGC is enabled)
- One composite analog input (NTSC or PAL-B). 75Ω or high-Z, jumper configurable input impedance
- One SDI 525 or 625, 270 Mb/s component digital video output without OSD text or audio bargraphs
- One monitoring composite analog video output with OSD text and bar graph graphics
- EDH encoding on SDI output
- One composite analog reference input (NTSC or PAL-B) on BNC. 75Ω or high-Z, jumper configurable input impedance
- One frame video synchronizer (if -S option ordered)
- Infinitely variable output phase (27MHz clock increments)
- Freeze modes: Rev 2 hardware: black
- Freeze modes: Rev A and greater hardware: black, freeze
- Pot adjustable free running frequency
- VU/PPM bargraph level Indicators
- Decodes vertical interval time code (VITC) and "burns" the time code into the picture
- Decodes PESA format Source ID (8 characters) or Evertz format VITC Source ID (5 or 9 characters) and burns the ID into the picture
- A comprehensive on screen display is available to configure the various features of the module
- Flexible configuration of the text and audio bar graph information displays
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
- On screen messages can be triggered by the configured fault condition
- Image enhancement and noise reduction controls included
- TBC mode available for non-time base corrected signals

- Two GPI inputs are available to modify the display characteristics
- Two GPO output to indicate user definable fault conditions
- GPI/Os are available on a DB9 connector
- RS-232 Data logging port to log fault conditions

- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO or 9000NCP Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

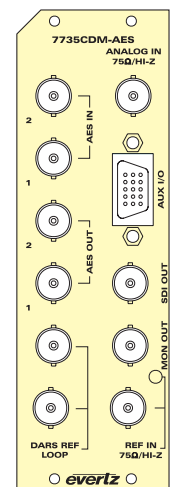
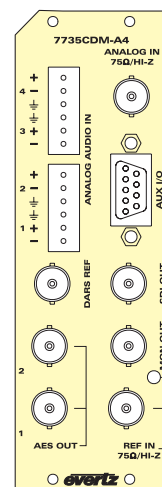
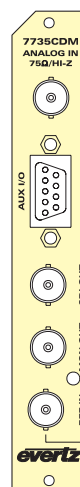
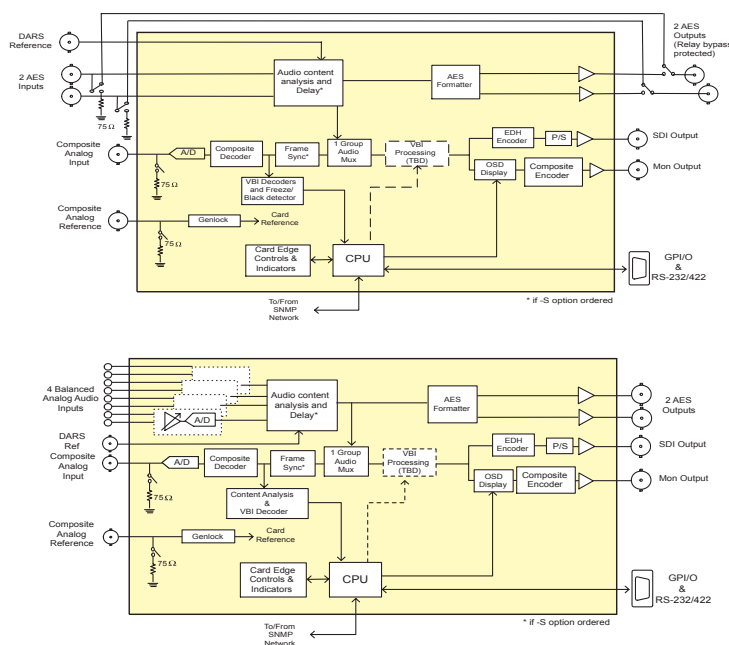
The Features of "-A4" option are:

- 4 balanced analog audio inputs on 2 removable barrier strips
- High impedance inputs (user supplies termination resistors for other impedance's)
- Analog audio input levels are adjustable. Jumpers set coarse input levels, fine input levels are set by software control
- Audio delay equivalent video delay
- Additional audio delay (5 seconds) or Advance (1 frame)
- One group (4 channels of audio) is multiplexed on the outgoing digital video
- 2 unbalanced AES audio outputs delayed equivalently to the video delay
- 75Ω coaxial (unbalanced) DARS reference input on BNC
- Loss of video modes: pass audio, mute audio

The Features of "-AES" option are:

- 75Ω coaxial (unbalanced) AES inputs (2) on BNC
- Audio delay equivalent to video delay
- Additional audio delay (5 seconds) or Advance (1 frame)
- One group (2 channels of audio) is multiplexed on the outgoing digital video
- 2 unbalanced AES audio outputs delayed equivalently to the video delay
- 75Ω coaxial (unbalanced) DARS reference input on BNC
- Loss of video modes: pass audio, mute audio
- Bypass relay protection

7735CDM/AES/A4 Block Diagrams



Composite Video A to D with optional Frame Synchronizer, Quad Audio ADC & Audio Embedder

Specifications

Analog Video Input:

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Freq. Lock Range: ± 75 ppm from nominal
Input Lvl Ctrl Range: ± 2 dB
Black Lvl Ctrl Range: ± 5 IRE
Chroma Lvl Ctrl Range: $\pm 20\%$ (only if chroma AGC enabled)
Hue Ctrl Range: $\pm 20^\circ$ (NTSC only)
Input Impedance: 75 Ω or high impedance (jumper selectable)
Return Loss: >30dB to 10MHz (Rev. 2 PCB)
>40dB to 10MHz
Hot Switch Lock up time: Between 15-45 frames (may be longer with noisy signals)

Reference Video Input:

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Freq. Lock Range: ± 75 ppm from nominal
Input Impedance: 75 Ω or high impedance (jumper selectable)
Return Loss: >25dB to 10MHz

Analog Monitoring Video Output:

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75 Ω
Return Loss: >35dB to 10MHz

Serial Video Output:

Standard: SMPTE 259M-C - 525 or 625 line component
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5 V
Rise/Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: >8dB to 270MHz (Rev. 2 PCB)
>15dB to 270MHz
Embedded Audio: SMPTE 272M-A

Decoder Performance (SDI output only):

Frequency Response: $\leq \pm 0.1$ dB (100kHz to 4.1Mhz)
Differential Gain: $\leq \pm 0.5\%$ typical
Differential Phase: $\leq \pm 0.2$ deg typical
Noise Floor: < -54dBrms (black video, 15kHz to 5MHz, Rev. 2 PCB)
< -56dBrms (black video, 15kHz to 5MHz)
< -60dBrms (VBI lines, black video, 15kHz to 5MHz)
C/L Gain: $\leq \pm 0.5\%$
C/L Delay: ≤ 9 ns
Minimum Delay: 3.25 lines
Maximum Delay: 1 frame plus 3.25 lines

Analog Audio Input ("-A4" version):

Number of Inputs: 4
Type: Balanced analog audio
Connector: Removable terminal strip
Input Impedance: 20k Ω minimum (differential)
Sampling Freq.: 48kHz
Signal Level: 0dB FS => 18, or 24dBu (jumper selectable)
Level Control Range: +/- 10dB
Frequency Response: +/- 0.1dB (20Hz to 20kHz)(broadcast quality)
100dB with input at -0.5dB FS
SNR: <0.001% (>100dB) @ 1kHz, -0.5dB FS (rev 2)
<0.001% (>100dB) @ 20Hz to 20kHz, -0.5dB FS (input video locked to genlock video)
THD+N: <0.001% (>100dB) @ 1kHz
CMRR: > 100dB @ 1kHz

AES Audio Inputs (-AES version):

Number of Inputs: 2
Input Standard: SMPTE 276M, single ended synchronous or asynchronous PCM AES
Connector: BNC per IEC 60169-8 Amendment 2
Resolution: 24 bits
Sampling Rate: 32kHz to 48kHz

AES Audio Outputs (-A4 & -AES version):

Number of Outputs: 2
Output Standard: SMPTE 276M, single ended synchronous AES
Connector: BNC per IEC 60169-8 Amendment 2
Resolution: 24 bits
Sampling Rate: 48kHz synchronous
User Bits: Transferred to output in a non-real-time, non-block-contiguous manner
Minimum I/O Delay: 2.5 μ s (-AES versions)
2.1 μ s (-A4 versions)

General Purpose In/Out:

Number of Inputs: 2 (behavior is assigned via on-screen menu items)
Number of Outputs: 2 (behavior is programmable via on-screen menu items)
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: Female DB-9
Signal Level: +5V nominal

Serial Port:

Standard: RS-232
Connector: Female DB-9
Baud Rate: 57600
Format: 8 bits, no parity, 2 stop bits, no flow control

Electrical:

Voltage: + 12VDC
Power: 10 Watts CDM + 9 Watts (-A4 option) = 19 Watts total
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of Slots: 1 for non-audio versions
2 for audio versions (-AES, -A4)

Ordering Information:

7735CDM	Analog video A to D with optional frame synchronizer
7735CDM-A4	Composite analog video to SDI decoder OSD and VistaLINK™ monitoring, control & fault reporting with optional frame synchronizer
7735CDM-AES	Composite analog video to SDI decoder OSD and VistaLINK™ monitoring, control and fault reporting, with two AES inputs and two AES outputs with optional frame synchronizer (not available in standalone enclosure)

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

+S Optional frame synchronizer

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Component Video D to A with optional Frame Synchronizer Audio Demux and Audio DAC



Model 7735CEM (-A4, AES)

The 7735CEM line of component serial digital to composite analog video converters are broadcast quality encoders with an extensive list of additional features. An audio de-embedder with high quality audio digital to analog conversion or AES inputs/outputs can be packaged with the encoder to create a video/audio frame synchronizer/conversion package.

The 7735CEM product features various video processing functions such as VITC, closed captioning and SID extraction during the encoding process, as well as monitoring video for black and freeze conditions. The audio is processed, to extract level information for creating and displaying level and phase bar graphs. In addition, the audio is analyzed for periods of high level, silence, mono, and out-of-phase conditions. All of this status information is displayed on the monitoring analog output via on-screen display (OSD) overlay.

VistaLINK™ enables remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage operations including signal monitoring and module configuration from SNMP enabled control systems (Manager or NMS) locally or remotely.

Features

The features of all 7735CEM's are:

- One component serial digital input (525 or 625)
- One composite analog video output WITHOUT OSD text or audio bargraphs
- Internal processing to maintain 10 bit digital video quality
- 10-bit output video digital to analog conversion
- One monitoring quality video output with OSD text and bargraph graphics
- User adjustable output video processing functions: black level (brightness), gain (contrast), hue and saturation
- EDH analysis on SDI input
- One composite analog reference input (NTSC or PAL-B) on BNC 75Ω or high-Z, jumper configurable input impedance
- One frame video synchronizer (with +S option)
- Infinitely variable output phase
- Freeze modes: black, freeze
- Adjustable free running frequency
- VU/PPM bargraph level indicators
- Decodes vertical interval time code (VITC) and "burns" the time code into the picture
- Decodes PESA format Source ID (8 characters) or Evertz format VITC Source ID (5 or 9 characters) and burns the ID into the picture
- A comprehensive on screen display is available to configure the various features of the module
- Flexible configuration of the text and audio bar graph information displays
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
- On screen messages can be triggered by the configured fault conditions
- Two GPI inputs are available to modify the display characteristics
- Two GPI/O output to indicate user definable fault conditions
- GPI/O's are available on a DB9 connector

- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

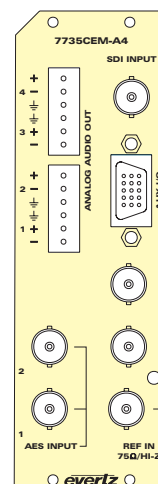
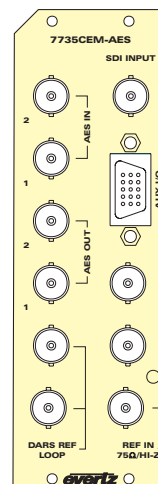
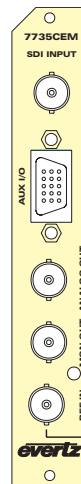
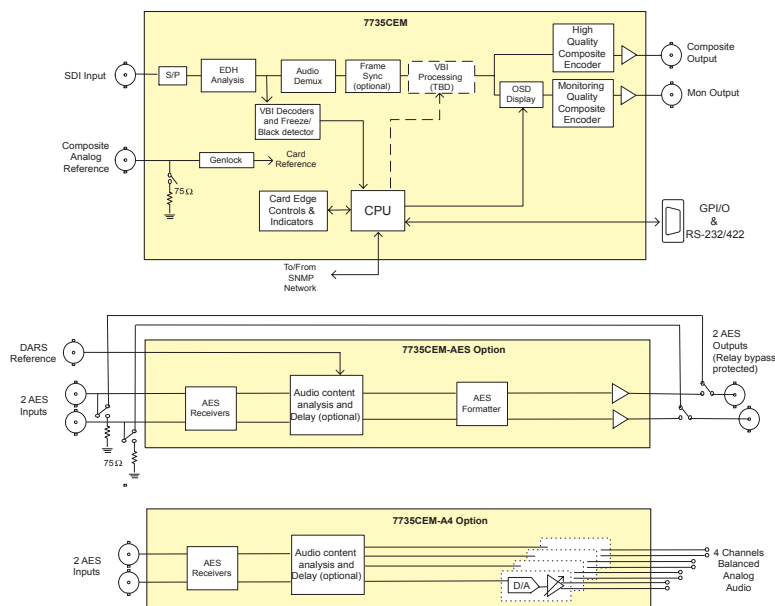
The Features of "-A4" option are:

- One group (4 channels) of synchronous 20-bit audio is de-multiplexed from the incoming digital video
- 2 unbalanced AES audio inputs (up to 48kHz, 24-bits) on BNC
- User selects EITHER the de-embedded audio or the input AES audio
- The selected audio is delayed equivalently to the video delay with the +S option
- 4 high quality 24 bit audio channels are output (analog) as balanced on 2 removable barrier strips
- Low impedance outputs (66Ω)
- Analog audio output levels are adjustable
- Additional audio delay of up to 5 seconds
- Additional audio advance of up to 1 frame, depending on video delay
- Loss of video modes: pass audio, mute audio

The Features of "-AES" option are:

- 75Ω coaxial (unbalanced) AES inputs (2) on BNC
- One group (4 channels of audio) is de-multiplexed on the incoming digital video
- User selects EITHER the de-embedded audio or the input AES audio
- Audio delay equivalent to video delay (with +S option)
- Additional audio delay of up to 5 seconds
- 2 unbalanced AES audio outputs
- Loss of video modes: pass audio, mute audio
- Bypass relay protection that allows removing the card without re-wiring AES audio

7735CEM/AES/A4 Block Diagrams



Component Video D to A with optional Frame Synchronizer Audio Demux and Audio DAC

Specifications

Analog Broadcast Video Output:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Input: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75Ω
DC Offset: 0V +/- 50mV
Return Loss: >35dB to 10MHz
Frequency Response: 0.1dB to 4 MHz (response will depend on selected filtering)

Differential Phase: < 0.5° (< 0.3° typical)
Differential Gain: < 0.5% (< 0.3% typical)
SNR: >75dB (black video, 100kHz to 5MHz)
Output level control range: ±10%
Black level control range: ±7.5 IRE
Chroma level control range: ±10%
Hue control range: ±15°. (NTSC only)
Minimum Delay: 3μs
Maximum Delay: 1 frame + 3μs (+S option only)

Reference Video Input:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal (0.5V to 1.5V)
Frequency Lock Range: ±75ppm from nominal
Input Impedance: 75Ω or High impedance (jumper selectable)
Return Loss: >25dB to 10MHz
Max Subcarrier Jitter: < 3°
Free-Running Frequency Control Range: > +/- 10 ppm (> +/- 270Hz)

Analog Monitoring Video Output:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75 Ω
Return Loss: >35dB to 10MHz

Serial Video Input:

Standard: SMPTE 259M-C - 525 or 625 line component
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB to 270MHz
Embedded Audio: SMPTE 272M-A
Frequency Lock Range: ±75ppm from nominal
Lock up time on a hot switch: 4 to 6 frames

Analog Audio Outputs (-A4 only):

Number of Outputs: 4
Type: Balanced analog audio
Connector: Two 6 pin removable terminal strips
Output Impedance: 66Ω balanced
Sampling Frequency: 48kHz
Signal Level: 0dBFS => 12 to 25dBu (user settable)
Frequency Response: <+/- 0.05dB (20Hz to 20kHz)
Dynamic range: 24 bits when AES inputs selected, 20 bits when embedded audio selected

THD+N: <0.001% (>100dB) @ 1kHz, -1dBFS
Crosstalk: <-105dB (20Hz to 20kHz)
DC Offset: <+/- 30mV
SNR: >110dB "A" Weighting
Inter-Channel Phase Error: <+/-1° (20Hz to 20kHz)

AES Audio Inputs (A4 and AES only):

Number of Inputs: 2
Input Standard: SMPTE 276M, single ended synchronous or asynchronous PCM AES
Connector: BNC per IEC 60169-8 Amendment 2

Resolution: 24 bits when AES inputs selected, 20 bits when embedded audio is selected

Input Sampling Rate: 32kHz to 48 kHz when AES inputs selected, Synchronous 48kHz when embedded audio is selected

Minimum I/O Delay: 3.5μs

AES Audio Outputs (AES only):

Number of Outputs: 2
Output Standard: SMPTE 276M, single ended synchronous AES
Connector: BNC per IEC 60169-8 Amendment 2
Resolution: 24 bits when AES inputs selected, 20 bits when embedded audio selected

Output Sampling Rate: Synchronous 48kHz
User Bits: Transferred to output in a non-real-time, non-block-contiguous manner

Minimum I/O Delay: 4.5μs

General Purpose In/Out:

Number of Inputs: 2 (behavior is assigned via. on-screen menu items)

Number of Outputs: 2 (behavior is programmable via. on-screen menu items)

Type: Opto-isolated, active low with internal pull-ups to +5V

Connector: Female DB-9

Signal Level: +5V nominal

Serial Port:

Standard: RS 232

Connector: Female DB-9

Baud Rate: 57600

Format: 8 bits, no parity, 2 stop bits, no flow control

Electrical:

Voltage: + 12VDC

Power: 9.25 Watts CEM + 16.75 Watts (-A4 option)

EMI/RFI: Complies with FCC Part 15, Class A

EU EMC Directive

Physical:

Number of slots: 1 for non-audio versions

2 for audio versions (-AES, -A4)

Ordering Information:

7735CEM: Component SDI to composite analog video encoder with optional frame synchronizer
7735CEM-A4: Component SDI to composite analog video and audio encoder with optional frame synchronizer
7735CEM-AES: Component SDI to composite analog video and audio encoder with optional frame synchronizer and two AES inputs and two AES outputs
(not available in standalone enclosure)

Ordering Options

Rear Plate must be specified at time of order

Eg: Model + 3RU

+S Optional frame synchronizer

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Accessories:

7700FC VistaLINK™ Frame Controller
9000NCP 1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2 2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Model 7736CD2



The 7736CD2 line of composite analog video to serial digital converters are dual broadcast quality decoders. High quality audio analog to digital conversion can be packaged with the decoder to create a video/audio frame synchronizer with audio embedder. In addition, control of the card is via an On-Screen-Display, or remotely via Vistalink™ SNMP.

Faroudja 2D adaptive comb filtering technology has been chosen so as not to introduce moving artifacts from the decoding process. This makes it ideal for use in applications where the signal is destined to enter MPEG compressors. "The low level of moving artifacts reduces the bit-rate required to digitally encode the signal for a given picture quality level by up to 20%."¹

Traditional adaptive and non-adaptive 2D comb filters can introduce artifacts in areas of high detail. However, "by using adaptive processing incorporating Faroudja's patented H-logic and V-logic interpolation algorithms to control both the comb filter itself and the narrow and wide band chroma filters, these artifacts are substantially reduced not only on horizontal and vertical edges, but on diagonal edges too. In this way, the chroma filters reduce chroma noise without blurring the signal at sharp transitions in any direction".²

1, 2 Faroudja Laboratories Inc., FLI2000S Data Sheet

Features

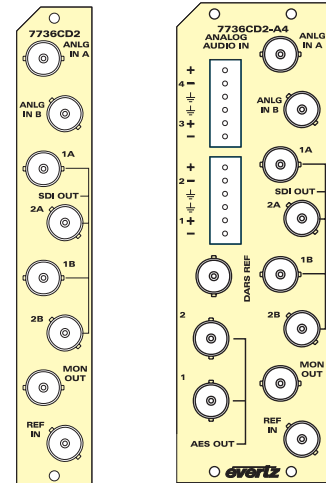
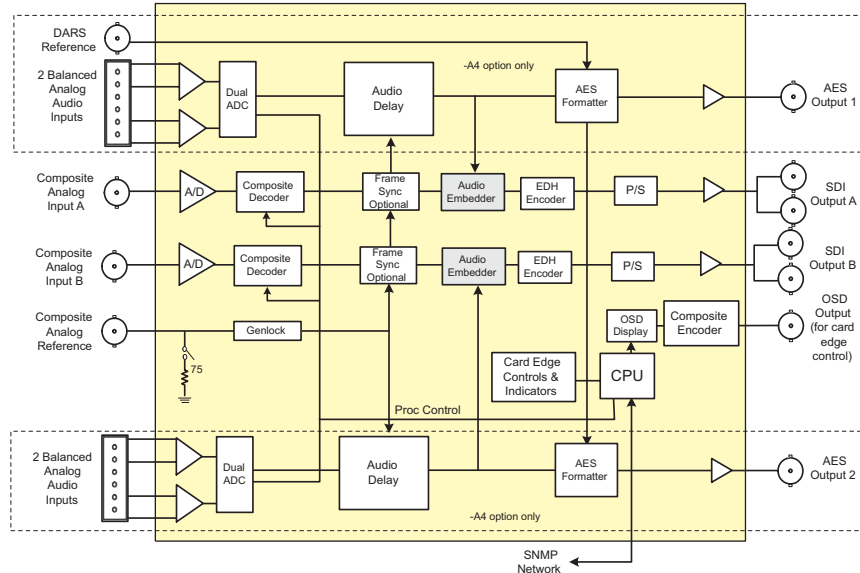
- One input BNC per channel. 75Ω or Hi-Z, jumper configurable input impedance
- Two SDI 525 or 625, 270 Mb/s component digital video output per channel WITHOUT OSD text
- EDH encoding on SDI outputs
- One composite analog video output with OSD text for card control
- One composite analog reference input (NTSC or PAL-B) on BNC. 75Ω or Hi-Z, jumper configurable input impedance. One time base for both channels
- Video frame synchronizer (with +S option)
- Infinitely variable output phase (27MHz clock increments)
- Freeze modes: black, freeze
- Adjustable free running frequency via OSD. Both channels must be free-running to be able to adjust frequency
- A comprehensive on screen display is available to configure the various features of the module
- User configurable luma and chroma detail enhancement
- User selectable noise reduction
- Chroma AGC available, if desired
- User adjustable input video processing functions: black level, gain, hue, and saturation (when chroma AGC is enabled)

The Features of "-A4" Option:

The Features of the Decoding Process:

- 12 bit, 8fsc sampling of input video.
- Internal processing to maintain 10 bit digital video quality
- Patented Faroudja adaptive 2D comb filtering technology
- Mode for support of non-time base corrected signals
- 4 balanced analog audio inputs (two stereo pair) on 2 removable barrier strips
- High impedance inputs (user supplies termination resistors for other impedance's)
- Analog audio input levels are adjustable. Jumpers set coarse input levels, fine input levels are set by software control
- Audio delay equivalent video delay (with +S option)
- Additional audio delay of up to 5 seconds
- Audio advance of up to 1 frame less 2.5 microseconds
- 2 channels (1/2 group) of audio is multiplexed onto each of the outgoing digital video
- 2 unbalanced AES audio outputs delayed equivalently to the associated video
- 75Ω coaxial (unbalanced) DARS reference input on BNC
- Loss of video modes: pass audio, mute audio

7736CD2 Block Diagram



Specifications

Analog Video Input:
Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Inputs: 1
Connector: 1 BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Frequency Lock Range: ± 75 ppm from nominal
Input level control range: ± 4 dB
Black level control range: ± 5 IRE
Chroma level control range: $\pm 20\%$ (only available if chroma AGC enabled)
Hue control range: $\pm 20^\circ$ (NTSC only)
Input Impedance: 75 Ω or High impedance (jumper selectable)
Return Loss: > 35 dB to 10MHz
Lock up time on a hot switch: Between 15 and 45 frames (may be longer with noisy signals)

Reference Video Input:
Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Inputs: 1
Connector: 1 BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Frequency Lock Range: ± 75 ppm from nominal
Input Impedance: 75 Ω or High impedance (jumper selectable)
Return Loss: > 25 dB to 10MHz

Analog Monitoring Video Output:
Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Outputs: 1
Connector: 1 BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75 Ω
Return Loss: > 35 dB to 10MHz

Serial Video Output:
Standard: SMPTE 259M-C - 525 or 625 line component.
Number of Outputs: 4 (2 per channel)
Connector: 1 BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5 V
Rise and Fall Time: 900ps nominal
Overshoot: $< 10\%$ of amplitude
Return Loss: > 15 dB to 270MHz
Jitter: < 0.09 UI (all outputs)
Embedded Audio: SMPTE 272M-A

Decoder Performance (SDI outputs only):
Frequency Response: $< \pm 0.1$ dB (100kHz to 4.2MHz)
Differential Gain: $< \pm 0.5\%$ typical
Differential Phase: $< \pm 0.2^\circ$ typical
Noise Floor: < -57 dB rms (black video, 15kHz to 5MHz)
 < -60 dB rms (VBI lines, black video, 15kHz to 5MHz)
 $< \pm 0.5\%$
C/L Gain: $< \pm 9$ ns
C/L Delay: 3.25 lines
Minimum Delay: 1 frame plus 3.25 lines
Maximum Delay: 1 frame plus 3.25 lines
Inter-channel crosstalk: Within noise floor measurement

Analog Audio Input (-A4 only):
Number of Inputs: 4 (2 per video channel)
Type: Balanced analog audio
Connector: Removable terminal strip
Input Impedance: 20k Ω minimum (differential)
Sampling Frequency: 48kHz
Signal Level: 0dB FS \Rightarrow 18 or 24dBu (jumper selectable)
Level Control Range: ± 10 dB
Frequency Response: ± 0.1 dB (20Hz to 20kHz) (broadcast quality)
SNR: 100dB with input at -0.5dBFS
THD+N: $< 0.001\%$ (> 100 dB) @ 1kHz, -0.5 dB FS (rev 2)
 $< 0.001\%$ (> 100 dB) @ 20Hz to 20kHz, -0.5 dB FS (input video locked to genlock video)
CMRR: > 100 dB @ 1kHz

AES Audio Outputs:
Number of Outputs: 2 (1 per channel)
Output Standard: SMPTE 276M, single ended synchronous AES
Connectors: 1 BNC per IEC 60169-8 Amendment 2
Resolution: 24 bits
Sampling Rate: synchronous 48kHz
Minimum I/O Delay: 2.1ms
Maximum I/O Delay: 2.5 seconds

Electrical:
Voltage: + 12VDC
Power: 12 Watts CD2 + 9 Watts (-A4 option) = 21 Watts total
EMI/RFI: Complies with FCC Part 15, Class A
 EU EMC directive

Physical:
7700 frame mounting: 1 for non-audio version
Number of slots: 2 for audio version

Ordering Information:
7736CD2 Dual Composite Decoder
7736CD2-A4 Dual Composite Decoder with 4 analog outputs

Ordering Options
 Rear Plate must be specified at time of order
 Eg: Model + 3RU

+S Optional Frame Synchronizer

Rear Plate Suffix
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:
7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Composite Analog Video A to D Converter with optional Frame Synchronizer

Model 7736CDM (-A4)



The 7736CDM line of composite analog video to serial digital converters are broadcast quality decoders with an extensive list of additional features. High quality audio analog to digital conversion can be packaged with the decoder to create a video/audio frame synchronizer with audio embedder. In addition, Evertz fault monitoring processing will analyze and report video and audio problems via an On-Screen-Display, or remotely via Vistalink™ SNMP.

Faroudja 2D adaptive comb filtering technology has been chosen to not introduce moving artifacts from the decoding process. This makes it ideal for use in applications where the signal is destined to enter MPEG compressors. "The low level of moving artifacts reduces the bit-rate required to digitally encode the signal for a given picture quality level by up to 20%."

Traditional adaptive and non-adaptive 2D comb filters can introduce artifacts in areas of high detail. However, "by using adaptive processing incorporating Faroudja's patented H-logic and V-logic interpolation algorithms to control both the comb filter itself and the narrow and wide band chroma filters, these artifacts are substantially reduced not only on horizontal and vertical edges, but on diagonal edges too. In this way, the chroma filters reduce chroma noise without blurring the signal at sharp transitions in any direction."

Features

The Features of the decoding process:

- 10 bit, 8fsc sampling of input video
- Internal processing to maintain 10 bit digital video quality
- Patented Faroudja adaptive 2D comb filtering technology
- Mode for support of non-time base corrected signals
- User configurable luma and chroma detail enhancement
- User selectable noise reduction
- Chroma AGC available, if desired
- User adjustable input video processing functions: black level, gain, hue, and saturation (when chroma AGC is enabled)

- Flexible configuration of the text and audio bar graph information displays
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
- On screen messages can be triggered by the configured fault conditions

• VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

The Features of all 7736CDM's are:

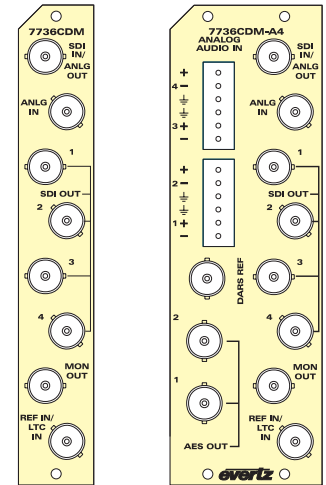
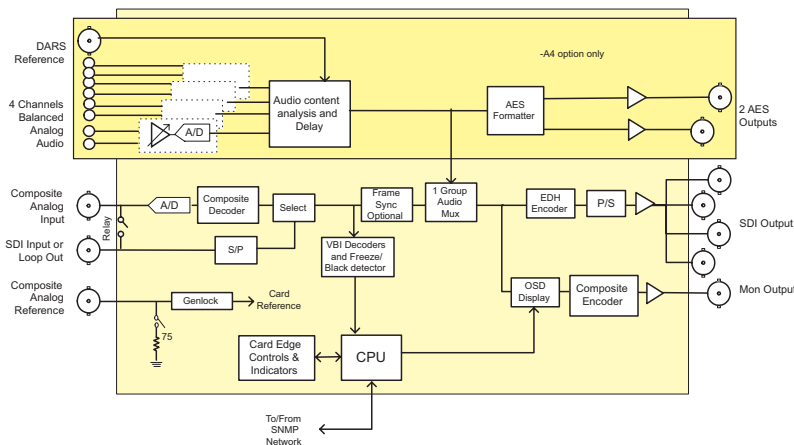
- Flexible input options for hybrid analog and digital plants/studios. Two input BNCs that can be configured either as; one composite analog loop input (NTSC or PAL-B) or a dual input with one channel of SDI and one channel of composite analog video (selectable)
- Four SDI 525 or 625, 270 Mb/s component digital video output WITH OUT OSD text or audio bargraphs
- One composite analog video output with OSD text and bargraph graphics
- EDH encoding on SDI output
- One composite analog reference input (NTSC or PAL-B) on BNC. 75Ω or high-Z, jumper configurable input impedance
- One frame video synchronizer (with +S option)
- Infinitely variable output phase (27MHz clock increments)
- Freeze modes: black, freeze
- Adjustable free running frequency via OSD
- VU/PPM bargraph level Indicators
- Decodes vertical interval time code (VITC) and "burns" the time code into the picture
- Decodes PESA format Source ID (8 characters) or Evertz format VITC Source ID (5 or 9 characters) and burns the ID into the picture
- A comprehensive on screen display is available to configure the various features of the module

The Features of "-A4" option are:

- 4 balanced analog audio inputs on 2 removable barrier strips
- High impedance inputs (user supplies termination resistors for other impedance's)
- Analog audio input levels are adjustable. Jumpers set coarse input levels, fine input levels are set by software control
- Audio delay equivalent video delay (with +S option)
- Additional audio delay of up to 5 seconds
- Audio advance of up to 1 frame less 3 microseconds
- One group (4 channels of audio) is multiplexed on the outgoing digital video
- 2 unbalanced AES audio outputs delayed equivalently to the video delay
- 75Ω coaxial (unbalanced) DARS reference input on BNC
- Loss of video modes: pass audio, mute audio

Composite Analog Video A to D Converter with optional Frame Synchronizer

7736CDM Block Diagram



Specifications

Analog Video Input:

Standard: NTSC, SMPTE 170M
PAL, ITU624-4

Number of Inputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1V nominal

Frequency Lock Range: ± 75 ppm from nominal

Input level control range: ± 5 dB

Black level control range: ± 5 IRE

Chroma level control range: $\pm 20\%$ (only available if chroma AGC enabled)

Hue control range: $\pm 20^\circ$ (NTSC only)

Input Impedance: 75 Ω or High impedance (depending on input mode)

Return Loss: > 35 dB to 10MHz

Lock up time on a hot switch: Between 15 and 45 frames (may be longer with noisy signals)

Serial Video Inputs:

Standard: SMPTE 259M-C - 525 or 625 line component.

Number of Inputs: 1

Number of re-clocked outputs: 0

Connector: BNC per IEC 60169-8 Amendment 2

Return Loss: > 15 dB to 300MHz

Embedded Audio: SMPTE 272M-A

Frequency Lock Range: ± 75 ppm from nominal

Reference Video Input:

Standard: NTSC, SMPTE 170M
PAL, ITU624-4

Number of Inputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1V nominal

Frequency Lock Range: ± 75 ppm from nominal

Input Impedance: 75 Ω or High impedance (jumper selectable)

Return Loss: > 25 dB to 10MHz

Analog Monitoring Video Output:

Standard: NTSC, SMPTE 170M
PAL, ITU624-4

Number of Outputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1V nominal

Output Impedance: 75 Ω

Return Loss: > 35 dB to 10MHz

Serial Video Output:

Standard: SMPTE 259M-C - 525 or 625 line component.

Number of Outputs: 4

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V ± 0.5 V

Rise and Fall Time: 900ps nominal

Overshoot: $< 10\%$ of amplitude

Return Loss: > 15 dB to 270MHz

Embedded Audio: SMPTE 272M-A

Decoder Performance (SDI output only):

Frequency Response: $< \pm 0.1$ dB (100kHz to 4.2MHz)

Differential Gain: $< \pm 0.5\%$ typical

Differential Phase: $< \pm 0.2^\circ$ typical

Noise Floor: < -56 dBms (black video, 15kHz to 5MHz)
 < -60 dBms (VBI lines, black video, 15kHz to 5MHz)

C/L Gain: $< \pm 0.5\%$

C/L Delay: $< \pm 9$ ns

Minimum Delay: 3.25 lines

Maximum Delay: 1 frame plus 3.25 lines (+S option only)

Analog Audio Input (-A4 only):

Number of Inputs: 4

Type: Balanced analog audio

Connector: Removable terminal strip

Input Impedance: 20k Ω minimum (differential)

Sampling Frequency: 48kHz

Signal Level: 0dB FS \Rightarrow 18 or 24dBu (jumper selectable)

Level Control Range: ± 10 dB

Frequency Response: ± 0.1 dB (20Hz to 20kHz) (broadcast quality)

SNR: 100dB with input at -0.5dBFS

THD+N: $< 0.001\%$ (> 100 dB) @ 20Hz to 20kHz, -0.5 dB FS (input video locked to genlock video)

CMRR: > 100 dB @ 1kHz

AES Audio Outputs (-A4 version only):

Number of Outputs: 2

Output Standard: SMPTE 276M, single ended synchronous AES

Connectors: BNC per IEC 60169-8 Amendment 2

Resolution: 24 bits

Sampling Rate: synchronous 48kHz

Minimum I/O Delay: 2.1ms

Maximum I/O Delay: 5 seconds

Electrical:

Voltage: + 12VDC

Power: 10 Watts CDM + 9 Watts (-A4 option) = 19 Watts total

EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 frame mounting: 1 for non-audio version
2 for audio version

Stand Alone Enclosure:

Dimensions: 14 " L x 4.5 " W x 1.9 " H
(355 mm L x 114 mm W x 48 mm H)

Weight: approx. 1.5 lbs. (0.7 Kg)

Ordering Information:

7736CDM Composite analog video to SDI decoder with auxiliary SDI input, OSD and VistaLINK™ monitoring with optional frame synchronizer

7736CDM-A4 Composite analog video to SDI decoder with auxiliary SDI input, analog audio to embedded and AES and OSD, with optional frame synchronizer, and VistaLINK™ monitoring, control & fault reporting

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

+S

Optional frame synchronizer

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

+SA Standalone Enclosure Rear Plate

Accessories:

7700FC VistaLINK™ Frame Controller

9000NCP 1RU VistaLINK™ General Purpose Network Control Panel

9000NCP2 2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

7701FR 1RU Multiframe which holds 3 modules

S7701FR Standalone enclosure

Dual Composite Encoder



Model 7736CE2

The 7736CE2 component serial digital to composite analog video converters are broadcast quality encoders with an extensive list of additional features. An audio de-embedder with high quality audio digital to analog conversion can be purchased with the encoder to create a video/audio frame synchronizer/conversion package. In addition, control of card is via an On-Screen-Display or remotely via VistaLINK™ SNMP.

Features

- Two component serial digital inputs (525 or 625).
- One composite analog video output per channel WITHOUT OSD text
- Internal processing to maintain 10 bit digital video quality.
- 12 bit output video digital to analog conversion.
- One monitoring quality video output with OSD text for card configuration.
- User adjustable output video processing functions: black level (brightness), gain (contrast), hue, and saturation.
- User selectable luminance and chrominance filters for different applications (i.e. broadcast vs. studio).
- User selectable horizontal blanking interval width: narrow, normal.
- One composite analog reference input (NTSC or PAL-B) on BNC 75Ω or high-Z, jumper configurable input impedance.
- Video Frame synchronizer (with +S option).
- Infinitely variable output phase.
- Freeze modes: black, freeze.
- Adjustable free running frequency. Both channels must be free running to be able to adjust frequency.
- A comprehensive on screen display is available to configure the various features of the module.

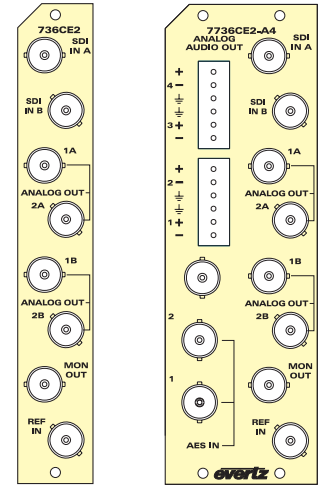
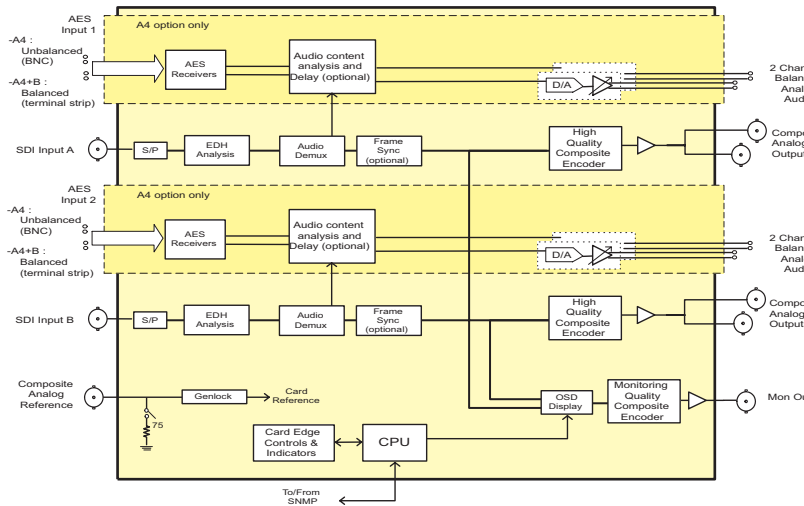
The Features of "-A4" Option:

Note: These are the features for each associated video channel.

- One half group (2 channels) of synchronous 20-bit audio is de-multiplexed from the incoming digital video.
- 1 unbalanced (or balanced) AES audio input (up to 48kHz, 24 bits) on BNC (or terminal strip for balanced audio).
- User selects EITHER the de-embedded audio or the input AES audio.
- The selected audio is delayed equivalently to the video delay with the +S option.
- 2 high quality 24 bit audio channels are output (analog) as balanced on 2 removable barrier strips.
- Low impedance outputs (66Ω).
- Analog audio output levels are adjustable.
- Additional audio delay of up to 2.5 seconds.
- Additional audio advance of up to 1 frame, depending on video delay.
- Loss of video modes: pass audio, mute audio.

Dual Composite Encoder

7736CE2 Block Diagram



Specifications

Serial Video Output:

Standard: SMPTE 259M-C - 525 or 625 line component.
Number of Inputs: 2
Number of re-clocked outputs: 0
Connector: BNC per IEC 60169-8 Amendment 2
Return Loss: >15dB to 270MHz
Embedded Audio: SMPTE 272M-A
Frequency Lock Range: ±75ppm from nominal
Lock up time on a hot switch: TBD

Analog Broadcast Video Output:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Inputs: 2 per input video
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75Ω
DC Offset: 0V +/- 50mV
Return Loss: >45dB to 10MHz
Frequency Response: <+/- 0.1dB to 4 MHz (response will depend on selected filtering)
Differential Phase: < 0.5° (< 0.3° typical)
Differential Gain: < 0.5% (< 0.3% typical)
SNR: >75dB (both channels black video, 100kHz to 5MHz)
Output level control range: ±10%
Black level control range: ±7.5 IRE
Chroma level control range: ±10%
Hue control range: ±15 deg. (NTSC only)
Minimum Delay: 3 μs
Maximum Delay: 1 frame + 3 μs (+S option only)

Reference Video Input:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal (0.5V to 1.5V)
Frequency Lock Range: ±75ppm from nominal
Input Impedance: 75Ω or High impedance (jumper selectable)
Return Loss: >25dB to 10MHz
Max Subcarrier Jitter: < 3 degrees
Free-Running Frequency Control Range: > +/- 10ppm (> +/- 270Hz)

Analog Monitoring Video Output:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75Ω
Return Loss: >35dB to 10MHz

Analog Audio Outputs (-A4 only):

Number of Outputs: 4 (2 per video channel)
Type: Balanced analog audio
Connector: Two 6 pin removable terminal strips
Output Impedance: 60Ω balanced
Sampling Frequency: 48kHz
Signal Level: 0dBFS => 12 to 25dBu (user settable)
Frequency Response: <+/- 0.05dB (20Hz to 20kHz)

Dynamic range:

24 bits when AES inputs selected, 20 bits when embedded audio selected
THD+N: <0.001% (>100dB) @ 1kHz, -1dBFS
Crosstalk: <-105dB (20Hz to 20kHz)
DC Offset: <+/- 30mV
SNR: >110dB "A" Weighting
Inter-Channel Phase Error: <+/-1° (20Hz to 20kHz)

Unbalanced AES Audio Inputs (-A4 only)

Number of Inputs: 2
Input Standard: SMPTE 276M, single ended synchronous or asynchronous PCM AES
Connectors: BNC per IEC 60169-8 Amendment 2
Resolution: Up to 24 bits
Input Sampling Rate: 32kHz to 48 kHz
Minimum I/O Delay: 3.5msec

Balanced AES Audio Inputs (-A4+B only)

Number of Inputs: 2
Input Standard: AES3-1992, balanced synchronous or asynchronous PCM AES
Connectors: One 6 pin removable terminal strip
Impedance: 110Ω
Resolution: Up to 24 bits
Sampling Rate: 32kHz to 48 kHz
Input Level: 2V to 7V p-p
Minimum I/O Delay: 3.5msec

Electrical:

Voltage: + 12VDC
Power: 10.2 Watts (7736CE2) 17.75 Watts (-A4 or -A4+B option)
EMI/RFI: Complies with FCC Part 15, class A and EU EMC directive.

Physical:

7700 frame mounting:
Number of slots: 1 for non-audio versions
2 for audio version (-A4, -A4+B)

Ordering Information:

7736CE2 Dual Composite Encoder
7736CE2-A4 Dual Composite Encoder with 4 analog outputs

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

+S Optimal Frame Synchronizer

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Component SDI to Composite Analog Video Encoder with optional Frame Synchronizer



Model 7736CEM, (-A4)

The 7736CEM line of component serial digital to composite analog video converters are broadcast quality encoders with an extensive list of additional features. An audio de-embedder with high quality audio digital to analog conversion can be packaged with the encoder to create a video/audio frame synchronizer/conversion package.

The 7736CEM product features various video processing functions such as VITC, closed captioning and SID extraction during the encoding process, as well as monitoring video for black and freeze conditions. The audio is processed, to extract level information for creating and displaying level and phase bar graphs. In addition, the audio is analyzed for periods of high level, silence, mono, and out-of-phase conditions. All of this status information is displayed on the monitoring analog output via on-screen display (OSD) overlay.

VistaLINK™ enables remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage operations including signal monitoring and module configuration from SNMP enabled control systems (Manager or NMS) locally or remotely.

Features

The features of all 7736CEM's are:

- One component serial digital input (525 or 625)
- One re-clocked component serial digital output
- EDH analysis on SDI input
- Four composite analog video outputs WITHOUT OSD text or audio bargraphs
- Internal processing to maintain 10 bit digital video quality
- 12 bit output video digital to analog conversion
- One monitoring quality video output with OSD text and bargraph graphics
- User adjustable output video processing functions: black level (brightness), gain (contrast), hue, and saturation
- User selectable luminance and chrominance filters for different applications (i.e. broadcast vs. studio)
- User selectable horizontal blanking interval width: narrow, normal.
- One composite analog reference input (NTSC or PAL-B) on BNC. 75Ω or high-Z, jumper configurable input impedance
- One frame video synchronizer (with +S option)
- Infinitely variable output phase
- Freeze modes: black, freeze
- Adjustable free running frequency
- Built-in colour bar generator
- VU/PPM bargraph level Indicators
- Decodes vertical interval time code (VITC) and "burns" the time code into the picture
- Decodes PESA format Source ID (8 characters) or Evertz format

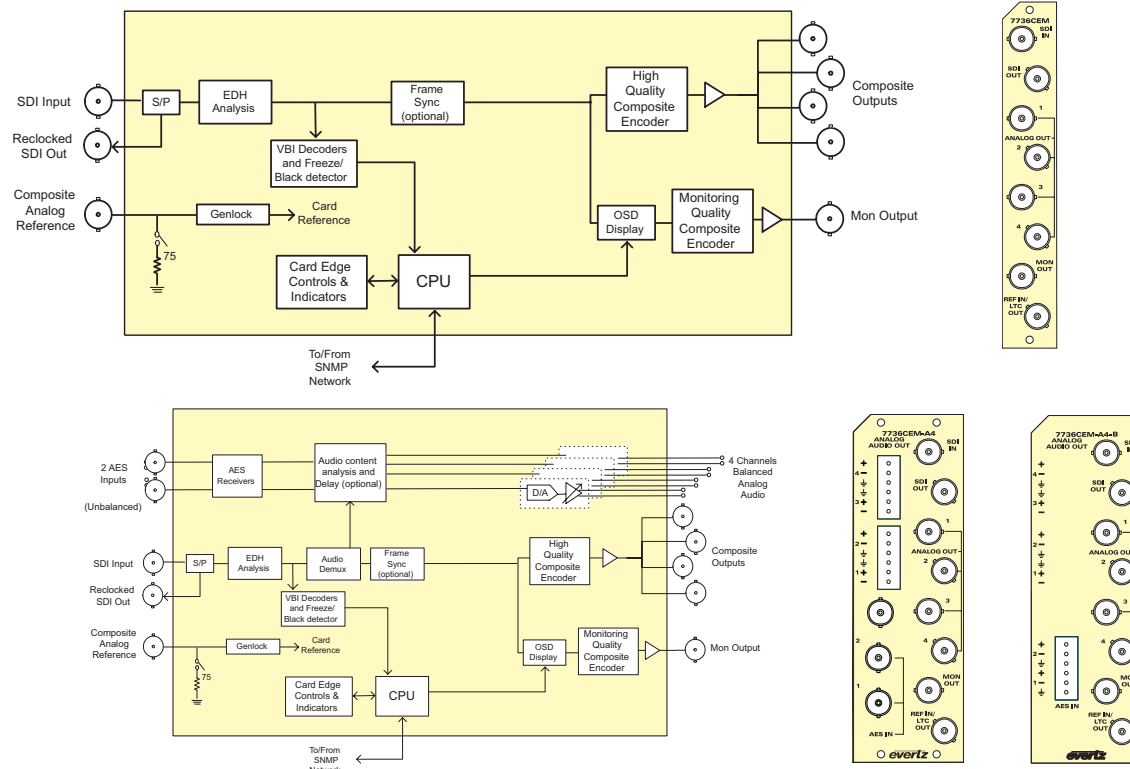
- VITC Source ID (5 or 9 characters) and burns the ID into the picture
- A comprehensive on screen display is available to configure the various features of the module
- Flexible configuration of the text and audio bar graph information displays
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
- On screen messages can be triggered by the configured fault conditions

- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

The Features of "-A4" version are:

- One group (4 channels) of synchronous 20-bit audio is de-multiplexed from the incoming digital video
- 2 unbalanced AES audio inputs (up to 48kHz, 24 bits) on BNC terminal strip
- User selects EITHER the de-embedded audio or the input AES audio
- The selected audio is delayed equivalently to the video delay with the +S option
- 4 high quality 24 bit audio channels are output (analog) as balanced on 2 removable barrier strips
- Low impedance outputs (66Ω)
- Analog audio output levels are adjustable
- Additional audio delay of up to 5 seconds
- Additional audio advance of up to 1 frame, depending on video delay
- Loss of video modes: pass audio, mute audio
- Optional balanced AES audio inputs (+B option)

7736CEM/A4 Block Diagrams



Component SDI to Composite Analog Video Encoder with optional Frame Synchronizer

Specifications

Analog Broadcast Video Output:

Standard:	NTSC, SMPTE 170M PAL, ITU624-4
Number of Inputs:	4
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	1V nominal
Output Impedance:	75Ω
DC Offset:	0V +/- 50mV
Return Loss:	>35dB to 10MHz
Frequency Response:	0.1dB to 4 MHz (response will depend on selected filtering)
Differential Phase:	< 0.5° (< 0.3° typical)
Differential Gain:	< 0.5% (< 0.3% typical)
SNR:	>75dB (black video, 100kHz to 5MHz)
Output level control range:	±10%
Black level control range:	±7.5 IRE
Chroma level control range:	±10%
Hue control range:	±15° (NTSC only)
Minimum Delay:	3μs
Maximum Delay:	1 frame + 3μs (+S option only)

Reference Video Input:

Standard:	NTSC, SMPTE 170M PAL, ITU624-4
Number of Inputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	1V nominal (0.5V to 1.5V)
Frequency Lock Range:	±75ppm from nominal
Input Impedance:	75Ω or High impedance (jumper selectable)
Return Loss:	>25dB to 10MHz
Max Subcarrier Jitter:	< 3°
Free-Running Frequency Control Range:	> +/- 10 ppm (> +/- 270Hz)

Analog Monitoring Video Output:

Standard:	NTSC, SMPTE 170M PAL, ITU624-4
Number of Outputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	1V nominal
Output Impedance:	75Ω
Return Loss:	>35dB to 10MHz

Serial Video Input:

Standard:	SMPTE 259M-C - 525 or 625 line component
Number of Inputs:	1
Number of Reclocked Inputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	900ps nominal
Overshoot:	<10% of amplitude
Return Loss:	>15dB to 270MHz
Embedded Audio:	SMPTE 272M-A
Frequency Lock Range:	±75ppm from nominal
Lock up time on a hot switch:	TBD

Analog Audio Outputs (-A4 version only):

Number of Outputs:	4
Type:	Balanced analog audio
Connector:	Two 6 pin removable terminal strips
Output Impedance:	66Ω balanced
Sampling Frequency:	48kHz
Signal Level:	0dBFS => 12 to 25dBu (user settable)
Frequency Response:	<+/- 0.05dB (20Hz to 20kHz)
Dynamic range:	24 bits when AES inputs selected, 20 bits when embedded audio selected
THD+N:	<0.001% (>100dB) @ 1kHz, -1dBFS
Crosstalk:	<-105dB (20Hz to 20kHz)
DC Offset:	<+/- 30mV
SNR:	>110dB "A" Weighting
Inter-Channel Phase Error:	<+/-1° (20Hz to 20kHz)

Unbalanced AES Audio Inputs (-A4 version only):

Number of Inputs:	2
Input Standard:	SMPTE 276M, single ended synchronous or asynchronous PCM AES
Connector:	BNC per IEC 60169-8 Amendment 2
Resolution:	24 bits when AES inputs selected, 20 bits when embedded audio is selected
Input Sampling Rate:	32kHz to 48 kHz when AES inputs selected, Synchronous 48kHz when embedded audio is selected
Minimum I/O Delay:	3.5μs

Balanced AES Audio Inputs (+B option):

Number of Inputs:	2
Input Standard:	AES3-1992, balanced synchronous or asynchronous PCM AES
Connectors:	One 6 pin removable terminal strip
Impedance:	110Ω
Resolution:	Up to 24 bits
Sampling Rate:	32kHz to 48 kHz
Input Level:	2V to 7V p-p
Minimum I/O Delay:	3.5ms

Electrical:

Voltage:	+ 12VDC
Power:	9.25 Watts CEM + 16.75 Watts (-A4 or +B option)
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of slots:	1 for non-audio versions 2 for audio version -A4 and +B option
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Ordering Information:

7736CEM	Component SDI to composite analog video encoder (optional Frame Synchronizer available)
7736CEM-A4	Component SDI to composite analog video encoder with quad audio DAC (audio source is embedded or from dual unbalanced AES inputs) (optional Frame Synchronizer available)

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

+B	Balanced audio on 7736CEM-A4
+S	Optional frame synchronizer

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Composite Encoder with Image Enhancement

Model 7737CE



The 7737CE line of component serial digital to composite analog video converters are broadcast quality encoders with image enhancement processing to sharpen video images. An audio de-embedder with high quality audio digital to analog conversion can be purchased with the encoder to create a video/audio frame synchronizer/conversion package. In addition, control of the module is via On-Screen-Display (OSD), or remotely via VistaLINK™ SNMP.

Selected high frequency information is removed from the video for enhancement and then added back onto the video to create a sharper looking image. An adjustable parameter allows user control over the gain (how much to increase edges and high frequency content). When large enhancement gain is needed to bring out small details it is not desirable to enhance large contrast edges, possible creating edge ringing. For this reason, there is a control to set the upper limit of the amount of enhancement to apply to the video. In addition, there are a couple of parameters that allow the "gating" of low amplitude video so that low level noise is not "enhanced".

Features

The features of all 7737CE's are:

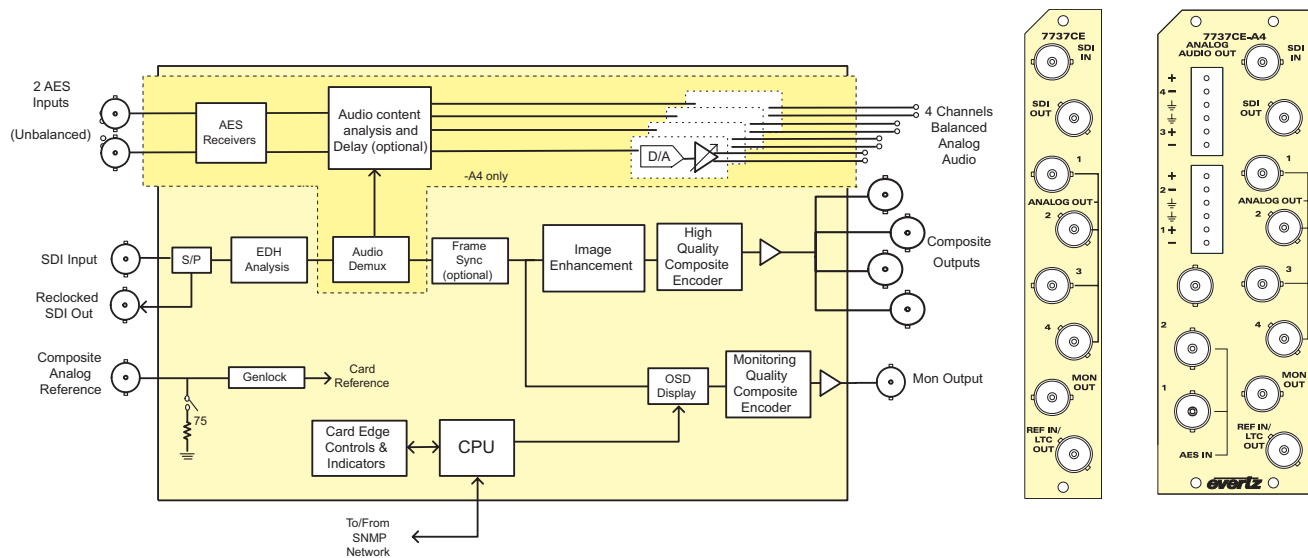
- One component serial digital input (525 or 625)
- One re-clocked component serial digital output
- EDH analysis on SDI input
- Four composite analog video outputs WITHOUT OSD text
- Internal processing to maintain 10 bit digital video quality
- 10 bit output video digital to analog conversion
- One monitoring quality video output with OSD text
- User adjustable output video processing functions: black level (brightness), gain (contrast), hue, and saturation
- User configurable image enhancement controls; enhancement gain, maximum allowable enhancement, frequency selectivity of enhancement, and noise gating so that noise is not enhanced.
- User selectable luminance and chrominance filters for different applications (i.e. broadcast vs. studio).
- User selectable horizontal blanking interval width: narrow, normal
- One composite analog reference input (NTSC or PAL-B) on BNC 75Ω or high-Z, jumper configurable input impedance
- One frame video synchronizer (with +S option)
- Infinitely variable output phase
- Freeze modes: black, freeze
- Adjustable free running frequency
- Built-in colour bar generator
- A comprehensive on screen display is available to configure the various features of the module

The Features of "-A4" option are:

- One group (4 channels) of synchronous 20-bit audio is de-multiplexed from the incoming digital video
- 2 unbalanced AES audio inputs (up to 48kHz, 24 bits) on BNC
- User selects EITHER the de-embedded audio or the input AES audio
- The selected audio is delayed equivalently to the video delay with the +S option
- 4 high quality 24 bit audio channels are output (analog) as balanced on 2 removable barrier strips.
- Low impedance outputs (66Ω)
- Analog audio output levels are adjustable
- Additional audio delay of up to 5 seconds
- Additional audio advance of up to 1 frame, depending on video delay
- Loss of video modes: pass audio, mute audio

Composite Encoder with Image Enhancement

7737CE Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C - 525 or 625 line component.
Number of Inputs: 1
Number of re-clocked outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Return Loss: >15dB to 270MHz
Embedded Audio: SMPTE 272M-A
Frequency Lock Range: ± 75 ppm from nominal
Lock up time on a hot switch: TBD

Analog Broadcast Video Output:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Inputs: 4
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75 Ω
DC Offset: 0V \pm 50mV
Return Loss: >45dB to 10MHz
Frequency Response: <+/- 0.1dB to 4 MHz (response will depend on selected filtering)
Differential Phase: < 0.5° (< 0.3° typical)
Differential Gain: < 0.5% (< 0.3% typical)
SNR: >75dB (black video, 100kHz to 5MHz)
Output level control range: $\pm 10\%$
Black level control range: ± 7.5 IRE
Chroma level control range: $\pm 10\%$
Hue control range: ± 15 deg. (NTSC only)
Minimum Delay: 3 μ s
Maximum Delay: 1 frame + 3 μ s (+S option only)

Reference Video Input:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal (0.5V to 1.5V)
Frequency Lock Range: ± 75 ppm from nominal
Input Impedance: 75 Ω or High impedance (jumper selectable)
Return Loss: >25dB to 10MHz
Max Subcarrier Jitter: < 3 degrees
Free-Running Frequency Control Range: > +/- 10ppm (> +/- 270Hz)

Analog Monitoring Video Output:

Standard: NTSC, SMPTE 170M PAL, ITU624-4
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75 Ω
Return Loss: >35dB to 10MHz

Analog Audio Outputs (-A4 only):

Number of Outputs: 4
Type: Balanced analog audio
Connector: Two 6 pin removable terminal strips
Output Impedance: 66 Ω balanced
Sampling Frequency: 48kHz
Signal Level: 0dBFS \Rightarrow 12 to 25dBu (user settable)
Frequency Response: <+/- 0.05dB (20Hz to 20kHz)

Dynamic range:

24 bits when AES inputs selected, 20 bits when embedded audio selected
THD+N: <0.001% (>100dB) @ 1kHz, -1dBFS
Crosstalk: <-105dB (20Hz to 20kHz)
DC Offset: <+/- 30mV
SNR: >110dB "A" Weighting
Inter-Channel Phase Error: <+/- 1° (20Hz to 20kHz)

Unbalanced AES Audio Inputs (-A4 only)

Number of Inputs: 2
Input Standard: SMPTE 276M, single ended synchronous or asynchronous PCM AES
Connectors: BNC per IEC 60169-8 Amendment 2
Resolution: Up to 24 bits
Input Sampling Rate: 32kHz to 48 kHz
Minimum I/O Delay: 3.5msec

Electrical:

Voltage: + 12VDC
Power: 9.25 Watts (7737CE) 16.75 Watts (-A4 option)
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC directive

Physical:

7700 frame mounting:
Number of slots: 1 for non-audio versions
2 for audio version (-A4)

Ordering Information:

7737CE Composite Encoder with Image Enhancement
7737CE-A4 Composite Encoder with Image Enhancement and 4 Analog Audio Outputs

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

+S Optimal Frame Synchronizer

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD Tri-Level Sync Generator

Model 7750SRG-HD

The 7750SRG-HD generates various analog bi-level & tri-level sync signals for both HD and SD applications. The 7750SRG-HD provides an analog genlock input that allows you to synchronize the sync signals to your plant horizontal and vertical timing.

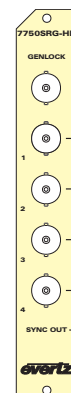
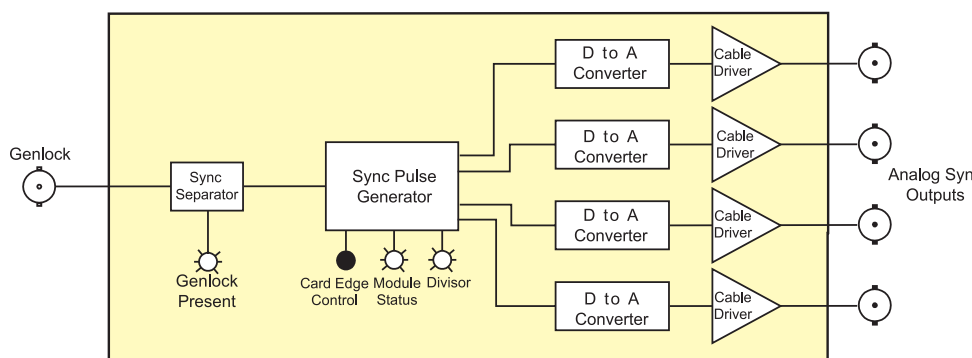
The 7750SRG-HD generates all analog sync signals defined by SMPTE 274M (1080i/p) and SMPTE 296M (720p) as well as those required for NTSC, PAL and slow PAL (625i/48) applications. The four independent sync outputs can be configured to output different sync signals. The common combinations of HDTV and SD analog sync outputs can be selected via card edge control.

In conjunction with the 7700ADA Analog Distribution Amplifier and the 7750TG2-HD HDTV Test Signal Generator, this module will fulfill all of your slave sync generation requirements. (See the PKG7752RGTS-HD system brochure for details on our HDTV Reference Generator Test Set System applications)

Features

- NTSC or PAL colour black gen lock or free-runs with no gen lock reference
- Phase adjustment of outputs with respect to gen lock input
- Selectable frame rate divisor of 1 or 1/1.001
- Wide variety of 1080i, 1035i, 1080p, 720p, NTSC, PAL and slow PAL sync output sync signals
- HSDL tri level sync for 2K data transfers
- 4 separate analog sync signal outputs
- 6 Hz or 1Hz TTL pulse shows relationship between HD & SD Sync outputs
- 8 position DIP switch selects combinations of sync signal available
- Card edge LEDs indicate gen lock presence, module fault

Block Diagram 7750SRG-HD



Selectable Sync Output Options

	Output 1	Output 2	Output 3	Output 4
1	1080i/60	1080p/24sF	625i/48	6Hz Pulse
2	1080i/50	1080p/24sF	625i/48	1Hz Pulse
3	1080p/30	1080p/24sF	625i/48	6Hz Pulse
4	1080p/25	1080p/24sF	625i/48	1Hz Pulse
5	1080p/24	1080p/24sF	625i/48	625i/48
6	1080p/24sF	1080p/24sF	625i/48	625i/48
7	720p/60	1080p/24sF	625i/48	6Hz Pulse
8	1035i/60	1080p/24sF	625i/48	6Hz Pulse
9	1080i/60	720p/60	525i/59.94	525i/59.94
10	1080i/60 V Drive	1080p/24sF	625i/48	6Hz Pulse
1/1.001 Multiple Set Via DIP Switch Where Applicable (See 7750SRG-HD manual for more switch settings)				

Specifications

Genlock Input:

Type:

NTSC or PAL Color Black 1 V p-p
Composite Bi-level sync(525i or 625i)300 mV
1 BNC per IEC 60169-8 Amendment 2
75 Ω (jumper selectable)

Connector:

Termination:

Analog Sync Outputs:

Number of Outputs:
Standard:

4
SMPTE 274M, 296M, NTSC, PAL, 6 Hz TTL,
HDSL (Selectable as per above Table)
4 BNC per IEC 60169-8 Amendment 2
HD Sync outputs: 600mV nominal tri-level
SD Sync outputs: 300mV nominal bi-level
6 Hz output: TTL

Connectors:

Signal Level:

Electrical:

Power:

Voltage:

EMI/RFI:

+12VDC
6 Watts
Complies with FCC Part 15, Class A,
EU EMC Directive.

Physical:

Number of Slots:

1

Ordering Information:

7750SRG-HD

HD Tri-Level Sync Generator

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU

+1RU

+SA

3RU Rear Plate for use with 7700FR-C Multiframe
1RU Rear Plate for use with 7701FR Multiframe
Standalone Enclosure Rear Plate

Enclosures:

7700FR-C

7701FR

S7701FR

3RU Multiframe which holds 15 modules
1RU Multiframe which holds 3 modules
Standalone enclosure

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NTSC Slave Sync Generator

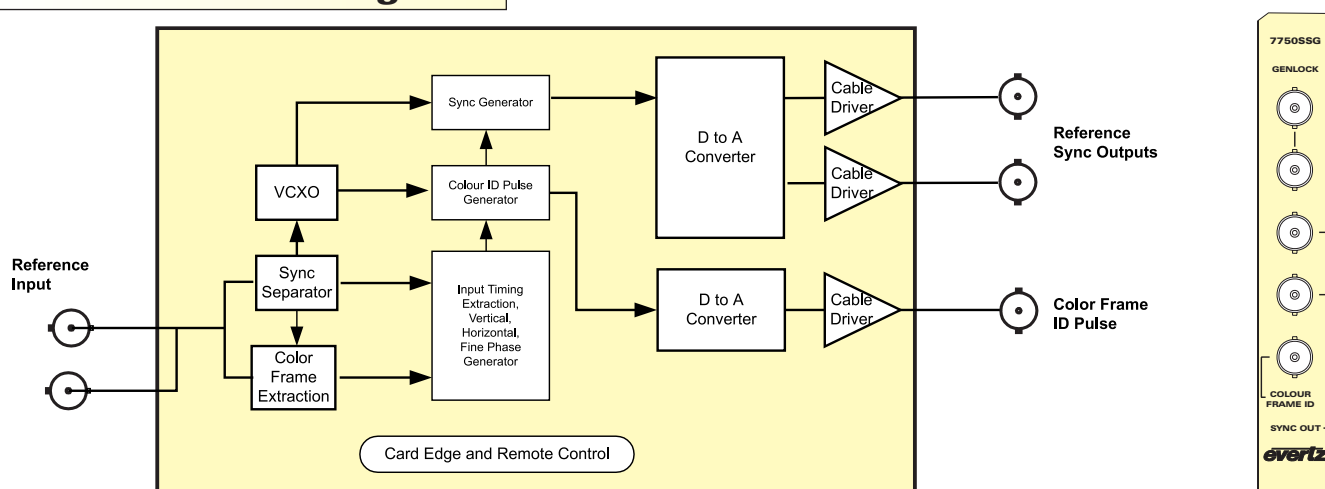
Model 7750SSG

The 7750SSG Slave Sync Generator generates two NTSC sync signals with burst and a color frame ID pulse for synchronizing various devices in a television facility. The 7750SSG has an analog genlock input that allows you to synchronize the sync signals to your plant horizontal and vertical timing. In conjunction with the 7700ADA Analog Distribution Amplifier this module will fulfill all of your slave sync generation requirements.

Features

- NTSC color black genlock with color frame decode
- Free-runs with no genlock reference
- Phase adjustment of outputs with respect to genlock input
- 2 Separate signal outputs
- TTL Color Frame ID signal
- Card edge LEDs indicate genlock presence and module fault

7750SSG Block Diagram



Specifications

Genlock Input:

Type: NTSC (SMPTE 170M) Color Black
Connector: 2 BNC per IEC 60169-8 Amendment 2
Termination: High impedance loop through
Return loss: >35 dB up to 10 MHz
SNR: > 50dB
Levels: 1 +0.5Vp-p
Max Subcarrier Jitter: < 1°

Analog Sync Outputs:

Number of Outputs: 2
Signal Output Level: 1V p-p
Connector: BNC per IEC 60169-8 Amendment 2
SYNC Level: 40IRE nominal
Burst Level: 40IRE nominal
DC Offset: Back porch at 0V ± 100mV
Return Loss: >35 dB up to 5 MHz
SC/H Phase: < 1°
Sync rise/fall time: 140 ± 20ns
V Phasing: Infinite lines
H Phasing: Infinite samples (37ns/sample)
Fine Phasing: ± 24°, in 0.24 degree increments

Color Frame ID Pulse Output:

Signal: TTL amplitude active pulse high during field 1 of color field sequence
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
DC Offset: 0V ± 100mV

Electrical:

Voltage: +12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7750SSG NTSC Slave Sync Generator

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C
Multiframe
+1RU 1RU Rear Plate for use with 7701FR
Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

SDI Test Signal Generator

Model 7750TG

The 7750TG Test Signal Generator provides a cost-effective method of generating 270 Mb/s serial digital test signals. The 7750TG is ideal for checking signal path integrity, monitor alignment or to determine system performance over varying cable lengths. The 7750TG generates a wide variety of industry standard test signals in 525 line and 625 line SMPTE 259M-C video formats and offers four 270 Mb/s outputs. Error detection and handling (EDH) codes are embedded on all the outputs to allow you to verify the performance of your digital signal paths.

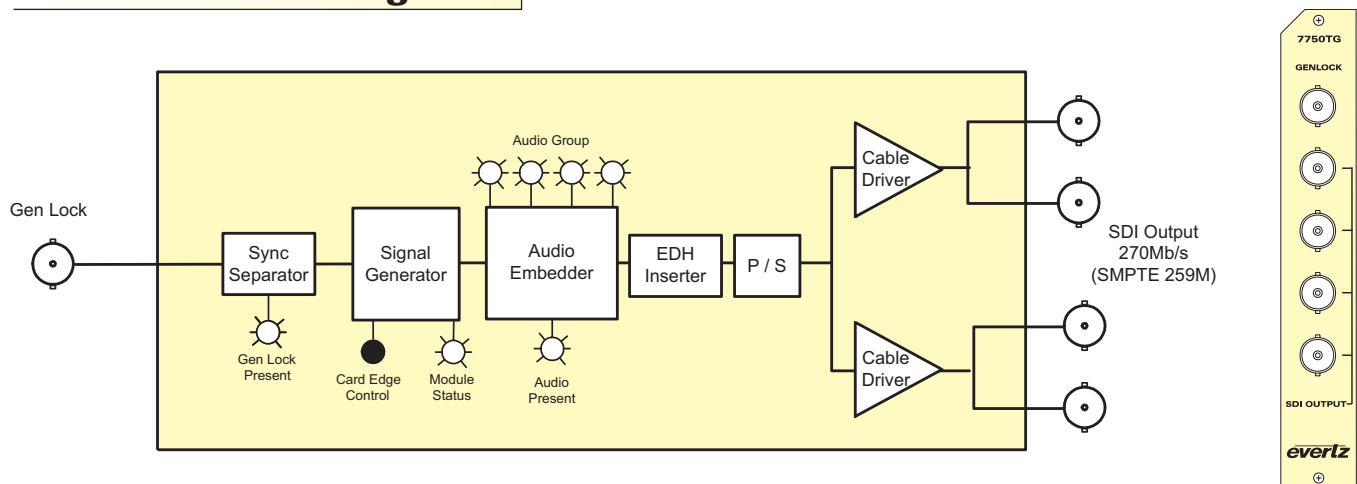
The 7750TG provides an analog genlock input that allows you to synchronize the test signals to your plant horizontal and vertical timing.

Separate audio tones can be embedded into each channel of one of the four embedded audio groups. The user can select which of the audio groups the tones will be embedded into. The audio level is fixed at -20dB full scale.

Features

- 525 line and 625 line formats
- Card edge toggle switch selects test signal
- On screen display of test signal names
- 4 embedded audio tones, selectable audio group assignment
- 4 output drivers
- On screen text message can be used for source identification
- On screen setup menu
- Card edge LEDs indicate genlock presence and module health

7750TG Block Diagram



Specifications

Genlock Input:

Type: NTSC or PAL color black 1 V p-p
Composite Bi-level sync (525 Line or 625 Line) 300mV
Connector: 1 BNC per IEC 60169-8 Amendment 2.
Termination: 75Ω (jumper selectable)

Serial Video Output:

Standard: SMPTE 259M-C (270 Mb/s)
Embedded Audio: Up to 4 tones in one audio group as specified in SMPTE 272M . Selectable tone frequencies (from 60Hz to 10kHz) and audio group. Audio level is set to -20dB full scale
Number of Outputs: 4
Connectors: 4 BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: 740ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: <0.2 UI

Electrical:

Voltage: +12 VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A, EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7750TG SDI Test Signal Generator

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Transport Stream Generator

Model 7750TG-TS

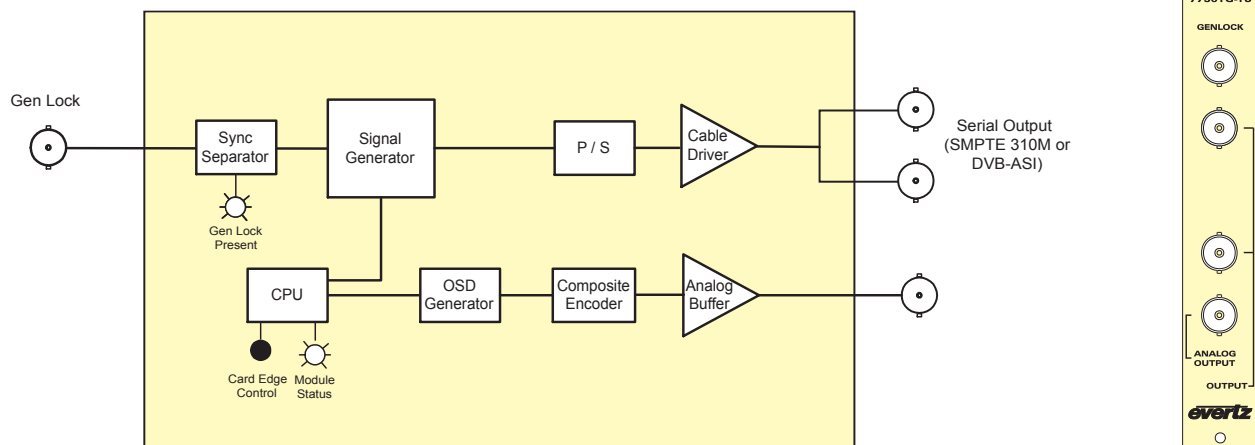
The 7750TG-TS Test Signal Generator provides a cost-effective method of generating SMPTE 310M and ASI test signals. The 7750TG-TS is ideal for checking signal path integrity, or to determine system performance over varying cable lengths. The 7750TG-TS generates test signals in either SMPTE 310M or DVB-ASI transport stream formats.

The 7750TG-TS provides an analog genlock input that allows you to synchronize the test signals to your plant horizontal and vertical timing.

Features

- SMPTE 310M and ASI outputs
- ATSC and MPEG-2 Main Level Main Profile structures multiple bit rates in ASI output mode
- Multiple video test signals, motion and non-motion, each is a fixed loop of GOPs
- All appropriate tables for ATSC and DVB supported
- Gen locks to bi-level or color black - clock or phase lock possible
- Card edge toggle switch selects test signal
- On screen setup menu
- Composite analog output with On Screen Menu Display on gray
- 8 position DIP switch selects output format
- 2 output drivers
- Tally output upon loss of gen lock
- Card edge LEDs indicate gen lock presence, and module status

7750TG-TS Block Diagram



Specifications

Genlock Input:

Type: Menu selectable - depends on output video format
NTSC or PAL Colour Black 1 V p-p
Composite Bi-level sync (525i) 300 mV
Connector: 1 BNC per IEC 60169-8 Amendment 2
Termination: 75Ω (jumper selectable)

Serial Transport Stream Outputs:

Standard: SMPTE 310M (19.4 Mb/s) or DVB ASI (15 to 50Mb/s) (switch selectable)

Number of Outputs: 2

Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 740ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 270 Mb/s
Wide Band Jitter: < 0.2 UI

Analog Video Output:

Standard: NTSC (SMPTE 170M)
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal

Electrical:

Voltage: + 12VDC
Power: 6 Watts.
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7750TG-TS SMPTE 310M/DVB-ASI Transport Stream Generator

Ordering Options:

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Dual HD Test Signal Generator with Embedded Audio

Model 7751TG2-HD

The 7751TG2-HD Test Signal Generator provides a cost-effective method of generating 1.5 Gb/s HDTV 4:2:2 and 4:4:4 test signals. The 7751TG2-HD is ideal for checking signal path integrity, or to determine system performance over varying cable lengths. The 7751TG2-HD generates test signals in a wide variety of SMPTE 292M video formats. In single link mode, the 7751TG2-HD outputs a 4:2:2 black signal on two outputs and the selected 4:2:2 test signal on the remaining two outputs. In dual link mode, the 7751TG2-HD outputs a 4:4:4 test signal on two dual-link 4:4:4 outputs.

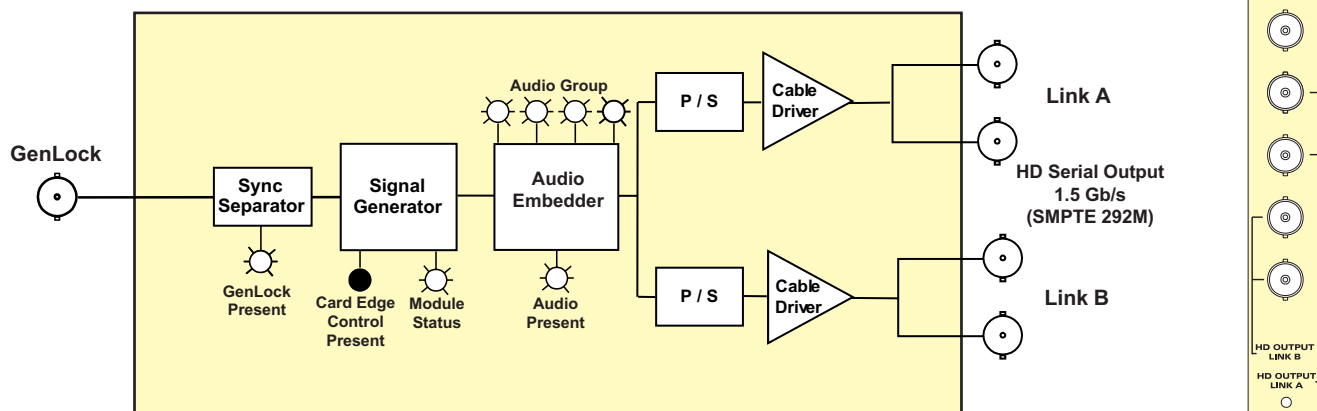
The 7751TG2-HD provides an analog genlock input that allows you to synchronize the test signals to your plant horizontal and vertical timing.

Separate audio tones can be embedded into each channel of two of the four embedded audio groups. The user can select which of the audio groups the tones will be embedded into. In dual link mode, the selected audio groups will be embedded into each link. The Audio level is fixed at -20 dB full scale.

Features

- Wide variety of 1080i, 1035i, 1080p, 480p and 720p output formats
- 8 position DIP switch selects output format, single or dual link and genlock reference
- Card edge toggle switch selects test signal
- Selectable gen lock input format - bi-level or tri-level sync, color black embedded audio tones for 4 groups selectable audio group assignment
- Closed caption test messages
- 2 black outputs, 2 test gen. outputs
- On screen display of test signal names
- On screen setup menu
- Tally output upon loss of gen lock
- Card edge LEDs indicate gen lock presence, module fault and audio signal presence on the output
- SMPTE 334M - EIA 708 advanced captioning test packet

7751TG2-HD Block Diagram



Specifications

Gen Lock Input:

Type: Menu selectable - depends on output video format
HD Tri-level Sync
NTSC or PAL Colour Black 1 V p-p
Composite Bi-level sync (525i or 625i) 300 mV
Connector: BNC per IEC 60169-8 Amendment 2
Termination: 75Ω (jumper selectable)

HD Serial Video Outputs:

Standard: SMPTE 292M, 4:2:2 YCBCR (single link)
SMPTE 372M, 4:4:4 YCBCR or 4:4:4 GBRA (dual link)

Number of Outputs:

Single Link Mode: 2 outputs of Black video
2 outputs of selected test signal
2 dual link outputs of selected test signal

Dual Link Mode: 2 dual link outputs of selected test signal

Embedded Audio: Up to 4 groups in one audio group as specified in SMPTE 299M. Selectable tone frequencies (from 60 Hz to 10 kHz) and audio group. Audio can be embedded on either or both links. Audio Level is set to -20 dB Full Scale.

Source ID: User programmable on-screen 15 character source ID message - selectable position. On Screen message can be displayed on either or both links

Connectors: 4 BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

V Phasing: Infinite lines

H Phasing: Infinite samples

DC Offset: 0V ±0.5V

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Wide Band Jitter: < 0.2 UI

Electrical:

Voltage: + 12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 or 7701 frame mounting:
Number of slots: 1

Stand Alone Enclosure:

Dimensions: 14 " L x 4.5 " W x 1.9 " H
(355 mm L x 114 mm W x 48 mm H)
Weight: approx. 1.5 lbs. (0.7 Kg)

Ordering Information:

7751TG2-HD Dual HD Test Signal Generator with embedded audio

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Model 7771CS-HD

The 7771CS-HD, HDTV Compression Codec encodes one SMPTE 292M (1.485Gb/s) serial digital video signal with up to four AES channels of embedded or separate audio, into one 270Mb/s SDTi (SMPTE305M) compliant output stream. The 7771CS-HD also preserves VANC data in the incoming HD-SDI stream and transports this across the 270Mb/s SDTi interface. Automatic detection and support of 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94 field rates is provided.

The 7771CS-HD occupies two card slots and is housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which will hold up to 7 modules or a standalone enclosure which will hold up to 1 module.

Features

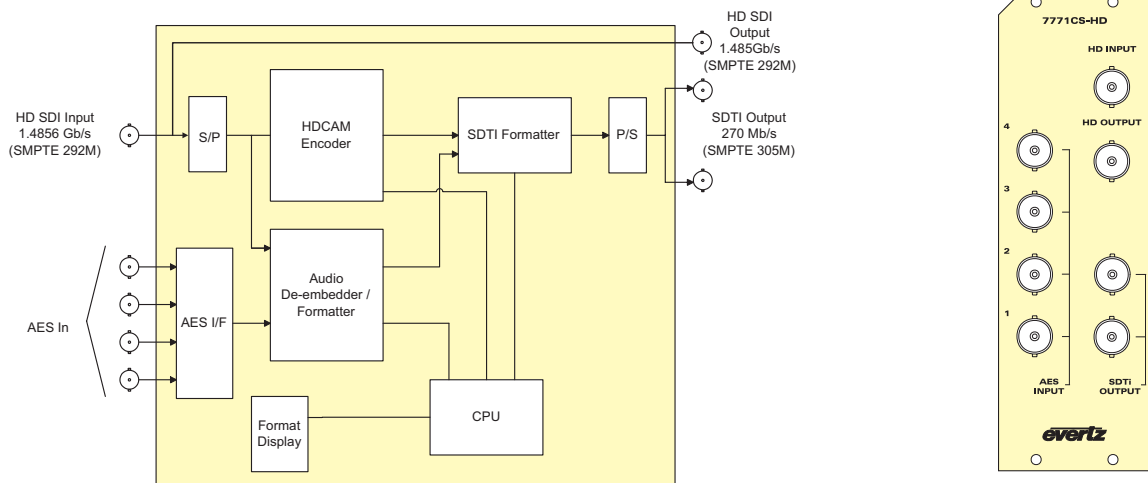
- Industry proven HDCAM video compression for origination quality video
- Supports 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94 field rates
- Automatic detection of 1035i/1080i active lines
- Accepts up to four channels of embedded or separate AES audio
- No compression applied to AES audio streams
- Preserves VANC from input HD-SDI stream

- SMPTE 305M compliant 270Mb/s output stream
- EDH insertion on SDTi output
- Fully hot swappable from front of frame

Status Indication:

- Input signal presence
- 1035i/1080i active lines
- Field rate

7771CS-HD Block Diagram



Specifications

HD Serial Video Input:

Standard: SMPTE 292M, (1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94)

Number of Inputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic to 125m @ 1.5Gb/s with Belden 1694A or equivalent

SDTi Video Output:

Standards: SMPTE 259M-C (270Mb/s), SMPTE 305M

Number of Outputs: 2

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V ±0.5V

Rise and Fall Time: 740ps nominal

Overshoot: <10% of amplitude

Return Loss: >15dB up to 270Mb/s

Wide Band Jitter: <0.2UI

Embedded VANC: One 20-bit group as per SMPTE337M

Embedded Audio: Two 24-bit groups as per SMPTE 272M-A source selectable from embedded audio on HD input or external AES inputs

SDTi Out to HDSDI In

Adjustment: 0 to -10.8ms (adjustable) relative to video delay (requires reference input)

AES Audio Inputs:

Standard: SMPTE 276M, single ended AES

Number of Inputs: 4

Signal Level: 200mv to 1100mv

Connector: BNC per IEC 60169-8 Amendment 2

Sampling Rate: 48kHz

Impedance: 75Ω balanced

Return Loss: > 20dBm

Resolution: 24-bit

Reference Input:

Connector: 1 BNC per IEC 60169-8 Amendment 2

Type: HD Tri-level, NTSC/PAL Color Black (1 V p-p) or composite bi-level sync (525i/59.94 or 625i/50) 300mV

Termination: 75Ω jumper selectable

Input to SDTi Delay:

Video: 3 frames

AES: < 2 ms

VANC: 9 fields

Electrical:

Voltage: +12VDC

Power: 12 Watts

EMI/RFI Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 frame mounting: 2 slots

7701 frame mounting: 1 slot

Ordering Information:

7771CS-HD HD Compression CODEC

Ordering Options:

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

7701FR 1RU Multiframe which holds 3 modules

S7701FR Standalone enclosure

HD Decompression CODEC

Model 7771DS-HD

The 7771DS-HD, HDTV Decompression Codec converts a 270Mb/s SDTi (SMPTE 305M) input signal containing HDCAM compressed data with embedded AES audio, into a SMPTE 292M (1.485Gb/s) component serial digital stream with embedded or separate AES audio. The 7771DS-HD also re-embeds VANC data that existed in the original HD-SDI stream. The 7771DS-HD supports 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.97sF, 1035i/59.94 field rates.

The 7771DS-HD occupies two card slots and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 7 modules or a standalone enclosure which will hold 1 module.

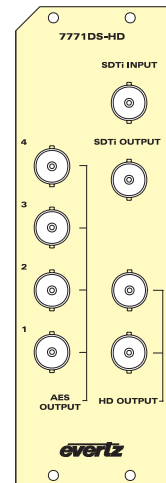
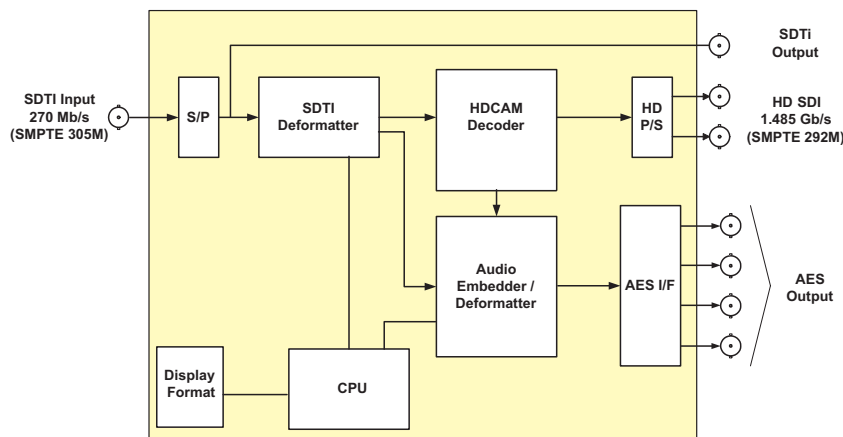
Features

- Industry proven HDCAM video decompression for origination quality video
- Supports 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94 field rates
- Automatic detection of 1035i/1080i active lines
- Detection of uncompressed SD or compressed HD input stream and outputs GPO control for downstream equipment
- Handles up to four channels of embedded AES audio
- Audio delay processing to match video decompression delay
- Re-embeds original VANC data in outgoing HD-SDI stream
- Four separate stereo AES unbalanced outputs
- Fully hot swappable from front of frame

Status Indication:

- Input signal presence
- 1035i/1080i active lines
- Field rate

7771DS-HD Block Diagram



Specifications

SDTi Video Input:

Standard: SMPTE 259M-C (270Mb/s), SMPTE 305M data formatting
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Return Loss: >15dB @ 270Mb/s

HD Serial Video Output:

Standard: SMPTE 292M (1080i/59.94, 1080i/50, 1080i/29.98sF, 1080i/25sF, 1080i/23.98sF, 1035i/59.94)
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: <200ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: <0.2UI

AES Audio Outputs:

Standard: SMPTE 276M, single ended AES, Dolby E
Number of Outputs: 4
Connector: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48khz
Impedance: 75 Ω
Resolution: 24-bit

GPO:

Number of Outputs: 1
Connector: 1 pin on DB9
Type: TTL

SDTi Input to HDSDI Output Delay:

Video: 2 frames
AES:
Evertz Source: 5 frames
Sony Source: 2 frames
VANC: 9 fields

Electrical:

Voltage: +12VDC
Power: 12 Watts
EMI/RFI Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 frame mounting: 2 slots
7701 frame mounting: 1 slot

Ordering Information:

7771DS-HD HD Decompression CODEC

Ordering Options:

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Model 7772MFC-HD



The 7772MFC-HD, HDTV Compression Codec encodes one SMPTE 292M (1.485Gb/s) serial digital video signal with up to four AES channels of embedded or separate audio, into one 270Mb/s compliant data output stream. The 7772MFC-HD also preserves VANC data in the incoming HD-SDI stream and transports this across the 270Mb/s interface. Automatic detection and support of 1080i/59.94, 1080i/50, 1035i/59.94, 720p/59.94 and 720p/50 field rates is provided. Card functions are controlled from the card edge or through the VistaLINK™ interface.

The 7772MFC-HD occupies two card slots and is housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which will hold up to 7 modules or a standalone enclosure which will hold up to 1 module.

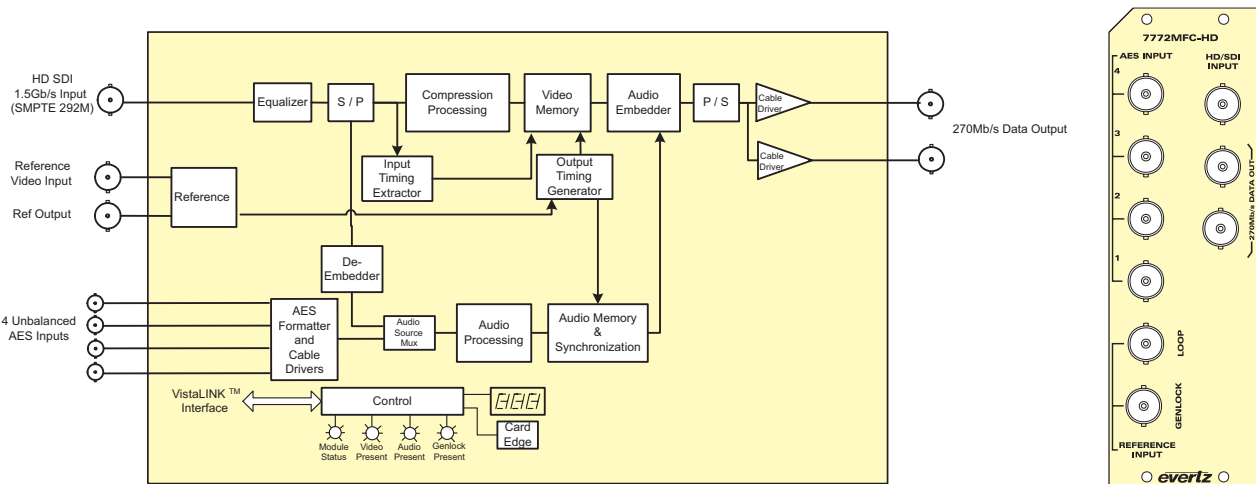
Features

- Supports 1080i/59.94, 1080i/50, 1035i/59.94, 720p/59.94, 720p/50 field rates
- Automatic detection of 1035i/1080i, 720p active lines
- Accepts up to four channels of embedded or separate AES audio
- No compression applied to AES audio streams
- Preserves VANC from input HD-SDI stream
- Fully hot swappable from front of frame

Status Indication:

- Input signal presence
- 1035i/1080i/720p active lines

7772MFC-HD Block Diagram



Specifications

HD Serial Video Input:

Standard: SMPTE 292M, (1080i/59.94, 1080i/50, 1035i/59.94, 720p/59.94, 720p/50)

Number of Inputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic to 125m @ 1.5Gb/s with Belden 1694A or equivalent

270Mb/s Data Output:

Standards: SMPTE 259M-C (270Mb/s)

Number of Outputs: 2

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V ±0.5V

Rise and Fall Time: 900ps nominal

Overshoot: <10% of amplitude

Return Loss: >15dB up to 270Mb/s

Wide Band Jitter: <0.10 UI

AES Audio Inputs:

Standard: SMPTE 276M, single ended AES

Number of Inputs: 4

Signal Level: 200mv to 1100mv

Connector: BNC per IEC 60169-8 Amendment 2

Sampling Rate: 48kHz

Impedance: 75Ω balanced

Return Loss: > 20dBm

Resolution: 24-bit

Reference Input:

Connector: 1 BNC per IEC 60169-8 Amendment 2

Type: HD Tri-level, NTSC/PAL Color Black (1 V p-p) or composite bi-level

Termination: sync (525i/59.94 or 625i/50) 300mV

75Ω jumper selectable

HD SDI Input to 270Mb/s Data:

Delay: ≤ 4 frames interlaced
≤ 8 frames progressive

Electrical:

Voltage: +12VDC

Power: 15 Watts

EMI/RFI Complies with FCC Part 15, Class A

EU EMC Directive

Physical:

7700 frame mounting: 2 slots

7701 frame mounting: 1 slot

Ordering Information:

7772MFC-HD HD Compression CODEC

Ordering Options:

Rear Plate must be specified at time of order

Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

7701FR 1RU Multiframe which holds 3 modules

S7701FR Standalone enclosure

HD Decompression CODEC



Model 7772MFD-HD

The 7772MFD-HD, HDTV Decompression Codec converts the 270Mb/s data input signal from the 7772MFC-HD into a SMPTE 292M (1.485Gb/s) component serial digital stream with embedded or separate AES audio. The 7772MFD-HD also re-embeds VANC data that existed in the original HD-SDI stream. The 7772MFD-HD supports 1080i/59.94, 1080i/50, 1035i/59.94, 720p/59.94 and 720p/50 field rates. Card functions are controlled from the card edge of through VistaLINK™ interface.

The 7772MFD-HD occupies two card slots and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 7 modules or a standalone enclosure which will hold 1 module.

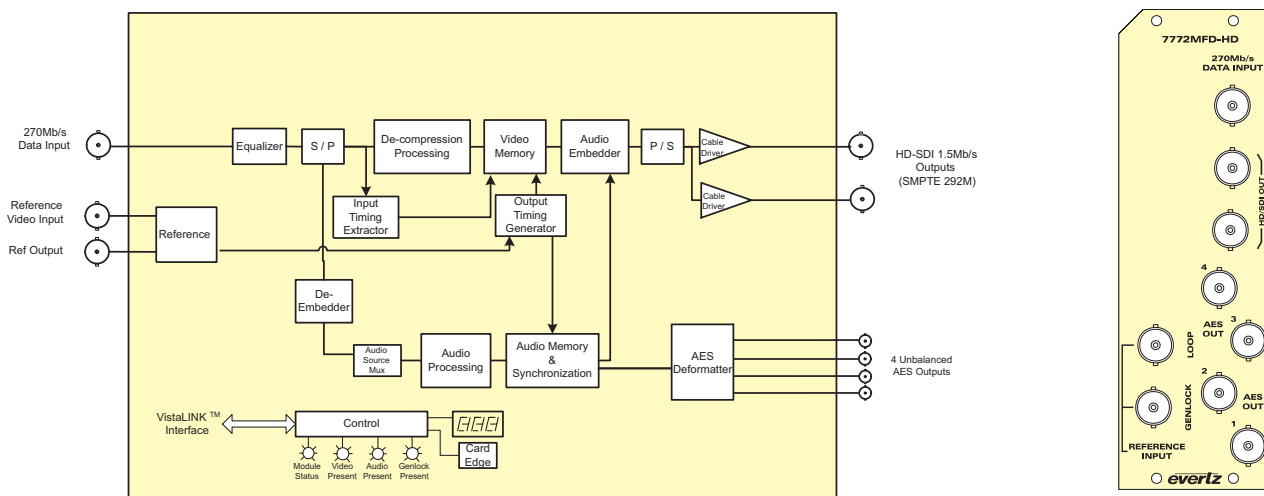
Features

- Supports 1080i/59.94, 1080i/50, 1035i/59.94, 720p/59.94 and 720p/50 field rates
- Automatic detection of 1035i/1080i/720p active lines
- Handles up to four channels of embedded AES audio
- Audio delay processing to match video decompression delay
- Re-embeds original VANC data in outgoing HD-SDI stream
- Four separate stereo AES unbalanced outputs
- Fully hot swappable from front of frame

Status Indication:

- Input signal presence
- 1035i/1080i/720p active lines

7772MFD-HD Block Diagram



Specifications

270Mb/s Data Input:

Standard: SMPTE 259M-C (270Mb/s)
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Return Loss: >15dB @ 270Mb/s

HD Serial Video Output:

Standard: SMPTE 292M (1080i/59.94, 1080i/50, 1035i/59.94, 720p/54.95, 720p/50)
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Rise and Fall Time: <200ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: <0.16UI

AES Audio Outputs:

Standard: SMPTE 276M, single ended AES, Dolby E
Number of Outputs: 4
Connector: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48kHz
Impedance: 75 Ω
Resolution: 24-bit

270Mb/s Data Input to HDSDI Output Delay:

Delay: ≤ 4 frames interlaced
 ≤ 8 frames progressive

Electrical:

Voltage: +12VDC
Power: 15 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 frame mounting: 2 slots
7701 frame mounting: 1 slot

Ordering Information:

7772MFD-HD HD Decompression CODEC

Ordering Options:

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

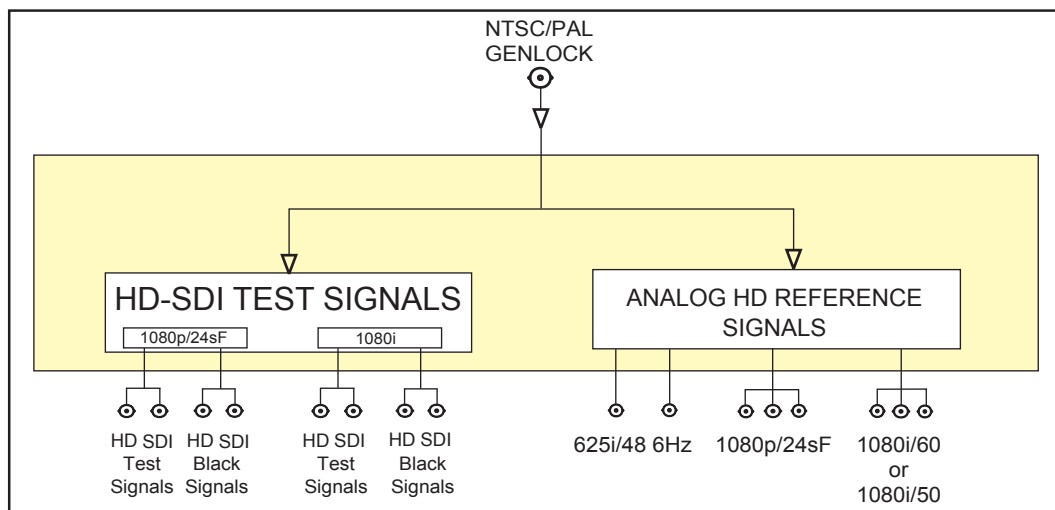
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD Reference Generator/Test Set System

Model PKG7752RGTS-HD

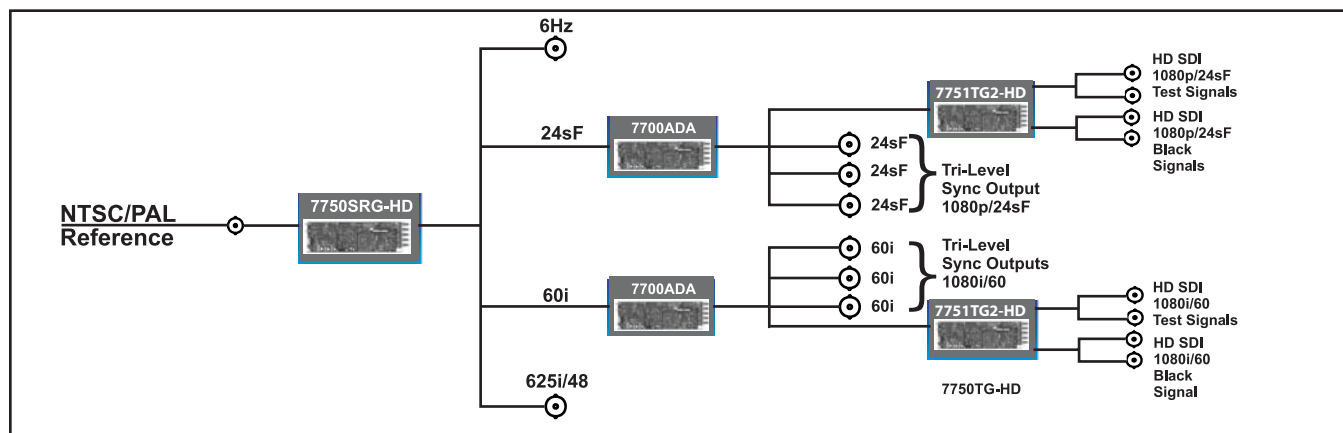


The HDTV Reference Generator Test Set System (PKG7752RGTS-HD) is based on the 7750SRG-HD card. This card locks to either an NTSC or PAL reference signal and generates HD tri-level sync as per SMPTE 274M (1080i, 1080p & 1080p/24sF) or SMPTE 296M (720p). The complete PKG7752RGTS-HD system also generates numerous HDTV test signals.

Features

- Multi-Format tri-level sync generation
- Genlocks to NTSC/59.94, PAL/50 or free-run
- Provides additional reference signals - 6Hz and 'slow PAL' (625i/48)
- LED indicators for NTSC and PAL reference
- Simultaneously generates 1080i and 1080p HD Tri-Level Sync and 'slow PAL' Sync signals (user configurable sync output combinations)
- Two independent selectable HD SDI test signals with embedded audio tones
- Two independent selectable HD SDI black signals

Typical Application Diagram



Ordering Information:

PKG7752RGTS-HD HD Reference Generator/Test Set System housed in the 7700FR-C 3RU Multiframe includes the following modules:

7751TG2-HD	Test Signal Generator	Qty. 2
7750SRG-HD	Slave Reference Generator	Qty. 1
7700ADA	Analog Equalizing DA for HD	Qty. 2
7700FR-C	3RU Multiframe with single power supply	Qty. 1

Options:

7700PS Redundant power supply

Note:

To obtain more detailed information on each item included in the 7752RGTS-HD system, please refer to the individual spec. sheets for the 7751TG2-HD, 7750SRG-HD, 7700ADA and 7700FR-C.

Please refer to our 5600MSC brochure for master sync and master clock applications

Multi-Format HDTV (720p/1035i/1080i) to 270Mb/s SDTi Compression CODEC



Model PKG7771MFC-HD

The PKG7771MFC-HD, multi-format Compression Codec compresses one SMPTE 292M (1.485Gb/s) serial digital video signal with up to four AES channels of embedded or external audio, into one 270Mb/s SDTi (SMPTE 305M) compliant output stream. The PKG7771MFC-HD also preserves VANC data in the incoming HD-SDI stream and transports this across the 270Mb/s SDTi interface. Automatic detection and support of 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94, 720p/59.94, 720p/50 field rates is provided.

The PKG7771MFC-HD occupies four card slots and is housed in a 3RU frame which will hold up to 3 modules.

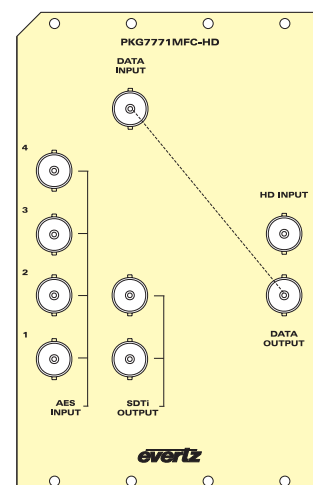
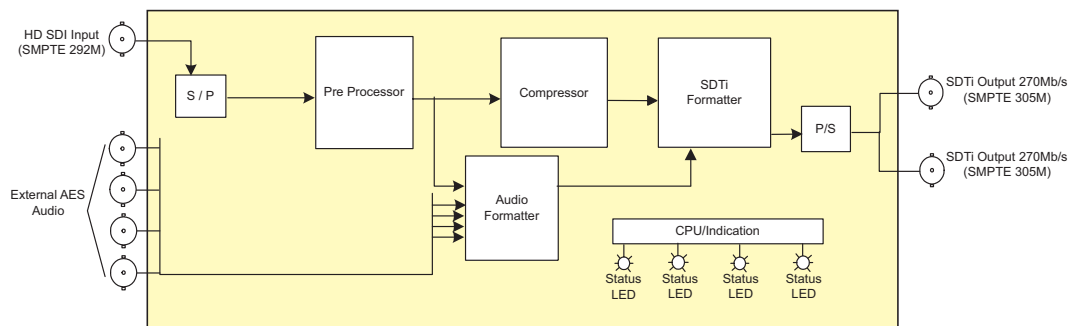
Features

- Automatic detection of 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94, 720p/59.94, 720p/50 field rates
- Transports up to four channels of embedded or external AES audio
- No compression applied to AES audio streams
- Preserves VANC from input HD-SDI stream
- SMPTE 305M compliant 270Mb/s output stream
- EDH insertion on SDTi output
- Fully hot swappable from front of frame

Status Indication:

- Input signal presence
- 1035i/1080i/720p active lines

PKG7771MFC-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M (1.485Gb/s)
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 100m @ 1.5 Gb/s with Belden 1694 or equivalent cable
Return Loss: > 15 dB up to 1.5 Gb/s

AES Audio Inputs:

Standard: SMPTE 276M, single ended AES, Dolby E
Number of Inputs: 4
Signal Level: 200mv to 1100mv
Connector: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48kHz
Impedance: 75Ω balanced
Resolution: 24-bit

SDTi Video Output:

Standard: SMPTE 259M-C (270Mb/s)
SMPTE 305M
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 740ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: <0.2UI
Embedded VANC: One 20-bit group as per SMPTE337M
Embedded Audio: Two 24-bit groups as per SMPTE 272M-A embedded audio on HD input

Input to SDTi Delay:

Video: 4 frames
AES: < 40 ms

Electrical:

Voltage: +12VDC
Power: 16 Watts

Physical:

7700 frame mounting: 2 slots
7701 frame mounting: 1 slot

Ordering Information:

PKG7771MFC-HD Multi-Format HDTV (720p/1035i/1080i) to 270Mb/s SDTi Compression CODEC

Ordering Options:

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

Multi-Format HDTV (720p/1035i/1080i) to 270Mb/s SDTi De-compression CODEC



Model PKG7771MFD-HD

The PKG7771MFD-HD, multi-format De-compression Codec converts a 270Mb/s SDTi (SMPTE 305M) input signal containing HDCAM compressed data with embedded AES audio, into a SMPTE 292M (1.485Gb/s) component serial digital stream with embedded or external audio. The PKG7771MFD-HD also re-embeds VANC data that existed in the original HD-SDI stream. The PKG7771MFD-HD supports 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94, 720p/59.94, 720p/50 field rates.

The PKG7771MFD-HD occupies four card slots and is housed in a 3RU frame which will hold up to 3 modules.

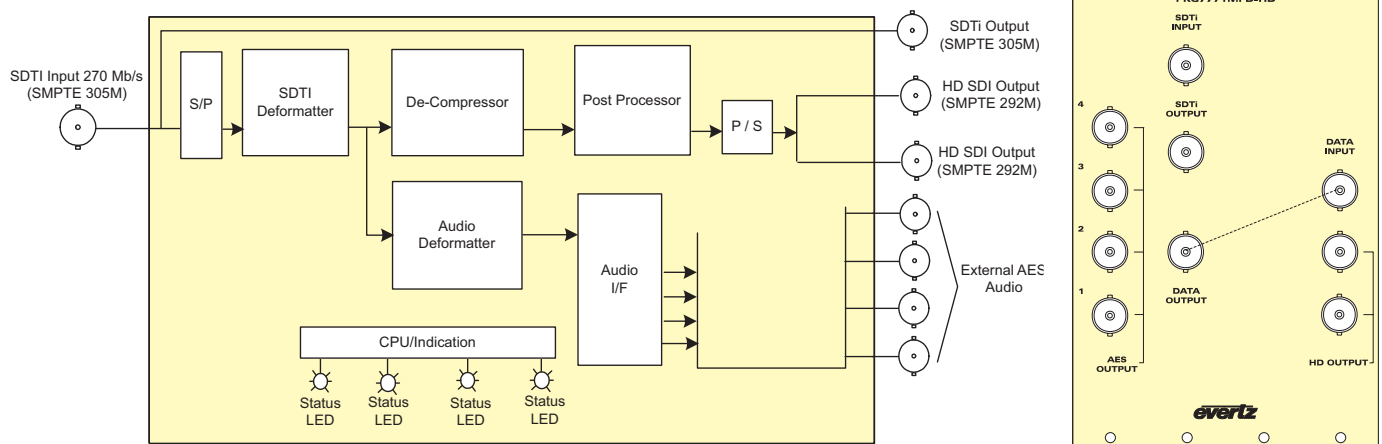
Features

- Automatic detection of 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94, 720p/59.94, 720p/50 field rates
- Up to four AES channels re-embedded in outgoing HD-SDI or available on separate AES outputs
- Re-embeds original VANC data in outgoing HD-SDI stream
- Fully hot swappable from front of frame

Status Indication:

- Input signal presence
- 1035i/1080i/720p active lines

PKG7771MFD-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C (270Mb/s)
SMPTE 305M data formatting

Number of Inputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Return Loss: >15dB @ 270Mb/s

Serial Video Output:

Standard: SMPTE 292M (1.485Gb/s)

Number of Outputs: 2

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: <200ps nominal

Overshoot: <10% of amplitude

Return Loss: >15dB up to 1.5Gb/s

AES Audio Outputs:

Standard: SMPTE 276M, single ended AES, Dolby E

Number of Outputs: 4

Connector: BNC per IEC 60169-8 Amendment 2

Sampling Rate: 48kHz

Impedance: 75 Ω

Resolution: 24-bit

System Delay (Compress + Decompress):

Video: 7 Frames

Audio: 7 Frames

VANC: 7 Frames

GPO:

Number of Outputs: 1

Connector: 1 pin on DB9

Type: TTL

Electrical:

Voltage: +12VDC

Power: 16 Watts

Physical:

7700 frame mounting: 2 slots

7701 frame mounting: 1 slot

Ordering Information:

PKG7771MFD-HD Multi-Format HDTV (720p/1035i/1080i) to 270Mb/s SDTi De-compression CODEC package

Ordering Options:

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

Model 8083XDS-AD

The 8083XDS-AD is a full broadcast quality XDS Encoder which generates line 21 XDS data directly into both analog and digital video feeds. The 8084XDS-AD encodes Extended Data Service (XDS) packets into field 2 supporting such services as Transmission Signal Identifier (TSID), Copy Generation Management System (CGMS-A), station name, call letter identification, program name, classification, remaining air time and content advisory ratings (compatible with V-Chip decoders).

The 8083XDS-AD is highly configurable to guarantee maximum compatibility with a wide variety of applications and software packages. The encoder can be configured to individually manipulate each data stream independent of the others. The 8083XDS-AD is also compatible with various automation and traffic programs such as Enterprise's "BMS Traffic System".

Built-in bypass relays on both video paths, a fault reporting output and an optional redundant power supply ensure robust operation. Two separate analog monitor outputs display visible captions from any data channel, including many XDS packet types.

Features

- Keys directly into a 525 line or 625 line component (4:2:2) digital video bitstream and composite analog video signal
- Support for Extended Data Service (XDS) to encode program information including TSID, CGMS-A and V-Chip content advisory ratings
- V-Chip blocking codes selectable from front panel menus
- Selectable V-Chip default rating after timeout
- Bypass relays for both video paths can be activated by GPI, front panel or automatically on power failure to allow the input video to pass through the unit unprocessed
- Three RS-232/RS-422 serial ports allow simultaneous control of the 8083XDS from three computers, for applications such as multi-point XDS insertion
- Separate built-in composite analog monitoring decoders for each video path to provide real-time verification of encoded data. The decoded captions, text or XDS data is inserted as open captions on the monitoring video outputs
- Composite decoders can display these XDS packet types: Network Name, Call Letters, Program Name, Program Length, Time in Show, Program Type, Program Description and Program Rating
- Built in test message inserts data into all 9 data channels
- VBI Bridge function allows captions to be copied from one video source to another using two Evertz closed caption or TSID units
- EDH Packet checksum correction ensures SDI video integrity to downstream equipment
- SMPTE 269M fault reporting output
- Optional LTC input for setting internal clock

Specifications

Serial Digital Video:

Standard:	SMPTE 259M-C (270 Mb/s) Serial Component Video
Input:	BNC 75 Ω terminated
Output:	BNC with bypass relay
Preview:	BNC output without bypass
Fault Tally:	BNC SMPTE 269M compatible
Input Equalization:	Automatic up to 200m with Belden 8281 (or equivalent)
Decoder:	BNC 1V p-p composite analog video outputs with open captions

Communications and Control:

Serial:	3 DB-9 male RS-232/422 selectable 1200 baud to 38.4 kbaud 7 or 8 data bits
Parallel GPI:	DB-9 female

Composite Analog Video:

Standard:	SMPTE 170M
Input:	BNC 75 Ω terminated
Output:	BNC with bypass relay
Preview:	BNC output with open captions

Physical:

Dimensions:	19"W x 1.75"H x 18.75" (483mm W x 45mm H x 477mm D)
Weight:	8 lbs. (3.5Kg)

Electrical:

Power:	115/230 VAC 50/60 Hz, 30 VA
Safety:	ETL Listed Complies with EU safety directive
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Ordering Information:

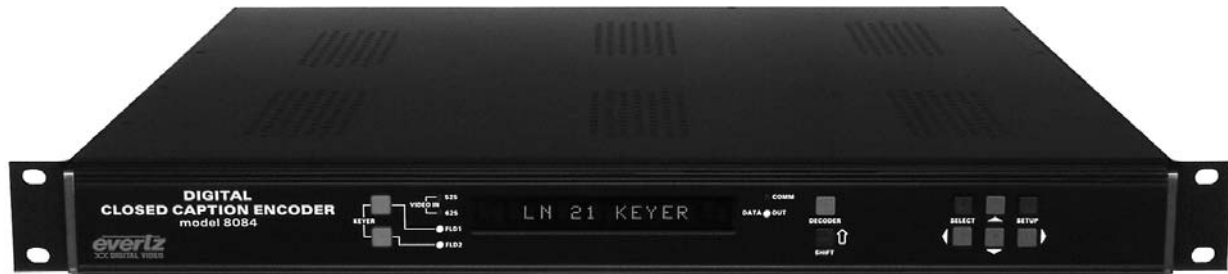
8083XDS-AD	Analog & SDI XDS Encoder
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Ordering Options:

+2PS	Redundant power supply
+LTC	Optional LTC input

SDI Closed Caption Encoder

Model 8084



The 8084 is a full broadcast quality Closed Caption Encoder which generates line 21 caption data directly into the digital bitstream. The 8084 allows data to be encoded into all caption and text channels in both field 1 and field 2 of the video. It can also encode Extended Data Service (XDS) packets into field 2 supporting such services as Transmission Signal Identifier (TSID), Copy Generation Management System (CGMS-A), station name, call letter identification, program name, classification, remaining air time and content advisory ratings (compatible with V-Chip decoders).

The 8084 is highly configurable to guarantee maximum compatibility with a wide variety of applications and software packages. The encoder can be configured to individually manipulate each data stream independent of the others. The 8084 is also compatible with various automation and traffic programs such as Enterprise's "BMS Traffic System".

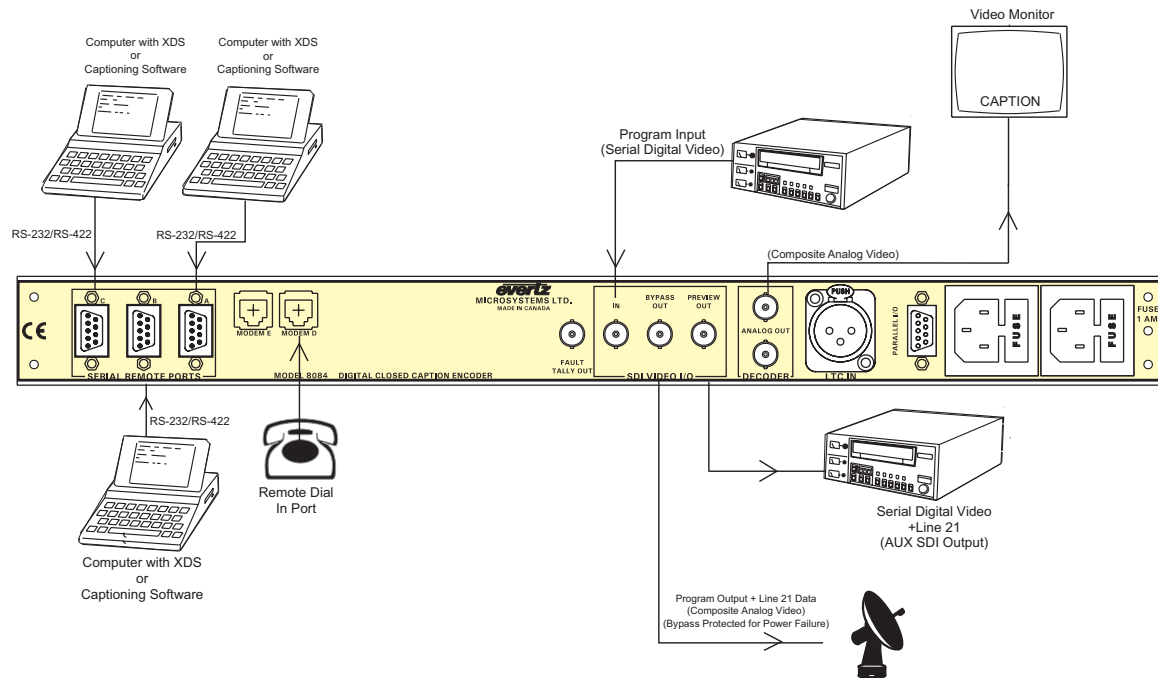
The built-in bypass relay, fault reporting output and optional redundant power supply ensure robust operation. The analog monitor output displays visible captions from any data channel, including many XDS packet types.

Features

- Keys directly into a 525 line or 625 line component (4:2:2) digital video bitstream
- Can add captions, text, web links or Extended Data Service information to previously captioned programs
- Individual caption and text data streams can be passed, modified or removed from the incoming video
- Support for text insertion from articles stored in the 8084 by the captioning software
- Support for Extended Data Service (XDS) to encode program information including TSID, CGMS-A and V-Chip content advisory ratings
- V-Chip blocking codes selectable from front panel menus.
- Selectable V-Chip default rating after timeout
- Bypass relay can be activated by GPI, front panel or automatically on power failure to allow the input video to pass through the unit unprocessed
- Three RS-232/RS-422 serial ports allow simultaneous control of the 8084 from three computers, for applications such as in house captioning, XDS insertion and more...
- Built in modem interface for dial-up real time captioning. Support for an optional second internal modem
- Built-in composite analog monitoring decoders provide real-time verification of encoded data. The decoded captions, text or XDS data is inserted as open captions on the monitoring video outputs
- Composite decoder can display these XDS packet types: Network Name, Call Letters, Program Name, Program Length, Time in Show, Program Type, Program Description and Program Rating
- Built in test message inserts data into all 9 data channels
- Ability to offset the effect of downstream component to composite encoders which add setup to line 21
- Monitor mode allows caption data to be read directly from line 21 and output on the serial port
- VBI Bridge function allows captions to be copied from one video source to another using two 8084 or 8084AD units
- GPI input to provide caption shift. This input can control the shift of rows 12 to 15 up to rows 1 to 4 when activated. Intended to provide compliance with FCC order prohibiting obstruction of weather warning text which often appears on the bottom of the screen
- Can encode captions on lines other than line 21 for specialized applications
- EDH Packet checksum correction ensures SDI video integrity to downstream equipment
- SMPTE 269M fault reporting output
- Optional LTC input for setting internal clock
- Supports a wide variety of caption software including the following:
 - The Captioning Center - CCSQ and CCMS, Captions Inc. - Smart Encoder V 1.0b, Evertz ProCAP, Cheetah Systems - Captivator Offline Edit Version 2.1, Captivator Offline PostCAP 2.1, VITAC PostCAP 2.1, Computer Prompting and Captioning Co. -CPC-700 Version 6.20, National Captioning Institute - Text Encoding and Display System (TED) version 1.7, Autograph Systems - View level XDS controller, Rapid Caption

SDI Closed Caption Encoder

8084 Connection Diagram



Specifications

Serial Digital Video:

Standard:	SMPTE 259M-C (270 Mb/s) Serial Component Video
Input:	BNC 75 Ω terminated
Output:	BNC with bypass relay
Preview:	BNC output without bypass
Fault Tally:	BNC SMPTE 269M compatible
Input Equalization:	Automatic up to 200m with Belden 8281 (or equivalent)

Composite Video Monitor:

Decoder:	2 BNC 1V p-p composite analog video outputs with open captions
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Communications and Control:

Serial:	3 DB-9 male RS-232/422 selectable 1200 baud to 38.4 kbaud 7 or 8 data bits
Modem:	2 RJ-11 telephone jacks (2nd modem optional) 1200 baud to 14.4 kbaud V.32BIS compatible
Parallel GPI:	DB-9 female

Physical:

Dimensions:	19"W x 1.75"H x 18.75" (483mm W x 45mm H x 477mm D)
Weight:	8 lbs. (3.5Kg)

Electrical:

Power:	115/230 VAC 50/60 Hz, 30 VA
Safety:	ETL listed Complies with EU safety directive
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Ordering Information:

8084	SDI Caption Encoder
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Ordering Options:

+MDM2	Second internal modem option
+2PS	Redundant power supply
+LTC	Optional LTC input

Analog & SDI Closed Caption Encoder

Model 8084AD



The 8084AD is a full broadcast quality Closed Caption Encoder which generates line 21 caption data directly into both analog and digital video feeds. The 8084AD allows data to be encoded into all caption and text channels in both field 1 and field 2 of the video. It can also encode Extended Data Service (XDS) packets into field 2 supporting such services as Transmission Signal Identifier (TSID), Copy Generation Management System (CGMS-A), station name, call letter identification, program name, classification, remaining air time and content advisory ratings (compatible with V-Chip decoders).

The 8084AD is highly configurable to guarantee maximum compatibility with a wide variety of applications and software packages. The encoder can be configured to individually manipulate each data stream independent of the others. The 8084AD is also compatible with various automation and traffic programs such as Enterprise's "BMS Traffic System".

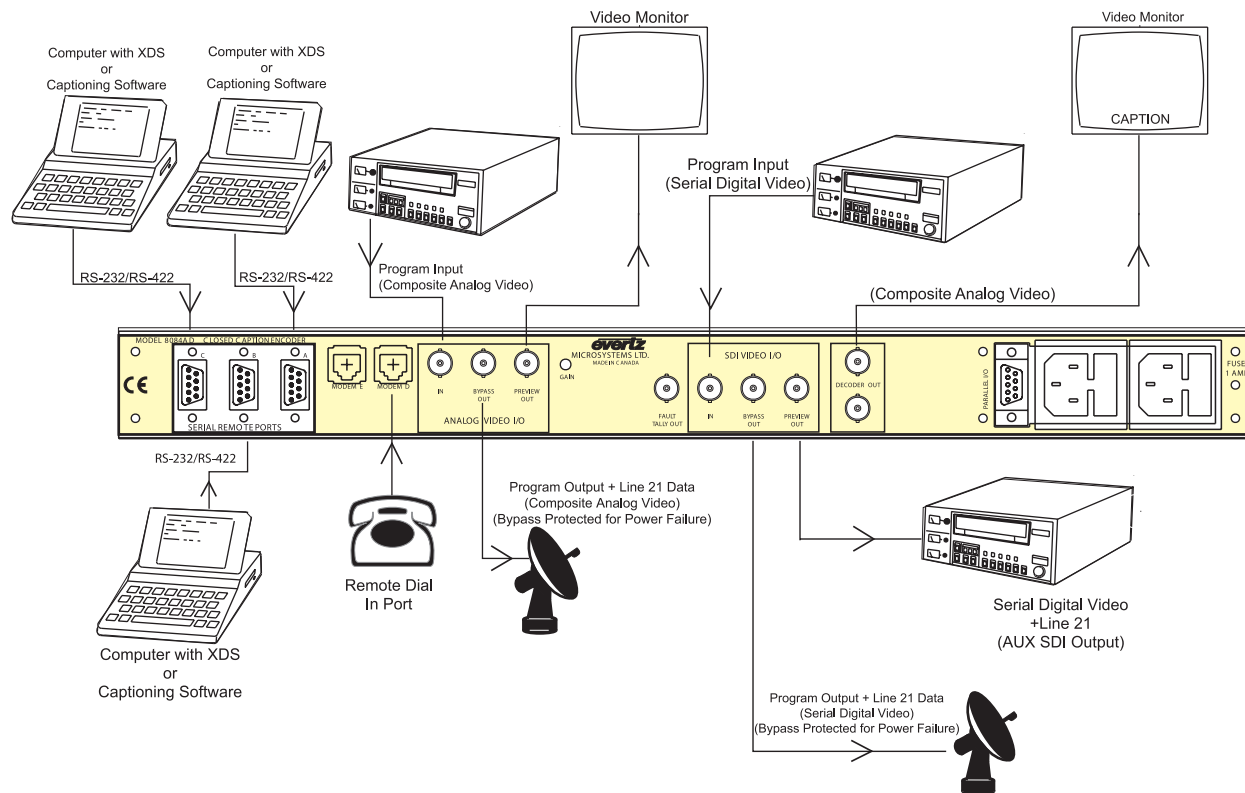
Built-in bypass relays on both video paths, a fault reporting output and an optional redundant power supply ensure robust operation. Two separate analog monitor outputs display visible captions from any data channel, including many XDS packet types.

Features

- Keys directly into a 525 line or 625 line component (4:2:2) digital video bitstream and composite analog video signal
- Upstream caption source is selectable between analog or digital video feeds
- Can add captions, text, web links or Extended Data Service information to previously captioned programs
- Individual caption and text data streams can be passed, modified or removed from the incoming video
- Support for text insertion from articles stored in the 8084AD by the captioning software
- Support for Extended Data Service (XDS) to encode program information including TSID, CGMS-A and V-Chip content advisory ratings
- V-Chip blocking codes selectable from front panel menus
- Selectable V-Chip default rating after timeout
- Bypass relays for both video paths can be activated by GPI, front panel or automatically on power failure to allow the input video to pass through the unit unprocessed
- Three RS-232/RS-422 serial ports allow simultaneous control of the 8084 from three computers, for applications such as in house captioning, XDS insertion and more...
- Built in modem interface for dial-up real time captioning. Support for an optional second internal modem
- Separate built-in composite analog monitoring decoders for each video path to provide real-time verification of encoded data. The decoded captions, text or XDS data is inserted as open captions on the monitoring video outputs
- Composite decoders can display these XDS packet types: Network Name, Call Letters, Program Name, Program Length, Time in Show, Program Type, Program Description and Program Rating
- Built in test message inserts data into all 9 data channels
- Ability to offset the effect of downstream component to composite encoders which add setup to line 21
- Monitor mode allows caption data to be read directly from line 21 and output on the serial port
- VBI Bridge function allows captions to be copied from one video source to another using two 8084 or 8084AD units
- GPI input to provide caption shift. This input can control the shift of rows 12 to 15 up to rows 1 to 4 when activated. Intended to provide compliance with FCC order prohibiting obstruction of weather warning text which often appears on the bottom of the screen
- Can encode captions on lines other than line 21 for specialized applications
- EDH Packet checksum correction ensures SDI video integrity to downstream equipment
- SMPTE 269M fault reporting output
- Optional LTC input for setting internal clock
- Supports a wide variety of caption software including the following: The Captioning Center - CCSQ and CCMS, Captions Inc. - Smart Encoder V 1.0b, Evertz ProCAP, Cheetah Systems - Captivator Offline Edit Version 2.1, Captivator Offline PostCAP 2.1, VITAC PostCAP 2.1, Computer Prompting and Captioning Co. - CPC-700 Version 6.20, National Captioning Institute - Text Encoding and Display System (TED) version 1.7, Autograph Systems - View level XDS controller, Rapid Caption

Analog & SDI Closed Caption Encoder

8084AD Connection Diagram



Specifications

Serial Digital Video:

Standard:	SMPTE 259M-C (270 Mb/s) Serial Component Video
Input:	BNC 75 Ω terminated
Output:	BNC with bypass relay
Preview:	BNC output without bypass
Fault Tally:	BNC SMPTE 269M compatible
Input Equalization:	Automatic up to 200m with Belden 8281 (or equivalent)
Decoder:	BNC 1V p-p composite analog video outputs with open captions

Communications and Control:

Serial:	3 DB-9 male RS-232/422 selectable 1200 baud to 38.4 kbaud 7 or 8 data bits
Modem:	2 RJ-11 telephone jacks (2nd modem optional) 1200 baud to 14.4 kbaud V.32BIS compatible
Parallel GPI:	DB-9 female

Composite Analog Video:

Standard:	SMPTE 170M
Input:	BNC 75 Ω terminated
Output:	BNC with bypass relay
Preview:	BNC output with open captions

Physical:

Dimensions:	19"W x 1.75"H x 18.75" (483mm W x 45mm H x 477mm D)
Weight:	8 lbs. (3.5Kg)

Electrical:

Power:	115/230 VAC 50/60 Hz, 30 VA
Safety:	ETL Listed Complies with EU safety directive
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Ordering Information:

8084AD	Analog & SDI Captioning Encoder
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Ordering Options:

+MDM2	Second internal modem option
+2PS	Redundant power supply
+LTC	Optional LTC input

Combo SDI Caption Encoder & EIA608 to EIA708 Translator

Model 8085



The model 8085 DTV Closed Caption Encoder expands on the existing digital video closed captioning technical expertise demonstrated in our model 8084 Closed Caption Encoder and further demonstrates Evertz leadership in the transition to HDTV. The model 8085 decodes line 21 caption data directly from the digital bitstream and translates EIA-608 captions to EIA-708 DTV captions.

The 8085 is also a full broadcast quality Digital Closed Caption Encoder which generates line 21 caption data directly into the digital bitstream. The 8085 allows data to be encoded into all caption and text channels in both field 1 and field 2 of the video. It can also encode Extended Data Service packets into field 2 which includes Transmission Signal Identifier (TSID), Copy Generation Management System (CGMS-A), Program Rating, Program Title, Station Call Letters, V-Chip, etc.

The 8085 is highly configurable to guarantee maximum compatibility with a wide variety of applications and software packages. The encoder can be configured to individually manipulate each data stream independent of the others. The 8085 is also compatible with various automation and traffic programs such as Enterprise's "BMS Traffic System".

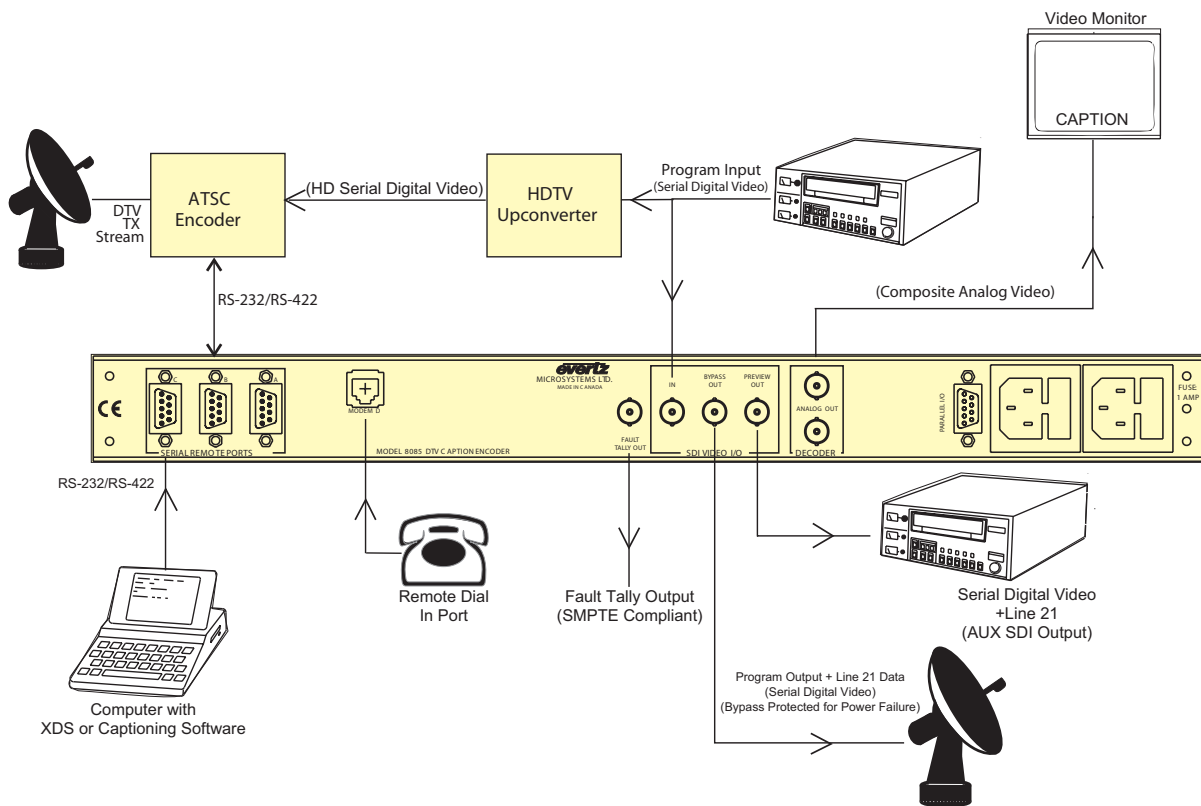
The built-in bypass relay, fault reporting output and optional redundant power supply ensure robust operation. The analog monitor output displays visible captions from any data channel, including many XDS packet types.

Features

- Transcodes standard EIA-608 captions to the equivalent advanced DTV EIA-708 captions
- Transmits EIA-608 caption data and DTV caption data to the DTV encoder via RS-232 or RS-422
- Supports the two common DTV encoder protocols - Grand Alliance "push" protocol and SMPTE 333M "pull" protocol
- Keys directly into a 525 line or 625 line component (4:2:2) digital video bitstream
- Can add captions, text, web links or Extended Data Service (XDS) information to previously captioned programs
- Support for text insertion from articles stored in the 8085 by the captioning software
- Support for Extended Data Service to encode program information including TSID, CGMS-A, V-Chip, Program ID, etc.
- Individual caption and text data streams can be passed, modified or removed from the incoming video
- Monitor mode allows caption data to be read directly from line 21 of the digital bitstream and output on the RS-232 serial port
- SMPTE 269M fault reporting output
- A front panel or GPI activated relay bypass mode is provided along with a bypass relay for power failure protection which allows the input video to pass through the 8085 unprocessed
- Three serial ports allow simultaneous control of the 8085 from three computers, for applications such as in house captioning, XDS (TSID/CGMS-A, V-Chip, URL, etc.) insertion and more...
- Built in modem interface for dial-up real time captioning
- Built in test message inserts data into all 9 data channels
- Ability to offset the effect of downstream component to composite encoders which add setup to line 21
- Real-time verification of encoded data via a built-in composite analog monitoring decoder. The decoded captions, text or XDS data are inserted as open captions on the analog video output
- Composite decoder can display these XDS packet types: Network Name, Call Letters, Program Name, Program Length, Time in Show, Program Type, Program Description, Program Rating
- EDH Packet checksum correction ensures SDI video integrity to downstream equipment
- Supports a wide variety of caption software including the following: The Captioning Center - CCSQ and CCMS, Captions Inc. - Smart Encoder V 1.0b, Evertz ProCAP, Cheetah Systems - Captivator Offline Edit Version 2.1, Captivator Offline PostCAP 2.1, VITAC PostCAP 2.1, Computer Prompting and Captioning Co. - CPC-700 Version 6.20, National Captioning Institute - Text Encoding and Display System (TED) version 1.7, Autograph Systems - View level XDS controller, Rapid Caption

Combo SDI Caption Encoder & EIA608 to EIA708 Translator

8085 Connection Diagram



Specifications

Serial Digital Video:

Standard:	SMPTE 259M-C (270 Mb/s) Serial Component Video
Input:	BNC 75 Ω terminated
Output:	BNC with bypass relay
Preview:	BNC output without bypass
Fault Tally:	BNC SMPTE 269M compatible
Input Equalization:	Automatic up to 200m with Belden 8281 (or equivalent)

Composite Video Monitor:

Decoder:	BNC 1V p-p composite analog video outputs with open captions
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Communications and Control:

Serial:	3 DB-9 male RS-232/422 selectable 1200 baud to 38.4 kbaud 7 or 8 data bits
Modem:	1 RJ-11 telephone jacks 1200 baud to 14.4 kbaud V.32BIS compatible
Parallel GPI:	DB-9 female

Physical:

Dimensions:	19"W x 1.75"H x 18.75" (483mm W x 45mm H x 477mm D)
Weight:	8 lbs. (3.5Kg)

Electrical:

Power:	115/230 VAC 50/60 Hz, 30 VA
Safety:	ETL listed Complies with EU safety directive Complies with FCC Part 15, Class A EU EMC Directive
EMI/RFI:	

Ordering Information:

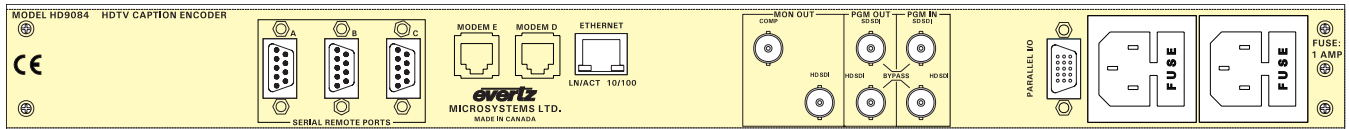
8085	Combo SDI Caption Encoder & EIA608 to EIA708 Translator
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Ordering Options:

+2PS	Redundant power supply
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HD DTV Caption Encoder

Model HD9084



HD9084 Rear Panel

The HD9084 DTVCC Caption Processor is a comprehensive, compact solution for all HD Advanced Closed Caption and SD Closed Caption requirements. Simultaneous HD-SDI and SD-SDI video I/O paths provide a one-box solution with the following functionality:

- * Simultaneous encoding of new EIA608/EIA708 captions onto SD and HD video
- * Encoding of Extended Data Service Packets into field 2 of the SD-SDI signal including Transmission Signal Identifier (TSID), Copy Generation Management System (CGMS-A), V-Chip, Station Name, etc.
- * Transcoding and translation of captions from an SD source (EIA-608) onto HD source (SMPTE 334M)
- * Transcoding of captions from an HD source (SMPTE 334M) onto SD source (EIA-608)
- * Processing of captions from SD-SDI video source (EIA-608) to send to a compression encoder (SMPTE 333M or Grand Alliance)
- * Processing of captions from HD-SDI video source (SMPTE 334M) to send to a compression encoder (SMPTE 333M or Grand Alliance)

The SMPTE-292M HD-SDI video path supports 720p, 480p, or 1080i video formats. Advanced Captions are stored in the VANC of HD-SDI as per SMPTE-334M. The SMPTE-259M SDI video path supports EIA-608 captions stored on line 21 of component digital video. Both SD and HD video paths include bypass relay protection.

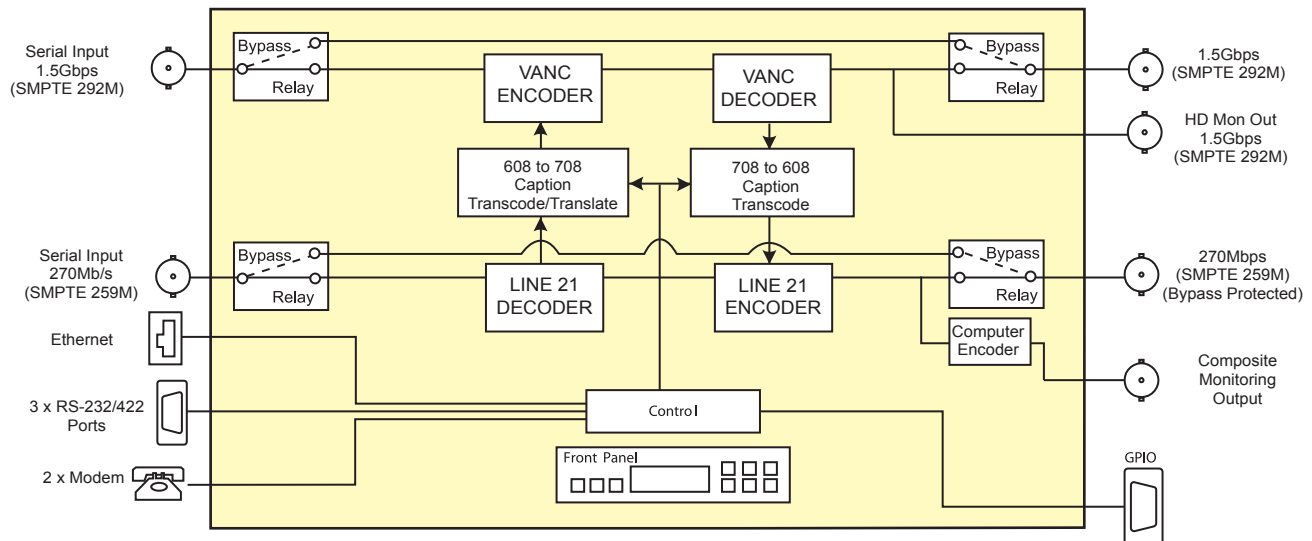
HD9084 supports various types of communications interface, including RS-232/422 serial, telephone modem, Ethernet TCP/IP, linear time code, and parallel GPI control. The HD9084 interfaces with all ATSC (MPEG) compression encoders and supports the following EIA-708 transfer formats: SMPTE 334M, SMPTE 333M and Grand Alliance. The built in HD and SD closed caption decoder allows confidence monitoring of EIA-708 and EIA-608 captions on any NTSC monitor.

The HD9084 also provides caption shifting for both SD and HD captions via GPI control. This provides compliance with FCC order prohibiting obstruction of weather warning text which often appears on the bottom of the screen

HD9084 is easily configured using the front panel, remotely through the various communications ports, or via On-Screen display.

HD DTV Caption Encoder

HD9084 Block Diagram



Specifications:

HDTV Serial Digital Video Input:

Standard: SMPTE 292M 1.485 Gb/s, 1080i, 720p, 480p
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic up to 75m @ 1.5 Gb/s with Belden 1694A (or equivalent). 24m with bypass relay installed
Impedance: 75Ω

HDTV Serial Digital Video Output:

Standard: Same as HD input
Number of Outputs: 1 program out (bypass relay protected)
1 monitoring out
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: <0.2 UI
Impedance: 75Ω

SDTV Serial Digital Video Input:

Standard: SMPTE 259M-C
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 200m @ 270Mb/s Belden 1694A (or equivalent). 24m with bypass relay installed

SDTV Serial Digital Video Output:

Standard: Same as Input
Number of Outputs: 1 program out (bypass relay protected)
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: 470ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB
Wide Band Jitter: < 0.2 UI

Composite Monitoring Output with OSD:

Standard: NTSC (SMPTE 170M)
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Impedance: 75Ω

General Purpose In/Out:

Number of Inputs: 7
Number of Outputs: 3
Type: Opto isolated, active low
Connector: Female High Density DB-15
Signal level: +5V nominal

Communications and Control:

Serial: 3 DB-9 male
RS232 /422 selectable
1200 baud to 57.6 kbaud
7 or 8 data bits
Modem: 2 RJ-11 telephone jacks
(2nd modem optional)
1200 baud to 14.4 kbaud
V.32BIS compatible
Ethernet: IEEE 802.3 (10 BaseT)
IEEE 802.3u (100 BaseTX)
RJ-45 connector

Physical:

Dimensions: 19"W x 1.75"H x 18.75"
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Power: 115/230 VAC 50/60 Hz, 30 VA
Safety: ETL Listed
Complies with EU safety directive
Complies with FCC part 15, class A
EU EMC Directive

Ordering Information:

HD9084 HD DTV Caption Encoder

Ordering Options:

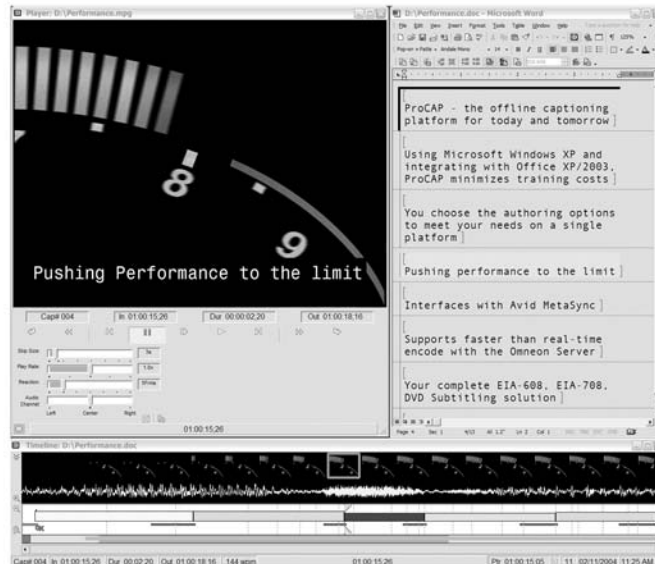
+2PS Optional redundant power supply
+MDM2 Second internal modem option

ProCAP Offline Captioning

The ProCAP Authoring System is a complete offline non-linear caption preparation system offering a cost-effective and flexible solution.

Player

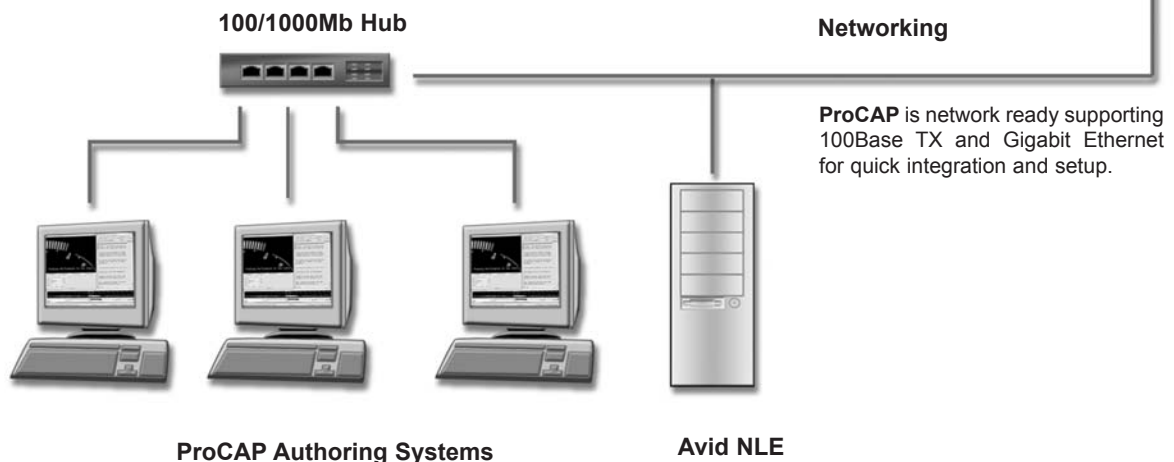
Using Windows® XP multimedia subsystem for playback, ProCAP adds caption and subtitle preview over video for WYSIWYG display, timing and positioning. Also supports Avid Quicktime reference clips.



Editor

Using Microsoft® Word ProCAP extends the functionality of the universal word processor allowing users to import or create transcripts, author and edit captions, caption styles, format and positioning.

Timeline- provides a pictorial view of the caption information. Shot change detection, a film strip and an audio waveform allows for precise alignment of captions.



ProCAP® Author

ProCAP Author saves time by supporting EIA-608 Line 21 captioning, EIA-708 DTV captioning and DVD Subtitling all in the same application - the work done for one standard can be applied to the next Cheetah .CAP, TDS, .SCC for DVD Line 21, DVD scripts and Image files are all supported

Avid NLE With MetaSync®

Avid NLE With MetaSync®

ProCAP Author seamlessly integrates with Avid NLEs. Avid Quicktime reference clips can be used directly. MetaSync® export scripts can be imported for finishing, or any available transcript used as a starting point. Completed work can be output for Transfer or as a Line 21 video clip to be taken back into the Avid project.

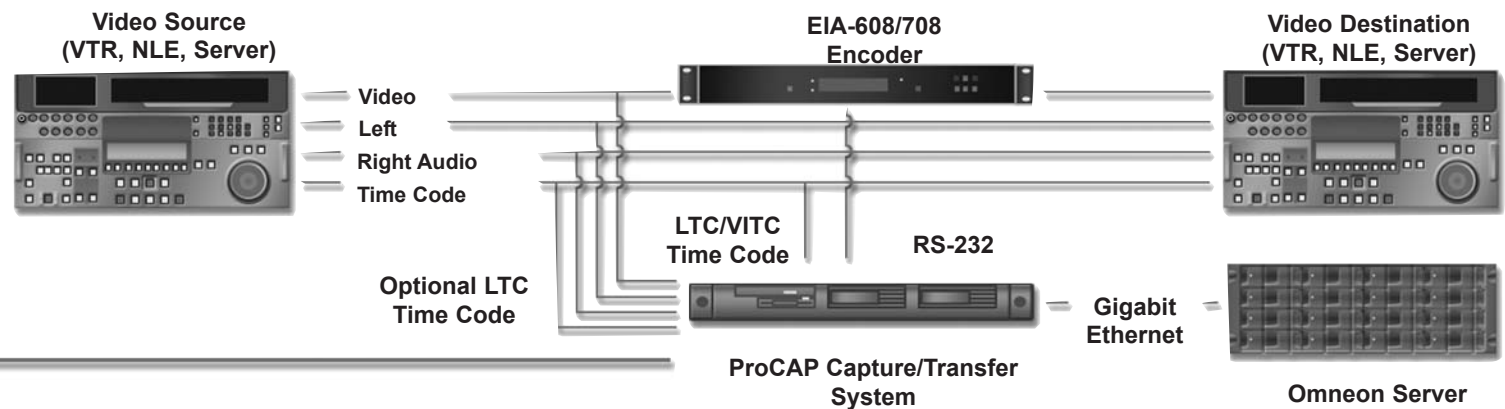
ProCAP Offline Captioning

Closed Caption Encoder

ProCAP Transfer supports any new or existing CTRL-A Protocol compliant Closed Caption encoder. For digital video applications, the Evertz HD9084 is a full broadcast quality EIA-608 and EIA-708 digital encoder.

ProCAP® Transfer

ProCAP Transfer ensures accurate and consistent encoding of captions to video. Support for various file formats including .TDS, Cheetah, .CAP, NCI, .CAP and NCI, .FLC. ProCAP Transfer can also capture existing Line 21 streams, and export them as .SCC files for DVD.



ProCAP® Capture

Using an industry standard capture card and a SCSI subsystem in a 1RU server, the resulting MPEG1 file is a frame-accurate capture of the source video. Lower cost capture solutions combined with the Author station are also available. Burn-in time code on the capture, or optional LTC capture, ensures frame-accurate results.

Omneon Server Support

ProCAP Transfer allows for off-line caption encoding directly into clips residing on an Omneon server. The typical speed is 4 to 6 times real-time. Because Line 21 data is inserted into the video clip, there is not generation loss. Clip caption status tagging allows simplified automation support.

Features

- Full customization of keyboard shortcuts and macros to suit the user
- WYSIWYG control over caption placement through drag-and-drop and shortcuts
- Resizeable player window. Windows® XP allows for multi-monitor display
- Timeline provides a pictorial view of caption reading rates, and any conflicts or errors during authoring, saving revision time and costs
- Shot scene detection with film strip and audio waveform allows for accurate positioning of captions
- Interfaces to Avid and Avid MetaSync®, allowing for rapid captioning of material
- Omneon Encode support delivers performance of 4 to 6 time real-time encode. Automation support through clip tagging.

Ordering Information:

PA-SW-708	ProCAP Author Software Only, 1 Station License, Adds 708 to Base
PA-SW-BASE	ProCAP Author Software Only, 1 Station License, Base EIA-608 Standard
PA-SW-DVD	ProCAP Author Software Only, 1 Station License, Adds DVD to Base
PA-SW-FULL	ProCAP Author Software Only, 1 Station License, All Options
PC-HW	ProCAP Capture Hardware and Third Party Software
PCT-HW-TC	ProCAP Transfer PCI Timecode Reader Board
PT-SW	ProCAP Transfer Software Only, 1 Station License, with 1 year support



Model 7742DLY

The 7742DLY is a full function SDI Video Delay module designed for applications such as: satellite uplink, signal re-entry on master control inputs, at cable headends, mobile vehicle outputs, broadcast transmitter inputs, virtual sets and matching delays caused by multi-channel audio compression.

The 7742DLY will delay all VBI and Ancillary data including embedded audio along with the video. The 7742DLY is capable of up to 2.3 seconds of delay. The delay can be set in frames, lines and samples or in seconds.

With the broadcast environment in mind, the module features bypass relay protection on one output.

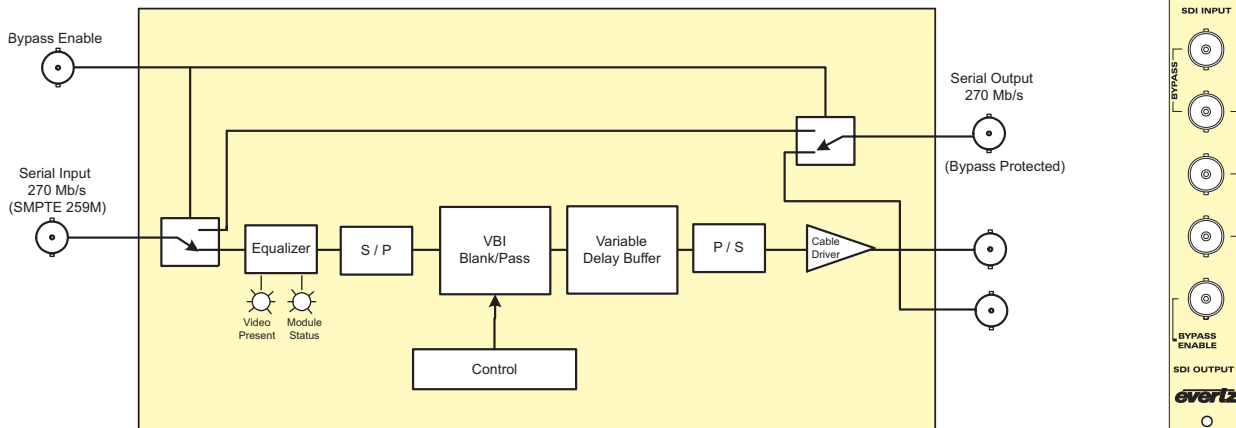
The 7742DLY module is housed in a 3RU frame that will hold up to 15 modules, a 1RU frame that will hold up to 3 modules or a standalone enclosure which will hold 1 module.

Features

- Full signal delay capability including VBI and ANC DATA
- Setup via on screen menu
- Delay programmable in frames, lines and samples or in seconds
- Dual standard, 525 or 625
- Bypass relay for program path protection on power loss
- Up to 2.3 seconds of delay

- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

7742DLY Block Diagram



Specifications

Serial Video Inputs:

Standard: SMPTE 259M-C (270 Mb/s)
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 210m with Belden 8281 or equivalent cable
Return Loss: > 15 dB up to 270 Mb/s

Serial Video Outputs:

Number of Outputs: 1 with relay bypass, 3 additional outputs
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 740ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 540 Mb/s
Wide Band Jitter: < 0.2 UI

Electrical:

Voltage: +12VDC
Power: 6 Watts
Safety: ETL Listed
 Complies with EU safety directives
EMI/RFI: Complies with FCC Part 15, Class A
 EU EMC Directive

Physical:

Number of Slots: 1

Functional:

Minimum Delay: 815 ns (22 samples)
Maximum Delay: 525 line: 70 frames, 625 line: 59 frames (approx 2.3 secs)

Ordering Information:

7742DLY SDI Video Delay (2.3 seconds max)

Ordering Options

Rear Plate must be specified at time of order
 Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

7700FC VistaLINK™ Frame Controller
9000NCP 1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2 2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone Enclosure

HD/SD Video Delay



Model 7743DLY-HD

The 7743DLY-HD is a full function HD/SD Video Delay module designed for applications such as: satellite uplink, signal re-entry on master control inputs, at cable headends, mobile vehicle outputs, broadcast transmitter inputs, virtual sets and matching delays caused by multi-channel audio compression.

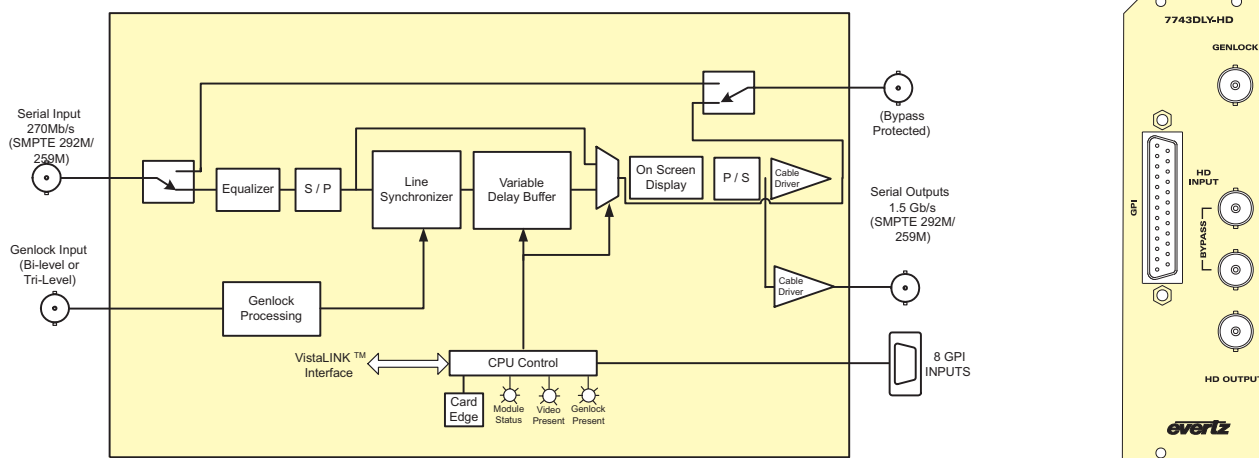
The 7743DLY-HD can act as a delay for standard definition SMPTE 259M video or for high definition. The same technology built on our clean switch router line is utilized here.

The 7743DLY-HD is capable of up to 3.2 seconds of delay for HD and up to 16.5 seconds of delay for SD. With the broadcast environment in mind, the modules feature bypass relay protection on output. The 7743DLY-HD module is housed in a 3RU frame that will hold up to 7-7743DLY-HD modules or a 1RU frame that will hold up to 3 modules.

Features

- Full signal delay capability including VBI and ANC DATA for SMPTE 292M (1.5Gb/s) signals
- 7743DLY-HD also supports full signal delay capability including VBI for SMPTE 259M (270Mb/s) signals
- Delay programmable in video units (frames, lines, and samples) or as time units (seconds)
- Auto senses video standard
- Bypass relay for program path protection on power loss
- Up to 3.2 seconds delay for HD
- Up to 16.5 seconds delay for SD
- Card edge controls operate on screen menu system to program delay settings
- Input circuit features a line buffer which is suitable for "deglitching" hot switches on upstream equipment (very useful for HD equipment)
- VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame

7743DLY-HD Block Diagram



Specifications

High Definition Serial Digital Video:

Standard: SMPTE 292M (1.5 Gb/s) or SMPTE 259M (270Mb/s)
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 75m @ 1.5 Gb/s with Belden 1694
Return Loss: > 15 dB up to 1.0 Gb/s
> 10 dB up to 1.5 Gb/s (with relay)

Standard Definition Serial Digital Video:

Standard: SMPTE 259M (270 Mb/s)
Connector: BNC per IEC 60169-8 Amendment 2
Return Loss: > 15 dB up to 270 Mb/s

Serial Video Outputs:

HD Serial Digital Video:

Number of Outputs: 1 with relay bypass, 1 additional output
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 1.5 Gb/s
Wide Band Jitter: < 0.2 UI

Standard Definition Serial Digital Video:

Number of Outputs: 1 with relay bypass, 1 additional output
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 740ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 540 Mb/s
Wide Band Jitter: < 0.2 UI

Genlock Input:

Type: HD Tri-level Sync. (See Table 3 in manual)
NTSC or PAL Color Black 1 V p-p, or Composite bi-level sync (525/59.94 or 625/50)
300 mV
Connector: BNC per IEC 60169-8 Amendment 2
Termination: 75Ω (jumper selectable)

Functional:

Minimum Delay: 65.5 ms (1770 samples) for standard definition, 37.7 ms (2800 samples) for high definition
Maximum Delay: approx. 16.5 seconds for standard definition, approx. 3.2 seconds for high definition

Electrical:

Voltage: + 12VDC
Power: 20 watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 frame mounting: 2 (7700FR)
1 (7701FR)

Stand Alone Enclosure:

Dimensions: 14 " L x 4.5 " W x 1.9 " H
(355 mm L x 114 mm W x 48 mm H)
Weight: Approx. 1.5 lbs. (0.7 Kg)

Ordering Information:

7743DLY-HD HD/SD Video Delay

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Accessories:

Enclosures:
7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone Enclosure

SDI Frame Synchronizer with Embedded Audio & AES Support



Model 7745FS-EAES

The 7745FS-EAES SDI video and audio frame synchronizer is designed to retiming a 270 Mb/s SMPTE 259M (525 or 625 line) input to a local reference composite sync signal. When necessary, frames are repeated or dropped to maintain synchronization. During the synchronizing process the video delay varies from 3 lines through to 1 frame plus 3 lines.

The 7745FS-EAES Frame Synchronizer contains an extensive list of additional features, including AES or embedded audio synchronization. The user can choose to have either 1 group from the upstream embedded audio or audio from the 2 AES inputs synchronized and embedded on the output and output as AES. The 7745FS-EAES provides no VistaLINK™ support unless the +P option is selected.

When the Processing (+P) option is added the frame synchronizer has the ability to adjust video parameters such as brightness, contrast and saturation, and audio parameters such as gain, mixing stereo pairs into monaural and reassignment of audio channels within the group via VistaLINK™ control.

Features

- SDI 525 or 625, 270 Mb/s component digital video input
- Bypass protected SDI 525 or 625, 270 Mb/s component digital video output, without OSD text or audio bargraphs
- Additional SDI output, non-bypass protected (same as bypass protected SDI output)
- Composite analog reference input loop (NTSC or PAL-B)
- Programmable output phase with respect to reference input (in 27MHz clock increments)
- One frame video synchronizer
- EDH encoding on SDI output
- Freeze on last good frame, or field, or go to Black on loss of video
- Adjustable free running frequency
- Two composite analog video outputs with OSD text and bargraph graphics
- VU/PPM bargraph level Indicators
- Decodes vertical interval time code (VITC) and "burns" the time code into the picture
- Decodes PESA format Source ID (8 characters) or Evertz format VITC Source ID (5 or 9 characters) and burns the ID into the picture
- A comprehensive on screen display menu is available to configure the various features of the module
- Flexible configuration of the text and audio bar graph information displays
- On screen messages can be triggered by the configured fault conditions
- Synchronizes two external AES signals or 1 group of embedded audio to the video

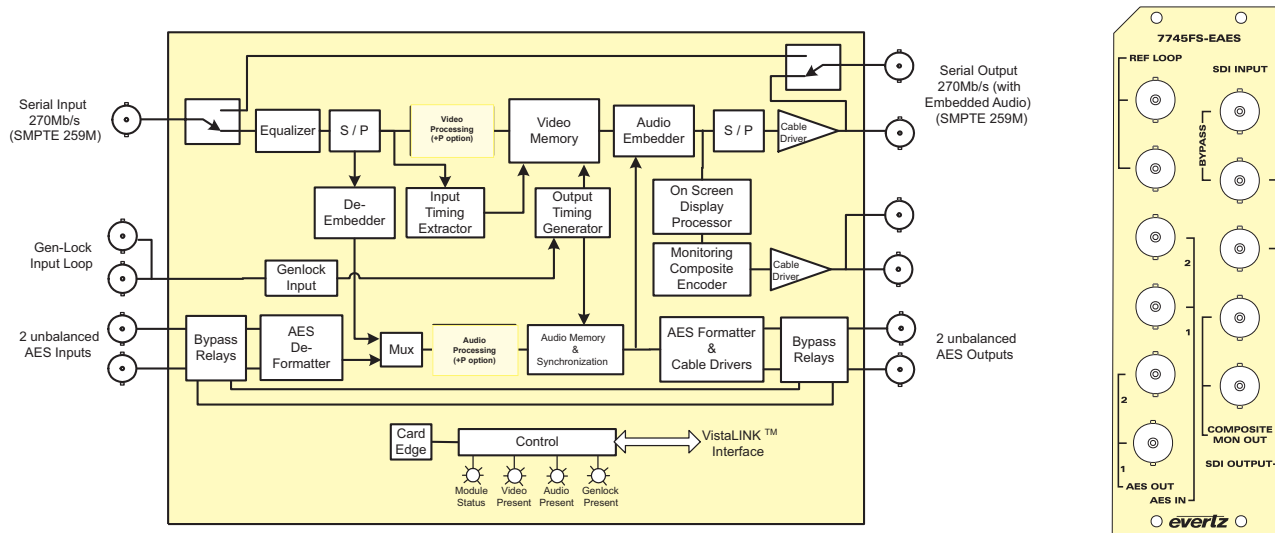
- Synchronized audio is output as 2 AES signals and embedded onto the SDI video output
- AES outputs bypass relay protected on power loss
- Selected audio source is delayed equivalent to the video delay through the synchronizer
- Additional, user selected, audio delay may be added to, or removed from the delay used to match the video
- Minimum audio input to output delay - 98 samples when video delay is less than 64 lines
- Audio Sample Rate Converters can be disabled
- Selectable audio pass or mute when video input missing

Additional Features with +P Option

- Adjustable video black level (brightness), Y level (contrast) and chroma level (saturation)
 - Independently adjustable audio levels on all channels
 - Ability to combine stereo pairs to monaural
 - Reassignment of audio channels within the embedded group
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

SDI Frame Synchronizer with Embedded Audio & AES Support

7745FS-EAES Block Diagram



Specifications

Serial Digital Video Input:

Standard: SMPTE 259M-C (270Mb/s)
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: >15dB to 270MHz
Embedded Audio: SMPTE 272M-A
Wide Band Jitter: < 0.2 UI

Serial Digital Video Output:

Standard: SMPTE 259M-C - 525 or 625 line component
Number of Outputs: 1 bypass relay protected
1 non-protected
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: >15dB to 270MHz
Embedded Audio: SMPTE 272M-A
Wide Band Jitter: < 0.2 UI

Reference Video Input:

Type: NTSC, SMPTE 170M or PAL, ITU624-4 Color black 1Vp-p
Composite Bi-level sync (525i/59.94 or 625i/50) 300mV
Number of Inputs: 2 (loop thru)
Connector: BNC per IEC 60169-8 Amendment 2
Termination: High impedance loop through
Return Loss: >35dB up to 10MHz
SNR: >50dB
Levels: Max. 2Vp-p video
Min. Sync level 150mV

Analog Monitoring Video Output:

Standard: NTSC, SMPTE 170M
PAL, ITU624-4
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
Output Impedance: 75 Ω
Return Loss: >35dB up to 10MHz

AES Audio Inputs and Outputs :

Standard: SMPTE 276M, single ended AES
Number of Inputs: 2
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Resolution: 24-bits
Sampling Rate: Synchronous or Asynchronous (32kHz to 48kHz on inputs, 48kHz on outputs)
User Bits: Transferred to output with < 12ms delay

Input to Output Processing Delay:

Video Processing Delay

Synchronizing: 3 μ s to 1 frame 3 μ s
Output Phasing: Up to 1 frame of additional delay

Audio Processing Delay

AES Input to Output: 140 samples when video delay is less than 64 lines
Same as video delay when video delay is greater than 64 lines
4.5 ms to 1 frame plus 4.5 ms
Embedded to AES: 4.5 ms to 1 frame plus 4.5 ms
AES to Embedded: 4.5 ms to 1 frame plus 4.5 ms

Processing Functions: (+P option only)

Video

Black Level: +/- 7%
Luminance gain: +/- 6dB
Chroma gain: +/- 6dB
Audio Gain: +/- 24dB

Physical:

Number of Slots: 2

Electrical:

Voltage: +12V DC
Power: < 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7745FS-EAES SDI Frame Synchronizer with Embedded Audio and AES Support (No VistaLINK™ support)

Ordering Options

+P Video and audio processing functions, adds VistaLINK™ support

Rear Plate must be specified at time of order

Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules

Note: This module not available in a standalone enclosure

SD Frame Synchronizer

Model 7746FSE



The 7746FSE series SD Frame Synchronizers are designed to retiming a SMPTE259M (625i/50, 525i/59.94) input to a local sync signal. When necessary, frames are repeated or dropped to maintain synchronization. During the synchronizing process the video delay varies from 3 lines through to 1 frame plus 3 lines. Additional delay can be added to the synchronizing process in 1 frame increments.

The 7746FSE is currently available in two versions to suit various application requirements.

Model	Synchronizes			AES Audio	
	Video	Embedded Audio	AES Audio	Inputs	Outputs
7746FSE	Yes	Demux and mux 2 Groups	No	-	--
7746FS-EAES4	Yes	Demux and mux 2 Groups	4	4	4

On the 7746FSE version the video and embedded audio is synchronized. On the 7746FS-EAES4 version, the user can choose to have either 2 groups from the upstream embedded audio or audio from the 4 AES inputs embedded on the output video and output as AES. Both versions can also pass all VANC data. When the input video is lost, it will pass the input AES or mute if embedded audio is selected for synchronizing. The frame synchronizers also have the ability to set the audio delay independently from the video delay.

The frame synchronizers have the ability to adjust video parameters such as brightness, contrast, saturation and hue. The 7746FSE products can adjust audio parameters such as gain, mixing stereo pairs into monaural and reassignment of audio channels.

The card functions can be controlled from the card edge or through the VistaLINK™ interface.

Features

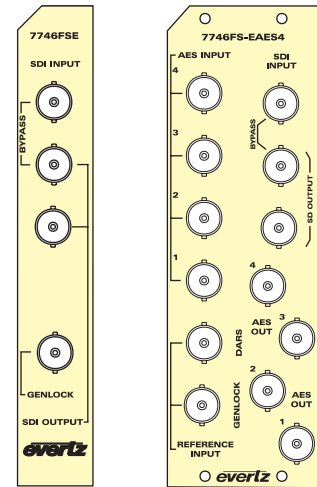
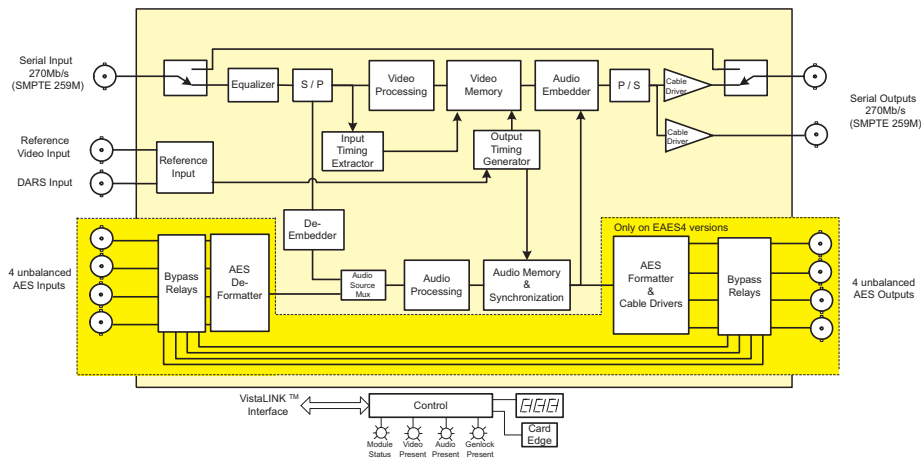
- Synchronizes 525i/59.94 or 625i/50
- Minimum video input to output delay - 3 lines
- Maximum video input to output delay - 1 frame plus 3 lines
- 12 additional frames of delay can be added for interlaced video formats
- Program Video output bypass relay protected on power loss
- Programmable output phase with respect to reference input
- Freeze on last good frame, or field, go to black on loss of video or pass input
- Synchronizes 2 groups of embedded audio and re-embeds 2 groups
- Audio Sample Rate Converters can be disabled for Dolby E support
- Independently adjustable audio levels on all channels
- Ability to combine stereo pairs to monaural
- Reassignment of audio channels within the embedded groups
- Front panel LEDs indicate: module fault, video and audio present
- Serial remote data logging
- Adjustable video black level (brightness), Y level (contrast) and chroma level (saturation), colour (hue)
- Maximum audio input to output delay - equivalent to additional frames of video delay
- Separate control of video and audio delay
- Audio Sample Rate Converters can be disabled
- Independently adjustable audio levels on all channels
- Ability to combine stereo pairs to monaural
- Reassignment of audio channels

VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame

Additional Features for EAES4 versions:

- Synchronizes four external AES signals
- Synchronized audio is output as 4 AES signals
- AES outputs bypass relay protected on power loss

7746FSE Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C 525i/59.94 or 625i/50
Connector: BNC per IEC 60169-8 Amendment 2.
Input Equalization: Automatic to 300m @ 270Mb/s with Belden 1694 or equivalent cable
Return Loss: >15 dB up to 270 MHz

Serial Video Outputs:

Number of Outputs: 2 (1 output is bypass relay protected)
Connectors: BNC per IEC 60169-8 Amendment 2.
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: < 0.10 UI

Genlock Input:

Type: NTSC or PAL Colour Black 1 V p-p, or Composite bi-level sync (525i/59.94 or 625i/50) 300 mV
Connector: BNC per IEC 60169-8 Amendment 2.
Termination: 75 Ω (jumper selectable)

DARS Reference (7746FS-EAES4 - CURRENTLY NOT USED):

Type: AES Digital Audio Signal with 48kHz sample rate.
Standard: SMPTE 276M-1995 single ended AES
Connectors: BNC per IEC 60169-8 Amendment 2.
Termination: 75 Ω (jumper selectable)

AES Audio Input and Output (7746FS-EAES4):

Number of Inputs: 4
Number of Outputs: 4
Standard: SMPTE 276M, single ended synchronous or asynchronous AES
Connectors: BNC per IEC 60169-8 Amendment 2.
Resolution: 24 bits
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced
Signal Level: 1 V p-p nominal

Processing Functions:

Video:
Black Level: \pm /- 7%
Luminance Gain: \pm /- 6dB
Chrominance Gain: \pm /- 6dB
Hue: \pm /- 20 degrees
Audio
Gain: \pm /- 24dB
Remapping: Any input or mono mix of any L/R pair to any output

Input To Output Processing Delay:

Video Processing Delay
Minimum Delay Mode: 3 lines to 1 frame plus 3 lines
Additional Delay Mode: Up to 12 frames of additional delay (1 frame increments)

Data Logging Serial Port:

Standard: RS 232
Connector: Software upgrade cable female DB-9
Baud Rate: 57600
Format: 8 bits, no parity, and 2 stop bits

Electrical:

Voltage: + 12VDC
Power:
7746FSE 12 Watts
7746FS-EAES4 15.5 Watts
EMI/RFI: Complies with FCC Part 15, Class A
 EU EMC Directive

Physical:

7700 frame mounting:
Number of slots: 1 for 7746FSE
 2 for 7746FS-EAES4
7701 frame mounting:
Number of slots: 1 for 7746FSE
 1 for 7746FS-EAES4

Ordering Information:

7746FSE SD Frame Synchronizer
7746FS-EAES4 SD Frame Synchronizer with 4 AES audio pairs and embedded audio processing & AES Support

Ordering Options:

Rear Plate must be specified at time of order
 Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

7700FC VistaLINK™ Frame Controller
9000NCP 1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2 2RU VistaLINK™ General Purpose Network Control Panel

Accessories:

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD Frame Synchronizer

Model 7746FS-EAES8-DD-HD



The 7746FS-EAES8-DD-HD HD/SD Frame Synchronizer is designed to retim a SMPTE 292M (1080i/60, 1080i/59.94, 1080i/50, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94, or 480p/59.94) or SMPTE259M (625i/50, 525i/59.94) input to a local reference tri-level or composite sync signal. When necessary, frames are repeated or dropped to maintain synchronization. During the synchronizing process the video delay varies from 3 lines through to 1 frame plus 3 lines. Additional delay can be added to the synchronizing process in 1 frame increments.

On the 7746FS-EAES8-DD-HD the video and any embedded audio present is synchronized. When the input video is lost, it will pass the input AES or mute if embedded audio is selected for synchronizing. The frame synchronizers also have the ability to set the audio delay independently from the video delay.

The frame synchronizers have the ability to adjust video parameters such as brightness, contrast and saturation. Hue control is available for SD standards (525i/59.94 and 625i/50). They can also adjust audio parameters such as gain, mixing stereo pairs into monaural and reassignment of audio channels.

The card functions can be controlled from the card edge or through the VistaLINK™ interface

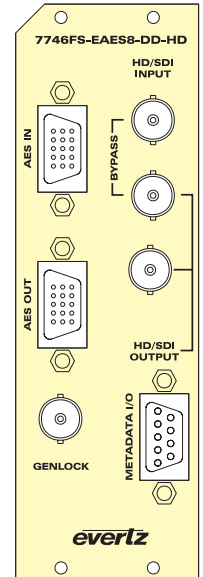
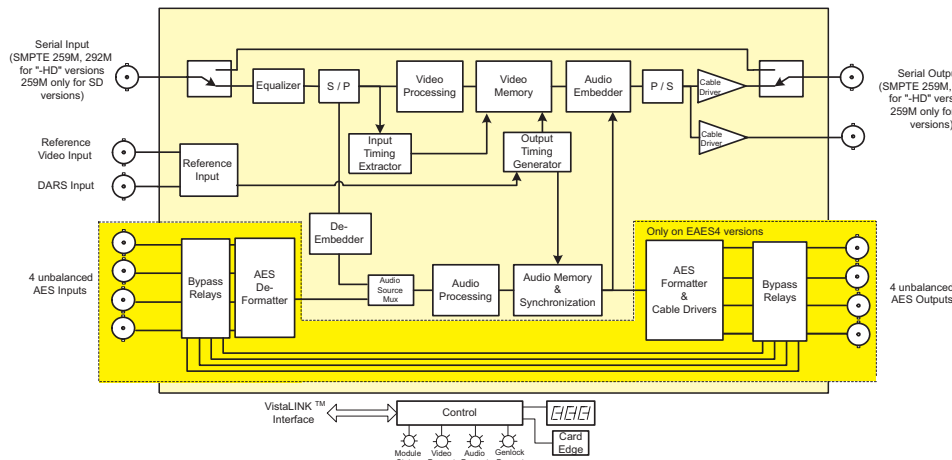
Features

- Synchronizes 1080i/60, 1080i/59.94, 1080i/50, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94, 480p/59.94, 525i/59.94 or 625i/50
 - Minimum video input to output delay - 3 lines
 - Maximum video input to output delay - 1 frame plus 3 lines
 - 12 additional frames of delay can be added for interlaced video formats, 28 frames for progressive formats.
 - Program Video output bypass relay protected on power loss
 - Programmable output phase with respect to reference input
 - Freeze on last good frame, or field, go to black on loss of video or pass input
 - Synchronizes 2 groups of embedded audio and re-embeds 2 groups
 - Front panel LEDs indicate: module fault, video and audio present
 - Serial remote data logging
 - Adjustable video black level (brightness), Y level (contrast) and chroma level (saturation)
 - Adjustable hue control for SD video standards
 - Maximum audio input to output delay - equivalent to additional frames of video delay
 - Synchronizes VANC data starting after switch line
 - Synchronizes RP188 time codes
 - Separate control of video and audio delay
 - Audio Sample Rate Converters can be disabled
 - Independently adjustable audio levels on all channels
 - Ability to combine stereo pairs to monaural
 - Reassignment of audio channels
- VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame

Additional Features for EAES4 versions:

- Synchronizes four external AES signals
- Synchronized audio is output as 4 AES signals
- AES outputs bypass relay protected on power loss

7746FS-EAES8-DD-HD Block Diagram



Specifications

Serial Video Input:

Standard:

DIP switch selectable
1.485 Gb/s SMPTE 292M -SMPTE 274M,
SMPTE 296M, SMPTE 349M
270 Mb/sec SMPTE 259M-C 525i/59.94 or 625i/50
BNC per IEC 60169-8 Amendment 2.

Connector:

Input Equalization:

SD

Automatic to 300m @ 270Mb/s with Belden 1694 or equivalent cable

HD

Automatic to 115m @ 1.5Gb/s with Belden 1694 or equivalent cable.

Return Loss:

SD

>15 dB up to 270 MHz

HD

>13 dB up to 1.5 GHz

Serial Video Outputs:

Number of Outputs:

2 (1 output is bypass relay protected)

Connectors:

BNC per IEC 60169-8 Amendment 2.

Signal Level:

800mV nominal

DC Offset:

0V \pm 0.5V

Rise and Fall Time:

200ps nominal (HD)
or 900ps nominal (SD)

Overshoot:

<10% of amplitude

Wide Band Jitter:

< 0.16 UI (HD) or < 0.10 UI (SD)

Genlock Input:

Type:

HD Tri-level Sync
NTSC or PAL Colour Black 1 V p-p, or
Composite bi-level sync (525i/59.94 or 625i/50) 300 mV

Connector:

Termination:

BNC per IEC 60169-8 Amendment 2.
75 Ω (jumper selectable)

DARS Reference (7746FS-EAES4-HD - CURRENTLY NOT USED):

Type:

AES Digital Audio Signal with 48kHz sample rate.

Standard:

SMPTE 276M-1995 single ended AES

Connectors:

BNC per IEC 60169-8 Amendment 2.

Termination:

75 Ω (jumper selectable)

AES Audio Input and Output (7746FS-EAES4-HD):

Number of Inputs:

4

Number of Outputs:

4

Standard:

SMPTE 276M, single ended synchronous or asynchronous AES

Connectors:

BNC per IEC 60169-8 Amendment 2.

Resolution:

24 bits

Sampling Rate:

48 kHz

Impedance:

75 Ω unbalanced

Signal Level:

1 V p-p nominal

Processing Functions:

Video:

Black Level:

+/- 7%

Luminance Gain:

+/- 6dB

Chrominance Gain:

+/- 6dB

Hue:

+/- 20 degrees (SD)

Audio

Gain:

+/- 24dB

Remapping:

Any input or mono mix of any L/R pair to any output

Input To Output Processing Delay:

Video Processing Delay

Minimum Delay Mode: 3 lines to 1 frame plus 3 lines

Additional Delay Mode: Up to 12 frames for interlaced formats (28 frames for progressive formats) of additional delay (1 frame increments)

Data Logging Serial Port:

Standard:

RS 232

Connector:

Software upgrade cable female DB-9

Baud Rate:

115200

Format:

8 bits, no parity, and 2 stop bits

Electrical:

Voltage:

+ 12VDC

Power:

7746FSE-HD

13.5 Watts

7746FS-EAES4-HD

15.5 Watts

EMI/RFI:

Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 frame mounting:

Number of slots:

1 for 7746FSE-HD

2 for 7746FS-EAES4-HD

7701 frame mounting:

Number of slots:

1

Ordering Information:

7746FS-EAES8-DD-HD HD Frame Synchronizer with 8 AES audio pairs and embedded audio processing & AES Support, Dolby E

Ordering Options:

Rear Plate must be specified at time of order

Eg: Model + 3RU

Rear Plate Suffix

+3RU

3RU Rear Plate for use with 7700FR-C Multiframe

+1RU

1RU Rear Plate for use with 7701FR Multiframe

+SA

Standalone Enclosure Rear Plate

Accessories:

7700FC

VistaLINK™ Frame Controller

9000NCP

1RU VistaLINK™ General Purpose Network Control Panel

9000NCP2

2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

7700FR-C

3RU Multiframe which holds 15 modules

7701FR

1RU Multiframe which holds 3 modules

S7701FR

Standalone enclosure

HD Frame Synchronizer

Model 7746FSE-HD



The 7746FSE-HD series HD/SD Frame Synchronizers are designed to retiming a SMPTE 292M (1080i/60, 1080i/59.94, 1080i/50, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94, or 480p/59.94) or SMPTE259M (625i/50, 525i/59.94) input to a local reference tri-level or composite sync signal. When necessary, frames are repeated or dropped to maintain synchronization. During the synchronizing process the video delay varies from 3 lines through to 1 frame plus 3 lines. Additional delay can be added to the synchronizing process in 1 frame increments.

The 7746FSE-HD is currently available in two versions to suit various application requirements.

Model	Synchronizes			AES Audio	
	Video	Embedded Audio	AES Audio	Inputs	Outputs
7746FSE-HD	Yes	Demux and mux 2 Groups	No	-	--
7746FS-EAES4-HD	Yes	Demux and mux 2 Groups	4	4	4

On the 7746FSE-HD version the video and any embedded audio present is synchronized. On the 7746FS-EAES4-HD version, the user can choose to have either 2 groups from the upstream embedded audio or audio from the 4 AES inputs embedded on the output video and output as AES. Both versions can also pass all VANC data. When the input video is lost, it will pass the input AES or mute if embedded audio is selected for synchronizing. The frame synchronizers also have the ability to set the audio delay independently from the video delay.

The frame synchronizers have the ability to adjust video parameters such as brightness, contrast and saturation. Hue control is available for SD standards (525i/59.94 and 625i/50). They can also adjust audio parameters such as gain, mixing stereo pairs into monaural and reassignment of audio channels.

The card functions can be controlled from the card edge or through the VistaLINK™ interface

Features

- Synchronizes 1080i/60, 1080i/59.94, 1080i/50, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94, 480p/59.94, 525i/59.94 or 625i/50
- Minimum video input to output delay - 3 lines
- Maximum video input to output delay - 1 frame plus 3 lines
- 12 additional frames of delay can be added for interlaced video formats, 28 frames for progressive formats.
- Program Video output bypass relay protected on power loss
- Programmable output phase with respect to reference input
- Freeze on last good frame, or field, go to black on loss of video or pass input
- Synchronizes 2 groups of embedded audio and re-embeds 2 groups
- Front panel LEDs indicate: module fault, video and audio present
- Serial remote data logging
- Adjustable video black level (brightness), Y level (contrast) and chroma level (saturation)
- Adjustable hue control for SD video standards
- Maximum audio input to output delay - equivalent to additional frames of video delay
- Synchronizes VANC data starting after switch line
- Synchronizes RP188 time codes
- Separate control of video and audio delay
- Audio Sample Rate Converters can be disabled
- Independently adjustable audio levels on all channels
- Ability to combine stereo pairs to monaural
- Reassignment of audio channels

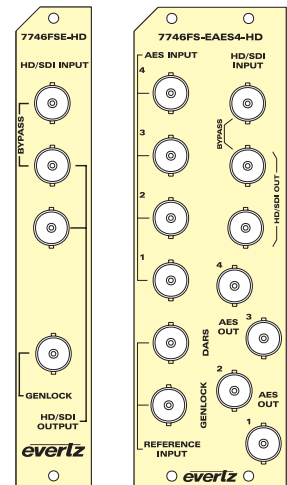
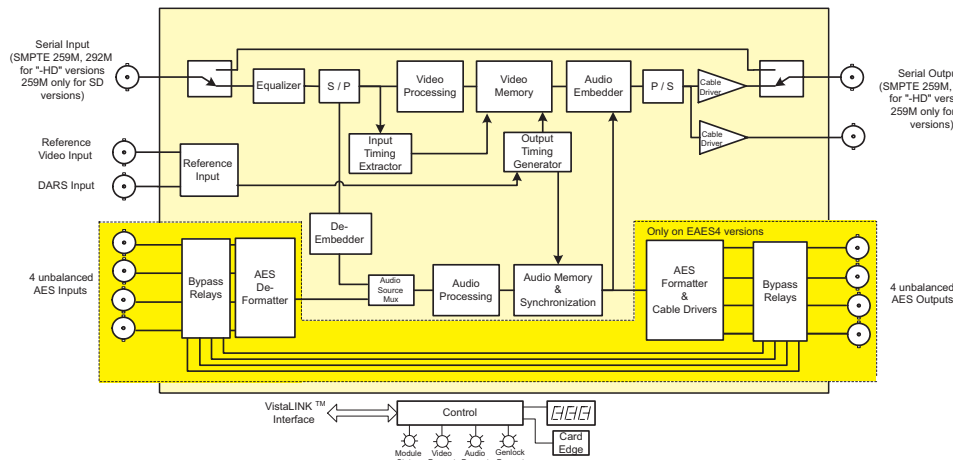
VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame

Additional Features for EAES4 versions:

- Synchronizes four external AES signals
- Synchronized audio is output as 4 AES signals
- AES outputs bypass relay protected on power loss

HD Frame Synchronizer

7746FSE-HD Block Diagram



Specifications

Serial Video Input:

Standard: DIP switch selectable
1.485 Gb/s SMPTE 292M - SMPTE 274M,
SMPTE 296M, SMPTE 349M
270 Mb/sec SMPTE 259M-C 525i/59.94 or 625i/50
BNC per IEC 60169-8 Amendment 2.

Connector:

Input Equalization:

SD

Automatic to 300m @ 270Mb/s with Belden 1694 or equivalent cable

HD

Automatic to 115m @ 1.5Gb/s with Belden 1694 or equivalent cable.

Return Loss:

SD

>15 dB up to 270 MHz

HD

>13 dB up to 1.5 GHz

Serial Video Outputs:

Number of Outputs: 2 (1 output is bypass relay protected)

Connectors: BNC per IEC 60169-8 Amendment 2.

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 200ps nominal (HD)
or 900ps nominal (SD)

Overshoot: <10% of amplitude

Wide Band Jitter: < 0.16 UI (HD) or < 0.10 UI (SD)

Genlock Input:

Type:

HD Tri-level Sync
NTSC or PAL Colour Black 1 V p-p, or
Composite bi-level sync (525i/59.94 or 625i/50) 300 mV
BNC per IEC 60169-8 Amendment 2.

Connector:

Termination: 75 Ω (jumper selectable)

DARS Reference (7746FS-EAES4-HD - CURRENTLY NOT USED):

Type: AES Digital Audio Signal with 48kHz sample rate.

Standard: SMPTE 276M-1995 single ended AES

Connectors: BNC per IEC 60169-8 Amendment 2.

Termination: 75 Ω (jumper selectable)

AES Audio Input and Output (7746FS-EAES4-HD):

Number of Inputs: 4

Number of Outputs: 4

Standard: SMPTE 276M, single ended synchronous or asynchronous AES

Connectors: BNC per IEC 60169-8 Amendment 2.

Resolution: 24 bits

Sampling Rate: 48 kHz

Impedance: 75 Ω unbalanced

Signal Level: 1 V p-p nominal

Processing Functions:

Video:

Black Level: +/- 7%

Luminance Gain: +/- 6dB

Chrominance Gain: +/- 6dB

Hue: +/- 20 degrees (SD)

Audio

Gain: +/- 24dB

Remapping: Any input or mono mix of any L/R pair to any output

Input To Output Processing Delay:

Video Processing Delay

Minimum Delay Mode: 3 lines to 1 frame plus 3 lines

Additional Delay Mode: Up to 12 frames for interlaced formats (28 frames for progressive formats) of additional delay (1 frame increments)

Data Logging Serial Port:

Standard: RS 232

Connector: Software upgrade cable female DB-9

Baud Rate: 57600

Format: 8 bits, no parity, and 2 stop bits

Electrical:

Voltage: + 12VDC

Power:

7746FSE-HD 13.5 Watts

7746FS-EAES4-HD 15.5 Watts

EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 frame mounting:

Number of slots: 1 for 7746FSE-HD
2 for 7746FS-EAES4-HD

7701 frame mounting:

Number of slots: 1 for 7746FSE-HD
1 for 7746FS-EAES4-HD

Ordering Information:

7746FSE-HD HD Frame Synchronizer

7746FS-EAES4-HD HD Frame Synchronizer with 4 AES audio pairs and embedded audio processing & AES Support

Ordering Options:

Rear Plate must be specified at time of order

Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

+SA Standalone Enclosure Rear Plate

7700FC

9000NCP VistaLINK™ Frame Controller

9000NCP2 1RU VistaLINK™ General Purpose Network Control Panel

2RU VistaLINK™ General Purpose Network Control Panel

Accessories:

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

7701FR 1RU Multiframe which holds 3 modules

S7701FR Standalone enclosure

HD/SD Profanity Protection System-PRO

Model HDSD9545DLY-PRO



In live shows, there is always the risk that certain actions on the part of an artist or an intruder, might be offensive to certain viewers. The Evertz HDSD9545DLY-PRO Profanity Protection device has been designed to give an operator complete control over the program content being broadcast to air.

This new product, enables the operator to insert the desired time delay, via a front panel control and display panel. There are two program paths which are HD and SD compatible. The main program feed will usually be focused on the main detailed action. The secondary back-up path, will generally offer a wide angle shot or some suitable alternative picture to the main content. Both channels are delayed by the same amount. If an unscheduled offensive event occurs, the operator has only to hit one remote button to cause the program video and audio output to be clean switched to the alternative back-up channel. When the offending material is no longer present, the output can be returned to the main detailed image, without the audience noticing that an edit has occurred.

The delay can be adjusted to a maximum of 40 seconds for HDTV or 240 seconds for SDTV (with the HD40 option). This max delay can be allocated to primary and secondary paths as allocated by the user.

The HDSD9545DLY-PRO includes dual power supplies and a built-in HD/SD Quattro™ card which shows all four pictures on a single screen. The four pictures are as follows:

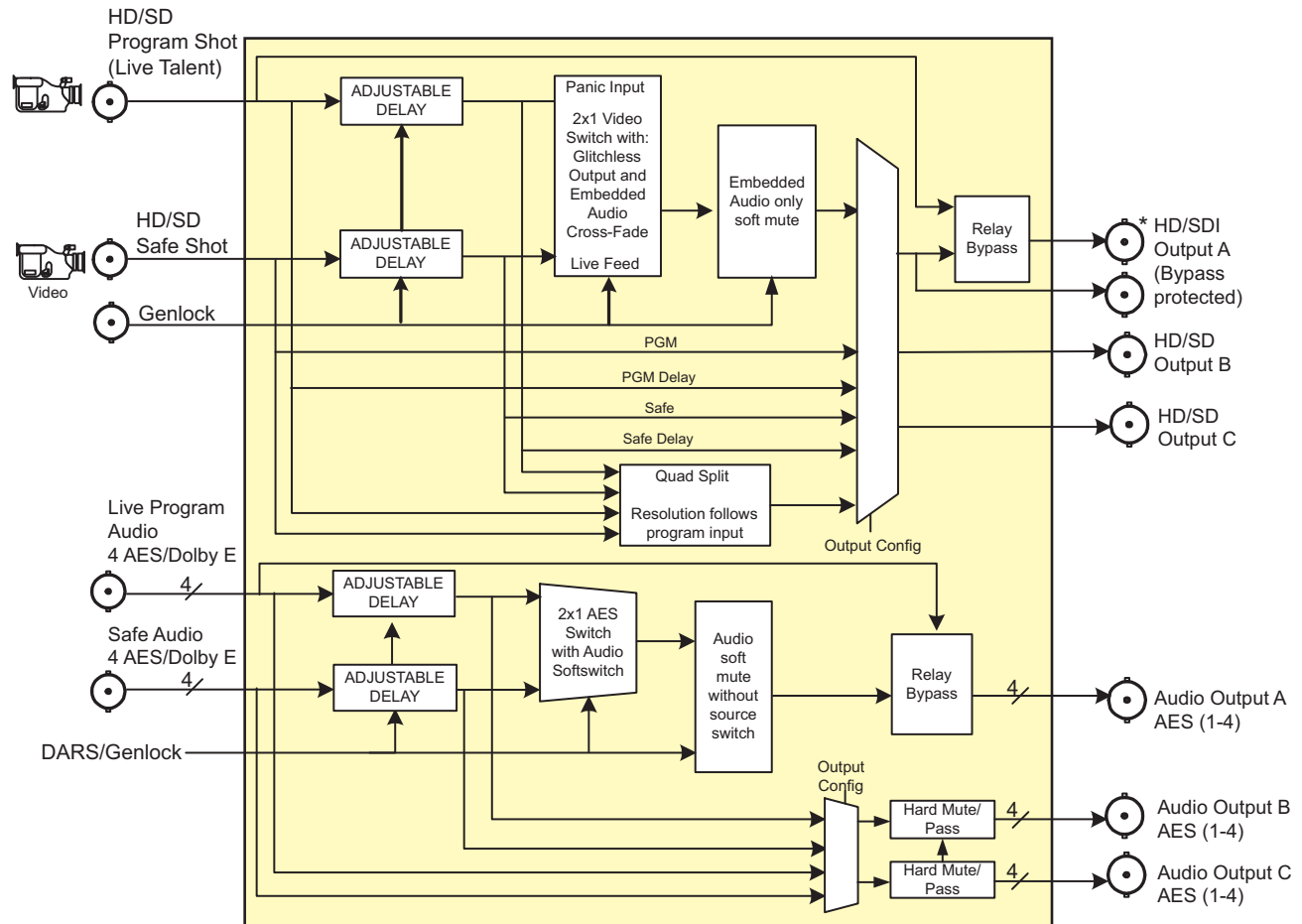
- Main program
- Delayed Main program
- Safe input
- Delayed safe input

Features

- HD or SD SDI compatible
- Embedded Audio and Discrete (4ch AES) Audio Support
- Monitoring outputs of delayed program and delayed backup can be provided
- Selectable quad split monitoring outputs
- Safe input frame capture
- Clean transition between program and backup feed
 - * SoftSwitch™ audio
 - * Clean switch video
- Relay bypass protection for video and audio
- Delay memory is solid state (no moving parts)
- No hard drive to fail or maintain
- Contact closure inputs for bypass triggering
- Programmable pre-trigger reaction time
- Delay on HDSD9545DLY-PRO:
 - 24 seconds for HD Delay or 24 seconds for SD Delay
- Delay on HDSD9545DLY-PRO-HD40:
 - 40 seconds for HD Delay or 240 seconds for SD Delay
- Delay is user allocated between primary & secondary back-up paths
- Dual power supplies

HD/SD Profanity Protection System-PRO

HDSD9545DLY-PRO Block Diagram



Specifications

Serial Video Inputs:

Standard:	SMPTE 259M-C (270 Mb/s), SMPTE 292M
Connector:	BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 50m with Belden 1694 or equivalent cable
Return Loss:	> 15dB up to 1 GHz > 10dB up to 1.5 GHz

Serial Video Outputs:

Number of Outputs:	1 with relay bypass, 2 additional outputs
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	740ps nominal SMPTE 259M 200ps nominal SMPTE 292M
Overshoot:	<10% of amplitude
Return Loss:	> 15dB up to 1 GHz > 10dB up to 1.5 GHz
Wide Band Jitter:	< 0.2 UI

Electrical:

Voltage:	Auto ranging 100 - 240 Volts AC, 50/60 Hz 30VA
Power:	40 Watts
Safety:	ETL Listed Complies with EU safety directives
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

19.00" W x 18.75" D x 3.50" H (483mm) x (477mm) x (89mm)

Ordering Information:

HDSD9545DLY-PRO	HD/SD Video and Audio Delay/Profanity Protection System with 24 seconds of HD or SD delay
HDSD9545DLY-PRO-HD40	HD/SD Video and Audio Delay/Profanity Protection System with 40 seconds of HD delay or 240 seconds of SD Delay

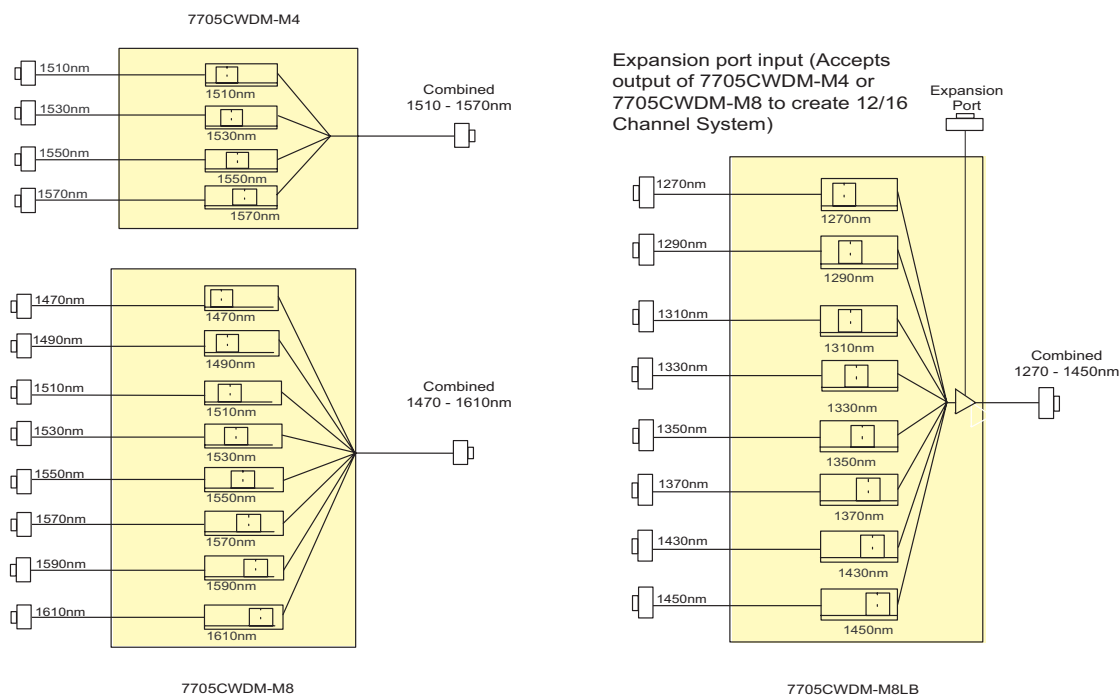
Coarse WDM Optical Modules

Model 7705CWDM

Features

- Bi-directional mux/demux of up to 16 wavelengths in the 1270nm to 1610nm spectrum (ITU-T G.694.2 compliant)
- Expandable from 4 or 8 to 12 or 16 channel systems
- Passive design for any bit rate
- Low insertion loss to conserve system power
- High optical isolation for low crosstalk
- Fully hot swappable from front of frame with no fiber disconnect/reconnect required
- SC/PC, ST/PC, FC/PC* connector options
- Fiber protector to prevent connector damage
- Housed in Evertz standard 3RU or 1RU Multiframe

7705CWDM Block Diagrams



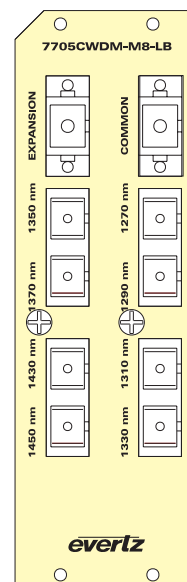
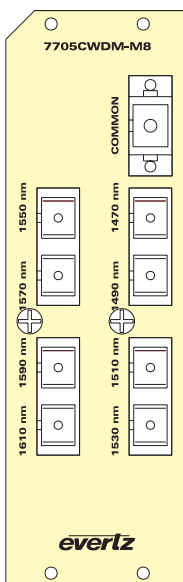
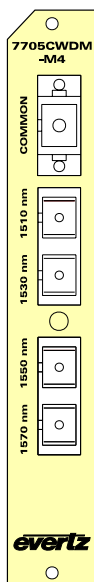
Applications

- Multi-channel transport of video, audio, data, control in fiber limited applications
- Cost reduction exercises through fewer leased fibers
- Studio and Facility extension / expansion
- STL and TSL links
- Signal aggregation for outdoor and event coverage
- Signal aggregation for security and monitoring

Descriptions

Function	Ordering Information	Description	Slots Occupied
4 Channel CWDM Mux	7705CWDM-M4	4 Channel CWDM Mux (1510nm -1570nm)	1
4 Channel CWDM Demux	7705CWDM-D4	4 Channel CWDM Demux (1510nm - 1570nm)	1
8 Channel CWDM Mux	7705CWDM-M8	8 Channel CWDM Mux (1470nm - 1610nm)	2
8 Channel CWDM Demux	7705CWDM-D8	8 Channel CWDM Demux (1470nm - 1610nm)	2
12 Channel CWDM Mux	7705CWDM-M4 & 7707CWDM-M8LB	12 Channel CWDM Mux (1270nm -1570nm)	3
12 Channel CWDM Demux	7705CWDM-D4 & 7705CWDM-D8LB	12 Channel CWDM Demux (1270nm -1570nm)	3
16 Channel CWDM Mux	7705CWDM-M8 & 7707CWDM-M8LB	16 Channel CWDM Mux (1270nm -1610nm)	4
16 Channel CWDM Demux	7705CWDM-D8 & 7705CWDM-D8LB	16 Channel CWDM Demux (1270nm -1610nm)	4

Coarse WDM Optical Modules



Specifications

Optical Input/Output:

Connector: SC/PC, ST/PC or FC/PC* female housing

Wavelength:

7705CWDM-4: 1510 - 1570nm

7705CWDM-8: 1470 - 1610nm

7705CWDM-8LB: 1270 - 1450nm

Channel Spacing: 20nm

Passband @ 0.5dB: > 13nm

Channel Uniformity: < 1.5dB

Isolation Adjacent

Channel: > 30dB

Directivity: > 50dB

Fiber Size: 9 µm core / 125 µm overall

Return Loss: > 45dB

Link Loss with Mux and Demux Combination:

7705CWDM-4: < 2.5dB Maximum Loss

7705CWDM-8: < 3.5dB Maximum Loss

7705CWDM-8LB: < 5.5dB Maximum Loss

Expansion Port: < 3.5dB Maximum Loss

7707CWDM-4 +
7707CWDM-8LB: < 6.0dB (1270nm - 1570nm)

7705CWDM-8 +
7705CWDM-8LB: < 5.5dB (1270nm - 1450nm)
< 7.0dB (1470nm - 1610nm)

Ordering Information

7705CWDM-D4 4 Channel CWDM Demux (1510nm - 1570nm)
7705CWDM-D8 8 Channel CWDM Demux (1470nm - 1610nm)
7705CWDM-D8LB 8 Channel Low Band CWDM Demux (1270nm - 1450nm)
7705CWDM-M4 4 Channel CWDM Mux (1510nm - 1570nm)
7705CWDM-M8 8 Channel CWDM Mux (1470nm - 1610nm)
7705CWDM-M8LB 8 Channel Low Band CWDM Mux (1270nm - 1450nm)

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model + 3RU +SC

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure (with power supply)

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC*

*Note:

FC/PC connector option is available on 'COMMON' and "EXPANSION" ports only (SC/PC on remaining fiber I/O ports)

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

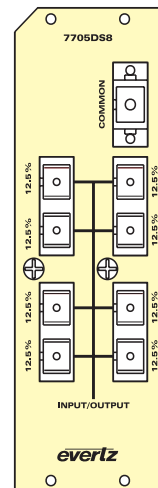
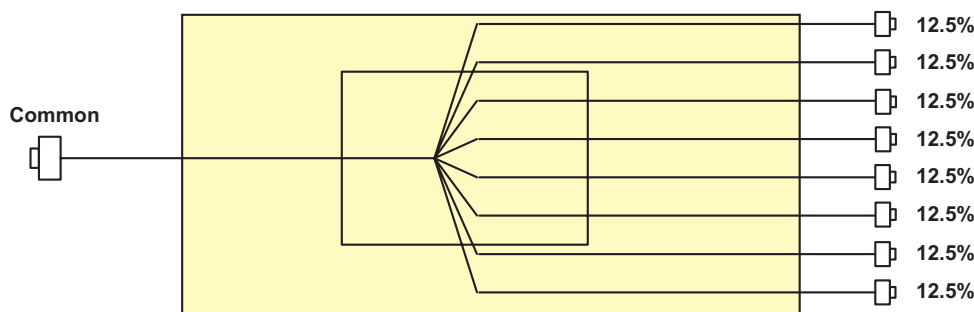
Eight Channel Optical Splitter

Model 7705DS-8

Features

- Separates one optical input into 8 optical outputs
- Wideband operation from 1270nm - 1610nm
- Passive splitter design for any bit rate
- Fully hot swappable from front of frame with no fiber disconnect/reconnect required
- Supports single mode fiber
- Available in SC, ST & FC* connector options
- Occupies two card slots and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 7 modules or a standalone enclosure which will hold 1 module

7705DS-8 Block Diagram



Specifications

Optical Input/Output:

Connector: SC/PC, ST/PC & FC/PC* female housing
Wavelength: 1270nm to 1610nm
Insertion Loss: 10dB typical, < 11.0dB maximum
Uniformity: < 0.9dB
Directivity: > 55dB
Fiber Size: 9µm, single mode fiber

Physical:

Number of Slots: 2

Ordering Information:

7705DS-8: Eight Channel Optical Splitter

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C
Multiframe	
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC*

*Note: FC/PC connector option is available only on 'COMMON' port (SC/PC on remaining fiber I/O ports)

Fiber Optic Patch Cable:

7705FC-SP1MSP Single-mode fiber, 9µm core/900µm

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Dense WDM Optical Modules

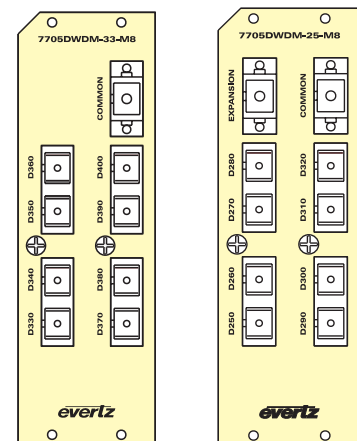
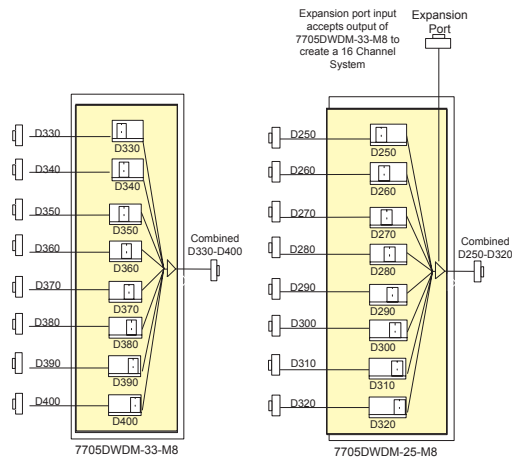
Model 7705DWDM

Features

- Cascadeable, bi-directional eight channel mux/demux modules
- ITU-T G.694.1 compliant 0.8nm (100GHz) channel spacing
- Capable of being inserted into CWDM wavelength slots adding an additional 8 or 16 DWDM wavelengths to existing CWDM systems
- Passive design for any bit rate
- Low insertion loss to conserve system power
- High optical isolation for low crosstalk
- Fully hot swappable from front of frame with no fiber disconnect/reconnect required
- SC/PC, ST/PC, FC/PC* connector options
- Fiber protector to prevent connector damage

Applications

- Multi-channel transport of video, audio, data, control in fiber limited applications
- Cost reduction exercises through fewer leased fibers
- Studio and Facility extension / expansion
- L-Band & IF Link transport
- STL and TSL Links
- Signal aggregation for outdoor and event coverage
- Signal aggregation for security and monitoring



Specifications

Optical Input/Output:

Connector: SC/PC, ST/PC or FC/PC* female housing

Wavelength: C-Band (ITU G.694.1 compliant)

7705DWDM-25: ITU C25-C32 (1557.36 - 1551.72nm)

7705DWDM-33: ITU C33-C40 (1550.92 - 1545.32nm)

Channel Spacing: 100GHz (0.8nm nominal)

Passband @ 0.5dB: ± 0.11 nm

Channel Uniformity: < 1.5dB

Isolation

- Adjacent Channel: > 25dB
- Non-Adjacent Channel: > 35dB

Directivity: > 40dB

Maximum Optical Power: 300mW or +25dBm

Fiber Size: 9 μ m core / 125 μ m overall

Return Loss: > 45dB

Max Input Power: +25dBm

Link Loss with Mux and Demux Combination:

7705DWDM-8: < 4.5dB maximum loss

(7705DWDM-25/33)

7705DWDM-16: < 7.5dB maximum loss

(7705DWDM-33 + 7705DWDM-25)

Ordering Information

7705DWDM-25-M8	8 Channel Cascadeable DWDM Mux, 100Ghz Spacing, ITU Channel C25-C32
7705DWDM-25-D8	8 Channel Cascadeable DWDM Demux, 100Ghz Spacing, ITU Channel C25-C32
7705DWDM-33-M8	8 Channel Cascadeable DWDM Mux, 100Ghz Spacing, ITU Channel C33 to C40
7705DWDM-33-D8	8 Channel Cascadeable DWDM Demux, 100Ghz Spacing, ITU Channel C33 to C40

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order

Eg: Model + 3RU + SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure (with power supply)

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC*

*Note:

FC/PC connector option is available on 'COMMON' and 'EXPANSION' ports only (SC/PC on remaining fiber I/O ports)

Fiber Optic Patch Cable:

CB-FP1M-SCPC	Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC	Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC	Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC	Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC	Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC	Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Triple SDI Electrical to Optical Converter

19.4Mb/s or 143-540Mb/s

Model 7705EO-3

Features

- Triple SDI electrical to optical converter for 3 independent channels
- Provides 45 independent channels of optical conversion, in a single 3RU frame
- Supports all SMPTE259M standards with operation from 143Mb/s-360Mb/s
- Supports additional standards of SMPTE305M (SDTi), SMPTE310M (19.4Mb/s), SMPTE344M (540Mb/s), M2S and DVB-ASI (270Mb/s)
- Supports multi-mode or single-mode fiber
- Fully hot swappable from front of frame, with no fiber or BNC disconnect /reconnect required
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules or a 3RU frame which will hold up to 15 modules or a standalone frame which will hold 1 module

Inputs:

- Three independent serial digital BNC inputs, each providing cable equalization to >300m @270Mb/s (Belden 8281)

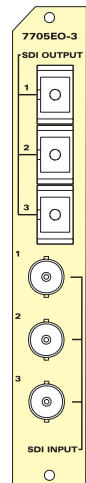
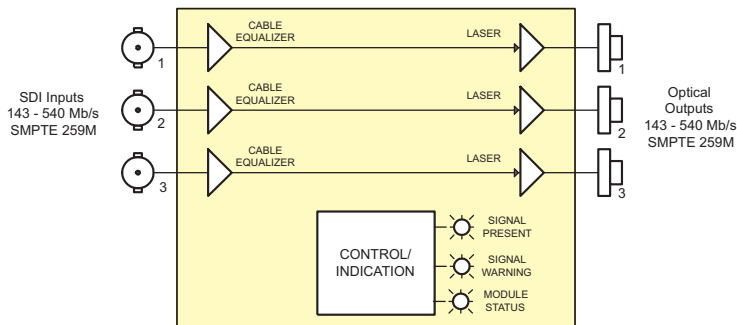
Outputs:

- Three independent fiber outputs
- Optical output wavelength of 1310nm
- SC/PC, ST/PC, FC/PC connector options

Status LEDs:

- Signal presence indication for each channel
- Laser status indication for each channel
- Module status indication

7705EO-3 Block Diagram



Specifications

Standards: SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 305M, SMPTE 310M, SMPTE344M, M2S, DVB-ASI

Serial Video Input:

Number of Inputs: 3 (independent channels)
Connector: 3 BNC inputs per IEC 169-8
Equalization: Automatic to 300m @270Mb/s, with Belden 8281 (or equivalent)
Return Loss: >15dB up to 540Mb/s

Optical Outputs:

Number of Outputs: 3 (independent channels)
Connector: SC/PC, ST/PC, FC/PC female housing
Return Loss: >14dB
Rise/Fall Time: 400-700ps
Jitter: <0.2UI
Nominal Wavelength: 1310nm
Optical Power: -7dBm ±1dBm

Electrical:

Voltage: +12V DC
Power: 6 Watts

Physical:

Number of Slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Laser Safety:
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

7705EO13-3

**Triple SDI Electrical to Optical Converter,
19.4Mb/s or 143-540Mb/s, 1310nm, FP laser**

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone enclosure

SDI Electrical to Optical Converter

19.4Mb/s or 143-540Mb/s

Model 7705EO

Features

- Electrical to optical converter for all SMPTE 259M standards with operation from 143Mb/s - 360Mb/s
- Supports additional standards of SMPTE 305M (SDTi) SMPTE 310M (19.4Mb/s), SMPTE 344M(540Mb/s), M2S and DVB-ASI (270Mb/s)
- Compatible with multi-mode or single-mode fiber
- Fully hot swappable from front of frame with no fiber or BNC disconnect/reconnect required
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to three modules, a 3RU frame which will hold up to 15 modules or a standalone frame which will hold 1 module

Input:

- Automatic input cable equalization to >300m @270Mb/s (Belden 8281)

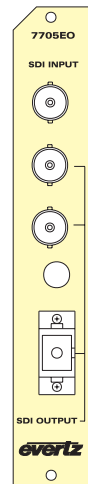
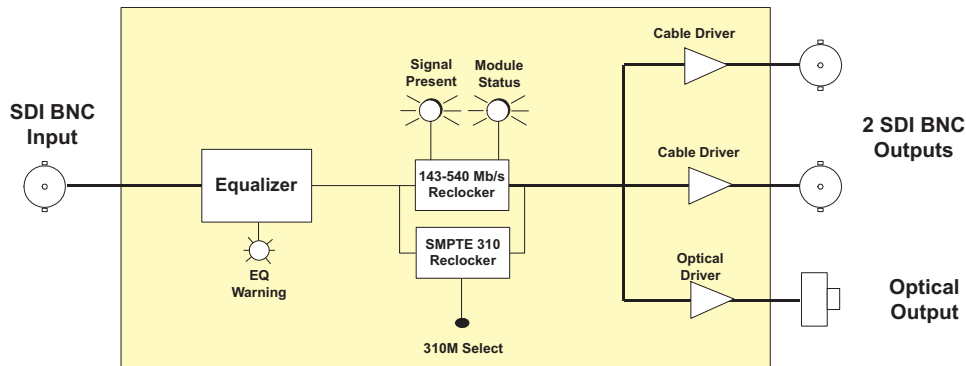
Outputs:

- Two reclocked serial digital BNC outputs for loop-through or monitoring
- One reclocked fiber output available in 1310nm or 1550nm
- Wideband Jitter < 0.2 UI
- SC/PC, ST/PC, FC/PC connector options

Status LEDs:

- Signal presence indication
- Maximum equalization warning indication
- Module status indication

7705EO Block Diagram



Specifications

Standards: SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 305M, SMPTE 310M, SMPTE 344M, M2S, DVB-ASI

Serial Video Input:

Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 300m @ 270Mb/s with Belden 8281 (or equivalent)
Return Loss: >15dB up to 540Mb/s

Serial Video Outputs:

Number of Outputs: 2 per card-reclocked
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15dB up to 540Mb/s
Wideband Jitter: < 0.2 UI

Optical Outputs:

Number of Outputs: 1
Connector: SC/PC, ST/PC, FC/PC female housing
Return Loss: > 14dB
Wavelength: 1310nm, 1550nm

Optical Power:

1310nm FP: -7 dBm ± 1dBm
1550nm DFB: 0 dBm ± 1dBm

Electrical:

Voltage: +12V DC
Power: 6 Watts

Physical:

Number of Slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Laser Safety: Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

7705EO13 SDI Electrical to Optical Converter, 19.4Mb/s or 143-540Mb/s, 1310nm, FP Laser
7705EO15 SDI Electrical to Optical Converter, 19.4Mb/s or 143-540Mb/s, 1550nm, DFB Laser

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HDTV Electrical to Optical Converter, 19.4Mb/s to 1.5Gb/s

Model 7705EO-HD

Features

- Operation from 19.4Mb/s to 1.5Gb/s
 - Reclocking for SMPTE 292M (1.485Gb/s)
 - Non-reclocking mode for all other rates from 19.4 Mb/s to 1.5Gb/s including SMPTE 259M, SMPTE 305M, SMPTE 310M, M2S, DVB-ASI, etc.
- Supports single-mode and multi-mode fiber optic cable
- Fully hot swappable from front of frame with no fiber or BNC disconnect/reconnect required
- Can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone frame which will hold 1 module

Input:

- Automatic input cable equalization to 130m (Belden 1694A)

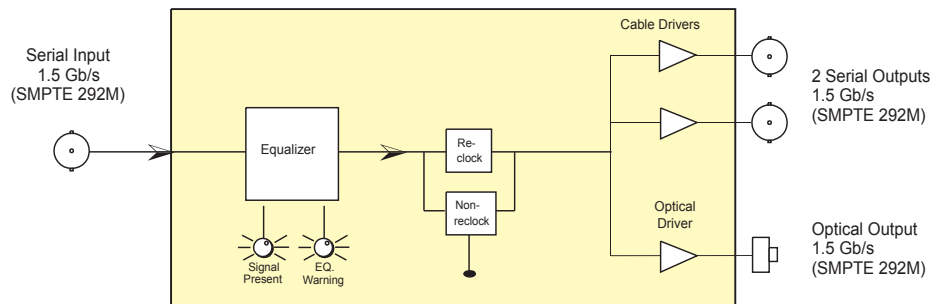
Outputs:

- Two serial digital BNC outputs for loop-through or monitoring
- One fiber output available in 1310nm or 1550nm
- Wideband Jitter < 0.2 UI (reclocked)
- SC/PC, ST/PC, FC/PC connector options

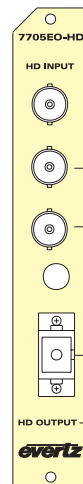
Status LEDs:

- Signal presence indication
- Maximum equalization warning indication
- Module status indication

7705EO-HD Block Diagram



*Note: Non-reclock Mode will operate 19.4 Mb/s to 1.5 Gb/s.



Specifications

Standards:

SMPTE 292M, 259M, 297M, 305M, 310M, M2S, DVB-ASI, DVB-SSI, and other bi-level Telecom/Datacom rates from 19.4Mb/s to 1.5Gb/s

Serial Video Input:

Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 130m with Belden 1694A (or equivalent)
Return Loss: >15dB to 1GHz, >12dB to 1.5GHz

Serial Video Outputs:

Number of Outputs: 2 Reclocked outputs
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB to 1GHz, >12dB to 1.5GHz
Jitter: <0.2 UI Reclocked

Optical Outputs:

Number of Outputs: 1
Connector: SC/PC, ST/PC, FC/PC female housing
Return Loss: > 14dB
Rise and Fall Time: 270ps nominal
Jitter: < 0.2 UI (reclocked)
Nominal Wavelength: 1310nm, 1550nm

Optical Power:

1310nm FP -7dBm \pm 1dBm
1310nm/1550nm DFB 0 dBm \pm 1dBm

Electrical:

Voltage: +12V DC
Power: 6 Watts
Safety: Complies with EU safety Directive
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of Slots: 1

Compliance:

Electrical Safety:

CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Complies with FCC Part 15, Class A
EU EMC directive

Laser Safety:

EMI/RFI:

Ordering Information:

7705EO13-HD	HDTV Electrical to Optical Converter, 19.4Mb/s to 1.5 Gb/s, 1310nm, FP Laser
7705EO13-HD-L	HDTV Electrical to Optical Converter, 19.4Mb/s to 1.5 Gb/s, 1310nm, DFB Laser
7705EO15-HD	HDTV Electrical to Optical Converter, 19.4Mb/s to 1.5 Gb/s, 1550nm, DFB Laser

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC	Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC	Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC	Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC	Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC	Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC	Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

70/140MHz IF Fiber Receiver

Model 7705IFRA

(Replaces the 7705IFR & offers improved performance and wider operating range)

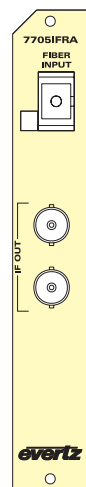
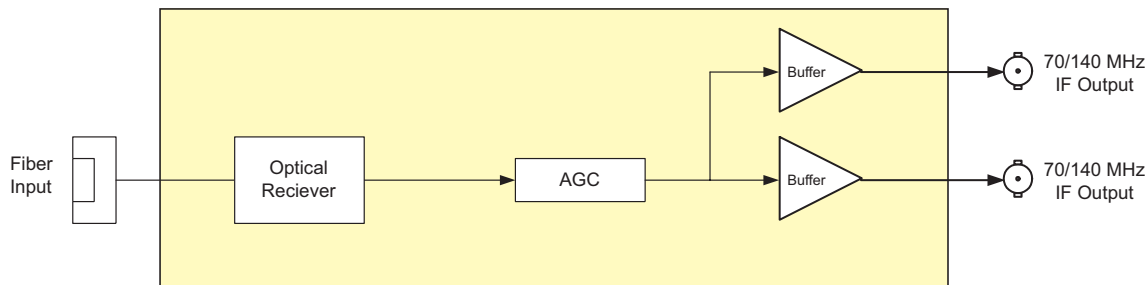
The 7705IFRA is a fiber optic receiver for 70/140 MHz IF signals. The 7705IFRA accepts a fiber optic input from the companion 7705IFTA and provides two 70/140 MHz IF output signals via BNCs.

The 7705IFRA occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- 30-200MHz bandwidth
- Protocol transparent - receives all video, audio and data modulation formats
- Supports manual & automatic gain control (AGC)
- Wide AGC hold range (45dB) using 7705IFTA + 7705IFRA
- Two IF outputs for extra signal distribution or monitoring functions
- Available with BNC or F-Type connector options
- Wide range optical input (1270nm to 1610nm)
- IF output power independent of optical loss (within AGC range)
- Supports single-mode and multi-mode fiber optic cable
- Available in SC/PC, ST/PC, FC/PC & APC connector options
- Fully hot swappable from front of frame

7705IFRA Block Diagram



Specifications

RF Output:	
Number of Outputs:	2
Connector:	BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	
75Ω (50Ω optional) (See Ordering Information)	
Return Loss:	18dB (min)
Frequency Range:	30MHz - 200MHz
Flatness:	± 1dB @ 30 MHz - 200MHz ± .2dB @ 36MHz BW
Carrier to Noise:	-40dB @ 1MHz
Output Signal Level:	-10dBm constant (within AGC range)
AGC:	-5 to -65 (depends on RF input level & optical loss)
Manual:	-50dBc max (-10dBm at IFTA input & 3dB optical loss)
Intermodulation Products:	50dBc
Signal to Noise:	
Optical Input:	
Number of Inputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC, SC/APC, FC/APC
Operating Wavelength:	1270nm - 1610nm
Optical Input Power:	+3dBm (max)
Optical Sensitivity:	-14dBm @35dB C/N @36MHz BW
Optical Attenuation:	
AGC Hold Range:	10dB optical
Electrical:	
Voltage:	+12VDC
Power:	5 Watts
Physical:	
Number of slots:	1

Ordering Information:
Note: 75Ω I/O impedance ships standard

7705IFRA	70/140 MHz Fiber Receiver
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Ordering Options:
Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix	
+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Impedance Suffix	
+50	50Ω I/O Impedance

Connector Suffix	
+SC	SC/PC
+AP+SC	SC/APC (Angle polished)
+ST	ST/PC
+FC	FC/PC
+AP+FC	FC/APC (Angle polished)
+F75	75Ω, F-Type rear connector

Enclosures:	
7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone enclosure

70/140Mhz IF Fiber Transmitter

Model 7705IFTA

(Replaces the 7705IFT & offers improved performance and wider operating range)

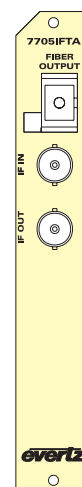
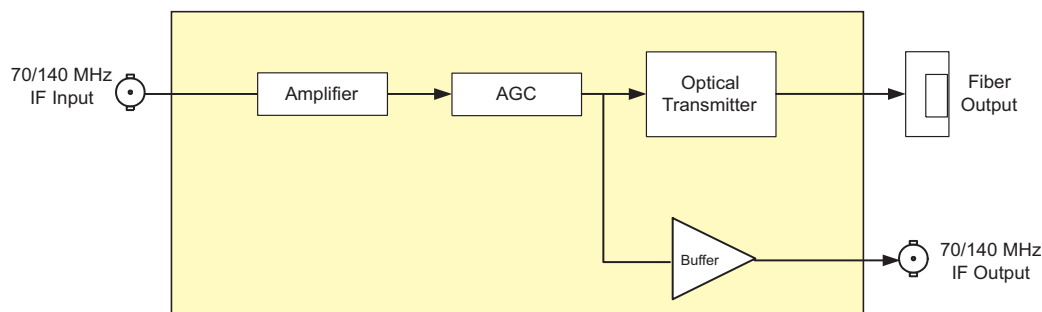
The 7705IFTA is a fiber optic transmitter for 70/140 MHz IF signals. The 7705IFTA accepts one 70/140 MHz coaxial input and provides a fiber optic output signal at 1310nm. An IF BNC output is also provided for monitoring or further signal distribution.

The 7705IFTA occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- 30-200MHz bandwidth
- Wide dynamic range RF input (-5 to -65dBm)
- Protocol transparent - transmits all video, audio and data modulation formats
- Supports manual and automatic gain control on IF input
- Wide AGC hold range (45dB) using 7705IFTA +7705IFRA
- Additional IF BNC output for monitoring or distribution
- Available with BNC or F-Type connector options
- Supports single-mode and multi-mode fiber optic cable
- Available in SC/PC, ST/PC, FC/PC and APC connector options
- Fully hot swappable from front of frame

7705IFTA Block Diagram



Specifications

RF Input:

Connector:	1 BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	75Ω (50Ω optional) (See Ordering Information)
Return Loss:	18dB (min)
Frequency Range:	30MHz - 200MHz
Input Power Range:	-5 to -65dBm
AGC Hold Range:	-10 to -35dBm

IF Monitoring Output:

Connector:	1 BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	75Ω (50Ω optional) (See Ordering Information)
Return Loss:	18dB (min)
Frequency Range:	30MHz - 200MHz
Flatness:	± 1dB @ 30 MHz - 200MHz ± 2dB @ 36MHz BW

Output Signal Level:

AGC mode:	-20dBm constant (within AGC range -20 to -35dBm total RF input power)
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Manual mode:

(Input signal) + 15dB

Intermodulation Products: -50dBc (-10dBm RF in, ACG mode)

Carrier to Noise: 37dB @any 36MHz BW

Optical Output:

Number of outputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC, SC/APC, FC/APC
Operating Wavelength:	1310nm
Output Power:	0dBm ± 1dBm

Electrical:

Voltage:	+12VDC
Power:	4 Watts

Physical:

Number of slots:	1
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Ordering Information: 70/140MHz IF Fiber Transmitter

Note: 75Ω I/O impedance ships standard

7705IFTA13	1310nm FP Laser, Medium Haul (<40km)
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Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Impedance Suffix

+50	50Ω I/O Impedance
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Connector Suffix

+SC	SC/PC
+AP+SC	SC/APC (Angle polished)
+ST	ST/PC
+FC	FC/PC
+AP+FC	FC/APC (Angle polished)
+F75	75Ω, F-Type rear connector

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3modules
S7701FR	Standalone enclosure

L-Band Satellite Fiber Receiver

Model 7705LR

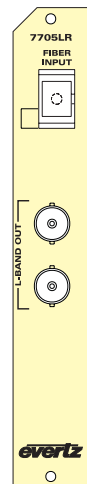
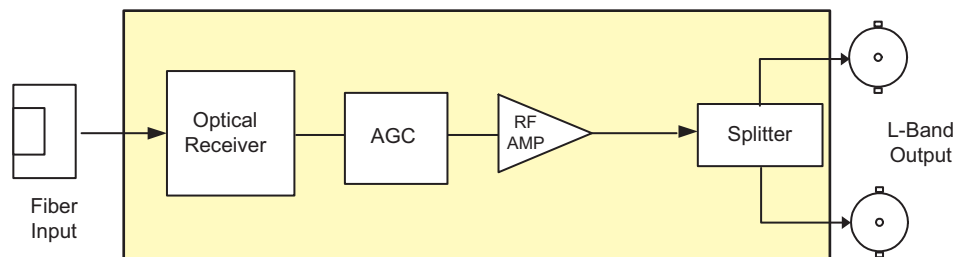
The 7705LR is a fiber optic receiver for L-Band satellite signals. The 7705LR accepts a fiber optic input from the 7705LTA and provides two L-Band RF output signals via BNCs.

The 7705LR occupies one card slot and can be housed in either a 1RU frame, which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- Broadband operation - 950 to 2250MHz
- Operation to 40km
- Supports manual and automatic gain control (AGC)
- Wide AGC hold range (50dB) using 7705LTA + 7705LR
- Protocol transparent - receives all video, audio and data modulation formats
- Two L-Band RF outputs for extra signal distribution or monitoring functions
- RF output independent of optical loss (within AGC range)
- Available with BNC or F-Type connector options
- Supports single-mode and multi-mode fiber optic cable
- Available in SC/PC, ST/PC, FC/PC and APC connector options
- Fully hot-swappable from front of frame

7705LR Block Diagram



Specifications

RF Output:

Number of outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance: 75Ω (50Ω optional)
Return Loss: >10dB
Frequency Range: 950MHz - 2250MHz
Flatness: ± 1.5dB (max) @950MHz-2250MHz
± 0.25dB @ any 36MHz BW

Output Signal Level

AGC Mode: -20dBm constant (within AGC range)
Manual Mode: -20 to -65dBm (depends on RF level and optical loss)

Intermodulation Products: -55dBc (-20dBm RF input to TX, 1m fiber, AGC mode on TX & RX)

Carrier to Noise: 37dB @ any 36MHz BW
Noise Figure: (AGC mode on 7705LTA and 7705LR)
0dB Optical Loss: 7dB
5dB Optical Loss: 14dB
Signal to Noise: 55dB

Optical Input:

Number of inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC, SC/APC, FC/APC

Operating Wavelength: 1270nm - 1610nm
Optical Input Power: +3dBm (max)
Optical Sensitivity: -14dBm @ 35dB S/N
Optical Attenuation:
AGC Hold Range: 10dB optical

Electrical:

Voltage: +12VDC
Power: 4 Watts

Physical:

Number of slots: 1

Ordering Information:

Note: 75Ω I/O impedance ships standard

7705LR	L-Band Satellite Fiber Receiver
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Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Impedance Suffix:

+50	50Ω I/O Impedance
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Connector Suffix

+SC	SC/PC
+AP+SC	SC/APC (Angle polished)
+ST	ST/PC
+FC	FC/PC
+AP+FC	FC/APC (Angle polished)
+F75	75Ω, F-Type rear connector

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone Enclosure

L-Band Satellite Fiber Transmitter

Model 7705LTA

(Replaces the 7705LT & offers improved performance and wider operating range)

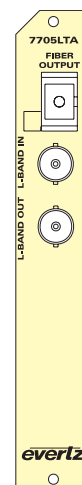
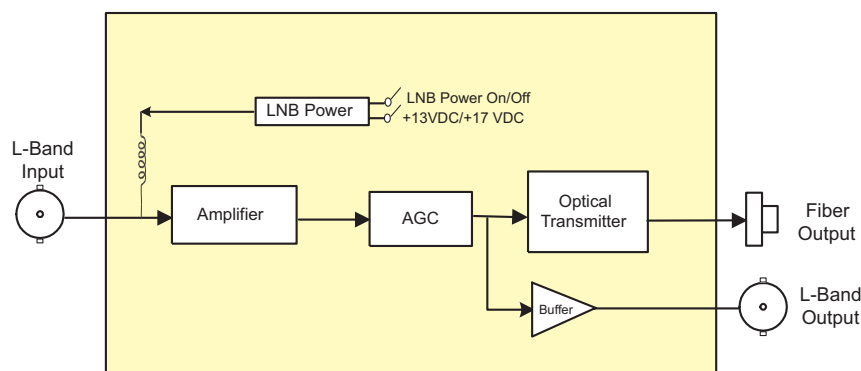
The 7705LTA is a fiber optic transmitter for L-Band satellite signals. The 7705LTA accepts one L-Band coaxial input and provides a fiber optic output signal at 1310nm. An L-Band BNC RF output is also provided for monitoring or further signal distribution.

The 7705LTA occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- Broadband operation - 950 to 2250 MHz
- Wide dynamic range RF input (-20 to -65dBm)
- Operation to 40km
- Protocol transparent - transmits all video, audio and data modulation formats
- Supports manual and automatic gain control (AGC)
- Wide AGC hold range (50dB) using 7705LTA + 7705LR
- Additional L-Band BNC output for monitoring or distribution
- LNB power at +13 or +17 VDC with built-in current limiting
- Available with BNC or F-Type connector options
- Supports single-mode and multi-mode fiber optic cable
- Available with SC/PC, ST/PC, FC/PC and APC connector options
- Fully hot swappable from front of frame

7705LTA Block Diagram



Specifications

RF Input:

Connector: 1 BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance: 75Ω (50Ω optional) (See Ordering Information)
Return Loss: >10dB
Frequency Range: 950MHz - 2250MHz
Input Power Range: -20 to -65dBm
AGC Hold Range: -20 to -50dBm

RF Monitoring Output:

Number of outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance: 75Ω (50Ω optional)
Return Loss: >10dB
Frequency Range: 950MHz - 2250MHz
Flatness: ± 1.5dB @ 1000MHz - 2250MHz
± 0.25dB @ any 36MHz BW

Output Signal Level

AGC Mode: -20dBm constant (within AGC range)
Manual Mode: (Input Level) +25dB gain (-5dB)
Intermodulation Products: -55dBc (AGC mode, RF input -20dBm)
Carrier to Noise: 37dB @ any 36MHz BW

Optical Output:

Number of outputs: 1
Connector: Female SC/PC, ST/PC, FC/PC, SC/APC, FC/APC
Operating Wavelength: 1310nm
Optical Power: 0 dBm ± 1dBm

Physical:

Number of slots: 1

Electrical:

Voltage: +12VDC
Power: 4 Watts

Ordering Information:

Note: 75Ω I/O impedance ships standard

7705LTA13 L-Band Satellite Fiber Transmitter, 1310nm, up to 40km

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Impedance Suffix

+50 50Ω I/O impedance

Connector Suffix

+SC SC/PC
+AP+SC SC/APC (Angle polished)
+ST ST/PC
+FC FC/PC
+AP+FC FC/APC (Angle polished)
+F75 75Ω, F-Type rear connector

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone Enclosure

Triple SDI Optical to Electrical Converter

19.4Mb/s or 143-540Mb/s

Model 7705OE-3

Features

- Triple SDI optical to electrical converter for 3 independent channels
- Provides 45 independent channels of optical conversion, in a single 3RU frame
- Supports all SMPTE259M standards with operation from 143Mb/s-360Mb/s
- Supports additional standards of SMPTE305M (SDTi), SMPTE310M (19.4Mb/s), SMPTE344M (540Mb/s), M2S and DVB-ASI (270Mb/s)
- Supports multi-mode or single-mode fiber
- Fully hot swappable from front of frame, with no fiber or BNC disconnect /reconnect required
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules or a 3RU frame which will hold up to 15 modules or a standalone frame which will hold 1 module

Inputs:

- Three independent fiber inputs
- 1270nm to 1610nm input wavelength range
- Input sensitivity to -32dBm
- SC/PC, ST/PC, FC/PC connector options.

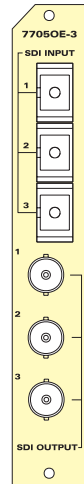
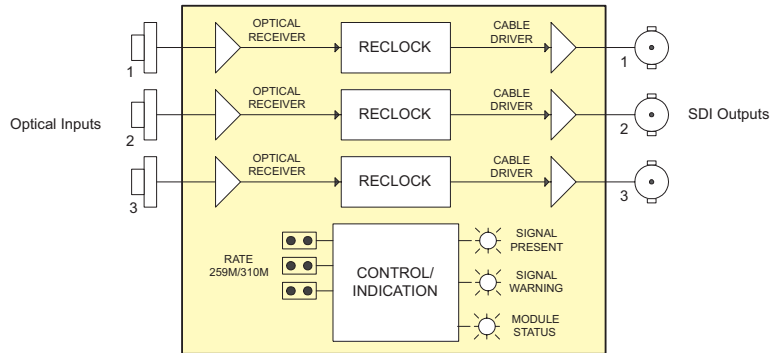
Outputs:

- Three independent, reclocked, serial digital BNC outputs.
- Wideband jitter < 0.2UI

Status LEDs:

- Signal presence indication for each channel
- Input carrier weak indication for each channel
- Module status indication

7705OE-3 Block Diagram



Specifications

Standards: SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 305M, SMPTE 310M, SMPTE344M, M2S, DVB-ASI

Optical Inputs:

Number of Inputs: 3 (independent channels)
Connector: SC/PC, ST/PC, FC/PC female housing
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: 0dBm
Optical Sensitivity: -32dBm

Serial Video Outputs:

Number of Outputs: 3 reclocked (independent channels)
Connector: 3 (1 per input channel) Reclocked
Signal Level: 800mV nominal
DC Offset: 0V±0.5V
Rise/Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15dB up to 540Mb/s
Jitter: < 0.2UI

Electrical:

Voltage: +12V DC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7705OE-3 Triple SDI Optical to Electrical Converter
19.4Mb/s or 143-540Mb/s

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone enclosure

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone enclosure

SDI Optical to Electrical Converter

19.4Mb/s or 143-540Mb/s

Model 7705OE

Features

- Optical to electrical converter for all SMPTE 259M standards with operation from 143Mb/s - 360Mb/s
- Supports additional standards of SMPTE 305M (SDTi), SMPTE 310M (19.4Mb/s), SMPTE 344M(540Mb/s), M2S and DVB-ASI (270Mb/s)
- Supports multi-mode or single-mode fiber
- Fully hot swappable from front of frame with no fiber or BNC disconnect/reconnect required
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to three modules or a 3RU frame which will hold up to 15 modules or a standalone frame which will hold 1 module

Input:

- Optical input range from 1270nm to 1610nm
- Input sensitivity to -32dBm
- SC/PC, ST/PC, FC/PC connector options

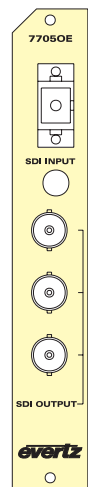
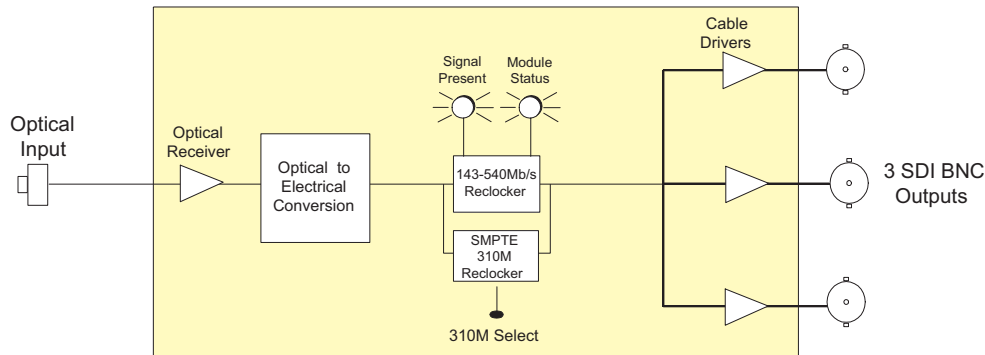
Outputs:

- Three serial digital BNC outputs for loop-through or monitoring
- Wideband Jitter < 0.2 UI

Status LEDs:

- Signal presence indication
- Module status indication

7705OE Block Diagram



Specifications

Standards: SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 305M, SMPTE 310M, SMPTE 344M M2S, DVB-ASI

Optical Input:
Number of Inputs: 1
Connector: SC/PC, ST/PC, FC/PC Female Housing
Operating Wavelength: 1270nm to 1610nm
Optical Sensitivity: -32dBm
Maximum Input Power: 0dBm

Serial Video Outputs:
Number of Outputs: 3 per card reclocked
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB up to 540Mb/s
Wideband Jitter: <0.2 UI

Electrical:
Voltage: +12V DC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A EU EMC Directive

Physical:
Number of Slots: 1

Ordering Information:

7705OE SDI Optical to Electrical Converter, 19.4Mb/s or 143-540Mb/s

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HDTV Optical to Electrical Converter, 19.4Mb/s to 1.5Gb/s

Model 7705OE-HD

Features

- Operation from 19.4Mb/s to 1.5Gb/s
 - Reclocking for SMPTE 292M (1.485Gb/s)
 - Non-reclocking mode for all other rates from 19.4 Mb/s to 1.5Gb/s including SMPTE 259M, SMPTE 305M, SMPTE 310M, M2S, DVB-ASI, etc.
- Supports single-mode and multi-mode fiber optic cable
- Fully hot swappable from front of frame with no fiber or BNC disconnect/reconnect required
- Can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone frame which will hold 1 module

Input:

- Optical input range from 1270nm to 1610nm
- Input sensitivity up to -23dBm
- SC/PC, ST/PC, FC/PC connector options

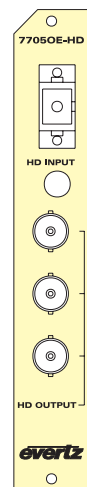
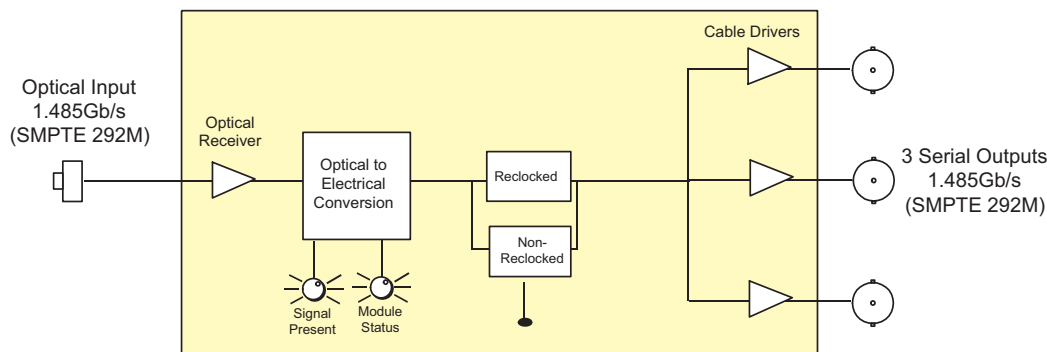
Outputs:

- Three serial digital BNC outputs for fan-out, loop-through or monitoring
- Wideband Jitter < 0.2 UI (reclocked)

Status LEDs:

- Signal presence indication
- Module status indication

7705OE-HD Block Diagram



Specifications

Standard: SMPTE 292M, 259M, 297M, 305M, 310M, M2S, DVB-ASI, and other Telecom/Datacom standards involving data rates from 19.4Mb/s to 1.5Gb/s

Optical Input:

Number of Inputs: 1
Connector: SC/PC, ST/PC, FC/PC Female housing
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: -1dBm
Optical Sensitivity: -23dBm

Serial Video Outputs:

Number of Outputs: 3 Reclocked outputs
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: 270ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB to 1GHz, >12dB to 1.5GHz
Jitter: <0.2UI Reclocked

Electrical:

Voltage: +12V DC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of Inputs: 1

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Ordering Information:

7705OE-HD HDTV Optical to Electrical Converter, 19.4Mb/s to 1.5 Gb/s

Optical to Optical Wavelength Converter for rates to 540Mb/s

Model 770500

Features

- Optical wavelength converter and/or optical repeater
- Supports all SMPTE 259M standards with operation from 143-540Mb/s
- Supports additional standards of SMPTE 305M(SDTi), SMPTE 310M(19.4Mb/s) and M2S or DVB-ASI(270Mb/s)
- Can also support Datacom/Telecom rates up to 540Mb/s
- Supports single-mode and multi-mode fiber optic cable
- Coaxial or optical input (jumper selectable)
- Fully hot-swappable from front of frame with no fiber or BNC disconnect required
- Independent isolated output drivers to ensure no cross channel loading effects and to maintain polarity from input to output for DVB-ASI applications

- SC/PC, ST/PC or FC/PC connector options
- Tally output on Frame Status bus upon loss of input signal

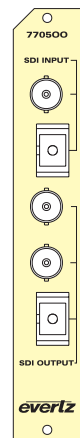
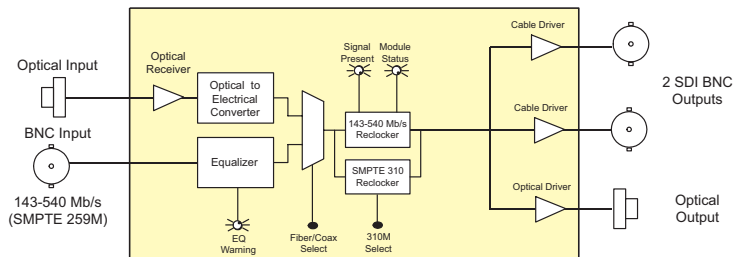
Input:

- Optical input accepts 1270nm to 1610nm
- Automatic cable equalization for coaxial input to 300m @ 270Mb/s with Belden 8281 (or equivalent)

Output:

- One fiber reclocked output at 1310nm, 1550nm or up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- Two BNC serial digital outputs

770500 Block Diagram



Specifications

Standards: SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 305M, SMPTE 310M, DVB-ASI, M2S

Optical Input:

Number of Inputs: 1
Connector: SC/PC, ST/PC, FC/PC Female Housing
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: 0dBm
Optical Sensitivity: -31dBm

Electrical Video Input:

Normal: SMPTE 259M (143 to 540 Mb/s) or DVB/ASI
Jumper Selectable: SMPTE 310M (19.4 Mb/s)
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 300m @ 270 Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15 db to 540 Mb/s

Optical Outputs:

Number of Outputs: 1
Connector: SC/PC, ST/PC, FC/PC female housing
Return Loss: > 14dB
Jitter: < 0.2 UI
Nominal Wavelength: 1310nm, 1550nm
CWDM Wavelengths: See Ordering Information

Optical Power:

1310nm FP -7dBm ± 1dBm
1550nm DFB 0dBm ± 1dBm
CWDM DFB 0dBm ± 1dBm

Electrical Video Outputs:

Number of Outputs: 2 per card - reclocked
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB up to 540Mb/s
Wide Band Jitter: <0.2 UI

Electrical:

Voltage: +12V DC
Power: 6 Watts

Physical:

Number of Slots 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Laser Safety: Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

77050013 Optical to Optical Wavelength Converter for rates to 540 Mb/s, 1270-1610nm input, 1310nm FP laser output
77050015 Optical to Optical Wavelength Converter for rates to 540 Mb/s, 1270-1610nm input, 1550nm, DFB laser output

For CWDM, please refer to the end of the fiber section for ordering information

770500xx Optical to Optical Wavelength Converter for rates to 540 Mb/s, 1270-1610nm input, CWDM DFB laser output

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Optical to Optical Wavelength Converter for HDTV, SDTV, Telecom/Datacom Signals to 1.5Gb/s

Model 770500-HD

Features

- Optical wavelength converter and/or repeater
- Reclocking mode for SMPTE 292M (1.485 Gb/s) signals
- Non-reclock mode for SMPTE 310M (nominal 19.4 Mb/s), SMPTE 259M (143 to 540 Mb/s), DVB-ASI, M2S or most other bit rates less than 1.5 Gb/s
- Fully hot-swappable from front of frame with no fiber or BNC disconnect required
- Independent isolated output drivers to ensure no cross channel loading effects and to maintain polarity from input to output for DVB-ASI applications
- Supports single-mode and multi-mode fiber optic cable

- SC/PC, ST/PC or FC/PC connector options
- Tally output on Frame Status bus upon loss of input signal

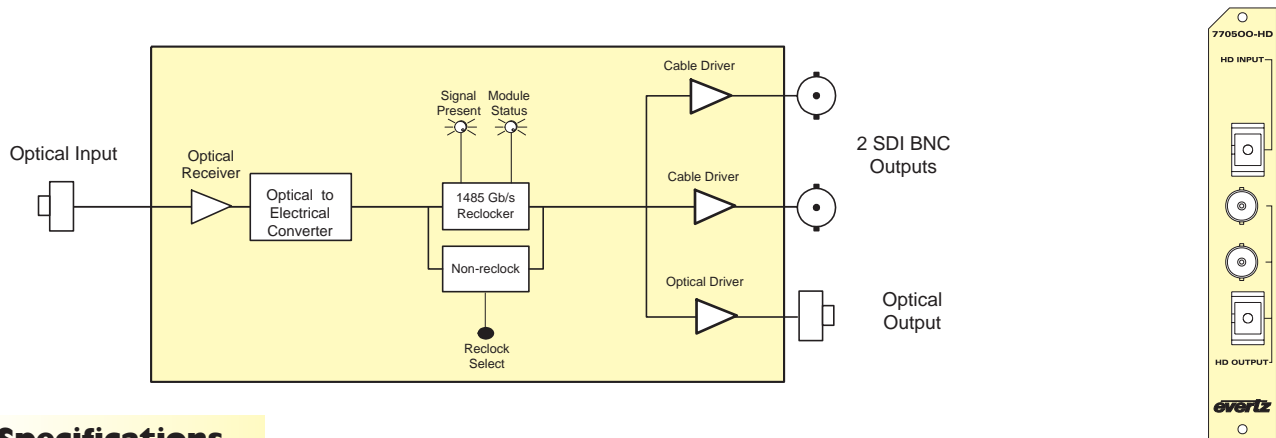
Input:

- Optical input accepts 1270nm to 1610nm

Output:

- Two BNC serial digital outputs
- One fiber reclocked output at 1310nm, 1550nm or up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)

770500-HD Block Diagram



Specifications

Standards:

Reclock Mode: SMPTE 292M
SMPTE 310M (19.4Mb/s) or
Non-Reclock Mode: SMPTE 259M A, B, C, D or DVB-ASI or any other bit rate less than 1.5Gb/s

Optical Input:

Number of Inputs: 1
Connector: SC/PC, ST/PC, FC/PC Female Housing
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power:
Standard: -1dBm
High Sensitivity (-H): -8dBm
Optical Sensitivity:
Standard: -23dBm
High Sensitivity(-H): -28dBm

Optical Outputs:

Number of Outputs: 1 reclocked
Connector: SC/PC, ST/PC, FC/PC female housing
Return Loss: > 14dB
Jitter: < 0.2 UI (reclocked)
Nominal Wavelength: 1310nm, 1550nm
CWDM Wavelength: See Ordering Information

Optical Power:

1310nm FP -7dBm ± 1dBm
1550nm DFB 0 dBm ± 1dBm
CWDM DFB 0 dBm ± 1dBm

Electrical Video Outputs:

Number of Outputs: 2 per card - reclocked
Standard: Same as input
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 270ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB up to 1Gb/s, >12dB up to 1.5Gb/s
Wide Band Jitter: <0.2 UI (reclocked)

Electrical:

Voltage: +12V DC
Power: 6 Watts

Physical:

Number of Slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Laser Safety: Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

77050013-HD Optical to Optical Wavelength Converter for HDTV/SDTV, Telecom/Datacom signals to 1.5 Gb/s, 1270-1610nm input, 1310nm FP laser output
77050015-HD Optical to Optical Wavelength Converter for HDTV/SDTV, Telecom/Datacom signals to 1.5 Gb/s, 1270-1610nm input, 1550nm DFB Laser output
77050013-HD-H Optical to Optical Wavelength Converter for HDTV/SDTV, Telecom/Datacom signals to 1.5 Gb/s, High sensitivity 1270nm-1670nm input, 1310nm FP laser output
77050015-HD-H Optical to Optical Wavelength Converter for HDTV/SDTV, Telecom/Datacom signals to 1.5 Gb/s, High sensitivity 1270nm-1670nm input, 1550nm DFB Laser

For CWDM, please refer to the end of the fiber section for ordering information

770500xx-HD Optical to Optical Wavelength Converter for HDTV/SDTV, Telecom/Datacom signals to 1.5 Gb/s, 1270-1610nm input, CWDM DFB laser output

For CWDM high sensitivity, please refer to the end of the fiber section for ordering information

770500xx-HD-H Optical to Optical wavelength converter for HDTV/SDTV, Telecom/Datacom signals to 1.5 Gb/s, High sensitivity(-27dBm) input, CWDM DFB user output

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

I 310/I 550nm WDM & Optical Splitters

Model 7705WDM, 7705WDM13/15, 7705DS & 7705MS

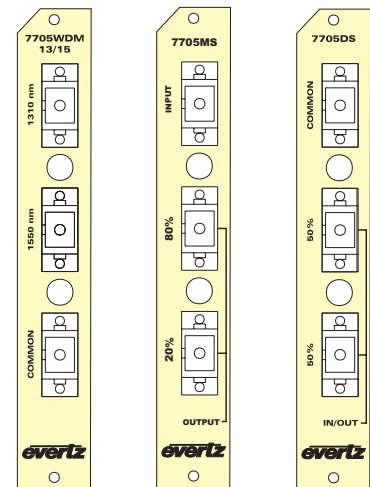
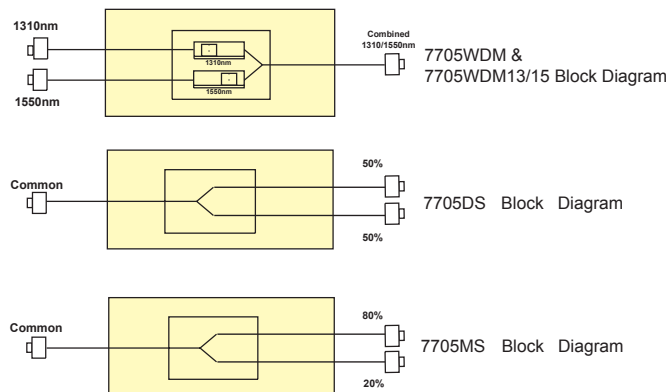
Features

- 7705WDM (Wideband Wavelength Division Multiplexor)**
7705WDM13/15 (Standard Wavelength Division Multiplexor)
7705DS (Fiber Distribution Splitter) &
7705MS (Fiber Monitoring Splitter)
- Bi-directional operation handles 1310nm and 1550nm bands
 - Passive design for any bit rate
 - Fully hot swappable from front of frame with no fiber disconnect/reconnect required
 - Low insertion loss to conserve system power
 - Supports single mode fiber
 - Available in SC, ST & FC connector options

Functions:

- **7705WDM** -- Combines/separates 1310nm and 1470nm-1610nm wavelengths on/from a single fiber
- **7705WDM13/15** -- Combines/separates 1310nm and 1550nm wavelengths on/from a single fiber
- **7705DS** -- Splits one signal into two signals of 50% power or combines two signals into one output signal.
- **7705MS** -- Splits input signal into two signals of 80% / 20% power - used for fiber confidence monitoring.

7705WDM, 7705WDM13/15, 7705DS & 7705MS Block Diagram



Specifications

Optical Input/Output:

Connector: SC/PC, ST/PC, FC/PC female housing
Wavelength: 1310nm and 1550nm bands
Fiber Size: 9µm core / 125µm overall

Insertion Loss:

7705WDM: 1310nm port, 2dB Maximum Loss
1550nm port, 3dB Maximum Loss
(1470nm - 1610nm)
7705WDM13/15: 1310nm port, 2dB Maximum Loss
1550nm port, 2dB Maximum Loss
7705DS: 50% port, 4 dB Maximum Loss
7705MS: 80% port, 2 dB Maximum Loss
20% port, 9 dB Maximum Loss

Isolation:

7705WDM: >50dB between 1310nm/1550nm ports with
1470nm - 1610nm on 1550nm port
7705WDM13/15: >25dB between 1310nm/1550nm ports at center
wavelength \pm 20nm

Physical:

Number of Slots: 1

Ordering Information:

7705WDM: Wideband wavelength Division Multiplexor
7705WDM13/15: Standard Wavelength Division Multiplexor
7705DS: Fiber Distribution Splitter
7705MS: Fiber Monitoring Splitter

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Fiber Optic Patch Cable:

7705FC-SP1MSP Single-mode fiber, 9µm core/900µm

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Analog or SDI Video with 4-Channel Analog or AES Audio Fiber Receiver

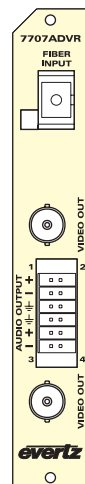
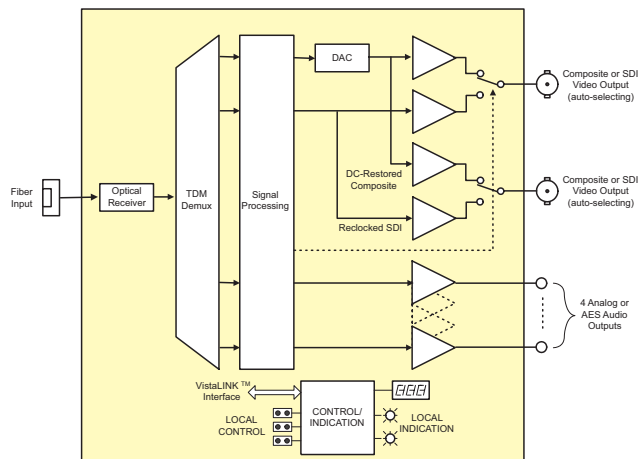
Model 7707ADVR



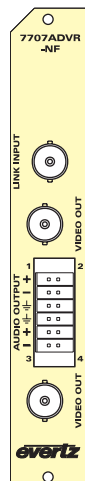
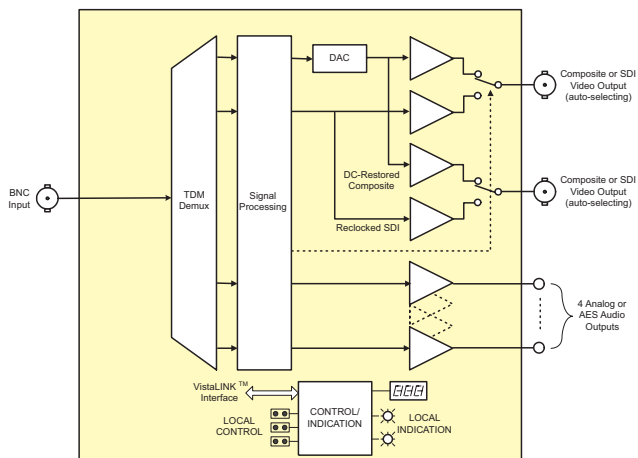
Features

- Single card fiber optic receiver for one analog or SDI video and four analog or AES audio signals
- Auto sensing (analog or digital) video and audio outputs
- Supports both NTSC and PAL analog or 4:2:2 component digital video
- Broadcast quality analog video and audio performance
- Meets or exceeds EIA/TIA RS250-C short haul specifications for analog video and audio transport
- Supports 32, 44.1, 48kHz AES audio
- Dolby E compatible
- Comprehensive signal and card status monitoring via four-digit card-edge display, or through SNMP and VistaLINK™-enabled capability
- Adjustable gain, DC offset and pre-emphasis for driving up to 250m of Belden 1694 coaxial cable
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Input available with fiber optics or BNC
- Wideband optical input (1270nm-1610nm)

7707ADVR Block Diagram



7707ADVR-NF Block Diagram



Analog or SDI Video with 4-Channel Analog or AES Audio Fiber Receiver

Specifications

Analog Video Outputs:

Standard:	SMPTE 170M, (NTSC), ITU-R 624-2 (PAL)
Number of Outputs:	2 BNC per IEC 60169-8 Amendment 2.
System bandwidth:	> 5.5 MHz
Output Level:	1 Vp-p (nominal), 2 Vp-p (maximum)
Gain:	Unity gain nominal, adjustable 50% to 150%
Output Impedance:	75Ω
Return Loss:	> 30dB to 5.5MHz
SNR:	> 67dB
Differential Gain:	< 1.0%
Differential Phase:	< 0.7°
Pre-Emphasis:	Adjustable cable loss compensation for up to 250m of Belden 1694

Passband Ripple:

NTSC:	< ±0.1dB to 4.1MHz and < ±0.2dB to 5.5MHz
PAL:	< ±0.1dB to 4.8MHz and < ±0.2dB to 5.8MHz

Chroma/Luma Gain:

Chroma/Luma Delay:

NTSC:	<5ns
PAL:	<12ns

Line Time Distortion:

NTSC:	1.2%
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Serial Video Output:

Number of Outputs:	2 regenerated
Standard:	SMPTE 259M-C, 525 or 625 line components SMPTE 305M (SDTi)
Connector:	BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 300m with Belden 1694 (or equivalent)
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	900ps nominal
Overshoot:	<10% of amplitude
Return Loss:	> 15dB at 270Mb/s
Wide Band Jitter:	< 0.2UI

Analog Audio Outputs:

Number of Outputs:	4
Type:	Balanced analog audio
Connector:	12 pin removal terminal block
Output impedance:	66Ω
Freq. Response:	+/- 0.1dB, 20Hz to 20 kHz
THD 20Hz-20kHz:	< 0.005%
Channel Phase Diff.	+/- 1 deg
SNR (weighted):	> 85dB
Output Level Adj:	-20dB to +3dB
Max Output Level:	+24 dBu into 10kΩ loads

AES Audio Outputs:

Number of Outputs:	4 regenerated (selectable for balanced or unbalanced)
Standard:	
Unbalanced AES:	SMPTE 276M
Balanced AES:	AES3-1992
Other:	Dolby E compatible
Connector:	12 pin terminal strip
Input Return Loss:	>15dB (1MHz to 6MHz)
Signal Level:	
Unbalanced:	1 Vp-p ±0.1Vp-p
Balanced:	2 Vp-p ±0.1Vp-p

Resolution:	Up to 24-bits
Sampling Rate:	32, 44.1, 48 kHz
Output Jitter:	<0.1UI
Impedance:	
Unbalanced:	75Ω
Balanced:	110Ω

Optical Input:

Number of Inputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC
Operating Wavelength:	1270nm to 1610nm
Maximum Input Power:	0dBm
Optical Sensitivity:	-32dBm

Electrical:

Voltage:	+12VDC
Power:	12Watts

Physical:

Number of slots:	1
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Ordering Information:

7707ADVR:	Analog/SDI video & analog/AES audio fiber optic receiver
7707ADVR-NF:	Electrical input only

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone Enclosure

Analog or SDI Video with 4-Channel Analog or AES Audio Fiber Transmitter

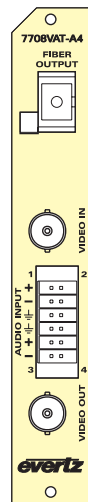
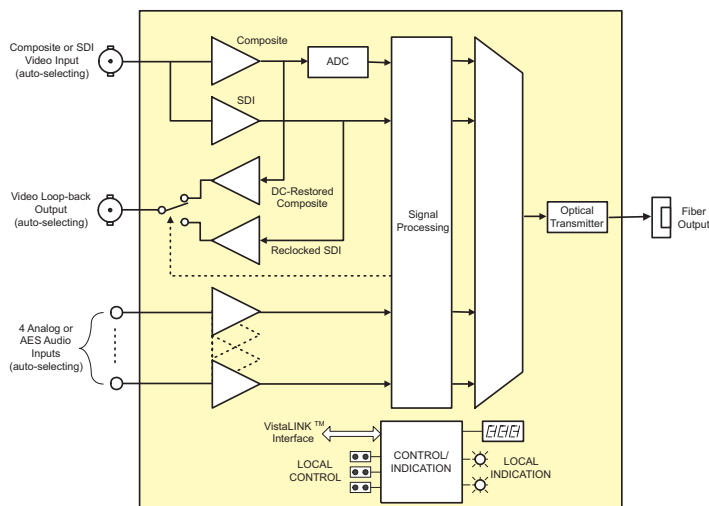
Model 7707ADVT



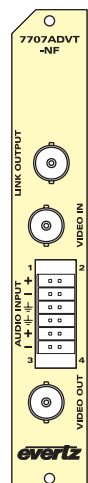
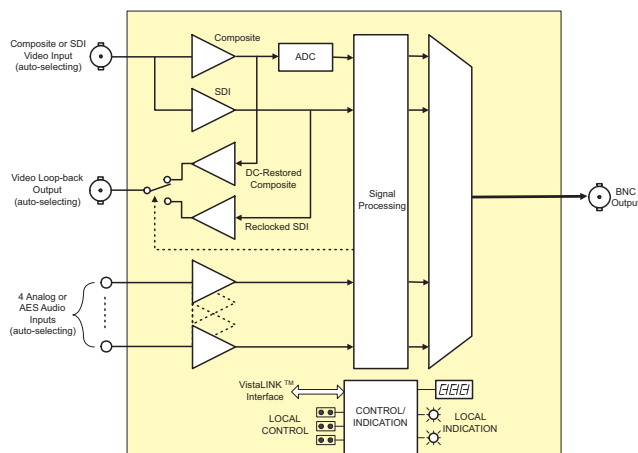
Features

- Single card fiber optic transmitter for one analog or SDI video and four analog or AES audio signals
- Auto-sensing (analog or digital) video and audio inputs
- Supports both NTSC and PAL analog or 4:2:2 component digital video
- Broadcast quality analog video and audio performance
- Meets or exceeds EIA/TIA RS250-C short haul specifications for analog video and audio transport
- Supports 32, 44.1, 48kHz AES audio inputs
- Dolby E compatible
- Comprehensive signal and card status monitoring via four-digit card-edge display, or through SNMP and VistaLINK™ -enabled capability
- Adjustable gain equalization for analog video for up to 250m of Belden 1694 coaxial cable
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths at 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU G.694.2 compliant)
- DWDM wavelengths also available (ITU G.694.1 compliant)
- Outputs available with fiber optics and BNC's only
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths from 1270nm to 1610nm
- DWDM wavelengths (ITU G.692.1 compliant) also available

7707ADVT Block Diagram



7707ADVT-NF Block Diagram



Analog or SDI Video with 4-Channel Analog or AES Audio Fiber Transmitter

3e

Specifications

Analog Video Input:

Standards:	SMPTE 170M (NTSC), ITU-R 624-2 (PAL)
Number of Inputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2.
Signal Quantization:	12 bit
System Bandwidth:	>5.5MHz
Input Level:	2 Vp-p (Maximum)
Gain Equalization:	Up to 250m of Belden 1694 or equivalent (adjustable)
Input impedance:	75Ω
Return Loss:	> 30 dB to 5.5 MHz
Signal/Noise Ratio:	> 67 dB
Differential Gain:	< 1.0 %
Differential Phase:	< 0.7 Degree
Passband Ripple:	
NTSC:	< +/- 0.1dB to 4.1 MHz < +/- 0.2dB to 5.5 MHz
PAL:	< +/- 0.1dB to 4.8 MHz < +/- 0.2dB to 5.8 MHz
Chroma/Luma Gain:	98% to 103%
Chroma/Luma Delay:	
NTSC:	< 5 ns
PAL:	< 12 ns
Line Time Distortion:	1.2%

Serial Video Input:

Standard:	SMPTE 259M-C, 525 or 625 line component, SMPTE 305M, (SDTi)
Connector:	1 BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 300m @ 270 Mb/s with Belden 1694 or equivalent cable
Return Loss:	> 15 dB up to 270 Mb/s

Analog Video Output:

Standard:	Same as Analog Video Input
Number of Outputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2.
Output Level:	1V p-p
Output Impedance:	75Ω
Return Loss:	> 30 dB to 5.5 MHz

Serial Video Output:

Number of Outputs:	
Fiber Version	1
NF Version	2
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V ± 0.5V
Rise and Fall Time:	900ps nominal
Overshoot:	<10% of amplitude
Return Loss:	>15 dB at 270 Mb/s
Wide Band Jitter:	<0.2 UI

Analog Audio Inputs:

Number of Inputs:	4
Type:	Balanced analog audio
Connector:	12 pin removal terminal block
Input impedance:	High Impedance (>20K Ω)
Freq. Response:	+/-0.1 dB, 20Hz to 20 kHz
THD 20Hz-20kHz:	< 0.005%
Channel Phase Diff.:	+/- 1 deg
SNR (weighted):	> 85 dB
Max. Audio Input Level:	+24 dBu
Signal Quantization:	24 Bits

AES Audio Inputs:

Number of Inputs:	4 (auto-sensing for balanced or unbalanced input)
Standard:	
Unbalanced AES:	SMPTE 276M
Balanced AES:	AES3-1992
Other:	Dolby E compatible
Connector:	12 pin removable terminal block
Input Return Loss:	>15dB (1MHz to 6MHz)
Signal Level:	
Unbalanced:	1.2V p-p ±0.1V
Balanced:	1 to 7Vp-p

Equalization:

Unbalanced:	450m of Belden 1800D cable
Balanced:	1500m of Belden 1694 cable
Resolution:	Up to 24 bits
Sampling Rate:	32, 44.1, 48 kHz
Impedance:	
Unbalanced:	75 Ω
Balanced:	110 Ω

Optical Outputs:

Number of Outputs:	1
Connector:	Female SC/PC, ST/PC or FC/PC
Return Loss:	> 14 dB
Rise and Fall Time:	200ps nominal
Fiber Size:	9 μm core / 125 μm overall
Wavelengths:	
Standard	1310nm, 1550nm (nominal)
CWDM:	See Ordering Information
DWDM:	See Ordering Information
Output Power:	
1310nm FP (Standard)	-7dBm ± 1dBm
1310nm FP (M Version)	0dBm ± 1dBm
1550 & CWDM DFB	0dBm ± 1dBm
DWDM DFB	+7dBm ± 1dBm

Electrical:

Voltage:	+12VDC
Power:	10 Watts (Non DWDM), 12 Watts (DWDM)

Physical:

Number of slots:	1
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Compliance:

Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive Class 1 laser product
Laser Safety:	Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC directive

Ordering Information:

7707ADVT13:	1310nm FP Laser (-7dBm launch power)
7707ADVT13M:	1310nm FP Laser (0dBm launch power)
7707ADVT15:	1550nm DFB Laser
7707ADVT-NF:	Electrical outputs only

For CWDM applications please refer to the end of the fiber section for details

7707ADVTxx	Analog or SDI Video & 4 Analog or 4 AES audio fiber transmitter, CWDM Laser, VistaLINK™
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For DWDM applications please refer to the end of the fiber section for details

7707ADVTDyyy	Analog or SDI Video & 4 Analog or 4 AES audio fiber transmitter, DWDM Laser, VistaLINK™
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Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone Enclosure

Eight/Sixteen Channel AES Audio Fiber Receiver Demux

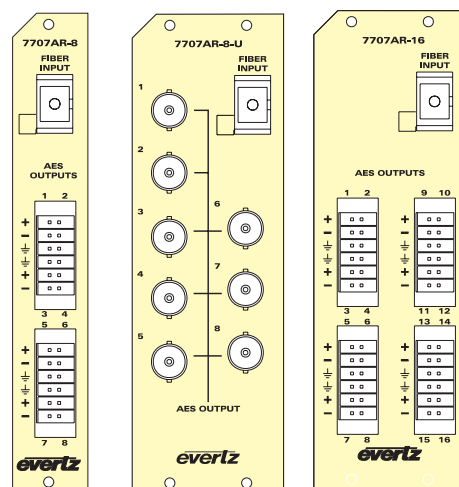
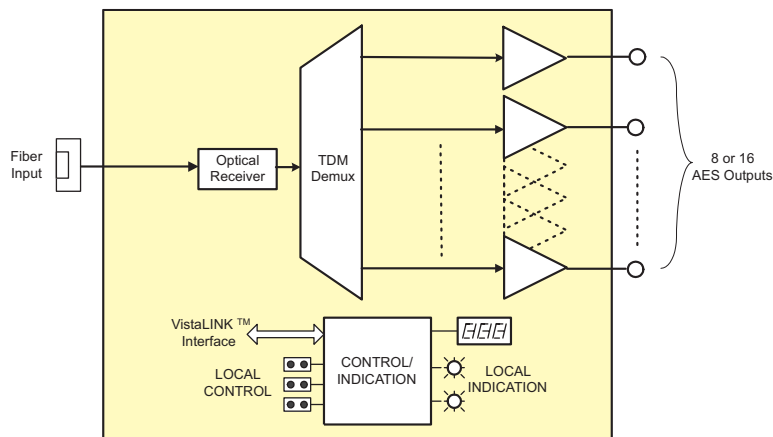
Models 7707AR-8/7707AR-8U 7707AR-16



Features

- Eight or sixteen AES audio fiber optic receiver
- Dolby E compliant
- 7707AR-8 and 7707AR-16 versions provide interface to balanced or unbalanced signals
- 7707AR-8U version provides interface to unbalanced signals via BNC connections
- AES audio sample rate detection provided independently for each channel
- Audio monitoring via card-edge headphone jack with adjustable volume
- All configuration settings controllable through the card-edge user interface, or remotely through SNMP and VistaLINK™
- Wide-band optical input is compatible with 1310nm, 1550nm, CWDM, or DWDM wavelengths
- Supports single-mode and multi-mode fiber optic cable
- SC/PC, ST/PC, or FC/PC fiber connector options
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability

7707AR-8/7707AR-16 Block Diagram



Specifications

AES Audio Outputs:

Standard:
7707AR-8U: SMPTE 276M - Unbalanced AES, Dolby E compliant
7707AR-8/16: AES3-1992, Balanced or Unbalanced (selectable), Dolby E compliant

Number of Outputs:

7707AR-8/8U: 8
7707AR-16: 16

Connectors:

7707AR-8U: BNC per IEC 60169-8 Amendment 2
7707AR-8/16: Multi-pin Removable Terminal Blocks

Output Sample Rate: 32 to 48kHz (same as input signal at 7707AT)

Output Impedance:

Unbalanced: 75Ω
Balanced: 110Ω
Output Return loss: >15dB
Output Amplitude:
Unbalanced: 1Vp-p to ±0.1Vp-p
Balanced: 2Vp-p to ±0.1Vp-p

Output Rise/Fall Times:

Unbalanced: 35ns ±5ns
Balanced: 20ns ±5ns
Output Jitter: < 0.1UI

Optical Input:

Connector: SC/PC, ST/PC, FC/PC female housing
Input Wavelength: 1270 to 1610nm
Input Power (max): 0dBm
Input Optical Sensitivity: -28dBm

Electrical:

Voltage: 12V DC
Power (max): 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
 EU EMC Directive

Physical:

7700 frame mounting:

Number of Slots:

7707AR-8U: 2 slots
7707AR-8: 1 slot
7707AR-16: 2 slots

7701 frame mounting:

Number of Slots: 1 slot all versions

Ordering Information:

7707AR-8

7707AR-8U

7707AR-16

Eight Channel AES Audio Fiber Receiver Demux, VistaLINK™ Monitoring
Eight Channel Unbalanced AES Audio Fiber Receiver Demux, VistaLINK™ Monitoring
Sixteen Channel AES Audio Fiber Receiver Demux, VistaLINK™ Monitoring

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
 Eg: Model +SC +3RU

Rear Plate Suffix

+3RU

3RU Rear Plate for use with 7700FR-C Multiframe

+1RU

1RU Rear Plate for use with 7701FR Multiframe

+SA

Standalone Enclosure Rear Plate

Connector Suffix

+SC

SC/PC

+ST

ST/PC

+FC

FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC

Single mode fiber cable, 1m, SC/PC male termination

CB-FP1M-STPC

Single mode fiber cable, 1m, ST/PC male termination

CB-FP5M-SCPC

Single mode fiber cable, 5m, SC/PC male termination

CB-FP5M-STPC

Single mode fiber cable, 5m, ST/PC male termination

CB-FP10M-SCPC

Single mode fiber cable, 10m, SC/PC male termination

CB-FP10M-STPC

Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C

3RU Multiframe which holds 15 modules

7701FR

1RU Multiframe which holds 3 modules

S7701FR

Standalone enclosure

Eight/Twelve Channel Analog Audio Fiber Receiver Demux

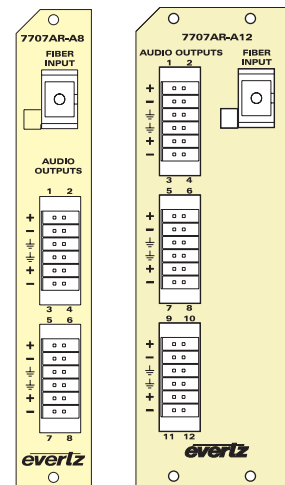
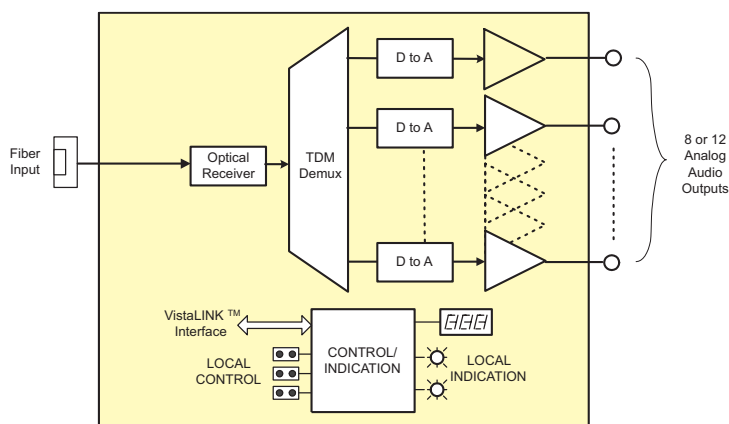
Models 7707AR-A8/7707AR-A12



Features

- Eight or twelve professional quality analog audio fiber optic receiver
- Adjustable audio detection for each channel
- Adjustable audio gain for each channel
- Audio monitoring via card-edge headphone jack
- All configuration settings controllable through the card-edge interface, or remotely through SNMP and VistaLINK™
- Wide-band optical input compatible with 1310nm, 1550nm, CWDM, or DWDM transmission wavelengths
- Supports single-mode and multi-mode fiber optic cable
- SC/PC, ST/PC, or FC/PC fiber connector options
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four-digit cardedge display or remotely through SNMP and VistaLINK™ -enabled capability

7707AR-A8/7707AR-A12 Block Diagram



Specifications

Analog Audio Outputs:

Number of Outputs:	
7707AR-A8:	8
7707AR-A12:	12
Connectors:	Multi-pin Removable Terminal Blocks
Output Level:	
Into High Impedance:	+24dBu (max)
Into 600Ω:	+23dBu (max)
Frequency Response:	±0.1dB (max, 20Hz to 20kHz)
THD + Noise:	-90dB or 0.003% (max, 20Hz to 20kHz, @0dBFS)
Crosstalk:	-100dB (max, 20Hz to 20kHz, measured channel connected at input)
S/N Ratio:	100dB (min)
Channel Phase:	±0.5degrees (max, 20Hz to 20kHz)
Output Impedance:	66Ω (nom, differential)
Adjustable Gain:	-10dB to +10dB (0.5dB increments)

Optical Input:

Connector:	SC/PC, ST/PC, FC/PC female housing
Input Wavelength:	1270 to 1610nm
Input Power (Max):	0dBm
Input Optical Sensitivity:	-28dBm

Electrical:

Voltage:	12V DC
Power:	
7707AR-A8:	13.5 Watts (max)
7707AR-A12:	18.5 Watts (max)
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

7700 frame mounting:	
Number of Slots:	
7707AR-A8:	1 slot
7707AR-A12:	2 slots

7701 frame mounting:

Number of Slots:	1 slot
------------------	--------

Ordering Information:

7707AR-A8	Eight Channel Analog Audio Fiber Receiver, Demux VistaLINK™ Monitoring
7707AR-A12	Twelve Channel Analog Audio Fiber Receiver, Demux VistaLINK™ Monitoring

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC	Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC	Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC	Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC	Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC	Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC	Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

3e

Eight/Sixteen Channel AES Audio Fiber Transmitter Mux

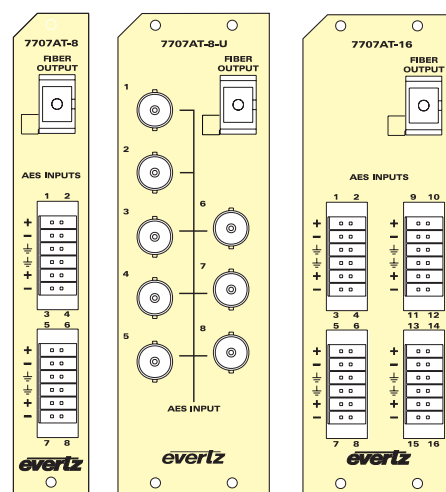
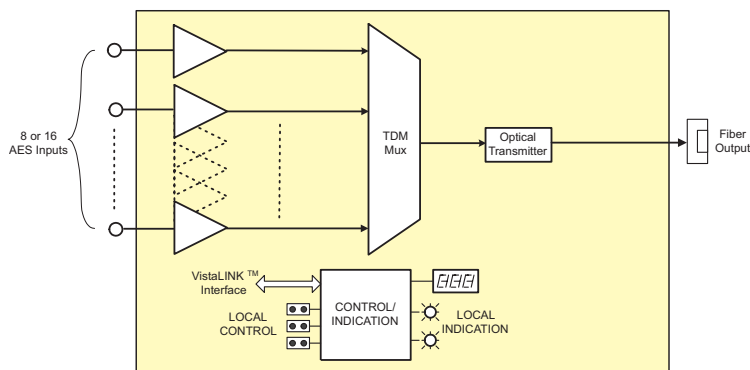
Models 7707AT-8/7707AT-8U 7707AT-16



Features

- Eight or sixteen AES audio fiber optic transmitter
- Dolby E compatible
- 7707AT-8 and 7707AT-16 versions provide interface to balanced or unbalanced signals
- 7707AT-8U version provides interface to unbalanced signals via BNC connections
- AES audio sample rate detection is provided independently for each channel
- Audio monitoring via card-edge headphone jack with adjustable volume
- All configuration settings are controllable through the card-edge user interface, or remotely through SNMP and VistaLINK™
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths also available (ITU-T G.694.1 compliant)
- Supports single-mode and multi-mode fiber optic cable
- SC/PC, ST/PC, or FC/PC fiber connector options
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability

7707AT-8/7707AT-16 Block Diagram



Specifications

AES Audio Inputs:

Standard:	
7707AT-8U:	SMPTE 276M - Unbalanced AES, Dolby E compatible
7707AT-8/16:	AES3-1992, Balanced or Unbalanced (selectable), Dolby E compatible

Number of Inputs:

7707AT-8/8U:	8
7707AT-16:	16

Connectors:

7707AT-8U:	BNC per IEC 60169-8 Amendment 2
7707AT-8/16:	Multi-pin Removable Terminal Blocks

Input Sample Rate:

32 to 48kHz

Input Impedance:

Unbalanced:	75Ω
Balanced:	110Ω

Input Return Loss:

>15dB

Input Amplitude (max):

Unbalanced: 1.2Vp-p

Balanced: 7Vp-p

Input Amplitude (min):

Unbalanced: 320mVp-p

Balanced: 200mVp-p

Cable Equalization (max):

Unbalanced: 450m (~1900ft) of Belden 1694 cable

Balanced: 1500m (~4900ft) of Belden 1800B cable

Optical Output:

Connector: SC/PC, ST/PC, FC/PC female housing

Output Wavelengths: See Ordering Information

Output Power:

1310nm FP (Standard): -7 dBm ±1dBm

CWDM DFB: 0 dBm ±1dBm

DWDM DFB: +7 dBm ±1dBm

Electrical:

Voltage: 12V DC

Power

7707AT-8/8U: 6 Watts (Non DWDM) or 9 Watts (DWDM)

7707AT-16: 8 Watts (Non DWDM) or 11 Watts (DWDM)

Physical:

7700 frame mounting:

Number of Slots:

7707AT-8U: 2 slots

7707AT-8: 1 slot

7707AT-16: 2 slots

7701 frame mounting:

Number of Slots: 1 for all versions

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065

Complies with CE Low voltage Directive

Laser Safety:

Class 1 laser product

Complies with 24 CFR 1040.10 and 1040.11

IEC 60825-1

Complies with FCC Part 15, Class A

EU EMC Directive

EMI/RFI:

Ordering Information:

7707AT13-8	Eight channel AES Audio Fiber Transmitter Mux , 1310nm FP, VistaLINK™
7707AT13-8U	Eight channel AES Unbalanced Audio Fiber Transmitter Mux, 1310nm FP, VistaLINK™, AES on BNC's
7707AT13-16	Sixteen channel AES Audio Fiber Transmitter Mux, 1310nm FP, VistaLINK™
7707AT15-8	Eight channel AES Audio Fiber Transmitter Mux , 1550nm DFB, VistaLINK™
7707AT15-8U	Eight channel AES Unbalanced Audio Fiber Transmitter Mux , 1550nm DFB, VistaLINK™
7707AT15-16	Sixteen channel AES Audio Fiber Transmitter Mux , 1550nm DFB, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707ATxx-8	Eight channel AES Audio Fiber Transmitter Mux, CWDM wavelength, VistaLINK™
7707ATxx-8U	Eight channel AES Unbalanced Audio Fiber Transmitter Mux , CWDM wavelength, VistaLINK™
7707ATxx-16	Sixteen channel AES Audio Fiber Transmitter Mux, CWDM wavelength, VistaLINK™

For DWDM, please refer to the end of the fiber section for ordering information

7707ATDyyy-8	Eight channel AES Audio Fiber Transmitter Mux, DWDM wavelength, VistaLINK™
7707ATDyyy-8U	Eight channel AES Unbalanced Audio Fiber Transmitter Mux, DWDM wavelength, VistaLINK™
7707ATDyyy-16	Sixteen channel AES Audio Fiber Transmitter Mux , DWDM wavelength, VistaLINK™

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order

Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Eight/Twelve Channel Analog Audio Fiber Transmitter Mux

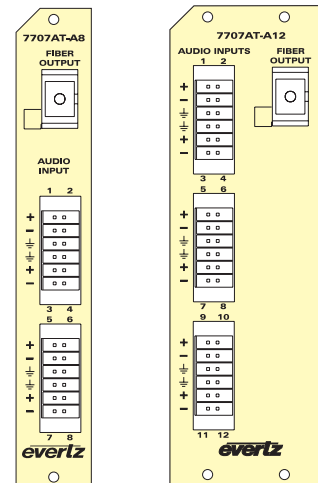
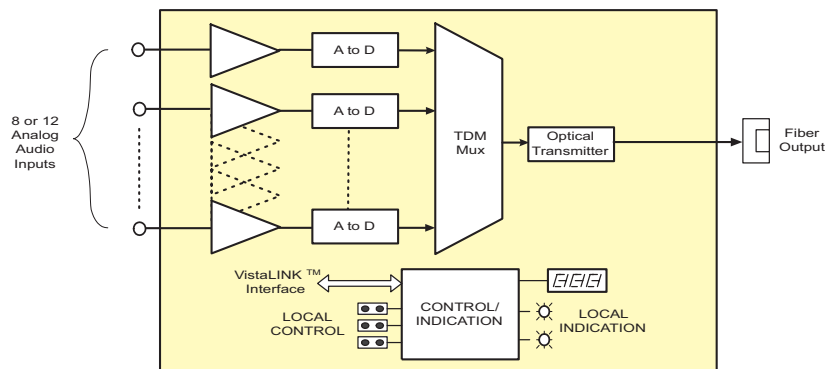
Models 7707AT-A8/7707AT-A12



Features

- Eight or twelve professional quality analog audio fiber optic transmitter
- Adjustable audio detection for each channel
- Audio monitoring via card-edge headphone jack with adjustable volume
- All configuration settings controllable through the card-edge user interface, or remotely through SNMP and VistaLINK™
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths also available (ITU-T G.694.1 compliant)
- Supports single-mode and multi-mode fiber optic cable
- SC/PC, ST/PC, or FC/PC fiber connector options
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability

7707AT-A8/7707AT-A12 Block Diagram



Specifications

Analog Audio Inputs:

Number of Inputs:	8
7707AT-A8:	8
7707AT-A12:	12
Connectors:	Multi-pin Removable Terminal Blocks
Input Level:	+24dBu (max)
Frequency Response:	±0.1dB (max, 20Hz to 20kHz)
THD + Noise:	-90dB or 0.003% (max, 20Hz to 20kHz, @0dBFS)
Crosstalk:	-100dB (max, 20Hz to 20kHz, measured channel connected at input)
S/N Ratio:	100dB (min)
Channel Phase:	±0.5degrees (max, 20Hz to 20kHz)
Input Impedance:	10kΩ (min, differential)
Resolution:	24 Bits

Optical Output:

Connector:	SC/PC, ST/PC, FC/PC female housing
Output Wavelengths:	See Ordering Information
Output Power:	
1310nm FP (Standard):	-7 dBm (nom) ±1dBm
CWDM DFB:	0 dBm (nom) ±1dBm
DWDM DFB:	+7 dBm (nom) ±1dBm

Electrical:

Voltage:	12V DC
Power:	
7707AT-A8:	
Non DWDM Laser:	8 Watts (max)
DWDM Laser:	10 Watts (max)
7707AT-A12:	
Non DWDM Laser:	10 Watts (max)
DWDM Laser:	12 Watts (max)

Physical:

7700 frame mounting:	
Number of Slots:	
7707AT-A8:	1 slot
7707AT-A12:	2 slots
7701 frame mounting:	
Number of Slots:	1 slot

Compliance:

Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065
	Complies with CE Low voltage Directive
Laser Safety:	Class 1 laser product
	Complies with 24 CFR 1040.10 and 1040.11
	IEC 60825-1

EMI/RFI:

Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7707AT13-A8	Eight channel Analog Audio Fiber Transmitter Mux, 1310nm FP, VistaLINK™
7707AT15-A8	Eight channel Analog Audio Fiber Transmitter Mux, 1550nm DFB, VistaLINK™
7707AT13-A12	Twelve channel Analog Audio Fiber Transmitter Mux , 1310nm FP, VistaLINK™
7707AT15-A12	Twelve channel Analog Audio Fiber Transmitter Mux , 1550nm DFB, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707ATxx-A8	Eight channel Analog Audio Fiber Transmitter Mux , CWDM wavelength
7707ATxx-A12	Twelve channel Analog Audio Mux Fiber Transmitter, CWDM wavelength

For DWDM, please refer to the end of the fiber section for ordering information

7707ATDyyy-A8	Eight channel Analog Audio Mux Fiber Transmitter, DWDM wavelength
7707ATDyyy-A12	Twelve channel Analog Audio Mux Fiber Transmitter, DWDM wavelength

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Fiber Optic Patch Cable please refer to the end of the fiber section for details

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

2 x 1 Optical Bypass Protection Switch

Model 7707BPX



The 7707BPX is a wide band 2 x 1 optical protection switch that provides auto-changeover functionality by detecting changes in the optical input power level.

The 7707BPX has integrated VistaLINK™ technology for remote control and monitoring capability via SNMP. This provides the user with the ability to locally or remotely configure and monitor parameters such as module status, selected input, power level and switching threshold.

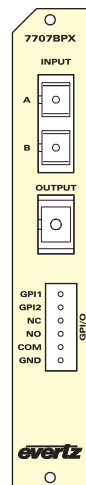
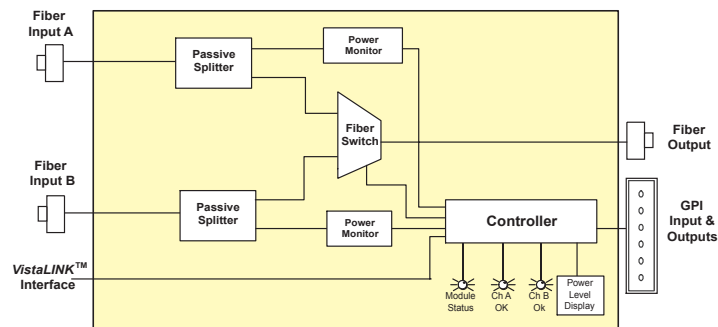
In the application of auto-changeover, the 7707BPX can be configured to have a MAIN input and a STANDBY input. In this configuration, it will automatically switch to the Standby input when the Main input power is weak or lost. It can also be configured to have auto or manual switch back to the Main input when the signal is re-established.

The 7707BPX occupies one card slot and can be housed in either a 1RU frame which hold up to 3 modules or a 3RU frame which will hold up to 15 modules.

Features

- Intelligent auto-switching with input power detection and user definable thresholds
- Supports automatic or manual control via SNMP or GPI
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Accepts any wavelength in the 1270nm to 1610nm range
- Supports single-mode fiber optic cable
- SC/PC, ST/PC or FC/PC fiber connector options
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

Model 7707BPX Block Diagram



Specifications

Optical Input/Output:

Number:	3 Bi-directional optical signals
Connector:	SC/PC, ST/PC, FC/PC Female Housing
Insertion Loss:	< 3dB
Switch Time:	< 30 ms
Maximum Input Power:	5 dBm
Input Optical Sensitivity:	-40dBm
Operating Wavelength:	1270nm to 1610nm
Fiber Size:	9µm core / 125 µm overall

General Purpose Inputs:

Number of Inputs:	2
Type:	Opto-isolated, active low with internal pull-ups to +5V
Connector:	2 pins plus ground on 6 pin terminal strip
Signal Level:	
+5V Pullup:	Low: -5 to +2.5 VDC, High: 3.5 to 10 VDC
+12V Pullup:	Low: -5 to +9.5 VDC, High: 10.5 to 15 VDC
Max Sink Current:	(input shorted to ground) 15 mA
Max Leakage Current for input High:	200 µA

General Purpose Outputs:

Number of Outputs:	1
Type:	"Dry Contact" relay contacts - normally open & normally closed contact provided
Connector:	3 pins on 6 pin terminal strip

Electrical:

Voltage:	+12V DC
Power:	3 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of Slots:	1
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Ordering Information:

7707BPX:	2 x 1 Optical Bypass Protection Switch
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Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

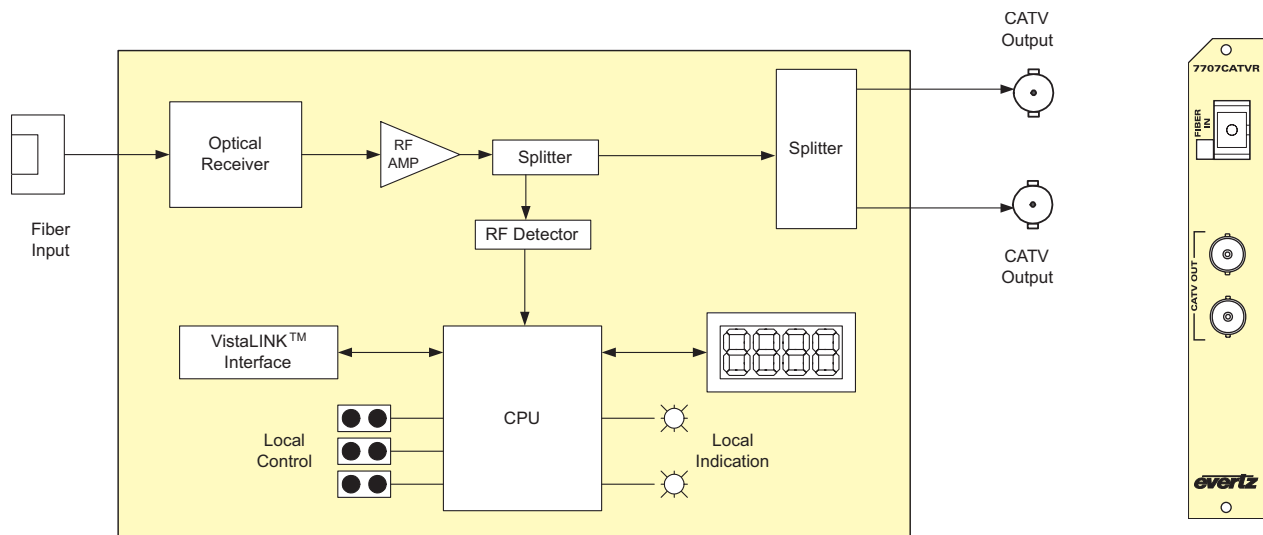
Model 7707CATVR



Features

- 80/110 Channel PAL/NTSC CATV fiber optic receiver
- 50-850 MHz operational bandwidth
- Low CSO and CTB intermod products
- Supports single mode fiber
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™-enabled capability
- Provides up to 35km extension of CATV systems
- Two RF outputs for extra signal distribution or monitoring functions
- Optical power monitoring and alarm thresholds
- RF output power monitoring and alarm thresholds

7707CATVR Block Diagram



Specifications

CATV Outputs:

Connector:	2 F-Type (BNC optional)
I/O Impedance:	75Ω
Return Loss:	> 17dB
CSO:	<-64dB*
CTB:	<-67dB*
CNR:	>50dB*
RF Flatness:	± 1dB* (50 - 850MHz)

* Measured with fully loaded CATV spectrum with 40dBmV/channel input to 7707CATVT and 0dBm optical power input to 7707CATVR with 0dB gain setting on 7707CATVR

Optical Input:

Connector:	1 SC/APC
Operating Wavelength:	1310nm
Optical Link Budget:	14dB (Using 7707CATVT - 110-11 transmitter) 11dB (Using 7707CATVT - 110-8 transmitter)

Electrical:

Voltage:	+12VDC
Power:	5 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of slots:	1
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Ordering Information:

7707CATVR	80/110 Channel PAL/NTSC CATV Fiber Receiver, SC/APC connector, VistaLINK™
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Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Optical Connector Suffix

+AP+SC	SC/APC (Angle Polished)
+AP+FC	FC/APC (Angle Polished)

RF Connector Suffix

+BNC	BNC Connector
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Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone enclosure

CATV Fiber Transmitter

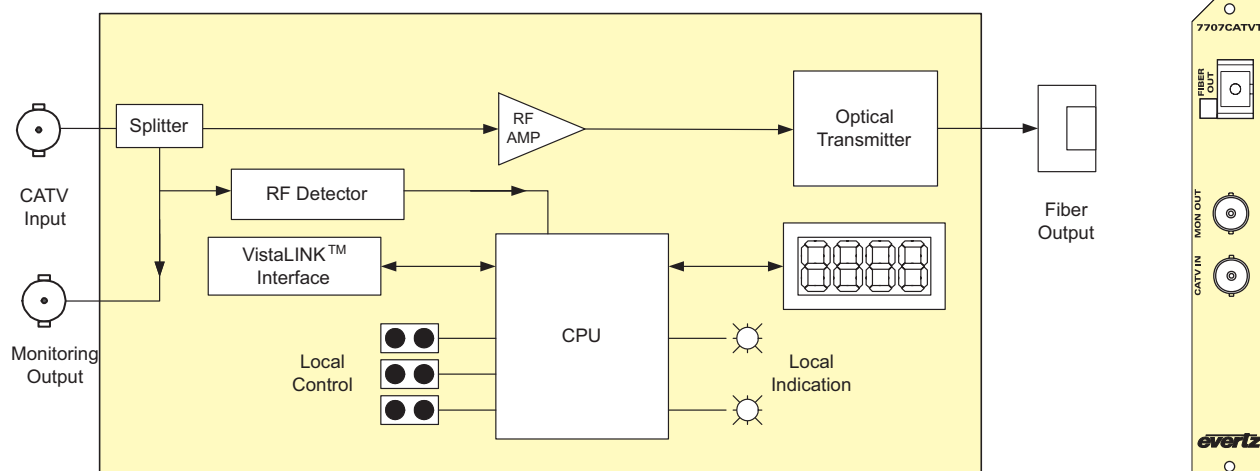


Model 7707CATVT

Features

- 80/110 Channel PAL/NTSC CATV fiber optic transmitter
- 50-850 MHz operational bandwidth
- Low CSO and CTB intermod products
- Supports single mode fiber
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Provides up to 35km extension of CATV systems
- RF input power monitoring and alarm thresholds
- Two setting adjustable optical output power level
- Two optical output power versions available at 1310nm wavelength, +11dBm and +8dBm

7707CATVT Block Diagram



Specifications

CATV Input:

Number of Inputs:	1, 80/110 channel, PAL/NTSC CATV signal
Bandwidth:	50-850 MHz
RF Drive Level/channel:	40dBmV/channel for full 80 PAL/110 NTSC channel load
Connector:	1 F-Type (BNC optional)
I/O Impedance:	75Ω
Return Loss:	>18dB

Monitoring Output:

Number of Outputs:	1
Connector:	F-Type (BNC optional)
I/O Impedance:	75Ω
Signal Level:	(Input) -25dB
RF Flatness:	± 1dB (50 - 850MHz)

Optical Output:

Connector:	1 SC/APC
Operating Wavelength	1310nm
Output Power	
110-11:	+11dBm ± 1dBm
110-8:	+8dBm ± 1dBm
Fiber Size:	9μm core / 125μm overall

CATV Channel Performance (7707CATVT & 7707CATVR):

Flatness:	± 1dB, (50 - 850MHz)*
CNR:	> 50dB*
CSO:	< -65dBc*
CTB:	< -67dBc*

* Measured with fully loaded CATV spectrum with 40dBmV/channel input to 7707CATVT and 0dBm optical power input to 7707CATVR with 0dB gain setting on 7707CATVR

Electrical:

Voltage:	+12VDC
Power:	12 Watts

Physical:

Number of slots:	1
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Ordering Information:

7707CATVT13-110-8	1310nm, DFB Laser, +8dBm output power, 80/110 channel PAL/NTSC
7707CATVT13-110-11	1310nm, DFB Laser, +11dBm output power, 80/110 channel PAL/NTSC

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Optical Connector Suffix

+AP+FC	FC/APC (Angle Polished)
+AP+SC	SC/APC (Angle Polished)

RF Connector Suffix

+BNC	BNC Connector
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Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone Enclosure

Analog Video, 4 Channel Audio (-A4) and RS232/422 Fiber Receiver



Model 7707CVDR/CVDR-A4

The 7707CVDR and 7707CVDR-A4 are VistaLINK™ -enabled composite analog video and bi-directional RS232/422 fiber optic receivers for broadcast quality video signals. The “-A4” version adds 4 channels of broadcast quality analog audio.

These products are ideal for analog VTR link extension or camera PTZ applications.

The 7707CVDR and 7707CVDR-A4 occupy one card slot and can be housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which holds up to 15 modules or a standalone enclosure which holds one module.

Features

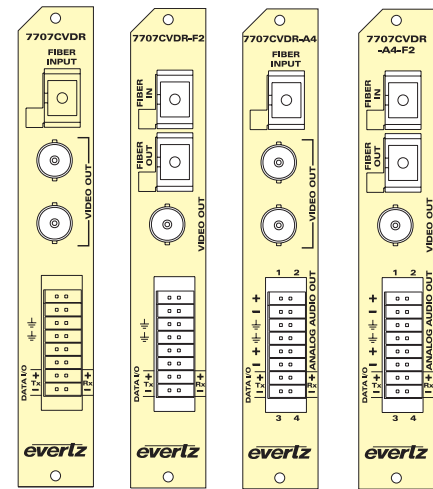
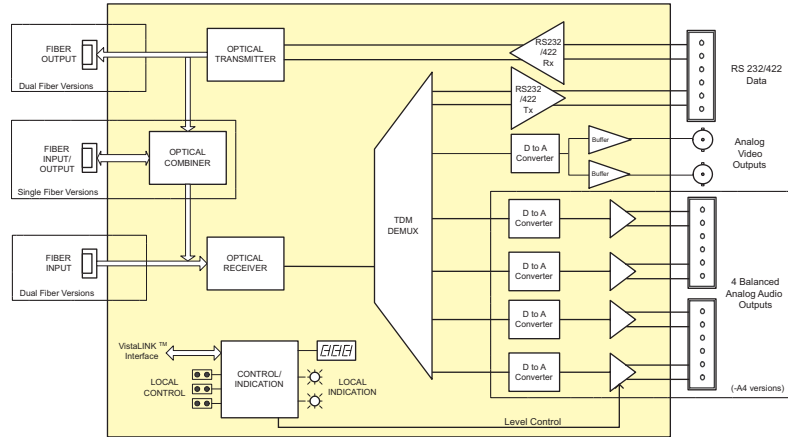
- Single card fiber optic receiver for analog video, four analog audio (-A4 version) and bi-directional RS232/422 signals
- Supports both NTSC and PAL video signals
- Broadcast quality analog video and audio performance
- 2 bi-directional RS232 or 1 bi-directional RS422
- Superior digital data transmission
- Signal transport over fiber uninterrupted by loss of input video, audio or data feeds
- Adjustable gain and DC offset, and pre-emphasis for up to 300m of Belden 1694 coaxial cable
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability
- Fully hot-swappable from front of frame with no fiber disconnect/reconnect required
- Optical output wavelengths of 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available

7707CVDR Application Configurations (use -A4 version if audio is required)

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<1km	7707CVDT13-F2	-7dBm	7707CVDR13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	2	21dB/60km	7707CVDT13-F2	-7dBm	7707CVDR13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	1	14dB/40km*	7707CVDT13	-10dBm	7707CVDR13	-24dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	25dB/70km	7707CVDT15-W	-1dBm	7707CVDR13M-W	-26dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	24dB/95km**	7707CVDTxx-F2	0dBm	7707CVDRyy-F2	-28dBm	Different CWDM wavelengths on Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km***	7707CVDTDxxx-F2	+7dBm	7707CVDRDyyy-F2	-28dBm	Different DWDM wavelengths on Tx & Rx, with 8 channel DWDM Mux/Demux**
* With >20dB return loss on fiber interface ** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB *** Assumes 8 Ch DWDM Mux/Demux loss of 5dB					Tx Power/Rx Sensitivity are nominal values ±1dBm Fiber loss= 0.35/0.25dB per km @1310nm/1550nm		

Analog Video, 4 Channel Audio (-A4) and RS232/422 Fiber Receiver

7707CVDR/7707CVDR-A4 Block Diagram



Specifications

Optical Input:
Number of Inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: 0dBm
Optical Sensitivity: See Application Configuration Chart

Optical Output:
Number of Outputs: 1
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 14 dB
Rise and Fall Time: 200ps nominal
Fiber Size: 9 µm core / 125 µm overall
Wavelength: See Ordering Information
Output Power: See Application Configuration Chart

Analog Video Outputs:
Standard: NTSC, SMPTE 170M, PAL, ITU-R624-4
Connector: BNC per IEC 60169-8 Amendment 2
Signal Resolution: 12 bits
System bandwidth: 5.5 MHz
Output Level: 1 Vp-p (nominal), 2 Vp-p maximum
Gain: Unity gain nominal, adjustable 50% to 150%
Output Impedance: 75Ω
Return Loss: > 20 dB
Signal/Noise: > 67dB
Differential Gain: < 1.0%
Differential Phase: < 1.0°
Passband Ripple: <±/ 0.1dB to 4.7MHz (Equalization set to 0 m)
<±/ 0.2dB to 4.7MHz (Equalization set to maximum)
Pre-Emphasis: Cable loss compensation for up to 300m of Belden 1694 (each output adjustable separately)
Chroma/Luma Delay: <11 ns
Line time distortion: <1% (.5% typical)

Analog Audio Outputs (-A4 version):
Number of Outputs: 4
Type: Balanced analog audio
Connector: 12 pin removal terminal block
Output impedance: 66Ω
Freq. Response: +/- 0.1dB, 20Hz to 20 kHz
THD 20Hz-20kHz: < 0.005%
Channel Phase Diff. +/- 1 deg
SNR (weighted): > 85dB
Output Level Adj: -20dB to +3dB
Max Output Level: +24 dBu into 10kΩ loads

Serial Data Ports:
Number of Ports: 1 RS422 or 2 RS232 - Jumper Selectable
Connector: 4 pins (plus ground) on 16pin removable terminal block
Baud Rate: Up to 3 Mb/s (Determined by incoming data)

System Performance (7707CVDT + 7707CVDR):

Video Input to Video
Output Delay: <10 µs
Audio Input to Audio
Output Delay (-A4 version): < 1.9ms

Electrical:
Voltage: +12VDC
Power: 12 Watts (Non DWDM), 15 Watts (DWDM)

Physical:
Number of slots: 1

Compliance:
Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:
7707CVDR13 Analog Video + Bi-di RS-232/422 Fiber Receiver, single fiber, 1310nm TX & RX
7707CVDR13-A4 Analog Video + Audio + Bi-di RS-232/422 Fiber Receiver, single fiber, 1310nm TX & RX
7707CVDR13-F2 Analog Video + Bi-di RS-232/422 Fiber Receiver, dual fiber, 1310nm TX & RX
7707CVDR13-A4-F2 Analog Video + Audio + Bi-di RS-232/422 Fiber Receiver, dual fiber, 1310nm TX & RX
7707CVDR13M-W Analog Video + Bi-di RS-232/422 Fiber Receiver, single fiber, 1310nm TX @0dBm, RX on 1550nm
7707CVDR13M-W-A4 Analog Video + Audio + Bi-di RS-232/422 Fiber Receiver, single fiber, 1310nm TX @ 0dBm, RX on 1550nm

For CWDM, please refer to the end of the fiber section for ordering information

7707CVDR27 to 61-F2 Analog Video + Bi-di RS-232/422 Fiber Receiver, dual fiber, CWDM Laser
7707CVDR27 to 61-A4-F2 Analog Video + Audio + Bi-di RS-232/422 Fiber Receiver, dual fiber, CWDM Laser

For DWDM, please refer to the end of the fiber section for ordering information

7707CVDRDxxx to Dyyy-F2 Analog Video + Bi-di RS-232/422 Fiber Receiver, dual fiber, DWDM Laser
7707CVDRDxxx to Dyyy-A4-F2 Analog Video + Audio + Bi-di RS-232/422 Fiber Receiver, dual fiber, DWDM Laser

Ordering Options
Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix
+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:
7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone Enclosure

Analog Video, 4 Channel Audio (-A4) and RS232/422 Fiber Transmitter



Model 7707CVDT/CVDT-A4

The 7707CVDT and 7707CVDT-A4 are VistaLINK™ -enabled composite analog video and bi-directional RS232/422 fiber optic transmitters for broadcast quality video signals. The “-A4” version adds 4 channels of broadcast quality analog audio.

These products are ideal for analog VTR link extension or camera PTZ applications.

The 7707CVDT and 7707CVDT-A4 occupy one card slot and can be housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which holds up to 15 modules or a standalone enclosure which holds one module.

Features

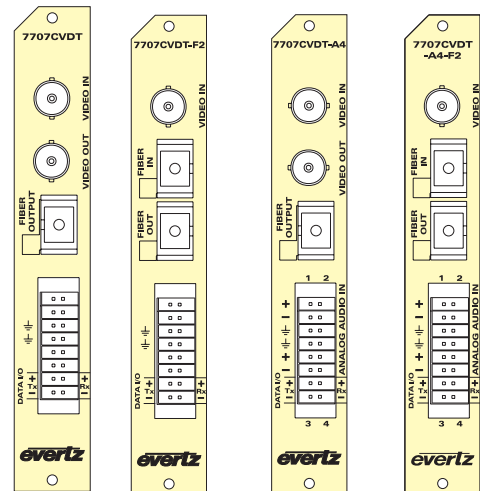
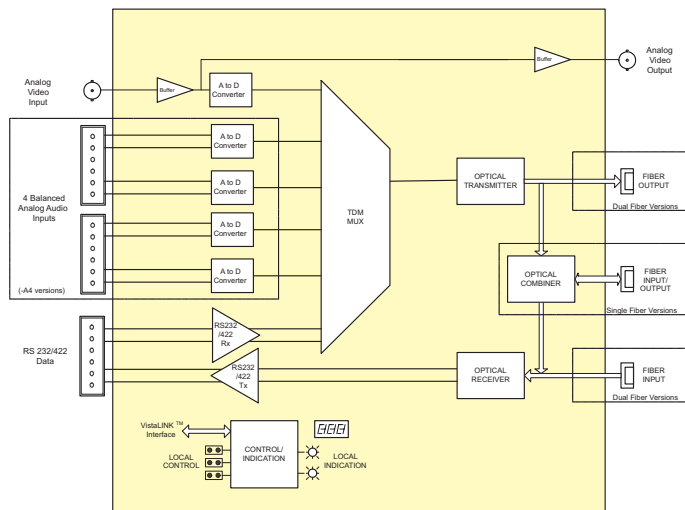
- Single card fiber optic transmitter for analog video, four analog audio (-A4 version) and bi-directional RS232/422
- Supports both NTSC and PAL video signals
- Broadcast quality analog video and audio performance
- 2 bi-directional RS232 or 1 bi-directional RS422
- Superior digital data transmission
- Signal transport over fiber uninterrupted by loss of input video, audio or data feeds
- Adjustable gain equalization for up to 300m of Belden 1694 coaxial cable
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability
- Fully hot-swappable from front of frame with no fiber disconnect/reconnect required
- Optical output wavelengths of 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available

7707CVDT Application Configurations(use -A4 version if audio is required)

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<1km	7707CVDT13-F2	-7dBm	7707CVDR13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	2	21dB/60km	7707CVDT13-F2	-7dBm	7707CVDR13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	1	14dB/40km*	7707CVDT13	-10dBm	7707CVDR13	-24dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	25dB/70km	7707CVDT15-W	-1dBm	7707CVDR13M-W	-26dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	24dB/95km**	7707CVDTxx-F2	0dBm	7707CVDRyy-F2	-28dBm	Different CWDM wavelengths on Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km***	7707CVDTDxxx-F2	+7dBm	7707CVDRDyyy-F2	-28dBm	Different DWDM wavelengths on Tx & Rx, with 8 channel DWDM Mux/Demux***
* With >20dB return loss on fiber interface ** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB *** Assumes 8 Ch DWDM Mux/Demux loss of 5dB					Tx Power/Rx Sensitivity are nominal values ±1dBm Fiber loss= 0.35/0.25dB per km @1310nm/1550nm		

Analog Video, 4 Channel Audio (-A4) and RS232/422 Fiber Transmitter

7707CVDT/7707CVDT-A4 Block Diagram



Specifications

Analog Video Input:

Standards: NTSC, SMPTE 170M, PAL, ITU-R 624-4
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Quantization: 12 bits
System Bandwidth: 5.5MHz
Input Level: 2 Vp-p (Maximum)
Gain Equalization: Up to 300m of Belden 1694 or equivalent (adjustable)
Input Impedance: 75Ω
Return Loss: > 30 dB to 5.5 MHz

Analog Video Outputs (Not available on -F2 versions):

Standard: NTSC, SMPTE 170M, PAL, ITU-R 624-4
Number of Outputs: 1 buffered version of input
Connector: BNC per IEC 60169-8 Amendment 2.
Output Level: 1V p-p
Output Impedance: 75Ω
Return Loss: > 30 dB to 5.5 MHz

Analog Audio Inputs (-A4 version):

Number of Inputs: 4
Type: Balanced analog audio
Connector: 12 pin removal terminal block
Input impedance: High Impedance (>20K Ω)
Max. Audio Input Level: +24 dBu
Signal Quantization: 24 Bits
Freq. Response: +/-0.1 dB, 20Hz to 20 kHz

Serial Data Ports:

Number of Ports: 1 RS422 or 2 RS232 - Jumper Selectable
Connector: 4 pins (plus ground) on 16pin removable terminal block
Baud Rate: Up to 3 Mb/s (Determined by incoming data)

Optical Input:

Number of Inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: 0dBm
Optical Sensitivity: See Application Configuration Chart

Optical Output:

Number of Outputs: 1
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 14 dB
Rise and Fall Time: 200ps nominal
Fiber Size: 9 μm core / 125 μm overall
Wavelength: See Ordering Information
Output Power: See Application Configuration Chart

System Performance (7707CVDT + 7707CVDTR):

Video Input to Video Output Delay: < 10μs
Audio Input to Audio Output Delay (-A4 Version): < 1.9ms

Electrical:

Voltage: +12VDC
Power: 12Watts (Non-DWDM), 15Watts (DWDM)

Physical:

Number of slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Complies with FCC Part 15, Class A
EU EMC directive

EMI/RFI:

Ordering Information:

7707CVDT13 Analog Video + Bi-di RS-232/422 Fiber Transmitter, single fiber, 1310nm TX & RX
7707CVDT13-A4 Analog Video + Audio + Bi-di RS-232/422 Fiber Transmitter, single fiber, 1310nm TX & RX
7707CVDT13-F2 Analog Video + Bi-di RS-232/422 Fiber Transmitter, dual fiber, 1310nm TX & RX
7707CVDT13-A4-F2 Analog Video + Audio + Bi-di RS-232/422 Fiber Transmitter, dual fiber, 1310nm TX & RX
7707CVDT15-W Analog Video + Bi-di RS-232/422 Fiber Transmitter, single fiber, 1550nm TX, RX on 1310nm
7707CVDT15-W-A4 Analog Video + Audio + Bi-di RS-232/422 Fiber Transmitter, single fiber, 1550nm TX, RX on 1310nm

For CWDM, please refer to end of fiber section for ordering information

7707CVDT27 to 61-F2 Analog Video + Bi-di RS-232/422 Fiber Transmitter, dual fiber, CWDM Laser
7707CVDT27 to 61-A4-F2 Analog Video + Audio + Bi-di RS-232/422 Fiber Transmitter, dual fiber, CWDM Laser

For DWDM, please refer to end of fiber section for ordering information

7707CVDTDxxx to Dyyy-F2 Analog Video + Bi-di RS-232/422 Fiber Transmitter, dual fiber, DWDM Laser

7707CVDTDxxx to Dyyy-A4-F2

Analog Video + Audio + Bi-di RS-232/422 Fiber Transmitter, dual fiber, DWDM Laser

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone Enclosure

Single/Dual Analog Video with 4-Channel Analog Audio Fiber Receiver

Model 7707CVR & 7707CVR-2



The 7707CVR is a VistaLINK™ -enabled, composite analog video and analog audio fiber receiver for broadcast quality video signals. This single card module accepts a fiber optic input from the companion 7707CVT Composite Video and Analog Audio Fiber Transmitter, demultiplexes the signals, performs D to A conversion and outputs NTSC or PAL analog video and up to four balanced analog audio signals.

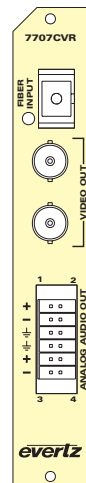
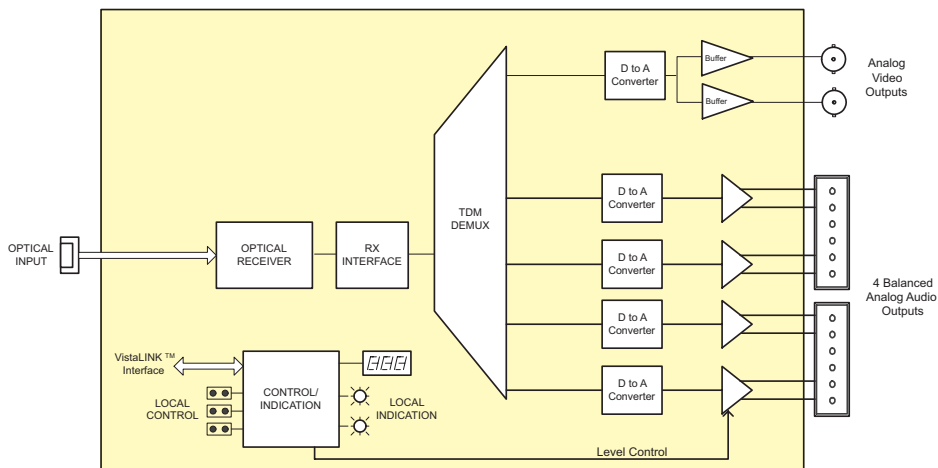
The 7707CVR-2 Dual Composite Video and Analog Audio Fiber Receiver is a dual channel version that accepts a fiber optic input, from the companion 7707CVT-2 transmitter, demultiplexes the signals, performs D to A conversion and outputs 2 NTSC or PAL analog video signals and up to four balanced analog audio signals.

The 7707CVR and 7707CVR-2 occupy one card slot and can be housed in either a 1RU frame, which will hold up to 3 modules, a 3 RU frame, which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

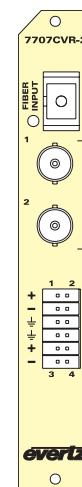
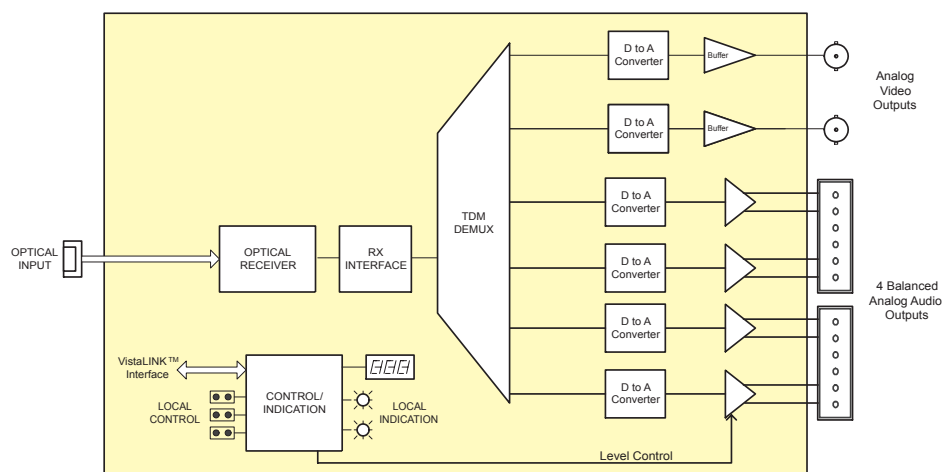
- Single card fiber optic receiver for one or two analog video and four analog audio signals
- Supports both NTSC and PAL video signals
- Broadcast quality analog video and audio performance
- Meets or exceeds EIA/TIA RS250-C short haul specifications for analog video and audio transport
- Adjustable gain, DC offset and pre-emphasis for up to 250m of Belden 1694 coaxial cable
- Low Audio to Video latency
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range

7707CVR Block Diagram



Single/Dual Analog Video with 4-Channel Analog Audio Fiber Receiver

7707CVR-2 Block Diagram



Specifications

Optical Input:

Number of Inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: 0dBm
Optical Sensitivity: -28dBm

Analog Video Outputs:

Standards: NTSC, SMPTE 170M, PAL, ITU-R624-4
Number of Outputs: 2 on 7707CVR
2 (1 per video channel) on 7707CVR-2
Connector: BNC per IEC 60169-8 Amendment 2
System bandwidth: 5.5 MHz
Output Level: 1 Vp-p (nominal), 2 Vp-p maximum
Gain: Unity gain nominal, adjustable 50% to 150%
Output Impedance: 75Ω
Return Loss: > 20dB
SNR: > 67dB
Differential Gain: < 1.0%
Differential Phase: < 0.7°
Pre-Emphasis: Cable loss compensation for up to 250m of Belden 1694 (each output adjustable separately)

Passband Ripple:

NTSC: < ±0.1dB to 4.1MHz and < ±0.2dB to 5.5MHz

PAL:

< ±0.1dB to 4.8MHz and < ±0.2dB to 5.8MHz

Chroma/Luma Gain:

Chroma/Luma Delay:

NTSC: <5ns
PAL: <12ns

Line Time Distortion:

1.2%

Analog Audio Outputs:

Number of Outputs: 4
Type: Balanced analog audio
Connector: 12 pin removal terminal block
Output impedance: 66Ω
Freq. Response: +/- 0.1dB, 20Hz to 20 kHz
THD 20Hz-20kHz: < 0.005%
Channel Phase Diff. +/- 1 deg
SNR (weighted): > 85dB
Output Level Adj: -20dB to +3dB
Max Output Level: +24 dBu into 10kΩ loads

System Performance (7707CVT + 7707CVR or 7707CVT-2 + 7707CVR-2):

Video Input to Output Delay: <10μs

Audio Input to Output Delay: <1.9ms

Electrical:

Voltage: +12VDC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Physical:

Number of slots: 1

Ordering Information:

7707CVR	Analog Video with 4-Channel Analog Audio Fiber Receiver, VistaLINK™
7707CVR-2	Dual Analog Video with 4-Channel Analog Audio Fiber Receiver, VistaLINK™

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone Enclosure

Single/Dual Analog Video with 4-Channel Analog Audio Fiber Transmitter

Model 7707CVT & 7707CVT-2



The 7707CVT is a VistaLINK™ -enabled, composite analog video and analog audio fiber transmitter for broadcast quality video and audio signals. This single card module accepts one NTSC or PAL analog video input with up to four analog audio inputs, performs analog to digital conversion and transmits them over a single fiber. The companion 7707CVR Composite Video and Analog Audio Fiber Receiver demultiplexes the signals and converts them back to analog form.

The 7707CVT-2 Dual Composite Video and Analog Audio fiber transmitter is a dual channel version that digitizes and multiplexes two analog video and up to four analog audio signals and converts them to an optical signal for transmission. The companion 7707CVR-2 Dual Composite Video and Analog Audio Fiber Receiver accepts a fiber optic input, demultiplexes the signals, performs D to A conversion and outputs two NTSC or PAL analog video signals and up to four balanced analog audio signals.

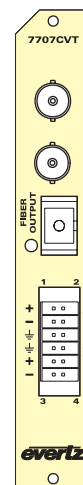
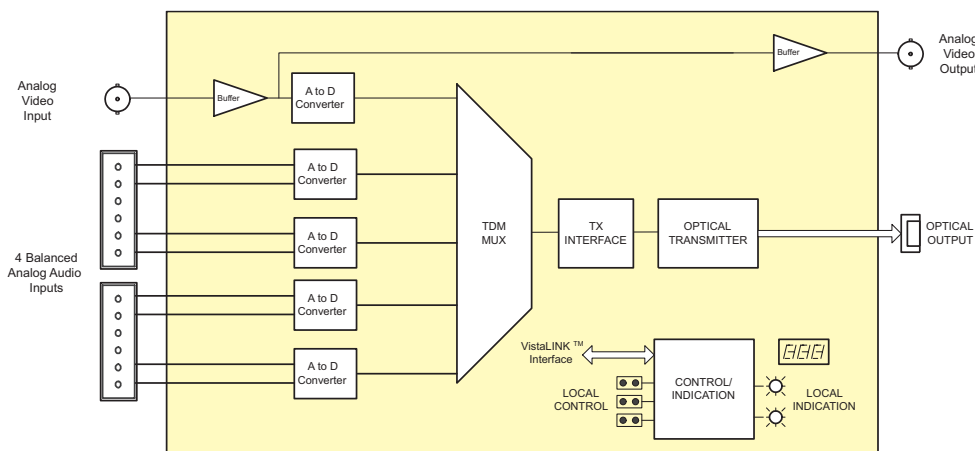
The fiber optic output of the 7707CVT and 7707CVT-2 is available in an assortment of optical wavelengths, accommodating 1310nm/1550nm, CWDM and DWDM transmission schemes.

The 7707CVT and 7707CVT-2 occupy one card slot and can be housed in either a 1RU frame, which will hold up to three modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure that will hold 1 module.

Features

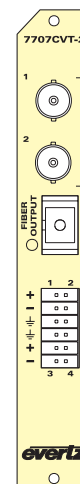
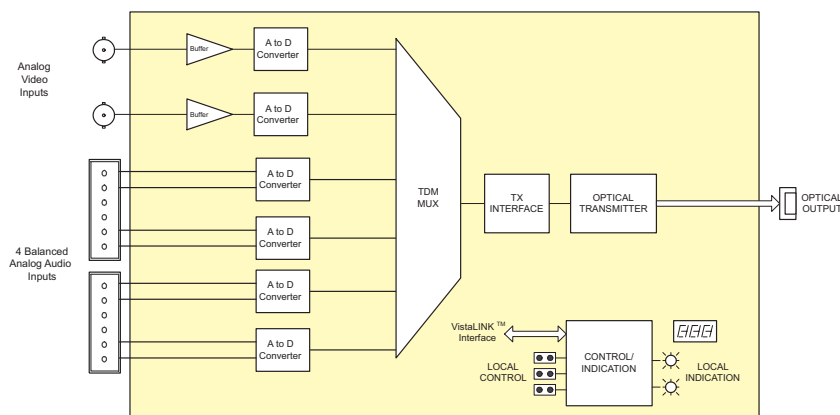
- Single card fiber optic transmitter for one or two analog video and four analog audio signals
- Supports both NTSC and PAL video signals
- Broadcast quality analog video and audio performance
- Meets or exceeds EIA/TIA RS250-C short haul specifications for analog video and audio transport
- Superior digital data transmission
- Video loop-through for additional signal distribution or monitoring (7707CVT only)
- Signal transport over fiber is uninterrupted by loss of input video or audio feeds
- Low Audio to Video latency
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Adjustable gain equalization for up to 250m of Belden 1694 coaxial cable
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available

7707CVT Block Diagram



Single/Dual Analog Video with 4-Channel Analog Audio Fiber Transmitter

7707CVT-2 Block Diagram



Specifications

Analog Video Input:

Standards: NTSC, SMPTE 170M, PAL, ITU-R 624-4
Number of Inputs: 1 on 7707CVT, 2 on 7707CVT-2
Connector: BNC per IEC 60169-8 Amendment 2.
Signal Quantization: 12 bits
System Bandwidth: 5.5MHz
Input Level: 2 Vp-p (Maximum)
Gain Equalization: up to 250m of Belden 1694 or equivalent (adjustable)
Input impedance: 75Ω
Return Loss: > 30 dB to 5.5 MHz
Signal/Noise Ratio: > 67 dB
Differential Gain: < 1.0 %
Differential Phase: < 0.7 Degree
Passband Ripple: NTSC:
 < +/- 0.1dB to 4.1 MHz
 < +/- 0.2dB to 5.5 MHz
 PAL:
 < +/- 0.1dB to 4.8 MHz
 < +/- 0.2dB to 5.8 MHz
Chroma/Luma Gain: 98% to 103%
Chroma/Luma Delay: NTSC:
 < 5 ns
 PAL:
 < 12 ns
Line Time Distortion: 1.2%

Analog Video Outputs: (7707CVT only)

Standard: NTSC, SMPTE 170M, PAL, ITU-R 624-4
Number of Outputs: 1 buffered version of input
Connector: BNC per IEC 60169-8 Amendment 2.
Output Level: 1V p-p
Output Impedance: 75Ω
Return Loss: > 30 dB to 5.5 MHz

Analog Audio Inputs:

Number of Inputs: 4
Type: Balanced analog audio
Connector: 12 pin removal terminal block
Input impedance: High Impedance (>20K Ω)
Freq. Response: +/-0.1 dB, 20Hz to 20 kHz
THD 20Hz-20kHz: < 0.005%
Channel Phase Diff.: +/- 1 deg
SNR (weighted): > 85 dB
Max. Audio Input Level: +24 dBu
Signal Quantization: 24 Bits

Optical Outputs:

Number of Outputs: 1
Connector: Female SC/PC, SC/PC, ST/PC or FC/PC
Return Loss: > 14 dB
Wavelengths: Standard
 1310nm, 1550nm (nominal)
CWDM: See Ordering Information
DWDM: See Ordering Information
Output Power: 1310nm FP (Standard)
 -7dBm ± 1dBm
 1310nm FP (M Version)
 0dBm ± 1dBm
 1550 & CWDM DFB
 0dBm ± 1dBm
 DWDM:
 +7dBm ± 1dBm

System Performance (7707CVT + 7707VCR or 7707CVT-2 + 7707CVR-2):

Video Input to Output Delay: < 10μs
Audio Input to Output Delay: < 1.9ms

Electrical:

Voltage: +12VDC
Power: 11/12 Watts (Non-DWDM), 13/14Watts (DWDM)

Physical:

7700 or 7701 frame mounting: 1
Number of slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
 Complies with CE Low voltage Directive
 Class 1 laser product
 Complies with 24 CFR 1040.10 and 1040.11
 IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
 EU EMC directive

Ordering Information:

7707CVT13 Analog Video with 4-channel Analog Audio Fiber Transmitter 1310nm FP Laser, VistaLINK™
7707CVT13-2 Dual Analog Video with 4-channel Analog Audio Fiber Transmitter, 1310nm FP Laser, VistaLINK™
7707CVT13M Analog Video with 4-channel Analog Audio Fiber Transmitter 1310nm Higher Power (0dBm) FP Laser, VistaLINK™
7707CVT13M-2 Dual Analog Video with 4-channel Analog Audio Fiber Transmitter, 1310nm High Power (0dBm) FP Laser, VistaLINK™
7707CVT15 Analog Video with 4-channel Analog Audio Fiber Transmitter 1550nm DFB Laser, VistaLINK™
7707CVT15-2 Dual Analog Video with 4-channel Analog Audio Fiber Transmitter, 1550nm DFB Laser, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707CVTxx Analog Video with 4-channel Analog Audio Fiber Transmitter CWDM DFB Laser, VistaLINK™
7707CVTxx-2 Dual Analog Video with 4-channel Analog Audio Fiber Transmitter CWDM DFB Laser, VistaLINK™

For DWDM, please refer to the end of the fiber section for ordering information

7707CVTxxxx to yyyy Analog Video with 4-channel Analog Audio Fiber Transmitter DWDM DFB Laser, VistaLINK™
7707CVTxxxx to yyyy-2 Dual Analog Video with 4-channel Analog Audio Fiber Transmitter DWDM DFB Laser, VistaLINK™

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
 Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone Enclosure

Multi RS-232/422/485/GPIO Fiber Data Transceiver



Model 7707DT/7707DT-GPIO

The 7707DT series Fiber Data Transceivers provide an economical method of transmitting multiple bi-directional RS-232, RS-422, RS-485 data signals as well as Linear Time Code (LTC) over a single fiber optic link. The 7707DT-GPIO version provides additional RS232 and General Purpose Input/Outputs (GPIO). A pair of 7707DT Data Transceivers permits bi-directional data transmission over distances up to 100 km, with minimum possible latency.

Single and dual fiber (-F2) optical interface configurations allow the user to choose the optimal function /price /performance to suit a particular application. The dual fiber configuration is compatible with CWDM /DWDM systems and is designed to transmit and receive over separate fibers. The optical output of the 7707DT is available in 1310nm, 1550nm, CWDM and DWDM wavelengths.

The 7707DT occupies a single card slot and can be housed in either a 1RU Multiframe that will hold up to 3 modules, a 3RU Multiframe that will hold up to 15 modules or a standalone enclosure which will hold 1 module. The 7707DT-GPIO occupies two card slots and can be housed in the same enclosures.

Features

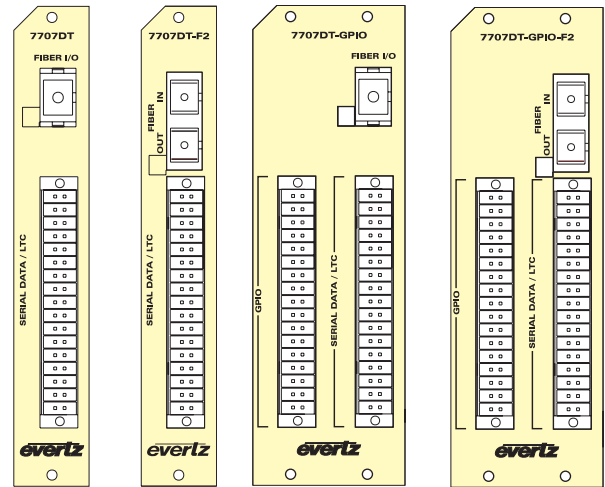
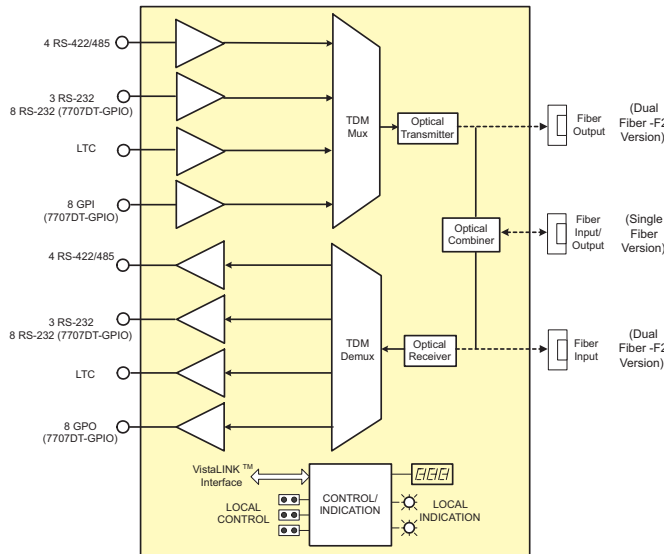
- 7707DT transports four RS-422 or RS-485, three RS-232, and one LTC
- 7707DT-GPIO version provides five additional RS-232 and eight General Purpose Input/Outputs (GPIO)
- Selectable termination and failsafe bias settings for RS-422/485 data inputs
- Selectable network timeouts for RS-485 accommodates twelve data rates
- All configuration settings are controllable through the card-edge user interface, or VistaLINK™
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths also available (ITU-T G.694.1 compliant)
- Supports single-mode and multi-mode fiber optic cable
- SC/PC, ST/PC, or FC/PC* fiber connector options
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™-enabled capability

7707DT Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<3km	7707DT13-F2	-7dBm	7707DT13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	2	21dB/60km	7707DT13-F2	-7dBm	7707DT13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	1	14dB/40km*	7707DT13	-10dBm	7707DT13	-24dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	25dB/71km	7707DT13M-W	-1dBm	7707DT15-W	-26dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	24dB/96km**	7707DTxx-F2	0dBm	7707DTyy-F2	-28dBm	Different CWDM wavelengths on Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km***	7707DTDxxx-F2	+7dBm	7707DTDyyy-F2	-28dBm	Different DWDM wavelengths on Tx & Rx, with 8 channel DWDM Mux/Demux***
* With >20dB return loss on fiber interface ** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB *** Assumes 8 Ch DWDM Mux/Demux loss of 5dB					Tx Power/Rx Sensitivity are nominal values ±1dBm Fiber loss= 0.35/0.25dB per km @1310nm/1550nm		

Multi RS-232/422/485/GPIO Fiber Data Transceiver

7707DT/7707DT-GPIO Block Diagram



Specifications

RS-422/485 Serial Data:

Number of Signals: 4 Inputs/Outputs
Connector: Multi-pin Removable Terminal Block
Signal Type: RS-485 or RS-422 (selectable)
Input Termination: 110Ω or Open (selectable)
Input Failsafe Bias: 200mV (3.3mA into 60Ω) or None (selectable)
Bit Rate (max):
RS-422: 460kb/s
RS-485: 1.2kb/s, 2.4kb/s, 4.8kb/s, 9.6kb/s, 19.2kb/s, 38.4kb/s, 57.6kb/s, 76.8kb/s, 115kb/s, 153kb/s, 230kb/s, or 460kb/s (selectable)

RS-232 Serial Data:

Number of Signals: 3 Input/Outputs
Standard Version: 8 Inputs/Outputs
GPIO Version: Multi-pin Removable Terminal Block
Connector: RS-232
Signal Type: RS-232
Bit Rate (max): 115kb/s

LTC Data:

Number of Signals: 1 Input/Output
Connector: Multi-pin Removable Terminal Block
Signal Type: SMPTE 12M Linear Time Code
Input Level: 0.2 to 4V p-p (balanced or unbalanced)
Rise/Fall Times: 40μs ± 10μs
Output Level: 1V p-p nominal (balanced)

General Purpose Inputs (7707DT-GPIO ONLY):

Number of Signals: 8 Inputs
Connector: Multi-pin Removable Terminal Block
Type: Opto-isolated, Active low
Input Voltage: -20V to +10V
Safe Voltage Range: +3.5V
Off Condition (min): +2.5V (active low)
On Condition (max): 1mA
Input Current (min): 10mA (internally limited)
Input Current (max): 10mA (internally limited)

General Purpose Outputs (7707DT-GPIO ONLY):

Number of Signals: 8 Outputs
Connector: Multi-pin Removable Terminal Block
Output Type: Dry contact relay closure, normally open
Output Current (min): 100mA

Optical Input/Output:

Connector:
Single fiber version: 1 Bi-directional optical connector: SC/PC, ST/PC or FC/PC* female housing
Dual fiber (F2) version: 2 optical connector: SC/PC or ST/PC female housing
Maximum Input Power:
Single fiber versions: 0dBm
Dual fiber (F2) versions: 0dBm
Input Optical Sensitivity: See Application Configuration Chart
Output Wavelengths: See Application Configuration Chart
Output Power: See Application Configuration Chart

Electrical:

Voltage: 12V DC
Power (max): 6 Watts (Non DWDM), 8 Watts (DWDM)
Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

7700 frame mounting:
Number of Slots:
7707DT: 1
7707DT-GPIO: 2
7701 frame mounting:

Number of Slots:

7707DT: 1
7707DT-GPIO: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1
Laser Safety: Complies with FCC Part 15, Class A
EU EMC directive

EMI/RFI:

Ordering Information:

7707DT13 Multi RS232/422 Fiber Data Transceiver, single fiber, 1310nm FP TX & RX, VistaLINK™
7707DT13-GPIO Multi RS232/422 and GPIO Fiber Data Transceiver, single fiber, 1310nm FP TX & RX, VistaLINK™
7707DT13M-W Multi RS232/422 Fiber Data Transceiver, single fiber, WDM, 1310nm FP TX, RX on 1550nm, VistaLINK™
7707DT13M-W-GPIO Multi RS232/422 and GPIO Fiber Data Transceiver, single fiber, WDM, 1310nm FP TX, RX on 1550nm, VistaLINK™
7707DT15-W Multi RS232/422 Fiber Data Transceiver, single fiber, WDM, 1550nm DFB TX, RX on 1310nm, VistaLINK™
7707DT15-W-GPIO Multi RS232/422 and GPIO Fiber Data Transceiver, single fiber, WDM, 1550nm DFB TX, RX on 1310nm, VistaLINK™
7707DT13-F2 Multi RS232/422 Fiber Data Transceiver, dual fiber, 1310nm FP TX & RX, VistaLINK™
7707DT13-F2-GPIO Multi RS232/422 and GPIO Fiber Data Transceiver, dual fiber, 1310nm FP TX & RX, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707DT-xx-F2 Multi RS232/422 Fiber Data Transceiver, dual fiber, CWDM TX
7707DT-xx-F2-GPIO Multi RS232/422 and GPIO Fiber Data Transceiver, dual fiber, CWDM TX

For DWDM, please refer to the end of the fiber section for ordering information

7707DTyyyy-F2 Multi RS232/422 Fiber Data Transceiver, dual fiber, DWDM TX
7707DTyyyy-F2-GPIO Multi RS232/422 and GPIO Fiber Data Transceiver, dual fiber, DWDM TX

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC*

Note: FC/PC is only available on single fiber version

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Triple SDI Electrical to Optical Converter

19.4Mb/s or 143-540Mb/s



Model 7707EO-3

Features

- Triple SDI electrical to optical converter for 3 independent channels
- Provides 45 independent channels of optical conversion, in a single 3RU frame
- Supports all SMPTE259M standards with operation from 143Mb/s - 360Mb/s
- Supports additional standards of SMPTE305M (SDTi), SMPTE310M (19.4Mb/s), SMPTE344M (540Mb/s), M2S and DVB-ASI (270Mb/s)
- Supports multi-mode or single-mode fiber
- Fully hot swappable from front of frame, with no fiber or BNC disconnect /reconnect required
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules or a 3RU frame which will hold up to 15 modules or a standalone frame which will hold 1 module
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

Inputs:

- Three independent serial digital BNC inputs, each providing cable equalization to >300m @270Mb/s (Belden 8281)

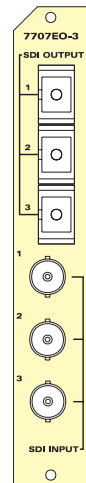
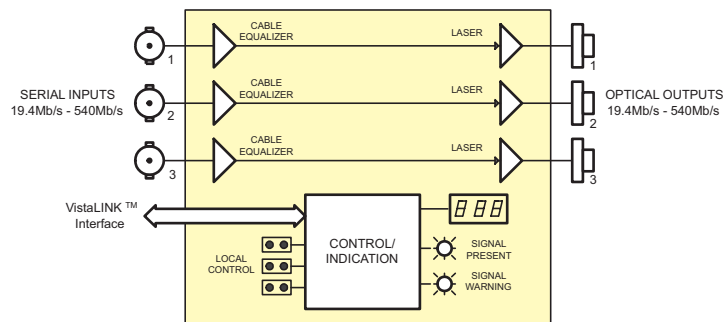
Outputs:

- Three independent fiber outputs
- Optical output wavelength of 1310nm
- SC/PC, ST/PC, FC/PC connector options

Status LEDs:

- Signal presence indication for each channel
- Laser status indication for each channel
- Module status indication

7707EO-3 Block Diagram



Specifications

Standards: SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 305M, SMPTE 310M, SMPTE344M, M2S, DVB-ASI

Serial Video Input:

Number of Inputs: 3 (independent channels)
Connector: 3 BNC inputs per IEC 169-8
Equalization: Automatic to 300m @270Mb/s, with Belden 8281 (or equivalent)
Return Loss: >15dB up to 540Mb/s

Optical Outputs:

Number of Outputs: 3 (independent channels)
Connector: SC/PC, ST/PC, FC/PC female housing
Return Loss: >14dB
Rise/Fall Time: 400-700ps
Jitter: <0.2UI
Nominal Wavelength: 1310nm
Optical Power: -7dBm ±1dBm

Electrical:

Voltage: +12V DC
Power: 7 Watts

Physical:

Number of Slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Laser Safety: Complies with FCC Part 15, Class A
EU EMC directive
EMI/RFI:

Ordering Information:

7707EO13-3 Triple SDI Electrical to Optical Converter, 19.4Mb/s or 143-540Mb/s, 1310nm, FP laser VistaLINK™ Monitoring

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone enclosure

Triple HDTV Electrical to Optical Converter 19.4Mb/s to 1.485Gb/s

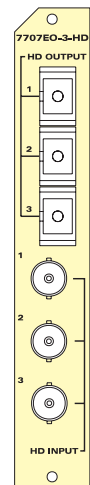
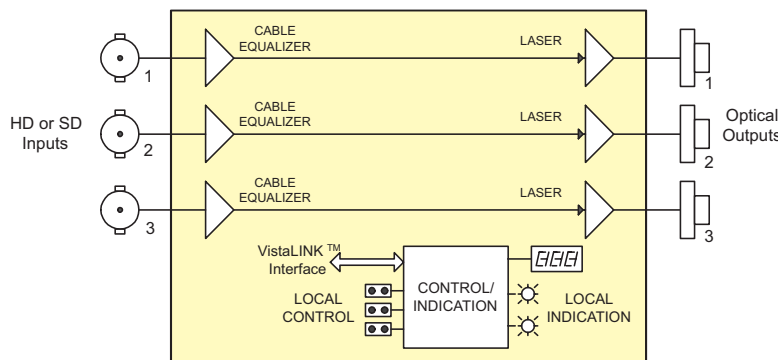
Model 7707EO-3-HD



Features

- Three independent channels of electrical to optical conversion that support all SMPTE 292M standards at 1.485Gb/s.
- Supports all SMPTE 259M standards with operation from 143Mb/s - 360Mb/s.
- Supports additional standards of SMPTE 305M (SDTi), SMPTE 310M (19.4Mb/s), SMPTE 344M (540Mb/s), M2S and DVB-ASI (270Mb/s).
- Automatic cable equalization to 300m @ 270 Mb/s and 75m @ 1.485 Gb/s with Belden 1694A (or equivalent) cable
- Fully hot swappable from front of frame, with no fiber or BNC disconnect /reconnect required.
- High density - accommodates up to 45 independent channels of optical conversion, in a single 3RU frame
- Can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone which will hold 1 module
- Signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™-enabled capability
- Detection and display of input cable length
- Supports single-mode and multi-mode fiber optic cable
- SC/PC, ST/PC or FC/PC connector options
- Tally output on Frame Status bus upon loss of input signal

7707EO-3-HD Block Diagram



Specifications

Standards: SMPTE 292M, SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 305M, SMPTE 310M, SMPTE 344M, M2S, DVB-ASI

Serial Video Input:
Number of Inputs: 3 (independent channels)
Connector: 3 BNC inputs per IEC 169-8
Equalization: Automatic to 75m@ HD (1.485Gb/s) and 300m@ SD(270Mb/s) with Belden 1694A (or equivalent)
Return Loss: >14dB up to 1.5Gb/s

Optical Outputs:
Number of Outputs: 3 (independent channels)
Connector: SC/PC, ST/PC, FC/PC female housing
Return Loss: >14dB
Rise/Fall Time: 270ps nominal
Jitter: <0.2UI
Nominal Wavelength: 1310nm
Optical Power: -7dBm ±1dBm

Electrical:
Voltage: +12V DC
Power: 6 Watts

Physical:
Number of Slots: 1

Compliance:
Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
 Complies with CE Low voltage Directive
 Class 1 laser product
 Complies with 24 CFR 1040.10 and 1040.11
 IEC 60825-1
Laser Safety: Complies with FCC Part 15, Class A
EMI/RFI: EU EMC directive

Ordering Information:
7707EO13-3-HD Triple HD or SD Electrical to Optical Converter, 19.4Mb/s or 143Mb/s -1.485Gb/s, 1310nm FP laser, VistaLINK™

Ordering Options:
 Rear Plate and Fiber Connector must be specified at time of order
 Eg. Model +3RU +SC

Rear Plate Suffix
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix
+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:
CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:
7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone enclosure

SDI Electrical to Optical Converter, 19.4Mb/s or 143-540Mb/s, VistaLINK™ Monitoring

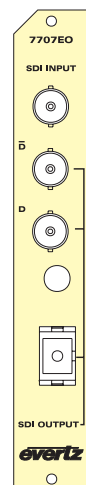
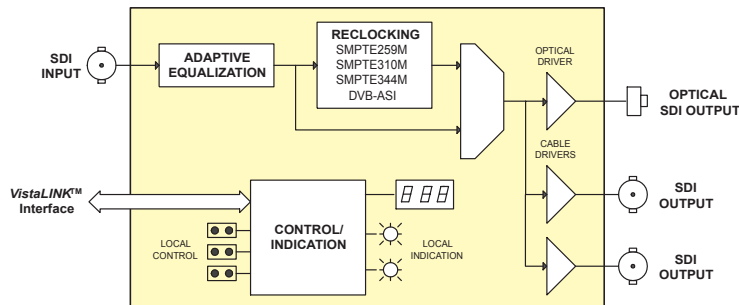
Model 7707EO



Features

- Electrical to optical converter for all SMPTE 259M standards with operation from 143Mb/s - 360Mb/s
- Supports SMPTE 310M (19.4Mb/s), M2S, DVB-ASI (270Mb/s), SMPTE 344M (540Mb/s) and SMPTE 305M (SDTi) rates
- Detection and display of input equalization, video format and EDH errors
- Automatic coaxial input equalization up to 275m at 270Mb/s (Belden 8281)
- Reclocked optical and electrical outputs
- Optical output wavelengths of 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports multi-mode and single-mode fiber
- Fully hot swappable from front of frame
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to three modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold one module
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

7707EO Block Diagram



Specifications

Standards:

Reclocked: SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 344M, SMPTE 310M, SMPTE 305M, M2S or DVB-ASI

Non-Reclocked: Any bi-level signal type at rates of 19.4 - 540Mb/s

Serial Video Input:

Connector: 1 BNC per IEC 60169-8 Amendment 2

Equalization: Automatic up to 275m @270Mb/s with Belden 8281(or equivalent cable)

Return Loss: > 15 dB up to 540 Mb/s

Serial Video Output:

Number of Outputs: 2 per card (1 output DVB-ASI/M2S compliant)

Connectors: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 900ps nominal

Overshoot: < 10% of amplitude

Return Loss: > 15 dB up to 270 Mb/s

Wide Band Jitter: < 0.2 UI

Optical Output:

Standard: SMPTE 297M

Connector: 1 Female SC/PC, ST/PC or FC/PC

Return Loss: > 14 dB

Rise and Fall Time: 400-700 ps

Wide Band Jitter: < 0.2 UI

Wavelengths: See Ordering Information

Output Power:

- 1310nm FP: -7dBm \pm 1dBm
- 1550nm & CWDM: 0dBm \pm 1dBm
- DWDM DFB: 7dBm \pm 1dBm

Electrical:

Voltage: +12V DC

Power: 6 Watts (Non-DWDM), 9 Watts (DWDM)

Physical:

Number of slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1

Laser Safety: Complies with FCC Part 15, Class A
EU EMC directive

EMI/RFI:

Ordering Information:

7707EO13: SDI Electrical to Optical Converter 19.4Mb/s or 143-540Mb/s, 1310nm, FP Laser

7707EO15: SDI Electrical to Optical Converter 19.4Mb/s or 143-540Mb/s, 1550nm, DFB Laser

For CWDM, please refer to the end of the fiber section for ordering information

7707EOxx SDI Electrical to Optical Converter 19.4Mb/s or 143-540Mb/s, CWDM DFB Laser

For DWDM, please refer to the end of the fiber section for ordering information

7707EODyyy SDI Electrical to Optical Converter, 19.4Mb/s or 143-540Mb/s, DWDM Laser, +7dBm

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC

+ST ST/PC

+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

7701FR 1RU Multiframe which holds 3 modules

S7701FR Standalone Enclosure

DS3 Electrical to Optical Converter

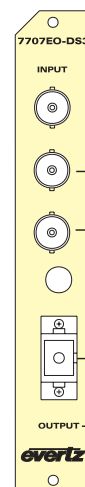
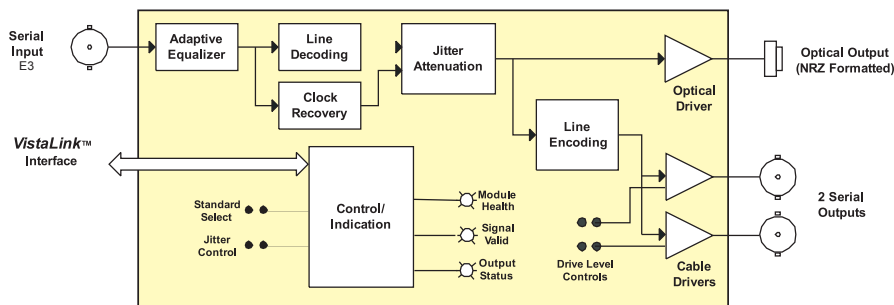
Model 7707EO-DS3



Features

- Electrical to optical converter for DS3 (44.736Mb/s)
- Automatic cable equalization for up to 300m of high quality 75Ω coaxial cable
- Signal reclocking and jitter attenuation
- Output wave shaping for G.703 standards compliance
- Loss of signal (LOS) detection/indication (ANSI T1.231-1999 and ITU G.775)
- Electrical output drive level control for enhanced distance
- Transformer coupled inputs/outputs
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports single-mode and multi-mode fiber optic cable
- Fully hot swappable from front of frame
- Occupies one card slot and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone enclosure that will hold 1 module
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

Model 7707EO-DS3 Block Diagram



Specifications

Inputs:

Standard: G.703 @ 44.736 Mb/s
Connector: 1 Isolated BNC input
Equalization: Automatic to 300m with Belden 8281 or equivalent cable
Return Loss: > 20 dB up to 44 Mb/s

Outputs:

Standard: G.703 @ 44.736 Mb/s
Number of Outputs: 2 Per Card-Reclocked.
Connector: BNC per IEC 60169-8 Amendment 2
Waveform: Conforms to G.703 compliant masks
Return Loss: > 15 dB up to 44.736 Mb/s
Drive Level:
High: For driving cable lengths > 70m
Low: For driving cable lengths < 70m

Optical Output:

Number of Outputs: 1 Scrambled DS3 @ 44.736Mb/s
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 14 dB
Fiber Size: 9 μm core / 125 μm overall
Wavelengths: (See ordering information)
Output Power:
1310nm FP: -7dBm ± 1dB
1550nm/CWDM DFB: 0dBm ± 1dB
DWDM DFB: 7dBm ± 1dBm

Electrical:

Voltage: + 12VDC
Power: 6 Watts (Non-DWDM), 9 Watts (DWDM)
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive

Laser Safety:

Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Complies with FCC Part 15, Class A
EU EMC directive

EMI/RFI:

Ordering Information:

7707EO13-DS3 DS3 Electrical to Optical Converter, VistaLINK™, 1310nm, FP Laser
7707EO15-DS3 DS3 Electrical to Optical Converter, 1550nm DFB Laser, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707EOxx-DS3 DS3 Electrical to Optical Converter, CWDM DFB Laser, VistaLINK™

For DWDM, please refer to the end of the fiber section for ordering information

7707EODyyy-DS3 DS3 (45Mb/s) Electrical to Optical Converter, DWDM Laser, +7dBm, VistaLINK™

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

E3 Electrical to Optical Converter

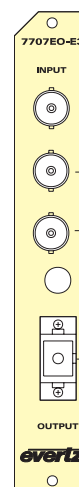
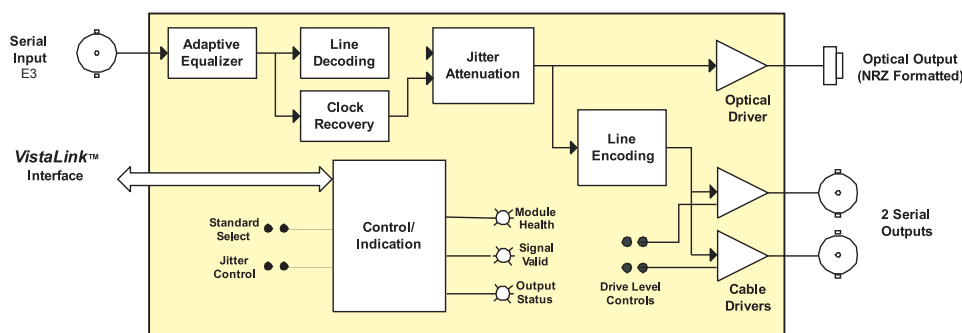
Model 7707EO-E3



Features

- Electrical to optical converter for E3 (34.368Mb/s)
- Automatic cable equalization for up to 300m of high quality 75Ω coaxial cable
- Signal reclocking and jitter attenuation
- Output wave shaping for G.703 standards compliance
- Loss of signal (LOS) detection/indication (ANSI T1.231-1999 and ITU G.775)
- Electrical output drive level control for enhanced distance
- Transformer coupled inputs/outputs
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports single-mode and multi-mode fiber optic cable
- Fully hot swappable from front of frame
- Occupies one card slot and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone enclosure that will hold 1 module
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

Model 7707EO-E3 Block Diagram



Specifications

Inputs:

Standard:	G.703 @ 34.368Mb/s
Connector:	1 Isolated BNC input
Equalization:	Automatic to 300m with Belden 8281 or equivalent cable
Return Loss:	> 20 dB up to 34MHz

Outputs:

Standard:	G.703 @ 34.368Mb/s
Number of Outputs:	2 Per Card-Reclocked.
Connector:	BNC per IEC 60169-8 Amendment 2
Waveform:	Conforms to G.703 compliant masks
Return Loss:	> 15 dB up to 34MHz
Drive Level:	
High:	For driving cable lengths > 70m
Low:	For driving cable lengths < 70m

Optical Output:

Number of Outputs:	1 Scrambled E3 @ 34.368Mb/s
Connector:	Female SC/PC, ST/PC or FC/PC
Return Loss:	> 14 dB
Fiber Size:	9 μm core / 125 μm overall
Wavelengths:	(See ordering information)
Output Power:	
1310nm FP:	-7dBm ± 1dB
1550nm/CWDM DFB:	0dBm ± 1dB
DWDM DFB:	7dBm ± 1dBm

Electrical:

Voltage:	+ 12VDC
Power:	6 Watts (Non-DWDM), 9 Watts (DWDM)
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of slots:	1
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Compliance:

Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive
Laser Safety:	Class 1 laser product Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC directive

Ordering Information:

7707EO13-E3	E3 Electrical to Optical Converter, VistaLINK™, 1310nm, FP Laser
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For CWDM, please refer to the end of the fiber section for ordering information
7707EOxx-E3 E3 Electrical to Optical Converter, CWDM DFB Laser, VistaLINK™

For DWDM, please refer to the end of the fiber section for ordering information
7707EODyyy-E3 E3 Electrical to Optical Converter, DWDM Laser, +7dBm, VistaLINK™

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

HDTV Electrical to Optical Converter

19.4Mb/s to 1.5Gb/s

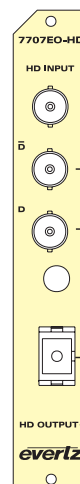
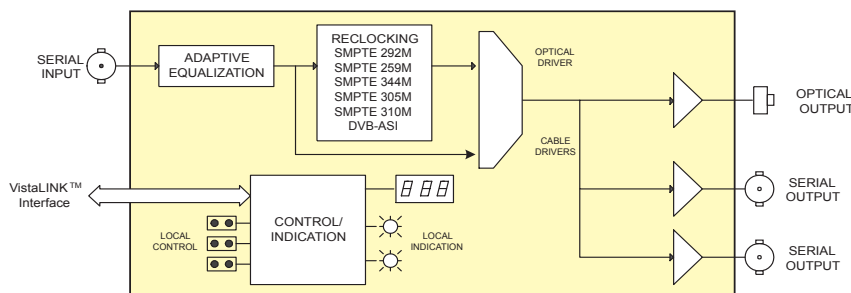
Model 7707EO-HD



Features

- Supports all SMPTE 292M standards at 1.485Gb/s
- Supports all SMPTE 259M standards with operation from 143Mb/s - 360Mb/s
- Supports SMPTE 310M (19.4Mb/s), M2S or DVB-ASI (270Mb/s), SMPTE 344M (540Mb/s), and SMPTE 305M (SDTi) rates
- Auto rate selection, indication and reclocking for all SDI and HD-SDI data rates from 143Mb/s to 1.485Gb/s
- Selectable non reclock mode for other data rates
- Detection and display of equalization strength, video format, and EDH errors (SDI only)
- Automatic coaxial input equalization to 150m for all rates to 1.485Gb/s (Belden 1694A)
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports single-mode and multi-mode fiber optic cable
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to three modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold one module

7707EO-HD Block Diagram



Specifications

Serial Video Input:

Standards:

Reclocked: SMPTE 292M, SMPTE 259M A, B, C, D, SMPTE 344M, SMPTE 305M, DVB-ASI, M2S, SMPTE 310M

Non-Reclocked: Any bi-level signal type at rates of 19.4 Mb/s to 1.485Gb/s

Connector: 1 BNC per IEC 60169-8 Amendment 2

Equalization: Automatic to 150m @ 1.485Gb/s with Belden 1694A or equivalent cable

Return Loss: > 15dB to 1.5GHz

Serial Video Outputs:

Number of Outputs: 2 Per Card (1 output DVB-ASI/M2S compliant)

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV ±80mV

DC Offset: 0V ±0.5V

Rise and Fall Time: <270ps

Overshoot: <10% of amplitude

Return Loss: >12dB to 1.5GHz

Wide Band Jitter: < 0.2UI (Reclocked).

Optical Output:

Standard: SMPTE 297M

Number of Outputs: 1

Connector: Female SC/PC, ST/PC or FC/PC

Return Loss: > 14dB

Rise and Fall Time: < 270ps

Wide Band Jitter: < 0.2 UI (Reclocked).

Wavelengths: See Ordering Information

Output Power:

1310nm FP: -7dBm ± 1dBm

1310/1550nm DFB: 0dBm ± 1dBm

CWDM: 0dBm ± 1dBm

DWDM: 7dBm ± 1dBm

Electrical:

Voltage: +12VDC

Power: 8 Watts (Non DWDM), 11 Watts (DWDM)

EMI/RFI: Complies with FCC Part 15, Class A

EU EMC Directive

Physical:

Number of slots: 1

Compliance:

Electrical Safety:

CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Complies with FCC Part 15, Class A
EU EMC directive

Laser Safety:

EMI/RFI:

Ordering Information:

7707EO13-HD HD Electrical to Optical Converter, 1310nm FP Laser
7707EO13-HD-L HD Electrical to Optical Converter, 1310nm DFB Laser
7707EO15-HD HD Electrical to Optical Converter, 1550nm

For CWDM, please refer to the end of the fiber section for ordering information
7707EOxx-HD HD Electrical to Optical Converter, CWDM DFB Laser

For DWDM, please refer to the end of the fiber section for ordering information
7707EODyyy-HD HD Electrical to Optical Converter, DWDM Laser

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order

Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Quad Ethernet Fiber Transceiver



Model 7707ET-4

The 7707ET-4 is a VistaLINK™ –enabled Quad Ethernet Fiber Transceiver that transmits up to four separate 10/100BaseT Ethernet channels over optical fiber. Monitoring of card status and parameters is provided locally at the card edge and remotely via VistaLINK™. A pair of 7707ET-4 transceivers permits full duplex communication of all four channels over a single or dual optical fiber(s).

The 7707ET-4 provides four RJ45 input connectors and either one or two fiber optic output connectors. Multiple versions of the 7707ET-4 are available to address single-mode/multi-mode fiber, single/dual fiber and CWDM/DWDM applications. (See Application Configuration chart below)

The 7707ET-4 occupies one or two card slots and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 7 dual slot modules or 15 single slot modules or a standalone enclosure which will hold 1 module.

Features

- Four completely independent and isolated Ethernet streams
- Auto negotiation for 10/100 speeds on all ports
- Built-in Ethernet switches for isolation of each transmission end
- Comprehensive signal and card status monitoring via four digit card-edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Optical output wavelengths at 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available

- Fully hot swappable from front of frame
- SC/PC, ST/PC, FC/PC Connector options

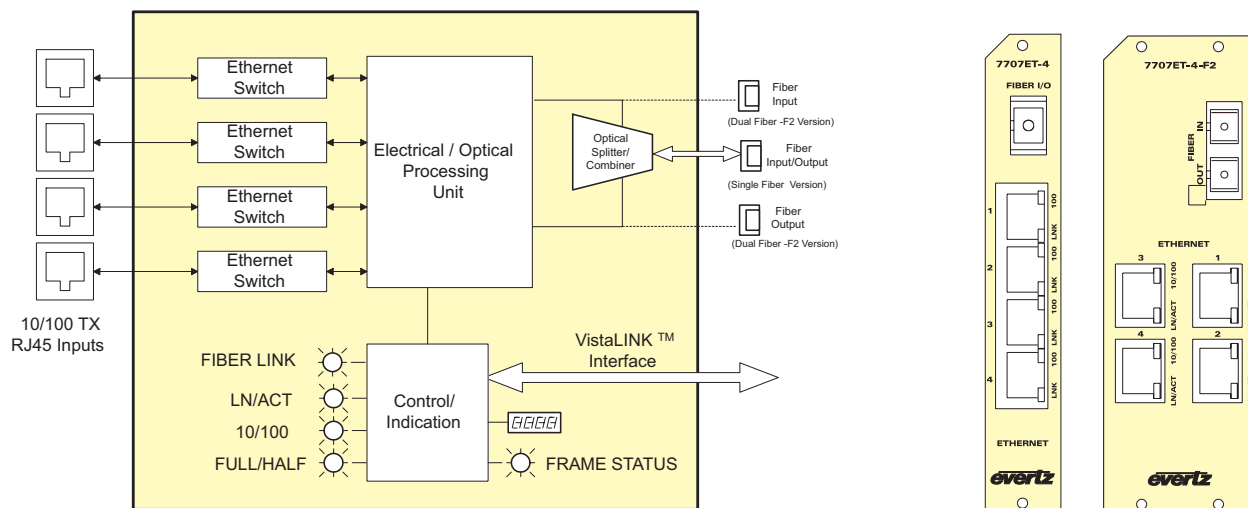
Status Indication:

- Frame status
- 10/100 Speed indication on copper ports
- Full Duplex/Collision indication on copper ports
- Link activity on copper ports
- Received optical power level

7707ET-4 Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<2km	7707ET13-4-F2	-7dBm	7707ET13-4-F2	-23dBm	1310nm on Tx & Rx fibers
Single-Mode	2	16dB/45km	7707ET13-4-F2	-7dBm	7707ET13-4-F2	-23dBm	1310nm on Tx & Rx fibers
Single-Mode	1	9dB/25km*	7707ET13-4	-10dBm	7707ET13-4	-19dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	20dB/57km	7707ET13M-4-W	-1dBm	7707ET15-4-W	-21dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	19dB/76km**	7707ETxx-4-F2	0dBm	7707ETyy-4-F2	-23dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(CWDM)	28dB/112km**	7707ETxx-4-F2-H	0dBm	7707ETyy-4-F2-H	-32dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux with high sensitivity receiver**
Single-Mode	1(DWDM)	25dB/100km***	7707ETDxxx-4-F2	+7dBm	7707ETDyyy-4-F2	-23dBm	Different DWDM wavelengths on Tx & Rx, with 8 channel DWDM Mux/Demux***
Single-Mode	1(DWDM)	34dB/136km***	7707ETDxxx-4-F2-H	+7dBm	7707ETDyyy-4-F2-H	-32dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux with high sensitivity receiver***
* With >20dB return loss on fiber interface					Tx Power/Rx Sensitivity are nominal values ±1dBm		
** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB					Fiber loss= 0.35/0.25dB per km @1310nm/1550nm		
***Assumes 8 Ch DWDM Mux/Demux loss of 5dB							

Model 7707ET-4-Block Diagram



Specifications

Ethernet Input/Output:

Standard: IEEE 802.3 10BASE-T
802.3u 100BASE-TX
Connectors: 4 RJ45 ports

Cable Requirements:

10Base-T: UTP category 3, 4, or 5 cable up to 328 ft/100m
100Base-T: UTP category 5 cable up to 328 ft/100m

Optical Input/Output:

Connector

Single Fiber Version: 1 Female SC/PC, ST/PC, FC/PC
Dual Fiber Version: 2 Female SC/PC, ST/PC, FC/PC

Input Wavelengths: 1270nm to 1610nm

Rise and Fall Time: 200ps nominal

Wide Band Jitter: < 0.2 UI

Maximum Input Power:

Standard: -1dBm
F2-H Versions: -8dBm

Input Optical Sensitivity: See Application Configuration Chart

Output Wavelengths: See Ordering Information

Output Power: See Application Configuration Chart

Electrical:

Voltage: + 12VDC
Power: 12 Watts (Non DWDM)
14 Watts (DWDM)

EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots:

Single Fiber: 1
Dual Fiber: 2

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1

Laser Safety:

Ordering Information:

7707ET13-4 Quad Ethernet Fiber Transceiver, single fiber,
1310nm FP TX & RX
7707ET13M-4-W Quad Ethernet Fiber Transceiver, single fiber,
WDM, 1310nm FP TX, RX on 1550nm,

7707ET15-4-W

Quad Ethernet Fiber Transceiver, single fiber,
WDM, 1550nm DFB TX, RX on 1310nm

7707ET13-4-F2

Quad Ethernet Fiber Transceiver, dual fiber,
1310nm FP TX & RX

For CWDM, please refer to the end of the fiber section for ordering information

7707ETxx-4-F2

Quad Ethernet Fiber Transceiver, dual fiber, CWDM
TX

For Long Distance CWDM, please refer to the end of the fiber section for ordering information

7707ETxx-4-F2-H

Quad Ethernet Fiber Transceiver, dual fiber,
CWDM TX, High Sensitivity RX

For DWDM, please refer to the end of the fiber section for ordering information

7707ETDyyy-4-HD-F2

Quad Ethernet Fiber Transceiver, dual fiber,
DWDM TX

For Long Distance DWDM, please refer to the end of the fiber section for ordering information

7707ETDyyy-4-HD-F2-H

Quad Ethernet Fiber Transceiver, dual fiber,
DWDM TX, High Sensitivity RX

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C
Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone enclosure

Ethernet Fiber Transceiver

Model 7707ET



The 7707ET is a VistaLINK™ -enabled Ethernet Fiber Transceiver that provides an economical method of transmitting two 10BaseT Ethernet channels or one 100Base-TX Ethernet channel over optical fiber. The transceiver is IEEE 802.3 10BASE-T and IEEE 802.3u 100BASE-TX compliant. It mediates between a 10/100BASE-TX segment and supports both full duplex and half-duplex operation. Monitoring of card status and parameters is provided locally at the card edge and remotely via VistaLINK™. A pair of 7707ET transceivers permits full duplex communication over single or dual optical fibers. Diagnostic LEDs provide indication of power, link status and data reception.

Multiple versions of the 7707ET are available to address single-mode/multi-mode fiber, single/dual fiber and CWDM/DWDM applications (See Applications Configuration Chart)

The 7707ET occupies one card slot and can be housed in either a 1RU Frame that will hold up to 3 modules, a 3RU Frame that will hold up to 15 modules or a standalone enclosure that will hold 1 module.

Features

- Auto negotiation for 10/100 speed and half/full duplex modes
- Built in Ethernet switch for complete isolation of each transmission end
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Local display of optical signal strength, link parameters and link status
- Optical output available in 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports single-mode and multi-mode fiber optic cable
- Fully hot-swappable from front of frame with no fiber or Ethernet channel disconnect required
- SC/PC, ST/PC or FC/PC connector options

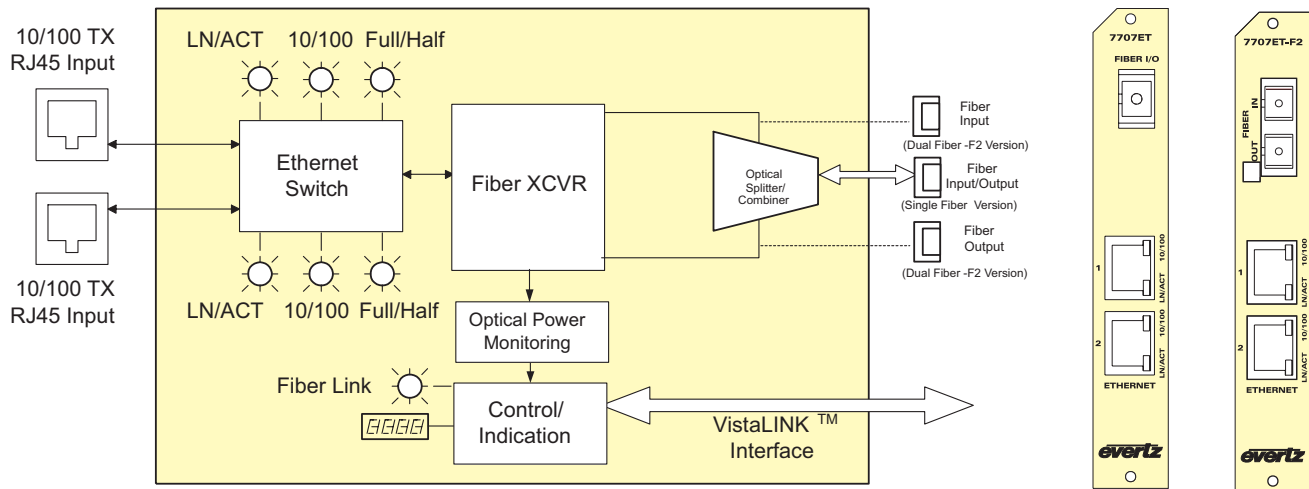
Status Indicators:

- Frame Status
- 10/100 speed indication for all copper ports
- Full duplex/Collision Indication for all copper ports
- Link activity for copper port
- Received optical power level
- Fiber link indication

7707ET Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<3km	7707ET13-F2	-7dBm	7707ET13-F2	-32dBm	1310nm on Tx & Rx fibers
Single-Mode	2	25dB/71km	7707ET13-F2	-7dBm	7707ET13-F2	-32dBm	1310nm on Tx & Rx fibers
Single-Mode	1	14dB/40km*	7707ET13	-10dBm	7707ET13	-24dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	25dB/71km	7707ET13M-W	-1dBm	7707ET15-W	-26dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	28dB/112km**	7707ETxx-F2	0dBm	7707ETyy-F2	-32dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	34dB/136km***	7707ETDxxx-F2	+7dBm	7707ETDyyy-F2	-32dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux***
* With >20dB return loss on fiber interface ** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB *** Assumes 8 Ch DWDM Mux/Demux loss of 5dB					Tx Power/Rx Sensitivity are nominal values ±1dBm Fiber loss= 0.35/0.25dB per km @1310nm/1550nm		

Model 7707ET Block Diagram



Specifications

Ethernet Input/Output:

Standard :	IEEE 802.3 (10 BaseT), IEEE 802.3u (100 BaseTX)
Connector:	Two RJ45's
Number of channels:	Two 10Base-T or one 100BaseTX
Cable Requirements:	
10 BaseT :	UTP category 3,4 or 5 cable up to 328ft/100m (2 pairs)
100 BaseTX :	UTP category 5 cable up to 328 ft/100m (2 pairs)

Optical Input/Output:

Connector:	
Single Fiber Versions:	1 Female SC/PC, ST/PC or FC/PC
Dual Fiber (F2) Versions:	2 Female SC/PC, ST/PC or FC/PC
Input wavelengths:	1270nm - 1610nm
Maximum Input Power:	0dBm
Input Optical Sensitivity:	See Application Configuration Chart
Output Wavelengths:	See Ordering Information
Output Power:	See Application Configuration Chart

Electrical:

Voltage:	12 volts
Power:	6 Watts (Non DWDM) 8 Watts (DWDM)
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of slots:	1
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Compliance:

Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive Class 1 laser product Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1
Laser Safety:	

Ordering Information:

7707ET13	Ethernet Fiber Transceiver - Single Fiber, 1310nm, FP Laser, VistaLINK™ Monitoring
7707ET13M-W	Ethernet Fiber Transceiver - Single Fiber, WDM, 1310nm, FP TX, RX on 1550nm, VistaLINK™ Monitoring
7707ET15-W	Ethernet Fiber Transceiver, single fiber, WDM, 1550nm DFB TX, RX on 1310nm, VistaLINK™
7707ET13-F2	Ethernet Fiber Transceiver - Dual Fiber, 1310nm, FP Laser, VistaLINK™ Monitoring

For CWDM, please refer to the end of the fiber section for ordering information

7707ETxx-F2	Ethernet Fiber Transceiver - Dual Fiber, CWDM, DFB Laser, VistaLINK™ Monitoring
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For DWDM, please refer to the end of the fiber section for ordering information

7707ETDyyy-F2	Ethernet Fiber Transceiver, dual fiber, DWDM TX, VistaLINK™
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Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Ethernet and T1/E1/J1 Fiber Transceiver



Model 7707ET-TE1

The 7707ET-TE1 is a VistaLINK™ - enabled Ethernet and T1/E1/J1 Fiber Transceiver that provides an economical method of transmitting one 10/100BaseT Ethernet signal and one T1/E1/J1 signal over optical fiber. Monitoring control of card status and parameters is provided locally at the card edge and remotely via VistaLink™. A pair of 7707ET-TE1 transceivers permits full duplex communication of all signals over single or dual optical fibers.

The 7707ET-TE1 provides one RJ45 input connector for the 10/100BaseT Ethernet, one RJ45 input connector for the T1/E1/J1 and one or two fiber optic output connectors. Multiple versions of the 7707ET-TE1 are available to address single-mode/multi-mode fiber, single/dual fiber and CWDM/DWDM applications. (See Applications Configuration Chart below)

The 7707ET-TE1 occupies one card slot and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone enclosure that will hold 1 module.

Features

- 10/100BaseT Ethernet and T1/E1/J1 fiber optic transceiver
- Auto negotiation for 10/100 speeds and full/half duplex operation on Ethernet port
- G.703 compliant T1/E1/J1 port
- Ethernet and T1/E1/J1 signals completely independent over transport interface
- Built-in Ethernet switch for isolation of each transmission end
- Comprehensive signal and card status monitoring via four digit card-edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Local display of optical signal strength, link parameters and link status
- Optical output available in 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports single-mode and multi-mode fiber optic cable
- Fully hot-swappable from front of frame
- SC/PC, ST/PC or FC/PC connector options

Status Indication:

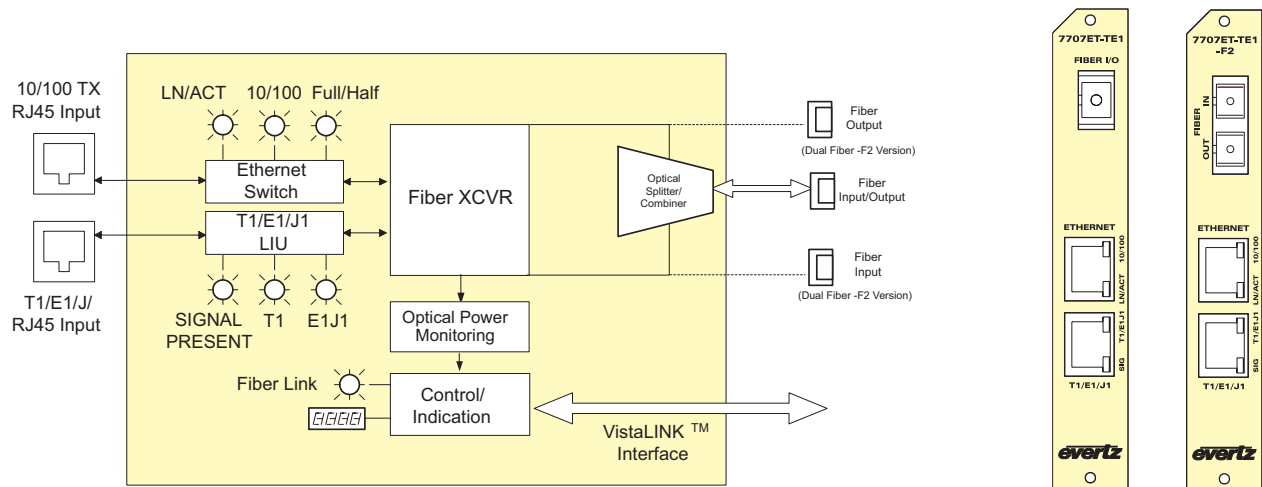
- Frame status
- Fiber link indication
- 10/100 Speed indication
- Ethernet Full Duplex/Collision indication
- Ethernet Link activity
- T1/E1/J1 Signal Presence
- T1/E1/J1 Indication
- Optical Power Level

7707ET-TE1 Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<3km	7707ET13-TE1-F2	-7dBm	7707ET13-TE1-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	2	21dB/60km	7707ET13-TE1-F2	-7dBm	7707ET13-TE1-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	1	14dB/40km*	7707ET13-TE1	-10dBm	7707ET13-TE1	-24dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	25dB/71km	7707ET13M-TE1-W	-1dBm	7707ET15-TE1-W	-26dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	24dB/96km**	7707ETxx-TE1-F2	0dBm	7707ETyy-TE1-F2	-28dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km***	7707ETDxxx-TE1-F2	+7dBm	7707ETDyyy-TE1-F2	-28dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux***
* With >20dB return loss on fiber interface ** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB *** Assumes 8 Ch DWDM Mux/Demux loss of 5dB						Tx Power/Rx Sensitivity are nominal values ±1dBm Fiber loss= 0.35/0.25dB per km @1310nm/1550nm	

Ethernet and T1/E1/J1 Fiber Transceiver

Model 7707ET-TE1 Block Diagram



Specifications

Ethernet Input/Output

Standard :	IEEE 802.3 (10 BaseT), IEEE 802.3u (100 BaseTX)
Connector:	1 RJ45
Cable Requirements:	
10 BaseT:	UTP category 3,4 or 5 cable up to 328ft/100m (2 pairs)
100 BaseTX:	UTP category 5 cable up to 328 ft/100m (2 pairs)

T1/E1/J1 Input/Output:

Standard:	G.703
Connector:	1 RJ45
Cable Requirements:	0.63 mm (22 AWG) cable up to 1000 meters

Optical Input/Output:

Connector:	
Single Fiber versions:	1 Female SC/PC, ST/PC or FC/PC
Dual Fiber (F2) versions:	2 Female SC/PC, ST/PC or FC/PC
Maximum Input Power:	0dBm
Input Wavelength:	1270nm - 1610nm
Input Optical Sensitivity:	See Application Configuration Chart
Output Wavelengths:	See Ordering Information
Output Power:	See Application Configuration Chart

Electrical:

Voltage:	12 volts
Power:	6 Watts (Non DWDM) 8 Watts (DWDM)

Physical:

Number of slots:	1
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Compliance:

Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive
Laser Safety:	Class 1 laser product Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Ordering Information:

7707ET13-TE1	Ethernet & T1/E1/J1 Fiber Transceiver, single fiber, 1310nm FP TX & RX, VistaLINK™
7707ET13M-TE1-W	Ethernet & T1/E1/J1 Fiber Transceiver, single fiber, WDM, 1310nm FP TX, RX on 1550nm, VistaLINK™
7707ET15-TE1-W	Ethernet & T1/E1/J1 Fiber Transceiver, single fiber, WDM, 1550nm DFB TX, RX on 1310nm, VistaLINK™
7707ET13-TE1-F2	Ethernet and T1/E1/J1 Fiber Transceiver, Dual Fiber, 1310 nm, FP Laser, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707ETxx-TE1-F2	Ethernet and T1/E1/J1 Fiber Transceiver, Dual Fiber, CWDM, DFB Laser, VistaLINK™
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For DWDM, please refer to the end of the fiber section for ordering information

7707ETDyyy-TE1-F2	Ethernet & T1/E1/J1 Fiber Transceiver, dual fiber, DWDM TX, VistaLINK™
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Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

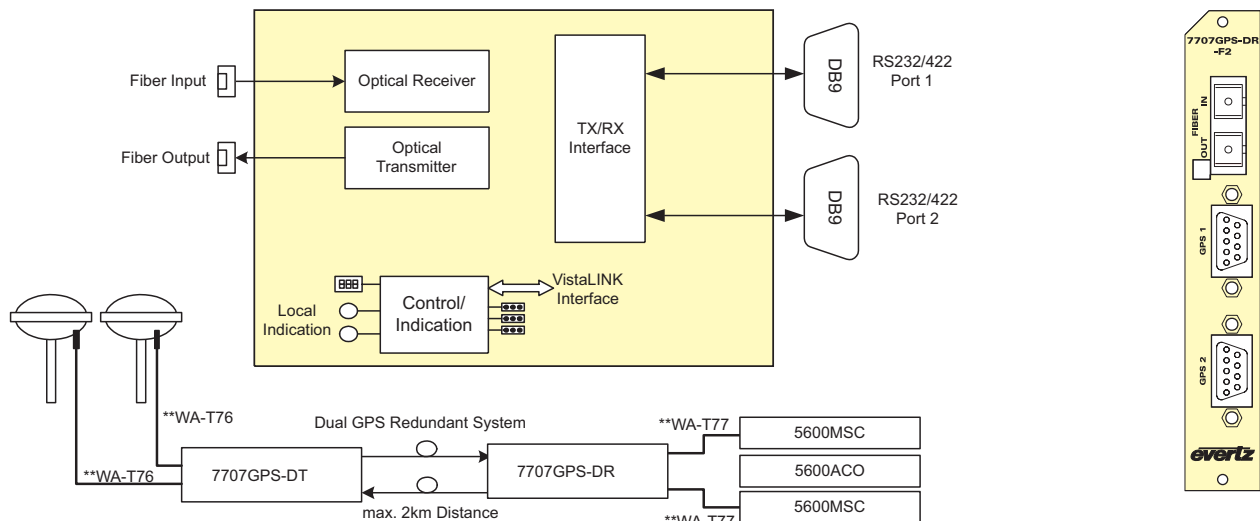
Model 7707GPS-DR



Features

- Transports GPS data signals from two Trimble Accutime 2000 Smart Antenna's simultaneously
- Allows user to run 1 or 2 Accutime 2000 GPS heads for primary and redundant links
- All configuration settings are controllable through the card-edge user interface, or VistaLINK™
- Comprehensive signal and status monitoring via four-digit card-edge display, or VistaLINK™
- Optical output wavelength of 1310nm or 1550nm provides a 2km transmission distance of GPS data signal
- Low latency
- Compatible with multi-mode and single-mode fiber
- SC/PC, ST/PC, or FC/PC fiber connector options
- Fully hot swappable from front of frame
- VistaLINK™ enabled for remote monitoring and control when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

7707GPS-DR Block Diagram



**Evertz recommends that only these cables be used for connecting the specified equipment to the 7707GPS-DT and 7707GPS-DR. See Accessories for ordering details.

Specifications

GPS Serial Data:
Number of Signals: 2 bi-directional GPS signals
Connector: 2 x DB-9 connectors
Type: RS-232 or RS-422 (selectable)
Bit Rate RS-232/RS-422: 115kb/s,

Optical Input/Outputs:
Number of Connections: 2
Connector: Female SC/PC, ST/PC or FC/PC
Maximum Input Power: 0dBm
Input Optical Sensitivity: -22dBm
Fiber Size and Type
Dual Fiber (F2): 9µm core / single mode on TX, 62.5µm core / multi-mode on RX
Output Wavelength 1310nm, 1550nm (nominal)

Output Power:
Dual Fiber (F2)
1310nm FP (Standard): -7dBm ±1dBm
1550nm DFB: 0dBm ±1dBm

Electrical:
Voltage: +12V DC
Power: 6 Watts

GPS Power:
Voltage: +17V DC
Power: 7 Watts
Current: 200mA

Connecting Cables (see Ordering Options):**
Number of cables 2

Physical:
7700 Frame Mounting: 1
7701 Frame Mounting: 1

Compliance:
Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive

Laser Safety: Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:
7707GPS-DR13-F2 Dual GPS Data Fiber Receiver, 1310nm FP Tx and Rx
7707GPS-DR15-F2 Dual GPS Data Fiber Receiver, 1550nm DFB Tx and Rx

Ordering Options:
Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix:
+3RU 3RU rear plate for use with 7700FR-C Multiframe
+1RU 1RU rear plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix:
+SC SC/PC
+ST ST/PC
+FC FC/PC

Accessories:
WA-T76 100' IF cable for 5600MSC, GPSII and 7707GPS-DT
WA-T77 100' IF cable for 7707GPS-DR to 5600MSC

Notes**
**Please specify the quantity of WA-T76 and WA-T77 cables required to connect the 7707GPS-DT and 7707GPS-DR to the Accutime Head and 5600MSC or 5010-GPSII respectively. The 7707GPS-DT and 7707GPS-DR are only compatible with the WA-T76 and WA-T77 cables. See diagram and Accessories for more information.

Enclosures:
7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone Enclosure

Dual GPS Data Fiber Transmitter

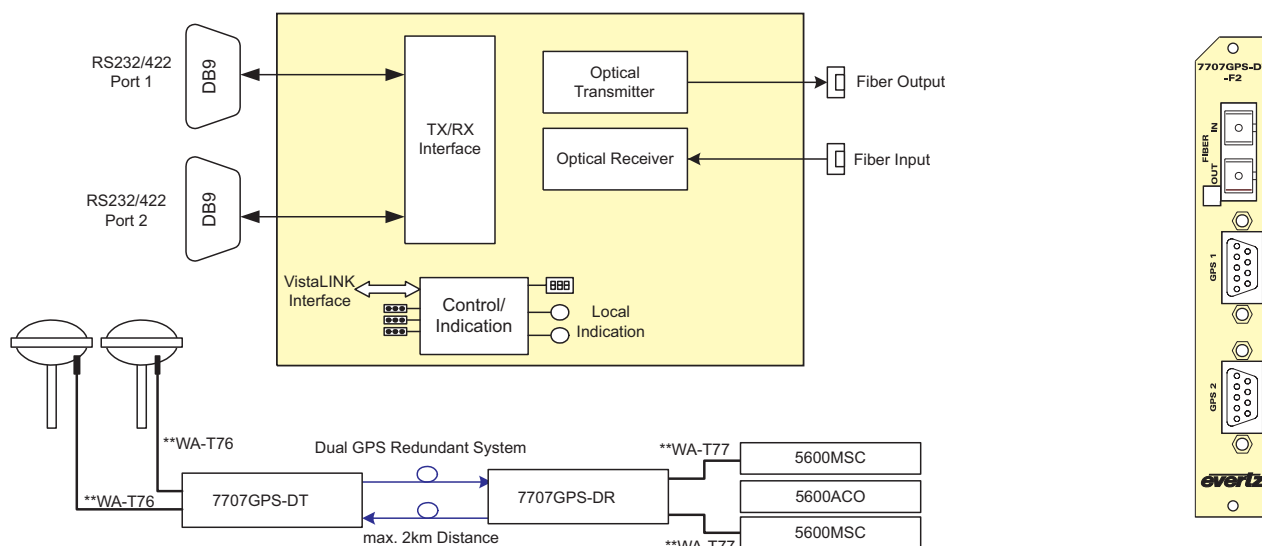
Model 7707GPS-DT



Features

- Transports GPS data signals from two Trimble Accutime 2000 Smart Antenna's simultaneously
- Allows user to run 1 or 2 Accutime 2000 GPS heads for primary and redundant links
- GPS power at +17V DC with built-in current limiting
- All configuration settings are controllable through the card-edge user interface, or VistaLINK™
- Comprehensive signal and status monitoring via four-digit card-edge display, or VistaLINK™
- Optical output wavelength of 1310nm or 1550nm provides a 2km transmission distance of GPS data signal
- Low latency
- Compatible with multi-mode and single-mode fiber
- SC/PC, ST/PC, or FC/PC fiber connector options
- Fully hot swappable from front of frame
- VistaLINK™ enabled for remote monitoring and control when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

7707GPS-DT Block Diagram



**Evertz recommends that only these cables be used for connecting the specified equipment to the 7707GPS-DT and 7707GPS-DR. See Accessories for ordering details.

Specifications

GPS Serial Data:
Number of Signals: 2 bi-directional GPS signals
Connector: 2 x DB-9 connectors
Type: RS-232 or RS-422 (selectable)
Bit Rate RS-232/RS-422: 115kb/s,

Optical Input/Outputs:
Number of Connections: 2
Connector: Female SC/PC, ST/PC or FC/PC
Maximum Input Power: 0dBm
Input Optical Sensitivity: -22dBm
Fiber Size and Type
Dual Fiber (F2): 9µm core / single mode on TX, 62.5µm core / multi-mode on RX
Output Wavelength: 1310nm, 1550nm (nominal)

Output Power:
Dual Fiber (F2)
1310nm FP (Standard): -7dBm ±1dBm
1550nm DFB: 0dBm ±1dBm

Electrical:
Voltage: +12V DC
Power: 10 Watts

GPS Power:
Voltage: +17V DC
Power: 7 Watts
Current: 200mA

Connecting Cables (see Ordering Options):**
Number of cables 2

Physical:
7700 Frame Mounting: 1
7701 Frame Mounting: 1

Compliance:
Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive

Laser Safety: Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1

EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:
7707GPS-DT13-F2 Dual GPS Data Fiber Transmitter, 1310nm FP Tx and Rx
7707GPS-DT15-F2 Dual GPS Data Fiber Transmitter, 1550nm DFB Tx and Rx

Ordering Options:
Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix:
+3RU 3RU rear plate for use with 7700FR-C Multiframe
+1RU 1RU rear plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix:
+SC SC/PC
+ST ST/PC
+FC FC/PC

Accessories:
WA-T76 100' IF cable for 5600MSC, GPSII and 7707GPS-DT
WA-T77 100' IF cable for 7707GPS-DR to 5600MSC

Notes** **Please specify the quantity of WA-T76 and WA-T77 cables required to connect the 7707GPS-DT and 7707GPS-DR to the Accutime Head and 5600MSC or 5010-GPSII respectively. The 7707GPS-DT and 7707GPS-DR are only compatible with the WA-T76 and WA-T77 cables. See diagram and Accessories for more information.

Enclosures:
7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone Enclosure

Gigabit Ethernet Fiber Transceiver

Model 7707GT



The 7707GT is a VistaLINK™ -enabled Gigabit Ethernet Fiber Transceiver that provides an economical method of transmitting one 10/100/1000BaseT Ethernet channel over optical fiber. The transceiver is IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX and IEEE 802.3ab 1000BASE-TX compliant and provides auto negotiation between a 10/100/1000BASE-TX segment. Monitoring of card status and parameters is provided locally at the card edge and remotely via VistaLINK™. A pair of 7707GT transceivers permits full duplex communication over single or dual optical fibers. Diagnostic LEDs provide indication of power, linkage and data reception.

Multiple versions of the 7707GT are available to address single-mode/multi-mode fiber, single/dual fiber and CWDM/DWDM applications. (See Application Configuration chart below)

The 7707GT occupies one card slot and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- Auto negotiation for 10/100/1000 speeds and half/full duplex modes
- Auto equalization for up to 100m at Gigabit ethernet rates
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Local display of optical signal strength and link status
- Optical output available in 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports single-mode and multi-mode fiber optic cable
- Fully hot swappable from front of frame
- SC/PC, ST/PC or FC/PC connector options

Status Indication:

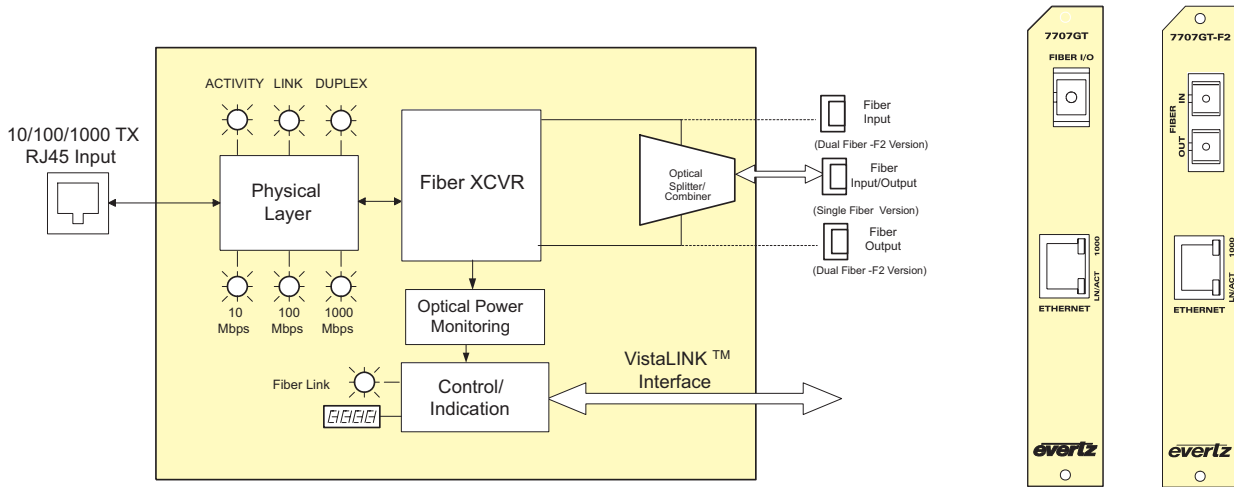
- Frame status
- Copper Interface Status
- 10/100/1000 Speed Indication
- Fiber Link Status
- Optical Power Level

7707GT Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<1km	7707GT13-F2	-7dBm	7707GT13-F2	-23dBm	1310nm on Tx & Rx fibers
Single-Mode	2	16dB/45km	7707GT13-F2	-7dBm	7707GT13-F2	-23dBm	1310nm on Tx & Rx fibers
Single-Mode	1	9dB/25km*	7707GT13	-10dBm	7707GT13	-19dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	20dB/57km	7707GT13L-W	-1dBm	7707GT15-W	-21dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	19dB/76km**	7707GTxx-F2	0dBm	7707GTyy-F2	-23dBm	Different CWDM wavelengths on Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(CWDM)	28dB/112km**	7707GTxx-F2-H	0dBm	7707GTyy-F2-H	-32dBm	Different CWDM wavelengths on Tx & Rx, with 8 channel CWDM Mux/Demux, High Sensitivity Receiver**
Single-Mode	1(DWDM)	25dB/100km***	7707GTDxxx-F2	+7dBm	7707GTDyyy-F2	-21dBm	Different DWDM wavelengths on Tx & Rx, with 8 channel DWDM Mux/Demux***
Single-Mode	1(DWDM)	34dB/136km***	7707GTDxxx-F2-H	+7dBm	7707GTDyyy-F2-H	-32dBm	Different DWDM wavelengths on Tx & Rx, with 8 channel DWDM Mux/Demux, High Sensitivity Receiver***
* With >20dB return loss on fiber interface ** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB *** Assumes 8 Ch DWDM Mux/Demux loss of 5dB						Tx Power/Rx Sensitivity are nominal values ±1dBm Fiber loss= 0.35/0.25dB per km @1310nm/1550nm	

Gigabit Ethernet Fiber Transceiver

Model 7707GT Block Diagram



Specifications

Ethernet Input/Output Standard:

IEEE 802.3 (10 BaseT), IEEE 802.3u (100 BaseTX), IEEE 802.3ab(1000baseTX) 1 RJ45

Connector:

Cable Requirements:

10 BaseT:

UTP category 3,4 or 5 cable up to 328ft/100m (2 pairs).

100 BaseTX:

UTP category 5 cable up to 328 ft/100m (2 pairs).

1000 BaseTX:

UTP category 5 cable up to 328 ft/100m (4 pairs).

Optical Input/Output:

Connector:

Single Fiber version:

1 female SC/PC, ST/PC or FC/PC

Dual Fiber (F2) version:

2 female SC/PC, ST/PC or FC/PC

Input Wavelengths:

1270nm - 1610nm

Maximum Input Power Standard:

-1dBm

-H versions:

-8dBm

Input Optical Sensitivity:

See Application Configuration Chart

Output Wavelengths:

See Ordering Information

Output Power:

See Application Configuration Chart

Electrical:

Voltage:

12V

Power:

8 watts (Non DWDM)

10 watts (DWDM)

Physical:

Number of slots:

1

Compliance:

Electrical Safety:

CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1

Laser Safety:

EMI/RFI:

Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7707GT13

Gigabit Ethernet Fiber Transceiver, single fiber, 1310nm FP TX & RX, VistaLINK™

7707GT13L-W

Gigabit Ethernet Fiber Transceiver, single fiber, WDM, 1310nm DFB TX, RX on 1550nm, VistaLINK™

7707GT15-W

Gigabit Ethernet Fiber Transceiver, single fiber, WDM, 1550nm DFB TX, RX on 1310nm, VistaLINK™

7707GT13-F2

Gigabit Ethernet Fiber Transceiver, dual fiber, 1310nm FP TX & RX, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707GTxx-F2

Gigabit Ethernet Fiber Transceiver, dual fiber, CWDM TX, VistaLINK™

For Long Distance CWDM, please refer to the end of the fiber section for ordering information

7707GTxx-F2-H

Gigabit Ethernet Fiber Transceiver, dual fiber, CWDM TX, High Sensitivity RX, VistaLINK™

For DWDM, please refer to the end of the fiber section for ordering information

7707GTDyyy-HD-F2

Gigabit Ethernet Fiber Transceiver, dual fiber, DWDM TX, VistaLINK™

For Long Distance DWDM, please refer to the end of the fiber section for ordering information

7707GTDyyy-HD-F2-H

Gigabit Ethernet Fiber Transceiver, dual fiber, DWDM TX, High Sensitivity RX, VistaLINK™

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU

3RU Rear Plate for use with 7700FR-C Multiframe

+1RU

Multiframe

1RU Rear Plate for use with 7701FR

+SA

Standalone Enclosure Rear Plate

Connector Suffix

+SC

SC/PC

+ST

ST/PC

+FC

FC/PC

Enclosures:

7700FR-C

3RU Multiframe which holds 15 modules

7701FR

1RU Multiframe which holds 3 modules

S7701FR

Standalone enclosure

70/140 Mhz IF Fiber Receiver with VistaLINK™ Monitoring



Model 7707IFRA

(Replaces the 7707IFR & offers improved performance and wider operating range)

The 7707IFRA is a VistaLINK™ -enabled fiber optic receiver for 70/140 MHz IF signals. The 7707IFRA accepts a fiber optic input from the companion 7707IFTA and provides two 70/140 Mhz IF output signals via BNC's. Monitoring and control of card status and parameters is provided locally at the card edge and remotely via VistaLINK™ capability.

The 7707IFRA occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

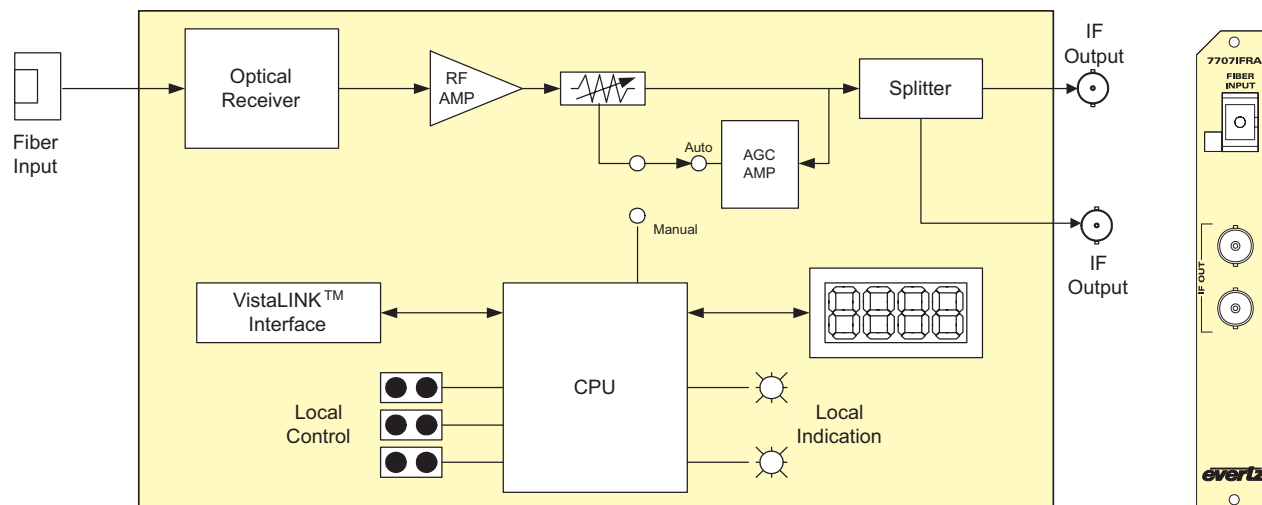
- 30-200 MHz bandwidth
- Protocol transparent - receives all video, audio and data modulation formats
- Supports manual and automatic gain control (AGC)
- Wide AGC hold range (45dB) using 7707IFTA + 7707IFRA
- Two IF outputs for extra signal distribution or monitoring functions
- IF output power independent of optical loss (within AGC range)
- Available with BNC or F-Type connector options
- Wide range optical input (1270nm to 1610nm)
- Supports single-mode and multi-mode fiber optic cable
- Available in SC/PC, ST/PC, FC/PC and APC connector options
- Fully hot swappable from front of frame
- Comprehensive signal and status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

7707IFRA Application Configurations

APPLICATION	OPTICAL/LINK BUDGET	TRANSMITTER SIDE		RECEIVER SIDE		DESCRIPTION
		ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
ONE SIGNAL PER FIBER						
Short to Medium Haul	14dB/40km	7707IFTA13	0dBm	7707IFRA	-14dBm	1310nm FP laser on Tx
Medium Haul	16dB/45km	7707IFTA13L	+2dBm	7707IFRA	-14dBm	1310nm DFB laser on Tx
Long Haul	16dB/64km	7707IFTA15	+2dBm	7707IFRA	-14dBm	1550nm DFB laser on Tx
Long Haul	25dB/71km	7707IFTA13L	+2dBm	7707IFRA-H	-23dBm	1310nm DFB laser on Tx, High Sensitivity RX
Long Haul	25dB/100km	7707IFTA15	+2dBm	7707IFRA-H	-23dBm	1550nm DFB laser on Tx, High Sensitivity RX
MULTI-SIGNAL PER FIBER (WAVELENGTH MUX/DEMUX)						
Medium Haul	12.5dB/50km*	7707IFTAxx	+2dBm	7707IFRA	-14dBm	1470nm-1610nm CWDM DFB laser on Tx, with 8 Ch CWDM Mux/Demux*
Long Haul	21.5dB/86km*	7707IFTAxx	+2dBm	7707IFRA-H	-23dBm	1470nm-1610nm CWDM DFB laser on Tx, High Sensitivity RX, 8 Ch CWDM Mux/Demux*
Long Haul	16dB/70km**	7707IFTADyyy	+7dBm	7707IFRA	-14dBm	DWDM DFB laser on Tx, with 8 Ch DWDM Mux/Demux**
Long Haul	25dB/100km**	7707IFTADyyy	+7dBm	7707IFRTA-H	-23dBm	DWDM DFB laser on Tx, High Sensitivity RX, 8 Ch DWDM Mux/Demux**
Fiber loss = 0.35/0.25dB per km @1310nm/1550nm * Assumes 8 Channel upper band CWDM Mux/Demux loss of 3.5dB **Assumes 8 Channel DWDM Mux/Demux loss of 5dB						

70/140 Mhz IF Fiber Receiver with VistaLINK™ Monitoring

7707IFRA Block Diagram



Specifications

IF Output:

Connector: 2 BNC per IEC 60169-8 Amendment 2

I/O Impedance: 75 (50Ω optional) (See Ordering Information)

Return Loss: 18dB (min)

Frequency Range: 30MHz - 200MHz

Flatness: ± 1dB @ 30 MHz - 200MHz

± 0.2dB @ 36MHz BW

37dB @ 36MHz BW

Carrier to Noise:

Output Signal Level:

AGC mode: -10dBm constant (within AGC range)

Manual mode: -5 to -65 (depends on RF input level, optical loss & gain setting)

Intermodulation

Products: -50dBc max (-10dBm at IFTA input & 3dB optical loss)

Optical Input:

Number of Inputs: 1

Connector: Female SC/PC, ST/PC, FC/PC, SC/APC, FC/APC

Operating Wavelength: 1270nm - 1610nm

Maximum Input Power:

Standard Version +3dBm

-H Version -7dBm

Optical Sensitivity:

Standard Version -14dBm @35dB C/N @36MHz BW

-H Version -23dBm @35dB C/N @36MHz BW

-29dBm @25dB C/N @36MHz BW

Optical Attenuation:

AGC Hold range: 10dB optical

Electrical:

Voltage: +12VDC

Power: 5 Watts

Physical:

Number of slots: 1

Ordering Information:

Note: 75Ω I/O impedance ships standard

7707IFRA 70/140MHz IF Fiber Receiver, VistaLINK™ Monitoring

7707IFRA-H 70/140MHz IF High Sensitivity Fiber Receiver, VistaLINK™ Monitoring

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix:

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

+SA Standalone Enclosure Rear Plate

Impedance Suffix:

+50 50Ω I/O Impedance

Connector Suffix:

+SC SC/PC

+AP+SC SC/APC (Angle polished)

+ST ST/PC

+FC FC/PC

+AP+FC FC/APC (Angle polished)

+F75 75Ω, F-Type rear connector

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules

7701FR 1RU Multiframe, which holds 3modules

S7701FR Standalone enclosure

[illegible]

(Replaces the 7707IFT & offers improved performance and wider operating range)

The 7707IFTA is a VistaLINK™ - enabled fiber optic transmitter for 70/140 MHz IF signals. The 7707IFTA accepts one 70/140 MHz coaxial input and provides a fiber optic output signal at 1310nm, 1550nm, CWDM or DWDM wavelengths. An IF BNC output is also provided for monitoring or further signal distribution. Monitoring and control of card status is provided locally at the card edge and remotely via VistaLINK™.

The 7707IFTA occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

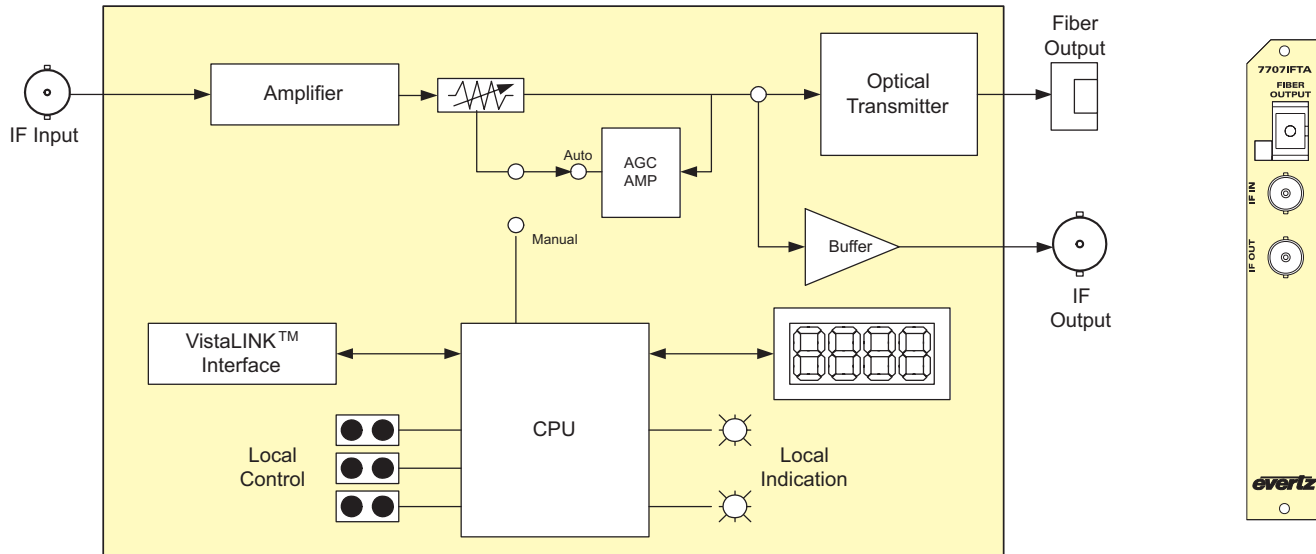
- 30-200 MHz bandwidth
- Wide dynamic range RF input (-5 to -65dBm)
- Protocol transparent - transmits all video, audio and data modulation formats
- Supports manual and automatic gain control on IF input
- Wide AGC hold range (45dB) using 7707IFTA + 7707IFRA
- Additional IF BNC output for monitoring or distribution
- Available with BNC or F-Type connector options
- Available with output wavelengths of 1310nm, 1550nm, CWDM (ITU-T G.694.2 compliant) and DWDM (ITU-T G.694.1 compliant)
- Supports single-mode and multi-mode fiber optic cable
- Available in SC/PC, ST/PC, FC/PC and APC connector options
- Fully hot swappable from front of frame
- Comprehensive signal and status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

7707IFTA Application Configurations

APPLICATION	OPTICAL/LINK BUDGET	TRANSMITTER SIDE		RECEIVER SIDE		DESCRIPTION
		ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
ONE SIGNAL PER FIBER						
Short to Medium Haul	14dB/40km	7707IFTA13	0dBm	7707IFRA	-14dBm	1310nm FP laser on Tx
Medium Haul	16dB/45km	7707IFTA13L	+2dBm	7707IFRA	-14dBm	1310nm DFB laser on Tx
Long Haul	16dB/64km	7707IFTA15	+2dBm	7707IFRA	-14dBm	1550nm DFB laser on Tx
Long Haul	25dB/71km	7707IFTA13L	+2dBm	7707IFRA-H	-23dBm	1310nm DFB laser on Tx, High Sensitivity RX
Long Haul	25dB/100km	7707IFTA15	+2dBm	7707IFRA-H	-23dBm	1550nm DFB laser on Tx, High Sensitivity RX
MULTI-SIGNAL PER FIBER (WAVELENGTH MUX/DEMUX)						
Medium Haul	12.5dB/50km*	7707IFTAxx	+2dBm	7707IFRA	-14dBm	1470nm-1610nm CWDM DFB laser on Tx, with 8 Ch CWDM Mux/Demux*
Long Haul	21.5dB/86km*	7707IFTAxx	+2dBm	7707IFRA-H	-23dBm	1470nm-1610nm CWDM DFB laser on Tx, High Sensitivity RX, 8 Ch CWDM Mux/Demux*
Long Haul	16dB/70km**	7707IFTADyyy	+7dBm	7707IFRA	-14dBm	DWDM DFB laser on Tx, with 8 Ch DWDM Mux/Demux**
Long Haul	25dB/100km**	7707IFTADyyy	+7dBm	7707IFRTA-H	-23dBm	DWDM DFB laser on Tx, High Sensitivity RX, 8 Ch DWDM Mux/Demux**
Fiber loss = 0.35/0.25dB per km @1310nm/1550nm * Assumes 8 Channel upper band CWDM Mux/Demux loss of 3.5dB **Assumes 8 Channel DWDM Mux/Demux loss of 5dB						

70/140MHz IF Fiber Transmitter with VistaLINK™ Monitoring

7707IFTA Block Diagram



Specifications

RF Input:

Connector:	1 BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	75Ω (50Ω optional) (See Ordering Information)
Return Loss:	18dB (min)
Frequency Range:	30MHz - 200MHz
Input Power Range:	-5 to -65dBm
AGC Hold Range:	-10 to -35dBm

IF Monitoring Output:

Connector:	1 BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	75Ω (50Ω optional) (See Ordering Information)
Return Loss:	18dB (min)
Frequency Range:	30MHz - 200MHz
Flatness:	± 1dB @ 30 MHz - 200MHz ± .2dB @ 36MHz BW

Output Signal Level:

AGC mode:	-20dBm constant (within AGC range -10 to -35dBm total RF input power)
Manual mode:	(Input signal) + (manual Gain setting)
Intermodulation Products:	-48dBc (-10dBm RF in, ACG mode)
Carrier to Noise:	37dB @36MHz BW

Optical Output:

Number of outputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC, SC/APC, FC/APC
Operating Wavelengths:	
Standard:	1310nm, 1550nm (nominal)
CWDM:	1270nm to 1610nm
DWDM:	C-Band (ITU G.694.1 compliant)

Output Power:

1310nm FP:	0dBm ± 1dBm
1310nm, 1550nm & CWDM DFB:	+2dBm ± 1dBm
DWDM DFB:	+7dBm ± 1dBm

Electrical:

Voltage:	+12VDC
Power:	6 Watts 9 Watts (DWDM)

Physical:

Number of slots:	1
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Ordering Information:

70/140MHz IF Fiber Transmitter, with VistaLINK™
Note: 75Ω I/O impedance ships standard

7707IFTA13	1310nm FP Laser, Short to Medium Haul
7707IFTA13L	1310nm DFB Laser, Medium Haul
7707IFTA15	1550nm DFB Laser, Long Haul

For CWDM, please refer to the end of the fiber section for ordering information

7707IFTAxx	70/140 Mhz IF Fiber Transmitter, CWDM wavelength, with VistaLINK™
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For DWDM, please refer to the end of the fiber section for ordering information:

7707IFTADyyy	70/140 Mhz IF Fiber Transmitter, DWDM wavelength, with VistaLINK™
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Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Impedance Suffix

+50	50Ω I/O Impedance
-----	-------------------

Connector Suffix

+SC	SC/PC
+AP+SC	SC/APC (Angle polished available with 7707IFTA13 only)
+ST	ST/PC
+FC	FC/PC
+AP+FC	FC/APC (Angle polished available with 7707IFTA13 only)
+F75	75Ω, F-Type rear connector

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3modules
S7701FR	Standalone enclosure

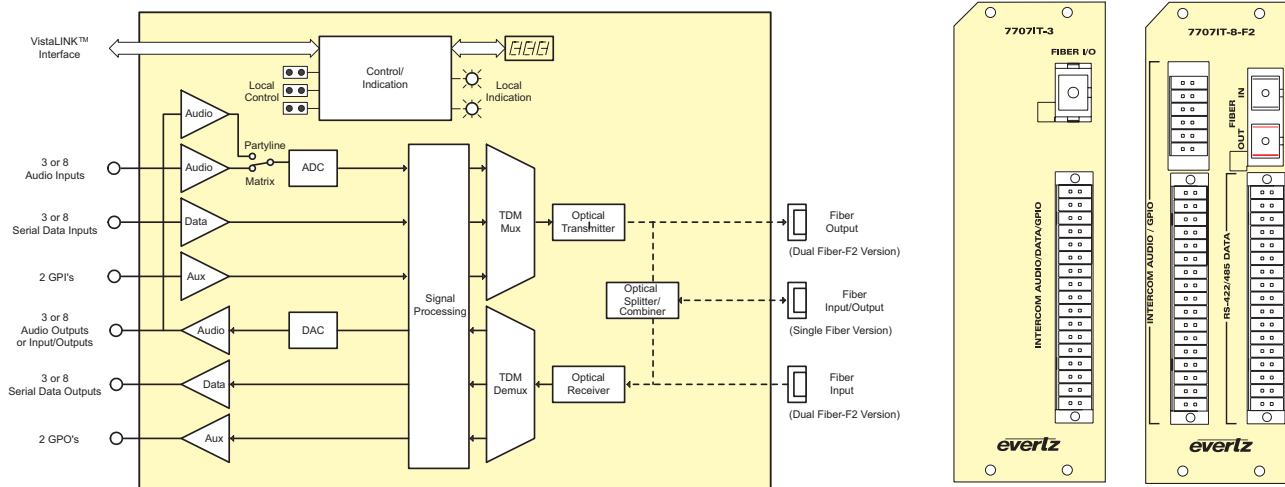
Multi-Channel Intercom Fiber Transceivers



Models 7707IT-3/7707IT-8

Features

- Extends up to 3 or 8 independent channels of intercom communication over a single fiber optic link
- Configurable interface to:
 - RTS-Telex Matrix: 4-Wire Audio, RS-485 Data, GPIO
 - ClearCom Matrix: 4-Wire Audio, RS-422 Data, GPIO
 - RTS-Telex Party-Line: 1-Wire Audio, GPIO
 - ClearCom Party-line: 1-Wire Audio, GPIO
- Independent channels can simultaneously accommodate different intercom types
- User-friendly selection of intercom interfaces via programmed profiles
- All configurations and adjustments are controllable through the card-edge user interface or remotely via SNMP and VistaLINK™-enabled capability
- Selectable termination, and failsafe bias settings for RS422/485 data inputs
- Provides 2 general-purpose inputs (GPI's), and 2 general purpose outputs (GPO's)
- Comprehensive signal and card status monitoring via four-digit card-edge display, or VistaLINK™
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Compatible with single-mode and multi-mode fiber optic cable (dual fiber version)
- Fully hot swappable from front of frame
- Occupies two card slots and can be housed in a 1 RU frame which holds up to 3 modules, a 3RU frame which holds up to 7 dual slot modules or a standalone enclosure which holds 1 module



7707IT-3/7707IT-8 Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<3km	7707IT13-3-F2 7707IT13-8-F2	-7dBm	7707IT13-3-F2 7707IT13-8-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	2	21dB/60km	7707IT13-3-F2 7707IT13-8-F2	-7dBm	7707IT13-3-F2 7707IT13-8-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	1	14dB/40km*	7707IT13-3 7707IT13-8	-10dBm	7707IT13-3 7707IT13-8	-24dBm	1310nm bi-directional, one fiber
Single-Mode	1(WDM)	25dB/71km*	7707IT13M-3-W 7707IT13M-8-W	-1dBm	7707IT15-3-W 7707IT15-8-W	-26dBm	1310nm/1550nm WDM bi-directional on one fiber
Single-Mode	1(CWDM)	24dB/96km**	7707ITxx-3-F2 7707ITxx-8-F2	0dBm	7707ITyy-3-F2 7707ITyy-8-F2	-28dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km***	7707ITDxxx-3-F2 7707ITDxxx-8-F2	+7dBm	7707ITDyyy-3-F2 7707ITDyyy-8-F2	-28dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux***

* With >20dB return loss on fiber interface

** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB

*** Assumes 8 Ch DWDM Mux/Demux loss of 5dB

Tx Power/Rx Sensitivity are nominal values ± 1 dBm
Fiber loss= 0.35/0.25dB per km @1310nm/1550nm

Multi-Channel Intercom Fiber Transceivers

3e

Specifications

Analog Audio:

Balanced/Matrix Type Audio

Number of Signals

7707IT-3:	3 inputs, 3 outputs
7707IT-8:	8 inputs, 8 outputs
Type:	Analog Audio, Balanced
Industry Standards:	ClearCom, RTS-Telex
Connector:	Multi-pin removable terminal block
Input Impedance:	> 10kΩ
Output Impedance:	66Ω
Signal Resolution:	24-Bits
Sampling Rate:	52.7kHz
Frequency Response:	20Hz to 20kHz
Gain Flatness:	± 2dB
Input Level(max):	+20dBu
Output Level(max):	
Into 10KΩ	+20dBu
Into 600Ω	+19dBu
Signal/Noise Ratio:	> 90dB
THD:	< 0.01%
Crosstalk:	< -80dB
Controllable Gain:	-10dB to +10dB

Unbalanced/Party-Line Type Audio

Number of Signals

7707IT-3:	3
7707IT-8:	8
Type:	Analog Audio, Full-duplex, Unbalanced
Industry Standards:	ClearCom, RTS-Telex
Connector:	Multi-pin removable terminal block
Signal Coupling:	AC coupled (accommodates 30V 'wet' inputs)
Bridging Impedance:	>10kΩ
Signal Resolution:	24-Bit
Sampling Rate:	52.7kHz
Sidetone Null:	> 25dB
Sidetone Null Range:	100Ω to 300Ω load
Frequency Response:	120Hz to 20kHz
Gain Flatness:	± 2dB
Input Level(max):	+5dBu
Output Level(max):	+5dBu (into 200Ω load)
Signal/Noise Ratio:	> 75dB
THD:	< 0.1%
Crosstalk:	< -60dB
Controllable Gain:	-5dB to +5dB (into 200Ω load)
Receive Signaling:	4VDC min (ClearCom), 20kHz ±500Hz (RTS)
Send Signaling:	11VDC min (ClearCom), 20kHz ±100Hz (RTS)

Serial Data:

RS-422 /RS-485 Type Data

Number of Signals:

7707IT-3:	3
7707IT-8:	8
Connector:	Multi-pin removable terminal block
Signal Type:	RS-485 or RS-422 (selectable)
Input Termination:	120Ω or Open (selectable)
Input Failsafe Bias:	200mV (3.3mA into 60Ω) or none (selectable)
Bit Rate:	
RS485:	Compatible with all Telex RS485 rates
RS422:	460Kb/s

Optical Input/Output:

Number:	1 (Standard and -W Single Fiber Version) 2 (-F2 Dual Fiber Version)
Connector at Frame:	SC/PC, ST/PC, FC/PC female housing
Input Wavelength:	1270nm to 1610nm
Maximum Input Power:	0dBm
Output Wavelengths:	
Standard:	1310nm, 1550nm (nominal)
CWDM:	1270nm to 1610nm (ITU-T G.694.2 compliant)
DWDM:	C-Band (ITU-T G.694.1 compliant)
Output Power:	See Application Configuration Chart

General Purpose Outputs (GPO):

Number of Signals:	2 Outputs
Connector:	Multi-pin removable terminal block
Output Type:	Dry contact relay closure, normally open
Output Current(min):	100mA

General Purpose Inputs (GPI):

Number of Signals:	2 Inputs
Connector:	Multi-pin removable terminal block
Type:	Opto-isolated, Active low
GPI Input Voltage:	
Safe Voltage Range:	-20V to +10V
On Condition(max):	<+2.5V(active low)
Off Condition(min):	>+3.5V

GPI Input Current(min):	1mA
GPI Input Current(max):	10mA(internally limited)

Electrical:

Voltage(type):	12V DC(nominal frame voltage)
Power(max):	7707IT-3 (Non DWDM) = 7 Watts 7707IT-3 (DWDM) = 9 Watts 7707IT-8 (Non DWDM) = 18 Watts 7707IT-8 (DWDM) = 20 Watts

Physical:

7700 frame mounting:	
Number of Slots:	2
7701 frame mounting:	
Number of Slots:	1

Compliance:

Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive Class 1 laser product Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1
Laser Safety:	
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC directive

Ordering Information:

7707IT13-3	3 Channel Intercom Fiber Transceiver, single fiber, 1310nm FP TX & RX
7707IT13M-3-W	3 Channel Intercom Fiber Transceiver, single fiber, WDM, 1310nm FP TX, RX on 1550nm
7707IT15-3-W	3 Channel Intercom Fiber Transceiver, single fiber, WDM, 1550nm DFB TX, RX on 1310nm
7707IT13-3-F2	3 Channel Intercom Fiber Transceiver, dual fiber, 1310nm FP TX & RX
7707IT13-8	8 Channel Intercom Fiber Transceiver, single fiber, 1310nm FP TX & RX
7707IT13M-8-W	8 Channel Intercom Fiber Transceiver, single fiber, WDM, 1310nm FP TX, RX on 1550nm
7707IT15-8-W	8 Channel Intercom Fiber Transceiver, single fiber, WDM, 1550nm DFB TX, RX on 1310nm
7707IT13-8-F2	8 Channel Intercom Fiber Transceiver, dual fiber, 1310nm FP TX & RX

For CWDM, please refer to the end of the fiber section for ordering information

7707ITxx-3-F2	3 Channel Intercom Fiber Transceiver, dual fiber, CWDM TX, VistaLINK™
7707ITxx-8-F2	8 Channel Intercom Fiber Transceiver, dual fiber, CWDM TX, VistaLINK™

For DWDM, please refer to the end of the fiber section for ordering information

7707ITDyyy-3-F2	3 Channel Intercom Fiber Transceiver, dual fiber, DWDM TX, VistaLINK™
7707ITDyyy-8-F2	8 Channel Intercom Fiber Transceiver, dual fiber, DWDM TX, VistaLINK™

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone enclosure rear plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone enclosure

L-Band Satellite Fiber Receiver with VistaLINK™ Monitoring



Model 7707LR/LR-WB

The 7707LR and 7707LR-WB are VistaLINK™ -enabled fiber optic receivers for L-Band Satellite signals. The 7707LR-WB offers extended bandwidth from 250 to 2250MHz vs 950 to 2250MHz for the 7707LR version. Both 7707LR and 7707LR-WB accept a fiber optic input from the companion L-Band transmitters and provide L-Band RF output signals via BNC's. Monitoring and control of card status is provided locally at the card edge and remotely via VistaLINK™.

The 7707LR and 7707LR-WB occupy one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold 1 module.

Features

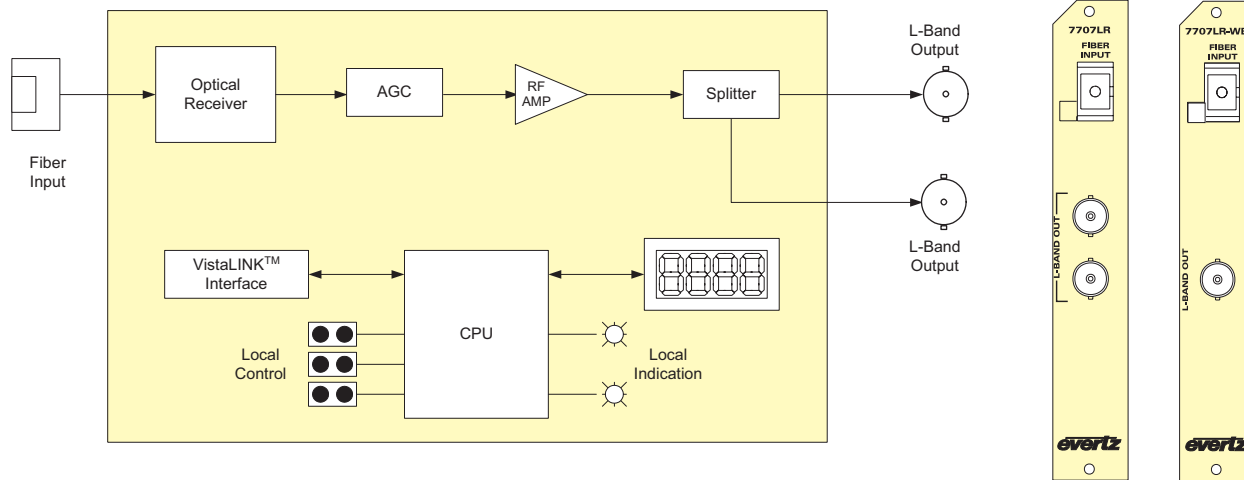
- Band operation - 950 to 2250MHz (7707LR)
- 250 to 2250MHz (7707LR-WB)
- Protocol transparent - receives all video, audio and data modulation formats
- Supports manual and automatic gain control (AGC)
- Wide AGC hold range (50dB) using 7707LTA/LTA-WB + 7707LR/LR-WB
- Two L-Band RF outputs (7707LR only) for extra signal distribution or monitoring functions
- RF output independent of optical loss (within AGC range)
- Available with BNC or F-Type connector options
- Wide range optical input (1270nm to 1610nm)
- Supports single-mode and multi-mode fiber optic cable
- Available in SC/PC, ST/PC, FC/PC and APC connector options
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

7707LR/LR-WB Application Configurations

APPLICATION	OPTICAL/LINK BUDGET	TRANSMITTER SIDE		RECEIVER SIDE		DESCRIPTION
		ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
ONE SIGNAL PER FIBER						
Short to Medium Haul	14dB/40km	7707LTA13/-WB	0dBm	7707LR/-WB	-14dBm	1310nm FP laser on Tx
Medium Haul	16dB/45km	7707LTA13L/-WB	+2dBm	7707LR/-WB	-14dBm	1310nm DFB laser on Tx
Long Haul	16dB/64km	7707LTA15/-WB	+2dBm	7707LR/-WB	-14dBm	1550nm DFB laser on Tx
Long Haul	25dB/71km	7707LTA13L/-WB	+2dBm	7707LR-H/-WB	-23dBm	1310nm DFB laser on Tx, High Sensitivity RX
Long Haul	25dB/100km	7707LTA15/-WB	+2dBm	7707LR-H/-WB	-23dBm	1550nm DFB laser on Tx, High Sensitivity RX
MULTI-SIGNAL PER FIBER (WAVELENGTH MUX/DEMUX)						
Medium Haul	12.5dB/50km	7707LTAx/-WB	+2dBm	7707LR/-WB	-14dBm	1470nm-1610nm CWDM DFB laser on Tx, with 8 Ch CWDM Mux/Demux*
Long Haul	21.5dB/86km*	7707LTAx/-WB	+2dBm	7707LR-H/-WB	-23dBm	1470nm-1610nm CWDM DFB laser on Tx, High Sensitivity RX, 8 Ch CWDM Mux/Demux*
Long Haul	16dB/64km**	7707LTADyyy/-WB	+7dBm	7707LR/-WB	-14dBm	DWDM DFB laser on Tx, with 8 Ch DWDM Mux/Demux**
Long Haul	25dB/100km**	7707LTADyyy/-WB	+7dBm	7707LR-H/-WB	-23dBm	DWDM DFB laser on Tx, High Sensitivity RX, 8 Ch DWDM Mux/Demux**
Fiber loss = 0.35/0.25dB per km @1310nm/1550nm * Assumes 8 Channel upper band CWDM Mux/Demux loss of 3.5dB **Assumes 8 Channel DWDM Mux/Demux loss of 5dB						

L-Band Satellite Fiber Receiver with VistaLINK™ Monitoring

7707LR Block Diagram



Specifications

RF Outputs:

Number of Outputs: 2 (7707LR)
1 (7707LR-WB)
Connector: 2 BNC's (F-type optional)
I/O Impedance: 75Ω (50Ω optional) (See Ordering Information)
Return Loss: >10dB
Frequency Range: 950MHz - 2250MHz (7707LR)
250MHz - 2250MHz (7707LR-WB)
Flatness: ± 1.5dB @950MHz-2250MHz (7707LR)
± 2dB @250MHz - 2250MHz (7707LR-WB)
± 0.25dB @ any 36MHz BW

Output Signal Level

AGC Mode: -20dBm constant (within AGC range)
Manual Mode: -20 to -65dBm (depends on RF level and optical loss)

OIP3:

Intermodulation Products: -55dBc (-20dBm RF in on TX, 1m fiber, AGC mode on TX & RX)

Carrier to Noise: 37dB @ any 36MHz BW
Noise Figure: 20dB/32dB (minimum/maximum optical loss)
Signal to Noise: >55dB

Optical Input:

Number of inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC, SC/APC, FC/APC

Operating Wavelength: 1270nm - 1610nm

Maximum Input Power:

Standard Version +3dBm
-H Version -7dBm

Optical Sensitivity:

Standard Version -14dBm @35dB S/N
-H Version -23dBm @35dB S/N
-29dBm @25dB S/N

Optical Attenuation

AGC Hold Range: 10dB optical

Electrical:

Voltage: +12VDC
Power: 5 Watts

Physical:

Number of slots: 1

Ordering Information:

L-Band Satellite Fiber Receiver with VistaLINK™
Note: 75Ω I/O impedance ships standard

7707LR	L-Band Satellite Fiber Receiver
7707LR-H	L-Band High Sensitivity Satellite Fiber Receiver
7707LR-WB	L-Band Satellite Fiber Receiver, Wideband
7707LR-H-WB	L-Band High Sensitivity Satellite Fiber Receiver, Wideband

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Impedance Suffix

+50 50Ω I/O impedance

Connector Suffix

+SC SC/PC
+AP+SC SC/APC (Angle polished)
+ST ST/PC
+FC FC/PC
+AP+FC FC/APC (Angle polished)
+F75 75Ω, F-Type rear connector

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone enclosure

Wideband L-Band Satellite Fiber Receiver with VistaLINK™ Monitoring



Model 7707LR-WB

The 7707LR-WB is a VistaLINK™ -enabled fiber optic receiver for L-Band Satellite signals. The 7707LR-WB accepts a fiber optic input from the companion 7707LTA-WB and provides a L-Band RF output signal via BNC. Monitoring and control of card status is provided locally at the card edge and remotely via VistaLINK™.

The 7707LR-WB occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold 1 module.

Features

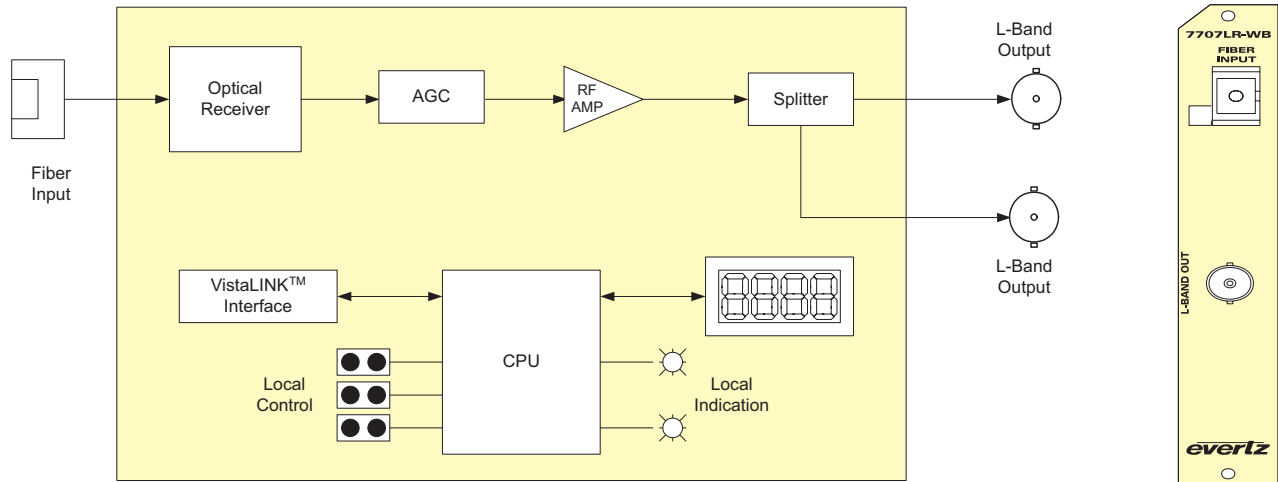
- Wideband operation - 250 to 2150MHz
- Protocol transparent - receives all video, audio and data modulation formats
- Supports manual and automatic gain control (AGC)
- Wide AGC hold range (50dB) using 7707LTA-WB + 7707LR-WB
- RF output independent of optical loss (within AGC range)
- Available with BNC or F-Type connector options
- Wide range optical input (1270nm to 1610nm)
- Supports single-mode and multi-mode fiber optic cable
- Available in SC/PC, ST/PC, FC/PC and APC connector options
- Fully hot swappable from front of frame
- Backward compatible with 7707LTA-WB
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

7707LR-WB Application Configurations

APPLICATION	OPTICAL/LINK BUDGET	TRANSMITTER SIDE		RECEIVER SIDE		DESCRIPTION
		ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
ONE SIGNAL PER FIBER						
Short to Medium Haul	14dB/40km	7707LTA13-WB	0dBm	7707LR-WB	-14dBm	1310nm FP laser on Tx
Medium Haul	16dB/45km	7707LTA13L-WB	+2dBm	7707LR-WB	-14dBm	1310nm DFB laser on Tx
Long Haul	16dB/64km	7707LTA15-WB	+2dBm	7707LR-WB	-14dBm	1550nm DFB laser on Tx
Long Haul	25dB/71km	7707LTA13L-WB	+2dBm	7707LR-WB-H	-23dBm	1310nm DFB laser on Tx, High Sensitivity RX
Long Haul	25dB/100km	7707LTA15-WB	+2dBm	7707LR-WB-H	-23dBm	1550nm DFB laser on Tx, High Sensitivity RX
MULTI-SIGNAL PER FIBER (WAVELENGTH MUX/DEMUX)						
Medium Haul	12.5dB/50km	7707LTA-WBxx	+2dBm	7707LR-WB	-14dBm	1470nm-1610nm CWDM DFB laser on Tx, with 8 Ch CWDM Mux/Demux*
Long Haul	21.5dB/86km*	7707LTA-WBxx	+2dBm	7707LR-WB-H	-23dBm	1470nm-1610nm CWDM DFB laser on Tx, High Sensitivity RX, 8 Ch CWDM Mux/Demux*
Long Haul	16dB/64km**	7707LTA-WBDyyy	+7dBm	7707LR-WB	-14dBm	DWDM DFB laser on Tx, with 8 Ch DWDM Mux/Demux**
Long Haul	25dB/100km**	7707LTA-WBDyyy	+7dBm	7707LR-WB-H	-23dBm	DWDM DFB laser on Tx, High Sensitivity RX, 8 Ch DWDM Mux/Demux**
Fiber loss = 0.35/0.25dB per km @1310nm/1550nm * Assumes 8 Channel upper band CWDM Mux/Demux loss of 3.5dB **Assumes 8 Channel DWDM Mux/Demux loss of 5dB						

Wideband L-Band Satellite Fiber Receiver with VistaLINK™ Monitoring

7707LR-WB Block Diagram



Specifications

RF Outputs:

Number of Outputs: 1
Connector: 2 BNC per IEC 60169-8 Amendment 2(F-type optional)
I/O Impedance: 75Ω (50Ω optional) (See Ordering Information)
Return Loss: >10dB
Frequency Range: 250MHz - 2150MHz
Flatness: ± 2dB @250MHz-2150MHz
± 0.25dB @ any 36MHz BW

Output Signal Level

AGC Mode: -20dBm constant (within AGC range)
Manual Mode: -20 to -65dBm (depends on RF level and optical loss)

OIP3:

Intermodulation Products: +10dBm (-40dBm input level)
-55dBc (-20dBm RF in on TX, 1m fiber, AGC mode on TX & RX)

Carrier to Noise:

Noise Figure: 37dB @ any 36MHz BW
Signal to Noise: 20dB/32dB (minimum/maximum optical loss)
>55dB

Optical Input:

Number of inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC, SC/APC, FC/APC

Operating Wavelength:

Maximum Input Power: 1270nm - 1610nm
Standard Version +3dBm
-H Version -7dBm

Optical Sensitivity:

Standard Version -14dBm @35dB S/N
-H Version -23dBm @35dB S/N
-29dBm @25dB S/N

Optical Attenuation

AGC Hold Range: 10dB optical

Electrical:

Voltage: +12VDC
Power: 5 Watts

Physical:

Number of slots: 1

Ordering Information:

Note: 75Ω I/O impedance ships standard

7707LR-WB

Wideband L-Band Satellite Fiber Receiver,
VistaLINK™ Monitoring
Wideband L-Band High Sensitivity Satellite
Fiber Receiver, VistaLINK™ Monitoring

7707LR-WB-H

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU
+1RU
+SA

3RU Rear Plate for use with 7700FR-C Multiframe
1RU Rear Plate for use with 7701FR Multiframe
Standalone Enclosure Rear Plate

Impedance Suffix

+50

50Ω I/O impedance

Connector Suffix

+SC
+AP+SC
+ST
+FC
+AP+FC
+F75

SC/PC
SC/APC (Angle polished)
ST/PC
FC/PC
FC/APC (Angle polished)
75Ω, F-Type rear connector

Enclosures:

7700FR-C
7701FR
S7701FR

3RU Multiframe, which holds 15 modules
1RU Multiframe, which holds 3 modules
Standalone enclosure

L-Band Satellite Fiber Transmitter with VistaLINK™ Monitoring



Model 7707LTA/LTA-WB

The 7707LTA and 7707LTA-WB are VistaLINK™ -enabled fiber optic transmitters for L-Band satellite signals. The 7707LTA-WB offers extended bandwidth from 250 to 2250MHz vs 950 to 2250MHz for the 7707LTA version. The 7707LTA and 7707LTA-WB accept one L-Band coaxial input and provide a fiber optic output signal at 1310nm, 1550nm, CWDM or DWDM wavelengths. An L-Band BNC output is also provided for monitoring or further signal distribution. Monitoring and control of card status is provided locally at the card edge and remotely via VistaLINK™.

The 7707LTA and 7707LTA-WB occupy one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold 1 module.

Features

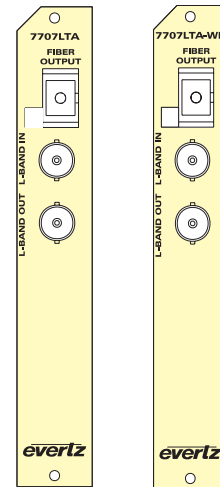
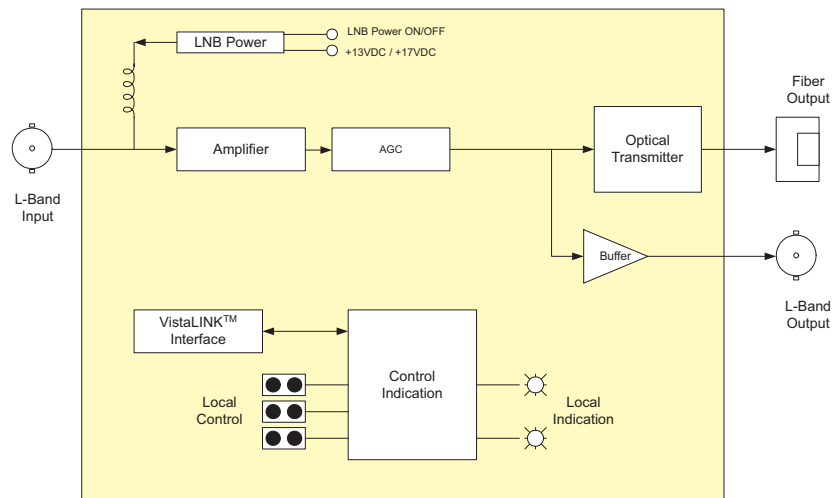
- Band operation - 950 to 2250MHz (7707LT)
- 250 to 2250MHz (7707LTA-WB)
- Wide dynamic range RF input (-20 to -65dBm)
- Protocol transparent - transmits all video, audio and data modulation formats
- Supports manual and automatic gain control (AGC)
- Wide AGC hold range (50dB) using 7707LTA/LTA-WB + 7707LR/LR-WB
- Additional L-Band BNC output for monitoring or distribution
- DISEqC1.2 & 22kHz tone compatible
- LNB power at +13 or +17 VDC with built-in current limiting
- Available with BNC or F-Type connector options
- Available with wavelengths of 1310nm, 1550nm, CWDM (ITU-T G.694.2 compliant) and DWDM (ITU-T G.694.1 compliant)
- Supports single-mode and multi-mode fiber optic cable
- Available in SC/PC, ST/PC, FC/PC and APC connector options
- Fully hot-swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

7707LTA/LTA-WB Application Configurations

APPLICATION	OPTICAL/LINK BUDGET	TRANSMITTER SIDE		RECEIVER SIDE		DESCRIPTION
		ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
ONE SIGNAL PER FIBER						
Short to Medium Haul	14dB/40km	7707LTA13/-WB	0dBm	7707LR/-WB	-14dBm	1310nm FP laser on Tx
Medium Haul	16dB/45km	7707LTA13L/-WB	+2dBm	7707LR/-WB	-14dBm	1310nm DFB laser on Tx
Long Haul	16dB/64km	7707LTA15/-WB	+2dBm	7707LR/-WB	-14dBm	1550nm DFB laser on Tx
Long Haul	25dB/71km	7707LTA13L/-WB	+2dBm	7707LR-H/-WB	-23dBm	1310nm DFB laser on Tx, High Sensitivity RX
Long Haul	25dB/100km	7707LTA15/-WB	+2dBm	7707LR-H/-WB	-23dBm	1550nm DFB laser on Tx, High Sensitivity RX
MULTI-SIGNAL PER FIBER (WAVELENGTH MUX/DEMUX)						
Medium Haul	12.5dB/50km	7707LTAx/-WB	+2dBm	7707LR/-WB	-14dBm	1470nm-1610nm CWDM DFB laser on Tx, with 8 Ch CWDM Mux/Demux*
Long Haul	21.5dB/86km*	7707LTAx/-WB	+2dBm	7707LR-H/-WB	-23dBm	1470nm-1610nm CWDM DFB laser on Tx, High Sensitivity RX, 8 Ch CWDM Mux/Demux*
Long Haul	16dB/64km**	7707LTADyyy/-WB	+7dBm	7707LR/-WB	-14dBm	DWDM DFB laser on Tx, with 8 Ch DWDM Mux/Demux**
Long Haul	25dB/100km**	7707LTADyyy/-WB	+7dBm	7707LR-H/-WB	-23dBm	DWDM DFB laser on Tx, High Sensitivity RX, 8 Ch DWDM Mux/Demux**
Fiber loss = 0.35/0.25dB per km @1310nm/1550nm * Assumes 8 Channel upper band CWDM Mux/Demux loss of 3.5dB **Assumes 8 Channel DWDM Mux/Demux loss of 5dB						

L-Band Satellite Fiber Transmitter with VistaLINK™ Monitoring

7707LTA Block Diagram



Specifications

RF Input:

Number of Inputs:	1
Connector:	1 BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	75Ω (50Ω optional) (See Ordering Information)
Return Loss:	>10dB
Frequency Range:	950MHz - 2250MHz (7707LTA) 250MHz - 2250MHz (7707LTA-WB)
Input Power Range:	-20 to -65dBm
AGC Hold Range:	-20 to -50dBm

RF Monitoring Output:

Number of Outputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	75Ω (50Ω optional) (See Ordering Information)
Return Loss:	>10dB
Frequency Range:	950MHz - 2250MHz (7707LTA) 250MHz - 2250MHz (7707LTA-WB)
Flatness:	± 1.5dB @ 950MHz - 2250MHz (7707LTA) ± 2.0dB @ 250MHz - 2250MHz (7707LTA-WB) ± 0.25dB @ any 36MHz BW

Output Signal Level

AGC mode:	-20dBm constant (within AGC range)
Manual mode:	(Input signal) + (manual Gain setting) -5dB
OIP3:	+10dBm (-40dBm input level)
Intermodulation Products:	-55dBc (-20dBm RF in, AGC mode)
Carrier to Noise:	37dB @any 36MHz BW
Noise Figure:	20dB/32dB (minimum/maximum optical loss)

Optical Output:

Number of outputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC, SC/APC, FC/APC
Operating Wavelengths	
Standard:	1310nm, 1550nm (nominal)
CWDM:	1270nm to 1610nm
DWDM:	C-Band (ITU G.694.1 compliant)

Output Power:

1310nm FP:	0dBm ± 1dBm
1310nm, 1550nm & CWDM DFB:	+2dBm ± 1dBm
DWDM DFB:	+7dBm ± 1dBm

Electrical:

Voltage:	+12VDC
Power:	6 Watts (Non DWDM) 9 Watts (DWDM)

Physical:

Number of slots:	1
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Compliance:

Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive Class 1 laser product Class 1M laser product (DWDM versions only) Complies with 24 CFR 1040.10 and 1040.11, IEC 60825-1 Complies with FCC Part 15, Class A EU EMC directive
Laser Safety:	
EMI/RFI:	

Ordering Information:

	L-Band Satellite Fiber Transmitter with VistaLINK™
	Note: 75Ω I/O impedance ships standard
7707LTA13	1310nm, FP Laser, Short to Medium Haul
7707LTA13L	1310nm, DFB Laser, Medium Haul
7707LTA15	1550nm, DFB Laser, Long Haul
7707LTA13-WB	1310nm, FP Laser, Short to Medium Haul, Wideband
7707LTA13L-WB	1310nm, DFB Laser, Medium Haul, Wideband
7707LTA15-WB	1550nm, DFB Laser, Long Haul, Wideband

For CWDM, please refer to the end of the fiber section for ordering information

7707LTAxx	L-Band Satellite Fiber Transmitter, CWDM wavelength,
7707LTAxx-WB	L-Band Satellite Fiber Transmitter, CWDM wavelength, Wideband

For DWDM, please refer to the end of the fiber section for ordering information

7707LTADyyy	L-Band Satellite Fiber Transmitter, DWDM wavelength,
7707LTADyyy-WB	L-Band Satellite Fiber Transmitter, DWDM wavelength, Wideband

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Impedance Suffix

+50	50Ω I/O impedance
-----	-------------------

Connector Suffix

+SC	SC/PC
+AP+SC	SC/APC (Angle polished available with 7707LTA13 only)
+ST	ST/PC
+FC	FC/PC
+AP+FC	FC/APC (Angle polished available with 7707LTA13 only)
+F75	75Ω, F-Type rear connector

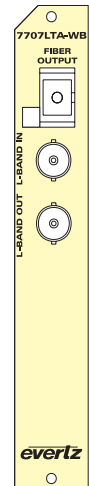
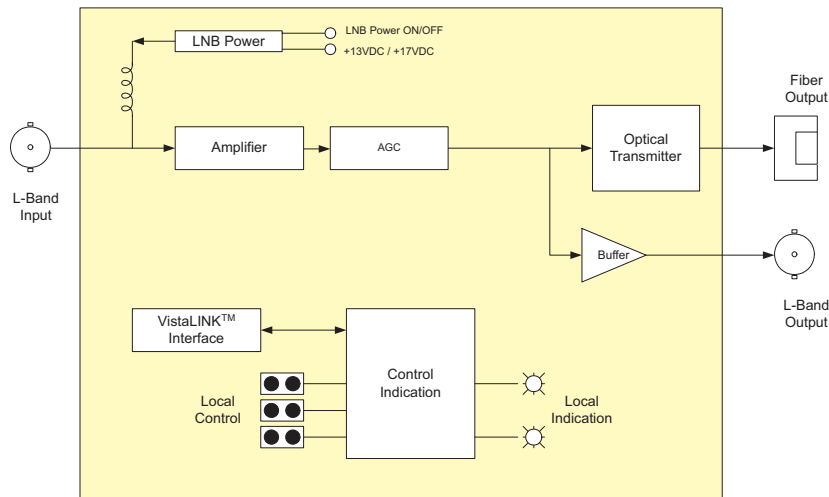
Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone Enclosure

APPLICATION	OPTICAL/LINK BUDGET	TRANSMITTER SIDE		RECEIVER SIDE		DESCRIPTION
		ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
ONE SIGNAL PER FIBER						
Short to Medium Haul	14dB/40km	7707LTA13-WB	0dBm	7707LR-WB	-14dBm	1310nm FP laser on Tx
Medium Haul	16dB/45km	7707LTA13L-WB	+2dBm	7707LR-WB	-14dBm	1310nm DFB laser on Tx
Long Haul	16dB/64km	7707LTA15-WB	+2dBm	7707LR-WB	-14dBm	1550nm DFB laser on Tx
Long Haul	25dB/71km	7707LTA13L-WB	+2dBm	7707LR-WB-H	-23dBm	1310nm DFB laser on Tx, High Sensitivity RX
Long Haul	25dB/100km	7707LTA15-WB	+2dBm	7707LR-WB-H	-23dBm	1550nm DFB laser on Tx, High Sensitivity RX
MULTI-SIGNAL PER FIBER (WAVELENGTH MUX/DEMUX)						
Medium Haul	12.5dB/50km	7707LTA-WBxx	+2dBm	7707LR-WB	-14dBm	1470nm-1610nm CWDM DFB laser on Tx, with 8 Ch CWDM Mux/Demux*
Long Haul	21.5dB/86km*	7707LTA-WBxx	+2dBm	7707LR-WB-H	-23dBm	1470nm-1610nm CWDM DFB laser on Tx, High Sensitivity RX, 8 Ch CWDM Mux/Demux*
Long Haul	16dB/64km**	7707LTA-WBDyyy	+7dBm	7707LR-WB	-14dBm	DWDM DFB laser on Tx, with 8 Ch DWDM Mux/Demux**
Long Haul	25dB/100km**	7707LTA-WBDyyy	+7dBm	7707LR-WB-H	-23dBm	DWDM DFB laser on Tx, High Sensitivity RX, 8 Ch DWDM Mux/Demux**
Fiber loss = 0.35/0.25dB per km @1310nm/1550nm * Assumes 8 Channel upper band CWDM Mux/Demux loss of 3.5dB **Assumes 8 Channel DWDM Mux/Demux loss of 5dB						

Wideband L-Band Satellite Fiber Transmitter with VistaLINK™ Monitoring

7707LTA-WB Block Diagram



Specifications

RF Input:

Connector:	1 BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	75Ω (50Ω optional) (See Ordering Information)
Return Loss:	>10dB
Frequency Range:	250MHz - 2150MHz
Input Power Range:	-20 to -65dBm
AGC Hold Range:	-20 to -50dBm

RF Monitoring Output:

Connector:	1 BNC per IEC 60169-8 Amendment 2 (F-type optional)
I/O Impedance:	75Ω (50Ω optional) (See Ordering Information)
Return Loss:	>10dB
Frequency Range:	250MHz - 2150MHz
Flatness:	± 2dB @ 250MHz - 2150MHz ± 0.25dB @ any 36MHz BW

Output Signal Level

AGC mode:	-20dBm constant (within AGC range)
Manual mode:	(Input signal) + (manual Gain setting) -5dB
OIP3:	+10dBm (-40dBm input level)
Intermodulation Products:	-55dBc (-20dBm RF in, AGC mode)
Carrier to Noise:	37dB @any 36MHz BW
Noise Figure:	20dB/32dB (minimum/maximum optical loss)

Optical Output:

Number of outputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC, SC/APC, FC/APC
Operating Wavelengths	
Standard:	1310nm, 1550nm (nominal)
CWDM:	1270nm to 1610nm
DWDM:	C-Band (ITU G.694.1 compliant)

Output Power:

1310nm FP:	0dBm ± 1dBm
1310nm, 1550nm & CWDM DFB:	+2dBm ± 1dBm
DWDM DFB:	+7dBm ± 1dBm

Electrical:

Voltage:	+12VDC
Power:	6 Watts (Non DWDM) 9 Watts (DWDM)

Physical:

Number of slots:	1
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Ordering Information:

Wideband L-Band Satellite Fiber Transmitter, VistaLINK™ Monitoring

Note: 75Ω I/O impedance ships standard

7707LTA13-WB	1310nm, FP Laser, Short to Medium Haul
7707LTA13L-WB	1310nm, DFB Laser, Medium Haul
7707LTA15-WB	1550nm, DFB Laser, Long Haul

For CWDM, please refer to the end of the fiber section for ordering information

7707LTA-WBxx	Wideband L-Band Satellite Fiber Transmitter, CWDM wavelength, VistaLINK™ Monitoring
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For DWDM, please refer to the end of the fiber section for ordering information

7707LTA-WBDyyy	Wideband L-Band Satellite Fiber Transmitter, DWDM wavelength, VistaLINK™ Monitoring
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Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Impedance Suffix

+50	50Ω I/O impedance
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Connector Suffix

+SC	SC/PC
+AP+SC	SC/APC (Angle polished available with 7707LTA13 only)
+ST	ST/PC
+FC	FC/PC
+AP+FC	FC/APC (Angle polished available with 7707LTA13 only)
+F75	75Ω, F-Type rear connector

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone Enclosure

Bi-Directional Transceiver for 1 SDI, 2 AES, RS232/422, 2 GPI/O

Models 7707MB



The 7707MB is a VistaLINK™ - enabled fiber optic transceiver for SDI Video, AES Audio, RS232/422 and GPI/O signals. This single card module transports one bi-directional SDI Video, two bi-directional AES Audio, one bi-directional RS-232/422 and two bi-directional GPI/Os over a single or dual fiber optic cable.

The 7707MB will transparently pass incoming SDI video feeds with embedded AES audio or any other data in the horizontal or vertical ancillary data space. Minimal Audio to Video latency over the transport interface is also achieved.

The fiber output is available in 1310nm, 1550nm, CWDM and DWDM wavelengths.

The 7707MB can be housed in either a 1RU frame which will hold up to 3 modules, or a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

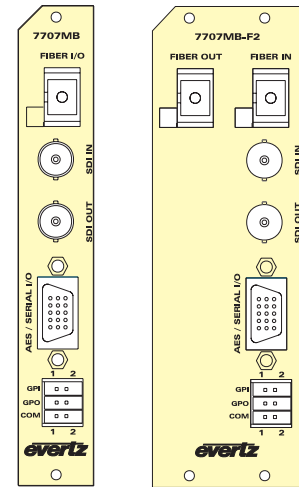
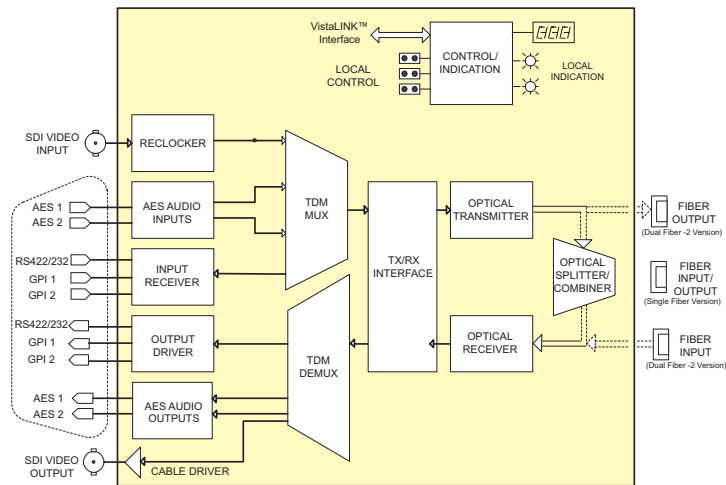
- Bi-directional fiber optic transceiver for 1 SDI Video, 2 AES Audio, 1 RS-232/422 and 2 GPI/O
- Supports 525 or 625 line 4:2:2 component SDI signals
- Supports 32, 44.1, 48 kHz AES audio
- Dolby E compatible
- Supports bi-directional RS422 rates up to 3 Mb/s
- Low Audio to Video latency
- Signal transport over fiber uninterrupted by loss of input SDI, AES or Serial Data feeds
- Built-in jitter attenuation
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability
- Local display of optical signal strength, video, audio, data presence, video and AES formats and EDH errors
- Fully hot-swappable from front of frame with no fiber disconnect/reconnect required
- Bi-directional optical input/output
- Accepts any wavelength in the 1270nm to 1610nm range
- Optical output wavelengths of 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports single-mode and multi-mode fiber optic cable

7707MB Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<3km	7707MB13-F2	-7dBm	7707MB13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	2	21dB/60km	7707MB13-F2	-7dBm	7707MB13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	1	14dB/40km*	7707MB13	-10dBm	7707MB13	-24dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	25dB/71km	7707MB13M-W	-1dBm	7707MB15-W	-26dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	24dB/96km**	7707MBxx-F2	0dBm	7707MByy-F2	-28dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km***	7707MBDxxx-F2	7dBm	7707MBDyyy-F2	-28dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux***
* With >20dB return loss on fiber interface ** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB *** Assumes 8 Ch DWDM Mux/Demux loss of 5dB*						Tx Power/Rx Sensitivity are nominal values ±1dBm Fiber loss= 0.35/0.25dB per km @1310nm/1550nm	

Bi-Directional Transceiver for 1 SDI, 2 AES, RS232/422, 2 GPI/O

7707MB Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C, 525 or 625 line component, SMPTE 305M
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 250m @ 270 Mb/s with Belden 8281 or equivalent cable
Return Loss: > 15 dB up to 270 Mb/s

Serial Video Output:

Number of Outputs: 1
Standard: SMPTE 259M-C, SMPTE 305M
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: >15 dB at 270 Mb/s
Wide Band Jitter: <0.2 UI

Optical Input/Output:

Number: 1 (single fiber version)
2 (dual fiber -F2 version)
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 14dB
Maximum Input Power: 0 dBm
Input Wavelength: 1270nm to 1610nm
Input Optical Sensitivity: See Application Configurations Chart
Output Jitter: < 0.2 UI
Output Wavelengths: See Ordering Information
Output Power: See Application Configurations Chart

AES Audio Inputs:

Standard: SMPTE 276M
AES3-1992
Dolby E compatible
Number of Inputs: 2 (Jumper selectable for balanced or unbalanced)
Connector: 4 pins on female high density DB-15
Signal Level: Unbalanced:
1Vp-p \pm 0.1V
Balanced:
2 to 7Vp-p with Level Jumper set to HI, 1 to 2Vp-p with level jumper set to LO
Equalization: 300m @ 48kHz with Belden 1800B or equivalent cable
Resolution: Up to 24 bits
Sampling Rate: 32, 44.1, 48 kHz
Impedance: Unbalanced - 75 Ω , Balanced - 110 Ω

AES Audio Outputs:

Standard: SMPTE 276M
AES3-1992
Dolby E compatible
Number of Outputs: 2 regenerated (Jumper selectable for balanced or unbalanced)
Connector: 4 pins on female high density DB-15
Signal Level: Unbalanced:
1Vp-p
Balanced:
5Vp-p
Resolution: Up to 24 bits
Sampling Rate: 32, 44.1, 48 kHz
Intrinsic Jitter: < 20ns
Impedance: Unbalanced - 75 Ω , Balanced - 110 Ω

General Purpose Inputs:

Number of Inputs: 2
Type: Opto-isolated, active low with internal pull-ups to +5V or +12V (jumper selectable)
Connector: 6 pin removable terminal block
Signal Drive Level: Open or closure to ground

General Purpose Outputs:

Number of Outputs: 2
Type: "Dry Contact" relay closure
Connector: 6 pin removable terminal block
Signal Level: Normally Closed or Normally Open (jumper settable)

Serial Data Port:

Number of Ports: 1 RS-422 or 2 RS-232 - Jumper Selectable
Connector: 4 pins (plus ground) on female high density DB-15
Baud Rate: Up to 3 Mb/s RS-422 (Determined by incoming data)

System Performance: (7707MB pair)

Video Input To Output Delay: <2 μ s
Audio to Video delay: < 1 μ s

Electrical:

Voltage: +12VDC
Power: 12 Watts (Non-DWDM)
14 Watts (DWDM)

Physical:

Number of slots: 1 (7707MB)
2 (7707MB-F2)

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

7707MB13	Bi-directional SDI, 2 AES, RS232/422, GPI/O Fiber Transceiver, single fiber, 1310nm FP TX & RX, VistaLINK™
7707MB13M-W	Bi-directional SDI, 2 AES, RS232/422, GPI/O Fiber Transceiver, single fiber, WDM, 1310nm FP TX, RX on 1550nm, VistaLINK™, use with 7707MB15-W
7707MB15-W	Bi-directional SDI, 2 AES, RS232/422, GPI/O Fiber Transceiver, single fiber, WDM, 1550nm DFB TX, RX on 1310nm, VistaLINK™ use with 7707MB13M-W
7707MB13-F2	Bi-directional SDI, 2 AES, RS232/422, GPI/O Fiber Transceiver, dual fiber, 1310nm FP TX & RX, VistaLINK™
For CWDM, please refer to the end of the fiber section for ordering information	
7707MBxx-F2	Bi-directional SDI, 2 AES, RS232/422, GPI/O Fiber Transceiver, dual fiber, CWDM TX, VistaLINK™
For DWDM, please refer to the end of the fiber section for ordering information	
7707MBDyyy-F2	Bi-directional SDI, 2 AES, RS232/422, GPI/O Fiber Transceiver, dual fiber, DWDM Laser, VistaLINK™

Ordering Options:

7707MB-BHP-15	Bulkhead Breakout Panel for 15 x 7707MB cards (includes 15 3 ft. cables)
7707MB-BHP-15-B	Bulkhead Breakout Panel for 15 x 7707MB cards (includes 15 3 ft. cables) for balanced audio only
7707MX-BHP-1	Bulkhead Breakout Panel for 1 x 7707MB card (includes 1 3ft cable)

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU Rear Plate for use with 7700FR-C Multiframe
+1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

SDI, 2 AES Audio, Bi-Directional RS-232/422, 2 GPI and 2 GPO, Fiber Receiver

Models 7707MR



The 7707MR Multi-Signal Fiber Receiver is a VistaLINK™ - enabled fiber optic receiver for SDI Video, AES Audio, RS422 control, and GPIO signals. This single card module demultiplexes one uni-directional SDI Video, two uni-directional AES Audio, one bi-directional RS422 and two bi-directional GPI's and GPO's that have been Time Domain Multiplexed (TDM) by the companion 7707MT Multi-Signal Fiber Transmitter module. Evertz patent pending SoftSwitch™ technology is applied to the received signal to ensure virtually glitch free AES Audio output signals when upstream SDI or AES feeds are switched. The 7707MR and companion 7707MT will transparently pass incoming SDI video feeds with embedded AES audio or any other data in the horizontal or vertical ancillary data space. Minimal Audio to Video latency over the transport interface is also achieved.

The fiber output is available in an assortment of optical wavelengths, accommodating 1310/1550nm, CWDM and DWDM transmission schemes.

The 7707MR occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3 RU frame which will hold up to 15 modules and a standalone enclosure which will hold 1 module.

Features

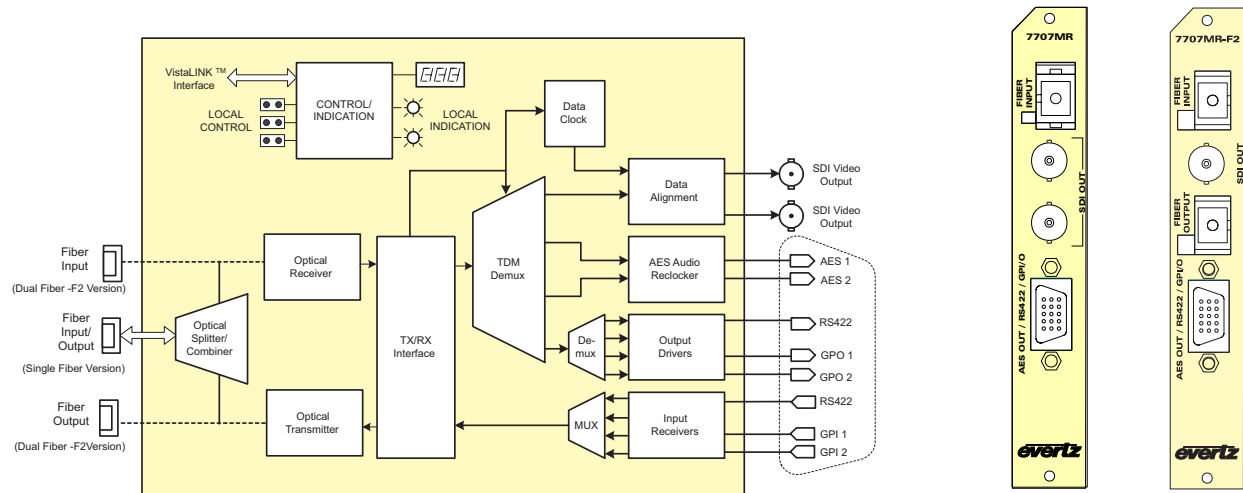
- SDI Video, 2 AES Audio, 1 bi-directional RS232/422 and 2 GPIO fiber optic receiver
- Supports 525 or 625 line 4:2:2 component SDI signals
- Supports SDTi signals
- Supports 32, 44.1, 48 kHz AES audio
- Dolby E compatible
- Supports bi-directional RS422 rates up to 3 Mb/s
- Incorporates Evertz SoftSwitch™ (Patent Pending) technology for virtually glitch-free AES Audio outputs when upstream SDI or AES feeds are switched
- User selectable SoftSwitch™ bypass
- Minimal Audio to Video latency
- Output AES "Mute" on loss of fiber optic input signal or AES feed to upstream 7707MT multiplexer
- Output Video "Black" or "Blue" (selectable) on loss of video input signal
- Signal transport over fiber uninterrupted by loss of input SDI, AES, Serial Data or GPIO feeds
- SDI video regeneration for jitter removal
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability
- Local display of optical signal strength, video, audio and data presence, video and AES formats, EDH errors, GPI and GPO status
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Bi-directional optical input/output
- Accepts any wavelength in the 1270nm to 1610nm range
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports single-mode and multi mode fiber optic cable

7707MR Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<3km	7707MR13-F2	-7dBm	7707MT13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	2	21dB/60km	7707MR13-F2	-7dBm	7707MT13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	1	14dB/40km*	7707MR13	-10dBm	7707MT13	-24dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	25dB/71km	7707MR13M-W	-1dBm	7707MT15-W	-26dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	24dB/96km**	7707MRyy-F2	0dBm	7707MTxx-F2	-28dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km***	7707MRDyyy-F2	+7dBm	7707MTDxxx-F2	-28dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux***
* With >20dB return loss on fiber interface						Tx Power/Rx Sensitivity are nominal values ±1dBm	
** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB						Fiber loss= 0.35/0.25dB per km @1310nm/1550nm	
*** Assumes 8 Ch DWDM Mux/Demux loss of 5dB							

SDI, 2 AES Audio, Bi-Directional RS-232/422, 2 GPI and 2 GPO, Fiber Receiver

7707MR Block Diagram



Specifications

Optical Input/Output:

Number: 1 (Single fiber version)
2 (Dual fiber - F2 version)
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 20dB
Rise and Fall Time: 200ps nominal
Maximum Input Power: 0 dBm
Input Wavelengths: 1270nm - 1610nm
Input Optical Sensitivity: See Application Configuration Chart
Output Wavelengths: See Application Configuration Chart
Output Power: See Application Configuration Chart

Serial Video Outputs:

Number of Outputs: 2 regenerated (1 output on -F2 versions)
Standard: SMPTE 259M-C
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15 dB at 270 Mb/s
Wide Band Jitter: < 0.15 UI

AES Audio Outputs:

Standard: SMPTE 276M
Unbalanced AES: AES3-1992
Balanced: Dolby E compatible
Other: 2 regenerated (Jumper selectable for balanced or unbalanced)
Connector: 4 pins on female high density DB-15
Signal Level: Unbalanced - 1 Vp-p, Balanced - 5 Vp-p
Resolution: Up to 24 bits
Sampling Rate: 32, 44.1, 48 kHz
Intrinsic Jitter: < 20ns
Impedance: Unbalanced - 75Ω
Balanced - 110Ω

Serial Data Ports:

Number of Ports: 1 RS-422 or 2 RS-232 - Jumper Selectable
Connector: 4 pins (plus ground) on female high density DB-15
Baud Rate: Up to 3 Mb/s RS-422 (Determined by incoming data)

General Purpose Inputs:

Number of Inputs: 2
Type: Opto-isolated, active low with internal pull-ups to +5V or +12V (jumper selectable)
Connector: 2 pins (plus ground) on female high density DB-15
Signal Drive Level: Open or closure to ground

General Purpose Outputs:

Number of Outputs: 2
Type: "Dry Contact" relay closure
Connector: 2 pins per output on female high density DB-15
Signal Level: Normally Closed or Normally Open (jumper settable)

System Performance (7707MR + 7707MT):

Video Input To Output Delay: <1.5 μs
Audio to Video delay: < 1μs with SoftSwitch™ disabled
< 2ms with SoftSwitch™ enabled

Electrical:

Voltage: +12VDC
Power: 12 Watts (Non DWDM)
14 Watts (DWDM)

Physical:

Number of slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

7707MR13 SDI, 2 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, single fiber, 1310nm FP TX & RX, VistaLINK™
7707MR13M-W SDI, 2 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, single fiber, WDM, 1310nm FP TX, RX on 1550nm, VistaLINK™
7707MR13-F2 SDI, 2 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, dual fiber, 1310nm FP TX & RX, VistaLINK™
For CWDM, please refer to the end of the fiber section for ordering information
7707MRxx-F2 SDI, 2 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, dual fiber, CWDM TX, VistaLINK™
For DWDM, please refer to the end of the fiber section for ordering information
7707MRDyyy-F2 SDI, 2 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, dual fiber, DWDM Laser, VistaLINK™

Ordering Options

7707MX-BHP-15 Bulkhead Breakout Panel for 15 x 7707MR cards (includes 15 3 ft. cables)
7707MX-BHP-15-B Bulkhead Breakout Panel for 15 x 7707MR cards (includes 15 3 ft. cables) for balanced audio only
7707MX-BHP-1 Bulkhead Breakout Panel for 1 x 7707MR card (includes 1 3ft cable)

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD-SDI, 4 AES Audio Bi-Directional RS232/422, 1 GPI/GPO, Fiber Receiver

Model 7707MR-HD



Features

- Supports HD-SDI and SDI video
- Demultiplexes up to 4 AES audio, bi-directional RS-232/422 and 1 GPIO with HD-SDI or SDI
- Supports all SMPTE 292M (1.485Gb/s) rates/standards
- Supports 525/625 line component 4:2:2 SDI @ 270 Mb/s
- Supports 32, 44.1, 48 kHz AES audio
- Dolby E compatible
- Built-in jitter attenuation
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK® -capable capability
- All settings controllable via card-edge interface or through VistaLINK®
- Local display of optical signal strength, video, audio, and data presence, video and AES formats, GPI and GPO status
- Accepts any wavelength in the 1270nm to 1610nm range
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports single-mode and multi mode fiber optic cable
- Fully hot-swappable from front of frame
- Occupies a single card slot and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules, or a standalone enclosure that will hold 1 module

7707MR-HD Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	< 1km	7707MT13-HD-F2	-7dBm	7707MR13-HD-F2	-23dBm	1310nm on Tx & Rx fibers
Single-Mode	2	16dB/45km	7707MT13-HD-F2	-7dBm	7707MR13-HD-F2	-23dBm	1310nm on Tx & Rx fibers
Single-Mode	1	9dB/25km*	7707MT-HD	-10dBm	7707MR-HD	-19dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	20dB/57km	7707MT-HD-W	-1dBm	7707MR-HD-W	-21dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	19dB/76km**	7707MTyy-HD-F2	0dBm	7707MRxx-HD-F2	-23dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(CWDM)	24dB/96km**	7707MTyy-HD-F2	0dBm	7707MRxx-HD-F2-H	-28dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	25dB/100km**	7707MTDyyy-HD-F2	+7dBm	7707MRDxxx-HD-F2	-23dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km***	7707MTDyyy-HD-F2	+7dBm	7707MRDxxx-HD-F2-H	-28dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux***
* With >20dB return loss on fiber interface ** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB ***Assumes 8 Ch DWDM Mux/Demux loss of 5dB					Tx Power/Rx Sensitivity are nominal values ± 1 dBm Fiber loss= 0.35/0.25dB per km @1310nm/1550nm		

SDI, 2 AES Audio, Bi-Directional RS-232/422, 2 GPI and 2 GPO, Fiber Transmitter

Models 7707MT



The 7707MT Multi-Signal Fiber Transmitter is a VistaLINK™ - enabled, fiber transmitter for SDI Video, AES Audio, RS422 control and GPI/O. This single card module transports one uni-directional SDI Video, two uni-directional AES Audio, one bi-directional RS422 and two bi-directional GPI's and GPO's. These signals are combined using Time Domain Multiplex (TDM) technology and transmitted over a single fiber. The companion 7707MR Multi-Signal Fiber Receiver demultiplexes the signals and converts them back to their original formats. The 7707MT and companion 7707MR will transparently pass incoming SDI video feeds with embedded AES audio or any other data in the horizontal or vertical ancillary data space. Minimal Audio to Video latency over the transport interface is also achieved.

The fiber output is available in an assortment of optical wavelengths, accommodating 1310/1550nm, CWDM and DWDM transmission schemes.

The 7707MT occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

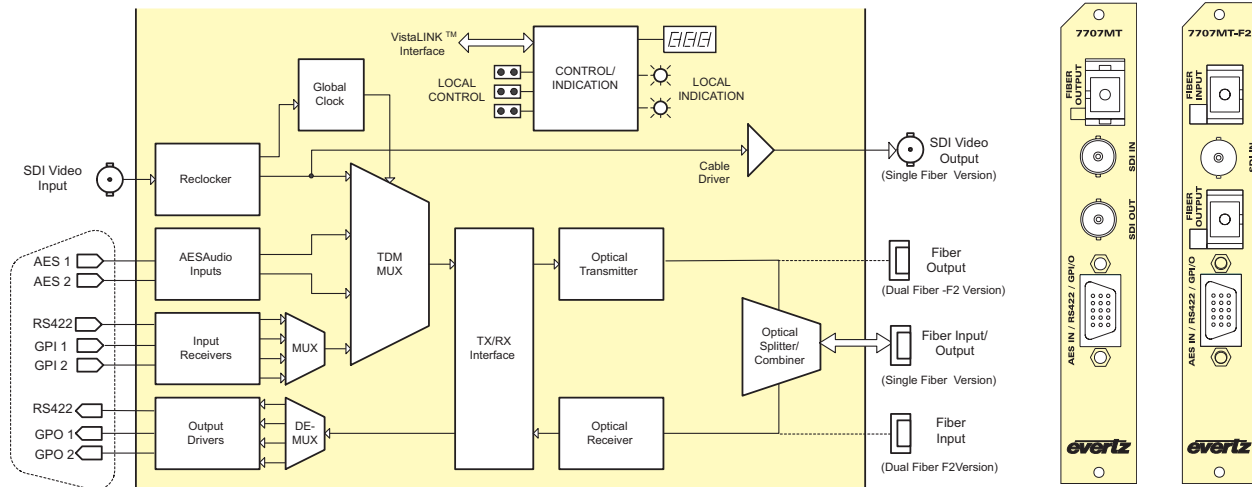
- SDI Video, 2 AES Audio, 1 bi-directional RS-232/422 and 2 GPI/O fiber optic transmitter
- Supports 525 or 625 line 4:2:2 component SDI signals
- Supports SDTi signals
- Supports 32, 44.1, 48 kHz AES audio inputs
- Dolby E compatible
- Supports bi-directional RS422 signals at baud rates up to 3 Mb/s
- AES audio inputs can be synchronous or asynchronous to each other and/or to input video
- Reclocked SDI output for additional signal distribution
- Signal transport over fiber uninterrupted by loss of input SDI, AES, Serial Data or GPI/O feeds
- Low Audio to Video latency over transport interface
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability
- Local display of optical signal strength, video, audio, and data presence, video and AES formats, EDH errors, GPI and GPO status
- Automatic coaxial input equalization to 300m at 270Mb/s (Belden 1694)
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Bi-directional optical input/output
- Accepts any wavelength in the 1270nm to 1610nm range
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports multi-mode and single mode fiber optic cable

7707MT Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<3km	7707MT13-F2	-7dBm	7707MR13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	2	21dB/60km	7707MT13-F2	-7dBm	7707MR13-F2	-28dBm	1310nm on Tx & Rx fibers
Single-Mode	1	14dB/40km*	7707MT13	-10dBm	7707MR13	-24dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	25dB/71km	7707MT15-W	-1dBm	7707MR13M-W	-26dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	24dB/96km**	7707MTxx-F2	0dBm	7707MRyy-F2	-28dBm	Different CWDM wavelengths on Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km***	7707MTDxxx-F2	+7dBm	7707MRDyyy-F2	-28dBm	Different DWDM wavelengths on Tx & Rx, with 8 channel DWDM Mux/Demux***
* With >20dB return loss on fiber interface ** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB *** Assumes 8 Ch DWDM Mux/Demux loss of 5dB						Tx Power/Rx Sensitivity are nominal values ±1dBm Fiber loss= 0.35/0.25dB per km @1310nm/1550nm	

SDI, 2 AES Audio, Bi-Directional RS-232/422, 2 GPI and 2 GPO, Fiber Transmitter

7707MT Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C, SMPTE 305M
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 300m @ 270 Mb/s with Belden 1694 or equivalent cable
Return Loss: > 15 dB up to 270 Mb/s

Serial Video Output (Not available on dual fiber '-F2' version):

Number of Outputs: 1 Per Card reclocked
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Rise and Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15 dB at 270 Mb/s
Wide Band Jitter: < 0.2 UI

AES Audio Inputs:

Standard: SMPTE 276M
Unbalanced: AES3-1992
Balanced: Dolby E compatible
Other:
Number of Inputs: 2 (Jumper selectable for balanced or unbalanced input)
Connector: 4 pins on female high density DB-15
Signal Level:
Unbalanced: 1V p-p $\pm 0.1V$
Balanced: 2 to 7V-p with Level Jumper set to HI, 1 to 2Vp-p with level jumper set to LO
Equalization: 500m @ 48kHz with Belden 1800B or equivalent cable
Resolution: Up to 24 bits
Sampling Rate: 32, 44.1, 48 kHz
Intrinsic Jitter: < 20ns
Impedance:
Unbalanced: 75 Ω
Balanced: 110 Ω

Serial Data Ports:

Number of Ports: 1 RS-422 or 2 RS-232 - Jumper Selectable
Connector: 4 pins (plus ground) on female high density DB-15
Baud Rate: Up to 3 Mb/s (Determined by incoming data)

General Purpose Inputs:

Number of Inputs: 2
Type: Opto-isolated, active low with internal pull-ups to +5V or +12V (jumper selectable)
Connector: 2 pins (plus ground) on female high density DB-15
Signal Drive Level: Open or closure to ground

General Purpose Outputs:

Number of Outputs: 2
Type: "Dry Contact" relay closure
Connector: 2 pins per output on female high density DB-15
Signal Level: Normally Closed or Normally Open (jumper settable)

Optical Input/Output:

Number: 1 (Single fiber version)
2 (Dual fiber '-F2' version)
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 20dB
Rise and Fall Time: 200ps nominal
Maximum Input Power: 0 dBm
Input Wavelengths: 1270nm to 1610nm
Input Optical Sensitivity: See Application Configurations Chart
Output Wavelengths: See Ordering Information
Output Power: See Application Configurations Chart

System Performance (7707MT + 7707MR):

Video Input To Output Delay: < 1.5 μ s
Audio to Video delay: < 1 μ s with SoftSwitch™ disabled on 7707MR
< 2ms with SoftSwitch™ enabled on 7707MR

Electrical:

Voltage: +12VDC
Power: 12 Watts (Non DWDM), 14 Watts (DWDM)

Physical:

Number of slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Laser Safety:
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

7707MT13 SDI, 2 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter single fiber, 1310nm FP TX & RX, VistaLINK™
7707MT15-W SDI, 2 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter single fiber, WDM, 1550nm FP TX, RX on 1310nm, VistaLINK™
7707MT13-F2 SDI, 2 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter dual fiber, 1310nm FP TX & RX, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707MTxx-F2 SDI, 2 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter dual fiber, CWDM TX, VistaLINK™

For DWDM, please refer to the end of the fiber section for ordering information

7707MTDyyy-F2 SDI, 2 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter dual fiber, DWDM Laser, VistaLINK™

Ordering Options

7707MX-BHP-15 Bulkhead Breakout Panel for 15 x 7707MT cards (includes 15 3 ft. cables)
7707MX-BHP-15-B Bulkhead Breakout Panel for 15 x 7707MT cards (includes 15 3 ft. cables) for balanced audio only
7707MX-BHP-1 Bulkhead Breakout Panel for 1 x 7707MT card (includes 1 3ft cable)

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD-SDI, 4 AES Audio, Bi-Directional RS-232/422, 1 GPI/GPO, Fiber Transmitter

Model 7707MT-HD



Features

- Supports HD-SDI and SDI video
- Multiplexes up to 4 AES audio, bi-directional RS-232/422 and 1 GPIO with HD-SDI or SDI
- Supports all SMPTE 292M (1.485Gb/s) rates/standards
- Supports 525/625 line component 4:2:2 SDI @ 270 Mb/s
- Supports 32, 44.1, 48kHz AES audio inputs
- Reclocked video output for additional signal distribution
- AES audio inputs can be synchronous or asynchronous to each other and/or to input video
- Dolby E compatible
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK®-capable capability
- All settings controllable via card-edge interface or through VistaLINK®
- Local display of optical signal strength, video, audio, and data presence, video format, GPI and GPO status
- Automatic coaxial input equalization up to 130m at 1.485Gb/s and 300m at 270Mb/s (Belden 1694)
- Accepts any wavelength in the 1270nm to 1610nm range
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-G.694.1 compliant) also available
- Supports single-mode and multi-mode fiber optic cable
- Fully hot-swappable from front of frame
- Occupies a single card slot and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules, or a standalone enclosure that will hold 1 module

7707MT-HD Application Configurations

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	< 1km	7707MT13-HD-F2	-7dBm	7707MR13-HD-F2	-23dBm	1310nm on Tx & Rx fibers
Single-Mode	2	16dB/45km	7707MT13-HD-F2	-7dBm	7707MR13-HD-F2	-23dBm	1310nm on Tx & Rx fibers
Single-Mode	1	9dB/25km*	7707MT-HD	-10dBm	7707MR-HD	-19dBm	1310nm, bi-directional, one fiber
Single-Mode	1(WDM)	20dB/57km	7707MT-HD-W	-1dBm	7707MR-HD-W	-21dBm	1310nm/1550nm, WDM, bi-directional on one fiber
Single-Mode	1(CWDM)	19dB/76km**	7707MTyy-HD-F2	0dBm	7707MRxx-HD-F2	-23dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(CWDM)	24dB/96km**	7707MTyy-HD-F2	0dBm	7707MRxx-HD-F2-H	-28dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	1(DWDM)	25dB/100km**	7707MTDyyy-HD-F2	+7dBm	7707MRDxxx-HD-F2	-23dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux**
Single-Mode	1(DWDM)	30dB/120km***	7707MTDyyy-HD-F2	+7dBm	7707MRDxxx-HD-F2-H	-28dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux***
* With >20dB return loss on fiber interface					Tx Power/Rx Sensitivity are nominal values ±1dBm		
** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB					Fiber loss= 0.35/0.25dB per km @1310nm/1550nm		
***Assumes 8 Ch DWDM Mux/Demux loss of 5dB							

Triple SDI Optical to Electrical Converter

19.4Mb/s or 143-540Mb/s

Model 7707OE-3



Features

- Triple SDI optical to electrical converter for 3 independent channels
- Provides 45 independent channels of optical conversion, in a single 3RU frame
- Supports all SMPTE259M standards with operation from 143Mb/s - 360Mb/s
- Supports additional standards of SMPTE305M (SDTi), SMPTE310M (19.4Mb/s), SMPTE344M (540Mb/s), M2S and DVB-ASI (270Mb/s)
- Supports multi-mode or single-mode fiber
- Fully hot swappable from front of frame, with no fiber or BNC disconnect/reconnect required
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules or a 3RU frame which will hold up to 15 modules or a standalone frame which will hold 1 module
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

Inputs:

- Three independent fiber inputs
- 1270nm to 1610nm input wavelength range
- Input sensitivity to -30dBm
- SC/PC, ST/PC, FC/PC connector options

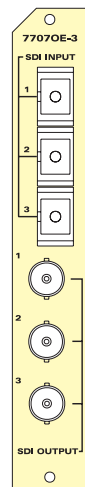
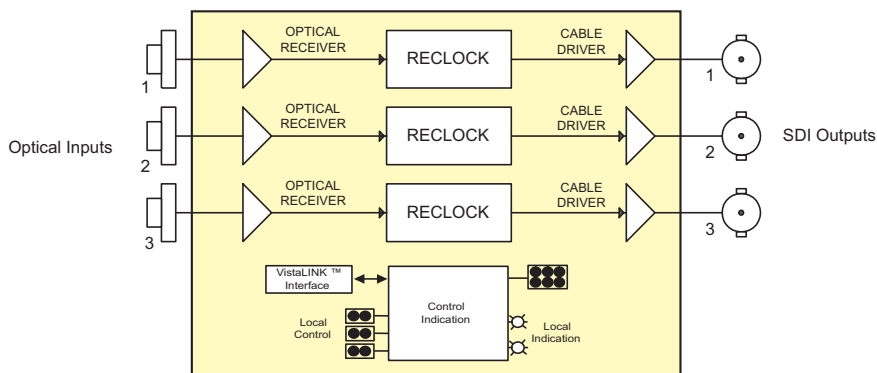
Outputs:

- Three independent, reclocked, serial digital BNC outputs

Status LEDs:

- Signal presence indication for each channel
- Input carrier weak indication for each channel
- Module status indication

7707OE-3 Block Diagram



Specifications

Standards: SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 305M, SMPTE 310M, SMPTE344M, M2S, DVB-ASI

Optical Inputs:

Number of Inputs: 3 (independent channels)
Connector: SC/PC, ST/PC, FC/PC female housing
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: 0dBm
Optical Sensitivity: -30dBm

Serial Video Outputs:

Number of Outputs: 3 reclocked (independent channels)
Connector: 3 BNC inputs per IEC 169-8
Signal Level: 800mV nominal
DC Offset: 0V±0.5V
Rise/Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15dB up to 540Mb/s
Jitter: < 0.2UI

Electrical:

Voltage: +12V DC
Power: 7 Watts
EMI/RFI: Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7707OE-3 Triple SDI Optical to Electrical Converter 19.4Mb/s or 143-540Mb/s, VistaLINK™ Monitoring

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone enclosure

Triple HDTV Optical to Electrical Converter

19.4Mb/s to 1.485Gb/s

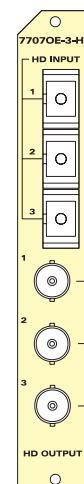
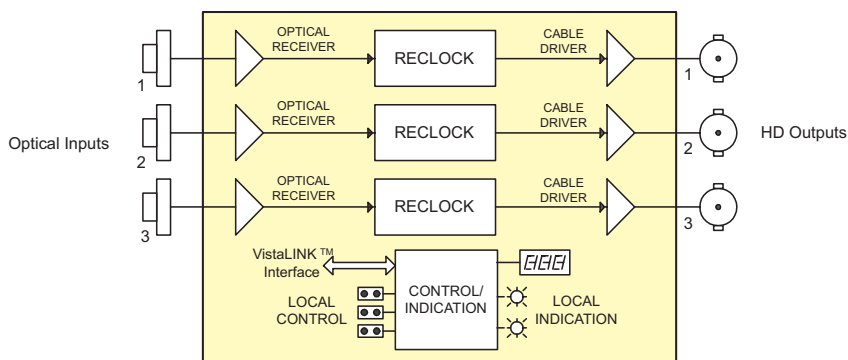


Model 7707OE-3-HD

Features

- Three independent channels of optical to electrical conversion that support all SMPTE 292M standards at 1.485Gb/s.
- Supports reclocking of all SMPTE 259M standards with operation from 143Mb/s - 360Mb/s
- Supports reclocking of additional standards of SMPTE 305M (SDTi), SMPTE 344M (540Mb/s), M2S and DVB-ASI (270Mb/s)
- Automatically operates in non-reclocking mode in the presence of rates not supported by reclocking
- Fully hot swappable from front of frame, with no fiber or BNC disconnect /reconnect required
- High density - accommodates up to 45 independent channels of optical conversion, in a single 3RU frame
- Can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone which will hold 1 module
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability
- Detection and display of optical input power, and data rate
- Wide range optical input (1270nm-1610nm)
- Supports single-mode and multi-mode fiber optic cable
- SC/PC, ST/PC or FC/PC connector options
- Tally output on Frame Status bus upon loss of input signal

7707OE-3-HD Block Diagram



Specifications

Standards: SMPTE 292M, SMPTE 259M-A,B,C,D
SMPTE 305M, SMPTE 310M, SMPTE 344M, M2S,
DVB-ASI

Optical Inputs:
Number of Inputs: 3 (independent channels)
Connector: SC/PC, ST/PC, FC/PC female housing
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: -1dBm
Optical Sensitivity: -18dBm

Serial Video Outputs:
Number of Outputs: 3 reclocked (independent channels)
Connector: 3 BNC inputs per IEC 169-8
Signal Level: 800mV nominal
DC Offset: 0V±0.5V
Rise/Fall Time
SD @270Mb/s: 600ps nominal
HD @1.485Gb/s: 150ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15dB up to 1.5Gb/s
Jitter: < 0.2UI

Electrical:
Voltage: +12V DC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:
Number of Slots: 1

Ordering Information:
7707OE-3-HD Triple HD or SD Optical to Electrical Converter,
19.4Mb/s or 143Mb/s -1.485Gb/s, VistaLINK™

Ordering Options:
Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix
+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:
CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:
7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone enclosure

SDI Optical to Electrical Converter, 19.4Mb/s or 143-540Mb/s, VistaLINK™ Monitoring

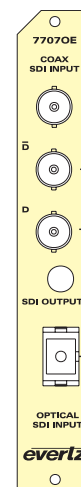
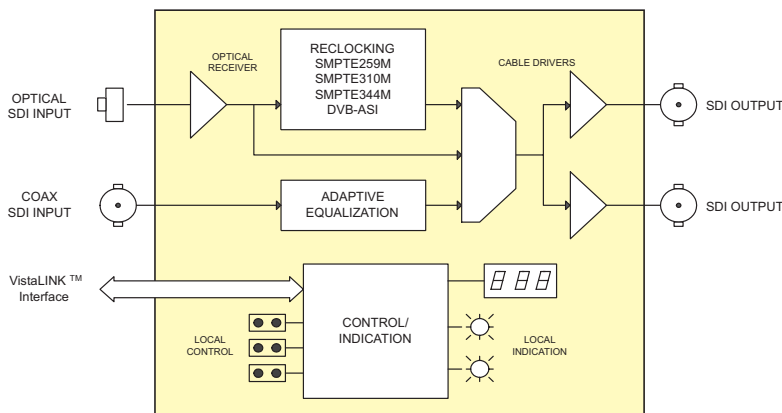
Model 7707OE



Features

- Optical to electrical converter for all SMPTE 259M standards with operation from 143Mb/s - 360Mb/s
- Supports SMPTE 310M (19.4Mb/s), M2S, DVB-ASI (270Mb/s), SMPTE 344M (540Mb/s) and SMPTE 305M (SDTi) rates
- Detection and display of optical input power, video format and EDH errors
- Reclocked optical input, with selectable non-reclocked mode
- Wide range optical input (1270nm to 1610nm)
- Supports multi-mode and single-mode fiber
- Redundant second SDI input for automatic failure switching applications
- Automatic input cable equalization to 275m at 270Mb/s (Belden 8281) on coaxial input
- Fully hot swappable from front of frame
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to three modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold 1 module
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

7707OE Block Diagram



Specifications

Standards:

Reclocked: SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 305M, SMPTE 310M, SMPTE 344M, M2S or DVB-ASI

Non-Reclocked: Any bi-level signal type at rates of 19.4Mb/s to 540Mb/s

Optical Input:

Connector: 1 Female SC/PC, ST/PC or FC/PC

Wavelength: 1270nm to 1610nm

Optical Sensitivity: -32dBm @ 270Mb/s

Max. Input Power: 0dBm

Coaxial Input:

Connector: 1 BNC per IEC 60169-8 Amendment 2

Impedance: 75Ω (nominal)

Equalization: Automatic to 275m @ 270Mb/s with Belden 8281 cable

Return Loss: > 15dB to 540Mb/s

Serial Video Outputs:

Number of Outputs: 2 per card (1 output DVB-ASI/M2S compliant)

Connector: BNC per IEC 60169-8 Amendment 2

Impedance: 75Ω (nominal)

Signal Level: 800mV nominal

DC Offset: 0V ±0.5V

Rise and Fall Time: 900ps nominal

Overshoot: < 10% of amplitude

Return Loss: > 15 dB up to 540 Mb/s

Wide Band Jitter: < 0.20 UI

Electrical:

Voltage: +12V DC

Power: 6 Watts

EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7707OE: SDI Optical to Electrical Converter, 19.4Mb/s or 143-540Mb/s, VistaLINK™ Monitoring

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC

+ST ST/PC

+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination

CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination

CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination

CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination

CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination

CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

7701FR 1RU Multiframe which holds 3 modules

S7701FR Standalone Enclosure

DS3 Optical to Electrical Converter

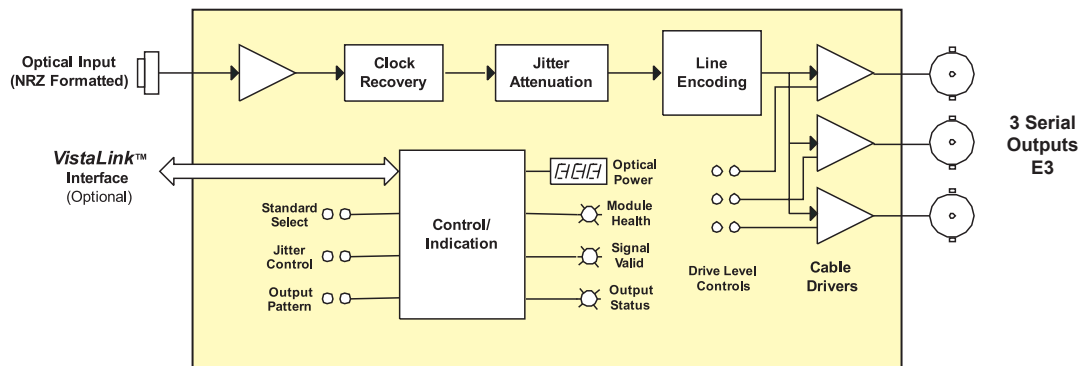


Model 7707OE-DS3

Features

- Optical to electrical converter for DS3 (44.736Mb/s)
- Signal reclocking and jitter attenuation
- Output wave shaping for G.703 standards compliance
- Output 1010 pattern generation upon loss of lock to an input signal
- Electrical output drive level control for enhanced distance
- Transformer coupled outputs
- Display of received optical power provides a pre-emptive indication of link integrity
- Wide range optical input (1270nm-1610nm)
- Supports single-mode and multi-mode fiber optic cable
- Fully hot swappable from front of frame
- Occupies one card slot and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone enclosure that will hold 1 module
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

Model 7707OE-DS3 Block Diagram



Specifications

Optical Input:

Number of Inputs: 1 Scrambled DS3 @ 44.736Mb/s
Connector: Female SC/PC, ST/PC or FC/PC
Wavelength: 1270nm- 1610nm
Optical Sensitivity: -31dBm
Max. Input Power: 0dBm
Fiber Size: 62µm core / 125µm overall

Outputs:

Number of Outputs: 3 per card-reclocked
Connector: BNC per IEC 60169-8 Amendment 2
Waveform: Conforms to G.703 compliant masks
Return Loss: > 15dB up to 44.736Mb/s
Drive Level:
 High: For driving cable lengths > 70m
 Low: For driving cable lengths < 70m

Electrical:

Voltage: + 12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7707OE-DS3 DS3 Optical to Electrical Converter, VistaLINK™ Monitoring

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

E3 Optical to Electrical Converter

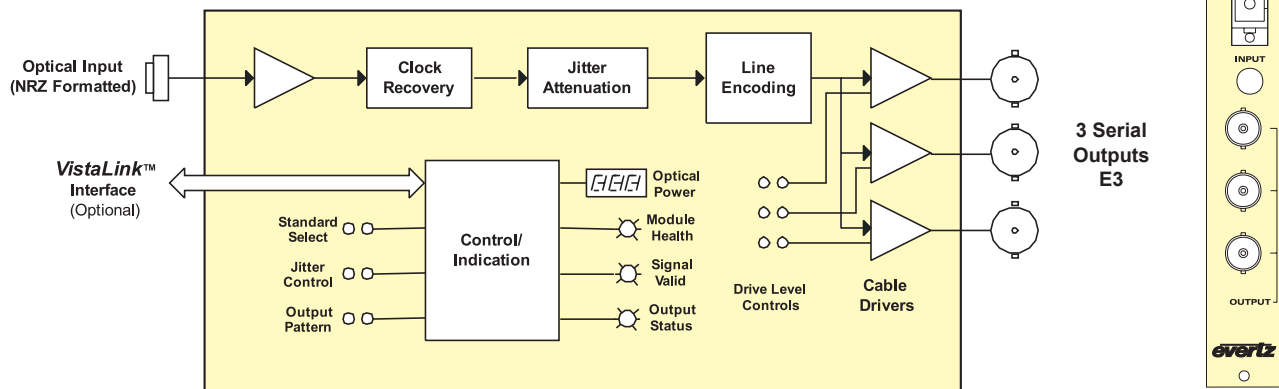
Model 7707OE-E3



Features

- Optical to electrical converter for E3 (34.368Mb/s)
- Signal reclocking and jitter attenuation
- Output wave shaping for G.703 standards compliance
- Output 1010 pattern generation upon loss of lock to an input signal
- Electrical output drive level control for enhanced distance
- Transformer coupled outputs
- Display of received optical power provides a pre-emptive indication of link integrity
- Wide range optical input (1270nm-1610nm)
- Supports single-mode and multi-mode fiber optic cable
- Fully hot swappable from front of frame
- Occupies one card slot and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone enclosure that will hold 1 module
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™-enabled capability

Model 7707OE-E3 Block Diagram



Specifications

Optical Input:

Number of Inputs: 1 Scrambled E3 @ 34.368Mb/s
Connector: Female SC/PC, ST/PC or FC/PC
Wavelength: 1270nm- 1610nm
Optical Sensitivity: -31dBm
Max. Input Power: 0dBm
Fiber Size: 62µm core / 125µm overall

Outputs:

Number of Outputs: 3 per card-reclocked
Connector: BNC per IEC 60169-8 Amendment 2
Waveform: Conforms to G.703 compliant masks
Return Loss: > 15dB up to 34MHz
Drive Level:
High: For driving cable lengths > 70m
Low: For driving cable lengths < 70m

Electrical:

Voltage: + 12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Ordering Information:

7707OE-E3 E3 Optical to Electrical Converter, VistaLINK™ Monitoring

HDTV Optical to Electrical Converter

19.4Mb/s to 1.5Gb/s

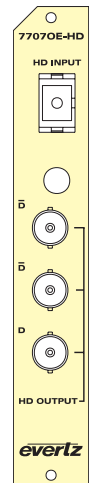
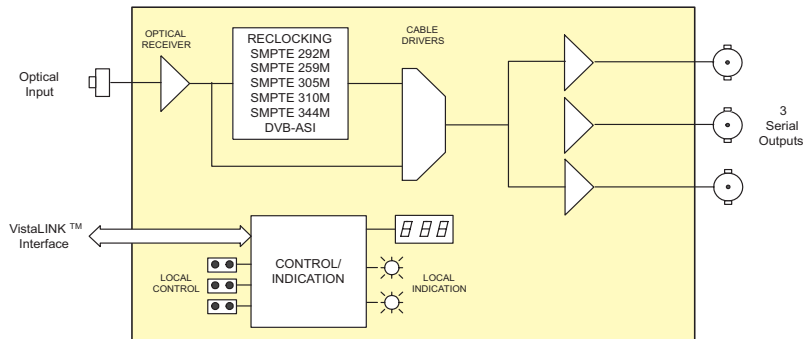
Model 7707OE-HD



Features

- Supports all SMPTE 292M standards at 1.485Gb/s
- Supports all SMPTE259M standards with operation from 143Mb/s - 360Mb/s
- Supports SMPTE 310M (19.4Mb/s), M2S or DVB-ASI (270Mb/s), SMPTE 344M (540Mb/s), and SMPTE 305M (SDTi) rates
- Auto rate selection, indication and reclocking for all SDI and HD-SDI data rates from 143Mb/s to 1.485Gb/s
- Selectable non-reclock mode for other rates
- Detection and display of optical input power, video format, and EDH errors (SDI only)
- Display of received optical power for continuous indication of link integrity
- Wide range optical input (1270nm-1610nm)
- Supports single-mode and multi-mode fiber optic cable
- Fully hot swappable from front of frame
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to three modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold one module

7707OE-HD Block Diagram



Specifications

Optical Input:

Standards: SMPTE 297M
Reclocked: SMPTE 292M, SMPTE 259M A, B, C, D, SMPTE 344M, SMPTE 305M, SMPTE 310M (19.4 Mb/s), DVB-ASI, M2S
Non-Reclocked: Any bi-level signal type at rates of 19.4Mb/s - 1.485Gb/s

Connector: Female SC/PC, ST/PC or FC/PC.
Wavelength: 1270nm -1610nm

Optical Sensitivity:
Standard: -23dBm @ 1.485Gb/s
High Sensitivity (-H): -28dBm @ 1.485Gb/s
Max. Input Power:
Standard: -1dBm
High Sensitivity (-H): -8dBm

Serial Video Outputs:

Number of Outputs: 3 Per Card (1 output DVB-ASI/M2S compliant)
Connectors: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω (nominal)
Signal Level: 800mV(nominal)
DC Offset: 0V ±0.5V
Rise and Fall Time: <270ps
Overshoot: < 10% of amplitude
Return Loss: > 12dB to 1.5GHz
Wide Band Jitter: < 0.20UI (Reclocked)

Electrical:

Voltage: +12VDC
Power: 8 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7707OE-HD	HDTV Optical to Electrical Converter, 19.4Mb/s to 1.5Gb/s
7707OE-HD-H	HDTV Optical to Electrical Converter, 19.4Mb/s to 1.5Gb/s, High Sensitivity receiver

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC	Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC	Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC	Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC	Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC	Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC	Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone enclosure

Optical Regenerator/Wavelength Converter, 19.4Mb/s to 540Mb/s, VistaLINK™

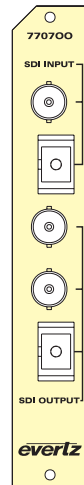
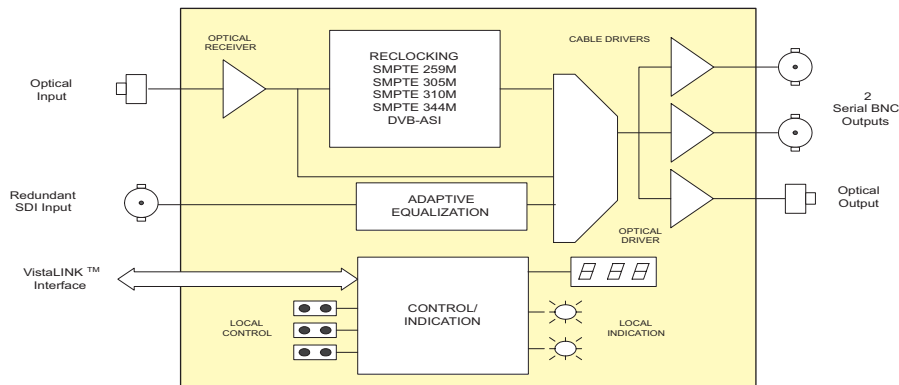
Model 770700



Features

- Can be used as optical regenerator/repeater, E to O converter, O to E converter, O to O wavelength converter
- Auto-rate selection, reclocking and indication for all SMPTE 259M standards from 143-540Mb/s
- Supports additional standards of SMPTE 305M(SDTi), SMPTE 310M(19.4Mb/s) and M2S or DVB-ASI(270Mb/s)
- Can also support Datacom/Telecom rates up to 540Mb/s
- Coaxial or optical input (jumper selectable)
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths of 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Independent isolated output drivers to ensure no cross channel loading effects and to maintain polarity from input to output for DVB-ASI applications
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Detection and display of optical input power, video format and EDH errors
- Fully hot-swappable from front of frame
- Two BNC serial digital outputs

770700 Block Diagram



Specifications

Standards:	SMPTE 259M A, B, C, D, SMPTE 297M, SMPTE 305M, SMPTE 310M, DVB-ASI, M2S
Optical Input:	
Connector:	Female SC/PC, ST/PC, FC/PC
Operating Wavelength:	1270nm to 1610nm
Maximum Input Power:	0dBm
Optical Sensitivity:	-31dBm
Electrical Video Input:	
Normal:	SMPTE 259M (143 to 540 Mb/s) or DVB/ASI
Jumper Selectable:	SMPTE 310M (19.4 Mb/s)
Connector:	1 BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 275m @ 270 Mb/s with Belden 8281 (or equivalent)
Return Loss:	> 15 db to 540 Mb/s
Optical Outputs:	
Connector:	SC/PC, ST/PC, FC/PC female housing
Return Loss:	> 14dB
Jitter:	< 0.15UI (Reclocked) < 0.20UI (Non-reclocked)
Nominal Wavelength:	1310nm, 1550nm
CWDM Wavelengths:	See Ordering Information
DWDM Wavelengths:	See Ordering Information
Output Power:	
1310nm FP	-7dBm ± 1dBm
1550nm DFB	0dBm ± 1dBm
CWDM DFB	0dBm ± 1dBm
DWDM DFB:	+7dBm ± 1dBm
Electrical Video Outputs:	
Number of Outputs:	2 per card - reclocked (both outputs maintain polarity from input to output for DVB-ASI applications)
Connectors:	BNC per IEC 60169-8 Amendment 2
Impedance:	75Ω (nominal)
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	900ps nominal
Overshoot:	<10% of amplitude
Return Loss:	>15dB up to 540Mb/s
Wide Band Jitter:	< 0.15UI (Reclocked) < 0.20UI (Non-reclocked)

Electrical:	
Voltage:	+12V DC
Power:	6 Watts (Non DWDM), 9 Watts (DWDM)
Physical:	
Number of Slots	1
Compliance:	
Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive Class 1 laser product Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1
Laser Safety:	Complies with FCC Part 15, Class A EU EMC directive
EMI/RFI:	

Ordering Information:	
770700I3	Optical Regenerator / Wavelength Converter for rates to 540Mb/s, 1270nm to 1610nm input, 1310nm FP output
770700I5	Optical Regenerator / Wavelength Converter for rates to 540Mb/s, 1270nm to 1610nm input, 1550nm DFB laser output
For CWDM, please refer to the end of the fiber section for ordering information	
770700xx	Optical Regenerator / Wavelength Converter for rates to 540Mb/s, 1270nm to 1610nm input, CWDM output
For DWDM, please refer to the end of the fiber section for ordering information	
770700Dyyy	Optical Regenerator / Wavelength Converter for rates to 540Mb/s, 1270nm to 1610nm input, DWDM output

Ordering Options	
Rear Plate and Fiber Connector must be specified at time of order Eg: Model +SC +3RU	
Rear Plate Suffix	
+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate
Connector Suffix	
+SC	SC/PC
+ST	ST/PC
+FC	FC/PC
Enclosures:	
7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Optical Regenerator/Wavelength Converter, 19.4Mb/s to 1.485Gb/s, VistaLINK™

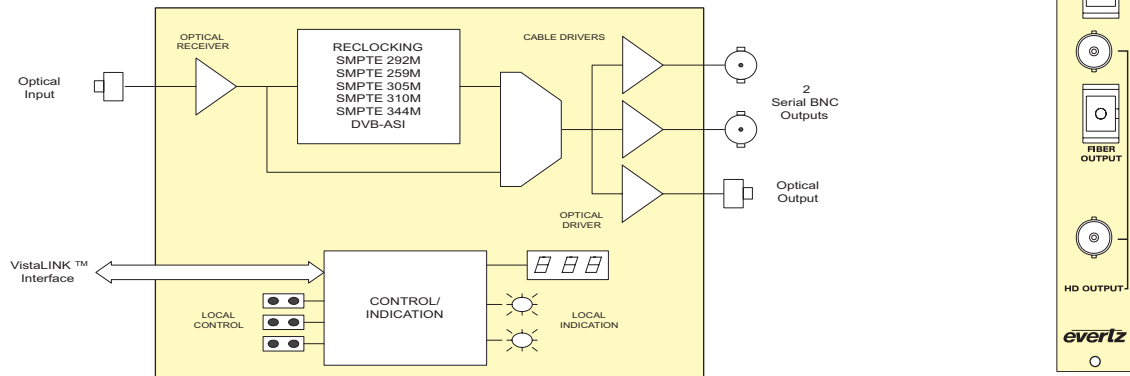
Model 770700-HD



Features

- Can be used as optical regenerator/repeater, O to E converter or O to O wavelength converter
- Auto rate selection, reclocking and indication for all SDI (SMPTE 259M) and HD-SDI (SMPTE 292M) data rates from 143Mb/s to 1.485Gb/s
- Also supports SMPTE 305M (SDTi), SMPTE 310M (19.4Mb/s) and M2S or DVB-ASI (270Mb/s)
- Supports other Telecom/Datacom rates up to 1.5Gb/s
- Wide range optical input (1270nm-1610nm)
- Optical output wavelengths of 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- BNC outputs maintain polarity from input to output for DVB-ASI applications
- Supports single-mode and multi-mode fiber optic cable
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Detection and display of optical input power, video format, and EDH errors (SDI only)
- Fully hot swappable from front of frame

770700-HD Block Diagram



Specifications

Standards:	SMPTE 297M
Reclocked:	SMPTE 292M, SMPTE 259M A, B, C, D, SMPTE 344M, SMPTE 305M, SMPTE 310M (19.4 Mb/s), DVB-ASI, M2S
Non-Reclocked:	Any bi-level signal type at rates of 19.4Mb/s - 1.485Gb/s
Optical Input:	
Connector:	Female SC/PC, ST/PC or FC/PC
Operating Wavelength:	1270nm -1610nm
Max. Input Power:	
Standard:	-1dBm
High Sensitivity (-H):	-7dBm
Optical Sensitivity	
Standard:	-23dBm @ 1.485Gb/s
High Sensitivity (-H):	-28dBm @ 1.485Gb/s
Optical Output:	
Connector:	SC/PC, ST/PC or FC/PC female housing
Return Loss:	< 14dB
Wide Band Jitter:	< 0.2UI (reclocked)
Nominal Wavelength:	1310nm, 1550nm
CWDM Wavelengths:	See Ordering Information
DWDM Wavelengths:	See Ordering Information
Output Power:	
1310nm FP	-7dBm ± 1dBm
1550nm DFB	0dBm ± 1dBm
CWDM DFB	0dBm ± 1dBm
DWDM DFB:	+7dBm ± 1dBm
Electrical Video Outputs:	
Number of Outputs:	2 per card reclocked (both outputs maintain polarity from input to output for DVB-ASI applications)
Connectors:	BNC per IEC 60169-8 Amendment 2.
Impedance:	75Ω(nominal).
Signal Level:	800mV(nominal).
DC Offset:	0V ±0.5V
Rise and Fall Time:	<270ps
Overshoot:	< 10% of amplitude.
Return Loss:	> 12dB to 1.5GHz
Wide Band Jitter:	< 0.2UI (Reclocked)
Electrical:	
Voltage:	+12VDC
Power:	8 Watts (Non-DWDM version) 11 Watts (DWDM version)
Physical:	
7700 or 7701 frame mounting:	
Number of slots:	1
Compliance:	
Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive

Laser Safety:	Class 1 laser product Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1 Complies with FCC Part 15, Class A EU EMC directive
EMI/RFI:	

Ordering Information:	
77070013-HD	Optical Regenerator / Wavelength Converter for rates to 1.5Gb/s, 1270nm to 1610nm input, 1310nm FP output
77070013-HD-H	Optical Regenerator / Wavelength Converter for rates to 1.5Gb/s, High Sensitivity (-28dBm) input, 1310nm FP output
77070015-HD	Optical Regenerator / Wavelength Converter for rates to 1.5Gb/s, 1270nm to 1610nm input, 1550nm DFB Laser output
For CWDM, please refer to the end of the fiber section for ordering information	
770700xx-HD	Optical Regenerator / Wavelength Converter for rates to 1.5Gb/s, 1270nm to 1610nm input, CWDM output
For Long Distance CWDM high sensitivity, please refer to the end of the fiber section for ordering information	
770700xx-HD-H	Optical Regenerator / Wavelength Converter for rates to 1.5Gb/s, High Sensitivity (-28 dBm) input, CWDM output
For DWDM, please refer to the end of the fiber section for ordering information	
770700Dyyy-HD	Optical Regenerator / Wavelength Converter for rates to 1.5Gb/s, 1270nm to 1610nm input, DWDM output
For Long Distance DWDM high sensitivity, please refer to the end of the fiber section for ordering information	
770700Dyyy-HD-H	Optical Regenerator / Wavelength Converter for rates to 1.5Gb/s, High Sensitivity (-28dBm) input, DWDM output

Ordering Options	
Rear Plate and Fiber Connector must be specified at time of order	
Eg: Model +SC +3RU	
Rear Plate Suffix	
+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate
Connector Suffix	
+SC	SC/PC
+ST	ST/PC
+FC	FC/PC
Enclosures:	
7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

RGBHV/DVI/KVM Fiber Receiver

VistaLINK™ Monitoring



Model 7707RGBR

The 7707RGBR is a VistaLINK™ SNMP -enabled RGBHV/DVI/KVM fiber receiver for high resolution/high quality video signals. This single card module accepts a fiber optic input from the companion 7707RGBT RGBHV/DVI/KVM Fiber Transmitter, and outputs both analog RGBHV and digital DVI video. The 7707RGBR is also available with analog audio and keyboard + mouse options.

The 7707RGBR occupies one card slot (two card slots for the A2KM version) and can be housed in either a 1RU frame, which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- Supports DVI or RGBHV transport over a single fiber
- Provides both RGBHV and DVI outputs simultaneously
- VESA video resolutions supported up to UXGA
- Full 24 bits per pixel color resolution
- Ideal for use with high resolution LCD, plasma, and projection screens
- Superior digital data transmission
- Comprehensive signal and card status monitoring via four-digit card-edge display, or through SNMP and VistaLINK™ -enabled capability
- Fully hot-swappable from front of frame with no fiber disconnect/re-connect required
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range
- Optional 2 channel stereo analog audio
- Optional keyboard and mouse

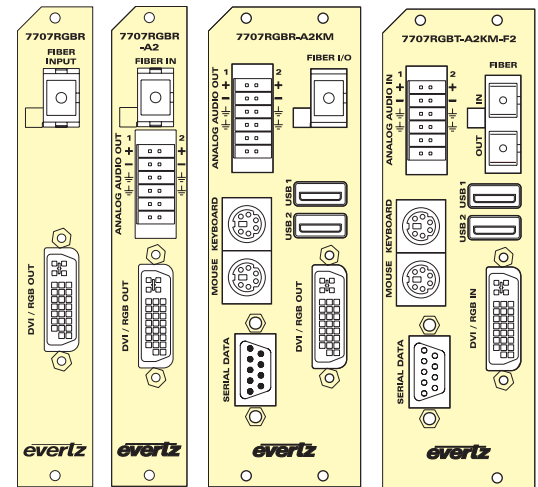
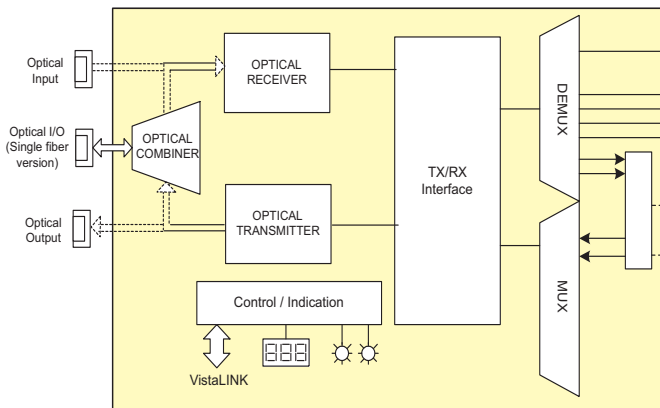
7707RGBR Application Configurations (“-A2KM” KVM Version)

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<500m	7707RGBT13-A2KM-F2	-7dBm	7707RGBR13-A2KM-F2	-19dBm	1310nm on Tx & Rx fibers
Single-Mode	2	12dB/34km	7707RGBT13-A2KM-F2	-7dBm	7707RGBR13-A2KM-F2	-19dBm	1310nm on Tx & Rx fibers
Single-Mode	1	8dB/20km*	7707RGBT15-A2KM-W	-1dBm	7707RGBR13-A2KM-W	-17dBm	1310nm/1550nm WDM bi-directional, one fiber
Single-Mode	2(CWDM)	15.5dB/60km**	7707RGBTxx-A2KM-F2	0dBm	7707RGBRyy-A2KM-F2	-19dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	2(DWDM)	21dB/80km***	7707RGBTDxxx-A2KM-F2	+7dBm	7707RGBRDyyy-A2KM-F2	-19dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux**
* With >20dB return loss on fiber interface					Tx Power/Rx Sensitivity are nominal values ±1dBm		
** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB					Fiber loss= 0.35/0.25dB per km @1310nm/1550nm		
***Assumes 8 Ch DWDM Mux/Demux loss of 5dB							

RGBHV/DVI/KVM Fiber Receiver

VistaLINK™ Monitoring

7707RGBR Block Diagram



Specifications

Video Output:

Standards:	DVI 1.0, VESA
Number of Outputs:	1
Connectors:	28-pin DVI with Analog
Video Resolution:	Up to UXGA (1600x1200) at 60Hz
Video Bandwidth:	500MHz
Color Resolution:	24 bits
Analog Output Level:	1.4 Vp-p (maximum)
Analog Output Impedance:	75Ω
Signal/Noise Ratio:	> 55 dB

Analog Audio Output (A2, A2KM & A2KM-F2 versions):

Number of Outputs:	2
Type:	Balanced analog audio
Connector:	12 pin removable terminal block
Impedance:	High Impedance (> 20kΩ)
Frequency Response:	±0.1dB (20Hz to 20kHz)
THD:	< 0.005% (20Hz to 20kHz)
Channel Phase Diff:	< ±1°
SNR:	> 85dB
Level:	-20dB to +3dB
Maximum Output Level:	+24dBu into 10kΩ loads

Keyboard/Mouse Input/Output (A2KM & A2KM-F2 versions):

Standards:	USB 1.0
Number:	2 (Mouse), 2 (Keyboard)
Connector:	1 PS2 and 1 USB for each keyboard & mouse

Optical Input:

Number of Inputs:	1
Connector:	Female SC/PC, ST/PC or FC/PC
Operating Wavelength:	1270nm - 1610nm
Max Input Power:	0dBm
Optical Sensitivity:	See Application Configuration chart

Optical Output (A2KM & A2KM-F2 versions):

Number of Inputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC
Wavelengths:	See Ordering Information
Power:	See Application Configuration Chart

Electrical:

Voltage:	+12 VDC
Power:	11 Watts (Non-DWDM), 14 Watts (DWDM)

Physical:

Number of Slots:	1 (Standard versions) 2 (A2KM versions)
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Compliance:

Electrical Safety:	CSA Listed to UL 60065-03, IEC 60065 Complies with CE Low voltage Directive Class 1 laser product Complies with 24 CFR 1040.10 and 1040.11 IEC 60825-1
Laser Safety:	Complies with FCC Part 15, Class A EU EMC directive
EMI/RFI:	

Ordering Information:

7707RGBR	RGBHV/DVI Fiber Receiver
7707RGBR-A2	RGBHV/DVI +2 Analog Audio Fiber Receiver
7707RGBR13-A2KM-F2	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Receiver, dual fiber, 1310nm TX & RX
7707RGBR13-A2KM-W	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Receiver, single fiber, 1310nm TX, RX on 1550nm
For CWDM, please refer to the end of the fiber section for ordering information	
7707RGBRxx-A2KM-F2	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Receiver, dual fiber, CWDM Laser
For DWDM, please refer to the end of the fiber section for ordering information	
7707RGBRDyyy-A2KM-F2	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Receiver, dual fiber, DWDM Laser

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix:

+3RU:	3RU rear plate for use with 7700FR-C Multiframe
+1RU:	1RU rear plate for use with 7701FR Multiframe
+SA:	Standalone Enclosure Rear Plate

Connector Suffix:

+SC:	SC/PC
+ST:	ST/PC
+FC:	FC/PC

Enclosures:

7700FR-C:	3RU Multiframe which holds 15 modules
7701FR:	1RU Multiframe which holds 3 modules
S7701FR:	Standalone enclosure

RGBHV/DVI/KVM Fiber Transmitter

VistaLINK™ Monitoring



Model 7707RGBT

The 7707RGBT is a VistaLINK™ SNMP-enabled RGBHV/DVI/KVM fiber transmitter for high resolution/high quality video signals. This single card module accepts one analog RGBHV or digital DVI video input up to UXGA resolution and transmits them over a single fiber. The 7707RGBT is also available with analog audio and keyboard + mouse options. The companion 7707RGBR RGBHV/DVI/KVM Fiber Receiver demultiplexes the signals and converts them back to analog RGBHV and digital DVI.

The fiber output is available in an assortment of optical wavelengths, accommodating 1310/1550nm, CWDM and DWDM transmission schemes.

The 7707RGBT occupies one card slot (two card slots for the A2KM version) and can be housed in either a 1RU frame, which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold 1 module.

Features

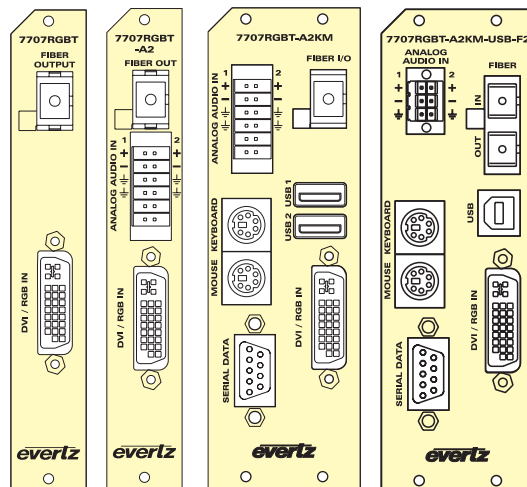
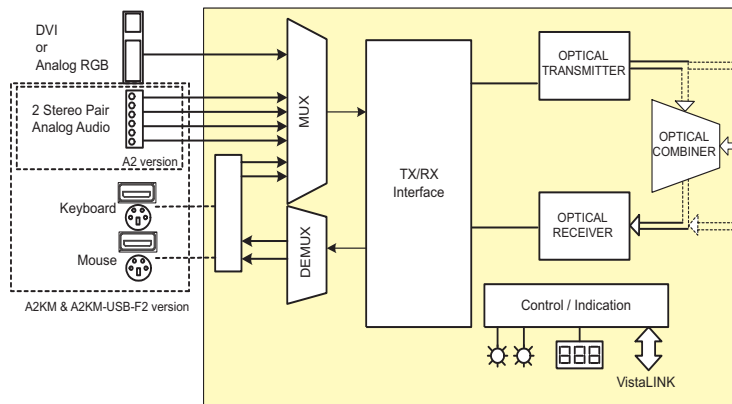
- Supports DVI or RGBHV transport over a single fiber
- Both RGBHV and DVI outputs available simultaneously on companion 7707RGBR Receiver
- VESA video resolutions supported up to UXGA
- Full 24 bits per pixel color resolution
- Ideal for use with high resolution LCD, plasma, and projection screens
- Superior digital data transmission
- Comprehensive signal and card status monitoring via four-digit card-edge display, or through SNMP and VistaLINK™-enabled capability
- Fully hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths at 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Optional 2 channel stereo analog audio
- Optional keyboard and mouse
- Optional keyboard and mouse feature

7707RGBT Application Configurations (“-A2KM” KVM Version)

FIBER TYPE	FIBERS	OPTICAL/LINK BUDGET	TRANSMIT SIDE		RECEIVE SIDE		DESCRIPTION
			ORDERING PRODUCT INFO	TX POWER	ORDERING PRODUCT INFO	RX SENSITIVITY	
Multi-Mode	2	<500m	7707RGBT13-A2KM-USB-F2	-7dBm	7707RGBR13-A2KM-USB-F2	-19dBm	1310nm on Tx & Rx fibers
Single-Mode	2	12dB/34km	7707RGBT13-A2KM-USB-F2	-7dBm	7707RGBR13-A2KM-USB-F2	-19dBm	1310nm on Tx & Rx fibers
Single-Mode	1	8dB/20km*	7707RGBT15-A2KM-W	-1dBm	7707RGBR13-A2KM-W	-17dBm	1310nm/1550nm WDM bi-directional, one fiber
Single-Mode	2(CWDM)	15.5dB/60km**	7707RGBTxx-A2KM-USB-F2	0dBm	7707RGBRyy-A2KM-USB-F2	-19dBm	Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**
Single-Mode	2(DWDM)	21dB/80km***	7707RGBTDxxx-A2KM-USB-F2	+7dBm	7707RGBRDyyy-A2KM-USB-F2	-19dBm	Different DWDM wavelengths for Tx & Rx, with 8 channel DWDM Mux/Demux**
* With >20dB return loss on fiber interface ** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB *** Assumes 8 Ch DWDM Mux/Demux loss of 5dB					Tx Power/Rx Sensitivity are nominal values ±1dBm Fiber loss= 0.35/0.25dB per km @1310nm/1550nm		

RGBHV/DVI/KVM Fiber Transmitter VistaLINK™ Monitoring

7707RGBT Block Diagram



Specifications

Video Input:

Standards: DVI 1.0, VESA
Number of Inputs: 1
Connectors: 28-pin DVI with Analog
Video Resolution: Up to UXGA (1600x1200) at 60Hz
Video Bandwidth: 500MHz
Color Resolution: 24 bits
Analog Output Level: 1 Vp-p (maximum)
Analog Output Impedance: 75Ω
Signal/Noise Ratio: > 55 dB

Analog Audio Input (A2, A2KM & A2KM-USB-F2 versions):

Number of Inputs: 2
Type: Balanced analog audio
Connector: 12 pin removable terminal block
Impedance: High Impedance (> 20kΩ)
Frequency Response: ±0.1dB (20Hz to 20kHz)
THD: < 0.005% (20Hz to 20kHz)
Channel Phase Diff: < ±1°
SNR: > 85dB
Maximum Input Level: +24dBu
Signal Quantization: 24 bits

Keyboard/Mouse Input/Output (A2KM & A2KM-USB-F2 versions):

Standards: USB 1.0
Number: 2 (Mouse), 2 (Keyboard)
Connector: 1 PS2 and 1 USB for each keyboard & mouse

Optical Output:

Number of Outputs: 1
Connector: Female SC/PC, ST/PC or FC/PC
Wavelengths: See Ordering Information
Output Power: See Application Configuration Chart

Optical Input (A2KM & A2KM-USB-F2 versions):

Number of Inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC
Wavelength: 1270 to 1610nm
Maximum Power: 0dBm
Optical Sensitivity: See Application Configuration Chart

Electrical:

Voltage: +12 VDC
Power: 11 Watts (Non-DWDM), 14 Watts (DWDM)

Physical:

Number of Slots: 1 (Standard version)
2 (A2KM versions)

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

7707RGBT13	RGBHV/DVI Fiber Transmitter, 1310nm FP
7707RGBT13-A2	RGBHV/DVI + 2 Analog Audio Fiber Transmitter, 1310nm FP
7707RGBT13-A2KM-USB-F2	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Transmitter, dual fiber, 1310nm TX & RX
7707RGBT15-A2KM-W	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Transmitter, single fiber, 1550nm TX, RX on 1310nm
For CWDM, please refer to the end of the fiber section for ordering information	
7707RGBTxx	RGBHV/DVI Fiber Transmitter, CWDM Laser
7707RGBTxx-A2	RGBHV/DVI+ 2 Analog Audio Fiber Transmitter, dual fiber, CWDM Laser
7707RGBTxx-A2KM-USB-F2	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Transmitter, dual fiber, CWDM Laser
For DWDM, please refer to the end of the fiber section for ordering information	
7707RGBTDyyy	RGBHV/DVI Fiber Transmitter, DWDM Laser
7707RGBTDyyy-A2	RGBHV/DVI + 2 Analog Audio Fiber Transmitter, dual fiber, DWDM Laser
7707RGBTDyyy-A2KM-USB-F2	RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Transmitter, dual fiber, DWDM Laser

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix:

+3RU: 3RU rear plate for use with 7700FR-C Multiframe
+1RU: 1RU rear plate for use with 7701FR Multiframe
+SA: Standalone Enclosure Rear Plate

Connector Suffix:

+SC: SC/PC
+ST: ST/PC
+FC: FC/PC

Enclosures:

7700FR-C: 3RU Multiframe which holds 15 modules
7701FR: 1RU Multiframe which holds 3 modules
S7701FR: Standalone enclosure

SDI with 2 AES Audio Fiber Receiver

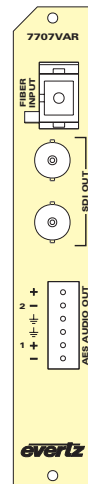
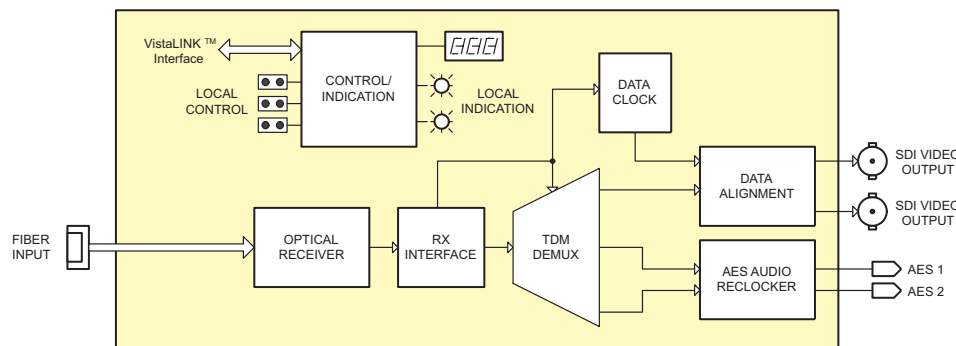
Models 7707VAR



Features

- SDI video and 2 AES audio fiber optic receiver
- Supports 270Mbps on 525 or 625 line 4:2:2 component SDI and SDTi (SMPTE 305M) video signals
- Supports 32, 44.1, 48 kHz AES audio inputs
- Dolby E compatible
- Incorporates Evertz SoftSwitch™ (Patent Pending) technology for virtually glitch-free AES Audio outputs when upstream SDI or AES feeds are switched
- User selectable SoftSwitch™ bypass
- Low Audio to Video latency
- Output AES "Mute" on loss of AES or fiber optic input signals
- SDI Video regeneration for jitter reduction
- Output Video "Black" or "Blue" (selectable) on loss of video or fiber optic input signals
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™-enabled capability
- Local display of optical signal strength, video and audio presence, video and AES formats, EDH errors
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range
- Occupies one card slot and can be housed in either a 1RU frame, which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module

7707VAR Block Diagram



Specifications

Optical Input:

Number of Inputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC
Return Loss:	>25dB
Operating Wavelength:	1270nm to 1610nm
Maximum Input Power:	0dBm
Optical Sensitivity:	-28dBm

Serial Video Outputs:

Number of Outputs:	2 regenerated
Standard:	SMPTE 259M-C
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	900ps nominal
Overshoot:	<10% of amplitude
Return Loss:	> 15dB at 270Mb/s
Wide Band Jitter:	< 0.15UI

AES Audio Outputs:

Number of Outputs:	2 regenerated (jumper selectable for balanced or unbalanced)
Standard:	
Unbalanced AES:	SMPTE 276M
Balanced AES:	AES3-1992
Other:	Dolby E compatible
Connector:	6 pin terminal strip
Signal Level:	
Unbalanced:	1 Vp-p
Balanced:	5 Vp-p
Resolution:	Up to 24-bits
Sampling Rate:	32, 44.1, 48 kHz
Intrinsic Jitter:	< 20ns
Impedance:	
Unbalanced:	75Ω
Balanced:	110Ω

System Performance: (7707VAR + 7707VAT)

Video Input To Output Delay:	< 1.5 μs
Audio to Video delay:	< 1μs with SoftSwitch™ disabled < 2ms with SoftSwitch™ enabled

Electrical:

Voltage:	+12VDC
Power:	10 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of slots:	1
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Ordering Information:

7707VAR	SDI with 2 AES Audio Fiber Receiver, VistaLINK™ Monitoring
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Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC	Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC	Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC	Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC	Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC	Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC	Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

SDI with 4 Analog Audio Fiber Receiver

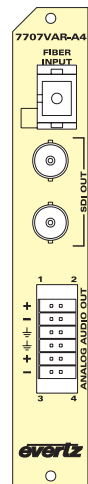
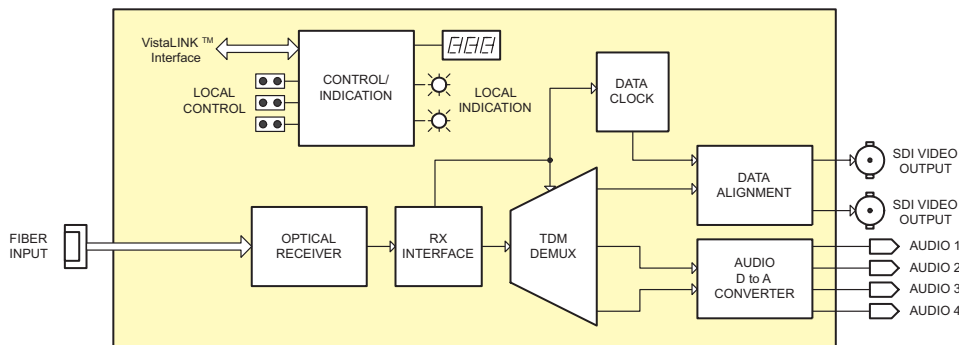
Model 7707VAR-A4



Features

- SDI video and four broadcast quality analog audio fiber optic receiver
- Supports 525 or 625 line 4:2:2 component SDI signals
- Low Audio to Video latency
- Output Video "Black" or "Blue" (selectable) on loss of video or fiber optic input signals
- Built-in jitter attenuation
- Local display of optical signal strength, video and audio presence, video format and EDH errors
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ - enabled capability
- Supports single mode and multi mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold 1 module

7707VAR-A4 Block Diagram



Specifications

Optical Input:

Number of Inputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC
Operating Wavelength:	1270nm to 1610nm
Maximum Input Power:	0dBm
Optical Sensitivity:	-28dBm

Serial Video Outputs:

Number of Outputs:	2 regenerated
Standard:	SMPTE 259M-C
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	900ps nominal
Overshoot:	<10% of amplitude
Return Loss:	> 15 dB at 270 Mb/s
Wide Band Jitter:	< 0.2 UI

Analog Audio Outputs:

Number of Outputs:	4
Type:	Balanced analog audio
Connector:	12 pin removable terminal block
Output impedance:	< 100 Ω
Freq. Response:	+/- 0.1dB, 20Hz to 20 kHz
THD 20Hz-20kHz:	< 0.005%
Channel Phase Diff.	+/- 1 deg
SNR (weighted):	> 85 dB
Output Level:	Adjustable to +24dBu
Audio Headroom:	+24dBu

System Performance: (7707VAT-A4 + 7707VAR-A4)

Video Input To Output Delay:	< 2μs
Audio Input to Output delay:	<1.9ms

Electrical:

Voltage:	+12VDC
Power:	11 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC directive

Physical:

Number of slots:	1
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Ordering Information:

7707VAR-A4	SDI with 4 Analog Audio Fiber Receiver, VistaLINK™ Monitoring
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Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +SC + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone enclosure

HD-SDI with 4 AES Audio Fiber Receiver

Model 7707VAR-HD



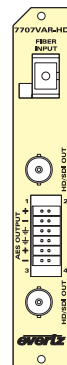
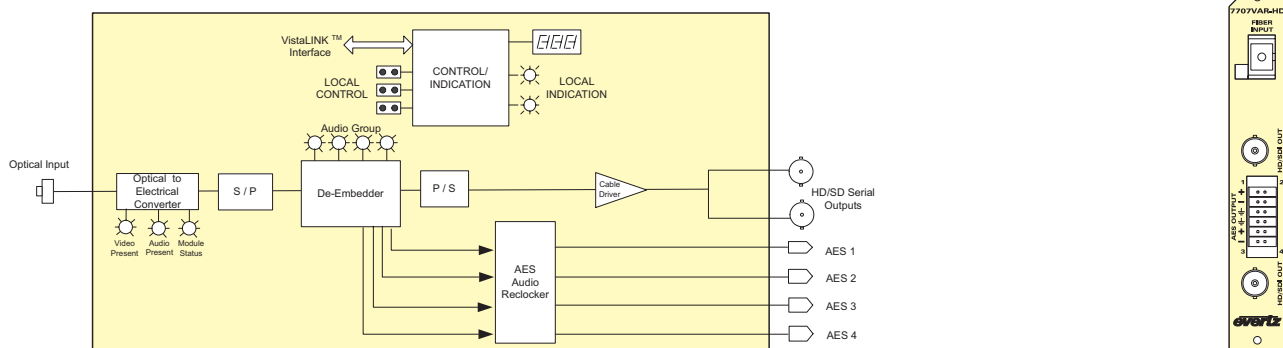
The 7707VAR-HD is a VistaLINK™ -enabled fiber optic receiver for HDTV or SDTV video and AES audio signals. This single card module outputs one HD-SDI or SDI video plus four AES audio that have been transmitted by the companion 7707VAT-HD, HD-SDI and AES audio fiber optic transmitter.

The 7707VAR-HD occupies one card slot and can be housed in either a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone enclosure holding 1 module.

Features

- Supports all HDTV video formats @1.485Gb/s
- Supports 525/625 line component 4:2:2 SDI @270Mb/s
- Provides up to four de-embedded AES audio outputs
- Dolby E compatible
- HD/SDI video regeneration for jitter reduction
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability
- Local display of optical signal strength, video and audio presence, video and AES formats
- Fully Hot-swappable from front of frame
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range

7707VAR-HD Block Diagram



Specifications

Optical Input:

Number of Inputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC
Return Loss:	>25dB
Operating Wavelength:	1270nm to 1610nm
Maximum Input Power:	
Standard:	-1dBm
High Sensitivity	
-H version:	-7dBm
Optical Sensitivity:	
Standard:	-23dBm
High Sensitivity	
-H version:	-28dBm

Serial Video Outputs:

Number of Outputs:	2 regenerated
Standard:	SMPTE 292M, SMPTE 259M-C
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	< 270ps for HDSDI, < 900ps for SDI
Overshoot:	<10% of amplitude
Return Loss:	> 15dB up to 1.485Gb/s
Wide Band Jitter:	< 0.2 UI

AES Audio Outputs:

Number of Signals:	4 (user selectable for balanced or unbalanced)
Standards:	AES3-2003 (Balanced AES) SMPTE 276M (Unbalanced AES)
Connector:	12 pin removable terminal strip
Sampling Rate:	48kHz
Resolution:	Up to 24 bits
Signal Level:	
Balanced:	1Vp-p ±0.1V
Unbalanced:	2Vp-p ±0.1V Differential
Rise/Fall Times:	
Balanced:	20ns ±5ns
Unbalanced:	35ns ±5ns
Impedance:	
Balanced:	110Ω
Unbalanced:	75Ω
Return Loss:	>15dB, from 1MHz to 6MHz
Wideband Jitter:	<10nsp-p, with conditions of minimum to maximum cable length

System Performance (7707VAT-HD + 7707VAR-HD):

Video Input To Output	
Delay:	< 35μs
Audio to Video delay:	< 9ms

Electrical:

Voltage:	+12VDC
Power:	11 Watts

Physical:

Number of slots:	1
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Ordering Information:

7707VAR-HD	HDTV with 4 AES Audio Fiber Receiver, VistaLINK™ Monitoring
7707VAR-HD-H	HDTV with 4 AES Audio High Sensitivity Fiber Receiver, VistaLINK™ Monitoring

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC	Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC	Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC	Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC	Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC	Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC	Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

SDI with 2 AES Audio Fiber Transmitter

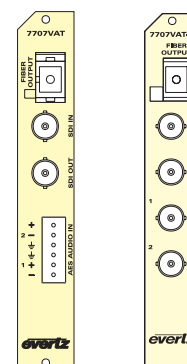
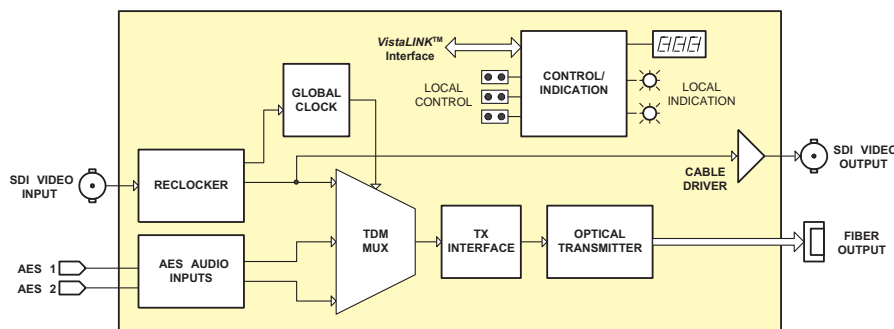
Models 7707VAT



Features

- SDI video and 2 AES audio fiber optic transmitter
- Supports 270Mb/s on 525 or 625 line 4:2:2 component SDI and SDTi (SMPTE 305M) video signals
- Supports 32, 44.1, 48 kHz AES audio inputs
- Dolby E compatible
- AES audio inputs can be synchronous or asynchronous to each other and/or to input video
- Reclocked SDI output for additional signal distribution or monitoring
- Signal transport over fiber uninterrupted by loss of SDI or AES audio input feeds
- Low audio to video latency over transport interface
- Local display of input SDI signal strength, video format, and EDH errors
- Automatic coaxial input equalization up to 300m at 270Mb/s (Belden 1694)
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Supports single-mode and multi-mode fiber optic cable
- Occupies one card slot and can be housed in either a 1RU frame, which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module

7707VAT Block Diagram



Specifications

Serial Line Input:

Standard: SMPTE 259M-C, 525 or 625 line component, SMPTE 305M, (SDTi)
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 300m @ 270 Mb/s with Belden 1694 or equivalent cable
Return Loss: > 15 dB up to 270 Mb/s

Serial Video Output:

Number of Outputs: 1 Per Card reclocked
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: >15 dB at 270 Mb/s
Wide Band Jitter: <0.2 UI

AES Audio Inputs (7707VAT & 7707VAT-U):

Number of Inputs: 2 (Jumper selectable for balanced or unbalanced input)
Standard: SMPTE 276M
Unbalanced AES: AES3-1992
Balanced AES: Other: Dolby E compatible
Connector: 7707VAT-U: BNC per IEC 60169-8 Amendment 2
7707VAT: 6 pin terminal strip
Signal Level: Balanced: 2 to 7Vp-p with level jumper set to HI, 1 to 2Vp-p set to LO
Unbalanced: 1V p-p ±0.1V
Equalization: Balanced: 500m @ 48kHz with Belden 1800B or equivalent cable
Unbalanced: 2200m @ 48kHz with Belden 8281 or equivalent cable
Resolution: Up to 24 bits
Sampling Rate: 32, 44.1, 48 kHz
Impedance: Unbalanced: 75 Ω
Balanced: 110 Ω

Optical Output:

Number: 1
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 14 dB
Rise and Fall Time: 200ps nominal
Wavelengths: See Ordering Information
Output Power: 1310nm FP(Standard) -7dBm ± 1dBm
1310nm FP(M version) 0dBm ± 1dBm
1550nm & CWDM DFB 0dBm ± 1dBm
DWDM DFB 7dBm ± 1dBm
Fiber Size: 9 μm core / 125 μm overall

System Performance: (7707VAT & 7707VAR)

Video Input To Output Delay: < 1.5 μs
Audio to Video delay: < 1μs with SoftSwitch™ disabled on 7707VAR
< 2ms with SoftSwitch™ enabled on 7707VAR

Electrical:

Voltage: +12VDC
Power: 10 Watts (Non-DWDM) 13 Watts (DWDM)

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

7707VAT13	SDI with 2 AES Audio Fiber Transmitter, 1310nm, FP Laser, VistaLINK™ Monitoring
7707VAT13M	SDI with 2 AES Audio Fiber Transmitter, 1310nm Higher Power (0dBm), FP Laser, VistaLINK™ Monitoring
7707VAT15	SDI with 2 AES Audio Fiber Transmitter, 1550nm, DFB Laser, VistaLINK™ Monitoring
For CWDM, please refer to the end of the fiber section for ordering information	
7707VATxx	SDI with 2 AES Audio Fiber Transmitter, CWDM DFB Laser, VistaLINK™ Monitoring
For DWDM, please refer to the end of the fiber section for ordering information	
7707VATDyyy	SDI with 2 AES Audio Fiber Transmitter, DWDM wavelength, VistaLINK™ Monitoring

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

+U Unbalanced AES Audio

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

SDI with 4 Analog Audio Fiber Transmitter

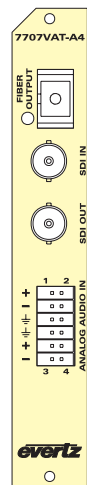
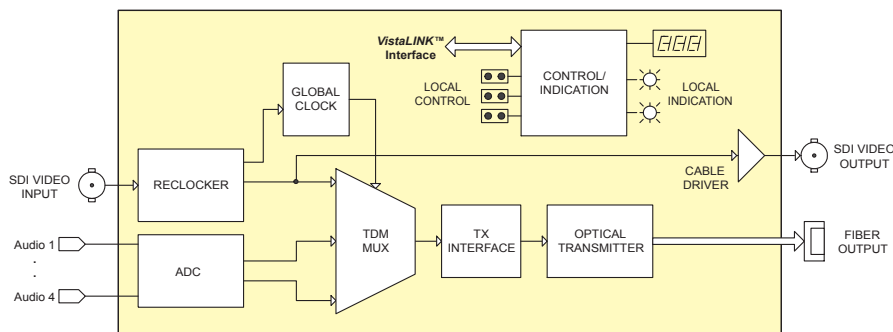
Models 7707VAT-A4



Features

- SDI Video and 4 broadcast quality analog audio fiber optic transmitter
- Supports 525 or 625 line 4:2:2 component SDI signals
- Analog audio inputs can be synchronous or asynchronous to each other and/or to input video
- Reclocked SDI output for additional signal distribution or monitoring
- Signal transport over fiber uninterrupted by loss of SDI or Analog audio input feeds
- Low Audio to Video latency over transport interface
- Local display of input SDI signal strength, video format, and EDH errors
- Automatic coaxial input equalization to 300m at 270Mb/s (Belden 8281)
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- Occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules, or a standalone enclosure which will hold 1 module

7707VAT-A4 Block Diagram



Specifications

Serial Video Input:

Standard:	SMPTE 259M-C
Connector:	1 BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 300m @ 270 Mb/s with Belden 8281 or equivalent cable
Return Loss:	> 15 dB up to 270 Mb/s

Serial Video Output:

Number of Outputs:	1 Per Card relocked
Standard:	SMPTE 259M-C
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V ± 0.5V
Rise and Fall Time:	900ps nominal
Overshoot:	<10% of amplitude
Return Loss:	>15 dB at 270 Mb/s
Wide Band Jitter:	<0.2 UI

Analog Audio Inputs:

Number of Inputs:	4
Type:	Balanced analog audio
Connector:	12 pin removable terminal block
Input impedance:	High Impedance (>20 KΩ)
Freq. Response:	+/-0.1 dB, 20Hz to 20 kHz
THD 20Hz-20kHz:	< 0.005%
Channel Phase Diff.:	+/- 1 deg
SNR (weighted):	> 85 dB
Max. Audio Input Level:	+24 dBu
Signal Quantization:	24 Bits

Optical Output:

Number:	1
Connector:	Female SC/PC, ST/PC or FC/PC
Return Loss:	> 14dB
Rise and Fall Time:	200ps nominal
Wavelengths:	See Ordering Information
Output Power:	
1310nm FP(Standard)	-7dBm ± 1dBm
1310nm FP(M version)	0dBm ± 1dBm
1550nm and CWDM DFB	0dBm ± 1dBm
DWDM DFB	7dBm ± 1dBm

System Performance: (7707VAT-A4 + 7707VAR-A4)

Video Input To Output Delay:	< 2µs
Audio Input to Output delay:	<1.9ms

Electrical:

Voltage:	+12VDC
Power:	11 Watts(Non-DWDM), 13 Watts(DWDM)
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC directive

Ordering Information:

7707VAT13-A4	SDI with 4 Analog Audio Fiber Transmitter, 1310nm, FP Laser, VistaLINK™ Monitoring
7707VAT13M-A4	SDI with 4 Analog Audio Fiber Transmitter, 1310nm Higher Power (0dBm), FP Laser, VistaLINK™ Monitoring
7707VAT15-A4	SDI with 4 Analog Audio Fiber Transmitter, 1550nm, DFB Laser, VistaLINK™ Monitoring

For CWDM, please refer to the end of the fiber section for ordering information

7707VATxx-A4	SDI with 4 Analog Audio Fiber Transmitter, CWDM DFB Laser, VistaLINK™ Monitoring
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For DWDM, please refer to the end of the fiber section for ordering information

7707VATDyyy-A4	SDI with 4 Analog Audio Fiber Transmitter, DWDM DFB Laser, VistaLINK™ Monitoring
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Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone Enclosure

HD-SDI with 4 AES Audio Fiber Transmitter

Model 7707VAT-HD



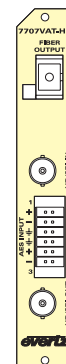
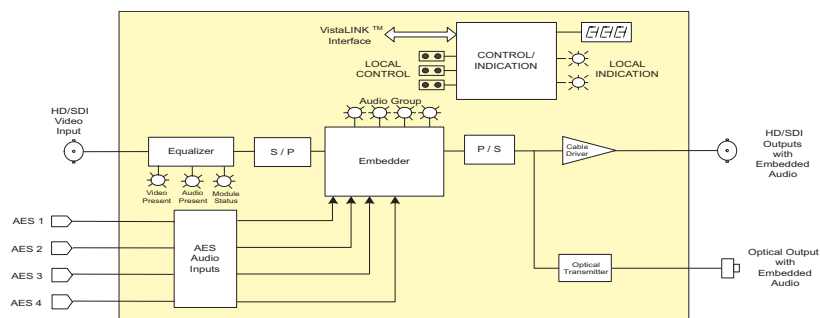
The 7707VAT-HD is a VistaLINK™ -enabled fiber optic transmitter for HDTV or SDTV video and AES audio signals. This single card module accepts one HD-SDI or SDI video plus four AES audio and transmits them on a single fiber. The companion 7707VAR-HD, HD-SDI video and AES audio receiver converts the HD-SDI and AES back to separate video and audio.

The fiber output is available in an assortment of optical wavelengths accomodating 1310/1550nm, CWDM and DWDM transmission schemes. The 7707VAT-HD occupies one card slot and can be housed in a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone enclosure holding 1 module.

Features

- Supports all HDTV video formats @1.485Gb/s
- Supports 525/625 line component 4:2:2 SDI @270Mb/s
- Supports 32, 44.1, 48 kHz AES audio inputs
- Dolby E compatible
- AES audio inputs can be synchronous or asynchronous to each other and/or to input video
- Reclocked video output for additional signal distribution or monitoring
- Signal transport over fiber uninterrupted by loss of video or AES audio input feeds
- Comprehensive signal and card status monitoring via four-digit card-edge display, or remotely through SNMP and VistaLINK™ -enabled capability
- Local display of input coaxial cable length equalization
- Automatic coaxial input equalization up to 130m at 1.485Gb/s and 300m at 270Mb/s (Belden 1694)
- Fully Hot-swappable from front of frame
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available

7707VAT-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M, SMPTE 259M-C
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 100m @ 1.485 Gb/s and 300m @ 270 Mb/s with Belden 1694 (or equivalent)
Return Loss: >15 dB up to 1.485Gb/s

Serial Video Output:

Number of Outputs: 1 Per Card relocked
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: <270ps for HDI, <900ps for SD
Overshoot: <10% of amplitude
Return Loss: >15 dB up to 1.485Gb/s
Wide Band Jitter: <0.2 UI

AES Audio Inputs:

Number of Signals: 4 Inputs
Standards: AES3-2003 (Balanced AES)
SMPTE 276M (Unbalanced AES)
Connector: 12 pin removable terminal strip
Sampling Rate: 32kHz, 44.1kHz, 48kHz
Resolution: Up to 24 bits
Minimum Input: 200mVp-p
Maximum Input:
Balanced: 7Vp-p
Unbalanced: 1.2Vp-p
Equalization:
Balanced: <600m @ 48kHz, with Belden 1800B, and 2Vp-p source signal
Unbalanced: <1200m @ 48kHz, with Belden 8261, and 1Vp-p source signal
Impedance:
Balanced: 110Ω
Unbalanced: 75Ω
Return Loss: >15dB, from 1MHz to 6MHz
Wideband Jitter: <10nsp-p, with conditions of minimum to maximum cable length

Optical Output:

Number: 1
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: >14 dB
Wavelengths: See Ordering Information
Output Power:
1310nm FP(Standard) -7dBm ± 1dBm
1550nm & CWDM DFB 0dBm ± 1dBm
DWDM DFB 7dBm ± 1dBm
Fiber Size: 9µm core / 125 µm overall

System Performance: (7707VAR-HD +7707VAT-HD)

Video Input To Output Delay: < 35µs
Audio to Video delay: < 9ms

Electrical:

Voltage: +12VDC
Power: 11 Watts (Non-DWDM)
13 Watts (DWDM)

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Laser Safety: Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11, IEC 60825-1
Complies with FCC Part 15, Class A, EU EMC directive

EMI/RFI:

Ordering Information:

7707VAT13-HD 1310nm, FP Laser
7707VAT15-HD 1550nm, DFB Laser

For CWDM applications please refer to the end of the fiber section for details

7707VATxx-HD HD-SDI with 4 AES Audio Fiber Transmitter, CWDM Laser

For DWDM application please refer to end of fiber section for details

7707VATDyyy-HD HD-SDI with 4 AES Audio Fiber Transmitter, DWDM Laser

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Dual HD-SDI Fiber Receiver

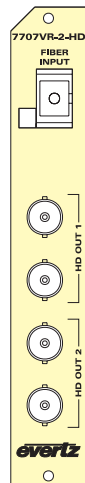
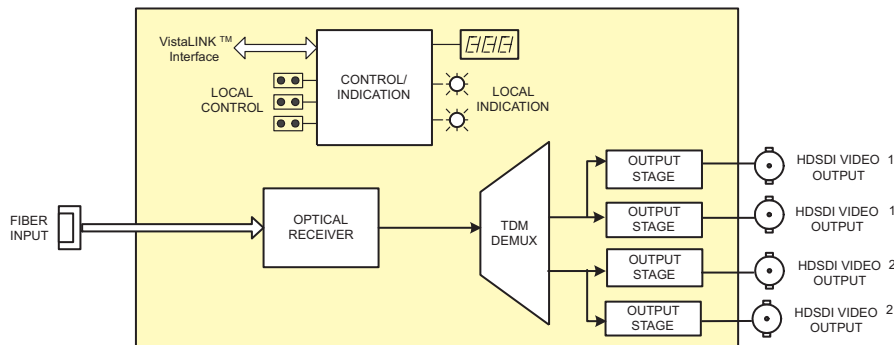


Model 7707VR-2-HD

Features

- Single card demultiplexer for two 1.485Gb/s HDSDI video signals
- Signal transport over fiber uninterrupted by loss of any HDSDI input feed
- Transparently passes embedded AES or any other data in the horizontal or vertical ancillary data space
- Fully hot-swappable from front of frame
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range
- SC/PC, ST/PC, FC/PC connector options
- VistaLINK™ -enabled for remote monitoring and control when installed in a 7700FR-C frame with 7700FC VistaLINK™ Frame Controller
- Occupies one card slot & can be housed in a standalone frame, a 1RU frame holding up to 3 modules or a 3RU frame holding up to 15 modules

7707VR-2-HD Block Diagram



Specifications

Optical Input:

Number of Inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC
Return Loss: >25dB
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power:
Standard Version: -1dBm
-H Version: -7dBm

Optical Sensitivity

Standard Version: -20dBm
-H Version: -28dBm

Serial Video Outputs:

Standards: SMPTE 292M
Number of Outputs: 2 sets of 2 independent HD-SDI signals
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 270ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB up to 1.485Gb/s
Wide Band Jitter: < 0.2UI

Electrical:

Voltage: +12VDC
Power: 10 Watts

Physical:

Number of slots: 1

Ordering Information:

7707VR-2-HD	Dual HD-SDI Fiber Receiver, VistaLINK™ Monitoring
7707VR-2-HD-H	Dual HD-SDI Fiber Receiver, High Sensitivity Optical Input, VistaLINK™ Monitoring

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Quad SDI Fiber Receiver

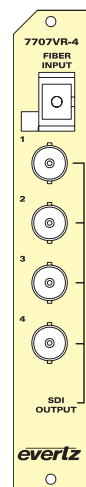
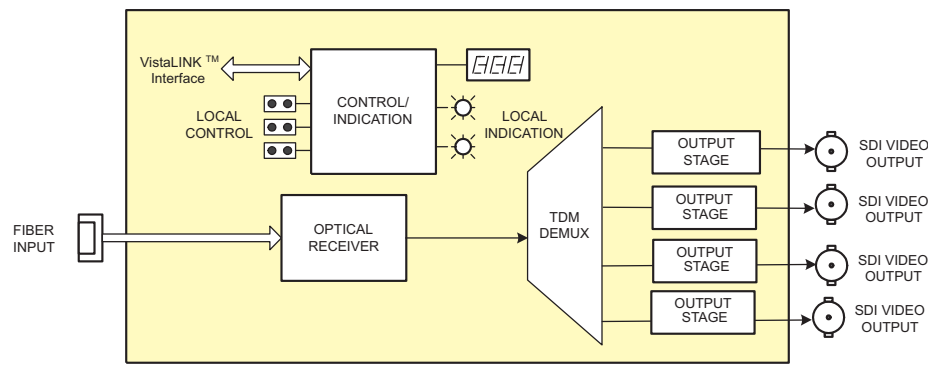
Model 7707VR-4



Features

- Single card demultiplexer for four synchronous or asynchronous 270Mb/s SDI, SDTi or DVB-ASI video signals
- Low jitter SDI outputs
- Independent signal outputs unaffected by loss of any other SDI or DVB-ASI input feed
- Transparently passes embedded AES or any other data in the horizontal or vertical ancillary data space
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range
- SC/PC, ST/PC, FC/PC connector options
- VistaLINK™ -enabled for remote monitoring and control when installed in a 7700FR-C frame with 7700FC VistaLINK™ Frame Controller
- Occupies one card slot & can be housed in a standalone frame, a 1RU frame holding up to 3 modules or a 3RU frame holding up to 15 modules

7707VR-4 Block Diagram



Specifications

Optical Input:

Number of Inputs:	1
Connector:	Female SC/PC, ST/PC, FC/PC
Return Loss:	>25dB
Operating Wavelength:	1270nm to 1610nm
Maximum Input Power:	
Standard Version:	-1dBm
-H Version:	-8dBm

Optical Sensitivity

Standard Version:	-23dBm
-H Version:	-28dBm

Serial Video Outputs:

Standards:	SMPTE 259M-C, SMPTE 305M, DVB-ASI
Number of Outputs:	4 independent SDI, SDTi or DVB-ASI 270Mb/s signals
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	900ps nominal
Overshoot:	<10% of amplitude
Return Loss:	> 15dB up to 270Mb/s
Wide Band Jitter:	< 0.2UI

Electrical:

Voltage:	+12VDC
Power:	10 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC directive

Physical:

Number of slots:	1
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Ordering Information:

7707VR-4	Quad SDI/ASI Demux Fiber Receiver, VistaLINK™
7707VR-4-H	Quad SDI/ASI Demux Fiber Receiver, High sensitivity RX (-32dBm), VistaLINK™

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Quad SD/Dual HD Fiber Receiver

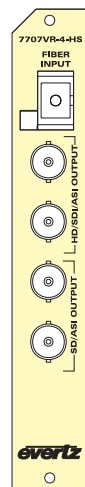
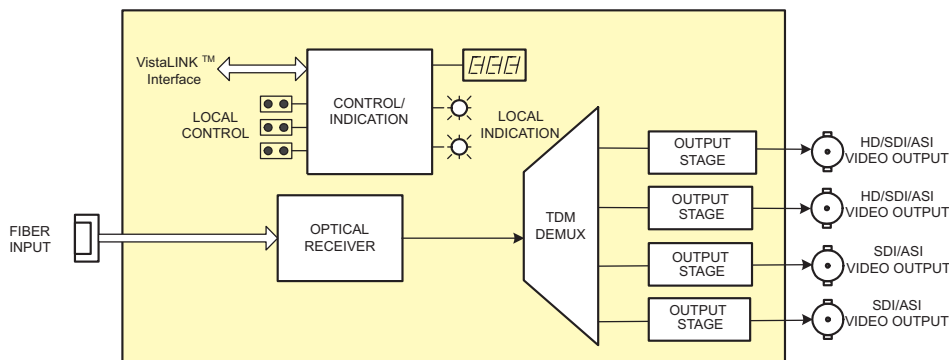
Model 7707VR-4-HS



Features

- Single card TDM de-multiplexer for two HD-SDI signals, or one HD-SDI signal and three SDI/DVB-ASI signals, or four SDI/DVB-ASI signals
- Low jitter outputs
- Independent signal outputs unaffected by loss of any other HD, SDI or DVB-ASI input feed
- Transparently passes embedded AES or any other data in the horizontal or vertical ancillary data space
- Fully hot-swappable from front of frame
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range
- SC/PC, ST/PC, FC/PC connector options
- VistaLINK™ -enabled for remote monitoring and control when installed in a 7700FR-C frame with 7700FC VistaLINK™ Frame Controller
- Occupies one card slot & can be housed in a standalone frame, a 1RU frame holding up to 3 modules or a 3RU frame holding up to 15 modules

7707VR-4-HS Block Diagram



Specifications

Optical Input:

Number of Inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC
Return Loss: >25dB
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power:
Standard Version: -1dBm
-H Version: -8dBm

Optical Sensitivity

Standard Version: -20dBm
-H Version: -28dBm

Serial Video Outputs:

Number of Outputs: 2 HD/SDI/DVB-ASI and 2 SDI/DVB-ASI video signals

Standard:

Outputs 1&2 SMPTE 292M, SMPTE 259M-C, DVB-ASI
Outputs 3&4 SMPTE 259M-C, DVB-ASI
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time:
1.485Gb/s: <270ps
270Mb/s: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: >12dB to 1.5Gb/s
Wide Band Jitter: < 0.2UI

Electrical:

Voltage: +12VDC
Power: 10 Watts

Physical:

Number of slots: 1

Ordering Information:

7707VR-4-HS	Quad SD/Dual HD Demux Fiber Receiver, VistaLINK™
7707VR-4-HS-H	Quad SD/Dual HD Demux Fiber Receiver, High sensitivity RX, VistaLINK™

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

8 Channel SDI/ASI Fiber Receiver

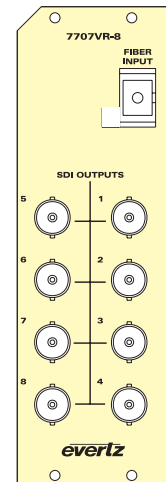
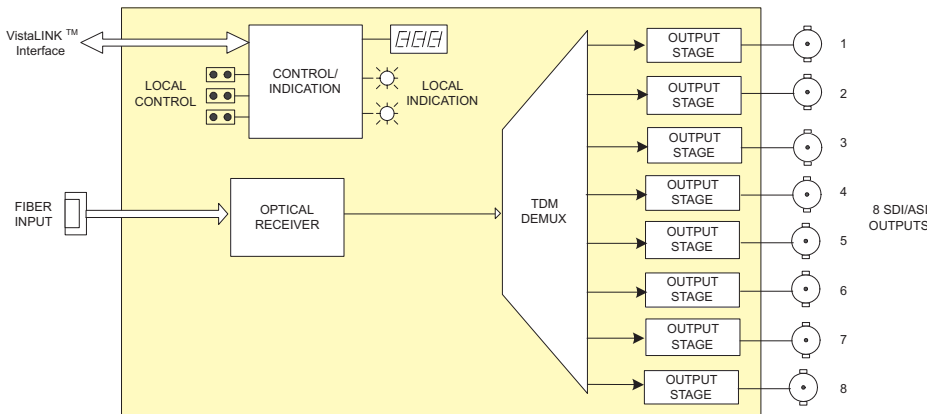
Model 7707VR-8



Features

- Demultiplexor for eight synchronous or asynchronous 270Mb/s SDI, DVB-ASI video signals
- Video generation on SDTi fiber link loss or VT-8 input loss
- Signal transport over fiber uninterrupted by loss of any input video feed
- Transparently passes embedded AES or any other data in the horizontal or vertical ancillary data space
- Comprehensive signal and card status monitoring via four-digit card-edge display
- VistaLINK™ - enabled offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK™ is available when modules are used with the 3RU 7700FR-C, a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame, and the 9000NCP Network Control Panel or Evertz VistaLINK™ PRO or other third party SNMP manager software.
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range
- SC/PC, ST/PC, FC/PC fiber connectors available

7707VR-8 Block Diagram



Specifications

Optical Input:

Number of Inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC
Return Loss: >25dB
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power:
Standard Version: -1dBm
-H Version: -8dBm
Optical Sensitivity
Standard Version: -21dBm
-H Version: -28dBm

Serial Video Output:

Standards: SMPTE 259M, SMPTE 305M, DVB-ASI
Number of Outputs: 8 independent SDI, SDTi or DVB-ASI 270Mb/s signals
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15dB up to 270Mb/s
Wide Band Jitter: < 0.2UI

Electrical:

Voltage: +12VDC
Power: 10 Watts
Safety: CSA Listed to CSA C22.2 No. 60065-03, UL 60065-03
IEC 60065-(2001-12) 7th Edition
Complies with CE Low voltage Directive 93/68/EEC
Complies with FCC regulations for class A devices
Complies with EU EMC directive 89/336/EEC

EMI/RFI:

Physical:

Number of slots: 2

Ordering Information:

7707VR-8	Eight SDI/ASI Demux Fiber Receiver, VistaLINK™ Monitoring
7707VR-8-H	Eight SDI/ASI Demux Fiber Receiver, High Sensitivity Optical Input, VistaLINK™ Monitoring

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Dual HD-SDI Fiber Transmitter

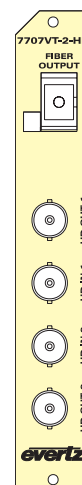
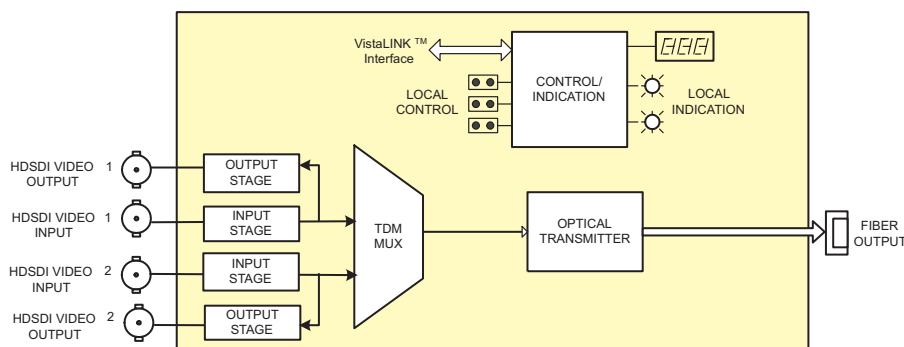
Model 7707VT-2-HD



Features

- Single card multiplexer for two 1.485Gb/s HDSDI video signals
- Signal transport over fiber uninterrupted by loss of any HDSDI, input feed
- Transparently passes embedded AES or any other data in the horizontal or vertical ancillary data space
- VistaLINK™ -enabled for remote monitoring and control when installed in a 7700FR-C frame with 7700FC VistaLINK™ Frame Controller
- Automatic coaxial input equalization up to 100m at 1.485Gb/s
- Fully hot-swappable from front of frame
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- SC/PC, ST/PC, FC/PC connector options
- Occupies one card slot & can be housed in a standalone frame, a 1RU frame holding up to 3 modules or a 3RU frame holding up to 15 modules

7707VT-2-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M
Number of Inputs: 2 independent HD-SDI signals
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 100m @ 1.485Gb/s with Belden 1694A or equivalent cable
Return Loss: > 15 dB up to 1.485Gb/s

Serial Video Outputs:

Standard: SMPTE 292M
Number of Outputs: 2 independent reclocked HD-SDI outputs
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 270ps nominal
Overshoot: <10% of amplitude
Return Loss: >15dB up to 1.485Gb/s
Wide Band Jitter: < 0.2UI

Optical Output:

Number: 1
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 14 dB
Wideband Jitter: < 0.2 UI
Fiber Size: 9µm core / 125 µm overall
Wavelengths:
Standard: 1310nm, 1550nm
CWDM: 1270nm to 1610nm (See Ordering Information)
DWDM: C-Band (ITU-T G.694.1 compliant) (See Ordering Information)

Output Power:
1310nm FP(Standard) -7dBm ± 1dBm
1550nm & CWDM DFB 0dBm ± 1dBm
DWDM DFB 7dBm ± 1dBm

Electrical:

Voltage: +12VDC
Power: 10 Watts (Non DWDM), 13 Watts (DWDM)

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Laser Safety: Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

7707VT13-2-HD Dual HDSDI Mux Fiber Transmitter, 1310nm FP,
7707VT15-2-HD Dual HDSDI Mux Fiber Transmitter, 1550nm DFB Laser

For CWDM, please refer to the end of the fiber section for ordering information
7707VTxx-2-HD Dual HDSDI Mux Fiber Transmitter, CWDM Laser,

For DWDM, please refer to the end of the fiber section for ordering information
7707VTDyyy-2-HD Dual HDSDI Mux Fiber Transmitter, DWDM Laser,

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Quad SDI Fiber Transmitter

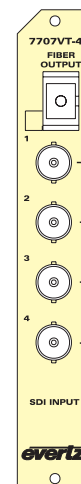
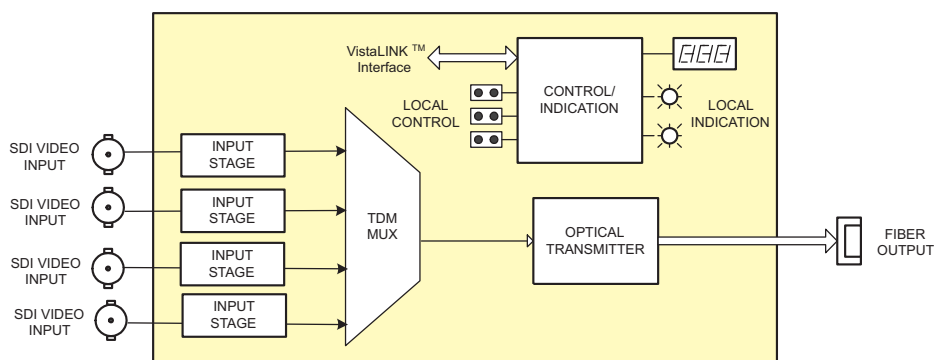
Model 7707VT-4



Features

- Single card TDM multiplexer for four synchronous or asynchronous 270Mb/s SDI, SDTi or DVB-ASI video signals
- Signal transport over fiber uninterrupted by loss of any SDI, SDTi or DVB-ASI input feed
- Transparently passes embedded AES or any other data in the horizontal or vertical ancillary data space
- VistaLINK™ -enabled for remote monitoring and control when installed in a 7700FR-C frame with 7700FC VistaLINK™ Frame Controller
- Automatic coaxial input equalization up to 250m at 270Mb/s (Belden 8281)
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- SC/PC, ST/PC, FC/PC connector options
- Occupies one card slot & can be housed in a standalone frame, a 1RU frame holding up to 3 modules or a 3RU frame holding up to 15 modules

7707VT-4 Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C, SMPTE 305M, DVB-ASI
Number of Inputs: 4 independent SDI or DVB-ASI 270Mb/s signals
Connector: 4 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 250m @ 270 Mb/s with Belden 8281 or equivalent cable
Return Loss: > 15 dB up to 270 Mb/s

Optical Output:

Number: 1
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 14 dB
Rise and Fall Time: 200ps nominal
Wideband Jitter: < 0.2 UI
Fiber Size: 9µm core / 125 µm overall

Wavelengths:

Standard: 1310nm, 1550nm (nominal)
CWDM: 1270nm to 1610nm (See Ordering Information)
DWDM: C-Band (ITU-T G.694.1 compliant) (See Ordering Information)

Output Power:

1310nm FP(Standard)
1550nm & CWDM DFB
DWDM DFB

-7dBm ± 1dBm
0dBm ± 1dBm
7dBm ± 1dBm

Electrical:

Voltage: +12VDC
Power: 10 Watts (Non DWDM), 13 Watts (DWDM)

Physical:

Number of slots: 1

Compliance:

Electrical Safety: CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Laser Safety: Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC directive

Ordering Information:

7707VT13-4 Quad SDI/ASI Mux Fiber Transmitter, 1310nm FP, VistaLINK™
7707VT15-4 Quad SDI/ASI Mux Fiber Transmitter, 1550nm DFB, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707VTxx-4 Quad SDI/ASI Mux Fiber Transmitter, CWDM Laser, VistaLINK™

For DWDM, please refer to the end of the fiber section for ordering information

7707VTDyyy-4 Quad SDI/ASI Mux Fiber Transmitter, DWDM Laser, VistaLINK™

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Quad SD/Dual HD Fiber Transmitter

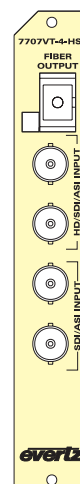
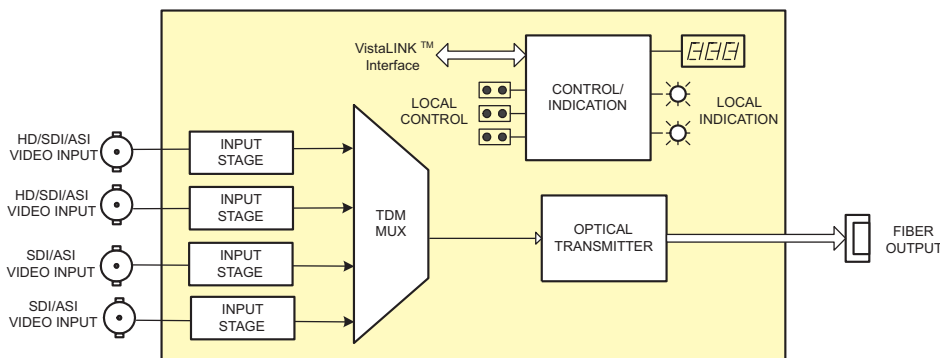


Model 7707VT-4-HS

Features

- Single card TDM multiplexer for two HD-SDI signals, or one HD-SDI signal and three SDI/DVB-ASI signals, or four SDI/DVB-ASI signals
- Two auto-sensing video inputs for HD-SDI or SDI/DVB-ASI video signals
- Two 270Mb/s inputs for SDI or DVB-ASI video signals
- Signal transport over fiber uninterrupted by loss of any HD-SDI, SDI, SDTi or DVB-ASI input feed
- Transparently passes embedded AES or any other data in the horizontal or vertical ancillary data space
- VistaLINK™ -enabled for remote monitoring and control when installed in a 7700FR-C frame with 7700FC VistaLINK™ Frame Controller
- Automatic coaxial input equalization up to 130m at 1.485Gb/s and 250m at 270Mb/s (Belden 1694)
- Fully hot-swappable from front of frame
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths of 1310nm, 1550nm, and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant)
- DWDM wavelengths (ITU-T G.694.1 compliant) also available
- SC/PC, ST/PC, FC/PC connector options
- Occupies one card slot & can be housed in a standalone frame, a 1RU frame holding up to 3 modules or a 3RU frame holding up to 15 modules

7707VT-4-HS Block Diagram



Specifications

Serial Video Input:

Number of Inputs:	2 HD/SDI/DVB-ASI and 2 SDI/DVB-ASI video signals
Standard:	
Inputs 1&2	SMPTE 292M, SMPTE 259M-C, DVB-ASI
Inputs 3&4	SMPTE 259M-C, DVB-ASI
Connector:	4 BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 130m @ 1.485Gb/s and 250m @ 270 Mb/s with Belden 1694 or equivalent cable
Return Loss:	> 15 dB up to 1.5Gb/s

Optical Output:

Number:	1
Connector:	Female SC/PC, ST/PC or FC/PC
Return Loss:	> 14 dB
Wideband Jitter:	< 0.2 UI
Fiber Size:	9µm core / 125 µm overall
Wavelengths:	
Standard:	1310nm, 1550nm (nominal)
CWDM:	1270nm to 1610nm (See Ordering Information)
DWDM:	C-Band (ITU-T G.694.1 compliant) (See Ordering Information)

Output Power:

1310nm FP(Standard)	-7dBm ± 1dBm
1550nm & CWDM DFB	0dBm ± 1dBm
DWDM DFB	7dBm ± 1dBm

Electrical:

Voltage:	+12VDC
Power:	10 Watts (Non DWDM), 13 Watts (DWDM)

Physical:

Number of slots:	1
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Ordering Information:

7707VT13-4-HS	Quad SD/Dual HD Fiber Transmitter, 1310nm FP, VistaLINK™
7707VT15-4-HS	Quad SD/Dual HD Fiber Transmitter, 1550nm DFB, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information

7707VTxx-4-HS	Quad SD/Dual HD Fiber Transmitter, CWDM Laser, VistaLINK™
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For DWDM, please refer to the end of the fiber section for ordering information

7707VTDyyy-4-HS	Quad SD/Dual HD Fiber Transmitter, DWDM Laser, VistaLINK™
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Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

8 Channel SDI/ASI Fiber Transmitter

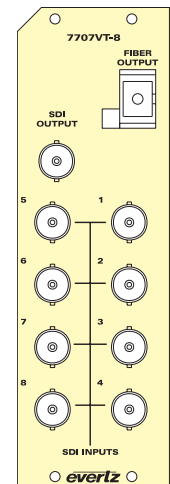
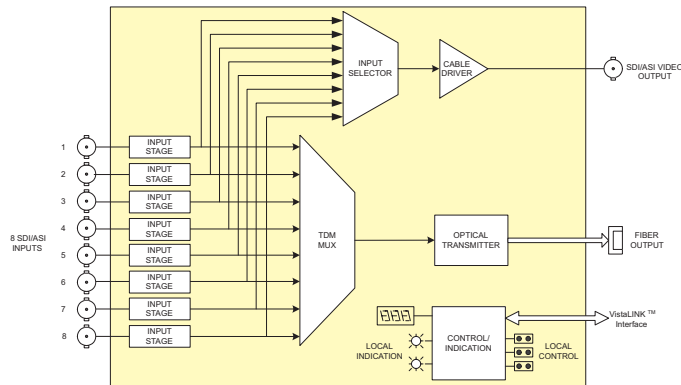
Model 7707VT-8



Features

- Multiplexor for eight synchronous or asynchronous 270Mb/s SDI, DVB-ASI or SDTi video signals
- Signal transport uninterrupted by loss of any SDI, DVB-ASI or SDTi input feed
- Transparently passes embedded AES or any other data in the horizontal or vertical ancillary data space
- Comprehensive signal and card status monitoring via four character card-edge display
- VistaLINK™ - enabled offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK™ is available when modules are used with the 3RU 7700FR-C frame, a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame and the 9000NCP Network Control Panel or Evertz VistaLINK™ PRO or other third party SNMP manager software.
- Automatic coaxial equalization up to 250m at 270Mb/s (Belden 8281)
- Fully hot swappable from front of frame with no fiber/coax disconnect/reconnect required
- Supports single-mode and multi-mode fiber optic cable
- Optical output wavelengths of 1310nm, 1550nm and up to 16 CWDM wavelengths
- DWDM wavelengths also available
- SC/PC, ST/PC, FC/PC fiber connectors available

7707VT-8 Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M, SMPTE 305M, DVB-ASI
Number of Inputs: 8 independent SDI, SDTi or DVB-ASI 270Mb/s signals
Connector: 8 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 250m @ 270 Mb/s with Belden 8281 or equivalent cable
Return Loss: > 15 dB up to 270 Mb/s

Serial Video Output:

Standards: SMPTE 259M, SMPTE 305M, DVB-ASI
Number of Outputs: 1 Independent SDI, SDTi or DVB-ASI 270Mb/s signal
Connectors: 8 BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV(nominal).
DC Offset: 0V ± 0.5V
Rise and Fall Time: 900ps(nominal).
Overshoot: < 10% of amplitude.
Return Loss: > 15dB to 270Mb/s.
Wide Band Jitter: < 0.2UI

Optical Output:

Number: 1
Connector: Female SC/PC, ST/PC or FC/PC
Return Loss: > 14 dB
Wideband Jitter: < 0.2 UI
Fiber Size: 9µm core / 125 µm overall

Wavelengths:

Standard: 1310nm, 1550nm (nominal)
CWDM: 1270nm to 1610nm (See Ordering Information)
DWDM: C-Band (ITU-T G.694.1 compliant)
(See Ordering Information)

Output Power:

1310nm FP(Standard) -7dBm ± 1dBm
1550nm & CWDM DFB 0dBm ± 1dBm
DWDM DFB 7dBm ± 1dBm

Electrical:

Voltage: +12VDC
Power: 10 Watts (Non DWDM), 13 Watts (DWDM)

Physical:

Number of slots: 2

Compliance:

Electrical Safety:

CSA Listed to UL 60065-03, IEC 60065
Complies with CE Low voltage Directive
Class 1 laser product
Complies with 24 CFR 1040.10 and 1040.11
IEC 60825-1
Complies with FCC Part 15, Class A
EU EMC directive

Laser Safety:

EMI/RFI:

Ordering Information:

7707VT13-8 Eight SDI/ASI Mux Fiber Transmitter, 1310nm FP, Laser, VistaLINK™
7707VT15-8 Eight SDI/ASI Mux Fiber Transmitter, 1550nm DFB Laser, VistaLINK™

For CWDM, please refer to the end of the fiber section for ordering information
7707VTxx-8 Eight SDI/ASI Mux Fiber Transmitter, CWDM Laser

For DWDM, please refer to the end of the fiber section for ordering information
7707VTDyyy-8 Eight SDI/ASI Mux Fiber Transmitter, DWDM Laser

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

SDI AES Audio De-embedder & Fiber Receiver

Model 7720AD-OE



The 7720AD-OE Audio De-embedder extracts embedded audio as specified in SMPTE 272M from a 270Mb/s fiber optic input signal.

SMPTE 272M allows for up to four groups (4 channels/group) to be embedded within a serial digital signal. The 7720AD-OE can de-embed one audio group onto two single ended AES outputs. The 7720AD-OE is Dolby E compliant.

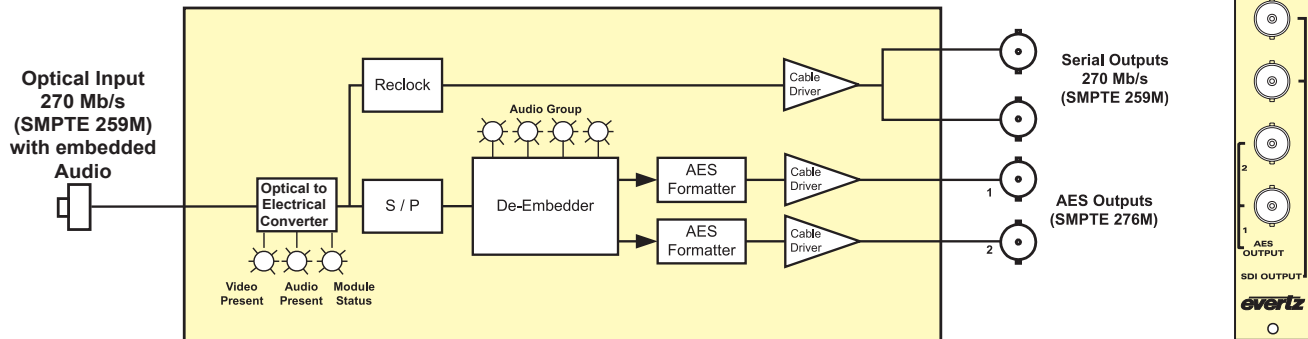
Features

- Audio group selection via card edge DIP switches
- Audio channel swapping selection via card edge DIP switches
- Dolby E compliant

Front Panel LED's:

- Video signal presence
- Module Status
- Audio Presence - Audio Group Indicator

7720AD-OE Block Diagram



Specifications

Optical Input:

Number of Inputs: 1
Connector: SC/PC, ST/PC, FC/PC Female Housing
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: 0dBm
Optical Sensitivity: -32dBm

Reclocked Serial Video Output:

Number of Outputs: 2
Standard: SMPTE 259M-C
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15 dB up to 270 Mb/s
Wide Band Jitter: < 0.2 UI

AES Audio Output:

Number of Outputs: 2
Standard: SMPTE 276M, single ended AES, Dolby E compatible
Connector: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48kHz
Impedance: 75 Ω unbalanced
Resolution: 20-bit

Input to Output Processing Delay:

Optical Input to AES: 600 μ Sec

Electrical:

Voltage: +12V DC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7720AD-OE: SDI AES Audio De-embedder & Fiber Receiver

Ordering Options:

Rear Plate and Fiber Connector must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules
S7701FR Standalone enclosure

SDI AES Audio Embedder & Fiber Transmitter

Model 7720AE-EO



The 7720AE-EO Audio Embedder inserts AES audio channels into a 270Mb/s SDI video signal as specified in SMPTE 272M. The 7720AE-EO will embed up to four audio channels (2 AES) into the audio group selected by the DIP switches. The 7720AE series Embedders will do a seamless audio embed when the input video is switched properly in the vertical interval. The 7720AE-EO is Dolby E compliant.

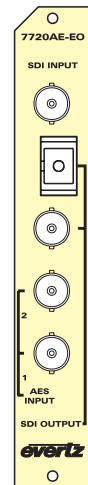
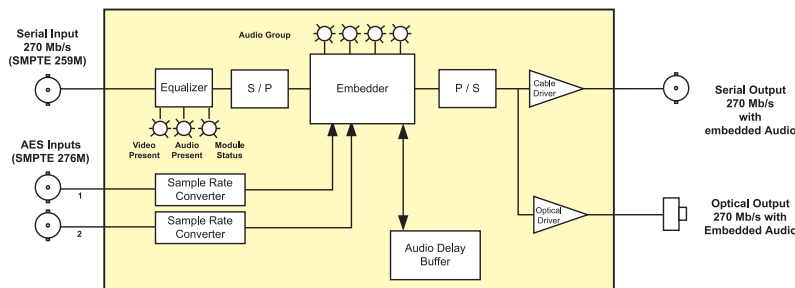
Features

- Audio group selection via card edge DIP switches
- Audio channel swapping selection via card edge DIP switches
- Sample rate conversion disable to permit Dolby E embedding

Card Edge LEDs:

- Video Signal Presence
- Module Status
- Audio Presence - Audio Group Indicator

7720AE-EO Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C 525 and 625 component
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 175m @ 270Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15 dB up to 270 Mb/s

AES Audio Inputs:

Number of Inputs: 2
Standard: SMPTE 276M, single ended AES, Dolby E compatible
Signal Level: 1V p-p $\pm 0.1V$
Connector: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48kHz
Impedance: 75 Ω unbalanced
Resolution: 20-bits

Serial Video Output With Embedded Audio

Number of Outputs: 1
Standard: Same as input
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 270 Mb/s
Wide Band Jitter: < 0.2 UI

Optical Output:

Number of Outputs: 1
Connector: SC/PC, ST/PC, FC/PC female housing
Return Loss: > 14dB
Nominal Wavelength: 1310nm, 1550nm
CWDM Wavelengths: 1270nm to 1610nm (See Ordering Info)
Output Power:
1310nm FP: -7dBm ± 1 dBm
1550nm DFB: 0 dBm ± 1 dBm
CWDM DFB: 0 dBm ± 1 dBm

System Performance:

Embedding Latency: 1.3 to 3 msec

Physical:

Number of Slots: 1

Electrical:

Voltage: +12V DC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7720AE-EO13 SDI AES Audio Embedder with Fiber Interface, 1310nm FP, Laser
7720AE-EO15 SDI AES Audio Embedder with Fiber Interface, 1550nm DFB

For CWDM applications please refer to the end of the fiber section for details

7720AE-EOxx SDI AES Audio Embedder with Fiber Interface, CWDM 1270nm to 1610nm DFB

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

Dense WDM 1RU Optical Modules

Model 9000DWDM

The 9000DWDM are bi-directional Multiplexors/De-multiplexors that combine/separate 32 or 40 DWDM wavelengths over a single fiber.

The 9000DWDM are housed in an Evertz 1RU unit.

Features

- Bi-directional mux/demux of 32 or 40 wavelengths in the C-Band DWDM spectrum (ITU-T G.694.1 compliant)
- 0.8nm (100GHz) channel spacing
- Passive design for any bit rate
- Low insertion loss to conserve system power
- High optical isolation for low crosstalk
- SC/PC, ST/PC, FC/PC connector options

Applications

- Multi-channel transport of video, audio, data, control in fiber limited applications
- Cost reduction exercises through fewer leased fibers
- Studio and Facility extension / expansion
- L-Band & IF Link Transport
- STL and TSL Links
- Signal aggregation for outdoor and event coverage
- Signal aggregation for security and monitoring

Specifications

Optical Input/Output:

Connector:	SC/PC, ST/PC or FC/PC
Wavelength:	
9000DWDM-32:	ITU C28-C60 (1554.94 - 1529.55nm)
9000DWDM-40:	ITU C20-C60 (1561.42 - 1529.55nm)
Channel Spacing:	0.8nm (100GHz)
Passband @ 0.5dB:	± 0.11nm
Channel Uniformity:	< 1.5dB
Isolation Adjacent Channel:	> 25dB
Isolation Non-Adjacent Channel:	> 35dB
Directivity:	> 50dB
Fiber Size:	9 µm core / 125 µm overall
Return Loss:	> 45dB
Max Optical Power:	< 500mw (+27dBm)

Link Loss with Mux and Demux Combination:

9000DWDM-M32 & 9000DWDM-D32:	< 12dB Maximum Loss
9000DWDM-M40 & 9000DWDM-D40:	< 12dB Maximum Loss

Ordering Information

Dense Wave Division Multiplexing Optical Modules

9000DWDM-M32	32 Ch DWDM Mux, 100Ghz spacing, 1RU enclosure
9000DWDM-M40	40 Ch DWDM Mux, 100Ghz spacing, 1RU enclosure
9000DWDM-D32	32 Ch DWDM Demux, 100Ghz spacing, 1RU enclosure
9000DWDM-D40	40 Ch DWDM Demux, 100Ghz spacing, 1RU enclosure

Ordering Options:

Fiber Connector must be specified at time of order
Eg: Model +SC

Connector Suffix

+SC	SC/PC
+ST32	ST/PC Fiber connectors on all ports for 9000DWDM-X32
+ST40	ST/PC Fiber connectors on all ports for 9000DWDM-X40
+FC32	FC/PC Fiber connectors on all ports for 9000DWDM-X32
+FC40	FC/PC Fiber connectors on all ports for 9000DWDM-X40

Fiber Optic Patch Cable:

CB-FP1M-SCPC	Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC	Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC	Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC	Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC	Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC	Single mode fiber cable, 10m, ST/PC male termination

CWDM & DWDM Wavelength Ordering Information

CWDM Transmitter Ordering Options - 20nm Channel Grid - Based on ITU G.694.2

Laser Ordering Number (xx)	Wavelength (nm)	Transmitter Module (Example)
27	1270	7707EO27
29	1290	7707EO29
31	1310	7707EO31
33	1330	7707EO33
35	1350	7707EO35
37	1370	7707EO37
43	1430	7707EO43
45	1450	7707EO45
47	1470	7707EO47
49	1490	7707EO49
51	1510	7707EO51
53	1530	7707EO53
55	1550	7707EO55
57	1570	7707EO57
59	1590	7707EO59
61	1610	7707EO61

DWDM Transmitter Ordering Options - 100GHz/0.8nm Channel Grid - Based on ITU G.694.1

Laser Ordering Number (Dyyy)	ITU Channel Number	Frequency (GHz)	Wavelength (nm)	Transmitter Module (Example)
D200	20	192,000	1561.42	Contact Factory
D210	21	192,100	1560.61	Contact Factory
D220	22	192,200	1559.79	Contact Factory
D230	23	192,300	1558.98	Contact Factory
D240	24	192,400	1558.17	Contact Factory
D250	25	192,500	1557.36	7707EOD250
D260	26	192,600	1556.55	7707EOD260
D270	27	192,700	1555.75	7707EOD270
D280	28	192,800	1554.94	7707EOD280
D290	29	192,900	1554.13	7707EOD290
D300	30	193,000	1553.33	7707EOD300
D310	31	193,100	1552.52	7707EOD310
D320	32	193,200	1551.72	7707EOD320
D330	33	193,300	1550.92	7707EOD330
D340	34	193,400	1550.12	7707EOD340
D350	35	193,500	1549.32	7707EOD350
D360	36	193,600	1548.51	7707EOD360
D370	37	193,700	1547.72	7707EOD370
D380	38	193,800	1546.92	7707EOD380
D390	39	193,900	1546.12	7707EOD390
D400	40	194,000	1545.32	7707EOD400
D410	41	194,100	1544.53	Contact Factory
D420	42	194,200	1543.73	Contact Factory
D430	43	194,300	1542.94	Contact Factory
D440	44	194,400	1542.14	Contact Factory
D450	45	194,500	1541.35	Contact Factory
D460	46	194,600	1540.56	Contact Factory
D470	47	194,700	1539.77	Contact Factory
D480	48	194,800	1538.98	Contact Factory
D490	49	194,900	1538.19	Contact Factory
D500	50	195,000	1537.40	Contact Factory
D510	51	195,100	1536.61	Contact Factory
D520	52	195,200	1535.82	Contact Factory
D530	53	195,300	1535.04	Contact Factory
D540	54	195,400	1534.24	Contact Factory
D550	55	195,500	1533.47	Contact Factory
D560	56	195,600	1532.68	Contact Factory
D570	57	195,700	1531.90	Contact Factory
D580	58	195,800	1531.12	Contact Factory
D590	59	195,900	1530.33	Contact Factory
D600	60	196,000	1529.55	Contact Factory

Mobile Fiber Optic Systems - Single & Dual Cases



Model PKG7700MFOS & PKG7700MFOS-2



The PKG7700MFOS Single and Dual Case Systems are portable fiber solutions which transmit various signals point to point via fiber. The single system includes a single Mobile Transit Case, 7700FR-C 3RU Multiframe, single Breakout Cable and a 300 meter fiber Cable Reel. The dual system includes (2) Mobile Transit Cases, (2) 7700FR-C 3RU Multiframes, (2) Breakout Cables and a single 300m Fiber Cable Reel. Both systems support multiple wavelengths over a single fiber and is fully bi-directional. Wavelength operation includes WDM, CWDM and DWDM support.

Key features include remote monitoring & control of all 77xx VistaLINK™ enabled cards via SNMP. Evertz's VistaLINK™ monitoring software offers confidence monitoring for mission critical field applications.

The 7700FR-C frame included in the system utilizes any Evertz 77xx series card. Additional options for the PKG7700MFOS system include redundant power supplies for the 7700FR-C frames, Anton Bauer Quad Battery Holder, and the 7700PCO AC/DC Power Changeover Unit.

Signal Types Supported:

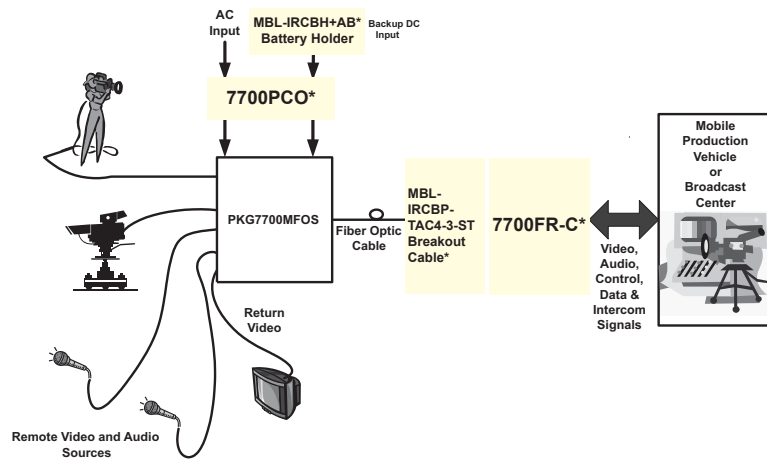
NOTE: All 77xx fiber cards must be ordered with ST/PC connectors for PKG7700MFOS system applications.

- SD-SDI, HD-SDI, Analog video, DVB-ASI
- AES Audio, Analog Audio, Dolby E Audio
- RS-232/422, GPI, GPO
- 10/100 Mbps, Gigabit Ethernet and Fiber Channel
- L-Band R.F. & 70/140 MHz I.F.
- DS-3/E3, T1/E1, Sonet OC3/12
- RTS & Clear-Com Intercom

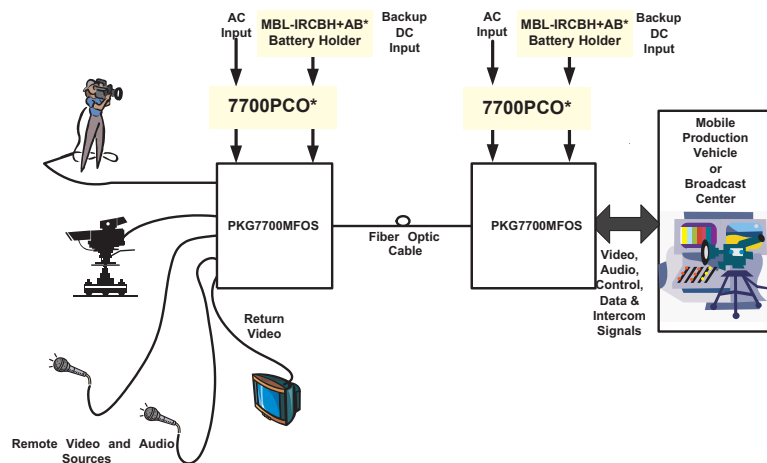
Features

- Ideal for mobile productions
- Capacity for multiple wavelengths over single fiber using WDM, CWDM or DWDM
- Fully bi-directional
- Immune to Interference and electromagnetic hum
- Multiple signal type support
- SNMP monitoring via VistaLINK™
- Easy to set up and use - replaces bulky cable harnesses
- TAC-4 single mode cables with hermaphroditic connectors
- Evertz frames utilize any Evertz 77xx series
- Optional redundant 7700PCO (Power changeover) unit for AC/DC backup
- Optional Anton Bauer quad battery holder for Evertz 7700PCO
- Optional breakout cable Delphi Hermaphroditic TAC4 to ST/PC with mounting plate (only for single case system)

Mobile Fiber Optic Systems - Single & Dual Cases



PKG7700MFOS
Typical Application Diagram



PKG7700MFOS-2
Typical Application Diagram

Ordering Information:

PKG7700MFOS: Mobile Fiber Optic System - Single Case

Includes:

7700FR-C	3RU Multiframe with power supply and rear plate
MBL-IRC-420	Mobile Transit Case
MBL-IRCBP-TAC4-3-ST	Breakout Cable Delphi Hermaphroditic TAC4 to ST/PC, 1 meter
MBL-FCR-TAC4-300	Cable Reel with 300 meters of cable

Ordering Information:

PKG7700MFOS-2: Mobile Fiber Optic System - Dual Case

Includes:

2 x 7700FR-C	3RU Multiframe with power supply and rear plate
2 x MBL-IRC-420	Mobile Transit Case
2 x MBL-IRCBP-TAC4-3-ST	Breakout Cable Delphi Hermaphroditic TAC4 to ST/PC, 1 meter
1 x MBL-FCR-TAC4-300	Cable Reel with 300 meters of cable

Ordering Options:

7700PS	Redundant power supply
7700PCO	AC/DC Power Changeover Unit
MBL-FCR-TAC4-450	Cable Reel and 450m TAC4, SMF fiber, Hermaphroditic Connectors
MBL-FCR-TAC4-500	Cable Reel and 500m TAC4, SMF fiber, Hermaphroditic Connectors
MBL-IRCBH+AB	Anton Bauer Quad Battery Holder for Evertz 7700PCO

(Only for Single Case System)

MBL-IRCBP-TAC4-3-ST Breakout cable Delphi Hermaphroditic TAC4 to ST/PC with mounting plate

Options:

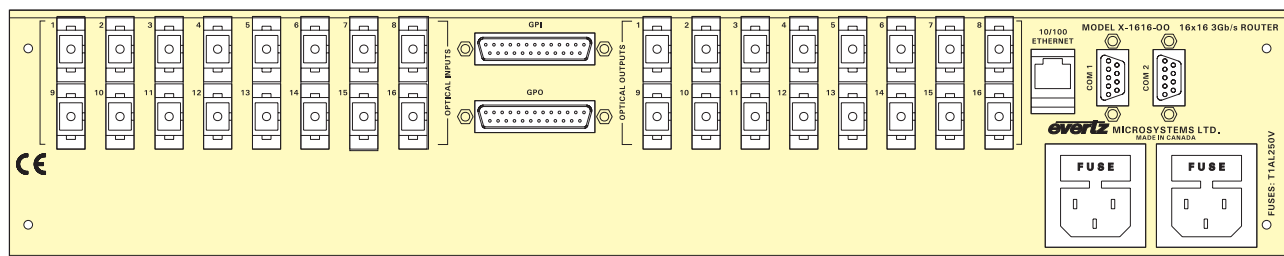
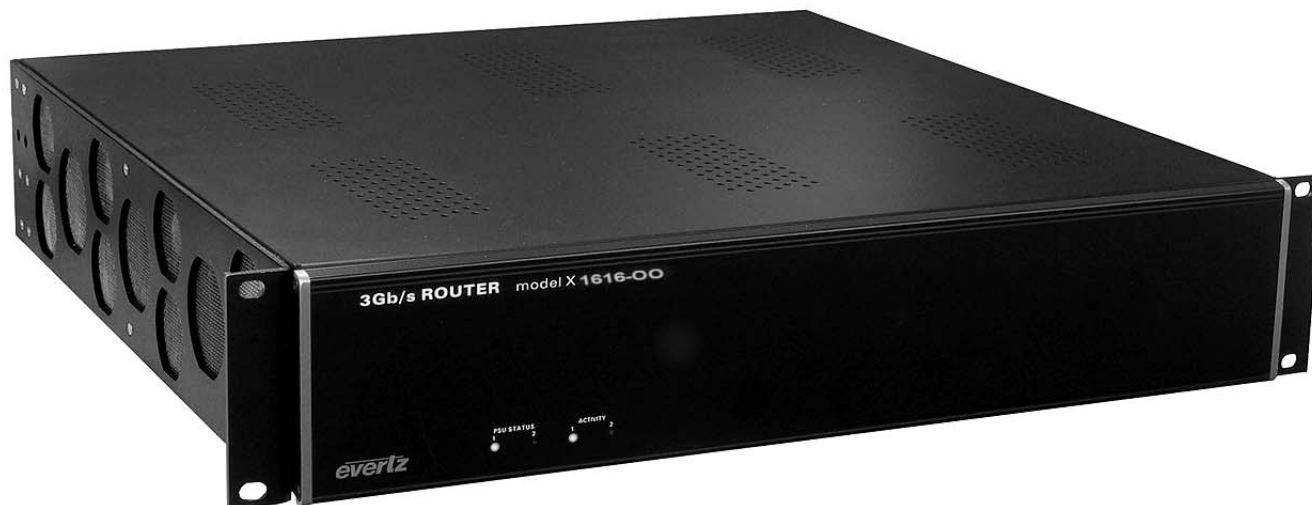
7700PS Redundant power supply

Note:

To obtain more detailed information on each item included in the 7752RGTS-HD system, please refer to the individual spec. sheets for the 7750TG2-HD, 7750SRG-HD, 7700ADA and 7700FR-C.

X-1616-00 Optical Router

Model X-1616-00



X-1616 Rear Panel

The X-1616-00 is a VistaLINK™ -enabled optical router for digital optical signals with rates up to 3Gb/s. The X-1616-00 can accept signals on any of its 16 optical inputs and route them to any number of its 16 optical outputs. The X-1616-00 is ideal for signal regeneration, routing and wavelength management in your optical system.

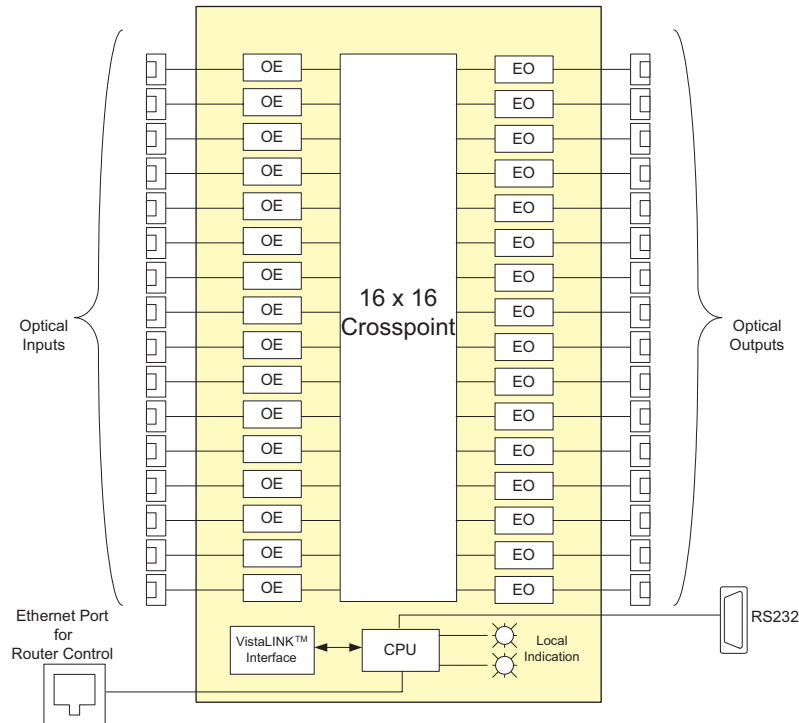
The optical outputs are available in 1310nm, CWDM or DWDM wavelengths. The X-1616-00 is housed in a 2RU frame.

Features

- 16 fiber optic inputs and outputs
- Provides optical regeneration (amplification, reshaping), routing and wavelength management
- Data rate independent to 3Gb/s
- Handles Video, Audio, Datacom and Telecom signals
- Fully non-blocking architecture
- Broadcast mode capability (any input to any number of outputs)
- Accepts any input wavelength (1270nm to 1610nm)
- Outputs available with 1310nm, CWDM (ITU G.694.2) or DWDM (ITU G.694.1) wavelengths
- SNMP monitoring and remote router control via Model 9000NCP control panel
- Compatible with single-mode or multi-mode fiber optic cable
- Compact 2RU size

X-1616-00 Optical Router

X-1616-00 Block Diagram:



Specifications

Optical Input:

Number of Inputs:	16
Connector:	SC/PC, ST/PC, FC/PC Female housing
Operating Wavelength:	1270nm - 1610nm
Maximum Input Power:	-1dBm
Optical Sensitivity:	-21dBm

Optical Output:

Number of Outputs:	16
Connector:	SC/PC, ST/PC, FC/PC Female housing
Return Loss:	>14dB
Output Wavelength:	
X-1616-OO13	1310nm
X-1616-OOCWDM	1270nm - 1610nm (16 wavelengths, 20nm spacing)
X-1616-ODWDM	1545.32-1557.36nm (ITU C40-C25, 16 wavelengths, 0.8nm spacing)

Output Power:

X-1616-OO13	-7dBm
X-1616-OOCWDM	0dBm
X-1616-ODWDM	7dBm

Communication and Control:

Serial:	RS232/422, DB9 Male
Ethernet:	IEEE 802.3/U (10/100 BaseTx) RJ45 connector

Physical:

Dimensions:	19"W x 3.5"H x 18"D (483mm W x 90mm H x 457mm D)
Weight:	8lbs. (3.5Kg)

Electrical:

Voltage:	110 - 230 Volts AC, 50/60 Hz
Fuse Rating:	250 V, 1 amp time delay
Power:	100 Watts (Max.)

Ordering Information:

X-1616-OO13	16 x 16 Optical Router with 16 1310nm optical outputs
X-1616-OOCWDM	16 x 16 Optical Router with 16 CWDM (1270nm - 1610nm) optical outputs
X-1616-ODWDM	16 x 16 Optical Router with 16 DWDM (ITU C40-C25) optical outputs

Ordering Options

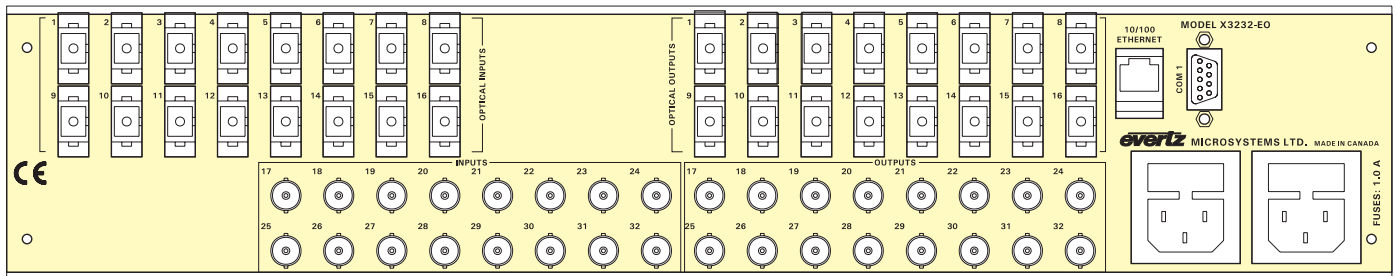
Fiber Connector must be specified at time of order
Eg: Model +SC

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

X-3232-EO Electrical/Optical Router

Model X-3232-EO



X-3232 Rear Panel

The X-3232-EO is a VistaLINK™ -enabled electrical/optical router for digital electrical or optical signals with rates up to 3Gb/s. The X-3232-EO can accept signals on any of its 16 optical or 16 electrical inputs and route them to any number of its 16 optical and 16 electrical outputs. The X-3232-EO is ideal for signal regeneration, routing and wavelength management in your optical system.

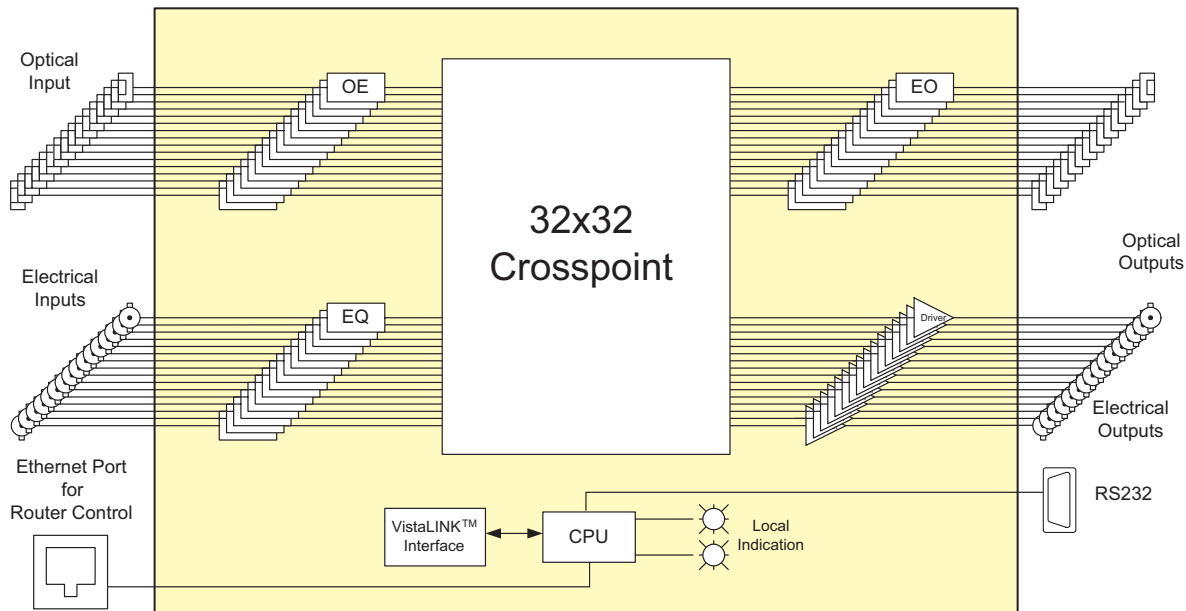
The optical outputs are available in 1310nm, CWDM or DWDM wavelengths. The X-3232-EO is housed in a 2RU frame.

Features

- 16 fiber optic inputs and outputs
- 16 coaxial inputs and outputs
- Provides optical regeneration (amplification, reshaping), routing and wavelength management
- Data rate independent to 3Gb/s
- Handles Video, Audio, Datacom and Telecom signals
- Fully non-blocking architecture
- Broadcast mode capability (any input to any number of outputs)
- Allows EO/OE conversion in one platform
- Provides ADD, DROP and MUX capabilities
- Accepts any input wavelength (1270nm to 1610nm)
- Outputs available with 1310nm, CWDM (ITU G.694.2) or DWDM (ITU G.694.1) wavelengths
- SNMP monitoring and remote router control via model 9000NCP control panel
- Compatible with single-mode or multi-mode fiber optic cable
- Compact 2RU size

X-3232-EO Electrical/Optical Router

X-3232-EO Block Diagram:



Specifications

Optical Input:

Number of Inputs:	16
Connector:	SC/PC, ST/PC, FC/PC Female housing
Operating Wavelength:	1270nm - 1610nm
Maximum Input Power:	-1dBm
Optical Sensitivity:	-21dBm

Optical Output:

Number of Outputs:	16
Connector:	SC/PC, ST/PC, FC/PC Female housing
Return Loss:	>14dB
Output Wavelength:	
X-3232-EO13	1310nm
X-3232-EOCWDM	1270nm - 1610nm (16 wavelengths, 20nm spacing)
X-3232-EODWDM	1545.32-1557.36nm (ITU C40-C25, 16 wavelengths, 0.8nm spacing)

Output Power:

X-3232-EO13	-7dBm
X-3232-EOCWDM	0dBm
X-3232-EODWDM	7dBm

Electrical Input:

Standard:	Any scrambled, 8b/10b or similarly encoded signal from 155Mb/s to 3.125Gb/s
Number of Inputs:	16
Connector:	BNC per IEC 60169-8 Amendment 2
Return Loss:	>12dB
Signal Level:	800mV nominal

Electrical Output:

Standard:	Any scrambled, 8b/10b or similarly encoded signal from 155Mb/s to 3.125Gb/s
Number of Outputs:	16
Connector:	BNC per IEC 60169-8 Amendment 2
Return Loss:	>12dB
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V

Communication and Control:

Serial:	RS232/422, DB9 Male
Ethernet:	IEEE 802.3/U (10/100 BaseTx) RJ45 connector

Physical:

Dimensions:	19"W x 3.5"H x 18"D (483mm W x 90mm H x 457mm D)
Weight:	8lbs. (3.5Kg)

Electrical:

Voltage:	110 - 230 Volts AC, 50/60 Hz
Fuse Rating:	250 V, 1 amp time delay
Power:	100 Watts (Max)

Ordering Information:

X-3232-EO13	32 x 32 Electrical/Optical Router with 16 1310nm optical outputs
X-3232-EOCWDM	32 x 32 Electrical/Optical Router with 16 CWDM (1270nm - 1610nm) optical outputs
X-3232-EODWDM	32 x 32 Electrical/Optical Router with 16 DWDM (ITU C40-C25) optical outputs

Ordering Options

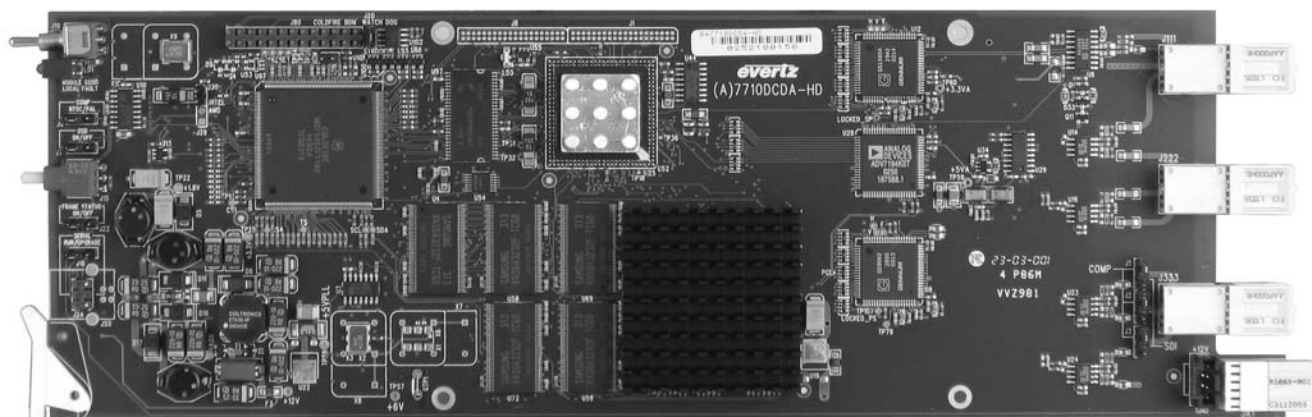
Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

HD Downconverter & Distribution Amplifier

Model 7710DCDA-HD



The 7710DCDA-HD is a reclocking high definition serial digital video distribution amplifier and a high quality downconverter for 1.5 Gb/s HDTV signals. It can also function as a monitoring distribution amplifier for standard definition 270 Mb/s signals. The 7710DCDA-HD provides 4 reclocked DA outputs and 3 downconverted SDI or composite analog NTSC/PAL outputs (selectable). The 7710DCDA-HD accepts all the popular international SMPTE 292M video formats. When the 7710DCDA-HD down converts 1080p/23.98sF input video to 525i/59.94 with a 3:2 pulldown, the 3:2 pulldown cadence can be free running or locked to embedded RP188 time code.

The 7710DCDA-HD has color space conversion from ITU rec. 709 to ITU rec. 601, and will provide various down converted formats such as 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze. Full 10 bit processing is provided throughout the signal path to achieve excellent downconversion quality. The module allows for selectable horizontal and vertical filters to control picture sharpness. It also de-embeds two groups of audio and re-embeds the audio on the SDI output in time with the video. All parameters may be controlled by use of the on screen display menu.

The 7710DCDA-HD has a closed caption monitoring capability that decodes EIA-608 or EIA-708 captions that have been encoded into the VANC data space of an HD video input, or EIA-608 captions from a SD video input.

The 7710DCDA-HD provides card edge LEDs to indicate signal present and audio groups present. The 7710DCDA-HD occupies one card slot in the 3RU frame, which will hold up to 15 modules or the 1RU frame, which will hold up to three modules.

Features

- Serial digital 1.5 Gb/s HD input per SMPTE 292M
- Supports most international standards including 1080i/60, 1080i/59.94, 1080i/50, 1080p/24, 1080p/23.98, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94, 480p/60, and 480p/59.94
- Will also accept 270 Mb/s SD input SDI per SMPTE 259M in a pass through mode - auto senses HD or SD inputs
- 4 Reclocked DA outputs (HD if HD inputs applied, SD if SD inputs applied)
- 3 Selectable SDI or Composite Outputs (downconverted from HD if HD input applied), (from reclocked SD if SD input applied)
- High quality HD -> SD down conversion
- Supports 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze aspect ratio conversions
- 1080p/23.98sF conversion to 525i/59.94 with 3:2 pulldown sequence
- HD to SD colour space conversion (ITU rec. 709 to ITU rec. 601)
- On screen display used to configure the operating modes
- De-embeds Audio from HD video and embeds into standard definition SDI video (2 groups)
- Moves ANC data (e.g. captioning, timecode) from HD video to standard definition SDI video
- Decodes and displays EIA-608 or EIA-708 captions from incoming video
- On Screen aspect ratio marker
- Card Edge LEDs for signal presence, equalization warning, audio groups present, module status

VistaLINK™ -enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller

HD Upconverter

Model 7710UC-HD



The 7710UC-HD High Definition Upconverter provides high quality conversion of 270 Mb/s standard definition (SMPTE 259M-C) signals to the common 1.5 Gb/s high definition (SMPTE 292M) video formats. The 7710UC-HD has 10-bit processing, 2 reclocked SDI outputs and 2 HD Serial Digital outputs. The 7710UC-HD outputs 1080i/59.94, 1080i/50 and 720p/59.94 HD video formats.

The 7710UC-HD has color space conversion from ITU rec. 601 to ITU rec. 709. The 7710UC-HD provides user adjustable and the common 4:3 to 16:9 aspect ratio conversion choices; 4:3 with side panels, 16:9 anamorphic stretch, 16:9 letterbox zoom to full size and 13:9 or 14:9 letterbox zoom to full height 13:9 or 14:9 with side panels.

The upconverter accepts 2 groups of SMPTE 272M embedded audio on the input and re-embeds them into the HD SMPTE 292M 1.5Gbs output. The re-embedded audio is compliant to SMPTE 299M and will have appropriate delay added to compensate for video delay incurred by the upconversion process, thus avoiding the need for external de-embedding and re-embedding of audio. The audio is also available as 4 unbalanced AES outputs.

The 7710UC-HD occupies two card slots in the 15 slot 3 RU frame, or one slot in the 3 slot 1RU frame. The 7710UC-HD provides card edge LEDs to indicate signal present, genlock present and audio groups present.

Features

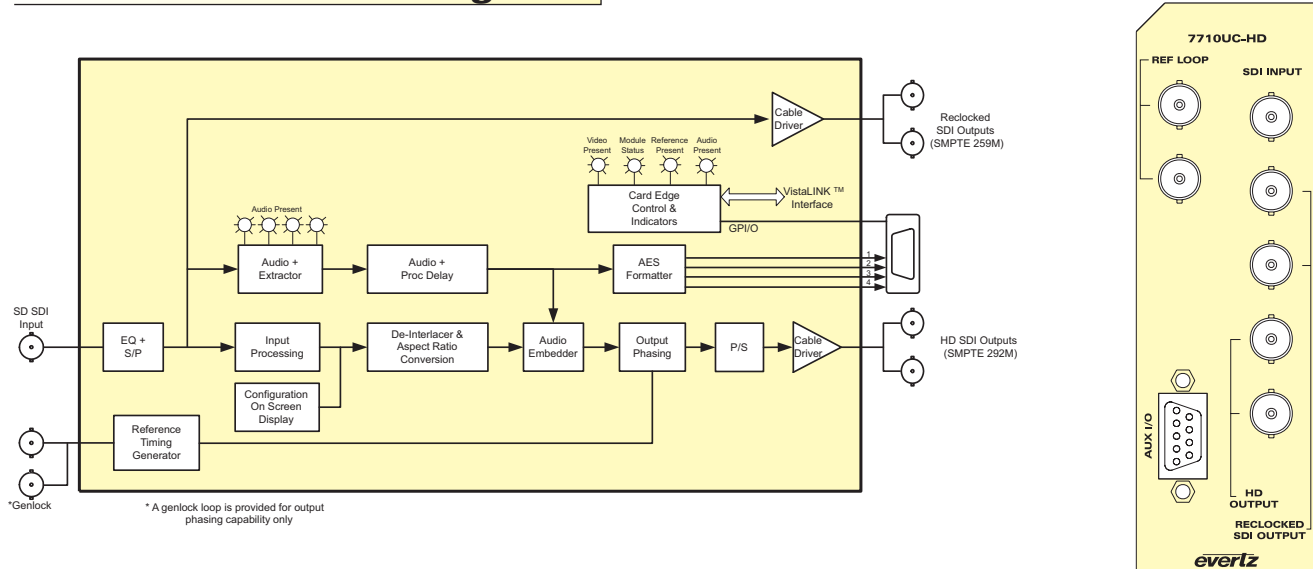
- High quality SD -> HD up conversion
- Supports 4:3 Side Panel, 16:9 Crop, 16:9 Stretch, 13:9 Crop, 14:9 Crop and user defined aspect ratio conversions.
- SD to HD colour space conversion (ITU rec. 601 to ITU rec. 709)
- Reference input allows for phasing of output video
- Module supports min. delay or variable delay for video output without reference
- Module supports video output referenced to genlock with variable delay
- Analog monitor output on screen display used to configure the operating modes
- De-embeds Audio from SD video and embeds into HD video (2 groups)

- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ Pro, 9000NCP2 or 9000NCP Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

Additional Features with VBI Option:

- Extraction of VITC on SD input and conversion to RP188 ANC Timecode on HD output
- Transcoding and translation of EIA-608 Line 21 captions from the SD input to EIA-708 (SMPTE 334M) ANC captions on the HD output

7710UC-HD Block Diagram



Specifications

SDI Video Inputs:

Standards: 525 or 625 line SMPTE 259M-C (270Mb/s) with SMPTE 272M embedded audio

Number of Inputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Input Equalization: Automatic to 300m @ 270Mb/s with Belden 1694 or equivalent cable

Return Loss: >15 dB up to 270MHz

Reclocked SDI Video Outputs:

Standard: Same as input

Number of Outputs: 2 Per Card relocked

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 740ps nominal

Overshoot: <10% of amplitude

Return Loss: > 15 dB to 270MHz

HD Serial Video Output:

Standard: 1.5 Gb/s SMPTE 292M - DIP switch selectable.

Input Format	Output Format	SMPTE Standard
525i/59.94	1080i/59.94	274M
625i/50	1080i/50	274M
525i/59.94	720p/59.94	296M

Number of Outputs: 2 Per Card relocked

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Return Loss: > 10 dB at 1.5 GHz

Genlock Input:

Type: NTSC or PAL Color Black 1 V p-p
Composite bi-level sync (525i or 625i) 300 mV
BNC Loop per IEC 60169-8 Amendment 2

Connector: 75 Ω (jumper selectable)

AES Audio Outputs:

Number of Outputs: 4

Standard: SMPTE 276M, single ended AES

Connectors: Female 9 pin D

Resolution: 24 bits

Sampling Rate: 48 kHz

Impedance: 75 Ω

Signal Level: 1 V p-p nominal

General Purpose Inputs:

Number of Inputs: 3

Type: Opto-isolated, active low with internal pull-ups to +5 or +12V (jumper settable)

Connector: 3 pins (plus ground) on female 9 pin D

Signal Level: Closure to ground

Function: User Preset select

Electrical:

Voltage: +12VDC

Power: 26 Watts

EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 2

7700 frame mounting: 2

7701 frame mounting: 1

Ordering Information:

7710UC-HD HD Modular Upconverter

Ordering Options:

Rear Plate must be specified at time of order
Eg. Model +3RU

+VBI Timecode & caption translator option

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP	2RU VistaLINK™ General Purpose Network Control Panel

WP-7711HDC-SN-EAES4 7712HDC-SN-EAES4/7710UC-HD AES/GPIO Breakout Cable

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules

7701FR 1RU Multiframe, which holds 3 modules

S7701FR Standalone Enclosure

HD Key/Fill Upconverter



Model 7710UC-KF

The 7710UC-KF is designed to solve the problems of adapting to different HDTV formats, by offering high quality UP conversion of Key and Fill signals.

The 7710UC-KF Key and Fill Up Converter is re-configurable to provide high quality up conversion of your standard definition key and fill signals to common 1.5 Gb/s high definition (SMPTE 292M) video formats

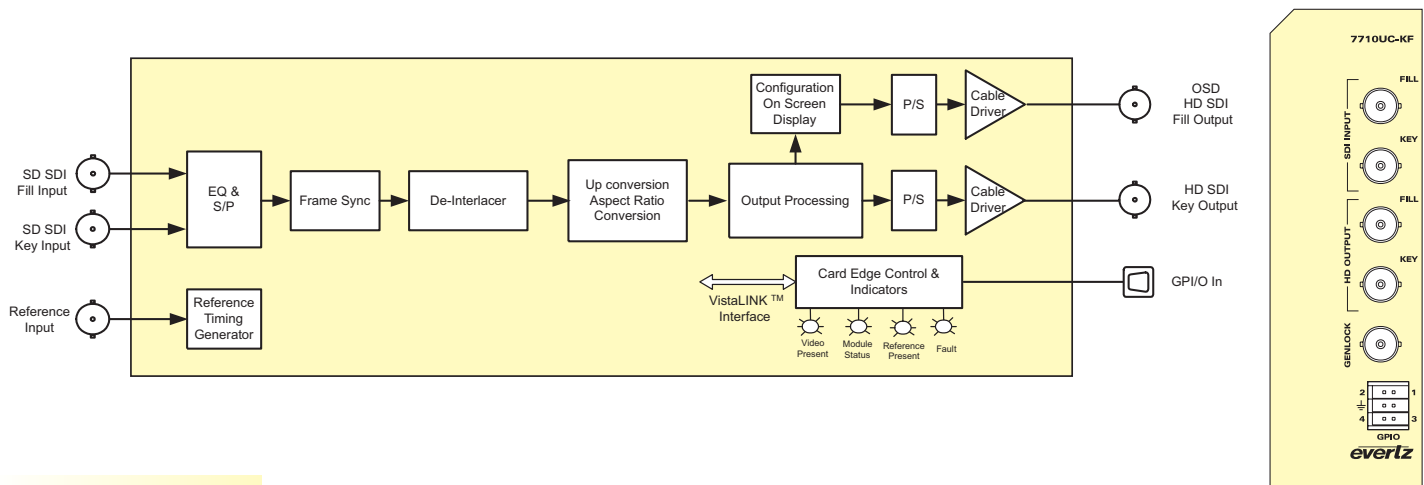
The units occupy two card slots in the 3 RU frame, which will hold up to seven 2 slot modules. It occupies one slot in the 1RU frame, which will hold up to three modules.

The units also provide card edge LEDs to indicate signal present and genlock present.

Features

- High quality SD -> HD up conversion
- Supports standard aspect ratio conversions plus all user definable
- Supports all necessary colour space conversions (ITU rec. 601 to ITU rec.709) for fill channel
- Full video processing functions, GBR gain YCrCb gain and offset and hue adjustment for fill channel
- Reference input allows for phasing of output video
- Module supports min. delay or variable delay for video output without reference
- Module supports video output referenced to genlock with variable delay
- Output on screen display used (OSD) to configure the operation of the device

7710UC-KF Block Diagram



Specifications

Serial Digital Inputs:

Standards:	270Mb/s SMPTE 259M
Number of Inputs:	1 Key, 1 Fill
Connector:	BNC per IEC 60169-8 Amendment 2
Input Equalization:	Automatic to 300m @ 270Mb/s with Belden 8281 or equivalent cable.
Return Loss:	>15 dB up to 540Mb/s

Serial Digital Outputs:

Standard:	1.485 Gb/s SMPTE 292M.
Number of Outputs:	1 Key, 1 Fill
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	200ps nominal
Overshoot:	<10% of amplitude
Return Loss:	> 15 dB at 1.5 GHz

Genlock Input:

Type:	HD Tri-Level sync, NTSC or PAL Colour Black 1 V p-p
Connector:	BNC per IEC 60169-8 Amendment 2
Termination:	75 Ω (jumper selectable)

General Purpose Inputs and Outputs:

Number:	4 (configurable as inputs or outputs)
Type:	Opto-isolated, active low with internal pull-ups to +5 or +12V (jumper settable)
Connector:	6 pin removable terminal block
Function:	closure to ground
Inputs:	2, 1 fill, 1 key
Outputs:	2, 1 fill, 1 key

Electrical:

Voltage:	+12VDC
Power:	20 Watts.
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of slots:	
7700 frame mounting:	2
7701 frame mounting:	1

Ordering Information:

7710UC-KF	HD Key/Fill Upconverter
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Ordering Options:

Rear Plate must be specified at time of order
Eg. Model +3RU

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone Enclosure

HD Cross Converter (with Up & Down Conversion Options)

Model 7710XC-HD

The 7710XC series of products is designed to solve the problems of adapting to different HDTV formats, at the same time as offering UP and DOWN conversion. Four versions are available:

MODEL #	DESCRIPTION	# OF SLOTS
7710XC-HD	Provides HD <-> HD cross-conversion with video proc, closed caption and timecode support (VANC support)	2
7710XC-AES4-HD	Provides HD <-> HD cross-conversion with external AES on BNCs and embedded audio, video proc, closed caption and timecode support (VANC support)	2
7710XUC-AES4-HD	Is reconfigurable to provide either HD <-> HD cross-conversion, SD -> HD up-conversion with noise reduction or HD -> SD down-conversion with image enhancement and gamma correction. Also supports external AES on a DB15 connector and embedded audio, video proc, closed caption and timecode support	2
7710XUDC-AES4-HD	Provides HD <-> HD cross conversion with simultaneous down-conversion providing 2 SDI & 2 composite video outputs. It is also reconfigurable to provide up-conversion support. Also supports external AES on DB15 connector and embedded audio, video proc, closed caption and timecode support	3

The 7710XC-HD High Definition Format Translator/Cross Converter provides high quality conversion of your high definition (SMPTE 292M) signals to other common 1.5 Gb/s high definition (SMPTE 292M) video formats. The 7710XC-HD has 10-bit processing, and 2 HD Serial Digital outputs and 1 OSD output, plus external genlock.

The 7710XC-AES4-HD High Definition Format Translator/Cross Converter with external AES provides high quality conversion of your high definition (SMPTE 292M) signals to other common 1.5 Gb/s high definition (SMPTE 292M) video formats.

The 7710XUC-AES4-HD High Definition Format Up/Cross Converter is reconfigurable to provide high quality conversion of your standard definition signals with noise reduction to common 1.5 Gb/s high definition (SMPTE 292M) video formats, high quality conversion of your high definition (SMPTE 292M) signals to other common 1.5 Gb/s high definition (SMPTE 292M) video formats, or high definition (SMPTE 292M) to standard definition (SMPTE 296M) down conversion with detail enhancement and gamma correction. The 7710XUC-HD has 10-bit processing, and 2 HD Serial Digital outputs and 1 OSD output, plus external genlock.

The 7710XUDC-AES4-HD High Definition Format Up/Down/Cross Converter is similar to the 7710XUC-HD but provides simultaneous cross conversion & down-conversion. It has 2 SD Serial Digital outputs and 2 composite analog video outputs.

The units accept 2 groups of SMPTE 299M embedded audio on the input or optionally external (separate) 4 AES audio and re-embeds them into the serial video output and provides 4 AES audio output mirroring the embedder. The re-embedded audio is compliant to SMPTE 299M with delay adjust and has the appropriate delay added to compensate for video delay incurred by the conversion process, thus avoiding the need for external de-embedding and re-embedding of audio. The audio is also available as 4 unbalanced AES outputs.

The units also transport the closed caption and time code information from input to output performing all necessary HD to SD and SD to HD translation and time code recalculations.

All 7710XC-HD series modules occupy two card slots in the 3RU frame which will hold up to 15 modules, except for the 7710XUDC-AES4-HD which occupies three slots. All modules, except the 7710XUDC-AES4-HD are also available for the 1RU frame which will hold up to three modules. The units also provide card edge LEDs to indicate signal present, genlock present and audio groups present.

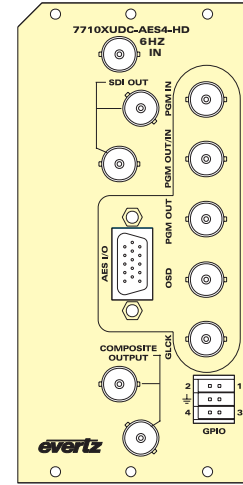
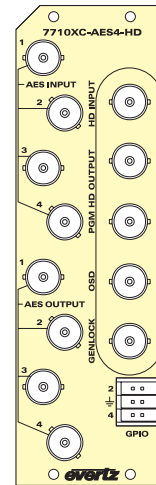
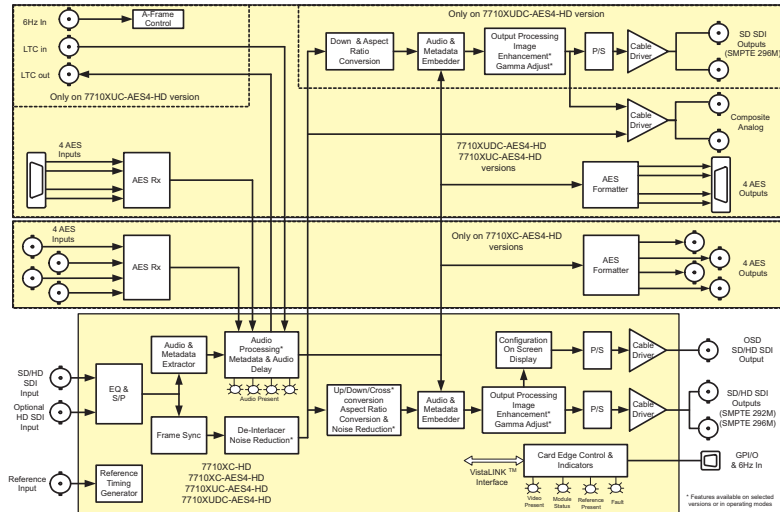
Features

- High quality HD -> HD cross conversion
- High quality SD -> HD up conversion with Noise Reduction
- High quality HD -> SD down conversion with Image enhancement
- Supports standard aspect ratio conversions plus all user definable
- Support all necessary colour space conversions (ITU rec. 601 to ITU rec. 709)
- Full video proc functions, GBR gain YCrCb gain and offset, hue adjustment and RGB colour limiter.
- Image Detail Enhancement on Down Conversion with RGB gamma correction
- Reference input allows for phasing of output video
- Module supports min. delay or variable delay for video output without reference
- Module supports video output referenced to genlock with variable delay
- Output on screen display used to configure the operating modes
- De-embeds Audio from HD video input and embeds into HD video output (2 groups)
- Supports retimed external 4 AES inputs and outputs
- Moves VITC time code and Line 21 captions from the SD video into the HD video ancillary data
- Moves RP-188 VITC and LTC from HD input to HD output, recalculated for frame rate changes.
- Moves HD closed captions from HD input to HD output.

• VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel. VistaLINK™ is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller

HD Cross Converter (with Up & Down Conversion Options)

7710XC-HD Block Diagram



Specifications

HD-SDI Video Inputs:

Standard: 1.485 Gb/sec SMPTE 292M - menu selectable.
SMPTE 260M, SMPTE 274M, SMPTE 296M, SMPTE 349M
Number of Inputs: Normal 1/ Optional 2
Connector: BNC per IEC 60169-8 Amendment 2
Input Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694 or equivalent cable.
Return Loss: >10 dB up to 1.5Gb/s

HD-SDI Serial Video Outputs:

Standard: 1.5 Gb/s SMPTE 292M, 270Mb/s SMPTE 296M
Number of Outputs: 3 Per Card/Optional 2 with 2nd input
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Return Loss: > 10 dB at 1.5 GHz

AES Audio Inputs:

Number of Inputs: 4
Standard: SMPTE 276M, single ended synchronous or asynchronous AES
Connector: BNC per IEC 60169-8 Amendment 2
Resolution: 24 bits
Sampling Rate: 48 kHz
Impedance: 75 Ω
Signal Level: 1 V p-p nominal

AES Audio Output:

Number of Outputs: 4
Standard: SMPTE 276M, single ended synchronous AES
Connectors: BNC per IEC 60169-8 Amendment 2
Resolution: 24 bits
Sampling Rate: 48 kHz
Impedance: 75 Ω
Signal Level: 1 V p-p nominal

General Purpose Inputs and Outputs:

Number: 4 (configurable as inputs or outputs)
Type: Opto-isolated, active low with internal pull-ups to +5 or +12V (jumper settable)
Connector: 6 pin removable terminal block
Signal Level: Closure to ground
Function: User Preset select, fade or cut for keyer, fade to black Tally (key on air)

Genlock Input:

Type: HD Tri-Level sync, NTSC or PAL Color Black 1 V p-p
Connector: BNC per IEC 60169-8 Amendment 2
Termination: 75 Ω (jumper selectable)

Electrical:

Voltage: +12VDC
Power: 26 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

(Note: 7710XUC-AES4-HD not available in a 7701FR)
Number of slots:
7700 frame mounting: 3 (7710XUC-AES4-HD only)
2 for all other models
7701 frame mounting: 1

Ordering Information

7710XC-HD	HD Up/Cross Converter with HD-SDI Outputs with VANC, support
7710XC-AES4-HD	HD Up/Cross Converter with HD-SDI Outputs with VANC, Embedded Audio and discrete AES support
7710XUC-AES4-HD	HD Up/Cross Converter with VANC, Embedded Audio and discrete AES support
7710XUC-AES4-HD	HD Up/Down/Cross Converter with VANC, Embedded Audio, and discrete AES support

Ordering Options & Accessories:

Rear Plate must be specified at time of order
Eg: Model +3RU

Rear Plate Suffix:

+3RU: 3RU rear plate for use with 7700FR-C Multiframe

Note:

+1RU: (All versions except the 7710XUC-AES4-HD)
1RU rear plate for use with 7701FR Multiframe

Enclosures:

7700FR-C: 3RU Multiframe which holds 15 modules
7701FR: 1RU Multiframe which holds 3 modules

HD Broadcast Quality Down Converter



Model 7712HDC

The 7712HDC High Definition Downconverter provides broadcast quality down conversion of your 1.5 Gb/s HDTV signals. This High Definition Downconverter has 10-bit processing with Serial Digital & optional Composite Analog outputs and is designed to fit easily into a plant that is fully digital, analog or mixed. The 7712HDC accepts all the major HD video formats and provides extensive control over the downconversion process. The 7712HDC-SN-EAES4 version downconverts 1080p/24sf input video to 525i/60 with a 3:2 pulldown locked to embedded RP188 or an external 6Hz input or free running.

The 7712HDC provides card edge LEDs to indicate signal present, genlock present and audio groups present. The 7712HDC has color space conversion from ITU rec. 709 to ITU rec. 601, and will provide various down converted formats such as 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze.

The 7712HDC is available in two versions to support a wide variety of customer applications.

Model	Video			Audio			TimeCode/Captions
	SDI	Monitor Analog	Broadcast Analog	Embedded In	Embedded Out	AES Out	
7712HDC-S	2	2	--		--		
7712HDC-SN-EAES4	2	2	2	2 groups	2 groups	4	Yes

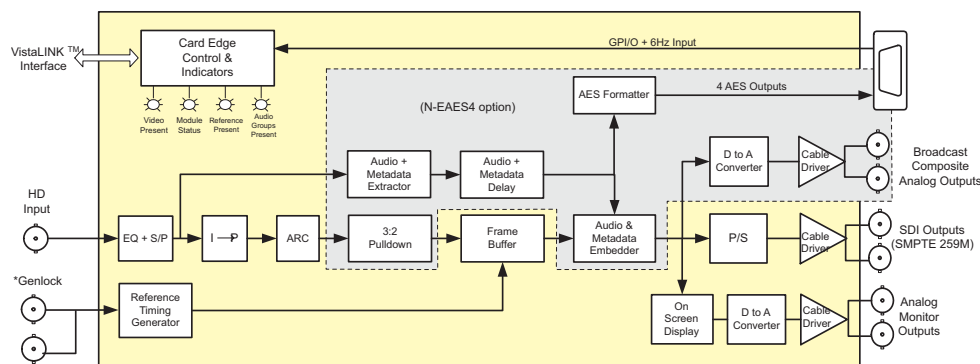
The 7712HDC-SN-EAES4 version de-embeds two groups of audio and re-embeds the audio on the SDI output in time with the video. The audio is also available as 4 unbalanced AES outputs. The 7712HDC-SN-EAES4 also handles VANC data like captioning and timecode on the HD and moves it onto the SDI outputs.

The 7712HDC occupies two card slots in the 3 RU frame which will hold up to 15 modules or one slot in the 1RU frame which will hold up to three modules or a standalone enclosure which will hold 1 module.

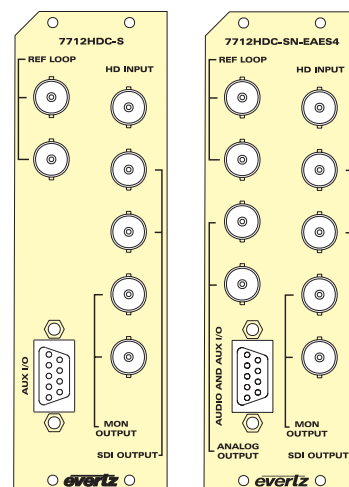
Features

- Broadcast quality HD -> SD down conversion
- Optional broadcast quality analog outputs
- Supports 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze aspect ratio conversions.
- 1080p/24sF conversion to 525i/60 with 3:2 pulldown sequence determined by RP188 or 6Hz input (EAES4 version only)
- HD to SD colour space conversion (ITU rec. 709 to ITU rec. 601)
- Reference input allows for phasing of output video
- Module supports min. delay or variable delay for video output without reference
- Module supports video output referenced to genlock with variable delay
- Automatic input standard and frame rate detection
- Analog monitor output on screen display used to configure the operating modes
- EAES4 version de-embeds Audio from HD video and embeds into SD video (2 groups)
- EAES4 version moves VANC data (e.g. captioning, timecode) from the HD video onto the SDI outputs
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™, 9000NCP or 9000NCP2 Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

7712HDC Block Diagram



* A genlock loop is provided for output phasing capability only



HD Broadcast Quality Down Converter

Specifications

Serial Video Input:

Standard: SMPTE 292M 1.485Gb/s
Formats: 1080i/59.94, 720p/59.94, 480p/59.94, 1080i/50, 1080p/25sF, 1 080p/29.97sF, 1035i/59.94 (SN-EAES4 version only) 1080p/23.98sF
Connector: 1 BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Equalization: Automatic 100m @1.5Gb/s with (Belden1694)
Return Loss: >10dB to 1.5Gb/s

Serial Video Output:

Standard: SMPTE 259M-C 270Mb/s
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 740ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: < 0.2 UI
Return Loss: >15dB to 270Mb/s

Genlock Input:

Type: NTSC or PAL Colour Black 1 Vp-p
Connector: BNC per IEC 60169-8 Amendment 2
Termination: High impedance loop or internal 75Ω termination (jumper selectable)

Analog Video Output (SN-EAES4 only):

Standard: Analog composite NTSC (SMPTE 170M) or Analog composite PAL (ITU-R BT.470)
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal (user adjustable from menu)
DC Offset: 0V ±0.02V
Return Loss: > 35dB up to 5MHz
Frequency Response: 0.1dB to 4MHz, 0.15dB to 5.5 MHz
Differential Phase: < 0.5° (<0.3° typical)
Differential Gain: < 0.5% (<0.3 % typical)
SNR: > 78dB to 5MHz

Analog Monitor Video Output (SN-EAES4 only):

Standard: Analog composite NTSC (SMPTE 170M) or Analog composite PAL (ITU-R BT.470)
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V ±0.1V
Return Loss: > 35dB up to 5MHz
Frequency Response: 0.8dB to 4MHz
Differential Phase: < 0.9° (<0.6° typical)
Differential Gain: < 0.9% (<0.5 % typical)
SNR: >56dB to 5MHz (shallow ramp)

AES Audio Outputs (SN-EAES4 only):

Standard: SMPTE 276M, single ended AES
Number of Outputs: 4
Connector: Female 9-pin D
Sampling Rate: Synchronous 48kHz
Impedance: 75Ω unbalanced
Signal Level: 1V p-p nominal

General Purpose Inputs:

Number of Inputs: 3
Type: Opto-isolated, active low with internal pull-ups to +5 or +12V (jumper settable)
Connector: 3 pins (plus ground) on female 9 pin D
Signal Level: Closure to ground
Function: 6Hz reference and user Preset 1 & 2 select

General Purpose Outputs:

Number of Outputs: 1
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: 1 pin plus ground on Female 9 pin D
Signal Level: +5V nominal
Function: Not used at this time

Input to Output Processing Delay:

Minimum Delay Mode: 2 to 4 frames dependent on input video format and processing mode (see manual)
Output Phasing: Up to 1 additional frame dependent on output phasing to genlock reference
Audio and ANC: Audio, captions and timecode are delayed and re-embedded in time with the output picture (7712HC-SN-EAES4 only)

Electrical:

Voltage: +12V DC
Power: 26 Watts
EMI/RFI: Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of Slots: 2 for the 7700FR-C frame
1 for the 7701FR frame

Ordering Information:

7712HDC-S	HD Broadcast Quality Downconverter with SDI outputs
7712HDC-SN-EAES4	HD Broadcast Quality Downconverter with SDI and Broadcast Analog Outputs with 1080p/23.98sF, VANC and AES/Embedded Audio Support

Ordering Options:

Rear Plate must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

WP-7711HDC-SN-EAES4

7712HDC-SN-EAES4/7710UC-HD AES/GPIO Breakout Cable

Enclosures:

7700FR-C	3RU Multiframe, which holds 15 modules
7701FR	1RU Multiframe, which holds 3 modules
S7701FR	Standalone Enclosure

HD Downconverter & Distribution Amplifier

Model 7713HDC



The 7713HDC is a reclocking high definition serial digital video distribution amplifier and a high quality downconverter for 1.5 Gb/s HDTV signals. It can also function as a monitoring distribution amplifier for standard definition 270 Mb/s signals. The 7713HDC provides 4 reclocked DA outputs and 3 downconverted SDI or composite analog NTSC/PAL outputs (selectable). The 7713HDC accepts all the popular international SMPTE 292M video formats. When the 7713HDC down converts 1080p/23.98sF input video to 525i/59.94 with a 3:2 pulldown, the 3:2 pulldown cadence can be free running, locked to embedded RP188 time code or an external 6Hz input.

The 7713HDC has color space conversion from ITU rec. 709 to ITU rec. 601, and will provide various down converted formats such as 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze. Full 10 bit processing is provided throughout the signal path to achieve excellent downconversion quality with detail enhancement and gamma correction. The 7713HDC has the ability to adjust video parameters such as brightness, hue and saturation. The 7713HDC also de-embeds two groups of audio and re-embeds the audio on the SDI output in time with the video. It can also reassign audio channels within the groups. All parameters may be controlled by use of the on screen display menu or through VistaLINK™ PRO.

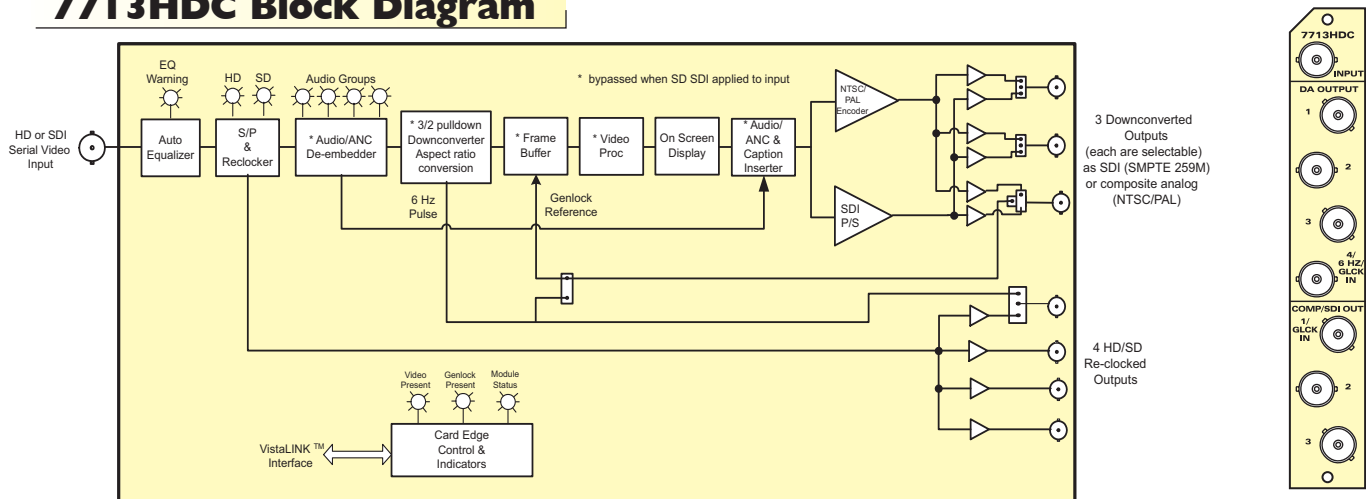
The 7713HDC provides card edge LEDs to indicate signal present and audio groups present. The 7713HDC occupies one card slot in the 3 RU frame, which will hold up to 15 modules or the 1RU frame, which will hold up to three modules.

Features

- Serial digital 1.5 Gb/s HD input per SMPTE 292M
- Supports most international standards including 1080i/60, 1080i/59.94, 1080i/50, 1080p/24, 1080p/23.98, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94, 720p/50, 480p/60, and 480p/59.94
- Will also accept 270 Mb/s SD input SDI per SMPTE 259M in a pass through mode - auto senses HD or SD inputs
- 4 Reclocked DA outputs (HD if HD inputs applied, SD if SD inputs applied)
- 3 Selectable SDI or Composite Outputs (downconverted from HD if HD input applied), (from reclocked SD if SD input applied)
- High quality HD -> SD down conversion
- Detail enhancement provided on SDI or composite outputs
- Supports 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze aspect ratio conversions.
- 1080p/23.98sF conversion to 525i/59.94 with 3:2 pulldown sequence - time code or 6 Hz Reference
- HD to SD colour space conversion (ITU rec. 709 to ITU rec. 601)
- Reference input from card or 7700FR-G Frame reference allows for phasing of output video
- On screen display used to configure the operating modes
- De-embeds Audio from HD video and embeds into standard definition SDI video (2 groups)
- Moves ANC data (e.g. captioning, time code) from HD video to standard definition SDI video
- Card Edge LEDs for signal presence, genlock presence, equalization warning, audio groups present, module status
- VistaLINK™ -enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller

HD Downconverter & Distribution Amplifier

7713HDC Block Diagram



Specifications

Serial Video Input:

Standard: 270 Mb/s SMPTE 259M - pass through mode
1.485 Gb/sec SMPTE 292M - auto-detects standard
SMPTE 260M, SMPTE 274M, SMPTE 296M, SMPTE 349M

Connector: BNC per IEC 60169-8 Amendment 2.

Input Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694 or equivalent cable

Return Loss: >15 dB up to 1.5GHz

Reclocked Serial Video DA Outputs:

Standard: Same as input

Number of Outputs: 4 Per Card relocked

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 200ps nominal for HD
750ps nominal for SD

Overshoot: <10% of amplitude

Return Loss: > 15 dB at 1.5 Gb/s

Jitter: < 0.2 UI

Downconverted Serial Video Outputs:

Standard: SMPTE 259M-C (270 Mb/s)

Number of Outputs: up to 3 Per Card (jumper selectable)

Connector: BNC per IEC 60169-8 Amendment 2.

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 750ps nominal

Overshoot: <10% of amplitude

Return Loss: > 15 dB at 270 Mb/s

Jitter: < 0.2 UI

Downconverted Composite Analog Video Outputs:

Standards: Analog composite NTSC (SMPTE 170M) or
Analog composite PAL (ITU-R BT.470)

Number of Outputs: up to 3 Per Card (jumper selectable)

Connectors: BNC per IEC 60169-8 Amendment 2.

Signal Level: 1 V p-p nominal

DC Offset: 0V \pm 0.1V

Return Loss: >35dB up to 5 MHz

Frequency Response: 0.1dB to 4 MHz, 0.15dB to 5.5 MHz

Differential Phase: <0.5° (<0.3° typical)

Differential Gain: <0.8% (<0.5 % typical)

SNR: >78dB to 5 MHz (shallow ramp)

Impedance: 75 Ω

Genlock Input:

Type: NTSC or PAL Colour Black 1 V p-p

Connector: BNC per IEC 60169-8 Amendment 2
or Frame Genlock on 7700FR-G frames. (selectable)

Termination: High impedance or internal 75 ohm termination (jumper selectable)

6 HZ Input:

Type: TTL level active high pulse 1/30 sec wide

Connector: BNC per IEC 60169-8 Amendment 2 (jumper selectable)

Termination: 500 Ω

Input to Output Processing Delay (HD Input Video)

Video Delay: Approximately 1 to 2 frames depending on input video for mat, processing mode and phase setting

Audio Delay: Audio is delayed and re-embedded in time with the output picture

Electrical:

Voltage: +12VDC

Power: 10 Watts

EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7713HDC Downconverter and Distribution Amplifier

Ordering Options:

Rear Plate must be specified at time of order
Eg. Model +3RU +SC

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

+1RU 1RU Rear Plate for use with 7701FR Multiframe

+SA Standalone Enclosure Rear Plate

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Accessories:

Enclosures:

7700FR-C 3RU Multiframe, which holds 15 modules

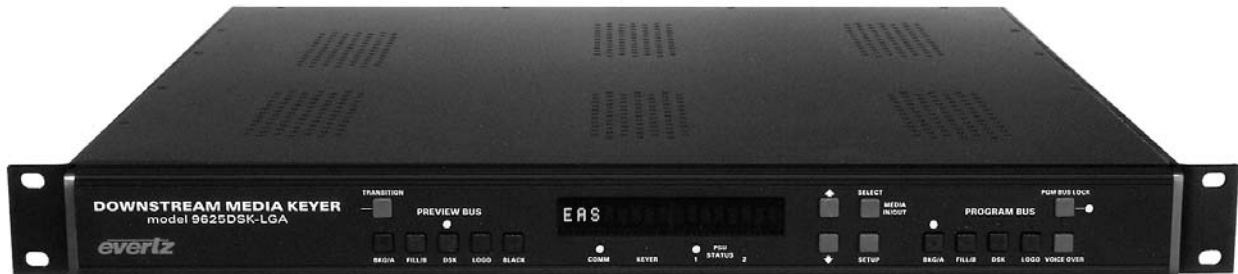
7701FR 1RU Multiframe, which holds 3 modules

S7701FR Standalone Enclosure

SDI Downstream Media Keyer System

Model 9625DSK-LGA

METACAST 2 ENABLED



The 9625DSK-LGA has been designed to manage and store multiple media objects. The size of each is variable and range from 1/25th to full screen for on screen objects. The position of the logo, fade rates, clip association and animation rates are user controllable. Up to 16 logos can be keyed simultaneously with independent fade control for each logo. The onboard preview allows you to cue your logos for position and content verification prior to going "On Air". Audio objects are stored as stereo 16-bit, 48kHz WAV format.

Embedded and AES mixing

The Evertz Downstream Media Keyer is at the forefront in audio switching and embedded/de-embedded audio manipulation. This flexible platform allows you to select your upstream source channels and remap them to your output channels on a channel by channel basis. This flexibility allows you to move main program audio to the secondary audio channels while maintaining SAP channels and inserting audio clips and voice over inputs. Whatever your audio swapping needs are, you can be sure that the Evertz Downstream Media Keyer can handle it. The audio mixer can perform A/B/C/D mixing using 8 external AES channel inputs or 8 embedded AES channels. The 4 external voice over AES channels can be easily mapped to the desired embedded AES channels allowing for external audio device support. Add to this up to 2 Gigabytes of flash storage for audio clips and you can see why the Downstream Media Keyer has been chosen as the keyer of choice with major system integrators. Any embedded or external audio channels can be mapped to the preview channels for audio monitoring.

Audio storage

Up to 2 Gigabytes of digital audio clips can be stored and played out with the Compact Flash option. The stored audio is output as an AES stereo pair, which can be mixed with any of the other inputs to the audio mixer.

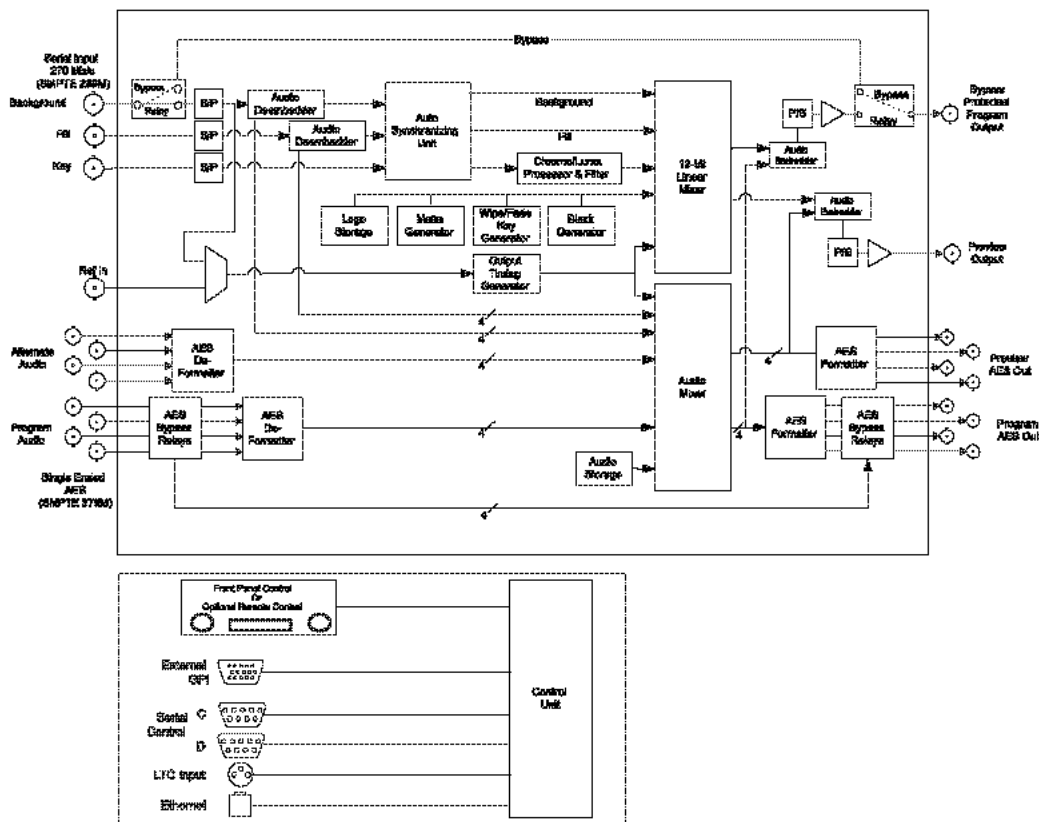
Audio files are loaded over the standard Ethernet interface or from the front panel Compact Flash port in 16-bit, 48kHz .WAV format using Evertz InstaLogo software.

Features

- Stores and inserts static or animated logos and audio clips
- Multiple simultaneous logos can be keyed with independent fade control
- Incorporates a high quality variable transparency mixer that provides various transparency levels to your logos
- Full 12-bit linear fade-in and fade-out control provided
- Free Windows media conversion software InstaLogo
- Ethernet for quick downloads
- Supports 625 line and 525 line video standards
- Fade all out capability provided on program output
- Standard 128MB internal flash storage
- Automatic equalization up to 250m (Belden 8281 or equivalent cable)
- Output bypass relay protected, video and audio, embedded and non
- Eight AES stereo pair inputs and eight AES stereo pair outputs
- Includes embedded audio mixing with 4 AES group de-embedding and re-embedding for voice over and clip inserts
- Automation control by RS422 plus programmable GPIs and GPOs
- SDI mixer or downstream keyer with full preview
- Full 4 AES channel audio mixing plus full 4 AES channel voice-over for Dolby 5.1
- Adjustable transition rates for cut, fade, horizontal and vertical wipes
- Fade to black and fade to silence
- Linear and additive keying using separate/external key/fill sources or self-keying (minimum 12-bit processing)
- Clip, gain, rate and transparency adjustment
- MetaCast 2 automation support
- Optional storage and playout for up to 1 Gigabyte of internal flash storage
- Optional front panel Compact Flash for additional 128MB or 1GB storage
- Optional temperature probe for temperature logos
- Optional redundant power supply for broadcast applications
- Optional rackmount or desktop remote control panels
- Optional EAS crawl support for Sage and TFT Decoders
- Optional crawl for scrolling text messages

SDI Downstream Media Keyer System

9625DSK-LGA Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C (270Mb/s)
Number of Outputs: 1 Background (input bypass protected) 1 Fill and 1 Key
Connectors: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic up to 200m @270 Mb/s with Belden 8281 (or equivalent)

Serial Video Output:

Standard: Same as input
Number of Outputs: 1 Program bypass protected, 1 Preview
Connectors: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude (All outputs terminated)
Jitter: <0.2UI

AES Audio Inputs:

Standard: SMPTE 276M single ended AES
Number of Inputs: 4 AES Channels Program (bypass protected)
4 AES Channels Voice Over
Connectors: BNC per IEC 60169-8 Amendment 2

AES Audio Outputs:

Standard: SMPTE 276M single ended AES
Number of Outputs: 4 AES Channels Program (bypass protected)
4 AES Channels Preview
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 1Vp-p

Genlock Input:

Type: NTSC or PAL color black 1V p-p
Composite bi-level sync (525 line or 625 line) 300mV
Connector: 1 BNC per IEC 60169-8 Amendment 2
Termination: 75Ω

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs (3.5Kg)

Electrical:

Power: Auto ranging 115/230 V AC 50/60 Hz 30 VA
Safety: ETL Listed
Complies with EU Safety Directive
Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

9625DSK-LGA SDI Downstream Media Keyer System

Ordering Options:

+DCP Optional desktop remote control panel
(Replaces front panel control)
+RCP Optional rack mount remote control panel
(Replaces front panel control)
+2PS Optional redundant power supply
+CWL Optional crawl support
+CF Compact Flash Optional Hardware (does not include compact flash memory card)
+1G Optional internal memory expansion to 1 Gigabyte
+TP Optional air temperature probe
+E Optional EAS crawl insertion

Accessories:

CF128 Optional card flash expansion port with 128MB card
CF1G Optional card flash expansion port with 1 Gigabyte card
WA-1525 Optional 15-25 Pin Adapter for GP10 port
9600LG-TP Optional air temperature probe for all 9625 & HD9625 products (for existing hardware)

Model 9625LG

METACAST 2 ENABLED

The 9625LG SDI Logo Inserter is a complete SDI Logo Insertion package that will key one, or many, static/animated "bugs" over a full bandwidth SDI program video signal. Media created in BMP, Tiff or TGA file formats can be imported into the InstaLogo software and transferred to the 9625LG. Media is stored in flash memory and can be quickly accessed via front panel, quick select keys, GPI inputs, automation and MetaCast. With the new removable Compact Flash option you can have access of up to 2 Gigabytes of on-line media storage space and virtually unlimited archived media storage.

The 9625LG has been designed to manage and store multiple logos. The size of each is variable and range from 1/25th to full screen. The position of the logo, fade rates and animation rates are user controllable. Up to 16 logos can be keyed simultaneously with independent fade control for each logo. The onboard preview allows you to cue your logos for position and content verification prior to going "On Air".

The EAS crawl support allows for connection to an existing EAS decoder. This RS232 connection allows weekly tests (white text on green), watch alerts (white on yellow) and warnings (white on red) to be scrolled across the native SDI video with no need for format conversion. The variable height text font can be positioned anywhere on the screen.

Features

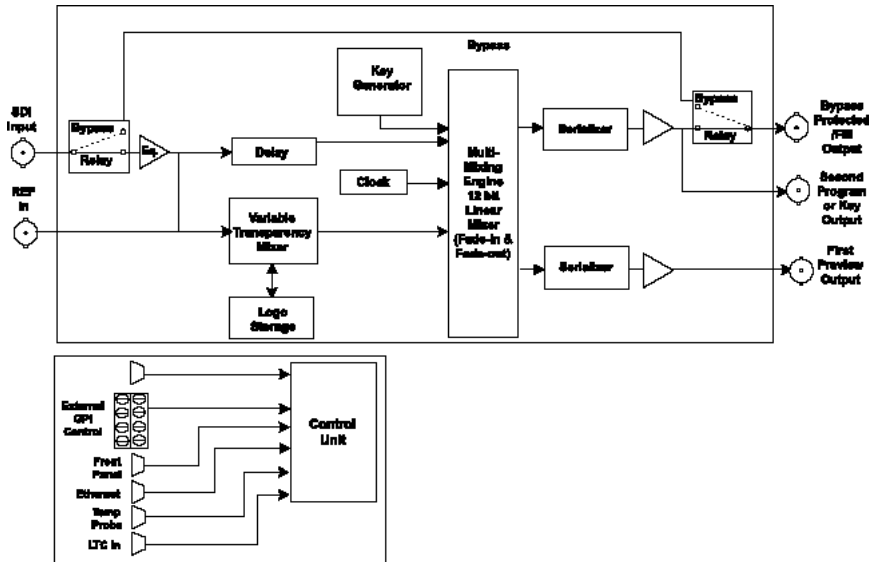
- Stores and inserts static and animated logos
- Multiple simultaneous logos can be keyed with independent fade control
- Incorporates a high quality variable transparency mixer that provides various transparency levels to your logos
- Full 12-bit linear fade-in and fade-out control provided
- Front panel or RS-232/RS-422 (Rack-mount or Desk-top) remote control
- 8 programmable GPI contact closures
- Download media from a standard Windows PC running InstaLogo™ software
- EAS supports all new alert codes including child abduction emergency
- FTP file transfer and maintenance
- Supports 625 line and 525 line video standards
- Fade all out capability provided on program video output
- Standard 128MB flash storage
- Automatic equalization up to 250m (Belden 8281 or equivalent cable)
- Program output bypass relay protected
- Optional 1GB internal flash storage
- Optional redundant power supply
- Optional removable 128MB or 1GB compact flash storage
- Optional rackmount or desktop remote control panels
- Optional EAS crawl support for Sage and TFT Decoders
- Optional crawl for scrolling text messages



NOMAD Lite is an easy to use graphical interface that integrates the speed of fast Ethernet, with the ease of drag and drop functionality to deliver a central access point to Evertz keyer products. Using this software allows you to upload media files to one or many units simply by clicking and dragging the item from the explorer like window, into the device tree. This powerful interface allows you to extract and move media items from one device to another using the same easy drag and drop style. For more complicated multi unit installations, you can set custom device groups. This allows for media content to be dropped on a custom grouping and automatically uploaded to the ganged units in one easy step.

Model 9625LG Block Diagram

METACAST 2 ENABLED



Specifications

Serial Video Input:

Standard: Serial component SMPTE 259M-C
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV ±10%
Equalization: Automatic up to 200m @270 Mb/s with Belden 8281 (or equivalent)

Serial Video Output:

Standard: Same as input
Number of Outputs: 2 Program (1 output bypass protected)
 1 Preview
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude (All outputs terminated)
Wide Band Jitter: <0.2UI

Genlock Input:

Type: NTSC or PAL color black 1V p-p composite bi-level sync (525 line or 625 line)
Connector: 1 BNC per IEC 60169-8 Amendment 2

Serial Remote Control:

RS-232 interface, 9 pin "D" Connector for automation control

General Purpose In/Out:

Number of inputs: 8
Number of outputs: 4
Type: Opto isolated, active low
Connector: Female High Density DB-15
Signal level: +5V nominal

LTC Reader:

Standard: SMPTE 12M
 25, 30Fps Drop & Non Drop Frame
Connector: XLR Type 3 pin female connector
Signal Level: 0.2 to 4V p-p, balanced or unbalanced
Speed: 1/30th to 70x play speed, forward and rev, machine dependent

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
 (483mm W x 45mm H x 477mm D)
Weight: 8 lbs (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60Hz 30VA
Safety: ETL Listed
 Complies with EU Safety Directive
EMI/RFI: Complies with FCC Part 15 Class A
 EU EMC Directive

Ordering Information:

9625LG SDI Logo Inserter

Ordering Options & Accessories:

+DCP Optional desktop remote control panel (Replaces front panel control)
+RCP Optional rack mount remote control panel (Replaces front panel control)
+2PS Optional redundant power supply
+CF Compact Flash Optional Hardware (does not include compact flash memory card)
+CWL Optional crawl support
+1G Optional internal memory expansion to 1 Gigabyte
+TP Optional air temperature probe
+E Optional EAS crawl insertion

Accessories:

CF128 Optional card flash expansion port with 128MB card
CF1G Optional card flash expansion port with 1 Gigabyte card
WA-1525 Optional 15-25 pin adapter for all 9625 & HD9625 products
9600LG-TP Optional air temperature probe for all 9625 & HD9625 products (for existing hardware)

SDI Media Keyer System

Model 9625LGA

METACAST 2 ENABLED



The 9625LGA Media Keyer system. A complete SDI Logo and Audio Insertion package that will key one, or many, static/animated "bugs" over a full bandwidth SDI program video signal. It will also "Duck" insert preformatted audio clips. Media created in BMP, Tiff, TGA or Wave file formats can be imported into the InstaLogo software and transferred to the 9625LGA. Media is stored in flash memory and can be quickly accessed via front panel, quick select keys, GPI inputs, automation and MetaCast. With the new removable Compact Flash option you can have access of up to 2 Gigabytes of on-line media storage space and virtually unlimited archived media storage.

The 9625LGA has been designed to manage and store multiple logos. The size of each is variable and range from 1/25th to full screen. The position of the logo, fade rates, clip association and animation rates are user controllable. Up to 16 logos can be keyed simultaneously with independent fade control for each logo. The onboard preview allows you to cue your logos for position and content verification prior to going "On Air". The Media Keyer Voice Over audio input allows for 1 button audio switching

The EAS crawl support allows for connection to an existing EAS decoder. This RS232 connection allows weekly tests (white text on green), watch alerts (white on yellow) and warnings (white on red) to be scrolled across the native SDI video with no need for format conversion. The variable height text font can be positioned anywhere on the screen.

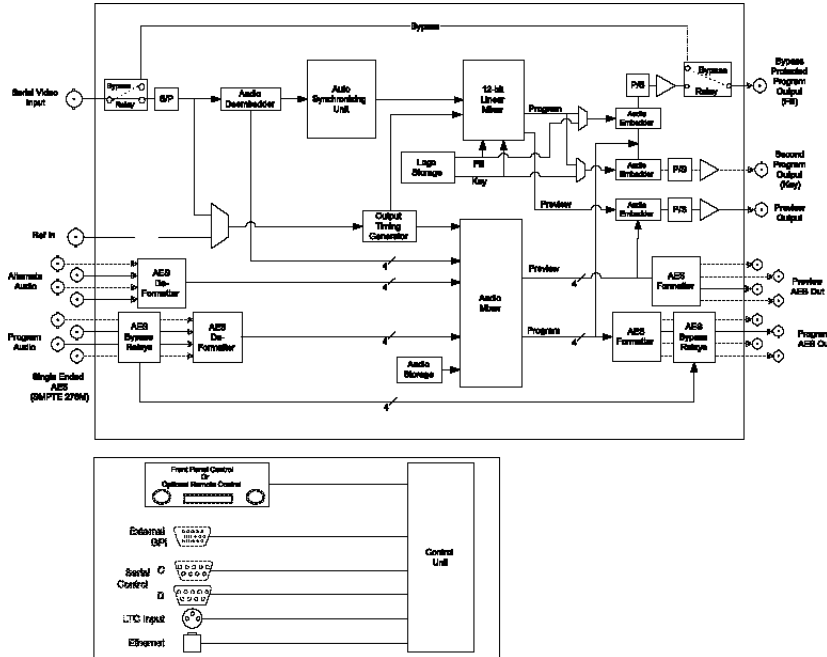
Features

- Stores and inserts static and animated logos and audio clips
- Multiple simultaneous logos can be keyed with independent fade control
- Incorporates a high quality variable transparency mixer that provides various transparency levels to your logos
- Full 12-bit linear fade-in and fade-out control provided
- Front panel or RS-232/RS-422 (Rack-mount or Desk-top) remote control
- 8 programmable GPI contact closures
- Download media from a standard Windows PC running InstaLogo™ software
- Audio clip to logo associations
- 1 button alternate audio voice overs
- EAS supports all new alert codes including child abduction emergency
- Quad AES for discreet 5-1 Dolby
- FTP file transfer and maintenance
- Supports 625 line and 525 line video standards
- Fade all out capability provided on program video output
- Standard 128MB flash storage
- Automatic equalization up to 250m (Belden 8281 or equivalent cable)
- Program output bypass relay protected
- Optional 1GB internal flash storage
- Optional redundant power supply
- Optional removable 128MB or 1GB compact flash storage
- Optional rackmount or desktop remote control panels
- Optional EAS crawl support for Sage and TFT Decoders
- Optional crawl for scrolling text messages



NOMAD Lite is an easy to use graphical interface that integrates the speed of fast Ethernet, with the ease of drag and drop functionality to deliver a central access point to Evertz keyer products. Using this software allows you to upload media files to one or many units simply by clicking and dragging the item from the explorer like window, into the device tree. This powerful interface allows you to extract and move media items from one device to another using the same easy drag and drop style. For more complicated multi unit installations, you can set custom device groups. This allows for media content to be dropped on a custom grouping and automatically uploaded to the ganged units in one easy step.

9625LGA Block Diagram



Specifications

Serial Video Input:

Standard: Serial component SMPTE 259M-C
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV ±10%
Equalization: Automatic up to 200m @270 Mb/s with Belden 8281 (or equivalent)

Serial Video Output:

Standard: Same as input
Number of Outputs: 2 Program (1 output bypass protected), 1 Preview
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude (All outputs terminated)
Wide Band Jitter: <0.2UI

AES Audio Inputs:

Standard: SMPTE 276M single ended AES
Number of Inputs: 4 Program, 4 Alternate
Connector: BNC per IEC 60169-8 Amendment 2

AES Audio Outputs:

Standard: SMPTE 276M single ended AES
Number of Outputs: 4 Program, 4 Preview
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1Vp-p

Genlock Input:

Type: NTSC or PAL color black 1V p-p composite bi-level sync (525 line or 625 line)
Connector: 1 BNC per IEC 60169-8 Amendment 2

Serial Remote Control:

RS-232 interface, 9 pin "D" Connector for automation control

General Purpose In/Out:

Number of inputs: 8
Number of outputs: 4
Type: Opto isolated, active low
Connector: Female High Density DB-15
Signal level: +5V nominal

LTC Reader:

Standard: SMPTE 12M
Connector: 25, 30Fps Drop & Non Drop Frame
Signal Level: XLR Type 3 pin female connector
Speed: 0.2 to 4V p-p, balanced or unbalanced
 1/30th to 70x play speed, forward and rev, machine dependent

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
 (483mm W x 45mm H x 477mm D)
Weight: 8 lbs (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60Hz 30VA
Safety: ETL Listed
 Complies with EU Safety Directive
EMI/RFI: Complies with FCC Part 15 Class A
 EU EMC Directive

Ordering Information:

9625LGA SDI Media Keyer System

Ordering Options & Accessories:

+RCP Optional rackmount remote control panel
+DCP Optional desk top remote control panel
+2PS Redundant power supply
+TP Optional Air Temperature Probe
+CF Compact Flash Optional Hardware (does not include compact flash memory card)
+E Optional EAS Crawl Insertion
+1G Optional internal flash expansion to 1 Gigabyte
+CWL Optional crawl support

Accessories:

CF128 Optional card flash expansion port with 128 Megabyte card
CF1G Optional card flash expansion port with 1 Gigabyte card
WA-1525 Optional 15-25 pin adapter for all 9625 & HD9625 products
9600LG-TP Optional air temperature probe for all 9625 & HD9625 products (for existing hardware)

High Definition Downstream Keyer

Model HD9625DSK

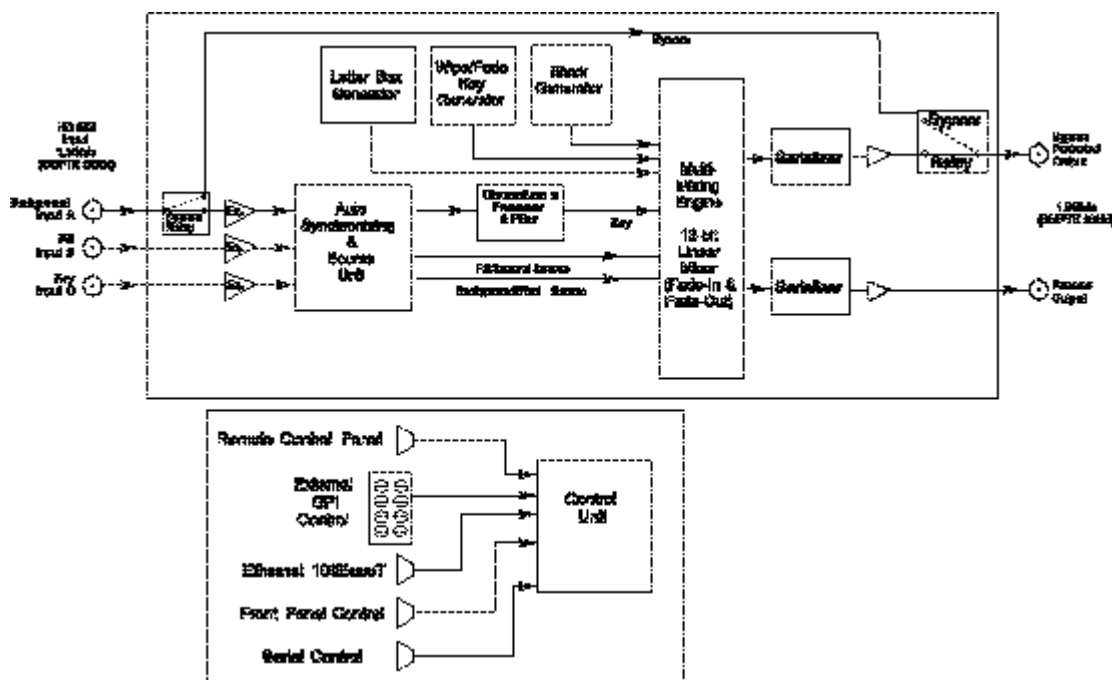


The Evertz HD9625DSK High Definition Downstream Keyer system incorporates the latest technology to provide an advanced fully digital keyer. The Evertz HD9625DSK is ideal for mixing key and fill HDTV signals in the “On-Air” environment. The system also features letter boxing, wipes, fades and more. The HD9625DSK provides storage and retrieval capabilities of several user setups and presets from the front panel, or from optional rackmount or desktop remote control panel. The HD9625DSK offers GPI control for fade and wipe transitions and RS-232/422 serial control from automation systems.

Features

- Both mix and additive keying modes provided
- Auto-timing HDTV key, fill, and background inputs (up to 1 line)
- GPI and RS-232/422 inputs for fade/transition control
- Internal black generator for fade to black applications
- Built-in letter box generator for non 16x9 aspect ratio cropping
- 12-bit processing linear keying providing high quality results for both transparency and soft edges
- Control of key gain and offset are provided
- Full control and status is provided from the front panel display
- Level triggered programmable GPI's
- User programmable presets are provided
- Optional rack mount or desktop remote control panel
- Optional redundant power supply
- Optional bypass relay for program output

HD9625DSK Block Diagram



Specifications

Serial Digital Video Input:

Standard: SMPTE 292M 1.485 Gb/s
1080i/60, 1080i/59.94, 1080/50,
1080p/24(sF), 1080p/23.98(sF), 720p/60,
720p/59.94, 480p/60, 480p/59.94

Number of Inputs: 3

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic to 100m @ 1.5 Gb/s with Belden 1694A (or equivalent)
25m with bypass relay installed

Impedance: 75Ω

Digital Video Output:

Standard: Same as input

Number of Outputs: 2

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V ± 0.5V

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Wide Band Jitter: <0.2 UI

Impedance: 75Ω

Control:

Serial Control: RS-232/422, 8 bits, no parity
9600, 19200, 38400, 57600 baud
computer control of all functions

Upgrade: RS-232, 57600 baud, 8 bits, no parity for
firmware upgrades

General Purpose In/Out:

Number of inputs: 8

Number of outputs: 4

Type: Opto isolated, active low

Connector: Female High Density DB-15

Signal level: +5V nominal

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
(483mm W x 45mm H x 477mm D)

Weight: 8 lbs (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60Hz 30VA

Safety: ETL Listed
Complies with EU safety directive

EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

HD9625DSK HD Downstream Keyer

Ordering Options:

+DCP Optional Desktop Control Panel

+RCP Optional Rack Mount Remote Control Panel

+HBP Optional cable loop on program input and
bypass protected output up to 25m of
Belden 1694

+2PS Redundant power supply

HD Logo Inserter

Model HD9625LG

METACAST 2 ENABLED



The Evertz HD9625LG Logo Inserter system is a complete package that will key one or many “bugs” over a full bandwidth HDTV program video signal. Logos created in BMP, Tiff, or TGA file formats can be imported into the Instalogo software and uploaded to the HD9625LG via Ethernet. Logos are stored in flash memory and can be quickly accessed via front panel quick select keys, GPI inputs or automation.

The HD9625LG has been designed to manage and store multiple logos. The size of each is variable and can be as small as 1% of the display area (minimum width 128 luma samples, minimum height 2 lines). The position of the logo and fade rates are user controllable. Multiple logos can be keyed simultaneously with independent fade control for each logo. Motion and static logos are supported.

Now includes serial support for temperature probe input. This input allows for the insertion of air temperature readings and is controlled like any other logo.

The EAS crawl support allows for connection to an existing EAS decoder. The variable height text font can be positioned anywhere on the screen.

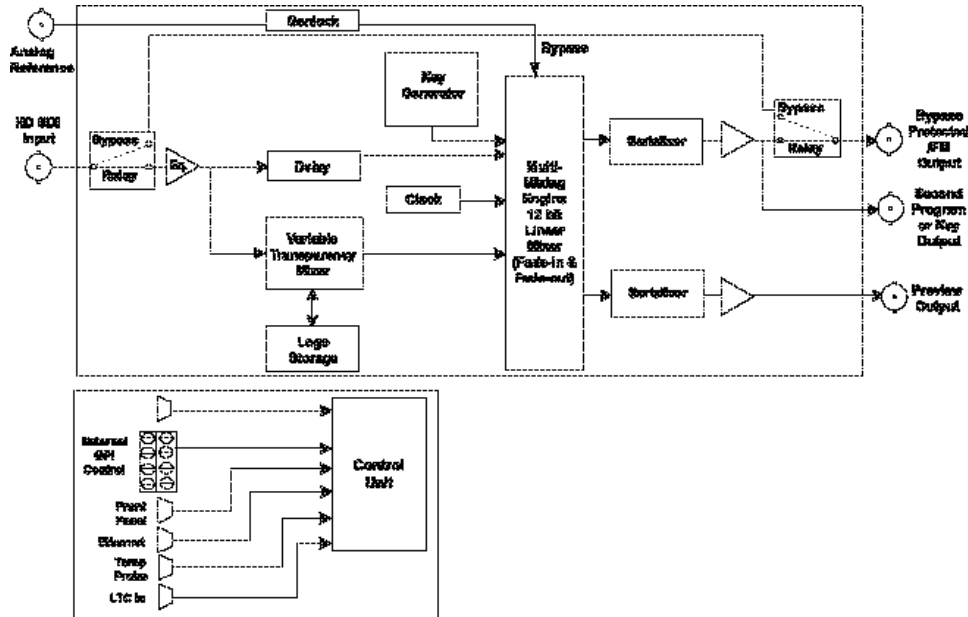
Features

- Stores and inserts animated and static logos
- Multiple simultaneous logos can be keyed with independent fade control
- Incorporates a full linear keyer
- Full 12-bit linear fade-in and fade-out control provided
- Front panel, RS422 remote control and GPI contact closure
- Download logos from standard PC using Ethernet with Evertz Software (provided)
- Supports 1080p, 1080i, 720p, 1035i, 1080psF, 480p video formats
- LTC input for digital or analog clocks
- EAS supports all new alert codes including child abduction emergency
- TTF support for CG functions
- Key/Fill output menu option for feeding master control
- Preview output for full logo preview
- Standard system has 128 MB of storage
- Automatic input equalization up to 100m of Belden 1694A (Cable length specifications are different if bypass option is purchased)
- FTP file transfer & maintenance
- Optional bypass relay for program output
- Optional redundant power supply
- Optional rack mount or desk top remote control panel
- Optional air temperature probe
- Optional EAS crawl support for Sage and TFT Decoders
- Optional crawl for scrolling text messages



NOMAD Lite an easy to use graphical interface that integrates the speed of fast Ethernet, with the ease of drag and drop functionality to deliver a central access point to Evertz keyer products. Using this software allows you to upload media files to one or many units simply by clicking and dragging the item from the explorer like window, into the device tree. This powerful interface allows you to extract and move media items from one device to another using the same easy drag and drop style. For more complicated multi unit installations, you can set custom device groups. This allows for media content to be dropped on a custom grouping and automatically uploaded to the ganged units in one easy step.

HD9625LG Block Diagram



Specifications

Serial Digital Video Input:

Standard: SMPTE 292M, 1.485Gb/s (1080i/59.94, 1080i/50, 720p/59.94, 480-/59.94)
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic up to 100m @1.5 Gb/s with Belden 1694A (or equivalent), 25m with bypass relay installed
Impedance: 75Ω

Digital Video Output:

Standard: Same as input
Number of Outputs: 2 Program (1 output bypass protected with +HBP option)
 1 Preview
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude (All outputs terminated)
Wide Band Jitter: <0.2UI

Genlock Input:

Type: NTSC or PAL color black 1V p-p
 Composite bi-level sync (525 line or 625 line) HD
 Tri Level Sync
Connector: 1 BNC per IEC 60169-8 Amendment 2

Control:

Serial Control: RS-232/422, 8 bits, no parity
 9600, 19200, 38400, 57600 baud computer control of all functions
Upgrade: RS-232, 57600 baud, 8 bits, no parity for firmware upgrades
Logo Transfer: TCP/IP, 100Base T

LTC Reader:

Standard: SMPTE 12M
 25, 30FPS Drop & Non Drop Frame
Connector: XLR Type 3 pin female connector
Signal Level: 0.2 to 4V p-p, balanced or unbalanced
Speed: 1/30th to 70x play speed, forward and rev, machine dependent

Serial Remote Control:

2 RS-232 or RS-422 interface, 9 pin "D" connector for automation control

General Purpose In/Out:

Number of inputs: 8
Number of outputs: 4
Type: Opto isolated, active low
Connector: Female High Density DB-15
Signal level: +5V nominal

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
 (483mm W x 45mm H x 477mm D)
Weight: 8lbs. (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60Hz 30VA
Safety: ETL Listed
 Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
 EU EMC Directive

Ordering Information:

HD9625LG HD Logo Inserter with front panel control

Ordering Options & Accessories:

+RCP Optional rackmount remote control panel
+DCP Optional desk top remote control panel
+2PS Redundant power supply
+TP Optional Air Temperature Probe
+CF Compact Flash Optional Hardware (does not include compact flash memory card)
+CLH Optional crawl support for HD9625 products
+E Optional EAS Crawl Insertion
+1G Optional internal flash expansion to 1 Gigabyte
+HBP Optional bypass relay

Accessories:

CF128 Optional card flash expansion port with 128 Megabyte card
CF1G Optional card flash expansion port with 1 Gigabyte card
WA-1525 Optional 15-25 pin adapter for all 9625 & HD9625 products
9600LG-TP Optional air temperature probe for all 9625 & HD9625 products (for existing hardware)
EAS-UPGRADE Upgrade of existing HD9625LG to HD9625LG+E

HD Media Keyer System

Model HD9625LGA

METACAST 2 ENABLED



The HD9625LGA Media Keyer system is a complete HD Logo and Audio Insertion package that will key one, or many, static/animated "bugs" over a full bandwidth HD program video signal. It will also "Duck" insert preformatted audio clips. Media created in BMP, Tiff, TGA or Wave file formats can be imported into the Evertz software and transferred to the HD9625LGA. Media is stored in flash memory and can be quickly accessed via front panel, quick select keys, GPI inputs, automation and MetaCast. With the Removable Compact Flash option you can have access of up to 2 Gigabytes of on-line media storage space and virtually unlimited archived media storage.

The HD9625LGA has been designed to manage and store multiple logos. The size of each logo is variable and ranges from 1/25th to full screen. The position of the logo, fade rates, clip association and animation rates are user controllable. Up to 16 logos can be keyed simultaneously with independent fade control for each logo. The onboard preview allows you to cue your logos for position and content verification prior to going "On Air". The Media Keyer Voice Over audio input allows for 1 button audio switching.

The optional EAS crawl support allows for connection to an existing EAS decoder. This RS232 connection allows weekly tests (white text on green), watch alerts (white on yellow) and warnings (white on red) to be scrolled across the native HD video with no need for format conversion. The variable height text font can be positioned anywhere on the screen and rendered with any windows true type font..

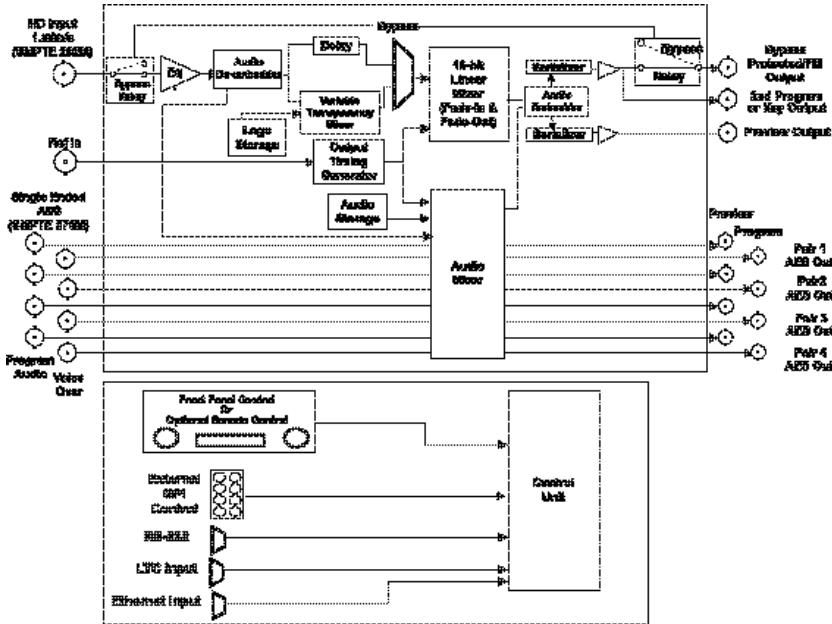
Features

- Stores and inserts static and animated logos and audio clips
- Multiple logos can be simultaneous keyed with independent fade control
- Incorporates a high quality mixer that provides independent transparency levels for each logo
- Full 12-bit linear fade-in and fade-out control provided
- Fade all out capability provided on program video output
- Audio clip to logo associations
- 1 button alternate audio voice overs
- Four AES pairs for discreet 5.1 Audio
- 8 programmable GPI contact closures
- Download media from a standard Windows PC running InstaLogo™ software
- FTP file transfer and maintenance
- Supports all common HD video standards
- Automatic equalization up to 100m (Belden 1694A or equivalent cable)
- Standard 128MB internal flash storage
- Optional 1GB internal flash storage
- Optional removable 128MB or 1GB compact flash storage
- Optional EAS crawl support for Sage and TFT Decoders
- Supports all alert codes including child abduction emergency
- Optional program output bypass relay protected
- Optional redundant power supply
- Optional rackmount or desktop remote control panels
- Optional crawl for scrolling text messages



NOMAD Lite PC is an easy to use graphical interface that integrates the speed of fast Ethernet, with the ease of drag and drop functionality to deliver a central access point to Evertz keyer products. Using this software allows you to upload media files to one or many units simply by clicking and dragging the item from the explorer like window, into the device tree. This powerful interface allows you to extract and move media items from one device to another using the same easy drag and drop style. For more complicated multi unit installations, you can set custom device groups. This allows for media content to be dropped on a custom grouping and automatically uploaded to the ganged units in one easy step.

HD9625LGA Block Diagram



Specifications

HD Video Input:

Standard: SMPTE 292M, 1.485Gb/s (1080i/59.94, 1080i/50, 720p/59.94, 480p/59.94)
Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV ±10%
Equalization: Automatic up to 100m @ 1.5Gb/s with Belden 1694A (or equivalent) (25m with +HBP option)

HD Video Output:

Standard: Same as input
Number of Outputs: 2 Program (1 output bypass protected with +HBP option)
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude (All outputs terminated)
Wide Band Jitter: <0.2UI

AES Audio Inputs:

Standard: SMPTE 276M single ended AES
Number of Inputs: 4 Program, 4 Alternate
Connector: BNC per IEC 60169-8 Amendment 2

AES Audio Outputs:

Standard: SMPTE 276M single ended AES
Number of Outputs: 4 Program, 4 Preview
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1Vp-p

Genlock Input:

Type: NTSC or PAL color black 1V p-p
Composite bi-level sync (525 line or 625 line) HD
Tri Level Sync
Connector: 1 BNC per IEC 60169-8 Amendment 2

General Purpose In/Out:

Number of inputs: 8
Number of outputs: 4
Type: Opto isolated, active low
Connector: Female High Density DB-15
Signal level: +5V nominal

LTC Reader:

Standard: SMPTE 12M, 25, 30Fps Drop & Non Drop Frame
Connector: XLR Type 3 pin female connector
Signal Level: 0.2 to 4V p-p, balanced or unbalanced
Speed: 1/30th to 70x play speed, forward and rev, machine dependent

Serial Remote Control:

2 RS-232 or RS-422 interface, 9 pin "D" connector for automation control

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60Hz 30VA
Safety: ETL Listed
Complies with EU Safety Directive
Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

HD9625LGA HD Media Keyer System

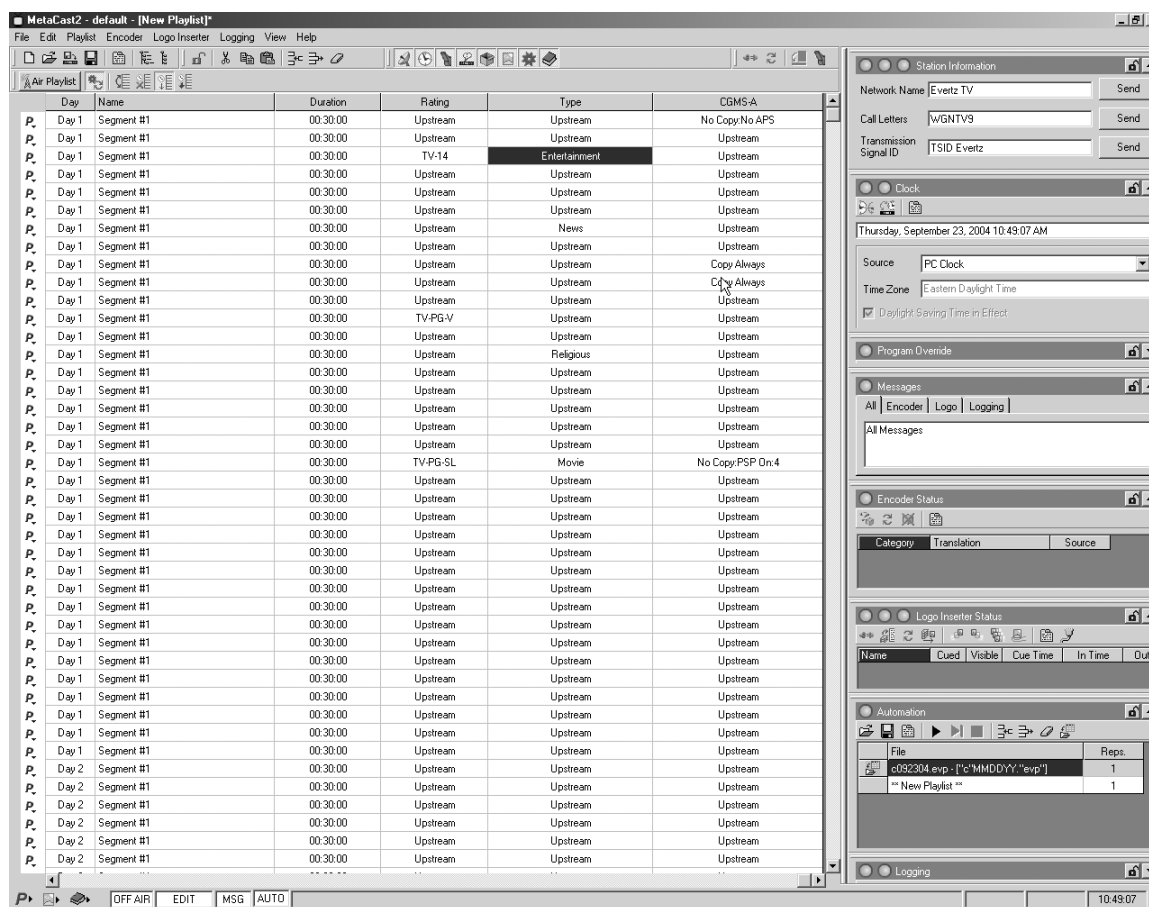
Ordering Options & Accessories:

+RCP Optional rackmount remote control panel
+DCP Optional desk top remote control panel
+2PS Redundant power supply
+TP Optional Air Temperature Probe
+CF Compact Flash Optional Hardware (does not include compact flash memory card)
+CLH Optional crawl support for HD9625 products
+E Optional EAS Crawl Insertion
+1G Optional internal flash expansion to 1 Gigabyte
+HBP Optional bypass relay

Accessories:

CF128 Optional card flash expansion port with 128 Megabyte card
CF1G Optional card flash expansion port with 1 Gigabyte card
WA-1525 Optional 15-25 pin adapter for all 9625 & HD9625 products
9600LG-TP Optional air temperature probe for all 9625 & HD9625 products (for existing hardware)
EAS-UPGRADE Upgrade of existing HD9625LG to HD9625LG+E

MetaCast 2 XDS/URL/Logo Schedule Software



Overview

This Windows™ application has been designed to simplify the encoding of XDS (V-Chip, TSID, CGMS-A, Program ID, etc.) and Logo information by gathering data from pre-compiled playlists or schedules. MetaCast 2 also eliminates the need for regular human intervention by automatically identifying the next day's playlist by using standard date related file names or the built-in scripting feature.

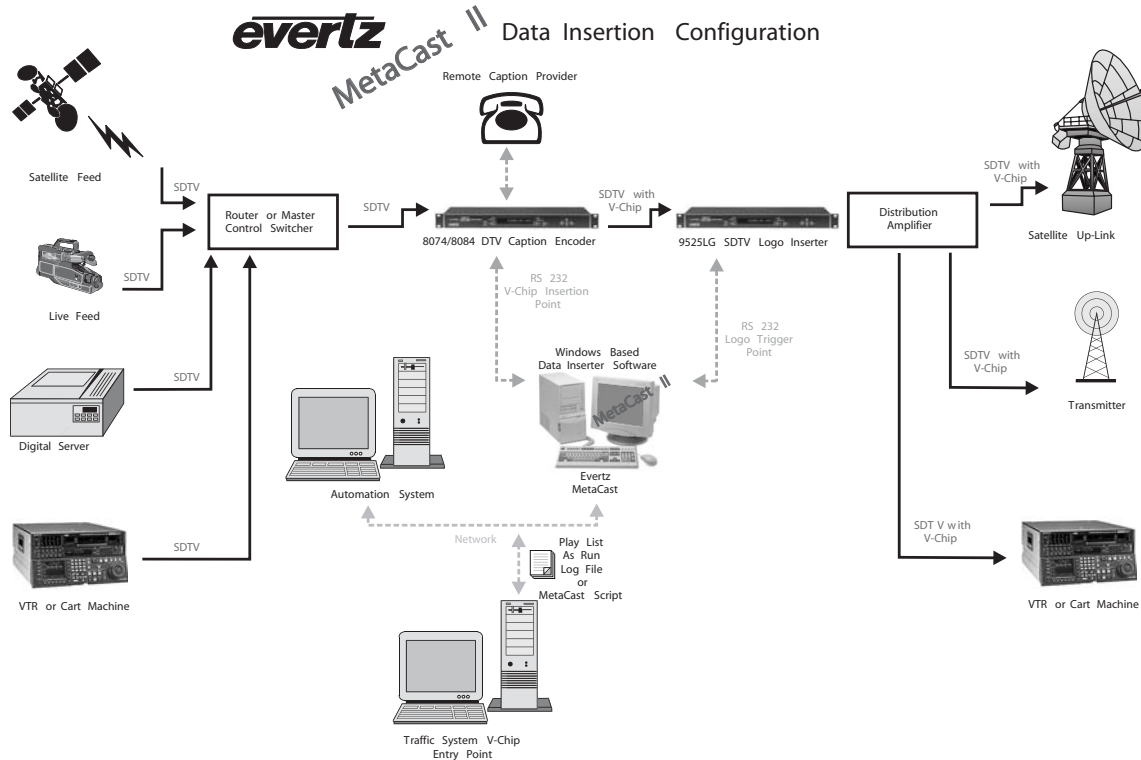
Setup

Metacast 2 requires a direct connection to an Evertz 8084/8084AD/HD9084 Digital Closed Caption Encoder and/or Logo Inserter and a playlist file supplied by either an Enterprise BMS Traffic System or created using the software's built-in schedule creation utilities.

Features

- MetaCast 2 can schedule a wide variety of information, including program rating, program title, program type, URL, network name, station call letters, Copy Generation Management System (CGMS-A), Transmission Signal Identifier (TSID), system time, time zone and Logos
- Ability to control multiple encoders and Logo Inserters by running additional instances of MetaCast 2 on the same computer (limited only by the number of available com ports). Basic purchase supports 4 units (NT or 2000 only)
- MetaCast 2 allows the user to create an unlimited number of configurations
- Multiple configurations are identified by a unique user selectable naming convention
- Multiple rating systems include US TV parental guidelines (TVPG), MPAA, Canadian English & Canadian French language
- Playlist or manual mode depends on the available source of program information
- Text based scripting allows other traffic systems to create files compatible with the MetaCast 2 schedules
- Multiple instances of MetaCast 2 are treated as unique and separate from one another. Use 1 PC to control multiple encoders running from separate sources (Playlist and/or schedule) and simultaneously encode different rating systems
- User defined offset time allows MetaCast 2 to broadcast in multiple time zones from one playlist as well as roll programs forward or back to accommodate programs that may run short or long
- Ability to block individual upstream channels so that only the desired XDS & Caption information leaves the encoder
- MetaCast 2's sophisticated error checking algorithms will monitor the encoder's & inserter's memory to ensure packets & logos are actually being broadcast all while clearly informing the user of any problems MetaCast 2 will intelligently attempt to re-send data & logo status to the device
- Program logging allows alert messages to be logged, saved and printed for later retrieval and verification
- A new edit mode allows for maintenance and creation of schedules while other schedules are running

MetaCast 2 XDS/URL/Logo Schedule Software



Playlist Mode:

- MetaCast 2 will gather program information from a playlist produced by an Enterprise BMS Traffic System (Requires Enterprise's Win DEI Interface)
- Automatic pickup of the next day's playlist according to a user-defined date-based file name
- Custom mapping files can assign user-defined playlist program types to those specified in the EIA-608 standard
- Override functions to change any parameter of the currently scheduled program or to queue changes for the next program
- Insert a default station/network web page without entering it into the traffic system

PC Hardware Recommendations:

- Windows™ operating system (2000, XP)
- 10 MB of hard drive space
- 2 MB video card
- 1024 x 768 monitor resolution (17" monitor)
- 1 free serial port per encoder or inserter
- Max 2 instances with Win 98SR2
- Max 4 instances with WIN2K or XP

Schedule Mode:

- MetaCast 2 will take program information from a schedule created with the built-in spreadsheet based editor
- Create and save schedules to disk to later be loaded on the broadcast date
- Flexible scripting language allows the user to create a week's worth of programming in multiple schedule files and tell the software to repeat that sequence indefinitely.
- MetaCast 2 will load and run each new schedule as the previous one expires
- Override functions allow the user to alter any parameter of the current program and have the MetaCast 2 return to the normal schedule when that show ends

Ordering Information:

MetaCast 2 Metacast 2 XDS/URL/Logo Schedule Software

Compatible Evertz Hardware:

- 8084 Closed Caption Encoder
- 8084AD Closed Caption Encoder
- HD9084 DTV Caption Encoder
- 9625DSK-LGA Downstream Media Keyer
- 9625LG Logo Inserter
- 9625LGA Media Keyer
- HD9625LG High Definition Logo Inserter
- HD9625LGA High Def Media Keyer
- PKGHD9625SW HD Mini Master Switcher
- PKG9625SW SD Mini Master Switcher

SDI Mini Master Control Switcher Package

Model PKG9625SW

**METACAST 2
ENABLED**



The Evertz PKG9625SW Mini Master Control Switcher is an excellent addition to your Standard Definition control room. This dual unit solution incorporates the best switching technology with the proven transition and channel branding techniques that has brought Evertz to the forefront of Digital Television. Add to this, Emergency Alert Services and SoftSwitch™ audio processing, and you have the most advanced media switcher available today.

The Evertz PKG9625SW includes all the functionality found in our X Series Router, seamlessly married together with our advanced Logo Inserter and Downstream keyer. This complete system allows you to fully control up to 12 input video signals and up to 48 AES audio inputs. You can perform voice-overs, wipes, fades, fade to black and a host of other features, all from the convenience of the single remote control panel.

Features

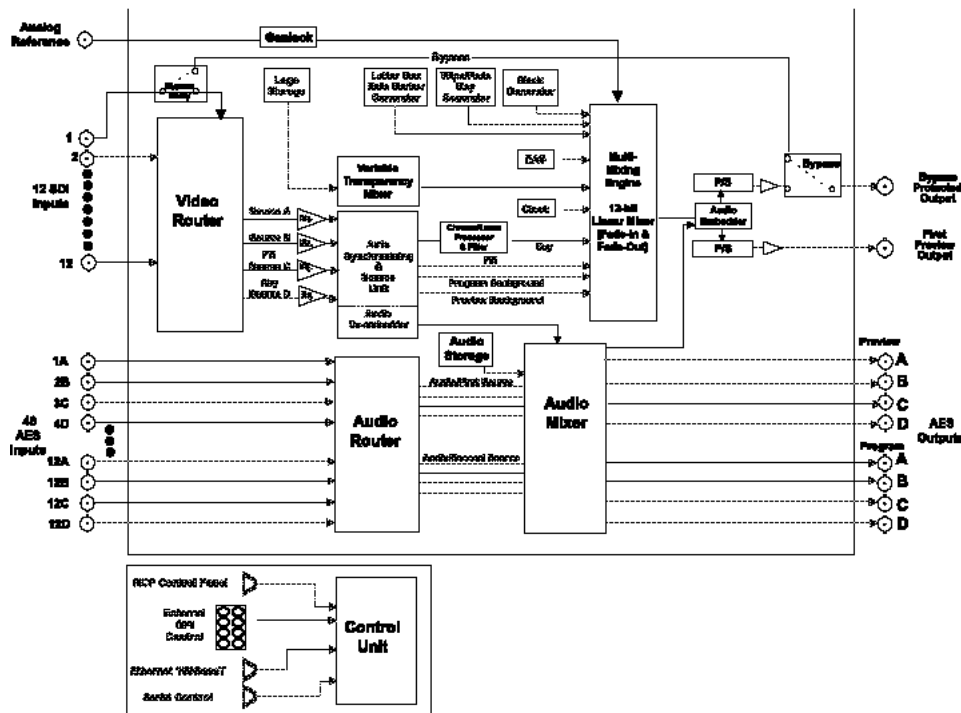
- 12 Input SD Video Switcher with Quad 12 input AES switcher for discrete 5.1 Dolby
- Program/Preview Transition Mixer for SD video and up to 4 audio pairs
- Downstream keyer with mix and additive modes
- Variety of smooth Transitions including Cut, Fade, Fade to-from Black and 8 angles of Wipes
- Optional EAS support - Emergency Alert Crawls from TFT or Sage systems
- SD Multiple Logo Inserter with Animation
- LTC input for digital or analog clocks
- Single Remote Control Panel for Router/Keyer/Logo functions
- Built-in Black Generator
- 12 Bit Video Processing
- Control of key gain & offset are provided
- Multiple Control Interface Options including GPI, RS232 and Rackmount Control Panel
- Built-in +/- 1/2 line autotimers for video
- "Pop" free AES Audio Switch with Evertz patented SoftSwitch™ Technology
- System comprised of two 1RU rack frames and a remote 1RU control panel
- Audio bypass mode for Dolby E
- Video and audio input bypass relay for power failure protection
- Optional crawl for scrolling text messages



NOMAD Lite is an easy to use graphical interface that integrates the speed of fast Ethernet, with the ease of drag and drop functionality to deliver a central access point to Evertz keyer products. Using this software allows you to upload media files to one or many units simply by clicking and dragging the item from the explorer like window, into the device tree. This powerful interface allows you to extract and move media items from one device to another using the same easy drag and drop style. For more complicated multi unit installations, you can set custom device groups. This allows for media content to be dropped on a custom grouping and automatically uploaded to the ganged units in one easy step.

SDI Mini Master Control Switcher Package

PKG9625SW Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C (270Mb/s)
Number of Inputs: 12
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic up to 100m @270Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15 dB up to 270Mb/s

Serial Video Output:

Standard: Same as input
Number of Outputs: 1 Program, 1 Preview
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 750ps nominal
Overshoot: <10% of amplitude
Jitter: <0.2 UI

AES Audio Inputs:

Standard: SMPTE 276M single ended AES
Number of Inputs: 12 per buss, 4 busses
Connector: BNC per IEC 60169-8 Amendment 2 on 2 breakout panels provided
Signal Level: 1Vp-p \pm 10%

AES Audio Outputs:

Standard: SMPTE 276M single ended AES
Number of Outputs: 4 Program, 4 Preview
Connector: BNC per IEC 60169-8 Amendment 2 on 2 breakout panels provided
Signal Level: 1Vp-p
Reference: From Video General Reference

Video Reference:

Type: Menu selectable - depends on video format
NTSC or PAL Color Black 1 V p-p
Composite Bi-level sync (525i/59.94 or 625i/50) 300 mV
Connectors: 2 BNC per IEC 60169-8 Amendment 2
Termination: High impedance loop through

Control:

Serial Control: RS-232/422, 8 bits, no parity, 9600, 19200, 38400, 57600 baud computer control of all functions
Upgrade: RS-232, 57600 baud, 8 bits, no parity for firmware upgrades

Remote Panel Port: RS-422, 9600 baud, 8 bits, no parity
Logo Transfer: RJ-45 TCP/IP, 100Base T

LTC Reader:

Standard: SMPTE 12M
Connector: 25, 30Fps Drop & Non Drop Frame
Signal Level: XLR Type 3 pin female connector
Speed: 0.2 to 4V p-p, balanced or unbalanced
1/30th to 70x play speed, forward and rev, machine dependent

General Purpose In/Out:

Number of inputs: 8
Number of outputs: 4
Type: Opto isolated, active low
Connector: Female High Density DB-15
Signal level: +3.3V DC nominal

Physical:

Dimensions:
Switcher Electronics: 19"W x 3.5"H x 18.75"D
(483mm W x 90mm H x 477mm D)
Control Panel: 19"W x 1.75"H x 4.25"
(483mm W x 45mm H x 110mm D)
Weight (total): 17lbs. (7.8Kg)

Electrical:

Power: Autoranging 100-240 V AC 50/60 Hz, 60 VA
Safety: ETL listed
Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

PKG9625SW SDI Mini Master Switcher Package

Ordering Options:

+2PS Redundant power supply
+CF Compact flash optional hardware (does not include compact flash memory card)
+CWL Optional crawl support
+1G Internal memory expansion to 1 Gigabyte
+TP Optional Air Temperature Probe
+E Optional EAS Crawl Insertion

Accessories:

CF128 Card Flash memory expansion with 128 Megabyte card
CF1G Card Flash memory expansion with 1 Gigabyte card
9600LG-TP Optional air temperature probe for all 9625 & HD9625 products (for existing hardware)

HD Mini Master Control Switcher Package

Model PKGHD9625SW

**METACAST 2
ENABLED**



The Evertz PKGHD9625SW Mini Master Control Switcher is an excellent addition to your High Definition control room. This dual unit solution incorporates the best switching technology with the proven transition and channel branding techniques that has brought Evertz to the forefront of High Definition Television. Add to this, Emergency Alert Services and SoftSwitch™ audio processing, and you have the most advanced media switcher available today.

The Evertz PKGHD9625SW includes all the functionality found in our X Series Router, seamlessly married together with our advanced Logo Inserter and Downstream keyer. This complete system allows you to fully control up to 12 input video signals and up to 48 AES audio inputs. You can perform voice-overs, wipes, fades, fade to black and a host of other features, all from the convenience of the single remote control panel. This unit is fully automation enabled.

Features

- 12 Input HD Video Switcher with 12 input AES switcher for discrete 5.1 Dolby
- Program/Preview Transition Mixer for HD video and up to 4 audio pairs
- Downstream keyer with mix and additive modes
- Variety of smooth Transitions including Cut, Fade, Fade to-from Black and 8 angles of Wipes
- Optional EAS support - Emergency Alert Crawls from TFT or Sage systems
- HD Multiple Logo Inserter with Animation
- LTC input for digital or analog clocks
- Single Remote Control Panel for Router/Keyer/Logo functions
- Built-in Black Generator
- 12 Bit Video Processing
- Control of key gain & offset are provided
- Multiple Control Interface Options including GPI, RS232 and Rackmount Control Panel, Automation, M2100 mini control panel
- Built-in +/- 1/2 line autotimers for video
- "Pop" free AES Audio Switch with Evertz patented SoftSwitch™ Technology
- System comprised of two 1RU rack frames and a remote 1RU control panel
- Audio bypass mode for Dolby E
- Optional video and audio input bypass relay for power failure bypass protection
- Optional crawl for scrolling text messages



NOMAD Lite is an easy to use graphical interface that integrates the speed of fast Ethernet, with the ease of drag and drop functionality to deliver a central access point to Evertz keyer products. Using this software allows you to upload media files to one or many units simply by clicking and dragging the item from the explorer like window, into the device tree. This powerful interface allows you to extract and move media items from one device to another using the same easy drag and drop style. For more complicated multi unit installations, you can set custom device groups. This allows for media content to be dropped on a custom grouping and automatically uploaded to the ganged units in one easy step.

SDI Miniature Optical Transmitter

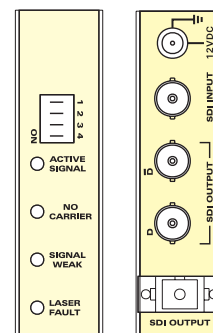
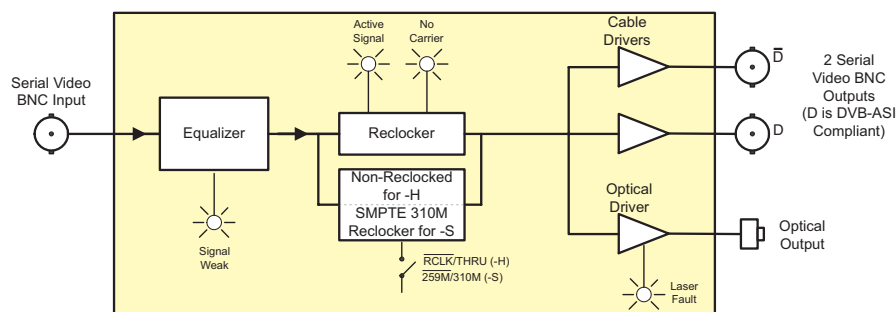
19.4Mb/s or 143-540Mb/s

Model 2405EO

Features

- Reclocking for all for SDTV video rates including SMPTE 259M (143Mb/s-360Mb/s), SMPTE 310M (19.4Mb/s), SMPTE 344M(540Mb/s), M2S and DVB-ASI (270Mb/s)
- Available in 1310nm, 1550nm and up to sixteen different CWDM wavelengths (ITU-T G.694.2 compliant)
- Automatic laser shutdown on absence of input signal for extended laser life
- Supports single-mode and multi-mode fiber optic cable
- Immunity to video Pathological signals
- Long reach transmission capability
- Rugged, small form factor enclosure
- Low Power, +12 VDC operation

2405EO Block Diagram



Specifications

Standards: SMPTE 259M (A, B, C, D), SMPTE 297M, SMPTE 310M, SMPTE 344M, M2S, & DVB-ASI

Serial Video BNC Input:

Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 300m @ 270Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15dB up to 540MHz

Serial Video BNC Output:

Number of Outputs: 2 (1 output DVB-ASI/M2S compliant)
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise, Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15dB up to 540MHz
Wideband Jitter: < 0.2 UI

Optical Output:

Number of Outputs: 1
Connector: SC/PC, ST/PC, FC/PC Female
Return Loss: > 14 dB
Rise, Fall Time: 400-700ps
Jitter: < 0.2UI
Optical Power:
1310nm FP: -7dBm± 1dBm
1550nm DFB: 0 dBm± 1dBm
CWDM DFB: 0 dBm± 1dBm

Physical:

Dimensions: With Flanges: 6"L x 4"W x 1"H
(152mm L x 114mm W x 25mm H)
Weight: 0.5 lbs (0.28Kg)

Electrical:

Voltage: +12V DC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

2405EO3F SDI Miniature Optical Transmitter 1310nm FP, Laser
2405EO5D SDI Miniature Optical Transmitter 1550nm DFB Laser

For CWDM, please refer to the end of the fiber section for ordering information:

2405EOxx SDI Miniature Optical Transmitter CWDM DFB Laser

All 2405 modules include power supply

Ordering Options

Fiber Connector must be specified at time of order
Eg: Model + SC

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

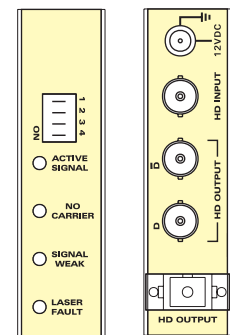
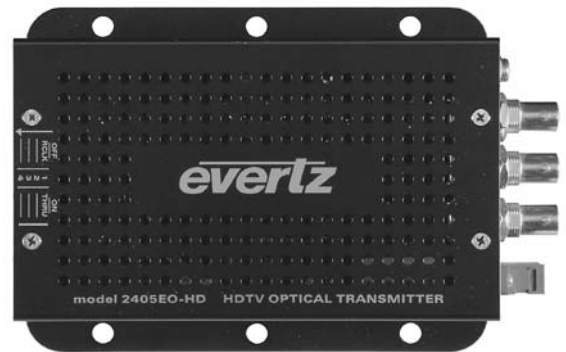
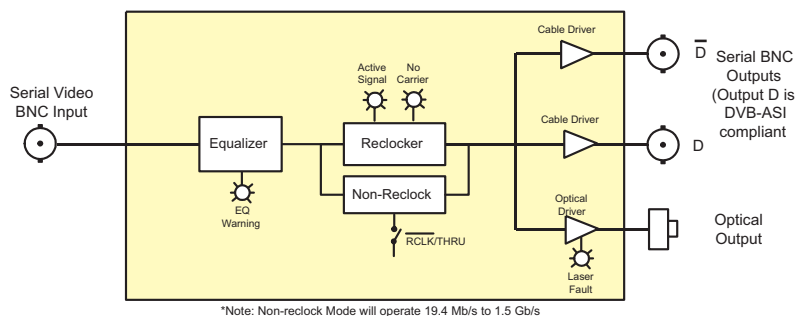
HDTV Miniature Optical Transmitter, 19.4Mb to 1.5Gb/s

Model 2405EO-HD

Features

- Operation from 19.4Mb/s to 1.5Gb/s
 - Reclocking for SMPTE 292M (1.485Gb/s)
 - Non-reclocking for all other rates from 19.4 Mb/s to 1.5Gb/s including SMPTE 259M, SMPTE 305M, SMPTE 310M, M2S, DVB-ASI
- Available in 1310nm, 1550nm and up to sixteen different CWDM wavelengths (ITU-T G.694.2 compliant)
- Automatic laser shutdown on absence of input signal for extended laser life
- Supports single-mode and multi-mode fiber optic cable
- Immunity to video Pathological signals
- Rugged, small form factor enclosure
- Low Power, +12 VDC operation

2405EO-HD Block Diagram



Specifications

Standards: SMPTE 292M, 259M, 297M, 310M, M2S, DVB-ASI, and any bi-level Telecom/Datacom signal from 19.4Mb/s to 1.5Gb/s

Serial Video BNC Input:

Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 125m @ 1.485Gb/s with Belden 1694A (or equivalent)
Return Loss: > 15dB up to 1.485GHz

Serial Video BNC Output:

Number of Outputs: 2 (1 output DVB-ASI/M2S compliant)
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise, Fall Time: 270ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15dB up to 1.485GHz
Wideband Jitter: < 0.2 UI

Optical Output:

Number of Outputs: 1
Connector: SC/PC, ST/PC, FC/PC Female Housing
Return Loss: > 14 dB
Rise, Fall Time: 200ps nominal
Jitter: < 0.2UI reclocked
Nominal Wavelength:
Standard: 1310nm, 1550nm
CWDM: 1270nm - 1610nm (See Ordering Information)

Optical Power:

1310nm FP: -7dBm ± 1dBm
1310nm/1550nm DFB: 0 dBm ± 1dBm
CWDM DFB: 0 dBm ± 1dBm

Physical:

Dimensions: With Flanges: 6"L x 4"W x 1"H
(152mm L x 114mm W x 25mm H)
Weight: 0.5 lbs (0.28Kg)

Electrical:

Voltage: +12V DC
Power: 6 Watts
Safety: Complies with EU Safety Directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

2405EO3F-HD HD Miniature Optical Transmitter 1310nm, FP Laser
2405EO3D-HD HD Miniature Optical Transmitter 1310nm, DFB Laser
2405EO5D-HD HD Miniature Optical Transmitter 1550nm, DFB Laser

For CWDM, please refer to the end of the fiber section for ordering information
2405EOxx-HD HD Miniature Optical Transmitter CWDM DFB Laser

All 2405 modules include power supply

Ordering Options

Fiber Connector must be specified at time of order
Eg: Model + SC

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC Single mode fiber cable, 10m, ST/PC male termination

SDI Miniature Optical Receiver

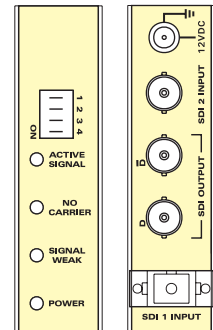
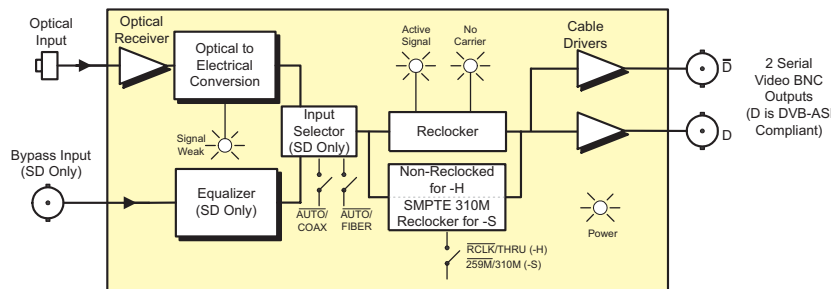
19.4Mb/s or 143-540Mb/s

Model 2405OE

Features

- Reclocking for all SDTV video rates including SMPTE 259M (143Mb/s-540Mb/s), SMPTE 310M (19.4Mb/s), SMPTE 344M(540Mb/s), M2S and DVB-ASI (270Mb/s)
- Automatic signal failure switching for optical input
- Immunity to video Pathological signals
- Supports multi-mode and single-mode fiber
- High optical input sensitivity
- Rugged, small form factor enclosure
- Low Power, +12 VDC operation

2405OE Block Diagram



Specifications

Standards: SMPTE 259M (A, B, C, D) , SMPTE 297M, SMPTE 310M, SMPTE 344M, M2S, DVB-ASI

Serial Video BNC Input:

Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 300m @ 270Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15dB up to 540MHz

Optical Input:

Number of Inputs: 1
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: 0dBm
Optical Sensitivity: -32 dBm
Connector: SC/PC, ST/PC, FC/PC Female Housing

Serial Video BNC Output:

Number of Outputs: 2 (1 output DVB-ASI/M2S compliant)
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise, Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15dB up to 540MHz
Wideband Jitter: < 0.2 UI

Physical:

Dimensions: With Flanges: 6"L x 4"W x 1"H
(152mm L x 114mm W x 25mm H)
Weight: 0.5 lbs (0.28Kg)

Electrical:

Voltage: +12V DC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

2405OE SDI Miniature Optical Receiver, 19.4Mb/s or 143-540Mb/s

All 2405 modules include power supply

Ordering Options

Fiber Connector must be specified at time of order
Eg: Model + SC

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC	Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC	Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC	Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC	Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC	Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC	Single mode fiber cable, 10m, ST/PC male termination

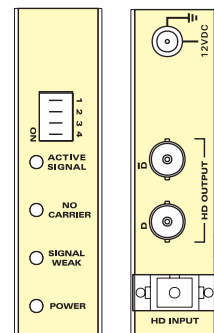
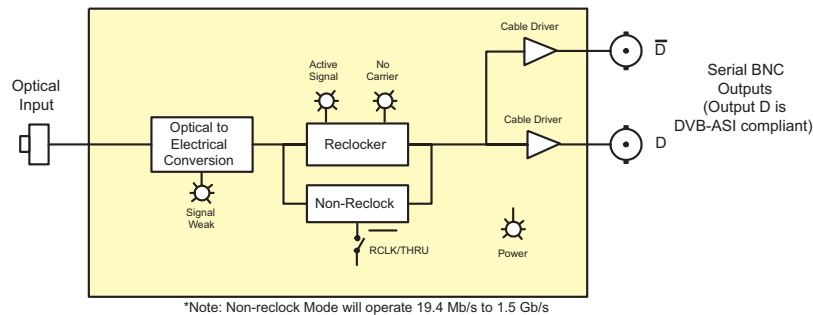
HDTV Miniature Optical Receiver, 19.4Mb/s to 1.5Gb/s

Model 2405OE-HD

Features

- Operation from 19.4Mb/s to 1.5Gb/s
 - Reclocking for SMPTE 292M (1.485Gb/s)
 - Non-reclocking for all other rates from 19.4Mb/s to 1.5Gb/s including SMPTE 259M, SMPTE 305M, SMPTE 310M, M2S, DVB-ASI
- Immunity to video Pathological signals
- Supports single-mode and multi-mode fiber optic cable
- Rugged, small form factor enclosure
- Low Power, +12 VDC operation

2405OE-HD Block Diagram



Specifications

Standards: SMPTE 292M, 259M, 297M, 310M, M2S, DVB-ASI, and any bi-level Telecom/Datacom signal from 19.4Mb/s to 1.5Gb/s

Optical Input:
Number of Inputs: 1
Operating Wavelength: 1270nm to 1610nm
Maximum Input Power: -1dBm
Optical Sensitivity: -23dBm
Connector: SC/PC, ST/PC, FC/PC Female Housing

Serial Video BNC Outputs:
Number of Outputs: 2 (1 output DVB-ASI/M2S compliant)
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise, Fall Time: 270ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15dB up to 1.485GHz
Wideband Jitter: < 0.2 UI

Physical:
Dimensions: With Flanges: 6"L x 4"W x 1"H (152mm L x 114mm W x 25mm H)
Weight: 0.5 lbs (0.28Kg)

Electrical:
Voltage: +12V DC
Power: 6 Watts
Safety: Complies with EU Safety Directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

2405OE-HD: HD Miniature Optical Receiver, 19.4Mb/s to 1.5Gb/s

All 2405 modules include power supply

Ordering Options

Fiber Connector must be specified at time of order
Eg: Model + SC

Connector Suffix

+SC	SC/PC
+ST	ST/PC
+FC	FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC	Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC	Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC	Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC	Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC	Single mode fiber cable, 10m, SC/PC male termination
CB-FP10M-STPC	Single mode fiber cable, 10m, ST/PC male termination

HD Miniature Monitoring Downconverter

Model 2410MD-HSN

The 2410MD-HSN Monitoring Downconverter provides an inexpensive method of confidence monitoring your 1.5 Gb/s HDTV signals on standard definition monitors. This High Definition Downconverter is ideal to use with your existing standard resolution monitors whether they have Composite Analog or Serial Digital inputs. The 2410MD-HSN accepts 1080i/1080psF and 720p and provides a fixed output frame rate (selectable to 50 or 60Hz) regardless of the input 720/1080 rate. Pedestal is selectable on/off when output is NTSC.

In segmented frame mode, the 2410MD-HSN down converts the 1080p/24sF input video to 525i/60 with a 3:2 pulldown or 625i/50 with a 24:25 pulldown. The 2410MD-HSN repeats fields to create the 3:2 or 24:25 pulldown of the picture content with a random pulldown cadence on the downconverted output.

Features

Indicator LED:

- Signal presence
- Module Status

Down-conversion Format:

- Letter Box
- Side Crop
- 4x3 Squeeze
- On screen markers show 4:3 aspect ratio and safe area

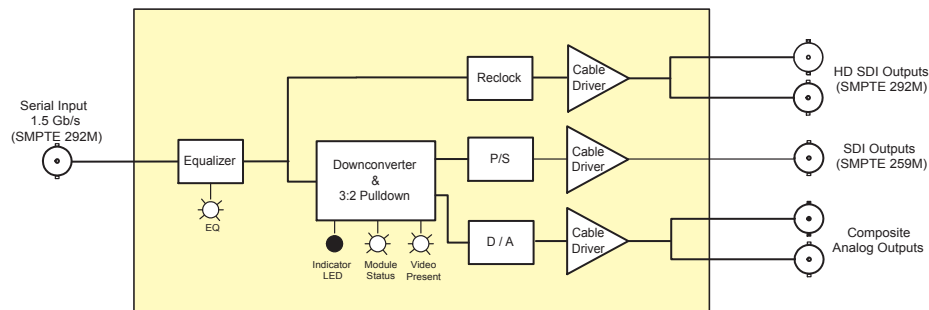
Input:

- Serial digital 1.5 Gb/s HD
- SMPTE 292M Standards: 1080i/60, 1080i/59.94, 1080i/50, 720p60 & 720p/59.94, 1080p/24sF, 1080i/23.98sF & 1080p/25sF

Output:

- 2 HD 1.5Gb/s reclocked outputs
- 2 NTSC down converted outputs
- 1 SD down converted output

2410MD-HSN Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M, 1080i/60, 1080i/59.94, 1080i/50, 1080p/24sF, 1080p/23.98sF, 1080/25sF, 720p60 & 720p/59.94,
Connector: 1 BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Equalization: Automatic 75m @ 1.5Gb/s with Belden 1694A (or equivalent)

HD Reclocked Video Output:

Standard: Same as input
Connectors: 2 BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: < 0.2 UI

SDTV Serial Digital Video Output:

Standard: Serial component 270 Mb/s (SMPTE 259M-C)
525i/59.94 or 625i/50 Dip Switch selectable
Connectors: 1 BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 740ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB
Wide Band Jitter: < 0.2 UI

Analog Video Output:

Standard: Analog composite NTSC or Analog composite PAL Dip Switch selectable
Connectors: 2 BNC per IEC 60169-8 Amendment 2
Signal Level: 1 V p-p nominal, internally adjustable
DC Offset: 0V ±0.1V
Return Loss: > 45 dB up to 6 MHz
Impedance: 75Ω

Electrical:

Voltage: +12V DC
Power: 10 Watts
Safety: Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A EU EMC Directive

Physical:

Dimensions: 6" L x 4" W x 1" H, (152mm L x 115mm W x 25mm H)
Weight: 0.5 lbs (0.28Kg)

Ordering Information:

2410MD-HSN: HD Miniature Monitoring Downconverter with 24sF processing (with power supply)

Note: Enclosure with side mount flanges ships standard

Ordering Options:

Case Option Suffix
+NF Enclosure without mounting flanges

HD Miniature Digital to Analog Converter

Model 2430DAC-HD



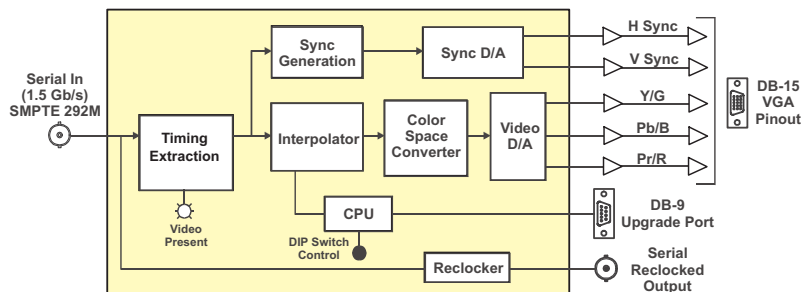
The 2430DAC-HD is a professional quality digital to analog converter for HDTV. The 2430DAC-HD supports all signal standards specified in SMPTE 240M, SMPTE 274M and SMPTE 296M.

DIP switch control allows the user to select between YPrPb, RGB or VGA style analog outputs with a variety of sync output options. User controlled 4:3 alignment markers also allow for convenient framing of the video signal. With the optionally supplied VGA to BNC breakout cable the 2430DAC-HD can easily interface to either standard broadcast monitors or VGA computer monitors.

Features

- Support for all SMPTE 240M, 274M and 296M video formats
- 4:3 alignment markers
- Full 10 Bit Broadcast quality
- 4:4:4 interpolated component output
- DIP switch selectable YPrPb, RGB or VGA outputs with bi-level or tri-level sync
- 15 pin VGA connector for use with VGA computer monitors
- Front panel LEDs indicate video presence, module faults

2430DAC-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M (1.485 Gb/s), SMPTE 240M (1035i), SMPTE 274M (1080i, 1080psF, 1080p (except 1080p/60 & 1080p/59.94) SMPTE 296M (720p)
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 125m @ 1.5Gb/s with Belden 1694A (or equivalent)

Serial Video Output Reclocked:

Standard: Same as input
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 200 ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: <0.2UI

Analog Video Outputs:

Standard: SMPTE 240M, 274M or 296M - same as input
Connector: 15 pin high density female D type
Signal Level:
Video: 1Vpp nominal YPrPb/RGB or 0.7Vpp nominal VGA
Sync: 300mV or 4V
Impedance: 75 Ω
DC Offset: 0V \pm 0.1V
Return Loss: > 45 dB up to 30 MHz

Upgrade Port:

Standard: RS-232
Connector: Female DB-9
Baud Rate: 57600
Format: 8-bits, no parity, 1 stop bits

Electrical:

Voltage: +12V DC
Power: 6 Watts
Safety: Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Dimensions: 6" L x 3.5" W x 1" H (152mm L x 89mm W x 25mm H)
With Mounting Flanges: 6" L x 4" W x 1" H (152mm L x 114mm W x 25mm H)
Weight: 0.5 lbs. (0.28 Kg)

Ordering Information:

2430DAC-HD HD Miniature D to A: YPrPb/RGB/VGA via High Density DB-15 (with power supply)

Note: Enclosure with side mount flanges ships standard

Ordering Options:

Case Option Suffix
+NF Enclosure without mounting flanges

Accessories:

WPGVABNC5 VGA to BNC - 6' Monitor Adapter Cable

Model 2430GDAC & 2430GADC-WARP

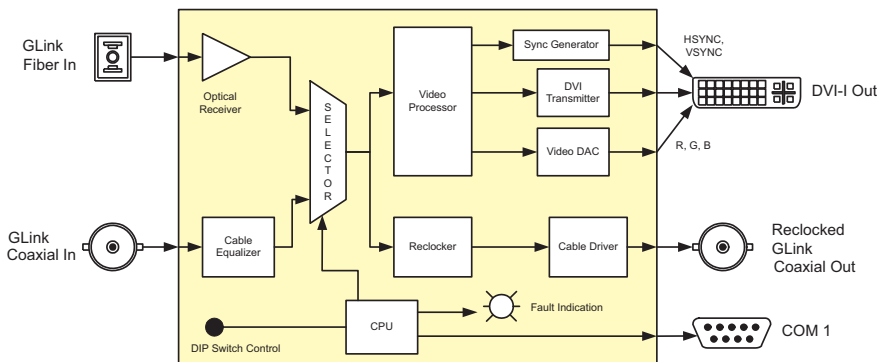
The 2430GDAC GLink D to A Converter provides a simple extension to Evertz multi-display systems by converting a GLink video signal over coaxial or fiber optic cable into a digital DVI signal and analog RGB signal that can be displayed on a computer monitor or flat panel screen, thereby eliminating the 5m distance limit of DVI signals. The converter features one GLink fiber optic input, one GLink coaxial input, one reclocked GLink coaxial output, and one DVI-I video output. The 2430GDAC has been designed for use with any Evertz module featuring a GLink output. (For example, the 3000MVP-PPMG output module from a MVP™)

The 2430GDAC-WARP features the same I/O specifications as the standard 2430GDAC but also provides the added capability of “warping” or flipping the output display from landscape mode (16:9) to portrait mode (9:16). This is ideal for space limited applications.

Features

- Display resolution capability up to UXGA (1600x1200) at 60Hz or 50Hz refresh rate
- DVI-I digital and analog RGB video output
- Autodetection of display resolution with manual override.
- One reclocked GLink coaxial output for connection to a second 2430GDAC or other GLink-compatible products
- Standard landscape display (2430GDAC) or portrait display support (2430GDAC-WARP)
- Autodetection of GLink signal loss
- Operation with single-mode or multi-mode fiber optic cable
- SC/PC, ST/PC, or FC/PC fiber connector options
- Low power +12VDC operation

2430GDAC Block Diagram



Specifications

Coaxial GLink Input:

Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic up to 10m

Fiber GLink Input:

Connector: SC/PC, ST/PC, or FC/PC female housing
Maximum Input Power: -3dBm
Wavelength: 1310 nm to 1610nm
Optical Sensitivity: -25dBm
Fiber Size: 62µm core / 125µm overall

Re-clocked Coaxial GLink Output:

Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 750mV minimum

Video Output:

Connector: DVI-I (digital + analog)
Output Resolution: Up to UXGA (1600x1200) @ 60Hz or 50Hz maximum

DVI Digital Video Output:

Voltage Swing: 400mV minimum
Output Clock Jitter: 150ps maximum
Differential Skew: 50ps maximum

RGB Analog Video Output:

Signal Level:
Video: 1Vpp nominal RGB
Sync: 4V
Impedance: 75Ω
DC Offset: 0V ±0.5V

Electrical:

Voltage: +12VDC
Power: 10 Watts
Safety: Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Dimensions: 7.2" L x 4.3" W x 1.0" H
(166mm L x 110mm W x 26mm H)
With mounting flanges: 7.2" L x 5.3" W x 1.0" H
(166mm L x 136mm W x 26mm H)
Weight: 0.85 lbs. (0.38 kg)

Ordering Information:

2430GDAC GLink to DVI converter
2430GDAC-WARP GLink to DVI converter with WARP (provides landscape to portrait display orientation conversion support)

Note: Enclosure with side mount flanges ships standard

Fiber Connector must be specified at time of order
Eg: Model +SC

Connector Suffix

+SC SC/PC
+ST ST/PC
+FC FC/PC

Ordering Options:

Case Option Suffix
+NF Enclosure without mounting flanges

Multivert (10 SDI to Analog Monitoring Converter)

Model 3410



The Multivert, a 10 channel composite encoder was designed for monitor wall applications where multiple SDI component video signals need to be converted to composite analog. The Multivert is the most cost effective method of monitoring on a per channel basis as it houses 10 converters as well as a redundant power supply in a 1RU frame. Each of the ten channels has two composite analog video outputs as well as a single regenerated SDI component video output.

The Multivert proves itself to be a better alternative to the use of awkward dongle based converters that use wall mounted or brick based power supplies.

The Multivert is a compact 1RU, 7.75 inches deep, rack mountable frame with both front and rear panel LED status displays for each of its ten channels. Thanks in part to its compact size, the Multivert is capable of being mounted in the rear of the monitoring wall equipment rack (Multivert was designed with capability to reverse the rack mounting brackets). Further, by having status LED's on both the rear panel as well as the front panel, it allows the cables to be installed facing the rear of the rack thus providing for both status monitoring as well as convenient cabling.

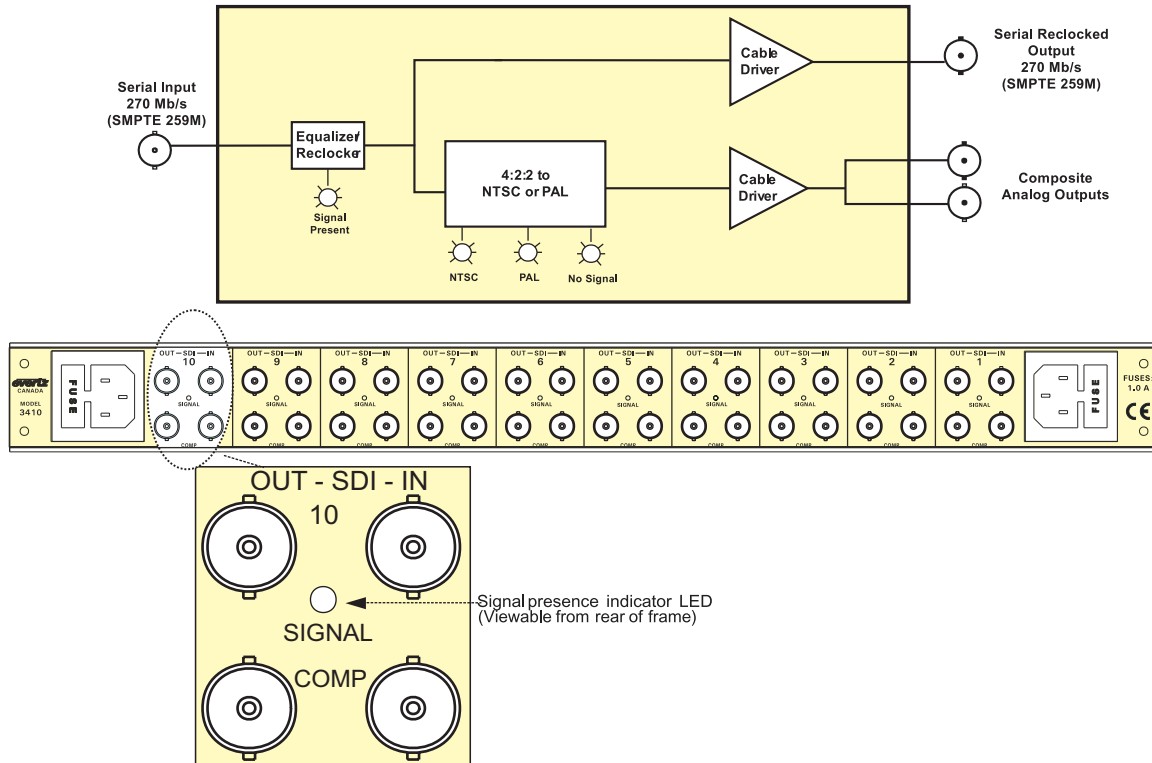
Having the Multivert mounted in the rear of the monitor racks eliminates the need for long analog cable runs from modular converters in the equipment rack room to the monitors, thus eliminating the need for analog equalizing DA's.

Features

- 10 independent converters in a 1RU enclosure
- 2 NTSC/PAL analog composite color outputs per converter
- Reclocked SDI output for each channel
- Ideal for monitoring serial component signals with inexpensive composite analog monitors
- Reversible rack ears allow for mounting in the back of a rack and with the shallow chassis measuring only 7.75"
- Can be mounted directly behind other equipment
- Dual power supply (optional)
- Each channel has front panel LED's for PAL, NTSC and signal presence
- Video presence LED for each channel, viewable from the rear of each frame

Multivert (10 SDI to Analog Monitoring Converter)

3410 Block Diagram



Specifications

Serial Digital Video Inputs:

Standard:	SMPTE 259M-C 525 line and 625 line component
Number of Inputs:	10 (1 per converter)
Input Equalization:	Automatic up to 250m with Belden 8281 (or equivalent)
Connector:	BNC per IEC 60169-8 Amendment 2
Return Loss:	> 15 dB up to 540 Mb/s
Impedance:	75Ω

Serial Digital Video Outputs:

Standard:	Serial component 270 Mb/s (SMPTE 259M-C)
Number of Outputs:	10 (1 per converter)
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	750ps nominal
Overshoot:	<10% of amplitude
Return Loss:	>15 dB
Wide Band Jitter:	<0.2UI
Impedance:	75Ω

LED's

Signal Presence:	10 Front (NTSC and PAL) 10 Rear
Power Supply:	2 Front

Composite Analog Outputs:

Number of Outputs:	20 (2 per converter)
Standard:	Analog composite NTSC if input is 525i/59.94 Analog composite PAL if input is 625i/50
Connectors:	2 BNC per IEC 60169-8 Amendment 2
Signal Level:	1 V p-p nominal, internally adjustable
DC Offset:	0V ±0.1V
Return Loss:	> 45 dB up to 6 MHz
Impedance:	75Ω

Physical:

Dimensions:	19"W x 1.75"H x 7.75"D (483mm W x 45mm H x 196mm D)
Weight:	6.7 lbs (3Kg) with two power supplies

Electrical:

Power:	Auto ranging 100-240VAC 50/60 Hz, 30 VA
Safety:	ETL listed Complies with EU safety directive
EMI/RFI:	Complies with FCC part 15 class A EU EMC Directive

Ordering Information:

3410	Multivert (10 SDI to Analog Monitoring Converter)
3400RS	Rear support kit

Ordering Options:

+2PS	Redundant power supply
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Model 5150



The 5150 Afterburner is a full featured Analog VITC and LTC Time Code Reader, VITC to LTC Translator with a full function Character Inserter. The Afterburner reads SMPTE RP201 3 line VITC and displays field accurate video and audio time code as well as KeyCode and 3:2 pulldown on material transferred from film.

The unit can be configured to read LTC or VITC or can operate in an automatic switchover mode. The high speed reader in the 5150 employs sophisticated input conditioning and clock/data separator circuits to reliably recover LTC over the full shuttle spread and wind speed of most VTR's and ATR's.

Features:

- Reads LTC from 1/30th to 70x play speed
- Full speed VITC Reader with line select
- High resolution Character Inserter, with three character sizes: 8, 16 and 32 lines, time and user bits separately positionable on screen
- Dual Standard (NTSC and PAL)
- On-screen programming menu
- VITC to LTC Translator
- LTC reshaper/regenerator
- 16 digit alpha-numeric display
- Decodes 3:2 pulldown from RP201 3 line VITC
- Displays video and audio time code and keycode encoded by Evertz film footage encoders

Specifications:

LTC Reader:

Standard: SMPTE 12M
25, 30 Fps Drop & Non Drop Frame
Connector: XLR Type 3 Pin female connector
Signal Level: 0.2 to 4V p-p, balanced or unbalanced
Speed: 1/30th to 70x play speed, forward and rev, machine dependent

VITC Reader:

Input: NTSC or PAL 1V pp,
Connector: BNC per IEC 169-8
Speed: Still frame to <40x play, VTR dependant
Impedence: Hi-Z

LTC Translator:

Connector: XLR Type 3 pin male
Signal Level: Adjustable 0.5V to 4.5V p-p
Rise Time: 40 ± 10µs
Jitter: <2ns
Gen Lock: Reader input video 1 V p-p, Hi-Z, BNC loop

Character Generator:

Input: NTSC or PAL 1V p-p + keyed high resolution characters, selectable background and sizes
Connector: BNC per IEC 169-8

Parallel Remote Control:

Input: 6 TTL compatible inputs for control of selected functions
Output: 2 open collector general purpose outputs

Physical:

Dimensions: 19" W x 1.75" H x 7.75" D
(483mm W x 454mm H x 196mm D)
Weight: 7 lbs (3.5kg)

Electrical:

Voltage: 115/230 VAC, 50/60Hz, 30VA
Safety: ETL Listed
Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

5150 Analog Afterburner II LTC/VITC Reader/VCG

Universal Data Reader & Decoder

Model 5550 Decoder & UV-3 Universal Film Data Reader



The Evertz Universal Film Reader/Decoder system provides multi-format reader head and decoder unit that will handle all the major film formats and all the various codes presently in use. All in one easy to install head and a separate 1RU decoder unit. This new break through technology vastly simplifies the telecine bay operation by having a complete solution in one system while providing scalable purchase options.

Evertz KeyCode reader heads can be mounted on a telecine or other film transport, to recover KeyCode and Film Time code numbers from 16, super 16, 35 or 65mm film. Operationally the design is absolute simplicity. When switching between 16 or 35mm film, there are no levers, adjustments or realignments involved on most telecines. With the Evertz combination KeyCode reader system, varying film densities, negative and positive material are handled with ease. The Evertz universal decoder unit (model 5550) features a simple to use automatic light and sensor control.

Features:

- Can be mounted on a variety of film transports including Cintel, Thomson/GVG and Sony Telecines and Flat beds etc. The universal mounting bracket offers easy to use rotational positioning for hassle free installation
- The KeyCode/Film Time code heads can be ordered in different configurations depending on your application
- The head "floats" laterally on precision guides to assure perfect KeyCode tracking at play and shuttle speeds. The Floating design also handles film weave due to oversized rollers (common on many Telecines)
- We now offer a completely Touchless option, the film does not come in contact with the Reader Head assembly ever
- The new optical design improves the depth of field, gaining sharpness over the entire film gap
- Highly polished hard anodized surfaces and smooth round edges help protect your valuable film
- The rollers are made from finely machined highly polished stainless steel
- Simple to use diagnostics for monitoring performance and trouble shooting marginal quality code
- Ideal for non-real-time data mode transfers with Thomson/GVG Spirit, Cintel C-Reality and Millennium
- Decoder can be located up to 50ft. from the film data reader
- Incorporates FLASH technology for easy software upgrading in the field, ensuring support of new film stocks as quickly as possible
- Ability to read KeyCode and Film Time code at speeds other than play speed in forward and reverse
- Front panel display of KeyCode or Film Time code.
- Automatic sensor intensity control is especially useful when tracking various film densities on a single roll
- Separate intensity controls for KeyCode and Film Time code
- 16 digit alpha-numeric front panel display
- 19" rackmountable hardware

KeyCode Reader Heads

The Evertz Universal Film Data reader system can be used with any of the Evertz Film Footage Encoders to encode KeyCode & Film time code into VITC or VANC data. It can be ordered separately or as a part of a Film Footage Encoder system.

The Evertz Film Reader system can be purchased in a variety of configurations. Because these reader heads cannot be retrofitted in the field, it is important to specify the exact model number at the time of order. See the ordering information chart for a list of model numbers and corresponding options.

Our new Touchless Reader Head recovers KeyCode and Film Time code without coming into contact with the film stock. Please specify the Touchless version when ordering.



Please specify manufacturer and model number of Telecine when ordering.

	16mm	35mm	65mm	KeyCode	ARRI I and ARRI II	AATON	Touchless
KR-65			☒	☒			
KR-16/35	☒	☒		☒			
UV-3	☒	☒		☒	☒	☒	
UVT-3	☒	☒		☒	☒	☒	☒
UVS-3*	☒	☒		☒	☒	☒	☒

*Special Version for Sony Telecine

Specifications

(UV series) Multi-Function Reader Head :

Connector: 15 pin High Density female "D"
Max. Cable Length: 50 feet
Codes Read: KeyCode, Aaton, Aaton Code II, Arri

KeyCode Reader Head Interface (KR series heads):

Connector: 8 pin miniature female DIN
Max. Cable Length: 50 feet
Codes Read: KeyCode

LTC Output:

Standard: SMPTE 12M compliant
Frame Rate: 24, 25 and 30 Fps nominal from film time code
Connector: 3 pin male XLR type connector.
Level: Adjustable, 0.5V to 4.5V p-p

Parallel I/O:

Connector: 9 pin female D
Biphase Tach: 1, 2, 5 or 10 pulses per frame TTL level biphase quadrature
GPI: Film Type (negative/ print)
 Film Gauge (16/35 mm)

Serial Ports:

Number of Ports: 2
Standard: RS-232
Baud Rate: 9600 or 38400 independently settable
Format: 7 bits, even parity
Connectors: 9 pin female D

Physical:

Dimensions: 19"W x 1.75"H x 7.75"D
 (483mm W x 45mm H x 196mm D)
Weight: 6.7 lbs (3 Kg)

Electrical:

Power: 115/230 V AC 50/60 Hz, 30 VA.
Safety: ETL Listed
 Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

Ordering Information:

Decoder can be ordered separately or as a system which includes the Decoder, Head, Bracket & Cable. Systems may also be ordered with Film Footage Encoders (See Film Footage Encoder data sheets for information)

5550	Universal Decoder
5550/KR-16/35	5550 Decoder with KR16/35 Head & 10ft.cable
5550/UV-3	5550 Decoder with UV-3 Head & 20 ft. cable
5550/UVT-3	5550 Decoder with UVT-3 (Touchless) Head & 20 ft. cable
5550/UVS-3	5550 Decoder with UVS-3 Head & 20 ft. cable for Sony Vialta

Reader Heads may be ordered separately. (Does not include mounting bracket or cable) (See model selection chart above)

Accessories:

EV-BRKT	Universal Reader Mounting Bracket
FDL-SHIMS	Shim kit for BTS, FDL 60/90, Quadra
CINTEL-SHIM	Shim kit for Cintel C-Reality 16/35 heads
WA-S19	C-Reality Cable Harness
WA-F49	50ft extender cable for KR series heads
WA-P57	50ft extender cable for UV series heads
KKFILM16MM	16mm Kodak Keycode Verification Film
KKFILM35MM	35mm Kodak Keycode Verification Film

Model 8150



The 8150 Afterburner is a full featured SDI DVITC Time Code Reader, with a full function Character Inserter. The Afterburner reads SMPTE RP201 3 line VITC and keys field accurate video and audio time codes as well as KeyCode and 3:2 pulldown on material transferred from film, directly into the serial digital bitstream.

Features:

- SMPTE 259M-C
- Full speed VITC Reader with line select
- High resolution Character Inserter, with three character sizes: 8, 16 and 32 lines, time and user bits separately positionable on screen
- On-screen programming menu
- 16 digit alpha-numeric display
- Decodes 3:2 pulldown from RP201 3 line VITC
- Displays video and audio time code and keycode encoded by Evertz film footage encoders

Specifications:

Serial Digital Video Input:

Type: SMPTE 259M-C Serial component (270Mb/s)
Input Equalization: Automatic up to 200m with Belden 8281 (or equivalent)
Connector: 1 BNC per IEC 60169-8 Amendment 2

Serial Digital Outputs:

Connector: 2 BNC, (270 Mb/s) SMPTE 259M compliant.
Analog Monitor: (Optional) 1 BNC 1V p-p composite analog video with characters inserted

Parallel Remote Ctl:

Input: 5 TTL compatible inputs for control of selected functions

Physical:

Dimensions: 19"W x 1.75"H x 7.75"D
(483mm W x 45mm H x 196mm D)
Weight: 7 lbs. (3.5Kg)

Electrical:

Power: 115/230 V AC 50/60 Hz, 30 VA
Safety: ETL Listed
Complies with EU safety directive
Complies with FCC Part 15 Class A
EMI/RFI: EU EMC Directive

Ordering Information:

8150 SDI Afterburner

Ordering Option:

+MON Analog Monitoring Option

Model 9590



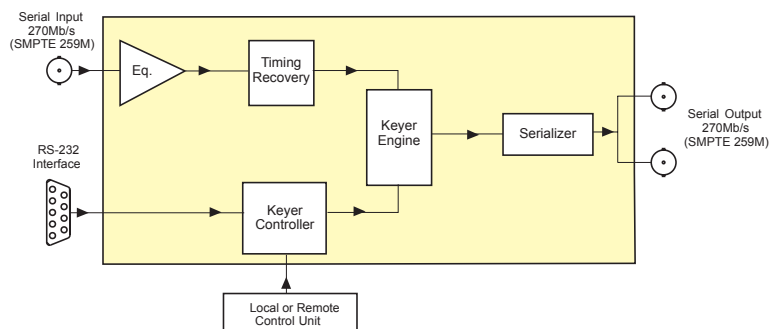
The 9590 is an easy to use, one rack unit, dual standard digital video graticule generator that keys various alignment markers over a standard definition video picture. These alignment markers facilitate film transfer, post production and quality control measurements relating to picture location for various film aspect ratios, safe action and safe title areas as well as picture center.

All of the functions of the 9590 are available from the control panel or one of two remote control panels. Choose from the many factory programmed presets or define your own. The 9590 allows for multiple user defined presets that can be re-called and re-defined at any time.

Features

- Keys graticule markers directly into SMPTE 259M-C serial digital video
- Auto detects between 525i/59.94 and 625i/50 video formats
- Two rectangular boxes that can be independently resized, reshaped and moved anywhere on the raster
- A grid consisting of horizontal and vertical line pairs that can be positioned independently or in pairs anywhere on the raster
- Programmable horizontal and vertical hard matte
- Adjustable mask starting line in vertical blanking interval to pass VITC or VITS
- Two user programmable cross markers positionable anywhere on the raster
- Circle creation for aspect ratio
- Automatic creation of aspect ratios for matte, box and circle objects
- On screen aspect ratio display
- Automatic centering control for all objects
- Switchable 16:9 or 4:3 pixel aspect ratios to allow easy alignment where anamorphic compression has taken place
- Single button keyer On/Off control
- Adjustable object brightness (white level)
- Front panel lock-out control
- Easy to operate control panel menu system gives access to advanced object control features for the most demanding application, while limiting normal day to day use to just a few preset buttons
- Factory presets allow quick setup to common object placements on the raster
- Ten user-definable presets with individual write protection
- Optional rack mount or desktop remote control unit

Block Diagram 9590



Specifications

Serial Video Input:

Standard: Serial component SMPTE 259M-C
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV ±10%
Equalization: Automatic to 200m @270 Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15dB up to 270Mb/s

Serial Video Output:

Standard: Serial component SMPTE 259M-C
Number of Outputs: 2 per frame.
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude (All outputs terminated)
Wide Band Jitter: <0.2UI

Serial Remote Ctl:

RS-232/422 interface, 9 pin "D" connector for software upgrades

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D.
 (483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60Hz 30VA
Safety: ETL listed
 Complies with EU safety directive
 Complies with FCC Part 15 Class A
 EU EMC Directive

Ordering Information:

9590 SDI Digital Graticule Generator

Ordering Options:

+RCP Rackmount remote control
+DCP Desktop remote control unit

Fiber-optic Enabled Camera Adapter System

Model ECAS, ECAS-HD, ECAP-HD, ECB, ECB-HD



The Evertz Camera Adapter system provides a versatile fiber-optic enabled accessory to Sony HDW/F900, Panasonic Varicam High Definition and Sony Standard definition camcorders. There are three components to the system; each linked via fiber optic cable.

The Camera adapter and Base Stations are available in several models to support a wide variety of cameras as shown below

Camera		Camera Adapter Model	Base Station Model
Manufacturer	Models		
Panasonic	HDC-27	ECAP-HD	ECB-HD
Sony	HDW-750, HDW-F900	ECAS-HD	ECB-HD
Sony	DVW series, DVW series, IMX series	ECAS	ECB

The non-fiber version of the camera-back adapter for the Sony HD cameras, and the fiber enabled high definition versions operating as a stand-alone units, provide HDSDI with embedded audio and time code, NTSC/PAL, SDI and IEEE1394A downconverted video, and 2 analog audio inputs for channels 3 and 4 (on Sony models). The standard definition camera-back adapters provide SDI with embedded audio and time code, NTSC/PAL and IEEE1394A video and 2 analog audio inputs for channels 3 and 4.

When the fiber enabled HD camera adapters are connected to the ECB-HD base station the camera video is transported to the base over fiber and broken out to HDSDI video with embedded audio and time code, analog or AES audio, LTC, NTSC/PAL, SDI and IEEE1394A downconverted video with time code. The base station has inputs for return HDSDI, NTSC/PAL, 4 channels of analog or AES audio, genlock, time code and IFB. The fiber also transports bi-directional RTS intercom, camera remote control (with viewfinder menus), and contact closure tallies. Standard definition models provide similar functionality except for the downconverter.

When the Camera power option is installed in the base station (-CP versions), the base station can send 125 watts of DC power over a hybrid copper/fiber optic cable to the camera adapter. This DC voltage is converted to battery voltage by the ECA-PS power module, which mounts on the camera adapter in place of a battery. When power is sent down the hybrid cable the camera and accessories can be powered over a distance up to 2kms.

Features

Camera-Back Adapter - Standalone and Non-Fiber Features:

- Sony models - connect directly to camera multi-pin connector, serial digital video output with embedded camera time code and audio.
- Panasonic models connect to serial digital output from camera - extra serial digital outputs
- Serial digital video input for connecting to "pool feeds"
- NTSC/PAL camera video out (On HD models, downconverted and aspect ratio converted - supports 4:3 center crop, anamorphic squeeze or 16:9 letter box)
- Auxiliary serial digital output switchable as second output from camera, (or downconverter on HD models)
- Sony models embed camera time code and audio on serial digital outputs
- IEEE 1394 port for output and control of DV devices.
- Sony models have inputs for audio 3 & 4 selectable as Line, Microphone (with phantom power) or AES
- Draws power from camera supply (battery connector or 4 pin XLR)
- Sony models available with Sony/IDX, PAG or Anton-Bauer battery connectors
- Panasonic models available with Sony/IDX or Anton-Bauer battery connectors
- 12 VDC accessory power outlet
- On Screen Display menu system

Additional Features when connected to Base Station:

- Serial digital return video available on Aux SDI output
- 4 channels of AES or Analog Return Audio
- NTSC/PAL Return Video
- Tri-level or bi-level genlock return to camera
- LTC to and from camera
- Camera control from control panel connected to base station (camera menu video input on Sony models).
- 2 channel Intercom - 5-pin XLR headset connector at camera adapter, RTS beltpack connection at base station
- IFB return channel to camera adapter
- Piezo electric speaker with volume control for intercom monitoring
- RS-422/232 channel to base station
- 4 GPI/O channels simple control or tally between camera and base station - 2 each direction
- Status LEDs for SDI and NTSC/PAL return video, Intercom Talk and Fiber Link OK
- Available with LEMO 3K or Fischer 1053HDTV series fiber-optic connector - contact factory for other connector options

Fiber-optic Enabled Camera Adapter System

Features..cont'd

Base Station Features:

- Camera serial digital video output
- Return serial digital video input
- NTSC/PAL camera video out (On HD models, downconverted and aspect ratio converted - supports 4:3 center crop, anamorphic squeeze or 16:9 letter box modes)
- HD models have serial digital output from downconverter.
- 4 channels of analog audio and AES out (de-embedded from camera serial digital video)
- IEEE 1394 port for output and control of DV devices.
- Remote control to camera (camera luminance video output with menus on Sony models).
- NTSC/PAL Return Video In
- Genlock In (Analog black burst or Tri-level)
- 4 channels of analog audio or AES in (return audio to camera adapter - selectable)
- Support for 2Ω RTS intercom - belt pack 3 pin XLR interface
- IFB return input to camera adapter
- RS-422/232 channel to camera adapter.
- 4 GPI/O channels simple control or tally between camera and base station - 2 each direction
- LTC In to camera from external Time code generator
- LTC Out from camera Time code generator
- Front panel control via pushbuttons and LED display.
- Status LEDs for Camera Video, Audio and Time code present, Return video, audio and time code, genlock, intercom, IFB present, and fiber links OK
- Status LEDs for camera power ON and Ground Fault on CP versions
- 1 rack unit main frame with 1 rack unit audio breakout panel
- Auto-ranging 90-250VAC 50/60 Hz power supply
- Optional high voltage DC supply to send camera power to ECA-PS power converter (-CP version)
- Front panel power switches for Base power and Camera power (-CP versions)
- Available with LEMO 3K or Fischer 1053HDTV series fiber-optic connector - contact factory for other connector options

Ordering Information:

CAMERA ADAPTER (Must specify Battery Bracket option)

For Sony HD Cameras with 50 pin connector (HDW-750, HDW-F900, etc.):

ECAS-HD	Camera Adapter for high definition Sony cameras
ECAS-1394-HD	Camera Adapter with 1394A I/O for high definition Sony cameras
ECAS-1394-LEMO-HD	Camera Adapter with 1394A I/O and fibre optic I/O for high definition Sony cameras - LEMO fiber connector

For Sony SD Cameras with 40 pin connector (DNW7, DVW700, MSW900, etc.):

ECAS	Camera Adapter for standard definition Sony cameras
ECAS-1394	Camera Adapter with 1394A I/O for standard definition Sony cameras
ECAS-1394-LEMO	Camera Adapter with 1394A I/O and fiber optic I/O for standard definition Sony cameras

For Panasonic HD Cameras with HDSDI output (AJ-HDC20A, AJ-HDC27 Varicam, etc.)

ECAP-HD	Camera Adapter for high definition Panasonic cameras
ECAP-1394-HD	Camera Adapter with 1394A I/O for HD Panasonic cameras
ECAP-1394-LEMO-HD	Camera Adapter with 1394A I/O and fibre optic I/O for HD Panasonic cameras - LEMO fiber connector

Power Converter (Must specify same Battery Bracket option as Camera Adapter):

ECA-PS	Camera Adapter DC-DC Power Converter - f or use with camera adapters with fiber optic I/O and Base Stations with Camera Power output (CP version).
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Base Station:

(Must Specify same Fiber Optic connector as Camera Adapter)

ECB-LEMO	Base Station for SD camera adapters - LEMO fiber connector
ECB-CP-LEMO	Base Station for SD camera adapters - with DC camera power (requires ECA-PS Power Converter)- LEMO fiber connector
ECB-LEMO-HD	Base Station for HD camera adapters - LEMO fiber connector
ECB-CP-LEMO-HD	Base Station for HD camera adapters - with DC camera power (requires ECA-PS Power Converter)- LEMO fiber connector

Ordering Options:

Battery Bracket Options:

(Must specify for Camera adapters and ECA-PS power converter)

+AB	Bracket for Anton Bauer batteries
+IDX	Bracket for IDX V-mount batteries
+PAG	Bracket for PAGlok batteries

Fiber Optic Connector Options:

Camera adapters and base stations are also available with the following fiber connectors:

Fischer 1053 HDTV series

Amphenol HFP series

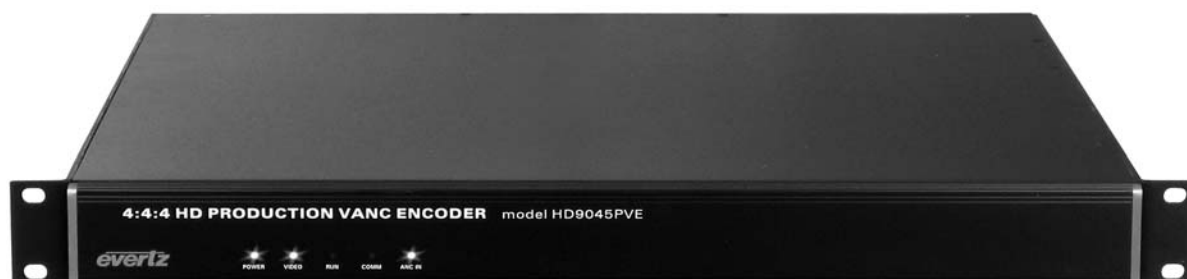
(Contact factory for ordering information and availability)

"Specifications subject to change without notice"

For further detailed information contact factory

4:4:4 Production VANC Encoder

Model HD9045PVE



The Evertz Production VANC Encoder is designed to simplify the management of your high definition video acquired production material for both 4:4:4 RGB and 4:2:2 YCrCb high definition video. Under control of the powerful KeyLog TRACKER™ software, the HD9045PVE Production VANC Encoder permits the seamless integration of video and audio timecodes, and production metadata such as camera, lens and dolly information, scene, take and roll numbers. During acquisition or after during an editorial dubbing process, KeyLog TRACKER™, Evertz logging and configuration management tool logs the essential metadata along with the relationships between the source and record timecodes, and outputs many industry standard interchange file formats for use by off-line editing systems.

The HD9045PVE encodes the timecodes and production metadata into industry standard vertical ancillary (VANC) data packets on the dual link RGB output. In addition the HD9045PVE converts the 4:4:4 RGB to a 4:2:2 YCrCb serial output with the VANC data and optional burned in characters for monitoring. The user can also apply one of 5 user programmable look up tables to either output. Separate LTC inputs and outputs for the audio and video timecodes, allows handling of mixed rate timecodes.

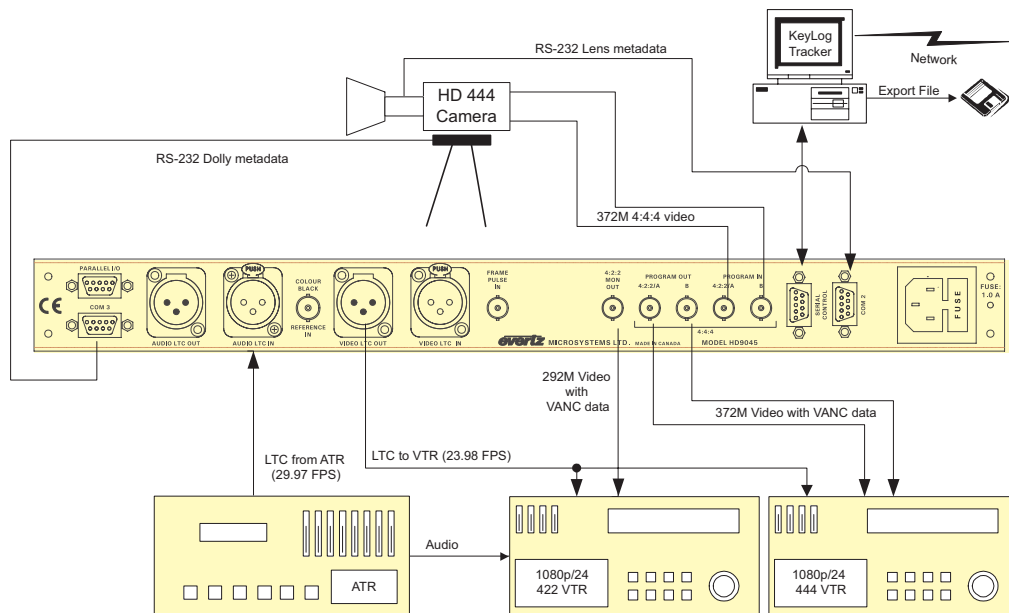
The HD9155Q Afterburner is a powerful device designed to facilitate the creation of off-line tapes from high definition telecine master tapes. The Afterburner downconverts the HDTV input video to SDI and analog standard definition video. When the input video is in the 1080p/24sF format the Afterburner also creates a 2:3 pulldown on the output video to create a 30Fps output. The Afterburner reads the ancillary data that was encoded by the HD9045PVE and makes burn-in windows. The essential timecodes are also converted into RP201 3-line VITC and output by the Afterburner. The Afterburner automatically generates video timecode for the standard definition VTR that is converted from 24 to 30Fps, and delayed to match the complete 'A' frame cycle of delay through the Afterburner.

The new multi-resolution version of Evertz popular KeyLog Tracker software allows the user to store multiple configurations for the HD9045PVE. A simple on screen control in the Tracker software performs switching between 4:4:4 and 4:2:2 modes in the HD9045PVE. Toolbar buttons allow the user to quickly choose which device is being addressed.

Features

- Accepts dual link 4:4:4 RGB SMPTE 372M (1.485 Gb/s) 1080i/59.94, 1080i/50 1080p/29.97sF, 1080p/25sF and 1080p/23.98sF digital video.
- Dual link 4:4:4 RGB SMPTE 372M outputs with VANC and characters keyed in
- Converts dual link 4:4:4 RGB SMPTE 372M to 4:2:2 SMPTE 292M with user programmable colour look up tables
- Can be operated in single link 4:2:2 SMPTE 292M mode.
- Separate LTC reader and generator for video and audio time codes operating at 30, 25 and 24 Fps
- Control from Evertz KeyLog TRACKER™ software
- Encodes production timecodes and metadata information in modified SMPTE RP215 VANC
- Character burns available on 4:4:4 and 4:2:2 outputs - can be independently turned on and off
- 3 serial ports to collect production metadata from lens and camera dolly

HD9045PVE Typical Application



Specifications

HDTV Dual Link Serial Digital Video Input:

Standard: Dual Link 4:4:4 GBRA 1.485 Gb/sec HDTV Serial component digital SMPTE 372M 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF and 1080p/23.98sF standards supported. Software selectable or autodetect 2 BNC per IEC 60169-8 Amendment 2.

Connector: Automatic to 75m @ 1.5Gb/s with Belden 1694A or equivalent cable

Equalization: Automatic to 75m @ 1.5Gb/s with Belden 1694A or equivalent cable

HDTV Dual Link Serial Digital Video Outputs:

Standard: Same as input

Outputs: Program video with RP215 Ancillary Data embedded and optional characters

Connectors: 2 BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Wide Band Jitter: < 0.2 UI

HDTV 4:2:2 Serial Digital Video Outputs:

Standard: SMPTE 292M, same as input

Outputs: 1 Program video with RP215 Ancillary Data embedded and optional characters

Connectors: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Wide Band Jitter: < 0.2 UI

LTC Generators:

Standard: SMPTE 12M

Frame Rate: 24, 25 and 30 Fps nominal

Number of Outputs: 2

Connectors: 3 pin male XLR type connector.

Level: Adjustable, 0.5V to 4.5V p-p

LTC Readers:

Standard: SMPTE 12M

Frame Rate: 24, 25 and 30 Fps nominal

Number of Inputs: 2

Connectors: 3 pin female XLR type connector

Level: 0.2 to 4V p-p, balanced or unbalanced

Serial Remote Control:

Standard: RS-232, 57600 baud

Connector: 9 pin female "D"

Control: Computer control of all functions, firmware upgrade

MetaData Communications Ports:

Standard: RS-232; 38400 or 9600 baud

Connector: 9 pin female "D"

Number of Ports: 2

Protocol: Fujinon Lens Protocol compatible

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)

Weight: 8 lbs. (3.5Kg)

Electrical:

Power: Autoranging 100 to 240 VAC 50/60 Hz, 30 VA

Safety: ETL listed
Complies with EU safety directive

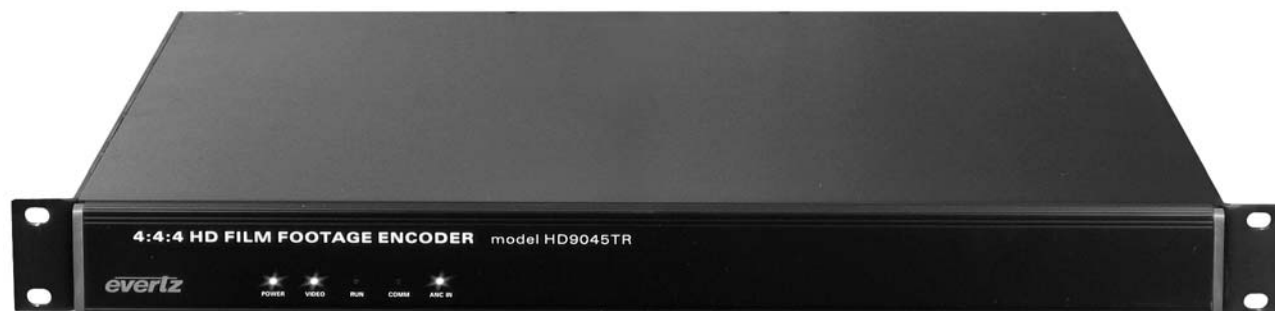
EMI/RFI: Complies with FCC Part 15 Class A,
EU EMC Directive

Ordering Information:

HD9045PVE 4:4:4 HD Production VANC Encoder including KeyLog™ Tracker

4:4:4 HD Film Footage Encoder

Model HD9045TR



The Evertz 4:4:4 Film post production system is designed to simplify the management of your film to tape transfers for both 4:4:4 RGB and 4:2:2 YCrCb high definition video. At the heart of the system is the HD9045TR Film Footage Encoder. Under control of the powerful KeyLog TRACKER™ software, the HD9045TR Film Footage encoder permits the seamless integration of video and audio timecodes, film KeyCode and production information whether you are transferring to 24, 25 or 30Fps high definition video. During the transfer, KeyLog TRACKER™, Evertz telecine logging and configuration management tool logs the relationships between these important parameters and outputs many industry standard interchange file formats for use by off-line editing systems.

The HD9045TR encodes the timecodes, KeyCode and production information into industry standard SMPTE RP215 vertical ancillary (VANC) data packets on the dual link RGB output. In addition the HD9045TR converts the 4:4:4 RGB to a 4:2:2 YCrCb serial output with the VANC data and optional burned in characters for monitoring. The user can also apply one of 5 user programmable look up tables to either output. Separate LTC inputs and outputs for the audio and video timecodes, allows handling of mixed rate timecodes. The programmable telecine interface allows the encoder to interface to a wide variety of telecine configurations.

The HD9155Q Afterburner is a powerful device designed to facilitate the creation of off-line tapes from the 4:2:2 high definition telecine master tapes. The Afterburner downconverts the HDTV input video to SDI and analog standard definition video. When the input video is in the 1080p/24sF format the Afterburner also creates a 2:3 pulldown on the output video to create a 30Fps output. The Afterburner reads the RP215 film transfer data that was encoded by the HD9045TR during the telecine transfer and makes burn-in windows. The essential timecode and KeyCode data are also converted into RP201 3-line VITC and output by the Afterburner. The Afterburner automatically generates video timecode for the standard definition VTR that is converted from 24 to 30Fps, and delayed to match the complete 'A' frame cycle of delay through the Afterburner.

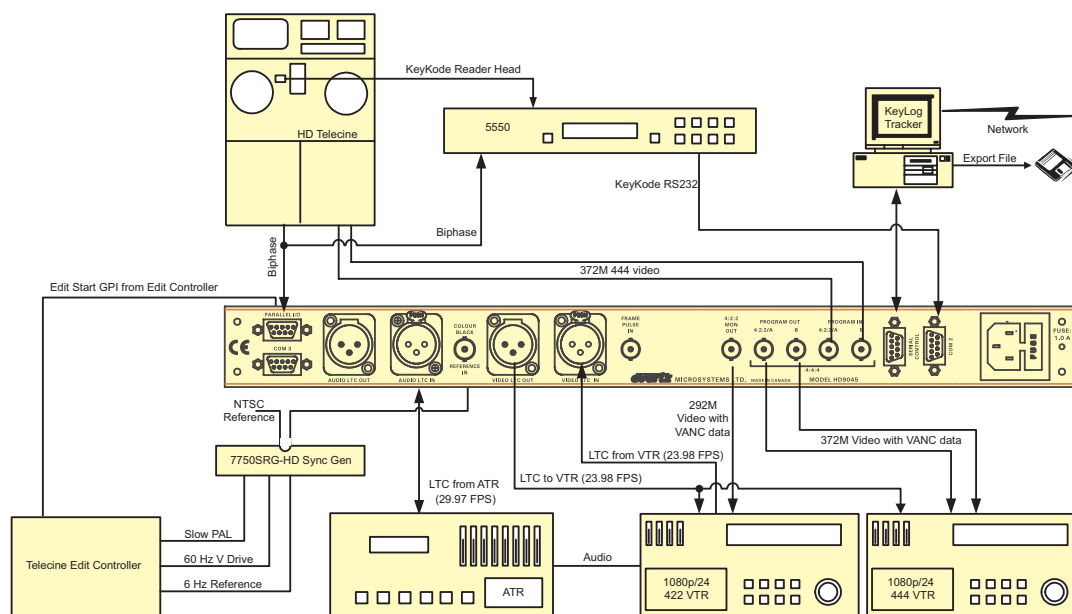
The new multi-resolution version of Evertz popular KeyLog Tracker software allows the user to store multiple configurations for both the 9025TR Film Footage Encoders and the Afterburners. A simple on screen control in the Tracker software performs switching between 4:4:4 and 4:2:2 modes in the HD9045TR. Toolbar buttons allow the user to quickly choose which device is being addressed.

Features

- Accepts dual link 4:4:4 RGB SMPTE 372M (1.485 Gb/s) 1080i/59.94, 1080i/50 1080p/29.97sF, 1080p/25sF and 1080p/23.98sF digital video
- Dual link 4:4:4 RGB SMPTE 372M outputs with RP215 VANC and characters keyed in
- Converts dual link 4:4:4 RGB SMPTE 372M to 4:2:2 SMPTE 292M with user programmable colour look up tables
- Can be operated in single link 4:2:2 SMPTE 292M mode
- Interfaces to Evertz 5550 or 5500 KeyCode Reader
- Separate LTC reader and generator for video and audio time codes operating at 30, 25 and 24 Fps
- Control from Evertz KeyLog TRACKER™ software
- Encodes film transfer information in SMPTE RP215 VANC
- Character burns and VANC available on 4:4:4 and 4:2:2 outputs - can be independently turned on and off

4:4:4 HD Film Footage Encoder

HD9045TR Typical Application



Specifications

HDTV Dual Link Serial Digital Video Input:

Standard: Dual Link 4:4:4 GBRA 1.485 Gb/sec HDTV Serial component digital SMPTE 372M 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF & 1080p/23.98sF standards supported. Software selectable or autodetect

Connector: 2 BNC per IEC 60169-8 Amendment 2

Equalization: Automatic to 75m @ 1.5Gb/s with Belden 1694A or equivalent cable

HDTV Dual Link Serial Digital Video Outputs:

Standard: Same as input

Outputs: Program video with RP215 Ancillary Data embedded and optional characters

Connectors: 2 BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Wide Band Jitter: < 0.2 UI

HDTV Serial Digital Video Outputs:

Standard: SMPTE 292M, same as input

Outputs: 1 Program video with RP215 Ancillary Data embedded and optional characters

Connectors: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Wide Band Jitter: < 0.2 UI

LTC Generators:

Standard: SMPTE 12M

Frame Rate: 24, 25 and 30 Fps nominal

Number of Outputs: 2

Connectors: 3 pin male XLR type connector

Level: Adjustable, 0.5V to 4.5V p-p

LTC Readers:

Standard: SMPTE 12M

Frame Rate: 24, 25 and 30 Fps nominal

Number of Inputs: 2

Connectors: 3 pin female XLR type connector

Level: 0.2 to 4V p-p, balanced or unbalanced

Serial Remote Control:

Standard: RS-232, 57600 baud

Connector: 9 pin female "D"

Control: Computer control of all functions, firmware upgrade

KeyCode Reader Port

Standard: RS-232; 38400 or 9600 baud

Connector: 9 pin female "D"

Protocol: Evertz 5550, 5500 KeyCode Decoder, RIM DigiSync

Telecine Interface:

Connector: 9 pin female "D"

Tach Input: Bi-phase quadrature pulses - 1,2,5, or 10 x film rate, TTL level

Frame Pulse:

Cintel: > 1.6 V p-p active low, 1 pulse per film frame, (BNC per IEC 60169-8 Amendment 2)

Thomson: TTL level SOF, 1 edge per film frame (9 pin female D)

Sony: > 1.6 V p-p active high, 1 pulse per film frame, (BNC per IEC 60169-8 Amendment 2)

GPIO Interface:

Connector: 9 pin female "D"

Type: Opto-isolated bi-directional I/O - TTL level

Number: 5

Function: user programmable

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)

Weight: 8 lbs. (3.5Kg)

Electrical:

Power: Autoranging 100 to 240 VAC 50/60 Hz, 30 VA

Safety: ETL listed
Complies with EU safety directive
Complies with FCC Part 15 Class A,
EU EMC Directive

EMI/RFI:

Ordering Information:

HD9045TR 4:4:4 HD Film Footage Encoder including KeyLog™ Tracker

HD9045TR/5550/UV-3 HD/SD Film Footage Encoder system including KeyLog Tracker™, KeyCode Decoder & UV-3 Head

HD Afterburner/Downconverter

Model HD9150Q



The HD9150Q Afterburner/Downconverter is a powerful device designed to facilitate the creation of off-line video tapes from HDTV masters. The Afterburner downconverts the HDTV input video to SDI and analog standard definition video. When the input video is in the 1080p/24sF format the HD9150Q also creates a 2:3 pulldown on the output video to create a 30 Fps output. The Afterburner can operate in a 'film mode' working with telecine masters or a 'video mode' working with field acquired HDTV.

In 'film mode' the Afterburner/Downconverter reads the film transfer data that was recorded in the VANC data area by the HD9025TR Film Footage Encoder (SMPTE RP215) during the telecine transfer and make burn-in windows. The essential time code and KeyKode data are also converted into 3-line VITC and output by the Afterburner. The 2:3 cadence can be controlled from the VANC data or from the LTC. The 2:3 cadence can also be locked to an external 6 Hz reference in telecine applications where the HD9150Q is directly reading the HD9025TR output.

In 'video mode' the Afterburner reads the RP188 ancillary time code, or LTC and makes burn-in windows and new 30 Fps time code that is in sync with the downconverted video. The original 24 Fps time code numbers can be placed in the user bits of the VITC and displayed as a burned-in window. The 2:3 cadence can be controlled from the ancillary time code or from the LTC.

The HD9150Q has a high quality downconverter and provides two clean SDI downconverted outputs with VITC suitable for creation of high quality viewing copies. The HD9150Q also provides one SDI and one analog monitoring output with VITC and Characters suitable for monitoring or creation of tapes for non-linear editing systems.

The Afterburner automatically generates video time code for the standard definition VTR that is converted from 24 to 30 Fps, and delayed to match the complete A frame cycle of delay through the Afterburner.

The HD9150Q can be easily configured using the new multi-resolution version of Evertz popular KeyLog Tracker™ software or from the 9150 Configware™ software tool supplied with the unit. These graphical software interfaces allow the user to store multiple configurations for the HD9150 series.

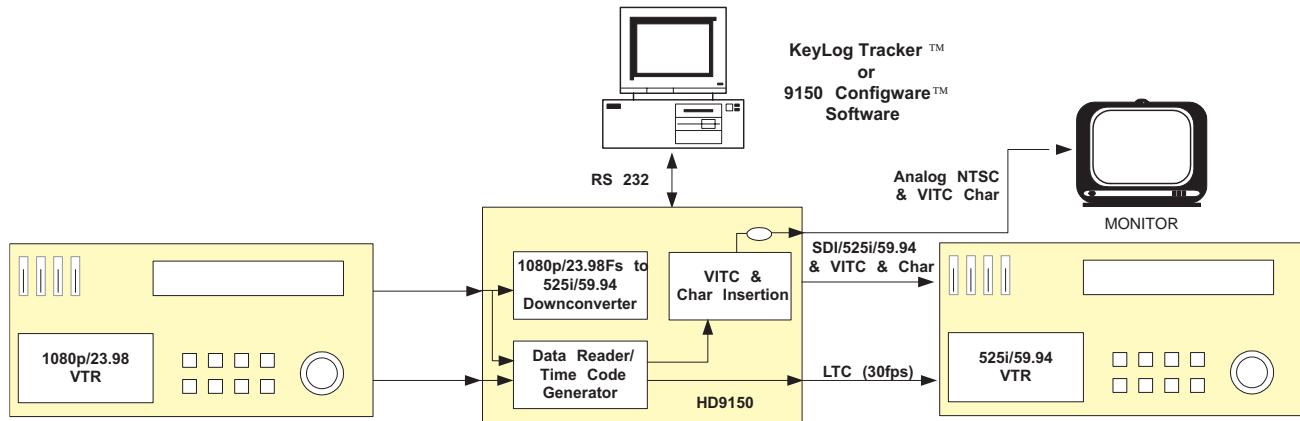
The HD9150 Afterburner/Downconverter has been discontinued in favour of the High Quality Version (Q).

Features

- Accepts SMPTE 292M 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF and 720p/59.94 serial digital video
- Downconverts HDTV inputs to SDTV and creates VITC and window burns on SDI and analog outputs
- Reads RP188 ancillary timecode, RP215 film ANC or LTC
- Character inserter for display of time and user bits as well as picture 2:3 pulldown
- Creates 2:3 pulldown when downconverting 1080p/23.98sF video to NTSC
- 2:3 cadence is determined from a 6Hz pulse input, RP188 time code or LTC
- Converts aspect ratio from 16:9 to 4:3 in anamorphic, letterbox or centre crop mode
- LTC time code reader and generator converts 24 Fps to 30 Fps and re-times the time code to the output video
- Reads film transfer information from RP215 vertical ancillary data in 'Film mode'
- Reads RP188 ancillary time code in 'Video mode'
- Control from Evertz KeyLog Tracker™ software or 9150 Configware™ software
- Configurable Virtual Slate uses double height character windows to enhance visibility of important information

HD Afterburner/Downconverter

HD9150Q Typical Application



Specifications

HDTV Serial Digital Video Input:

Standard: SMPTE 292M, 1080i/50, 1080i/59.94, 1080p/23.98sF, 1080p/25sF or 720p/59.94 software selectable or autodetect
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 130m @ 1.5Gb/s with Belden 1694A or equivalent cable

SDTV Serial Digital Video Output:

Standard: Serial component 270 Mb/s (SMPTE 259M-C) 525i/59.94 if input is 1080i/59.94, 1080p/23.98sF or 720p/59.94 625i/50 if input is 1080i/50 or 1080p/25sF
Connectors: BNC per IEC 60169-8 Amendment 2 2 program, 1 monitor
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB
Wide Band Jitter: < 0.2 UI

Analog Monitor Video Output:

Standard: Analog composite NTSC if input is 1080i/59.94, 1080p/23.98sF or 720p/59.94 video
Analog composite PAL if input is 1080i/50 or 1080p/25sF video
Connectors: 1 BNC per IEC 60169-8 Amendment 2
Signal Level: 1 V p-p nominal, internally adjustable
DC Offset: 0V ±0.1V
Return Loss: > 35dB up to 5 MHz
Frequency Response: 0.8dB to 4 MHz
Differential Phase: <0.9°(<0.6° typical)
Differential Gain: <0.9%(<0.5% typical)
SNR: >56dB to 5 MHz (shallow ramp)
Impedance: 75Ω

LTC Generator:

Standard: SMPTE 12M
Frame Rate: 25 and 30 Fps nominal
Connector: 3 pin male XLR type connector.
Level: Adjustable, 0.5V to 4.5V p-p

LTC Reader:

Standard: SMPTE 12M
Frame Rate: 24, 25 and 30 Fps nominal
Connector: 3 pin female XLR type connector
Level: 0.2 to 4V p-p, balanced or unbalanced

Ancillary Time Code Reader:

Standard: SMPTE RP188 or RP215
Line Select: Autodetect valid lines in vertical interval
Frame Rate: 24, 25 and 30 Fps nominal

Serial Remote Control:

Standard: RS-232, 57600 baud
Connector: 9 pin female "D"
Control: Computer control of all functions

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

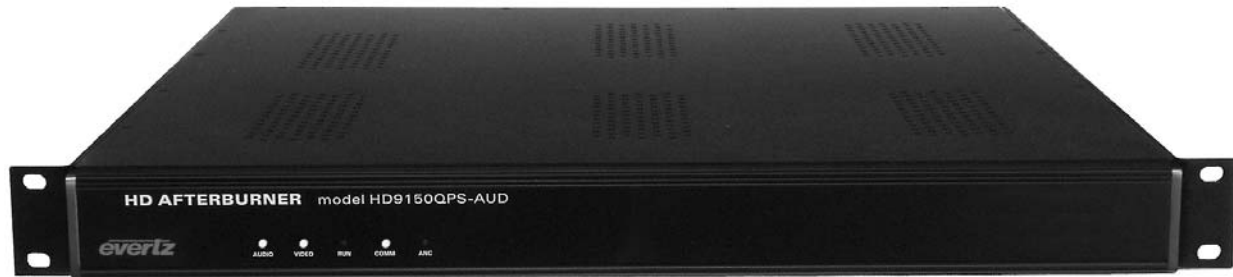
Power: Auto ranging 100-240VAC 50/60 Hz 30 VA
Safety: ETL listed
Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

HD9150Q HD Production Afterburner with High Quality Downconverter (includes 9150 Configware™ software)
HDQ UPGRADE Upgrade for all HD9150 products to HD9150Q

HD Post Slate Afterburner

Model HD9150QPS-AUD



The HD9150QPS-AUD Post Slate Afterburner is a powerful device designed to facilitate the creation and logging of off-line videotapes from field acquired HDTV masters. The HD9150QPS-AUD downconverts the HDTV input video to SDI and analog standard definition video. When the input video is in the 1080p/24sF format the HD9150QPS-AUD also creates a 2:3 pulldown on the output video to create a 30 Fps output. During the downconversion, the KeyLog Tracker™ software, Evertz logging and configuration management tool logs the relationships between video and audio time codes and outputs many industry standard interchange file formats for use by off-line editing systems.

The HD9150QPS-AUD Afterburner reads VTR time code from the embedded RP188 ancillary time code, audio time code from the slave Audio hard disk players LTC and make burn-in windows and new 30 Fps time code that is in sync with the downconverted video. The original 24 Fps time code numbers can be placed in the user bits of the VITC and displayed as a burned-in window. The 2:3 cadence is normally derived from the ancillary time code. The Afterburner automatically generates video time code for the standard definition VTR that is converted from 24 to 30 Fps, and delayed to match the complete A frame cycle of delay through the Production Afterburner.

The HD9150QPS-AUD has a high quality downconverter and provides two clean SDI downconverted outputs with VITC suitable for creation of high quality viewing copies. The HD9150QPS-AUD also provides one SDI and one analog monitoring output with VITC and Characters suitable for monitoring or creation of tapes for non-linear editing systems.

The HD9150QPS-AUD Afterburner has the ability to de-embed audio from the incoming HD bitstream, and delay it so that it is in time with the output video from the downconverter. Audio is output as two AES streams or four balanced analog audio signals.

The HD9150QPS-AUD Afterburner can be easily configured using the KeyLog Tracker™ software supplied with the unit. This graphical software interface allows the user to store multiple configurations for the HD9150PS. It is also the central core to the Post Slate logging system. In the field, audio time code is recorded on an analog track of the HD VTR, to facilitate syncing audio in post production. Scene and take information can be stored in the user bits of the audio time code which is also recorded on the Audio Record device. During the downconversion, the HD9150QPS-AUD detects discontinuities of Audio time code and logs each shot. The HD9150QPS-AUD uses scene/take information that was encoded into the audio LTC user bits on the set to display a virtual slate burn in at the beginning of each shot, eliminating the need for Time code slates on the set.

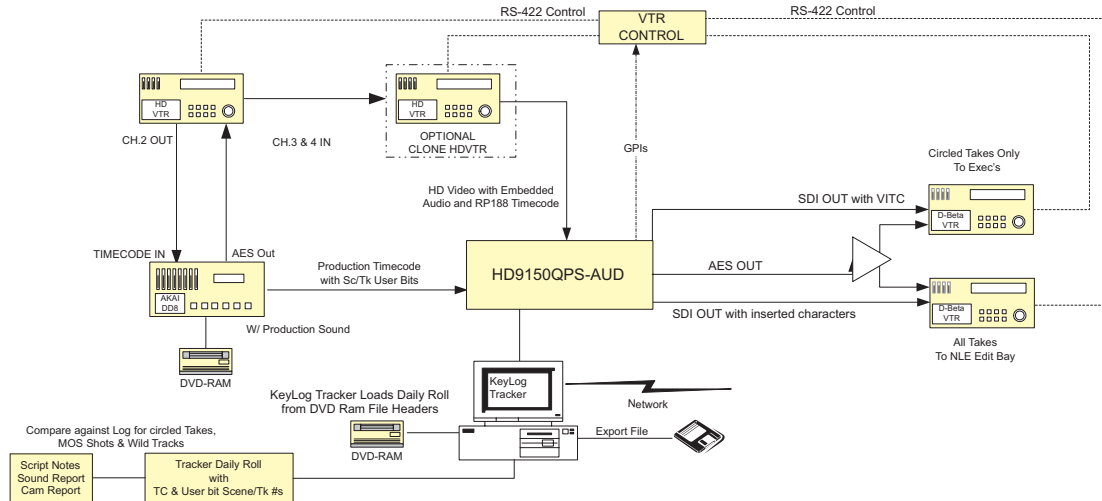
The HD9150PS-AUD has been discontinued in favour of the High Quality (Q) version

Features

- Accepts SMPTE 292M 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF and 720p/59.94 serial digital video
- Downconverts HDTV inputs to SDTV and creates VITC and window burns on SDI and analog outputs
- Reads RP188 ancillary time code or LTC
- Character inserter for display of time and user bits as well as picture 2:3 pulldown
- Creates 2:3 pulldown when downconverting 1080p/23.98sF video to NTSC
- 2:3 cadence is determined from a 6Hz pulse input, RP188 time code or LTC
- Converts aspect ratio from 16:9 to 4:3 in anamorphic, letterbox or centre crop mode
- LTC time code reader and generator converts 24 Fps to 30 Fps and re-times the time code to the output video
- Audio De-embedder gives AES and analog audio outputs in time with the downconverted video
- Easily configured using KeyLog Tracker™ software
- Detects time code breaks to log shots using KeyLog Tracker™ software
- Configurable Virtual Slate uses double height character windows to enhance visibility of important information

HD9150PS-AUD Typical Application

24P Dailies Downconversion System using Evertz HD9150QPS-AUD and KeyLog Tracker



Specifications

HDTV Serial Digital Video Input:

Standard: SMPTE 292M, 1080i/50, 1080i/59.94, 1080p/23.98sF, 1080p/25sF, 720p/59.94 software selectable or autodetect

Connector: 1 BNC per IEC 60169-8 Amendment 2

Equalization: Automatic to 130m @ 1.5Gb/s with Belden 1694A or equivalent cable

SDTV Serial Digital Video Output:

Standard: Serial component 270 Mb/s (SMPTE 259M-C) 525i/59.94 if input is 1080i/59.94, 1080p/23.98sF or 720p/59.94
625i/50 if input is 1080i/50 or 1080p/25sF

Connectors: BNC per IEC 60169-8 Amendment 2
2 program, 1 monitor

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 900ps nominal

Overshoot: <10% of amplitude

Return Loss: > 15 dB

Wide Band Jitter: < 0.2 UI

Analog Monitor Video Output:

Standard: Analog composite NTSC if input is 1080i/59.94, 1080p/23.98sF or 720p/59.94 video
Analog composite PAL if input is 1080i/50 or video

Connectors: 1 BNC per IEC 60169-8 Amendment 2

Signal Level: 1 V p-p nominal, internally adjustable

DC Offset: 0V \pm 0.1V

Return Loss: > 35dB up to 5 MHz

Frequency Response: 0.8dB to 4 MHz

Differential Phase: <0.9°(<0.6° typical)

Differential Gain: <0.9%(<0.5% typical)

SNR: >56dB to 5 MHz (shallow ramp)

Impedance: 75 Ω

LTC Generator:

Standard: SMPTE 12M

Frame Rate: 25 and 30 Fps nominal

Connector: 3 pin male XLR type connector.

Level: Adjustable, 0.5V to 4.5V p-p

LTC Reader:

Standard: SMPTE 12M

Frame Rate: 24, 25 and 30 Fps nominal

Connector: 3 pin female XLR type connector

Level: 0.2 to 4V p-p, balanced or unbalanced

Ancillary Time Code Reader:

Standard: SMPTE RP188

Line Select: Autodetect valid lines in vertical interval

Frame Rate: 24, 25 and 30 Fps nominal

AES Audio Outputs:

Number of Outputs: 2 AES

Standard: SMPTE 276M, single ended synchronous or asynchronous AES

Connectors: BNC per IEC 60169-8 Amendment 2

Sampling Rate: 48 kHz

Impedance: 75 Ω unbalanced

Analog Audio Outputs:

Number of Outputs: 4

Type: Balanced analog audio

Connector: Female HD DB15

Output Impedance: 66 Ω balanced

Sampling Frequency: 48kHz

Signal Level: 0dB FS \Rightarrow 8 to 24dBu into 10 k Ω loads
0dB FS \Rightarrow 8 to 22dBu into 600 Ω loads

Frequency Response: < \pm 0.1dB (20Hz to 20kHz)

THD+N: > 90dB RMS @ 1kHz, with 24dBu output
> 100dB RMS @ 20Hz to 20kHz, with 24dBu output

Crosstalk isolation: > 100dB RMS (20Hz to 20kHz)

Serial Remote Control:

Standard: RS-232, 57600 baud

Connector: 9 pin female "D"

Control: Computer control of all functions

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)

Weight: 8 lbs. (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60 Hz 30 VA

Safety: ETL listed
Complies with EU safety directive

EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

HD9150QPS-AUD HD Post Slate Afterburner with High Quality Downconverter, AES & Analog Audio (includes HD DB-15 to XLR breakout cable)

HDQ UPGRADE Upgrade for all HD9150PS products to HD9150QPS

HD9155 Series Production Afterburners

Model HD9155Q, HD9155Q-AUD



The HD9155Q Series Production Afterburners are a family of powerful devices designed to facilitate the creation of off-line videotapes from field acquired HDTV masters. The Production Afterburners downconvert the HDTV input video to SDI and analog standard definition video. When the input video is in the 1080p/24sF format the HD9155Q Series Production Afterburners also create a 2:3 pulldown on the output video to create a 30 Fps output.

The Production Afterburners read the LTC or RP188 ancillary time code and make burn-in windows and new time code that is in sync with the downconverted video. The original time code numbers can be placed in the user bits of the VITC and displayed as a burned-in window. The 2:3 cadence can be controlled from the ancillary time code or from the LTC. The Production Afterburners automatically generate video time code for the standard definition VTR that is converted from 24 to 30 Fps, and delayed to match the complete A frame cycle of video delay through the Production Afterburner.

The HD9155Q series Production Afterburners can be easily configured using 9150 Configware™ software utility supplied with the unit. This graphical software interface allow, the user to store multiple configurations for the HD9155 and load them as required.

The HD9155Q has a high quality downconverter and provides two clean SDI downconverted outputs with VITC suitable for creation of high quality viewing copies. The HD9155Q also provide one SDI and one analog monitoring output with VITC and Characters suitable for on the set monitoring or creation of tapes for non-linear editing systems.

When the AUD option is installed (model HD9155Q-AUD), the Production Afterburner now has the ability to de-embed AES audio from the incoming HD bitstream, and delay it so that it is in time with the output video from the downconverter. The AUD option provides 2 AES outputs and 4 analog audio outputs and a front panel headphone jack for monitoring the audio.

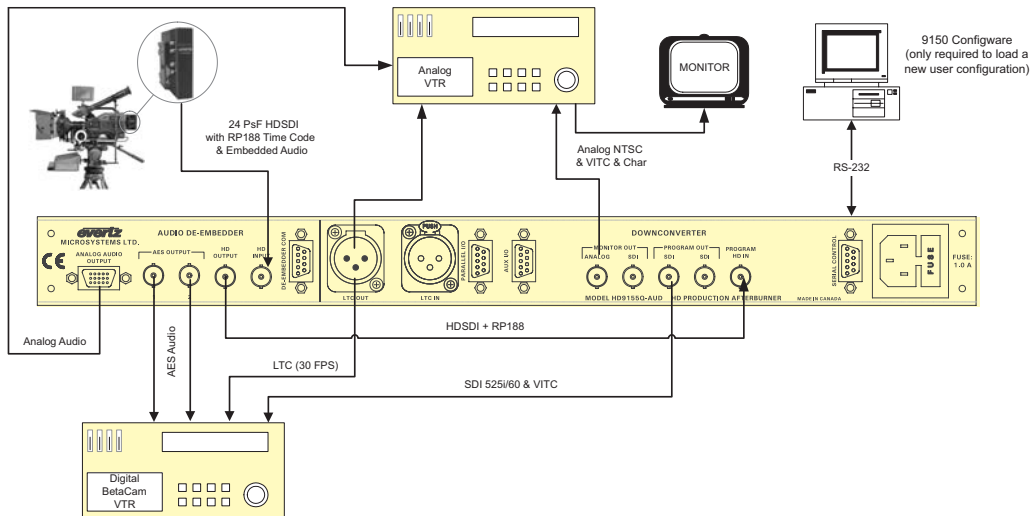
Models HD9155 and HD9155-AUD have been discontinued in favour of the High Quality (Q) versions.

Features

- Accepts SMPTE 292M 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF and 720p/59.94 serial digital video
- Downconverts HDTV inputs to SDTV and creates VITC and window burns on SDI and analog outputs
- Reads RP188 ancillary time code or LTC
- Character inserter for display of time and user bits as well as picture 2:3 pulldown
- Creates 2:3 pulldown when downconverting 1080p/23.98sF video to NTSC.
- 2:3 cadence is determined from a 6Hz pulse input, RP188 time code or LTC
- Converts aspect ratio from 16:9 to 4:3 in anamorphic, letterbox or centre crop mode
- LTC time code reader and generator converts 24 Fps to 30 Fps and re-times the time code to the output video
- AUD versions provide AES and analog audio delayed to match the video output
- AUD versions provide front panel monitoring of audio with volume control
- Front panel switches for downconverter mode, Char Inserter On/Off and Configuration Select, (and monitor volume & channel select on AUD version)
- User defined configurations can be downloaded using 9150 Configware™ software (included)
- Configurable Virtual Slate uses double height character windows to enhance visibility of important information

HD9155 Series Production Afterburners

HD9155 Configuration for 1080p/24sF



Specifications

HDTV Serial Digital Video Input:

Standard: SMPTE 292M, 1080i/50, 1080i/59.94, 1080p/23.98sF, 1080p/25sF, 720p/59.94 software selectable or autodetect
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 130m @ 1.5Gb/s with Belden 1694A or equivalent cable

SDTV Serial Digital Video Output:

Standard: Serial component 270 Mb/s (SMPTE 259M-C) 525i/59.94 if input is 1080i/59.94, 1080p/23.98sF or 720p/59.94
625i/50 if input is 1080i/50, 1080p/25sF
Connectors: BNC per IEC 60169-8 Amendment 2
2 program, 1 monitor
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB
Wide Band Jitter: < 0.2 UI

Analog Monitor Video Output:

Standard: Analog composite NTSC if input is 1080i/59.94, 1080p/23.98sF or 720p/59.94 video
Analog composite PAL if input is 1080i/50 or 1080p/25sF video
Connectors: 1 BNC per IEC 60169-8 Amendment 2
Signal Level: 1 V p-p nominal, internally adjustable
DC Offset: 0V \pm 0.1V
Return Loss: > 35dB up to 5 MHz
Frequency Response: 0.8dB to 4 MHz
Differential Phase: <0.9°(<0.6° typical)
Differential Gain: <0.9%(<0.5% typical)
SNR: >56dB to 5 MHz (shallow ramp)
Impedance: 75 Ω

LTC Generator:

Standard: SMPTE 12M
Frame Rate: 25 and 30 Fps nominal
Connector: 3 pin female XLR type connector.
Level: Adjustable, 0.5V to 4.5V p-p

LTC Reader:

Standard: SMPTE 12M
Frame Rate: 24, 25 and 30 Fps nominal
Connector: 3 pin female XLR type connector
Level: 0.2 to 4V p-p, balanced or unbalanced

Ancillary Time Code Reader:

Standard: SMPTE RP188
Line Select: Autodetect valid lines in vertical interval
Frame Rate: 24, 25 and 30 Fps nominal

AES Audio Outputs (HD9155Q-AUD Only):

Number of Outputs: 2 AES
Standard: SMPTE 276M, single ended synchronous or asynchronous AES
Connectors: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced

Analog Audio Outputs (HD9155Q-AUD Only):

Number of Outputs: 4
Type: Balanced analog audio
Connector: Female HD DB15
Output Impedance: 66 Ω balanced
Sampling Frequency: 48kHz
Signal Level: 0dB FS \Rightarrow 8 to 24dBu into 10 k Ω loads
0dB FS \Rightarrow 8 to 22dBu into 600 Ω loads
Frequency Response: < \pm 0.1dB (20Hz to 20kHz)
THD+N: > 90dB RMS @ 1kHz, with 24dBu output
> 100dB RMS @ 20Hz to 20kHz, with 24dBu output
Crosstalk isolation: > 100dB RMS (20Hz to 20kHz)

Serial Remote Control:

Standard: RS-232, 57600 baud
Connector: 9 pin female "D"
Control: Computer control of all functions

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60 Hz 30 VA
Safety: ETL listed
Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

HD9155Q	HD Production Afterburner with High Quality Downconverter
HD9155Q-AUD	HD Production Afterburner with High Quality Downconverter, AES & Analog Audio (includes HD DB-15 to XLR breakout cable)
HDQ UPGRADE	Upgrade for HD9155 products to HD9155Q

HD SDI Graticule Generator

Model HD9590



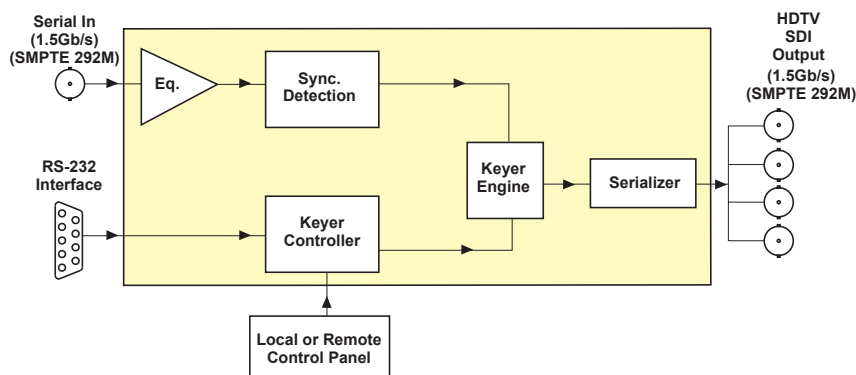
The HD9590 Graticule Generator is an easy to use, one rack unit, multi format digital video graticule generator that keys various alignment markers over a high definition video picture. These alignment markers facilitate film transfer, post production and quality control measurements relating to picture location for various film aspect ratios, safe action and title areas as well as picture center.

All of the functions of the HD9590 Graticule Generator are available from the front panel or one of two remote control panels. Choose from the many factory programmed presets or define your own. The HD9590 allows for multiple user defined presets that can be re-called and re-defined at any time.

Features

- Keys graticule markers directly into SMPTE 292M serial digital video
- Two rectangular boxes that can be independently resized, reshaped and moved anywhere on the raster
- A grid consisting of horizontal and vertical line pairs that can be positioned independently or in pairs anywhere on the raster
- Programmable horizontal and vertical hard matte
- Adjustable mask starting line in vertical blanking interval
- Two user programmable cross markers positionable anywhere on the raster
- Circle creation for aspect ratio
- Automatic creation of aspect ratios for matte, box and circle objects
- On screen aspect ratio display
- Automatic centering control for all objects
- Single button keyer On/Off control
- Adjustable object brightness (white level)
- Front panel lock-out control
- Easy to operate control panel menu system gives access to advanced object control features for the most demanding application, while limiting normal day to day use to just a few preset buttons
- Factory presets allow quick setup to common object placements on the raster
- Ten user-definable presets with individual write protection
- Optional rack mount or desktop remote control unit

HD9590 Block Diagram



Specifications

Serial Video Input:

Standard:	SMPTE 292M
SMPTE 274M:	1080i/60, 1080i/59.94, 1080i/50, 1080p/24(sF) 1080p/25(sF), 1080p/23.98(sF)
SMPTE 296M:	720p/60, 720p/59.94
Connector:	BNC per IEC 60169-8 Amendment 2
Impedance:	75Ω
Signal Level:	800mV ± 10%
Equalization:	Automatic 100m @ 1.5Gb/s with Belden 1694A (or equivalent)

Serial Video Output:

Number of Outputs:	4
Standard:	Same as input
Connector:	4 BNC per IEC 60169-8 Amendment 2
Impedance:	75Ω
Signal Level:	800mV nominal
DC Offset:	0V ± 0.5V
Rise and Fall Time:	200ps nominal
Overshoot:	<10% of amplitude
Wideband Jitter:	<0.2UI

Physical:

Dimensions:	19"W x 1.75"H x 18.75"D. (483mm W x 45mm H x 477mm D)
Weight:	8 lbs. (3.5Kg)

Electrical:

Power:	Auto ranging 100-240VAC 50/60Hz 30VA
Safety:	ETL listed Complies with EU safety directive Complies with FCC Part 15 Class A EU EMC Directive

Ordering Information:

HD9590	HD SDI Graticule Generator
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Ordering Options:

- +RCP Rackmount remote control
- +DCP Desktop remote control unit

4:4:4 HDTV Graticule Generator

Model HD9690-444

The Evertz HD9690-444 Graticule Generator is multi format digital video graticule generator that keys various alignment markers and mattes over a source video picture in a wide variety of applications. The HD9690-444 can be operated in a dual link mode for emerging 4:4:4 high definition applications, or a 4:2:2 mode high definition (1125 and 750 line) digital video.

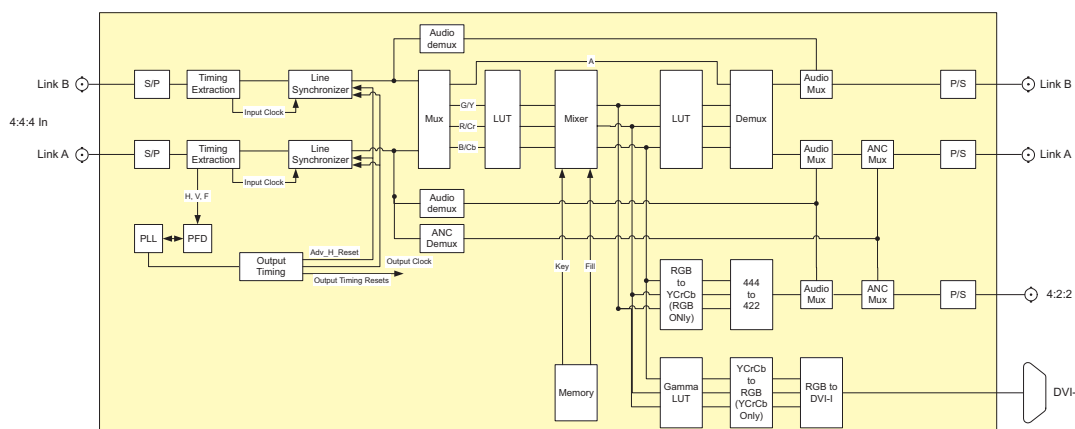
Commonly used configurations, stored as factory presets simplify routine operation to just a few pushbuttons. The ability to customize these factory presets to your application and store them as USER PRESETS, gives the Graticule Generator tremendous flexibility while maintaining simple operation for day to day use.

The standard Graticule Generator is a 1 RU chassis with integrated control panel. The Graticule Generator is also available in a remote control version, which has a blank front panel and either a rack mountable, or a desktop remote control panel.

Features

- Alignment of film images to the video raster during film to tape transfer
- Safe action and safe title and center marker for locating action point of interest and title graphics
- Aspect ratio measurements
- Letterbox or side marker cropping for image formats that do not match the video raster size
- Alignment of graphics objects
- Video tape quality control measurements
- One DVI-I output
 - Drive a single DVI-D and a single RGBHV (VGA-type) display simultaneously with same content up to WUXGA (1920 x 1200 resolution)

HD9690 Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 372M or SMPTE 292M 1.5Gb/s
SMPTE 274M: 1080i/60, 1080i/59.94, 1080i/50, 1080p/24(sF)
1080p/25(sF), 1080p/23.98(sF)
SMPTE 296M: 720p/60, 720p/59.94, 720p/50
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV ± 10%
Equalization: Automatic 100m @ 1.5Gb/s with Belden 1694A (or equivalent)

Serial Video Output:

Number of Outputs: 1 dual link pair, 1 single link
Standard: Same as input
Connector: BNC per IEC 60169-8 Amendment 2
Impedance: 75Ω
Signal Level: 800mV nominal
DC Offset: 0V ± 0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Wideband Jitter: <0.2UI

Display Video Output:

Standard: VESA (DVI-I) up to WUXGA (1920 x 1200)
Number of Outputs: 1
Connector: DVI (with DVI to RGBHV Adapter)
Video: 1Vp-p YPrPb/RGB or 0.7Vp-p VGA, 60Hz refresh
Impedance: 75Ω

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D.
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60Hz 30VA
Safety: ETL listed
Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

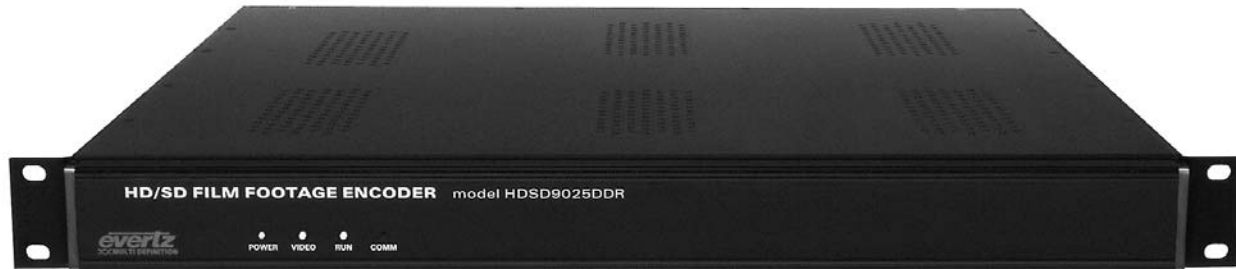
HD9690-444 4:4:4 Graticule Generator

Ordering Options:

+RCP Rackmount remote control
+DCP Desktop remote control unit

HD/SD DDR Film Footage Encoder

Model HDSD9025DDR



The HDSD9025DDR multi resolution Film post production system is designed to improve the throughput of your film to tape transfers by utilizing digital hard disk recorders (DDR). Complete rolls of film are transferred with little or no colour correction, and without time consuming audio syncing, to a DDR. During this process KeyCode information is encoded into the VANC data space using a 9025 series Film Footage Encoder. For DDRs that support recording at one speed and playout at another, the film can be transferred at 30 FPS realizing an immediate 25% increase in throughput in the telecine bay.

In a separate colour correction suite the DDR becomes a virtual telecine source during colour correction and audio syncing. KeyCode information recorded on the DDR is recovered by the HDSD9025DDR before it is removed by the colour corrector. The recovered Keycode, video and audio time codes, and production data associated with the material are re-encoded on the colour corrected video before it is recorded on the master VTR.

Under control of the powerful KeyLog TRACKER™ software, the HDSD9025DDR Film Footage encoders permit the seamless integration of video and audio timecodes, film KeyCode and production information whether you are transferring to 25 or 30Fps standard definition video, or to 24, 25 or 30Fps high definition video. During colour correction and audio syncing, KeyLog TRACKER™, Evertz telecine logging and configuration management tool logs the relationships between these important parameters and outputs many industry standard interchange file formats for use by off-line editing systems.

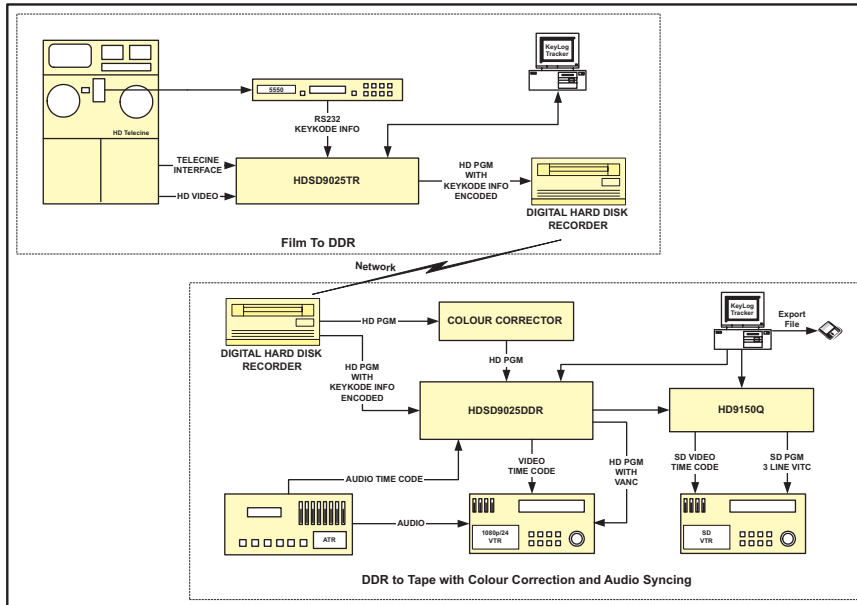
In standard definition mode, the HDSD9025DDR encodes the timecodes and KeyCode into industry standard SMPTE RP201 3-line VITC on one SDI output, and provides separate SDI and analog outputs with burned in characters for offline editing copies. In high definition mode, the HDSD9025DDR encodes the timecodes, KeyCode and production information into industry standard SMPTE RP215 vertical ancillary (VANC) data packets. Downconverted copies can be made for offline editing by connecting the HDSD9025DDR's second output to the HD9150Q HD Afterburner. Separate LTC inputs and outputs for the audio and video timecodes, allows handling of mixed film rate and video rate timecodes.

Features:

- HDSD9025DDR operating in high definition mode accepts SMPTE 292M (1.485 Gb/s) 1080i/59.94, 1080i/50 1080p/29.97sF, 1080p/25sF and 1080p/23.98sF digital video
- HDSD9025DDR operating in standard definition mode accepts SMPTE 259M (270 Mb/s) 525i/59.94 and 625i/50 digital video
- Interfaces to Specter Virtual Datacine and industry standard DDRs that record and play back RP215 VANC data
- Separate LTC reader and generator for video and audio time codes operating at 30, 25 and 24 Fps
- Control from Evertz KeyLog TRACKER™ software
- Encodes film transfer information in SMPTE RP215 VANC for high definition video and SMPTE RP201 3-Line VITC for standard definition video
- HDSD9025DDR has separate inputs and outputs for SDTV and HDTV video
- Auxiliary HD and SD video inputs read KeyCode encoded in VANC before it is removed by the colour corrector
- Character burns available on SDI and monitor Analog outputs for SDTV
- Programmable telecine interface also allows it to be used in traditional film to tape applications.

HD/SD DDR Film Footage Encoder

HDSD9025DDR Typical Configuration



Specifications

HDTV Serial Digital Video Inputs:

Standard: SMPTE 292M (1.485 Gi/s) 1080i/59.94, 1080i/50, 1080p/23.98
Number of Inputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694 (or equivalent)

HDTV Serial Digital Video Outputs:

Number of Outputs: 2 with RP215 VANC data and character burn-ins
Standard: Same as input
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: < 0.15 UI

SDTV Serial Digital Video Inputs:

Standard: SMPTE 259M-C (270 Mb/s) 525i/59.94 or 625i/50
Number of Inputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 200m @ 270 Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15 dB up to 270 Mb/s

SDTV Serial Digital Video Output:

Standard: Same as Input
Connectors: BNC per IEC 60169-8 Amendment 2
Outputs: 1 Program with RP201 3-line VITC
1 Character output with RP201 3-line VITC and Character Burn-ins
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 470ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB
Wide Band Jitter: < 0.15 UI

Analog Monitor Video Output:

Standard: Analog composite NTSC if input is 525i/59.94
Analog composite PAL if input is 625i/50
Connectors: BNC per IEC 60169-8 Amendment 2
Output: 1 Character output with RP201 3-line VITC and Character Burn-ins
Signal Level: 1 V p-p nominal, internally adjustable
DC Offset: 0V \pm 0.1V
Return Loss: > 35dB up to 5 MHz
Frequency Response: 0.8dB to 4 MHz
Differential Phase: <0.9°(<0.6° typical)
Differential Gain: <0.9%(<0.5% typical)
SNR: >56dB to 5 MHz (shallow ramp)

LTC Generators:

Standard: SMPTE 12M
Frame Rate: Video LTC: 24, 25 and 30 Fps nominal
Audio LTC: 25 and 30 Fps nominal
Connectors: 3 pin male XLR type connector
Level: Adjustable, 0.5V to 4.5V p-p

LTC Readers:

Standard: SMPTE 12M
Frame Rate: 24, 25 and 30 Fps nominal
Connectors: 3 pin female XLR type connector
Level: 0.2 to 4V p-p, balanced or unbalanced

Telecine Interface:

Bi-Phase Tach: 1, 2, 5 or 10 pulses per frame, TTL level
Frame Pulse: 1.6 V p-p active low, (1 pulse per film frame) or TTL Level FRID (1 edge per film frame)

Parallel I/O Interface:

Inputs (default): Film Transfer Rate (24/30 Fps)
Video Standard Select
Film Frame Centering
Event Log GPI
Connector: 9 pin female "D"

KeyCode Reader/DataCine Interface:

Standard: RS-232, 9600 or 38400 baud, 7 bit even parity
Compatible with Evertz, ARRI, CP and RIM decoders
Connector: 9 pin female "D"

KeyLog Tracker Interface:

Standard: RS-232, 57600 baud
Connector: 9 pin female "D"
Control: Computer control of all functions using KeyLog Tracker™ software

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Power: 115/230 V AC 50/60 Hz, 30 VA.
Safety: ETL Listed
Complies with EU safety directive
Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

HDSD9025DDR HD/SD DDR Film Footage Encoder(for DDR Applications including KeyLog Tracker™)

HDSD9025DDR/5550/UV-3

HD/SD DDR Film Footage Encoder system including KeyLog Tracker™, KeyCode Decoder and UV-3 Head

Ordering Options:

Vista Vision Vista Vision option for Film Footage Encoders
65/70MM 65mm/70mm option for Film Footage Encoders
2 Perf 35mm 2 perf option for Film Footage Encoders

HD/SD Film Footage Encoder

Model HDSD9025TR



The multi resolution HDSD9025TR Film Footage Encoder is designed to simplify the management of your film to tape transfers for both standard definition and high definition video. Under control of the powerful KeyLog Tracker™ software, the HDSD9025TR Film Footage encoder permits the seamless integration of video and audio time code, film KeyCode and production information whether you are transferring to 25 or 30Fps standard definition video, or to 24, 25 or 30Fps high definition video. During the transfer, KeyLog Tracker™, Evertz telecine logging and configuration management tool, logs the relationships between these important parameters and outputs many industry standard interchange file formats for use by off-line editing systems.

In standard definition mode, the HDSD9025TR encodes the time code and KeyCode into SMPTE RP201 3-line VITC on one SDI output, and provides separate SDI and analog outputs with burned in characters for offline editing copies. In high definition mode, the HDSD9025TR encodes the time code, KeyCode and production information in SMPTE RP215 data. Separate LTC inputs and outputs for the audio and video time code, allows handling of mixed film rate and video rate time code. The programmable telecine interface allows the encoder to interface to a wide variety of telecine configurations.

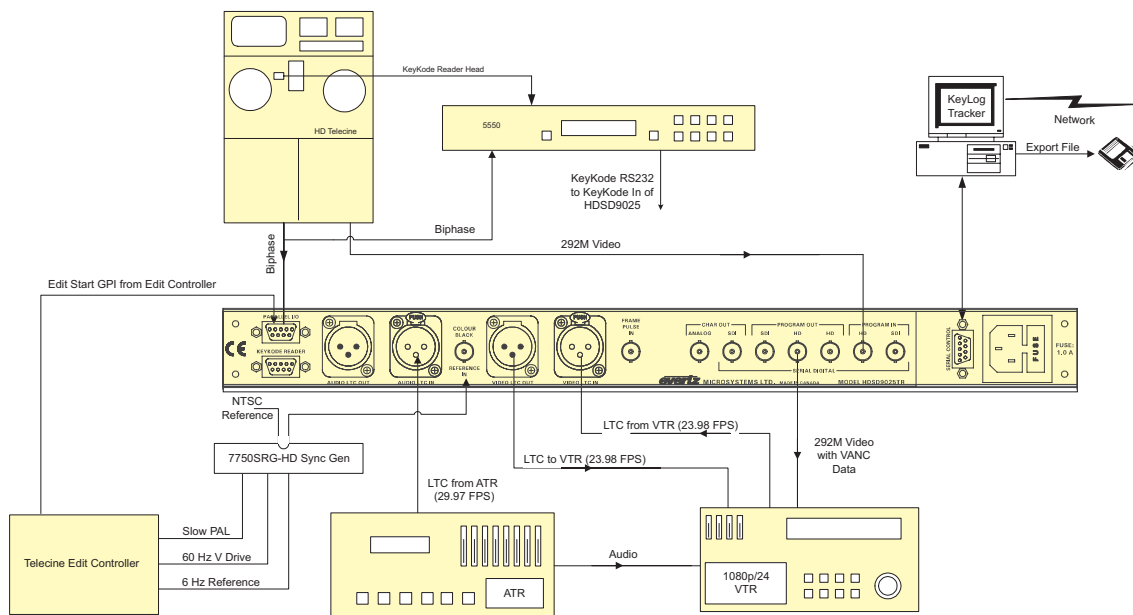
The HDSD9025TR can be easily configured using the KeyLog Tracker™ software supplied with the unit. This graphical user interface allows the user to store multiple configurations for the HDSD9025TR.

Features:

- Accepts SMPTE 259M (270 Mb/s) 525i/59.94 and 625i/50 digital video in standard definition mode
- Accepts SMPTE 292M (1.485 Gb/s) 1080i/59.94 and 1080i/50 and 1080p/23.98sF digital video in high definition mode
- Separate inputs and outputs for SDTV and HDTV video
- Separate SDI program output with VITC and offline SDI and analog video output with VITC and characters available for SDTV
- Encodes film transfer information in SMPTE RP215 vertical ancillary data for high definition video and SMPTE RP201 3-Line VITC for standard definition video
- Over 20 Character burn-in windows for time codes, KeyCode, and other film transfer information can be enabled continuously or as a virtual slate at the start of each event
- Interfaces to Evertz 5550 or 5500 KeyCode Readers
- Programmable Telecine interface supports all popular telecines
- Separate LTC generators for video and audio time code operating at 30, 25 and 24 Fps can be slaved to telecine bi-phase or incoming LTC on the video and audio LTC readers
- Multiple project configurations can be stored and recalled to facilitate easy setup of the system from job to job using the KeyLog Tracker™ software
- Transfers can be logged using GPI, Frame Grab or preselected log points using the KeyLog Tracker™ software

HD/SD Film Footage Encoder

HDSD9025TR Typical Configuration for 1080p/24sF



Specifications

HDTV Serial Digital Video Input:

Standard: SMPTE 292M (1.485 Gb/s) 1080i/59.94, 1080i/50, 1080p/23.98sF
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694A (or equivalent)

HDTV Serial Digital Video Outputs:

Number of Outputs: 2 with RP215 VANC data and character burn-ins
Standard: Same as input
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: < 0.15 UI

SDTV Serial Digital Video Input:

Standard: SMPTE 259M-C (270 Mb/s) 525i/59.94 or 625i/50
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 200m @ 270 Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15 dB up to 270 Mb/s

SDTV Serial Digital Video Output:

Standard: Same as Input
Connectors: BNC per IEC 60169-8 Amendment 2
Outputs: 1 Program with RP201 3-line VITC
1 Character output with RP201 3-line VITC and Character Burn-ins
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB
Wide Band Jitter: < 0.15 UI

Analog Monitor Video Output:

Standard: Analog composite NTSC if input is 525i/59.94
Analog composite PAL if input is 625i/50
Connectors: BNC per IEC 60169-8 Amendment 2
Output: 1 Character output with RP201 3-line VITC and Character Burn-ins
Signal Level: 1 V p-p nominal, internally adjustable
DC Offset: 0V \pm 0.1V
Return Loss: > 35dB up to 5 MHz
Frequency Response: 0.8dB to 4 MHz
Differential Phase: <0.9° (<0.6° typical)
Differential Gain: <0.9% (<0.5% typical)
SNR: >56dB to 5 MHz (shallow ramp)

LTC Generators:

Standard: SMPTE 12M
Frame Rate: Video LTC: 24, 25 and 30 Fps nominal
Audio LTC: 25 and 30 Fps nominal
Connectors: 3 pin male XLR type connector.
Level: Adjustable, 0.5V to 4.5V p-p

LTC Readers:

Standard: SMPTE 12M
Frame Rate: 24, 25 and 30 Fps nominal
Connectors: 3 pin female XLR type connector
Level: 0.2 to 4V p-p, balanced or unbalanced

Telecine Interface:

Bi-Phase Tach: 1, 2, 5 or 10 pulses per frame, TTL level
Frame Pulse: 1.6 V p-p active low, (1 pulse per film frame) or TTL Level
FRID (1 edge per film frame)

Parallel I/O Interface:

Inputs (default): Film Transfer Rate (24/30 Fps)
Video Standard Select
Film Frame Centering
Event Log GPI
Connector: 9 pin female "D"

KeyCode Reader Interface:

Standard: RS-232, 9600 or 38400 baud, 7 bit even parity
Compatible with Evertz, ARRI, CP and RIM decoders
Connector: 9 pin female "D"

KeyLog Tracker Interface:

Standard: RS-232, 57600 baud
Connector: 9 pin female "D"
Control: Computer control of all functions using KeyLog Tracker™ software

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60 Hz 30 VA
Safety: ETL listed
Complies with EU safety directive
Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

HDSD9025TR HD/SD Film Footage Encoder including KeyLog Tracker™
HDSD9025TR/5550/UV-3 HD/SD Film Footage Encoder system including KeyLog Tracker™, KeyCode Decoder and UV-3 Head

Ordering Options:

Vista Vision Vista Vision option for Film Footage Encoders
65/70MM 65mm/70mm option for Film Footage Encoders
2 perf 35mm 2 perf option for Film Footage Encoders

Keylog Tracker

The Evertz Film Post Production System helps you keep track of all aspects of your Film to Tape transfer session

KEYLOG TRACKER™ is an intuitive graphical user interface that provides more flexibility to the Evertz Film Post Production System than ever before. KeyLog TRACKER™ runs on standard Window 95 capable computer hardware gives you access to a host of new capabilities for the system including more character windows, simultaneous KeyCode and Ink number handling and several new Time code modes to mention a few.

The Evertz Film Post Production System uses function specific hardware units such as the 4025TR Film Footage Encoder, the 5500 KeyCode Reader and the 8025 Digital VITC Inserter to perform the bulk of the real time processing. This dedicated hardware reads and generates Video Time code, reads KeyCode and ARRI Film Time code, inserts Vertical Interval Time code and character burn-ins into analog and digital program video, and keeps track of the 3/2 pulldown.

KEYLOG TRACKER™ centralizes the control of your 4025TR Film Footage Encoder, performs frame accurate logging of Video and Audio Time code, KeyCode, Ink numbers, 3/2 pulldown and related production data and provides extensive data base management capabilities for the resulting project data.

Character Windows

KEYLOG TRACKER gives you access to 12 separate character windows to display Video Time code, Audio Time code, KeyCode, Ink numbers (feet & frames), Scene, Take, Slate, Lab roll, Camera roll, Sound roll, Date of Production, and a 32 character user definable text window.



Flexible Hardware Control

KeyLog TRACKER works with Evertz complete line of film footage encoders and HD Afterburners. With KEYLOG TRACKER's graphical configuration editor you choose the overall operating mode that fits your project. Within each mode you can adjust various hardware settings to achieve precisely the result your clients demand. An unlimited number of configurations can be saved and recalled, minimizing set up times for repeat clients and virtually eliminating operator error. A project's configuration is automatically recalled when the project is opened.

An electronic slate shows all the vital information at the start of each take, for master transfers where you cannot display the normal burn-ins throughout the take.

The status bar at the bottom of the screen allows you to see at a glance how your hardware is configured. In addition, the Encoder Status window constantly monitors KeyCode reading performance, incoming Time codes and other real time status information.

Data Logging

KEYLOG TRACKER allows you to choose the optimal method of logging transfer elements to the database. You let the project determine whether you will log only the head and tail of each roll for one light transfers, grab KeyCode or time code breaks for select take rolls, grab events on the fly from the keyboard, or interface to external edit controllers with the GPI interface. Pre-determined tag points can be entered into Daily Roll files to automate data capture on Synced Print transfers. Production data such as Scene and Take, Camera roll, Sound roll can be pre-entered before the telecine session to streamline the transfer process, or can be entered in real time during the transfer.

Data Management Functions

KEYLOG TRACKER's extensive data management capabilities are second to none. Projects can be organized by client, or production, or by operator - you decide. The spreadsheet style preview and editing of logged events allows you to quickly scan the transfer session and edit the database. Project wide viewing and sorting of events facilitates management of data on long form productions such as feature films. Reports can be sorted by VT roll, Camera roll, Scene/Take, KeyCode or Ink numbers to name a few.

The Event Tracker allows you to trim time codes, KeyCode and Ink numbers of in and out points together. Event cleanup functions remove unwanted events and overlaps from the list. KEYLOG TRACKER generates Film Transfer list files compatible with most non-linear editors.

- KEYLOG FTL, AVID ALE, TLC FLEx and Lightworks ODB formats are supported.

Desktop Configurability

The KEYLOG TRACKER desktop groups relevant information into separate windows, which can be positioned and sized to suit the colorist's preferences. A spreadsheet style display of logged events is fully configurable to view only the information that is needed for a client. Each user can save their favorite layout of the desktop when the system is shared by multiple colorists.

System Requirements

- CPU: Pentium II - 233 MHz or faster
- Operating System:
 - Win98 Second Edition (recommended)
 - WinNT 4 SP 4 or later, Win 2000, Win XPPro
- RAM: 128 MB recommended, 64 MB minimum
- mouse
- Video: 2 MB, 800 x 600 minimum
- CD-ROM
- Hard Disk: 20 MB Free
- Serial Ports: 2 available
- local or network printer for printing reports (recommended)
- sound card with speakers used to generate system sounds when logging (recommended)

Ordering Information:

Included with 4025TR and 9025 Series Film Footage Encoders. Upgrades available for older systems. Contact factory.

HD 4 x 1 Router

Model 7700R-4x1-HD

The 7700R-4x1-HD is a 4x1 router for the 7700FR with a 4 output DA on the output buss. The DA's features four auto-equalized inputs with four or reclocked outputs. The 7700R-4x1-HD is housed in the Evertz Multiframe, which is available in either a 3RU or 1RU version. The router has been designed to reclock at 1.5Gb/s. However, in non-reclocking mode it can also be used as a SMPTE 310M, DVB-ASI, M2S or SMPTE 259M distribution product.

Features

- Reclocking mode for SMPTE 292M (1.5 Gb/s) signals
- Non-reclocking mode for SMPTE 310M (nominal 19.4 Mb/s), SMPTE 259M, DVB-ASI or M2S
- Tally output upon loss of signal for quality monitoring

Status LEDs:

- Signal presence
- Module Health Status

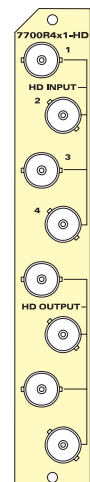
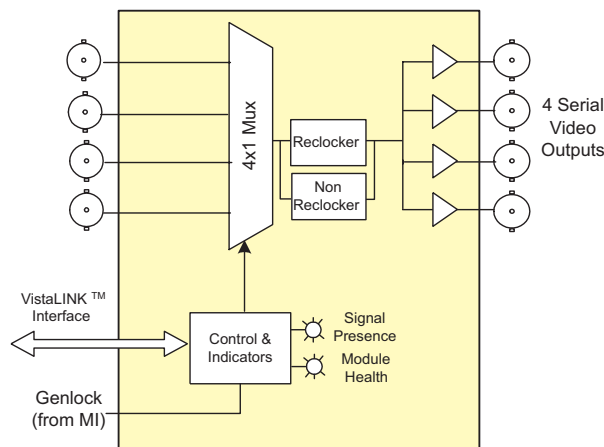
Input:

- SMPTE 292M (1.5 Gb/s) - Reclocking mode
- SMPTE 310M/259M, M2S or DVB-ASI - Non-reclocking mode
- Auto equalization to 130m (Belden 1694)

Output:

- 4 reclocked outputs
- Wideband jitter <0.2UI

7700R-4x1-HD Block Diagram



Specifications

Serial Video Input:

Standard:	SMPTE 292M
In Non-Reclock Mode:	SMPTE 310M, SMPTE 259M-A, B, C, D, DVB-ASI or M2S
Number of Inputs:	4
Connector:	1 BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic to 100m @ 1.5Gb/s with Belden 1694 (or equivalent)
Return Loss:	>15dB to 1.0 Gb/s, >12db up to 1.5 Gb/s

Serial Video Outputs:

Number of Outputs:	4
Standard:	SMPTE 292M
In Non-Reclock Mode:	SMPTE 310M, SMPTE 259M-A, B, C, D M2S, DVB-ASI
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	200ps nominal
Overshoot:	<10% of amplitude
Return Loss:	>15dB to 1.0 Gb/s >12db up to 1.5 Gb/s]
Wideband jitter:	<0.2UI

Physical:

Number of Slots:	1
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Electrical:

Voltage:	+ 12V DC
Power:	5 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Ordering Information:

7700R-4x1-HD	HD 4x1 Router
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

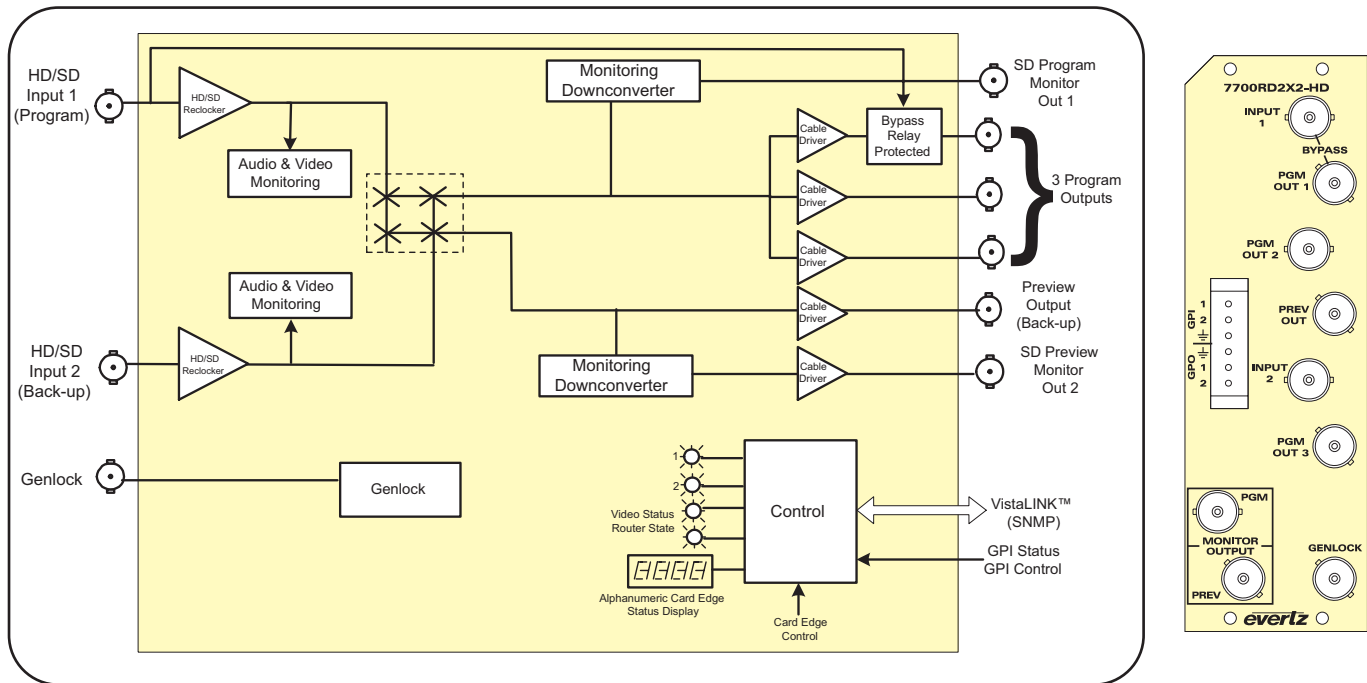
Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

2 X 2 HD/SD Router with Dual HD Down Converters



Model 7700RD2x2-HD



The 7700RD2x2-HD is a HD/SD SDI bypass router which includes monitoring downconverted outputs for HD inputs (for SD inputs, those monitoring outputs act as pass through outputs). This 7700 series module has 3 reclocked primary outputs and 1 reclocked secondary output.

The program output is bypass relay protected and provides protection on the program path. If module is removed from enclosure the program path is maintained.

The two inputs are being monitored at all times for video loss or invalid input (proper EAV/SAV structure and timing).

Status is provided using a number of methods.

- On Card edge 4 character alphanumeric display
- Card edge LED status for router state, signal presence, etc.
- Tally output on GPI's for router state
- SNMP reporting and monitoring via VistaLINK™ PRO or any SNMP compliant manager

Output selection and control of the selector can be achieved a number of methods.

- Contact closures (GPI control)
- Card edge control
- Via network control panels (9000NCP, 9000NCP2)
- VistaLINK™ provides a software GUI interface for control and monitoring of the device. VistaLINK™ can be used to manual control the switch or be configured to trigger a change based on specific errors and thresholds.

VistaLINK™ enables remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage operations including signal monitoring and module configuration from SNMP enabled control systems (Manager or NMS) locally or remotely.

2 X 2 HD/SD Router with Dual HD Down Converters

Features

- Switch point is controllable when a genlock reference is provided.
- Bypass relay protection on program output
- GPI control inputs
- GPI selector status outputs
- Downconverted preview and program output

Specifications

Serial Video Input:

Standard:	1.485Gb/s SMPTE 292M - SMPTE 274M, SMPTE 296M, SMPTE 349M 270Mb/s SMPTE 259M-C 525i/59.94 or 625i/50
Connector:	2 BNC per IEC 60169-8 Amendment 2
Input Equalization:	SD Automatic to 300m @ 270Mb/s and HD Automatic to 100m @ 1.5Gb/s with Belden 1694A or equivalent cable
Return Loss:	> 12dB up to 1.5GHz

Serial Video Output (Program/Preview):

Program Outputs:	3 (1 program bypass relay protected)
Preview Outputs:	1
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Rise/Fall Time:	200ps nominal (HD) or 900ps nominal (SD)
Overshoot:	< 10% of amplitude
Wideband Jitter:	< 0.2UI
Return Loss:	> 15dB up to 1.5GHz

Serial Video Output (Downconverted):

Standard:	SMPTE 259M
Outputs:	1 Program 1 Preview
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V \pm 0.5V
Overshoot:	< 10% of amplitude
Wideband Jitter:	< 0.2UI
Return Loss:	> 15dB up to 270MHz

Genlock Input:

Standard:	HD Tri-level Sync NTSC/PAL Color Black 1V p-p or Composite Bi-level sync (525i/59.94 or 625i/50) 300mV
Connector:	BNC per IEC 60169-8 Amendment 2 Termination 75 Ω (jumper selectable)

GPI Control Port:

Number:	4 (2 input, 2 output)
Type:	Opto-isolated, active low with internal pull-ups to +5 or +12V (jumper settable)
Connector:	6 pin removable terminal block
Signal Level:	Closure to ground

Electrical:

Voltage:	+12VDC
Power:	12 Watts
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of slots:	2
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Ordering Information:

7700RD2x2-HD	2x2 HD/SD router with Dual HD Downconverters
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Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Mini Master Desktop Control Panel

Model 9700DCP



Evertz is proud to offer the new 9700DCP Mini Master Desktop Control Panel. This robust control panel is a must for installations where operator control monitoring or interaction is required. The 9700DCP can control 1 or many Evertz Mini Master Control Switchers as well as the Evertz Downstream Media Keyers. Using fast Ethernet connectivity allows the 9700DCP panel to be added as a second control point for any of the network connected video processing devices. Automation, GPI, Remote Panel and now the new DCP option provides flexibility for every installation configuration imaginable.

The 9700 DCP includes a 640x480 TFT display screen with a touch pad overlay. The display is used to show audio levels that can be adjusted using the shaft encoder knobs directly below the display as well as set and save multiple user configurations. Custom programmable LED buttons offer status indications in 3 different colors as well as on-button display of source or function. A numeric keypad is provided for quick logo access.

Switching between channels is instantaneous. Auto discovery allows any channel to be added or removed without the need to restart the DCP panel. Custom configurable button layouts and on button LCD displays allow the operators to map the DCP layout to their own specifications. On panel control of logos is provided for Cue, In, Out, All Out, Horizontal, Vertical and Gain level settings.

Features

- Multi Channel Control
- Video Standard Independent
- Exceptional Ease of Use
- Outstanding channel branding
- Video/audio mixing control
- Full Size fully featured
- Integrated soft screen for set-up and monitoring
- Full color TFT touch screen display
- Active channel indication
- Multiple panels per channel
- Multi channel independent or ganged channel operation
- Multi User configurations
- Direct Program control
- Future proof for new feature additions
- Programmable LED source and function buttons
- Protected fade to black button
- Manual automation override
- Optional redundant power supply

Display:

TFT 640x480 integrated touch screen

Controls:

T-Bar for manual transitions
43 programmable LCD display buttons
59 illuminated control buttons
10 Shaft Encoders

Ethernet:

10/100 fast Ethernet

Serial:

Type RS-232 interface, 9 pin "D" connector for firmware updates

Electrical:

Power: 115/230V AC 50/60Hz 30VA
Safety: ETL Listed, Complies with EU Safety Directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Dimensions, surface 21"W x 12"H
Dimensions, tub 19.5"W x 9.5"H x 2.5"D (front) and
19.5"W x 9.5"H x 5.5"D (rear)

Weight:

15 lbs. (6.8 kg)

Ordering Information:

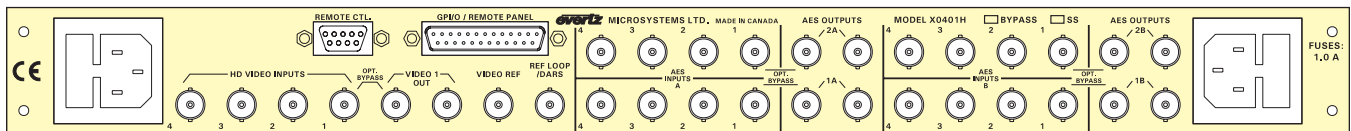
9700DCP Mini Master Desktop Control Panel

Ordering Options:

+2PS Redundant power supply

4 X I HDTV Router With Quad 4xI AES Audio

Model X-0401H



X-0401H-AES4 Rear Panel

The X-0401H HDTV four input routing switcher provides a convenient, low cost way to route high definition and standard definition serial digital signals. The X-0401H routers are used for 1.5Gb/s, 270Mb/s, 360Mb/s, 540Mb/s and DVB-ASI serial digital signals. The unit can also be used for SMPTE 310M(19.4Mb/s) signals with the reclocker turned off. When the unit is ordered with the Quad 4x1 AES router option the AES output busses can be used in an “audio follow video” mode, or can be broken away from the video buss. The routers features redundancy protection by providing dual power supply and bypass relay options.

The router electronics are housed in a 1RU rackmount frame and is controlled from the built-in front panel controls. Each model can also be purchased with an optional rack mount remote control panel that replaces the built-in control panel. All units can also be controlled by contact closures on the GPI control port or through the RS-232 or RS-422 serial remote control port using industry standard switcher protocols.

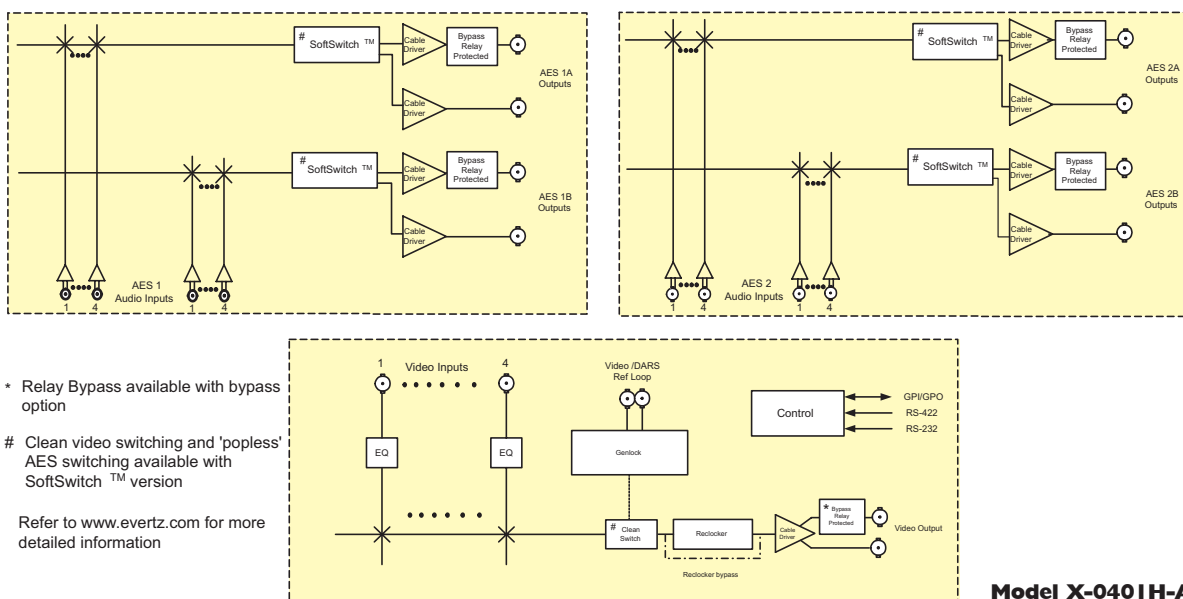
SoftSwitch™ Features (X-0401H-AES4-HSS)

Routers equipped with SoftSwitch™ have the following additional features. The video output has adjustable vertical timing with respect to the genlock input, and line synchronizers on the video inputs can accommodate differences in timing up to approximately +/- one half line providing clean video switches on the video output. All the AES outputs will have a continuous AES carrier locked to either the video genlock or DARS reference (when the DARS reference is used, Z bit alignment of the AES outputs is also guaranteed). The AES outputs use Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed on synchronous audio sources.

Features

- Supports SMPTE 292M (1.5Gb/s), SMPTE 259M (270, 360 or 540Mb/s) and DVB-ASI video signals
- Supports SMPTE 310M (19.4Mb/s) signals with reclocker turned off
- Switch point is fully controllable from the front panel
- Video input presence detection displayable on the front panel
- Front panel or remote control panel version available. Second control panel can be ordered for any version
- Programmable source input names available on the front panel
- Bypass verification test using main menu
- Field upgradeable firmware as new features become available
- Programmable tally output bus
- RS-422 remote control via GVG TEN-XL protocol
- SoftSwitch™ model provides clean video and popless AES switching
- Optional video and audio input relay bypass for power failure bypass protection
- Optional dual power configuration

4 X I HDTV Router With Quad 4xI AES Audio



Model X-0401H-AES4

Specifications

Video Inputs:

Standard: SMPTE 292M (1.5Gb/s), SMPTE 259M (270Mb/s, 360Mb/s, 540Mb/s) and DVB-ASI
SMPTE 310M with reclocker turned off

Number of Inputs: 4

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic up to 100m @1.485Gb/s with Belden 1694A (or equivalent) cable (50m on input 1 when the +HBP is installed) > 15 dB up to 1.5 Gb/s

Return Loss: Measured with respect to the Genlock reference

Input Timing (On X-0401H-AES4-HSS Routers): Measured with respect to the Genlock reference

Input Range: $\pm 1/2$ line when *Course phase* = 1, *Fine phase* = 0

Video Outputs:

Standard: Same as Input

Number of Outputs: 2 per buss, 1 buss

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V $\pm 0.5V$

Rise and Fall Time: 200ps for SMPTE 292
950ps for SMPTE 259M

Overshoot: <10% of amplitude

Return Loss: > 15 dB up to 1 Gb/s, > 12dB up to 1.5Gb/s

Jitter: < 0.2 UI

Output Timing (On X-0401H-AES4-HSS Routers): Measured with respect to the Genlock reference

Output Phase: Adjustable 1 line to a full frame of delay - set by *Coarse phase* parameter. The active video content will align to the nearest line

AES Audio Inputs (AES4 versions only):

Standards: SMPTE 276M single ended AES

Number of Inputs: 4 per buss, 4 busses

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1 V p-p $\pm 10\%$

AES Audio Outputs (AES4 versions only):

Standards: SMPTE 276M single ended AES

Number of Outputs: 2 per bus, 4 busses

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1V p-p

Reference: From Video Reference

On SoftSwitch™ model: menu selectable to Video or DARS

Video Reference:

Type: Menu selectable - depends on video format NTSC or PAL Color
Black 1 V p-p
Composite Bi-level sync (525i/59.94 or 625i/50) 300 mV
HD Tri-level Sync

Connectors: 2 BNC per IEC 60169-8 Amendment 2

Termination: High impedance loop through

Standard models: High impedance loop through or non-looping or 75 Ω non-looping (jumper selectable)

SoftSwitch™ model: High impedance loop through or non-looping or 75 Ω non-looping (jumper selectable)

DARS Reference (X-0401H-AES4-HSS Routers):

(DARS reference requires jumper configuration inside the router)

Standard: SMPTE 276M single ended AES

Type: Digital Audio Signal with 48KHz sample rate

Connector: BNC per IEC 60169-8 Amendment 2

Termination: Inactive or High impedance non-looping or 75 Ω non-looping (jumper selectable)

Signal Level: 1V p-p

Freq. Lock Range: ± 100 ppm from nominal

GPI Control Port:

Number of Inputs: 8 opto-isolated, programmable functions

Number of Outputs: 4 sets of relay contacts, normally closed, programmable functions

Relay Max Current: 1 A at 30 V DC

Serial Remote Control:

Standard: RS-232 or RS-422, programmable baud rate

Connector: 9 pin female "D"

Protocol: GVG Ten XL ASCII, master or slave or Remote Control Panel

Remote Control Panel Port:

Standard: RS-422, 9600 baud rate

Connector: 6 pins on GPIO 25 pin female "D"

Protocol: Remote Control Panel

Physical:

Dimensions: 19" W x 1.75" H x 7.75" D.
(483mm W x 45mm H x 196mm D)

Weight: 8 lbs. (3.5Kg)

Electrical:

Voltage: Auto ranging 100 - 240 Volts AC, 50/60 Hz 30VA

Fuse Rating: 250 V, 1 amp time delay

Safety: ETL Listed, complies with EU safety directives

EMI/RFI: Complies with FCC Part 15 Class A regulations
Complies with EU EMC Directive

Ordering Information:

X-0401H 4x1 HDTV video router

X-0401H-AES4 4x1 HDTV video router with 4 (4x1) AES busses

X-0401H-AES4-HSS 4x1 HDTV video router with 4 (4x1) AES busses and SoftSwitch™

Ordering Options:

+HBP Optional bypass relay

+2PS Redundant power supply

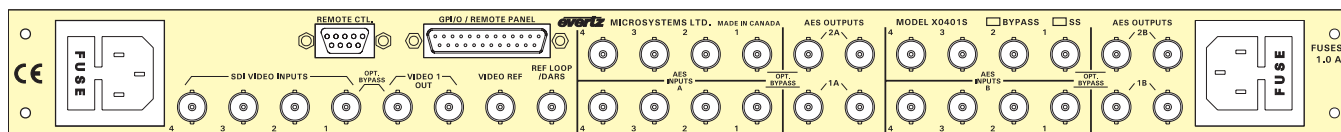
+RCP Rackmount remote control panel (replaces front control panel)

Accessories:

X-0401H-PANEL Additional Remote Control Panel (works in addition to front control panel)

4 X I SDI Router With Quad 4x1 AES Audio

Model X-0401S



X-0401S-AES4 Rear Panel

The X-0401S SDTV four input routing switcher provides a convenient, low cost way to route standard definition serial digital signals. The X-0401S router is used for 270, 360, 540Mb/s and DVB-ASI serial digital signals. The unit can also be used for SMPTE 310M(19.4Mb/s) signals with the reclocker turned off. When the unit is ordered with the Quad 4x1 AES router options the AES output busses can be used in an “audio follow video” mode, or can be broken away from the video buss. The routers feature redundancy protection by providing dual power supply and bypass relay options.

The router electronics are housed in a 1RU rackmount frame and is controlled from the built-in front panel controls. Each model can also be purchased with an optional rack mount remote control panel that replaces the built-in control panel. All units can also be controlled by contact closures on the GPI control port or through the RS-232 or RS-422 serial remote control port using industry standard switcher protocols.

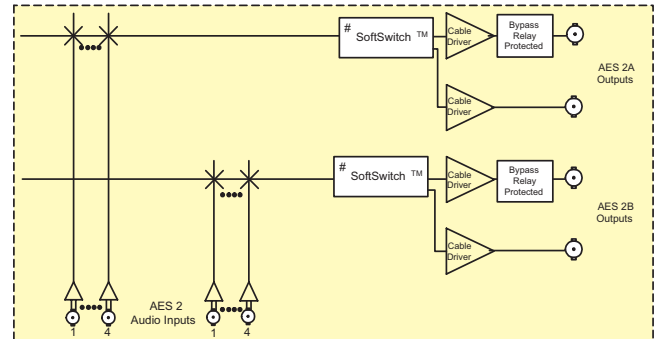
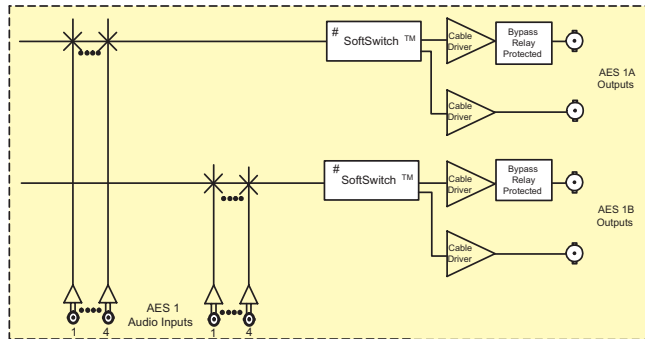
SoftSwitch™ Features (X-0401S-AES4-SS)

Routers equipped with SoftSwitch™ have the following additional features. The video output has adjustable vertical timing with respect to the genlock input, and line synchronizers on the video inputs can accommodate differences in timing up to approximately +/- one half line providing clean video switches on the video output. All the AES outputs will have a continuous AES carrier locked to either the video genlock or DARS reference (when the DARS reference is used, Z bit alignment of the AES outputs is also guaranteed). The AES outputs use Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed on synchronous audio sources.

Features

- Supports SMPTE 259M (270Mb/s,360Mb/s,540Mb/s) or DVB-ASI video signals
- Units support SMPTE 310M (19.4 Mb/s) with reclocker turned off
- Units can be genlocked to an external source so that a “clean switch” can be achieved.
- SoftSwitch™ equipped models provide clean video switches and popless AES switching audio outputs
- Switch point is fully controllable from the front panel.
- Video input presence detection displayable on the front panel.
- Front panel or Remote control panel versions available. Second control panel can be ordered for either version
- Programmable source input names available on the front panel.
- Programmable parallel GPI control and tallies.
- Serial remote control via GVG TEN-XL protocol (master or slave)
- Field upgradeable firmware as new features become available
- Optional video and audio input relay bypass for power failure bypass protection. (Bypass verification test from front panel menu)
- Optional dual power supplies.

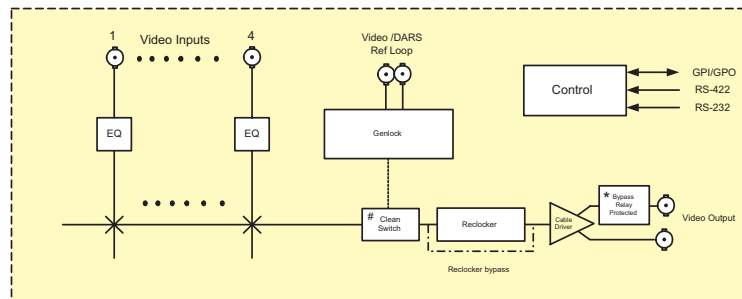
4 X 1 SDI Router With Quad 4x1 AES Audio



* Relay Bypass available with bypass option

Clean video switching and 'popless' AES switching available with SoftSwitch™ version

Refer to www.evertz.com for more detailed information



Model X-0401S

Specifications

SD Video Inputs:

Standard: SMPTE 259M (270Mb/s, 360Mb/s, 540Mb/s) and DVB-ASI
SMPTE 310M with reclocker turned off

Number of Inputs: 4

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic up to 250m @ 270 Mb/s with Belden 8281 (or equivalent) cable

Return Loss: > 15 dB up to 540 Mb/s

Input Timing (On X-0401S-AES4-SS Routers): Measured with respect to the Genlock reference

Input Range: $\pm 1/2$ line when *Course phase* = 1, *Fine phase* = 0

SD Video Outputs:

Standard: Same as Input

Number of Outputs: 2 per buss, 1 buss

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V ± 0.5 V

Rise and Fall Time: 950ps nominal

Overshoot: <10% of amplitude

Return Loss: > 15 dB up to 540 Mb/s

Jitter: < 0.2 UI

Output Timing (On X-0401S-AES4-SS Routers): Measured with respect to the Genlock reference

Output Phase: Adjustable 1 line to a full frame of delay - set by *Coarse phase* parameter. The active video content will align to the nearest line

AES Audio Inputs (AES4 versions only):

Standards: SMPTE 276M single ended AES

Number of Inputs: 4 per buss, 4 busses

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1V p-p $\pm 10\%$

AES Audio Outputs (AES4 versions only):

Standards: SMPTE 276M single ended AES

Number of Outputs: 2 per buss, 4 busses

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1V p-p

Reference: From Video Reference

On SoftSwitch™ model, menu selectable to Video or DARS

Video Reference:

Type: Menu selectable - depends on video format
NTSC or PAL Color Black 1 V p-p
Composite Bi-level sync (525i/59.94 or 625i/50) 300 mV

Connectors: 2 BNC per IEC 60169-8 Amendment 2

Termination

Standard models: High impedance loop through

SoftSwitch™ model: High impedance loop through or non-looping or 75 Ω non-looping (jumper selectable)

DARS Reference (On X0401S-AES4-SS Routers):

(DARS reference requires jumper configuration inside the router)

Type: Digital Audio Signal with 48khz sample rate.

Standard: SMPTE 276M single ended AES

Connector: BNC per IEC 60169-8 Amendment 2

Termination: Inactive or High impedance non-looping or 75 Ω non looping (jumper selectable)

Signal Level: 1V p-p

Freq. Lock Range: ± 100 ppm from nominal

GPI Control Port:

Number of Inputs: 8 opto-isolated, programmable functions

Number of Outputs: 4 sets of relay contacts, normally closed, programmable functions

Relay Max Rating: 1 A at 30 V DC

Serial Remote Control:

Standard: RS-232 or RS-422, programmable baud rate

Connector: 9 pin female "D"

Protocol: GVG Ten XL ASCII, master or slave or remote control panel

Remote Control Panel Port:

Standard: RS-422, 9600 baud rate

Connector: 6 pins on GPIO 25 pin female "D"

Protocol: Remote Control Panel

Physical:

Dimensions: 19" W x 1.75" H x 7.75" D.
(483mm W x 45mm H x 196mm D)

Weight: 8 lbs. (3.5Kg)

Electrical:

Voltage: Auto ranging 100 - 240 Volts AC, 50/60 Hz 30VA

Fuse Rating: 250 V, 1 amp time delay

Safety: ETL Listed, complies with EU safety directives

EMI/RFI: Complies with FCC Part 15 Class A regulations
Complies with EU EMC Directive

Ordering Information:

X-0401S 4X1 SDI video router

X-0401S-AES4 4x1 SDI video router with 4 (4x1) AES busses

X-0401S-AES4-SS 4x1 SDI video router with 4 (4x1) AES busses and SoftSwitch™

X-0401S-ATSC

Ordering Options:

+BP Optional bypass relay

+2PS Redundant power supply

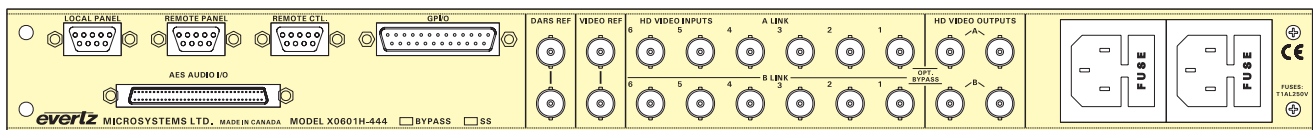
+RCP Rackmount remote control panel (replaces front control panel)

Accessories:

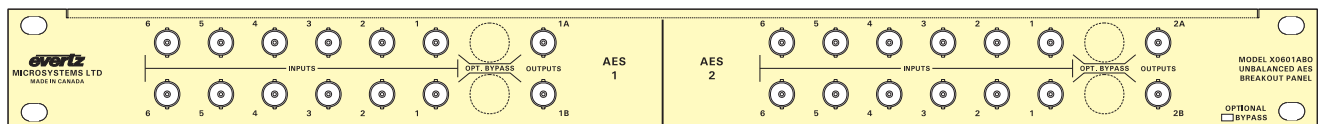
X-0401S-PANEL Additional Remote Control Panel (works in addition to front control panel)

6 X I HDTV Dual Link Router With Quad 6xI AES Audio

Model X-0601H-444



X-0601H Rear Panel



X0601 Audio AES Breakout Panel

(Qty 1 with AES4 option, Note: the bypass relay is optional)

The X-0601H-444 HDTV six input video router provides a convenient, low cost way to route dual link 1.5Gb/s HDTV serial digital signals. When the unit is ordered with the 6x1 AES router option the AES output busses can be used in an “audio follow video” mode, or can be broken away from the video buss. The routers feature redundancy protection by providing dual power supply and bypass relay options.

The router electronics are housed in a 1RU rackmount frame and is controlled from the built-in front panel controls. Each model can also be purchased with an optional rack mounted remote control panel that replaces the built-in control panel. All units can also be controlled by contact closures on the GPI control port or through the RS-232 serial remote control port using industry standard switcher protocols.

Optional SoftSwitch™ Feature (+HSS Option)

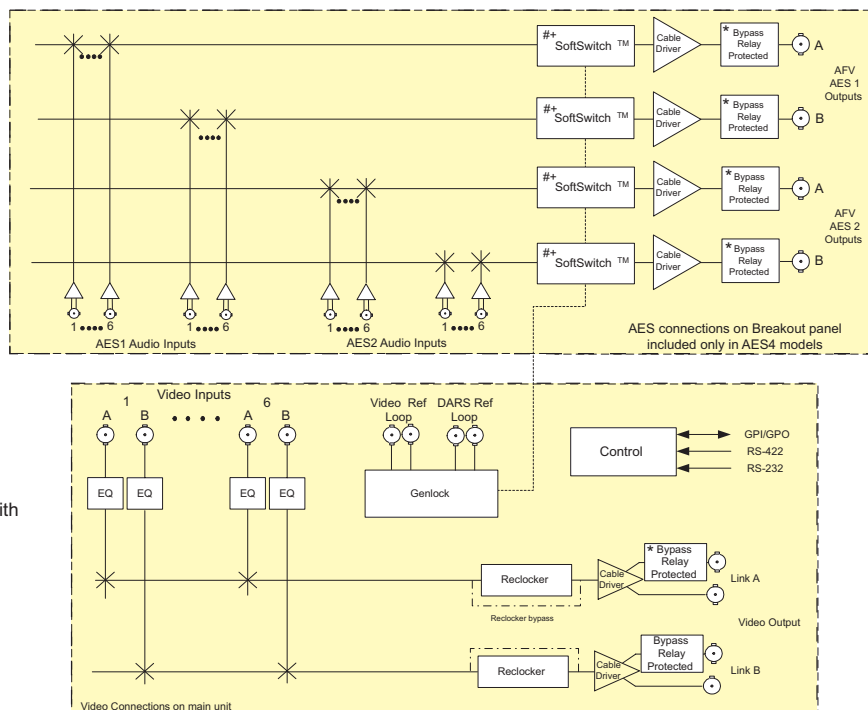
Routers equipped with the SoftSwitch™ option have the following additional features. All the AES outputs will have a continuous AES carrier locked to either the video genlock or DARS reference (when the DARS reference is used, Z bit alignment of the AES outputs is also guaranteed). The AES outputs use Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed on synchronous audio sources.

Features

- Supports dual link SMPTE 372M and single link SMPTE 292M (1.5 Gb/s) video signals
- Can be operated in a non-reclock mode to pass SMPTE 259M video signals
- Optional SoftSwitch™ technology eliminates hot-switch audio pops on AES outputs
- Switch line is fully controllable from the front panel
- Video input presence detection displayable on the front panel
- Front panel or remote control panel versions available. Second control panel can be ordered for either version
- Parallel GPI and RS-232 serial control
- Programmable source input names available on the front panel
- Optional video and audio input relay bypass for power failure bypass protection
- Optional dual power supplies
- Field upgradeable firmware as new features become available

6 X I HDTV Dual Link Router With Quad 6xI AES Audio

Model X-0601H-444



- * Relay Bypass available with bypass option
- # 'Popless' AES switching available with SoftSwitch™ version

Refer to www.evertz.com for more detailed information

Specifications

HD Video Inputs:

Standard: SMPTE 372M dual link (1.5 Gb/s) or 292M (1.5 Gb/s)
SMPTE 259M with reclocker and embedded SoftSwitch™ turned off

Number of Inputs: 6 dual link pairs

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic 100m @ 1.485Gb/s with Belden 1694A (or equivalent) (50m on input 1 with +HBP option)

Return Loss: > 15dBV up to 1.5Gb/s

HD Video Outputs:

Standard: Same as input

Number of Outputs: 2 dual link pairs

Input 1 bypass protected with +HBP option

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V ±0.5V

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Return Loss: > 15dB up to 1Gb/s, >12dB up to 1.5Gb/s

Jitter: <0.2UI

AES Audio Inputs (on AES4 versions):

Standard: SMPTE 276M single ended AES

Number of Inputs: 6 per buss, 4 busses optional

Connector: BNC per IEC 60169-8 Amendment 2 on breakout panels provided

AES Audio Outputs (on AES4 versions):

Standard: SMPTE 276M single ended AES

Number of Outputs: 2 per buss, 4 busses optional

Input 1 bypass protected with +HBP option

Connector: BNC per IEC 60169-8 Amendment 2 on breakout panels provided

Signal Level: 1V p-p

Reference: From Video General Reference
DARS reference available with +HSS option

Video Reference:

Type: Menu selectable - depends on video format
HD Tri-level Sync
NTSC or PAL Color Black 1 V p-p
Composite Bi-level sync (525i/59.94 or 625i/50) 300 mV

Connectors: 2 BNC per IEC 60169-8 Amendment 2

Termination: High impedance loop through

DARS Reference (On +HSS Optioned Routers):

Type: Digital Audio Signal with 48kHz sample rate

Standard: SMPTE 276M single ended AES

Connector: 2 BNC per IEC 60169-8 Amendment 2

Termination: High impedance loop through

Signal Level: 1V p-p

Freq. Lock Range: +/- 100ppm from nominal

GPI Control Port:

Number of Inputs: 14 opto-isolated, programmable functions

Number of Outputs: 4 sets of relay contacts, normally closed, programmable functions

Relay Max Rating: 1A at 30VDC

Serial Remote Control:

Standard: RS-232 or RS422, programmable baud rate

Connector: 9 pin female "D"

Protocol: GVG Ten XL ASCII, master or slave or remote control panel

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
(483mm W x 45mm H x 477mm D)

Weight: 8 lbs. (3.5Kg)

Electrical:

Voltage: Auto ranging 100-240VAC 50/60 Hz 30VA

Fuse Rating: 250 V, 1 amp time delay

Safety: ETL Listed
Complies with EU safety directives

EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

X-0601H-444 6x1 Dual Link HDTV Router

X-0601H-444-AES4 6x1 Dual Link HDTV video router with 4(6x1) AES busses (includes 1 AES breakout panel)

Ordering Options:

+HSS SoftSwitch™ Option

+HBP Bypass Relay Protection

+2PS Redundant Power Supply

+RCP Rack Mount Remote Control Panel (replaces front control panel)

+B Balanced AES Audio Breakout Panel (must choose when ordering AES4 version)

+U Unbalanced AES Audio Breakout Panel (must choose when ordering AES4 version)

Accessories:

X-0601H-444-PANEL Additional Remote Control Panel (works in addition to front control panel)

X-0601ABO Unbalanced AES Audio Breakout Panel

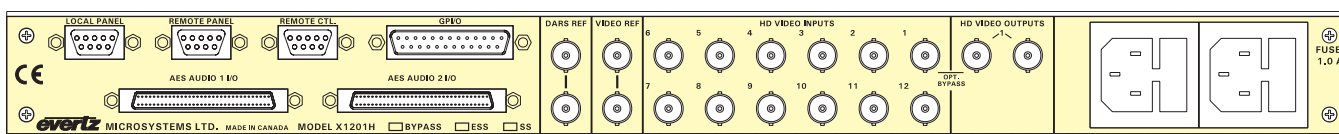
X-0601ABOB Balanced AES Audio Breakout Panel

X-0601ABOB-BP Balanced AES Audio Breakout Panels (with Bypass Relays)

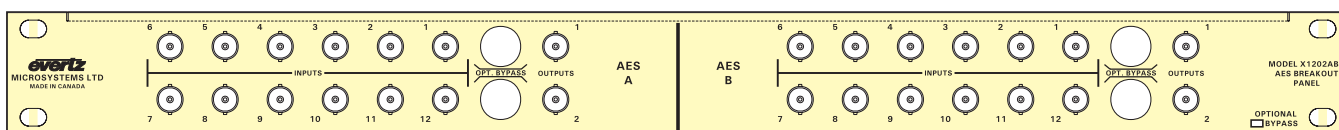
X-0601ABO-BP Unbalanced AES Audio Breakout Panel (with Bypass Relays)

I2 X I HDTV Router With Dual or Quad 12x1 AES Audio

Model X-1201H



X-1201H Rear Panel



X1201 Audio AES Breakout Panel

(Qty 1 with AES option, Qty 2 with AES4 option, Note: the bypass relay is optional)

The X-1201H HDTV twelve input video router provides a convenient, low cost way to route standard and high definition serial digital signals. The X-1201H routers are used for 1.5Gb/s HDTV serial digital signals. When the unit is ordered with the Dual 12x1 AES router or Quad 12x1 AES router options the AES output busses can be used in an "audio follow video" mode, or can be broken away from the video buss. The routers feature redundancy protection by providing dual power supply and bypass relay options.

The router electronics are housed in a 1RU rackmount frame and is controlled from the built-in front panel controls. Each model can also be purchased with an optional rack mounted remote control panel that replaces the built-in control panel. All units can also be controlled by contact closures on the GPI control port or through the RS-232 serial remote control port using industry standard switcher protocols.

Optional SoftSwitch™ Features (+HSS Option)

Routers equipped SoftSwitch™ option have the following additional features. The video output has adjustable vertical timing with respect to the genlock input, and line synchronizers on the video inputs can accommodate differences in timing up to approximately +/- one half line providing clean video switches on the video output (for HD video only). All the AES outputs will have a continuous AES carrier locked to either the video genlock or DARS reference (when the DARS reference is used, Z bit alignment of the AES outputs is also guaranteed). The AES outputs use Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed on synchronous audio sources.

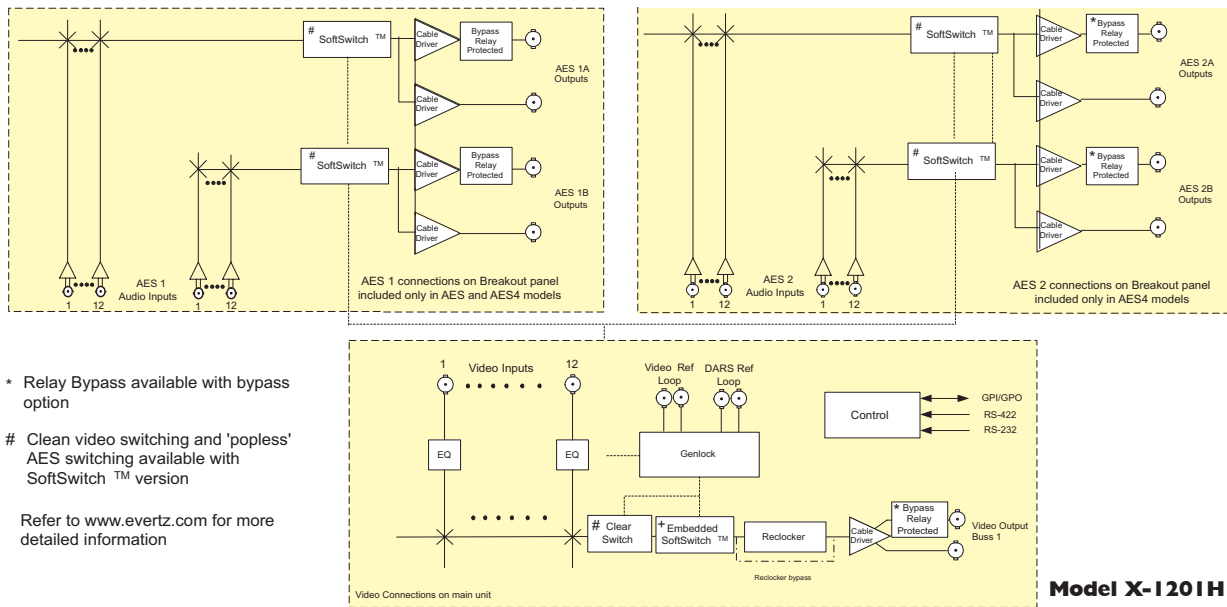
Optional Embedded SoftSwitch™ Features (+HES Option)

Routers equipped with the Embedded SoftSwitch™ option have all the features of the SoftSwitch™ versions as well as the following additional features. The embedded audio on the Video 1 buss uses Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed. Embedded SoftSwitch™ is performed on all 4 audio groups.

Features

- Supports SMPTE 292M (1.5 Gb/s) video signals
- Can be operated in a non-relock mode to pass SMPTE 259M video signals
- Units can be genlocked to an external source so that a "clean switch" can be achieved.
- Autotiming of V1 buss inputs to perform a clean video switch when SoftSwitch™ or Embedded SoftSwitch™ option is installed
- Optional SoftSwitch™ technology eliminates hot-switch audio pops on AES outputs following V1 buss
- Optional Embedded SoftSwitch™ technology eliminates hot-switch audio pops on embedded audio on V1 buss
- With embedded SoftSwitch™ option, SoftSwitch™ is performed on all 4 audio groups
- Switch line is fully controllable from the front panel.
- Video input presence detection displayable on the front panel.
- Front panel or remote control panel versions available. Second control panel can be ordered for either version
- Parallel GPI and RS-232 serial control.
- Programmable source input names available on the front panel.
- Optional video and audio input relay bypass for power failure bypass protection.
- Optional dual power supplies.
- Field upgradeable firmware as new features become available

12 X 1 HDTV Router With Dual or Quad 12x1 AES Audio



* Relay Bypass available with bypass option

Clean video switching and 'popless' AES switching available with SoftSwitch™ version

Refer to www.evertz.com for more detailed information

Model X-1201H

Specifications

HD Video Inputs:

Standard: SMPTE 292M (1.5 Gb/s)
SMPTE 259M with line synchronizer, reclocker and embedded SoftSwitch™ turned off

Number of Inputs: 12

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic 100m @ 1.485Gb/s with Belden 1694A (or equivalent) (50m on input 1 with +HBP option)

Return Loss: > 15dBV up to 1.5Gb/s

Input Timing (On +HSS and +HES Optional Routers): Measured with respect to the Genlock reference

Input Range: $\pm 1/2$ line when *Course phase* = 1, *Fine phase* = 0
Auto timer for HD Video only

HD Video Outputs:

Standard: Same as input

Number of Outputs: 2 per buss, 1 buss
Input 1 bypass protected with +HBP option

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V $\pm 0.5V$

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Return Loss: > 15dB up to 1Gb/s, >12dB up to 1.5Gb/s

Jitter: <0.2UI

Output Timing (On +HSS and +HES Optional Routers): Measured with respect to the Genlock reference

Output Phase: Adjustable 1 line to a full frame of delay - set by *Course phase* parameter. The active video content will align to the nearest line only. Output phasing for HD Video only

AES Audio Inputs:

Standard: SMPTE 276M single ended AES

Number of Inputs: 12 per buss, 2 or 4 busses optional

Connector: BNC per IEC 60169-8 Amendment 2 on breakout panels provided

AES Audio Outputs:

Standard: SMPTE 276M single ended AES

Number of Outputs: 2 per buss, 2 or 4 busses optional
Input 1 bypass protected with +HBP option

Connector: BNC per IEC 60169-8 Amendment 2 on breakout panels provided

Signal Level: 1V p-p

Reference: From Video General Reference
DARS reference available with +HSS or +HES options

Video Reference:

Type: Menu selectable - depends on video format
HD Tri-level Sync
NTSC or PAL Color Black 1 V p-p
Composite Bi-level sync (525/59.94 or 625/50) 300 mV

Connectors: 2 BNC per IEC 60169-8 Amendment 2

Termination: High impedance loop through

DARS Reference (On +HSS and +HES Optional Routers):

Type: Digital Audio Signal with 48kHz sample rate

Standard: SMPTE 276M single ended AES

Connector: 2 BNC per IEC 60169-8 Amendment 2

Termination: High impedance loop through

Signal Level: 1V p-p

Freq. Lock Range: ± 100 ppm from nominal

GPI Control Port:

Number of Inputs: 14 opto-isolated, programmable functions

Number of Outputs: 4 sets of relay contacts, normally closed, programmable functions

Relay Max Rating: 1A at 30VDC

Serial Remote Control:

Standard: RS-232 or RS422, programmable baud rate

Connector: 9 pin female "D"

Protocol: GVG Ten XL ASCII, master or slave or remote control panel

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
(483mm W x 45mm H x 477mm D)

Weight: 8 lbs. (3.5Kg)

Electrical:

Voltage: Auto ranging 100-240VAC 50/60 Hz 30VA

Fuse Rating: 250 V, 1 amp time delay

Safety: ETL Listed
Complies with EU safety directives

EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

X-1201H 12X1 HDTV video router

X-1201H-AES 12x1 HDTV video router with 2(12x1) AES busses (includes 1 AES breakout panel)

X-1201H-AES4 12x1 HDTV video router with 4(12x1) AES busses (includes 2 AES breakout panels)

Ordering Options:

+HSS SoftSwitch™ Option

+HES Embedded SoftSwitch™ Option

+HBP Bypass Relay Protection

+2PS Redundant Power Supply

+RCP Rack Mount Remote Control Panel (replaces front control panel)

+B Balanced AES Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)

+U Unbalanced AES Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)

Accessories:

X-1201H-PANEL Additional Remote Control Panel (works in addition to front control panel)

X-1201ABO Unbalanced AES Audio Breakout Panel (for all 1201 series routers)

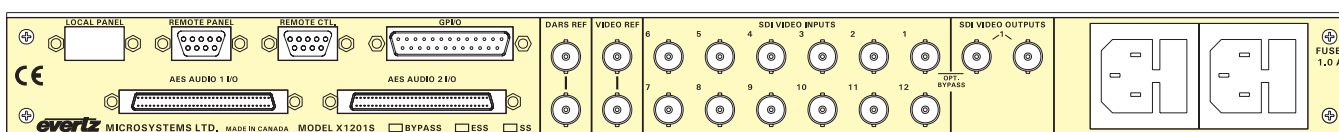
X-1201ABOB Balanced AES Audio Breakout Panel (for all 1201 series routers)

X-1201ABOB-BP Balanced AES (with Bypass Relays) Audio Breakout Panels (for all 1201 series routers)

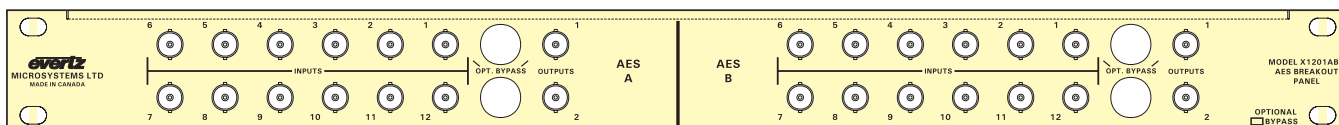
X-1201ABO-BP Unbalanced AES (with Bypass Relays) Audio Breakout Panel (For all 1201 series routers)

12 X 1 SDI Router With Dual or Quad 12x1 AES Audio

Model X-1201S



X1201S Rear Panel



X1201 Audio AES Breakout Panel

(Qty 1 with AES option, Qty 2 with AES4 option, Note: the bypass relay is optional)

The X-1201S SDTV twelve input routing switcher provides a convenient, low cost way to route standard definition serial digital signals. The X-1201S routers are used for 270, 360, 540Mb/s and DVB-ASI serial digital signals. When the unit is ordered with the Dual 12x1 AES router or Quad 12x1 AES router options the AES output busses can be used in an "audio follow video" mode, or can be broken away from the video buss. The routers feature redundancy protection by providing dual power supply and bypass relay options.

The router electronics are housed in a 1RU rackmount frame and is controlled from the built-in front panel controls. Each model can also be purchased with an optional rack mount remote control panel that replaces the built-in control panel. All units can also be controlled by contact closures on the GPI control port or through the RS-232 or RS-422 serial remote control port using industry standard switcher protocols.

Optional SoftSwitch™ Features (+SS Option)

Routers equipped with the SoftSwitch™ option have the following additional features. The video output has adjustable vertical timing with respect to the genlock input, and line synchronizers on the video inputs can accommodate differences in timing up to approximately +/- one half line providing clean video switches on the video output. All the AES outputs will have a continuous AES carrier locked to either the video genlock or DARS reference (when the DARS reference is used, Z bit alignment of the AES outputs is also guaranteed). The AES outputs use Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed on synchronous audio sources.

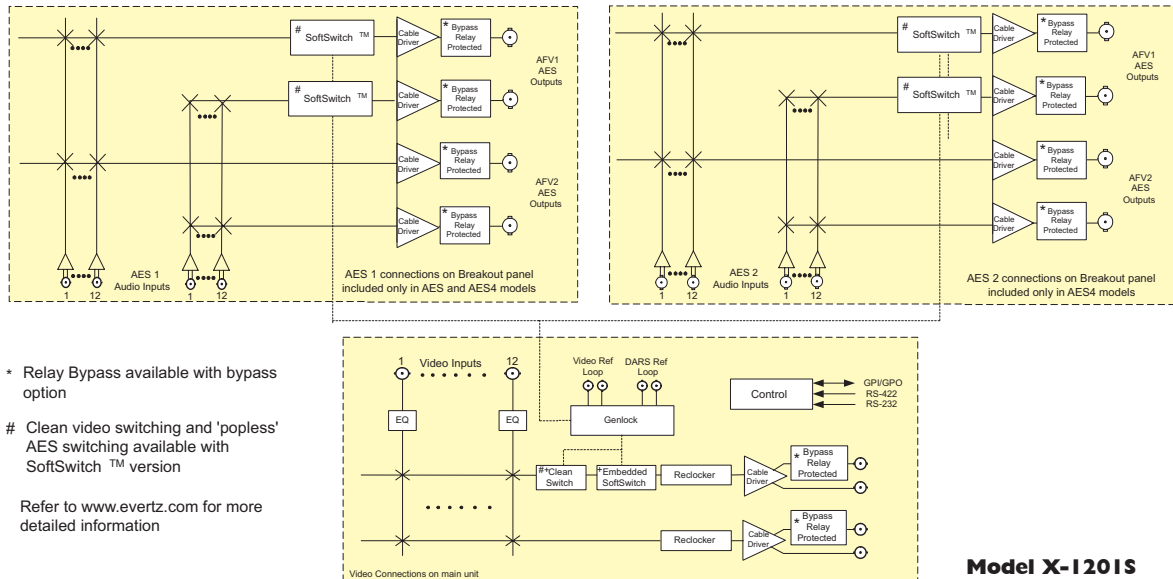
Optional Embedded SoftSwitch™ Features (+ES Option)

Routers equipped with the Embedded SoftSwitch™ option have all the features of the SoftSwitch™ versions as well as the following additional features. The embedded audio on the Video 1 buss uses Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed. Embedded SoftSwitch™ is performed on all 4 audio groups.

Features

- Supports SMPTE 259M (270Mb/s, 360Mb/s, 540Mb/s) video signals
- Units can be genlocked to an external source so that a "clean switch" can be achieved.
- Autotiming of V1 buss inputs to perform a clean video switch when SoftSwitch™ or Embedded SoftSwitch™ option is installed
- Optional SoftSwitch™ technology eliminates hot-switch audio pops on AES outputs following V1 buss
- Optional Embedded SoftSwitch™ technology eliminates hot-switch audio pops on embedded audio on V1 buss
- With embedded SoftSwitch™ option, SoftSwitch™ is performed on all 4 audio groups
- Switch line is fully controllable from the front panel.
- Video input presence detection displayable on the front panel.
- Front panel or remote control panel versions available. Second control panel can be ordered for either version
- Parallel GPI and RS-232 serial control.
- Programmable source input names available on the front panel.
- Optional video and audio input relay bypass for power failure bypass protection.
- Optional dual power supplies.
- Field upgradeable firmware as new features become available

12 X 1 SDI Router With Dual or Quad 12x1 AES Audio



* Relay Bypass available with bypass option

Clean video switching and 'popless' AES switching available with SoftSwitch™ version

Refer to www.evertz.com for more detailed information

Model X-1201S

Specifications

SDI Video Inputs:

Standard: SMPTE 259M (270Mb/s, 360Mb/s, 540Mb/s) and DVB-ASI
Number of Inputs: 12
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic up to 250m @ 270 Mb/s with Belden 8281 (or equivalent) cable
Return Loss: > 15 dB up to 540 Mb/s
Input Timing (On +SS and +ES Optioned Routers):
Input Range: Measured with respect to the Genlock reference
 $\pm 1/2$ line when *Course phase* = 1, *Fine phase* = 0

SDI Video Outputs:

Standard: Same as Input
Number of Outputs: 2 per buss, 1 buss
 Input 1 bypass protected with +BP option
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 540 Mb/s
Jitter: < 0.2 UI
Output Timing (On +SS and +ES Optioned Routers):
Output Phase: Measured with respect to the Genlock reference
 Adjustable 1 line to a full frame of delay - set by *Course phase* parameter. The active video content will align to the nearest line only.

AES Audio Inputs:

Standard: SMPTE 276M single ended AES
Number of Inputs: 12 per buss, 2 or 4 busses optional
Connector: BNC per IEC 60169-8 Amendment 2 on breakout panels provided

AES Audio Outputs:

Standard: SMPTE 276M single ended AES
Number of Outputs: 2 per buss, 2 or 4 busses optional
 Input 1 bypass protected with +BP option
Connector: BNC per IEC 60169-8 Amendment 2 on breakout panels provided
Signal Level: 1V p-p
Reference: Video Genlock Reference
 DARS reference available with +SS or +ES options

Video Reference:

Type: Menu selectable - depends on video format
 NTSC or PAL Color Black 1 V p-p
 Composite Bi-level sync (525i/59.94 or 625i/50) 300 mV
Connectors: 2 BNC per IEC 60169-8 Amendment 2
Termination: High impedance loop through

DARS Reference (On +SS and +ES Optioned Routers):

Type: Digital Audio Signal with 48kHz sample rate
Standard: SMPTE 276M single ended AES
Connector: 2 BNC per IEC 60169-8 Amendment 2
Termination: High impedance loop through
Signal Level: 1V p-p
Freq. Lock Range: +/- 100ppm from nominal

GPI Control Port:

Number of Inputs: 14 opto-isolated, programmable functions
Number of Outputs: 4 sets of relay contacts, normally closed, programmable functions
Relay Max Rating: 1A at 30VDC

Serial Remote Control:

Standard: RS-232 or RS422, programmable baud rate
Connector: 9 pin female "D"
Protocol: GVG Ten XL ASCII, master or slave or remote control panel

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
 (483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Voltage: Auto ranging 100-240VAC 50/60 Hz 30VA
Fuse Rating: 250 V, 1 amp time delay
Safety: ETL Listed
 Complies with EU safety directives
 Complies with FCC Part 15 Class A
 EU EMC Directive

Ordering Information:

X-1201S 12X1 SDI video router
X-1201S-AES 12x1 SDI video router with 2(12x1) AES busses (includes 1 AES breakout panel)
X-1201S-AES4 12x1 SDI video router with 4(12x1) AES busses (includes 2 AES breakout panels)

Ordering Options:

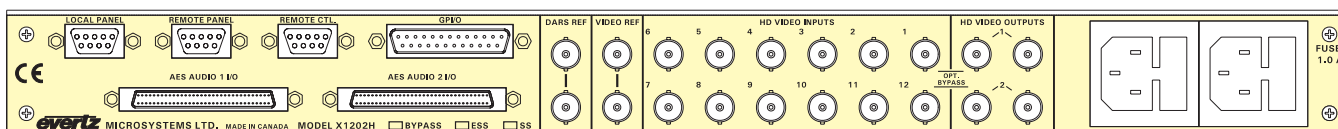
+SS SoftSwitch™ Option
+ES Embedded SoftSwitch™ Option
+BP Bypass Relay Protection
+2PS Redundant Power Supply
+RCP Rack Mount Remote Control Panel (replaces front control panel)
+B Balanced AES Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)
+U Unbalanced AES Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)

Accessories:

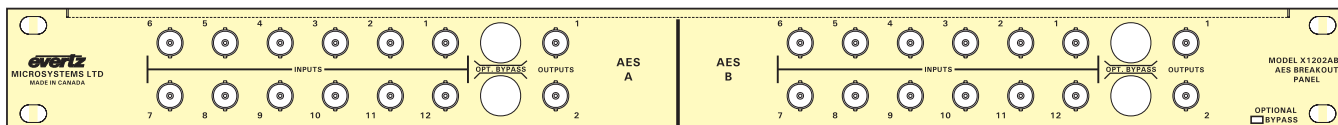
X-1201S-PANEL Additional remote control panel (works in addition to front control panel)
X-1201ABO Unbalanced AES Audio Breakout Panel (for all 1201 series routers)
X-1201ABOB Balanced AES Audio Breakout Panel (for all 1201 series routers)
X-1201ABOB-BP Balanced AES (with Bypass Relays) Audio Breakout Panels (for all 1201 series routers)
X-1201ABO-BP Unbalanced AES (with Bypass Relays) Audio Breakout Panel (For all 1201 series routers)

12 X 2 HDTV Router With Dual or Quad 12x2 AES Audio

Model X-1202H



X-1202H Rear Panel



X1202 Audio AES Breakout Panel

(Qty 1 with AES option, Qty 2 with AES4 option, Note: the bypass relay is optional)

The X-1202H HDTV twelve input video router provides a convenient, low cost way to route standard and high definition serial digital signals. The X-1202H routers are used for 1.5Gb/s HDTV serial digital signals. It features redundancy protection by providing optional dual power supply and relay bypass options. When the unit is ordered with the Dual 12x2 AES router or Quad 12x2 AES router options the AES output busses can be used in an "audio follow video" mode, or can be broken away from the video buss. The routers feature redundancy protection by providing dual power supply and bypass relay options.

The router electronics are housed in a 1RU rackmount frame and is controlled from the built-in front panel controls. Each model can also be purchased with an optional rack mounted remote control panel that replaces the built-in control panel. All units can also be controlled by contact closures on the GPI control port or through the RS-232 or RS-422 serial remote control port using industry standard switcher protocols.

Optional SoftSwitch™ Features (+HSS Option)

Routers equipped SoftSwitch™ option have the following additional features. The Video 1 output has adjustable vertical timing with respect to the genlock input, and line synchronizers on the video inputs can accommodate differences in timing up to approximately +/- one half line providing clean video switches on the V1 output (for HD Video only). All the AES outputs will have a continuous AES carrier locked to either the video genlock or DARS reference (when the DARS reference is used, Z bit alignment of the AES outputs is also guaranteed). The AES outputs that follow the Video 1 buss use Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed on synchronous audio sources.

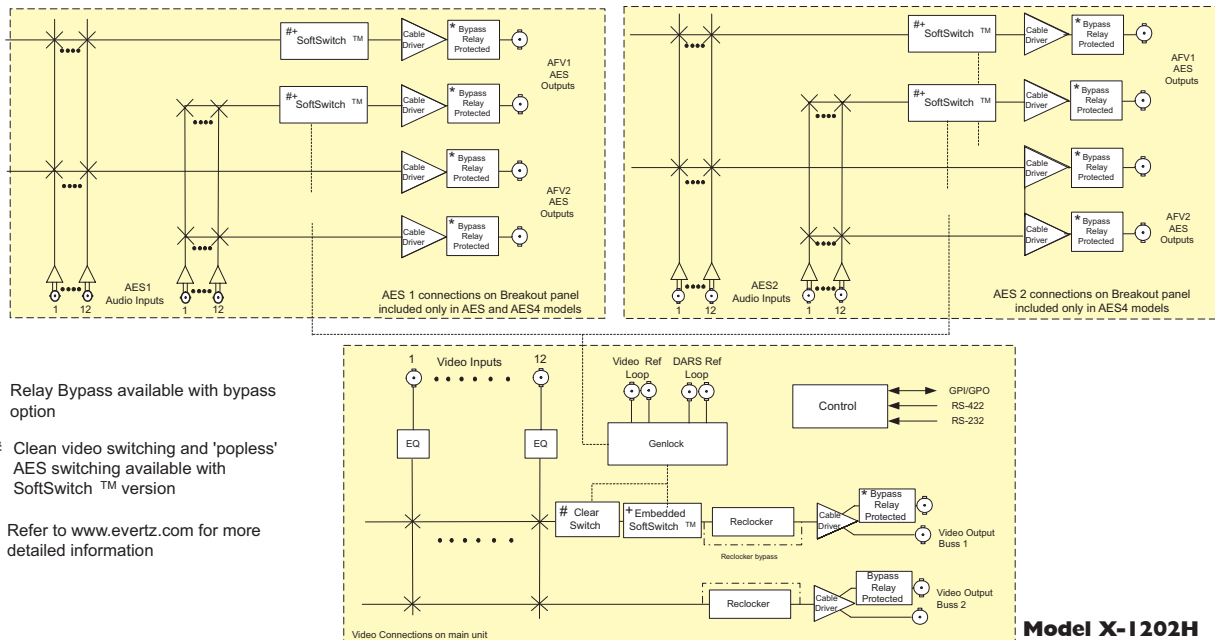
Optional Embedded SoftSwitch™ Features (+HES Option)

Routers equipped with the Embedded SoftSwitch™ option have all the features of the SoftSwitch™ versions as well as the following additional features. The embedded audio on the Video 1 buss uses Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed. Embedded SoftSwitch™ is performed on all 4 audio groups.

Features

- Supports SMPTE 292M (1.5 Gb/s) video signals
- Can be operated in a non-reclock mode to pass SMPTE 259M video signals
- Units can be genlocked to an external source so that a "clean switch" can be achieved.
- Autotiming of V1 buss inputs to perform a clean video switch when SoftSwitch™ or Embedded SoftSwitch™ option is installed
- Optional SoftSwitch™ technology eliminates hot-switch audio pops on AES outputs following V1 buss
- Optional Embedded SoftSwitch™ technology eliminates hot-switch audio pops on embedded audio on V1 buss
- With embedded SoftSwitch™ option, SoftSwitch™ is performed on all 4 audio groups
- Switch line is fully controllable from the front panel.
- Video input presence detection displayable on the front panel.
- Front panel or remote control panel versions available. Second control panel can be ordered for either version
- Parallel GPI and RS-232 serial control.
- Programmable source input names available on the front panel.
- Optional video and audio input relay bypass for power failure bypass protection.
- Optional dual power supplies.
- Field upgradeable firmware as new features become available

12 X 2 HDTV Router With Dual or Quad 12x2 AES Audio



* Relay Bypass available with bypass option

Clean video switching and 'popless' AES switching available with SoftSwitch™ version

Refer to www.evertz.com for more detailed information

Model X-1202H

Specifications

HD Video Inputs:

Standard: SMPTE 292M (1.5 Gb/s)
SMPTE 259M with line synchronizer, reclocker and embedded SoftSwitch™ turned off

Number of Inputs: 12

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic 100m @ 1.485Gb/s with Belden 1694A (or equivalent) (50m on inputs 1 and 12 with +HPB option)

Return Loss: > 15 dB up to 1.5 Gb/s

Input Timing (On +HSS and +HES Optioned Routers): Measured with respect to the Genlock reference
Input Range: ±1/2 line when *Course phase* = 1, *Fine phase* = 0
Auto timer for HD Video only

HD Video Outputs:

Standard: Same as input

Number of Outputs: 2 per buss, 2 busses

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V ±0.5V

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Return Loss: > 15dB up to 1Gb/s, >12dB up to 1.5Gb/s

Jitter: <0.2UI

Output Timing (On +HSS and +HES Optioned Routers): Measured with respect to the Genlock reference
Output Phase: Adjustable 1 line to a full frame of delay - set by *Course phase* parameter. The active video content will align to the nearest line
Output phasing for HD Video only

AES Audio Inputs:

Standard: SMPTE 276M single ended AES

Number of Inputs: 12 per buss, 2 or 4 busses optional

Connector: BNC per IEC 60169-8 Amendment 2 on breakout panels provided

AES Audio Outputs:

Standard: SMPTE 276M single ended AES

Number of Outputs: 2 per buss, 2 or 4 busses optional

Connector: BNC per IEC 60169-8 Amendment 2 on breakout panels provided

Signal Level: 1V p-p

Reference: From Video General Reference
DARS reference available with +HSS or +HES options

Video Reference:

Type: Menu selectable - depends on video format
HD Tri-level Sync
NTSC or PAL Color Black 1 V p-p
Composite Bi-level sync (525/59.94 or 625/50) 300 mV

Connectors: 2 BNC per IEC 60169-8 Amendment 2

Termination: High impedance loop through

DARS Reference (On +HSS and +HES Optioned Routers):

Type: Digital Audio Signal with 48kHz sample rate

Standard: SMPTE 276M single ended AES

Connector: 2 BNC per IEC 60169-8 Amendment 2

Termination: High impedance loop through

Signal Level: 1V p-p

Freq. Lock Range: +/- 100ppm from nominal

GPI Control Port:

Number of Inputs: 14 opto-isolated, programmable functions

Number of Outputs: 4 sets of relay contacts, normally closed, programmable functions

Relay Max Rating: 1A at 30VDC

Serial Remote Control:

Standard: RS-232 or RS422, programmable baud rate

Connector: 9 pin female "D"

Protocol: GVG Ten XL ASCII, master or slave or remote control panel

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
(483mm W x 45mm H x 477mm D)

Weight: 8 lbs. (3.5Kg)

Electrical:

Voltage: Auto ranging 100-240V AC 50/60 Hz 30 VA

Fuse Rating: 250 V, 1 amp time delay

Safety: ETL Listed
Complies with EU safety directives
Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

X-1202H 12X2 HDTV video router

X-1202H-AES 12x2 HDTV video router with 2(12x2) AES busses (includes 1 AES breakout panel)

X-1202H-AES4 12x2 HDTV video router with 4(12x2) AES busses (includes 2 AES breakout panels)

Ordering Options:

+HSS SoftSwitch™ Option

+HES Embedded SoftSwitch™ Option

+HPB Bypass Relay Protection

+2PS Redundant Power Supply

+RCP Rack Mount Remote Control Panel (replaces front control panel)

+B Balanced AES Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)

+U Unbalanced AES Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)

Accessories:

X-1202H-PANEL Additional Remote Control Panel(works in addition to front control panel)

X-1202ABO Unbalanced AES Audio Breakout Panel (for all 1202 series routers)

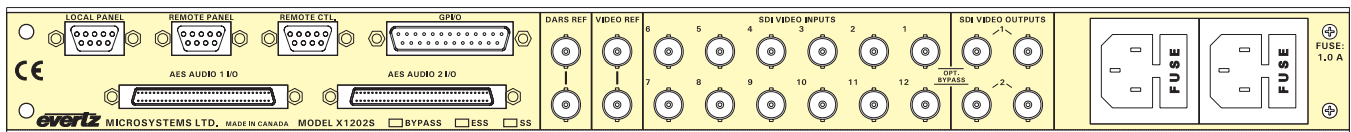
X-1202ABOB Balanced AES Audio Breakout Panel (for all 1202 series routers)

X-1202ABOB-BP Balanced AES (with Bypass Relays) Audio Breakout Panels (for all 1202 series routers)

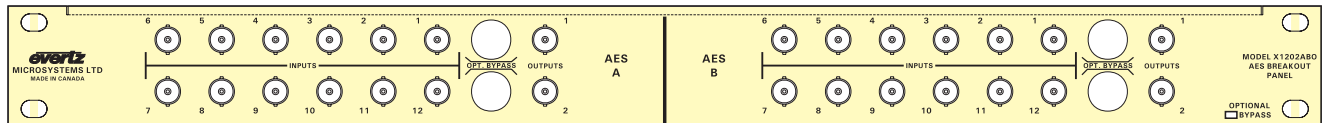
X-1202ABO-BP Unbalanced AES (with Bypass Relays) Audio Breakout Panel (For all 1202 series routers)

12 X 2 SDI Router With Dual or Quad 12x2 AES Audio

Model X-1202S



X1202S Rear Panel



X1202 Audio AES Breakout Panel

(Qty 1 with AES option, Qty 2 with AES4 option, Note: the bypass relay is optional)

The X-1202S SDTV twelve input routing switcher provides a convenient, low cost way to route standard definition serial digital signals. The X-1202S routers are used for 270, 360, 540Mb/s and DVB-ASI serial digital signals. When the unit is ordered with the Dual 12x2 AES router or Quad 12x2 AES router options the AES output busses can be used in an "audio follow video" mode, or can be broken away from the video buss. It features redundancy protection by providing dual power supply and bypass relay options.

The router electronics are housed in a 1RU rackmount frame and is controlled from the built-in front panel controls. Each model can also be purchased with an optional rack mount remote control panel that replaces the built-in control panel. All units can also be controlled by contact closures on the GPI control port or through the RS-232 or RS-422 serial remote control port using industry standard switcher protocols.

Optional SoftSwitch™ Features (+SS Option)

Routers equipped with the SoftSwitch™ option have the following additional features. The Video 1 output has adjustable vertical timing with respect to the genlock input, and line synchronizers on the video inputs can accommodate differences in timing up to approximately +/- one half line providing clean video switches on the V1 output. All the AES outputs will have a continuous AES carrier locked to either the video genlock or DARS reference (when the DARS reference is used, Z bit alignment of the AES outputs is also guaranteed). The AES outputs that follow the Video 1 buss use Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed on synchronous audio sources.

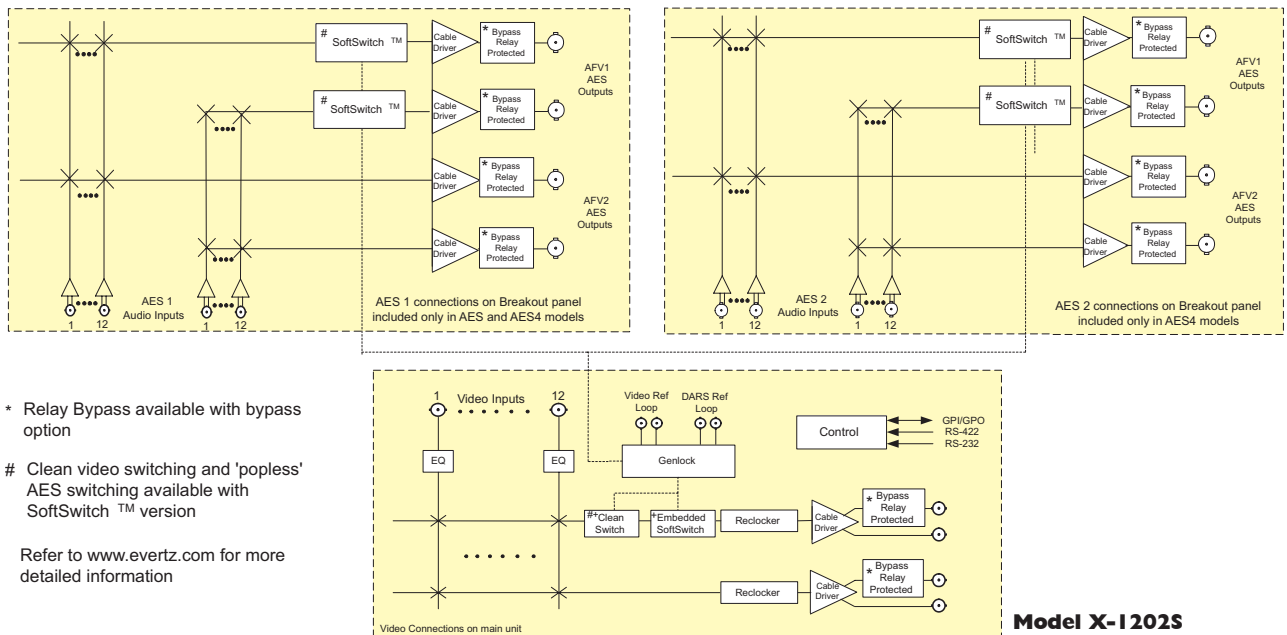
Optional Embedded SoftSwitch™ Features (+ES Option)

Routers equipped with the Embedded SoftSwitch™ option have all the features of the SoftSwitch™ versions as well as the following additional features. The embedded audio on the Video 1 buss uses Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed. Embedded SoftSwitch™ is performed on all 4 audio groups.

Features

- Supports SMPTE 259M (270Mb/s, 360Mb/s, 540Mb/s) video signals
- Units can be genlocked to an external source so that a "clean switch" can be achieved
- Autotiming of V1 buss inputs to perform a clean video switch when SoftSwitch™ or Embedded SoftSwitch™ option is installed
- Optional SoftSwitch™ technology eliminates hot-switch audio pops on AES outputs following V1 buss
- Optional Embedded SoftSwitch™ technology eliminates hot-switch audio pops on embedded audio on V1 buss
- With embedded SoftSwitch™ option, SoftSwitch™ is performed on all 4 audio groups
- Switch line is fully controllable from the front panel
- Video input presence detection displayable on the front panel.
- Front panel or remote control panel versions available. Second control panel can be ordered for either version
- Parallel GPI and RS-232 serial control
- Programmable source input names available on the front panel.
- Optional video and audio input relay bypass for power failure bypass protection
- Optional dual power supplies
- Field upgradeable firmware as new features become available

I2 X 2 SDI Router With Dual or Quad I2x2 AES Audio



Model X-1202S

Specifications

SDI Video Inputs:

Standard: SMPTE 259M (270Mb/s, 360Mb/s, 540Mb/s) and DVB-ASI
Number of Inputs: 12
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic up to 250m @ 270 Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15 dB up to 540 Mb/s
Input Timing (On +SS and +ES Optioned Routers):
Input Range: Measured with respect to the Genlock reference
 $\pm 1/2$ line when *Course phase* = 1, *Fine phase* = 0

SDI Video Outputs:

Standard: Same as Input
Number of Outputs: 2 per buss, 2 busses
 Inputs 1 & 12 bypass protected with +BP option
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 540 Mb/s
Jitter: < 0.2 UI
Output Timing (On +SS and +ES Optioned Routers):
Output Phase: Measured with respect to the Genlock reference
 Adjustable 1 line to a full frame of delay - set by *Coarse phase* parameter. The active video content will align to the nearest line only

AES Audio Inputs:

Standard: SMPTE 276M single ended AES
Number of Inputs: 12 per buss, 2 or 4 busses optional
Connector: BNC per IEC 60169-8 Amendment 2 on breakout panels provided

AES Audio Outputs:

Standard: SMPTE 276M single ended AES
Number of Outputs: 2 per buss, 2 or 4 busses optional
 Input 1 and 12 bypass protected with +BP option
Connector: BNC per IEC 60169-8 Amendment 2 on breakout panels provided
Signal Level: 1V p-p
Reference: From Video General Reference
 DARS reference available with +SS or +ES options

Video Reference:

Type: Menu selectable - depends on video format
 NTSC or PAL Color Black 1 V p-p
 Composite Bi-level sync (525i/59.94 or 625i/50) 300 mV
Connectors: 2 BNC per IEC 60169-8 Amendment 2
Termination: High impedance loop through

DARS Reference (On +SS and +ES Optioned Routers):

Type: Digital Audio Signal with 48kHz sample rate
Standard: SMPTE 276M
Termination: High impedance loop through
Connector: 2 BNC per IEC 60169-8 Amendment 2
Signal Level: 1V p-p
Freq. Lock Range: +/- 100ppm from nominal

GPI Control Port:

Number of Inputs: 14 opto-isolated, programmable functions
Number of Outputs: 4 sets of relay contacts, normally closed, programmable functions
Relay Max Rating: 1A at 30VDC

Serial Remote Control:

Standard: RS-232 or RS422, programmable baud rate
Connector: 9 pin female "D"
Protocol: GVG Ten XL ASCII, master or slave or remote control panel

Physical:

Dimensions: 19"W x 1.75"H x 18.75"D
 (483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Voltage: Auto ranging 100-240VAC 50/60 Hz 30VA
Fuse Rating: 250 V, 1 amp time delay
Safety: ETL Listed
 Complies with EU safety directives
 Complies with FCC Part 15 Class A
EMI/RFI: EU EMC Directive

Ordering Information:

X-1202S 12X2 SDI video router
X-1202S-AES 12x2 SDI video router with 2(12x2) AES busses (includes 1 AES breakout panel)
X-1202S-AES4 12x2 SDI video router with 4(12x2) AES busses (includes 2 AES breakout panels)

Ordering Options:

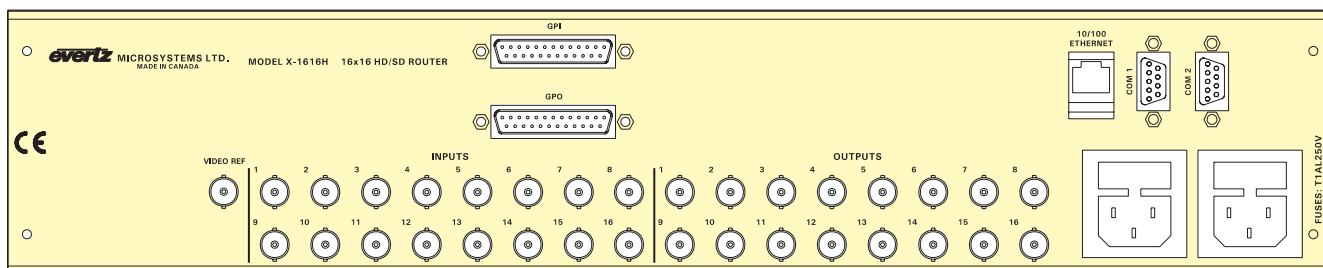
+SS SoftSwitch™ Option
+ES Embedded SoftSwitch™ Option
+BP Bypass Relay Protection
+2PS Redundant Power Supply
+RCP Rack Mount Remote Control Panel (replaces front control panel)
+B Balanced AES Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)
+U Unbalanced AES Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)

Accessories:

X-1202H-PANEL Additional Remote Control Panel (works in addition to front control panel)
X-1202ABO Unbalanced AES Audio Breakout Panel (for all 1202 series routers)
X-1202ABOB Balanced AES Audio Breakout Panel (for all 1202 series routers)
X-1202ABOB-BP Balanced AES (with Bypass Relays) Audio Breakout Panels (for all 1202 series routers)
X-1202ABO-BP Unbalanced AES (with Bypass Relays) Audio Breakout Panel (For all 1202 series routers)

X-1616 HD/SD Router

Model X-1616H



X-1616H Rear Panel

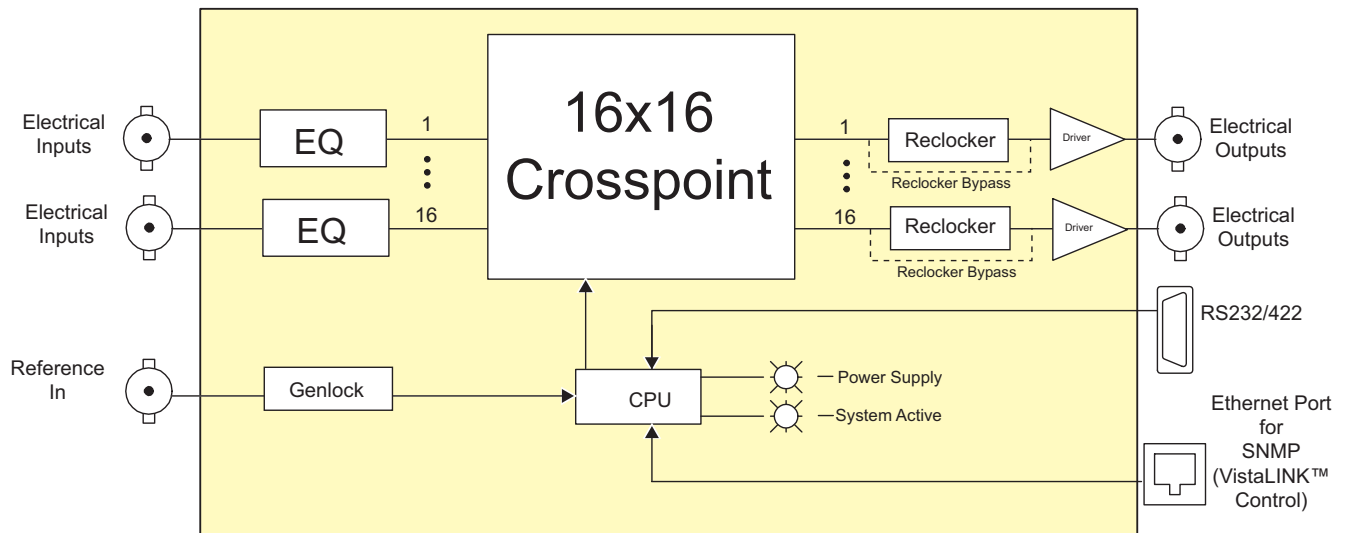
The X-1616H digital video routing switcher is ideal for routing SDI, HDSDI, and other compatible digital signals. A non-blocking router architecture allows any input to be routed to any combination of outputs. The router systems may be controlled through the VistaLINK™ graphical user interface, an NCP2 control panel, GPI contact closures or through an RS232/RS422 port.

The X-1616H is housed in a 2RU frame.

Features

- Supports SMPTE 259M (143Mb/s, 270Mb/s, 360Mb/s, 540Mb/s), SMPTE 292M (1.5Gb/s), and DVB-ASI video signals
- Accepts non-video signal rates from 19.3 Mb/s to 1.5 Gb/s
- Fully non-blocking router architecture
- VistaLINK™ control enabled
- SNMP remote router control via NCP-2 control panels
- Parallel GPI and RS232/422 serial control
- 16 coaxial inputs and outputs
- Dual power supply option
- Compact 2RU size

X-1616H Block Diagram:



Specifications

Signal Inputs:

Standard: SMPTE 259M, SMPTE292M, or any compatible 8b/10b or similarly encoded, scrambled signal from 19.3Mb/s to 1.5 Gb/s

Number of inputs: 16

Connector: BNC per IEC 60169-9 Amendment 2

Impedance: 75Ω

Signal Level: 800mV p-p nominal

Equalization: Automatic

Signal Outputs:

Standard: SMPTE 259M, SMPTE 292M, or any compatible 8b/10b or similarly encoded, scrambled signal from 19.2 Mb/s to 1.5Gb/s

Number of outputs: 16

Connector: BNC per IEC 60169-9 Amendment 2

Impedance: 75Ω

Signal Level: 800mV p-p nominal, terminated into 75 ohms

DC offset: 0V +/- 0.5V

Rise and Fall time: 200ps nominal

Communication and Control:

Serial: RS232/422, DB9 male

Ethernet: IEEE 802.3/U (10/100 Base Tx), RJ45 connector

Physical:

Dimensions: 19"W x 3.5"H x 18"D
(483mm W x 90mm H x 457mm D)

Weight: 8 lbs. (3.5 kg)

Electrical:

Voltage: 110-230 Volts AC, 50/60 Hz

Fuse Rating: 250V, 1 amp, time delay

Power: 100 Watts maximum

Ordering Information:

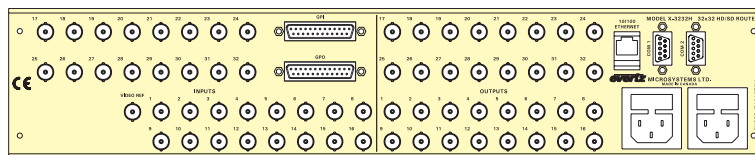
X-1616H	HD/SD router, 16 x 16 matrix, BNC inputs and outputs
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Ordering Options

+2PS	Redundant power supply
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X-3232 HD/SD Router

Model X-3232H



X-3232H Rear Panel

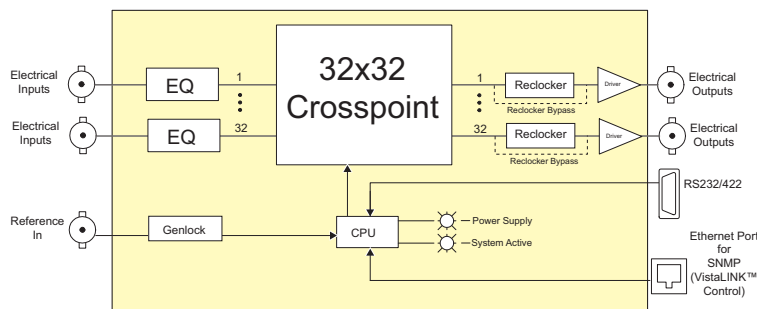
The X-3232H digital video routing switcher is ideal for routing SDI, HDSDI, and other compatible digital signals. A non-blocking router architecture allows any input to be routed to any combination of outputs. The router system may be controlled through the VistaLINK™ graphical user interface, an NCP-2 control panel, GPI contact closures or through an RS232/RS422 port.

The X-3232H is housed in a 2RU frame.

Features

- Supports SMPTE 259M (143Mb/s, 270Mb/s, 360Mb/s, 540Mb/s), SMPTE 292M (1.5Gb/s), and DVB-ASI video signals
- Accepts non-video signal rates from 19.3 Mb/s to 1.5 Gb/s
- Fully non-blocking router architecture
- VistaLINK™ control enabled
- SNMP remote router control via NCP-2 control panels
- Parallel GPI and RS232/422 serial control
- 32 coaxial inputs and outputs
- Dual power supply option• Compact 2RU size

X-3232H Block Diagram:



Specifications

Signal Inputs:

Standard: SMPTE 259M, SMPTE292M, or any compatible 8b/10b or similarly encoded, scrambled signal from 19.3Mb/s to 1.5 Gb/s

Number of inputs:

Standard: 32

Connector:

Standard: BNC per IEC 60169-9 Amendment 2

Impedance:

Standard: 75Ω

Signal Level:

Standard: 800mV p-p nominal

Equalization:

Standard: Automatic

Signal Outputs:

Standard: SMPTE 259M, SMPTE 292M, or any compatible 8b/10b or similarly encoded, scrambled signal from 19.2 Mb/s to 1.5Gb/s

Number of outputs:

Standard: 32

Connector:

Standard: BNC per IEC 60169-9 Amendment 2

Impedance:

Standard: 75Ω

Return Loss:

Standard: >12 db up to 1.5GHz

Signal Level:

Standard: 800mV p-p nominal, terminated into 75 ohms

DC offset:

Standard: 0V +/- 0.5V

Rise and Fall time:

Standard: 200ps nominal

Communication and Control:

Serial: RS232/422, DB9 male

Ethernet: IEEE 802.3/U (10/100 Base Tx), RJ45 connector

Physical:

Dimensions: 19"W x 3.5"H x 18"D

(483mm W x 90mm H x 457mm D)

Weight:

8 lbs. (3.5 kg)

Electrical:

Voltage: 110-230 Volts AC, 50/60 Hz

Fuse Rating: 250V, 1 amp, time delay

Power: 100 Watts maximum

Ordering Information:

X-3232H Video router, 32 x 32 matrix, BNC inputs and outputs

Ordering Options

+2PS

Redundant power supply

SDI Video and Audio Monitoring/Conversion

Model 7760AVM2



The 7760AVM2 series of products provide a great solution for the monitoring of video and audio signals within a modern broadcast facility. Up to 15 modules can be installed in one 3RU 7700FR-C frame.

The 7760AVM2 accepts a Standard Definition Serial Digital Video input signal and provides an SDI, or composite video output along with analog audio outputs. Audio bargraphs are optionally superimposed on the video outputs by a linear keyer system. Along with the video and audio outputs, a reclocked version of the serial digital video input signal is also provided.

The 7760AVM2 can be ordered with the 7760AVM-BHP Bulkhead Breakout Panel. This panel is an accessory that provides a convenient way of connecting the audio and GPIO signals into the High Density DB-15 connectors on the rear of the modules. This panel is available for five or ten 7760AVM's and includes 3 ft. cables to connect to the AVM modules.

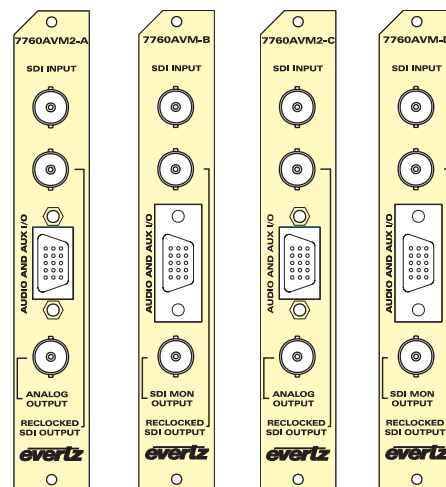
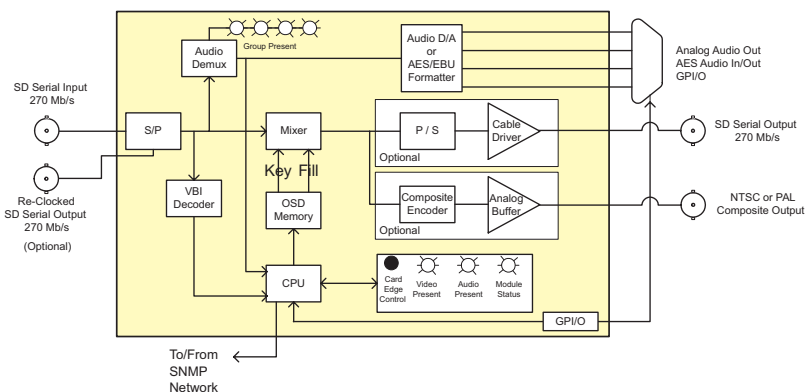
In addition 7760AVM2 modules are also VistaLINK™ - enabled offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK™ is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame.

7760AVM2-X				
Feature	A	B	C	D
Reclocked SDI Output	1	1	1	1
SDI Outputs with Superimposed Information	0	1	0	1
Composite analog outputs with superimposed information	1	0	1	0
Closed Caption Decoding *(analog outputs only, not on SDI outputs)	Y	N	Y	N
AES/EBU Digital Audio Inputs	0	0	2	2
AES/EBU Digital Audio Outputs	2	2	0	0
Analog Audio Outputs	4	4	4	4
Max. Number of cards in a 7700FR-C	15	15	15	15

Features:

- One SDI 525 or 625, 270 Mb/s component digital video input
- One group (4 channels of audio) is demultiplexed from the incoming digital video and VU/PPM level Bargraphs are keyed into the output video
- 4 adjustable analog audio outputs available for content monitoring
- Decodes vertical interval time code (VITC) and Source ID burning it into the picture
- Program rating (V-Chip) display
- A comprehensive on screen display is available to configure the various features of the module
- Decodes & monitors Video Indexing, AFD, subtitle and teletext
- Flexible configuration of the text and audio bar graph information displays
- An extensive list of error conditions can be monitored and fault conditions can be configured from these errors
- Detects frozen (patent pending) or black video
- Two GPI inputs are available to modify the display characteristics
- Fault conditions trigger On Screen messages, GPI outputs and can be logged on an RS-232 data logging port
- XDS decoding and display on output video (Network name, Network call letters, program name and time of day)
- Fault condition logic menu option
- VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP using VistaLINK™ Pro, 9000NCP or 9000NCP2 Network Control Panel. VistaLINK™ is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller

7760AVM2 Block Diagram



SDI Video and Audio Monitoring/Conversion

Specifications

Serial Video Input:

Standard: SMPTE 259M-C - 525 or 625 line component
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic >200m @ 270 Mb/s with Belden 8281 (or equivalent)
Return Loss: > 15 dB up to 270 Mb/s
Embedded Audio: SMPTE 272M-A

Serial Video Output:

Standard: Same as Input
Reclocked Outputs: 1 on versions A, B, C, & D
Monitor Outputs: 1 on versions B & D
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 470ps nominal
Overshoot: <10% of amplitude
Embedded Audio: SMPTE 272M-A

Analog Video Output:

Standard: NTSC, SMPTE 170M, PAL, ITU624-4
Number of Outputs: 1 on versions A
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V \pm 0.1V
Return Loss: > 35dB up to 5MHz
Frequency Response: 0.8dB to 4 MHz
Differential Phase: < 0.9° (<0.6° typical)
Differential Gain: < 0.9% (<0.5 % typical)
SNR: >56dB to 5 MHz (shallow ramp)

Audio Bar Graphs:

Number of Graphs: 4 level (1 group) and 2 phase meters
Type: VU, PPM
Ballistics: AES/EBU, BBC, DIN, NORDIC N9

Analog Audio Output:

Number of Outputs: 4
Type: Balanced analog audio
Connector: Female High Density DB-15
Output Impedance: 33 Ω
Sampling Frequency: 48kHz
Signal Level: 0dBFS \Rightarrow 8 to 24dBu (user definable)
Note: High impedance loads only (10k Ω)
Not good for low impedance load (i.e. 600 Ω)
Frequency Response: 50Hz to 20kHz: \pm 0.20dB
SNR: >85dB (50Hz to 20 kHz)
THD+N: 65 dB @ 1kHz, 0 dB FS, typical

AES Audio Inputs and Outputs:

Number of Inputs: 2 on versions C & D
Number of Outputs: 2 on versions A & B
Standard: SMPTE 276M, single ended AES
Connectors: Female High Density DB-15
Resolution: 24-bit
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced

General Purpose Interface I/O (GPI/GPO):

Number of Inputs: 2
Number of Outputs: 1
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: Female High Density DB-15
Signal Level: +5V nominal (high), 0V (low)

Data Logging Serial Port:

Standard: RS-232
Connector: Female DB-25
Baud Rate: 57600
Format: 8-bit, no parity, 2 stop bits

Physical:

Number of slots: 1

Electrical:

Voltage: +12VDC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7760AVM2-A to D SDI Video & Audio Monitor/Conversion with On Screen Display (Single Slot) with Teletext subtitle decoder

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Rack Mount Bulkhead Breakout Panels (BHP):

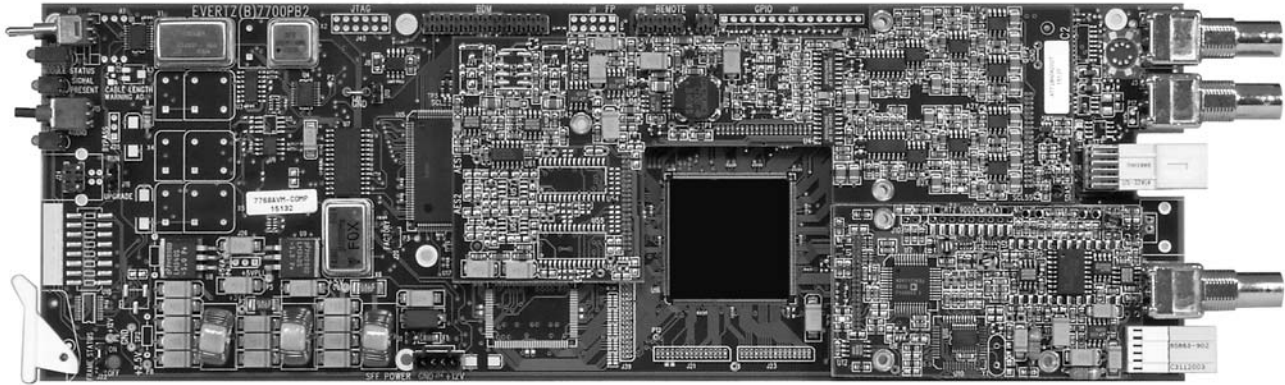
7760AVM-BHP-10 Bulkhead Breakout panel for 10 AVMs includes 10 WPAVMIO-1-0-3F - 3' cables
7760AVM-BHP-5 Bulkhead Breakout panel for 5 AVMs includes 5 WPAVMIO-1-0-3F - 3' cables

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD Video and Audio Monitoring

Model 7760AVM2-HD



The 7760AVM2-HD line of audio and video monitoring cards perform a number of quality control and monitoring functions associated with a modern high definition and standard definition serial digital television facility. They perform audio and ancillary data (for HD) or vertical blanking interval (VBI) data (for SDI) demultiplexing from the incoming digital video, analyze the data and display key information about the data on the output video. The outputs are either analog and/or digital video with analog or digital audio.

The 7760AVM2-HD can be ordered with the 7760AVM-BHP Bulkhead Breakout Panel. This panel is an accessory that provides a convenient way of connecting the audio and GPIO signals into the High Density DB-15 connectors on the rear of the modules. This panel is available for five or ten 7760AVM's and includes 3 ft. cables to connect to the AVM modules.

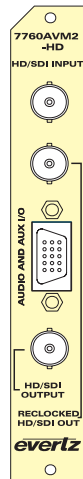
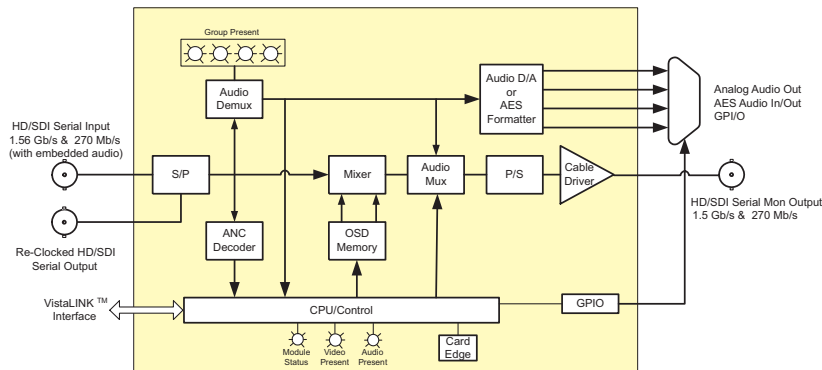
In addition 7760AVM2-HD modules are also VistaLINK™ - enabled offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK™ is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame.

Features:

- One auto sensing video input - supports 1080i/60, 1080i/59.94, 1080i/50, 720p/60, 720p/59.94, 525i/59.94 or 625i/50
- One group (4 channels of audio) is demultiplexed from the incoming digital video and VU/PPM level Indicators are keyed as bar graphs in over the picture
- One re-clocked HD/SDI video output
- Two AES/EBU digital audio outputs
- Audio monitoring of externally applied AES audio instead of embedded audio
- 4 analog audio outputs available for content monitoring.
- Analog audio output levels are adjustable
- Analog audio outputs can be set so both are mono mix of the selected channel pair
- Decodes RP188 Ancillary time code from HD signals or vertical interval time code (VITC) from SDI signals and "burns" the time code into the picture
- Decodes Evertz format VITC Source ID (5 or 9 characters) from SDI signals and burns the ID into the picture
- Decodes Evertz format ATC Source ID (5 or 9 characters) from HD signals and burns the ID into the picture
- Decodes Line 21 XDS packets from SDI signals and displays network name, call letters, program name and time of day
- A comprehensive on screen display is available to configure the various features of the module
- Flexible configuration of the text and audio bar graph information displays
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions.
- On screen messages can be triggered by the configured fault conditions.
- Two GPI inputs are available to modify the display characteristics.
- GPO output to indicate user definable fault conditions.
- Audio and GPI/Os are available on a high density DB15 connector
- 7760AVM-BHP bulkhead panel is available to facilitate wiring to the high density DB15 connector. (up to 10 AVM2-HD modules can be wired using each bulkhead panel)
- RS-232 Data logging port to log fault conditions
- VistaLINK™ -enabled offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK™ is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame

HD Video and Audio Monitoring

7760AVM2-HD Block Diagram



Specifications

Serial Video Input:

Standard: Auto detect SMPTE 292M and SMPTE 259-M (525i/59.94 or 625i/50)
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic >115m @ 1.5Gb/s with Belden 1694 (or equivalent); to 300m @ 270Mb/s
Return Loss: > 15 dB up to 270Mb/s
Embedded Audio: SMPTE 272M-A

Serial Video Output:

Standard: Same as input
Reclocked Outputs: 1 (Same as input)
Monitor Outputs: 1 (Same as input)
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 470ps nominal
Overshoot: <10% of amplitude

Audio Bar Graphs:

Number of Graphs: 4 level (1 group) and 2 phase meters
Type: VU, PPM
Ballistics: AES/EBU, BBC, DIN, NORDIC N9

Analog Audio Output:

Number of Outputs: 4
Type: Balanced analog audio
Connector: Female High Density DB-15
Output Impedance: 33Ω
Sampling Frequency: 48kHz
Signal Level: 0dBFS =>8 to 24dBu (user definable)
Note: High impedance loads only (10kΩ)
Not good for low impedance load (i.e. 600 Ω)
Frequency Response: 50Hz to 20kHz: +/- 0.20dB
SNR: >85dB (50Hz to 20 kHz)
THD+N: 65 dB @ 1kHz, 0 dB FS, typical

AES Audio Outputs:

Number of Outputs: 2
Standard: SMPTE 276M, single ended AES
Connectors: Female High Density DB-15
Resolution: 24-bit
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced

General Purpose Interface I/O (GPI/GPO):

Number of Inputs: 2
Number of Outputs: 1
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: Female High Density DB-15
Signal Level: +5V nominal (high), 0V (low)

Standard: RS-232
Connector: Female DB-25
Baud Rate: 57600
Format: 8-bit, no parity, 2 stop bits

Physical:

Number of slots: 1

Electrical:

Voltage: +12VDC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

7760AVM2-HD HD Video & Audio Monitoring

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Accessories:

Rack Mount Bulkhead Breakout Panels (BHP):

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

7760AVM-BHP-10 Bulkhead Breakout panel for 10 AVMs includes 10 WPAVMIO-1-0-3F - 3' cables
7760AVM-BHP-5 Bulkhead Breakout panel for 5 AVMs includes 5 WPAVMIO-1-0-3F - 3' cables

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

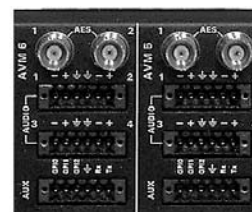
Data Logging Serial Port:

AVM Bulkhead Breakout Panels

Models 7760AVM-BHP-5
7760AVM-BHP-10
7761AVM-DC-BHP-15
7765AVM-4A-BHP-7
7766AVM-4A-BHP-4
7766AVM-4A-BHP-1

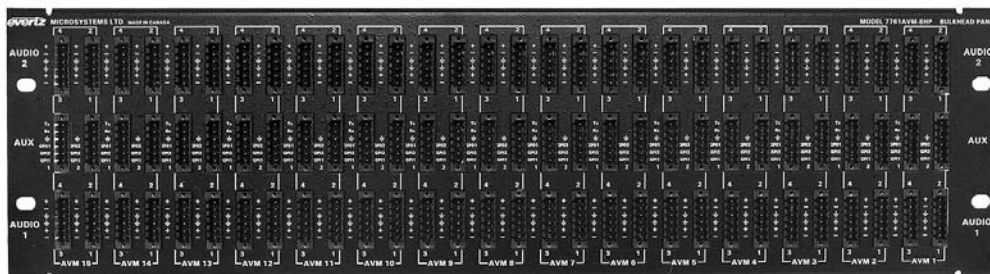
Bulkhead Breakout Panels (BHP) provide a convenient way of connecting audio and auxiliary input and output signals into module rear plate D-connectors. Each BHP may be outfitted with BNCs and/or terminal strips, extending AES, GPI/O, Tx/Rx and GND connections. BHPs occupy 1RU, 2RU or 3RU of rack space and are designed for mounting at the rear of the rack panel. BHPs include standard 3ft. adapter cables to connect with rear plate D-connectors.

7760AVM-BHP-5, 7760AVM-BHP-10



The 7760AVM-BHP Bulkhead Breakout Panel can be used to connect up to five or ten 7760AVM, 7760AVM2 and 7735AVC-LB modules. Each of the ten sets of connectors on the breakout panel is fitted with two BNCs for audio in or out, two six position terminal strips for the 4 channels of analog audio, and one six position terminal strip for the GPI I/O and RS-232 signals.

7761AVM-DC-BHP-15



The 7761AVM-4A-BHP Bulkhead Breakout Panel is available to facilitate wiring to the DB-25 connector. This 3RU panel allows for convenient audio, GPI/O and RS-232 connections for up to fifteen 7761AVM-DC modules.

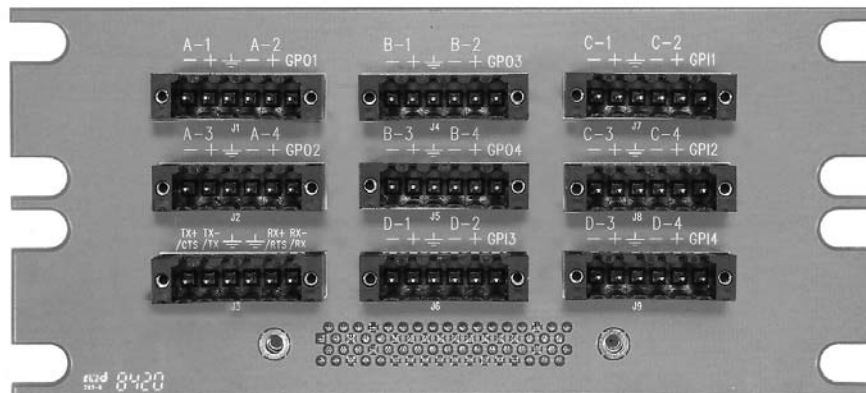
AVM Bulkhead Breakout Panels

7765AVM-4A-BHP-7



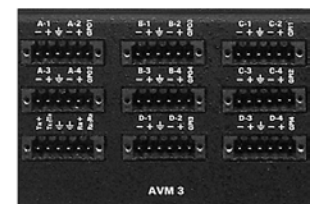
The 7765AVM-4A-BHP Bulkhead Breakout Panel provides a convenient way of connecting AES/EBU audio and GPI I/O signals into the DB-25 on up to seven 7765AVM-4A modules.

7766AVM-4A-BHP-1



The 7766AVM-4A-BHP Bulkhead Breakout Panel provides a convenient interconnection to the 7766AVM-4A Analog Quattro™ and Analog Multiviewer modules, 68 pin rear plate SCSI connector. This is used to link analog audio inputs and AUX I/O signals to the module.

7766AVM-4A-BHP-4



Ordering Information

7760AVM-BHP-5	Bulkhead Breakout Panel for 5 x 7760AVMs (includes 5-3ft cables)
7760AVM-BHP-10	Bulkhead Breakout Panel for 10 x 7760AVMs (includes 10-3ft cables)
	(Optional Cables - WPAVMIO-1-0-1F (1' Adapter Cable)
	WPAVMIO-1-0-3F (3' Adapter Cable)
	WPAVMIO-1-0-6F (6' Adapter Cable)
7761AVM-DC-BHP-15	Bulkhead Breakout Panel for 15 x 7761AVM-DCs (includes 15-3ft cables)
7765AVM-4A-BHP-7	Bulkhead Breakout Panel for 7 x 7765AVM-4A (includes 7-3ft cables)
7766AVM-4A-BHP-4	Bulkhead Breakout Panel for 4 x 7766AVM-4A (includes 4-3ft cables)
7766AVM-4A-BHP-1	Bulkhead Breakout Panel for 1 x 7766AVM-4A (includes 1-3ft cable)

SDI Video and Audio Monitoring/Conversion (without on screen display)

Model 7760AVM-LITE

The 7760AVM-Lite Audio/Video Monitor provides a convenient low cost solution for composite analog monitoring of a 270Mb/s serial digital video signal, and provides analog conversion of 1 group of embedded or *external AES audio.

The digital component video is converted to analog composite (NTSC/PAL-B). Closed captioning can be keyed onto the output composite video.

SMPTE 272M allows for up to four groups of AES audio (4 channels/group) to be embedded within a serial digital signal. The 7760AVM-Lite can de-multiplex one group and convert all 4 channels to low impedance balanced analog audio through 24-bit DAC's. In addition, the same audio is available simultaneously as 75Ω unbalanced digital AES on the 7760AVM-Lite A.

*The 7760AVM-Lite B allows for monitoring of external or embedded AES audio but does not supply de-multiplexed AES audio out.

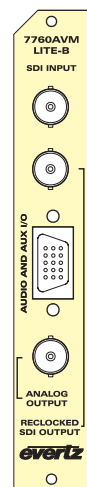
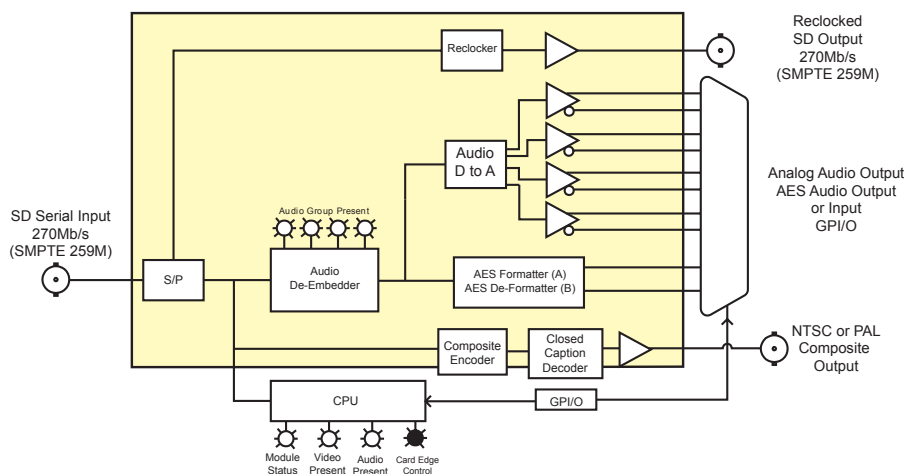
Features

- 1 Reclocked SDI output
- Composite analog (NTSC/PAL-B) output
- 4 Balanced analog audio outputs
- 2 AES digital audio outputs or inputs
- 1 General purpose output to indicate the loss of video and/or audio
- Built in closed caption decoder with on/off control via dip switch and GPI
- Audio group selection via card edge DIP switches
- Selectable analog audio output levels
- Audio channel swapping selection via card edge DIP switches
- Selectable NTSC pedestal on/off

Card Edge LED's:

- Module Status
- Local Fault
- Video Signal Presence
- Audio groups present in input video
- Selected audio group presence

7760AVM-LITE Block Diagram



SDI Video and Audio Monitoring/Conversion (without on screen display)

Specifications

Serial Video Input:

Standard: SMPTE 259M-C 525 or 625 line component
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 200m @ 270 Mb/s with Belden 8281 (or equivalent)
Return Loss: >15 dB up to 270 Mb/s

Serial Video Output:

Standard: Same as input
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 470ps nominal
Overshoot: <10% of amplitude
Return Loss: >15 dB up to 270 Mb/s
Wide Band Jitter: <0.2 UI

AES Audio Inputs:

Number of Inputs: 2 on version B
Standard: SMPTE 276M, single ended AES
Connectors: Female High Density DB-15
Resolution: 24-bit
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced

AES Audio Outputs:

Number of Outputs: 2 on version A
Standard: SMPTE 276M, single ended AES
Connectors: Female High Density DB-15
Resolution: 24-bit
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced

Analog Video Output:

Type: NTSC, (SMPTE 170M) or PAL-B, (ITU 624-4)
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V \pm 0.1V
Return Loss: >35dB up to 5MHz
Frequency Resp: 0.8dB to 4 MHz
Differential Phase: <.9° (typical <0.5%)
Differential Gain: <0.9% (typical <0.5%)
SNR: >56dB to 5 MHz (shallow ramp)
Processing Delay: 1.9 μ s

Analog Audio Outputs:

Number of Outputs: 4
Type: Balanced analog audio
Connector: Female High Density DB-15
Output Impedance: 33 Ω
Sampling Frequency: 48kHz
Signal Level: 0dB FS => 20 dBu, 22dBu, 24dBu
NOTE: High impedance loads only (>10k Ω)
Not good for low impedance loads (i.e. 600 Ω)
Frequency Resp.: 50Hz to 20kHz: +/- 0.20dB
SNR: >85dB (50Hz to 20 kHz)
THD+N: 65 dB@ 1kHz, 0 dBFS, typical
Resolution: 24-bit

Electrical:

Voltage: +12VDC
Power: 6 Watts
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7760AVM-LiteX SDI Video & Audio Monitoring/Conversion
X = A or B(A - AES Output), (B - AES Input)

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

SDI Closed Caption & XDS Decoder & EIA608 Analyzer

Model 7760CCM



The 7760CCM closed captioning monitoring card extends the signal monitoring capabilities of Evertz AVM product line by focusing on closed captioning and eXtended Data Services (XDS) data packets carried within the Vertical Blanking Interval (VBI). Compliant with the EIA Standard EIA/CEA-608-B, the 7760CCM can be used to monitor VBI content for pre-distribution monitoring or regulatory compliance.

The 7760CCM is capable of decoding VBI Line 21, fields 1 and 2 data and displaying the information on the SD video output. One of four closed captioning channels (CC1-CC4) and one of four text service channels (T1-T4) can be simultaneously displayed on the video output. In addition, the scrolling XDS display supports all data packets including Transmission Signal Identifier (TSID), Copy Generation Management System (CGMS-A), V-Chip rating, Station name, Station ID, Program Name, Program Type, Program Description, time of day, and time in show are decoded to human-readable format. Other (less common) packets are presented as raw data bytes.

The 7760CCM incorporates the fault reporting capabilities inherent in the AVM product line. There are four user-configurable fault alerts that are triggered upon loss of video, loss of CC waveform, parity errors, field inversions, control codes and invalid XDS parameters. The 7760CCM is also VistaLINK™-enabled, offering remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP).

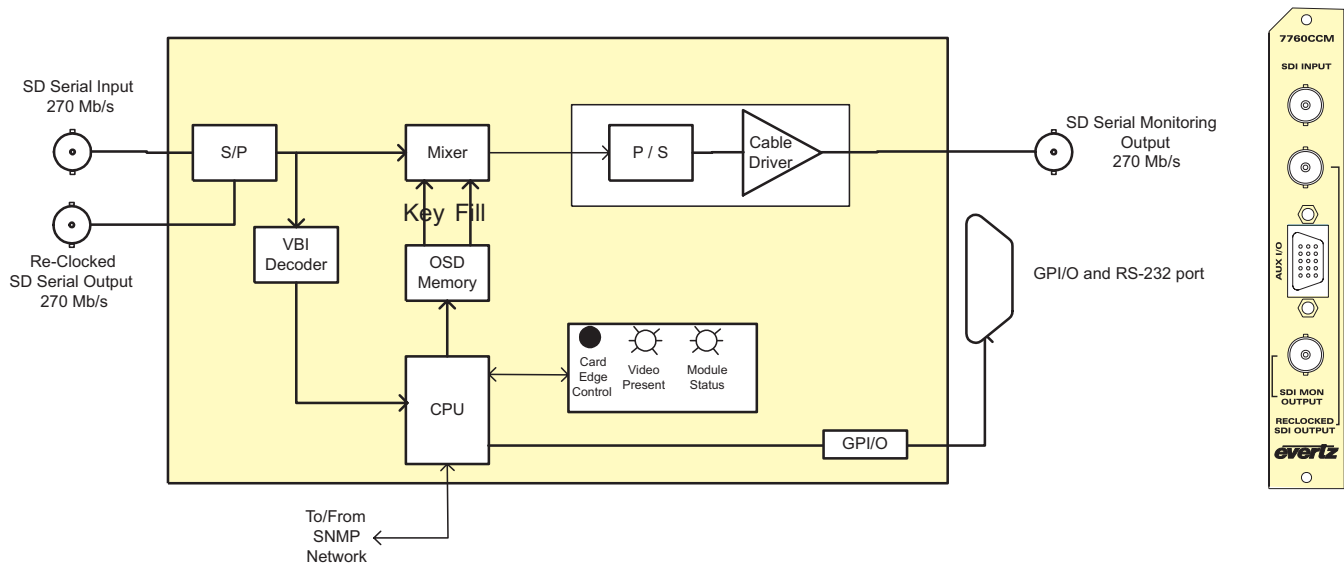
The single-slot, 7760CCM module fits conveniently into Evertz 7700FR-C, 7701FR frames or standalone enclosure.

Features

- One SD, 270 Mb/s component digital video input, 525 or 625 lines, auto-detected or manually set
- One re-clocked SD video output
- Decodes and displays closed captioning on fields 1 and 2 as per EIA Standard EIA/CEA-608-B
- User selectable closed captioning channel (1-4), text channel (1-4) and eXtended Data Services (XDS) for video "burn-in"
- Decodes Line 21 XDS packets including Transmission Signal Identifier (TSID), Copy Generation Management System (CGMS-A), Program ID, Time in show, Program name, Program type, V-chip rating, Program description, Network name, Station ID, Time of day and Time zone
- Store and recall up to three module configurations
- Fits conveniently into Evertz 7700FR-C 3RU, 7701FR 1RU frames and stand-alone enclosure
- A comprehensive on screen display menu is available to configure the various features of the module as well as allows flexible configuration of the text window positioning
- An extensive list of closed captioning and XDS error conditions can be enabled and monitored with on-screen fault messages triggered by exceeded timer parameters
- Four user-configurable GPI inputs for on screen display control, closed captioning channel and text channel selection
- Two user-configurable GPI outputs to indicate user definable fault conditions
- RS-232 serial port output used to transmit raw closed captioning data. (Compliments VBI Bridge functionality of Evertz 8084 CC Encoders)
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

SDI Closed Caption & XDS Decoder & EIA608 Analyzer

7760CCM Block Diagram



Specifications

Serial Digital Input:

Standard: SMPTE 259M-C - 525 or 625-line component serial digital video, 270Mb/s
Connector: 1 BNC per IEC 60169-8 Amendment 2
Termination: 75 Ω
Equalization: Automatic to 225m @ 270 Mb/s with Belden 8281 or equivalent cable
Return Loss: >15dB up to 270MHz

Serial Video Output:

Standard: SMPTE 259M-C - 525 or 625-line component - same as input
Number of Outputs: 1
Reclocked: 1
Monitored: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 470ps nominal
Overshoot: <10% of amplitude

General Purpose Interface I/O (GPI/GPO):

Number of Inputs: 4 (behavior is assigned via. On screen menu items)
Number of Outputs: 2 (behavior is programmable via. On screen menu items)
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: Female High Density DB-15
Signal Level: +5V nominal

Serial Port:

Standard: RS-232
Connector: Female High Density DB-15
Baud Rate: 9600
Format: 8 bits, no parity, 1 stop bits and no flow control

Electrical:

Voltage: + 12VDC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7760CCM SDI Closed Caption & XDS Decoder & EIA608 Analyzer with VistaLINK™ support

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD-SDI/SD-SDI Closed Caption EIA608/EIA708 Translator/Monitor Translator

Model 7760CCM-HD

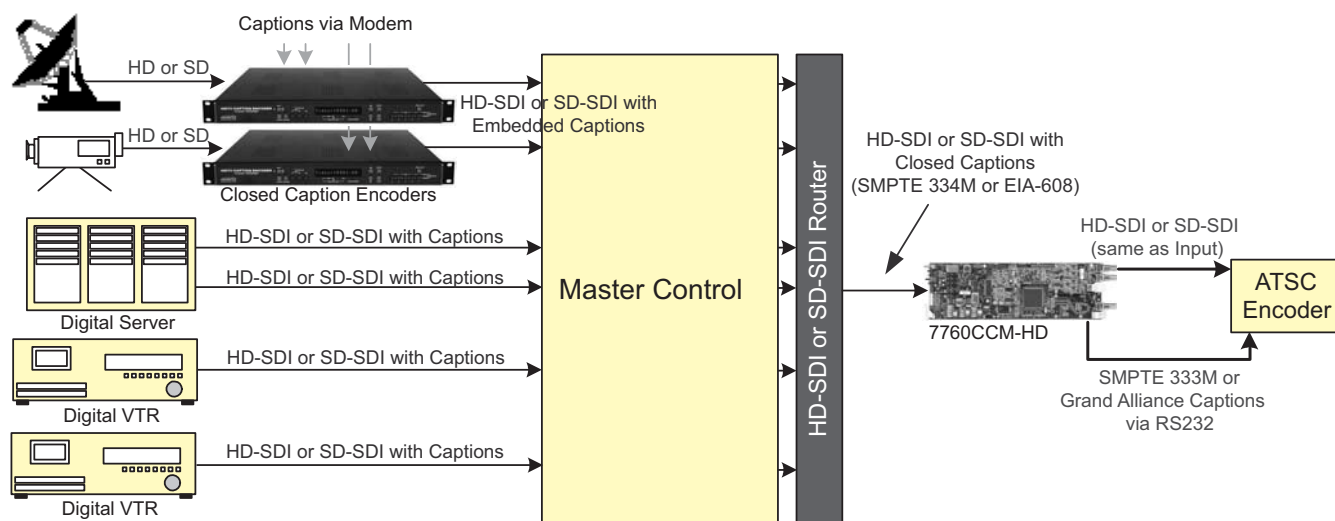


The 7760CCM-HD Closed Caption card is a EIA608 / EIA708 translator and extends the signal monitoring capabilities of the Evertz monitoring product line by focusing on closed captioning (EIA-608 & EIA-708) and Extended Data Service (XDS). The 7760CCM-HD has the capability to translate EIA608 captions to EIA708 Captions supporting SMPTE 333M and Grand Alliance format for RS-232 transfer. The 7760CCM-HD also converts SMPTE 334M VANC captions to SMPTE 333M or Grand Alliance Format for RS232 transfer.

The auto detect program input supports both standard definition and high definition formats. The 7760CCM-HD's EIA-608 decoder is capable of decoding VBI line 21, field 1 and 2 and displaying the information on the monitoring output. One of four caption channels (CC1-CC4) and one of four text service channels (T1-T4) can be simultaneously displayed on the monitoring output. In addition, the scrolling XDS display supports all data packets including TSID, CGMS-A, V-Chip, Station Name and Station ID. The EIA-708 decoder is capable of decoding all HD closed caption service channels and displaying the open options on the monitoring output**.

The 7760CCM-HD occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

****NOTE:** The built in EIA-708 caption decoder does not support the full feature-set of EIA-708 advance captions and is provided for monitoring & verifying captions only



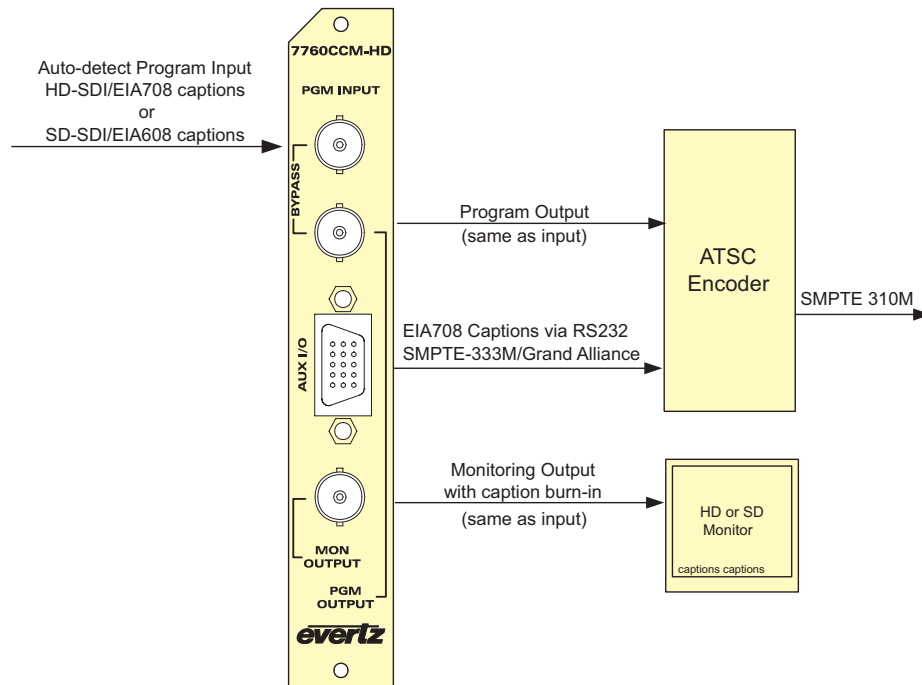
Features

- EIA608 / EIA708 translator provides SMPTE 333M or Grand Alliance format output for RS-232 raw caption data transfer
- Supports SMPTE 333M and Grand Alliance Protocol for convenient interface to most ATSC Encoders
- Built in bypass relay on program output video path
- Auto-detect SMPTE 259M (143 to 540 Mb/s), SMPTE 292M (1.5Gb/s) signal input
- Monitoring output decodes and displays upstream EIA608 and EIA708 captions
- Decodes and displays closed captions & XDS information on field 1 and 2 for the EIA-608 standard
- Decodes and displays closed caption information for the EIA-708 standard
- Decodes XDS packets containing TSID, CGMS-A, Program ID, Time in Show, Program Name, Program Type, V-Chip rating, Program Description, Network Name, Station ID, Time of Day and Time of Zone

VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

HD-SDI/SD-SDI Closed Caption EIA608/EIA708 Translator/Monitor

7760CCM-HD Block Diagram



Specifications

Program Input:

Standard: SMPTE 259M-C, SMPTE 292M
Connector: 1 BNC per IEC 60169-8 Amendment 2
Termination: 75Ω
Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694 (or equivalent)
Automatic to 250m @270Mb/s with Belden 1694 (or equivalent)
Return Loss: >10dB up to 1.5 Gb/s

Program Output:

Standard: Same as input
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 10dB up to 1.5 Gb/s
Wideband Jitter: < 0.2 UI

Monitoring Output:

Standard: Same as input
Reclocked Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
Rise and Fall Time: 200ps nominal @ SMPTE 292M
740ps nominal @ SMPTE 259M-C
Overshoot: <10% of amplitude
Return Loss: >12dB up to 1.5 Gb/s
> 15dB up to 270Mb/s
Output Impedance: 75Ω

General Purpose Interface (GPI) Input/Output:

Number of Inputs: 4
Number of Outputs: 2
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: Female High Density DB-15
Signal Level: +5V nominal

Serial Port:

Standard: RS-232
Connector: Female High Density DB-15
Baud Rate: 19200/38400/57600
Format: 8-bits, no parity, 1 stop bits and no flow control

Electrical:

Voltage: +12V DC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of Slots: 1

Ordering Information:

7760CCM-HD: SD-SDI/HD-SDI Closed Caption EIA608 / EIA708 Translator/Monitor

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

SDI Closed Caption & XDS Decoder and EIA608-708 Translator

Model 7760CCM-T



The 7760CCM-T Closed Captioning, XDS and EIA608-EIA708 Translator card is functionally similar to the 7760CCM card, with the additional feature of a EIA608 to EIA708 Standard translator. The single-slot, 7760CCM-T module fits conveniently into Evertz 7700FR-C, 7701FR frames or standalone enclosures.

The 7760CCM-T closed captioning monitoring card extends the signal monitoring capabilities of Evertz AVM product line by focusing on closed captioning and eXtended Data Services (XDS) data packets carried within Line 21 of the Vertical Blanking Interval (VBI). Compliant with the EIA Standard EIA/CEA-608-B, the 7760CCM-T can be used to monitor the content of Line 21 for pre-distribution monitoring or regulatory compliance.

The 7760CCM-T is capable of decoding Line 21, fields 1 and 2 data and displaying the information on the SDI video output. One of four closed captioning channels (CC1-CC4) and one of four text service channels (T1-T4) can be simultaneously displayed on the video output. In addition, the scrolling XDS display supports all data packets including Transmission Signal Identifier (TSID), Copy Generation Management System (CGMS-A), V-Chip rating, Station Name, Station ID, Program Name, Program Type, Program Description, Time of Day, and Time in Show are decoded to human-readable format. Other (less common) packets are presented as raw data bytes.

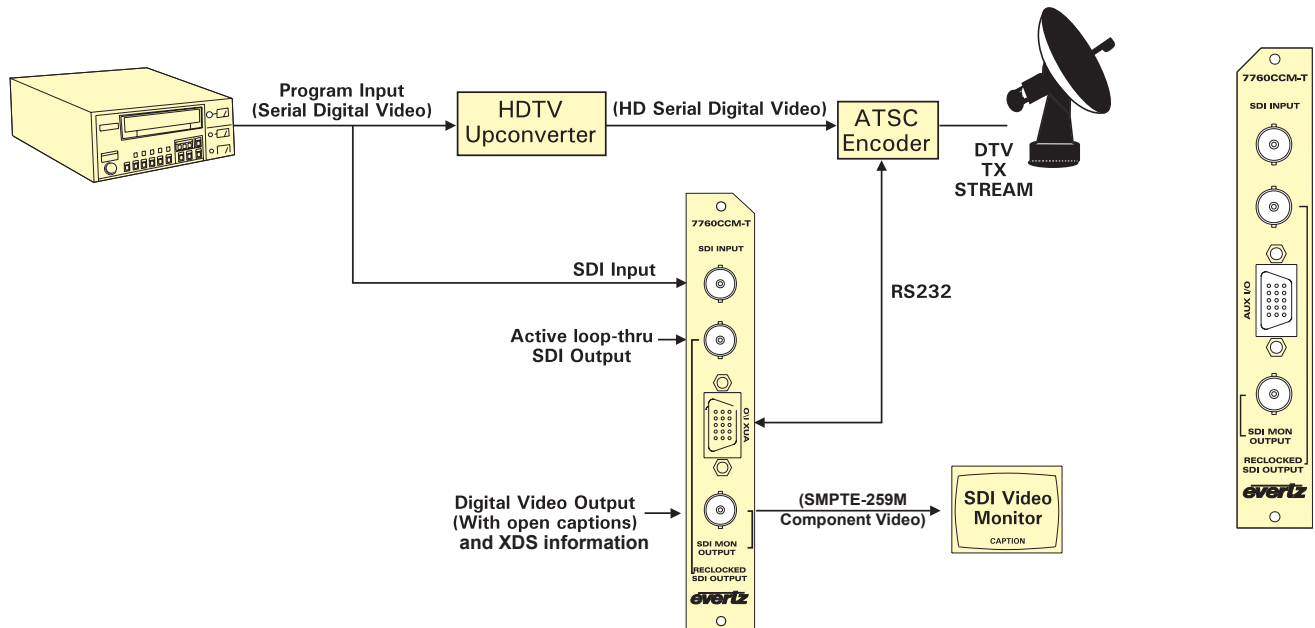
The 7760CCM-T incorporates the fault reporting capabilities inherent in the AVM product line. There are four user-configurable fault alerts that are triggered upon loss of video, loss of CC waveform, parity errors, field inversions, control codes and invalid XDS parameters. The 7760CCM-T is also VistaLINK™-enabled, offering remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP).

Features

- One SD 270 Mb/s component digital video input, 525 or 625 lines, auto-detected or manually set
- One re-clocked SD video output
- Decodes and displays closed captioning on fields 1 and 2 as per EIA Standard EIA/CEA-608-B
- EIA608 to EIA708 translator
- Supports SMPTE 333M and Grand Alliance Protocol for convenient interface to most ATSC Encoders
- User selectable closed captioning channel (1-4), text channel (1-4) and eXtended Data Services (XDS) for video "burn-in"
- Decodes Line 21 XDS packets including Transmission Signal Identifier (TSID), Copy Generation Management System (CGMS-A), Program ID, Time in show, Program name, Program type, V-chip rating, Program description, Network name, Station ID, Time of day and Time zone
- Store and recall up to three module configurations
- Fits conveniently into Evertz 7700FR-C 3RU, 7701FR 1RU frames and standalone enclosure
- A comprehensive on screen display menu is available to configure the various features of the module as well as allows flexible configuration of the text window positioning
- An extensive list of closed captioning and XDS error conditions can be enabled and monitored with on-screen fault messages triggered by exceeded timer parameters
- Four user-configurable GPI inputs for on screen display control, closed captioning channel and text channel selection
- Two user-configurable GPI outputs to indicate user definable fault conditions
- RS-232 serial port output used to transmit raw closed captioning data. (Compliments VBI Bridge functionality of Evertz 8084 CC Encoders)
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

SDI Closed Caption & XDS Decoder and EIA608-708 Translator

7760CCM-T Block Diagram



Specifications

Serial Digital Input:

Standard: SMPTE 259M-C - 525 or 625-line component serial digital video, 270Mb/s
1 BNC per IEC 60169-8 Amendment 2
Connector: 75Ω
Termination: Automatic >225m @ 270 Mb/s with Belden 8281 or equivalent cable
Equalization: >15dB up to 270MHz
Return Loss:

Serial Video Output:

Standard: SMPTE 259M-C - 525 or 625-line component - same as input
Number of Outputs:
Reclocked: 1
Monitor: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 470ps nominal
Overshoot: <10% of amplitude

General Purpose Interface (GPI) Input/Output:

Number of Inputs: 4 (behavior is assigned via on screen menu items)
Number of Outputs: 2 (behavior is programmable via on screen menu items)
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: Female High Density DB-15
Signal Level: +5V nominal

Serial Port:

Standard: RS-232
Connector: Female High Density DB-15
Baud Rate: 38400
Format: 8 bits, no parity, 1 stop bits and no flow control

Electrical:

Voltage: + 12VDC
Power: 12 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7760CCM-T EIA608-EIA708 Translator (Includes Basic Function of 7760CCM and cable)

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

HD Monitoring Splitter

Model 7760VMS-HD



The 7760VMS-HD is a Video Monitoring tool for two 1.5 Gb/s HDTV serial digital video signals. The 7760VMS-HD has a HDTV split screen output from two input signals and also provides a monitoring downconverted split screen. The 7760VMS-HD accepts all the popular international SMPTE 292M video formats.

This 7700 series module provides 3 reclocked primary outputs and 1 reclocked secondary output. The program output is bypass relay protected and provides protection on the program path. If module is removed from enclosure the program path is maintained.

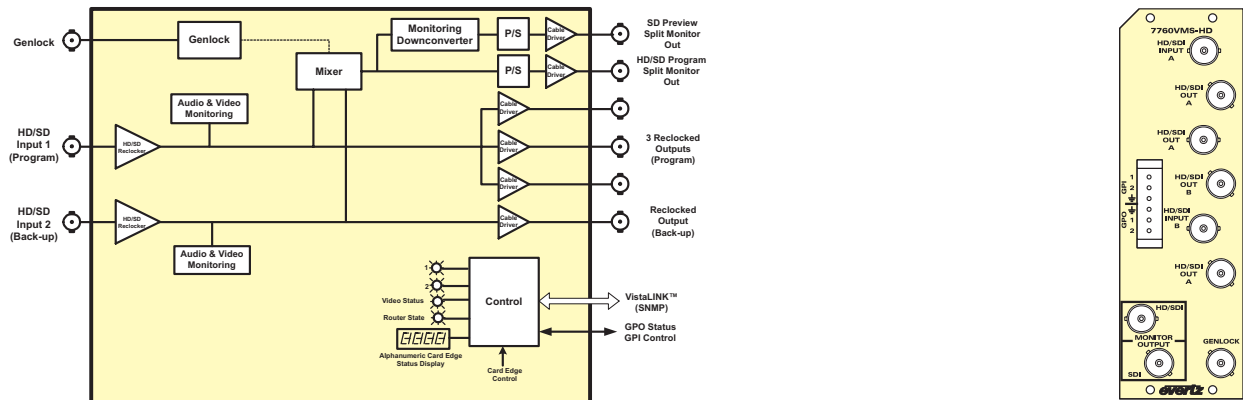
The 7760VMS-HD occupies two card slot in the 3 RU frame, which will hold up to 7 modules or the 1RU frame, which will hold up to three modules.

Features

- Two Serial digital 1.5 Gb/s HD inputs per SMPTE 292M
- 3 Reclocked DA outputs from input 1 and 1 reclocked DA output from input 2
- Mixer takes left half of input 1 and right half of input 2 and keys them together to form the HD Program Output
- Monitoring downconverter for SDI monitoring of split signal
- Occupies two card slots in the 3 RU frame, which will hold up to 7 modules or the 1 RU frame, which will hold up to three modules

- Card edge LEDS indicate module health, video present
- Tally output on Frame Status bus upon loss of input signals
- VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller module in slot 1 of the frame

7760VMS-HD Block Diagram



Specifications

Serial Video Inputs:

Standard:

1.485 Gb/sec SMPTE 292M - auto-detects standard
SMPTE 260M, SMPTE 274M, SMPTE 296M, SMPTE 349M
2 BNC per IEC 60169-8 Amendment 2.

Connector:

Automatic to 100m @ 1.5Gb/s with Belden 1694 or equivalent cable

Input Equalization:

>20 dB up to 270 MHz

Return Loss:

>12 dB up to 1.5GHz

Reclocked Serial Video Outputs:

Standard:

Same as input

Number of Outputs:

3 outputs from input A, 1 output from input B, reclocked

Connector:

BNC per IEC 60169-8 Amendment 2

Signal Level:

800mV nominal

DC Offset:

0V \pm 0.5V

Rise and Fall Time:

200ps nominal for HD

Overshoot:

<10% of amplitude

Return Loss:

>20 dB up to 270 MHz

> 15 dB at 1.5 Gb/s

Jitter:

< 0.16UI (HD)

Downconverted Serial Video Output:

Standard:

SMPTE 259M-C (270 Mb/s)

Number of Outputs:

1

Connector:

BNC per IEC 60169-8 Amendment 2.

Signal Level:

800mV nominal

DC Offset:

0V \pm 0.5V

Rise and Fall Time:

750ps nominal

Overshoot:

<10% of amplitude

Return Loss:

> 15 dB at 270 Mb/s

Jitter:

< 0.2 UI

Genlock Input:

Type:

NTSC or PAL Colour Black 1 V p-p

Connector:

BNC per IEC 60169-8 Amendment 2

Termination:

High impedance or internal 75 ohm termination (jumper selectable)

GPIO Control Port:

Type:

Opto-isolated, active low with internal pull-ups to +5 or +12V (jumper settable)

Connector:

6 pins removable terminal block

Signal Level:

Closure to ground

Electrical:

Voltage:

+12VDC

Power:

14 Watts

EMI/RFI:

Complies with FCC regulations for class A devices

Complies with EU EMC directive

Physical:

7700 frame mounting:

Number of slots:

2

7701 frame mounting:

Number of slots:

1

Ordering Information:

7760VMS-HD HD Video Monitoring Splitter

Ordering Options:

Rear Plate must be specified at time of order

Eg: Model + 3RU

Rear Plate Suffix

+3RU

3RU Rear Plate for use with 7700FR-C Multiframe

+1RU

1RU Rear Plate for use with 7701FR Multiframe

Enclosures:

7700FR-C

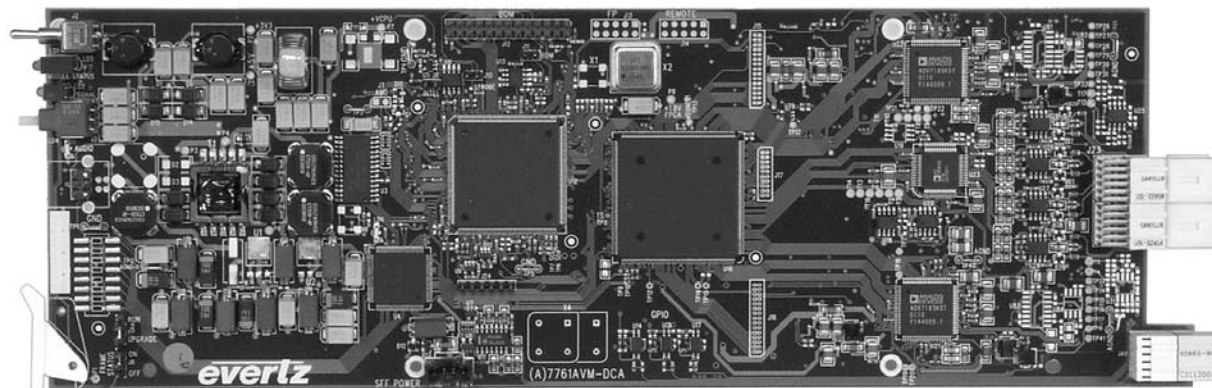
3RU Multiframe which holds 15 modules

7701FR

1RU Multiframe which holds 3 modules

Dual Channel Video and Analog Audio Monitoring

Model 7761AVM2-DC and 7761AVM2-SDC



The 7761AVM2-DC Dual Channel Composite Video and Analog Audio and 7761AVM2-SDC Dual S-Video and Analog Audio monitoring cards perform a number of video, audio and vertical blanking interval (VBI) data analysis, quality control and monitoring functions similar to that of the 7760AVM line of audio/video monitoring cards. Incoming composite analog video or S-video is analyzed and key information about the signal is displayed on the output video. Both 7761AVM2-DC and 7761AVM2-SDC cards have two independent, composite analog video outputs. The 7761AVM2-DC and 7761AVM2-SDC are configurable both locally, through a card-edge push-button toggle with an on-screen display menu, and remotely, through the SNMP communication channel - known as VistaLINK™.

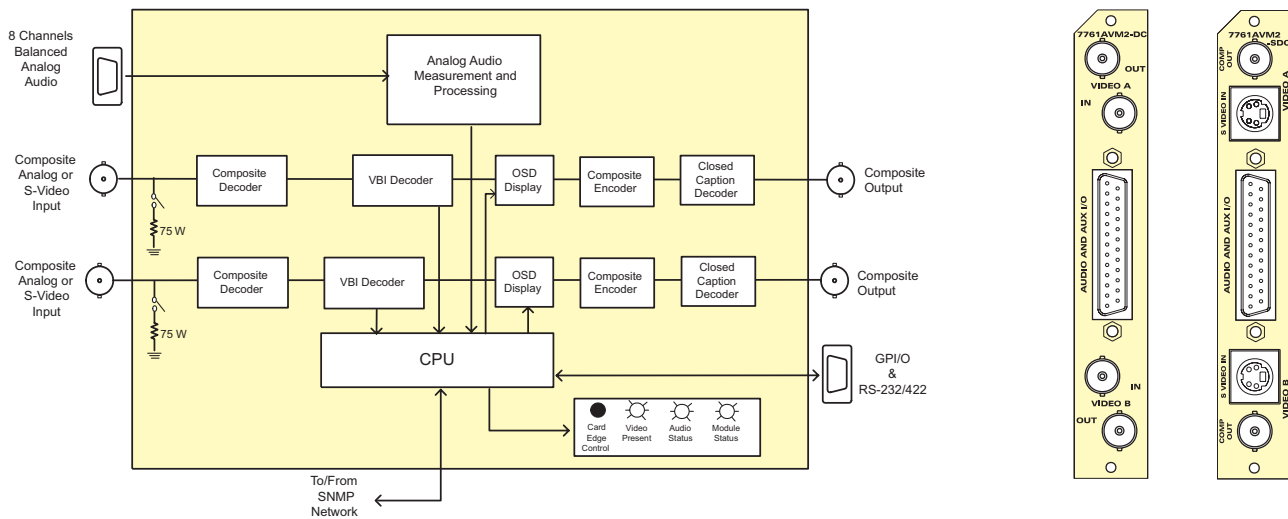
VistaLINK™ offers remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP) giving the flexibility to manage operations, including signal monitoring and module configuration, from SNMP-enabled control systems (Manager or NMS).

Features

- Two independent, composite analog (NTSC/PAL) video inputs (7761AVM2-DC)
- Two independent, S-Video inputs (7761AVM2-SDC) for direct connection to satellite IRD's for improved picture display quality
- Dual S-video output version (coming soon)
- One group (4 balanced audio inputs) per video input channel is analyzed and VU/PPM level indicators are keyed as bar graphs in over the video output
- Decodes vertical interval time code (VITC), VBI Source ID and Closed Captioning into the picture
- Provides peak video (Average Picture Level) and black level status and fault monitoring
- A comprehensive on screen display (OSD) is available to configure the various features of the module
- Flexible configuration of the text and audio bar graph information displays
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
- On screen messages can be triggered by the configured fault conditions
- Two independent composite analog (NTSC/PAL) video outputs
- Video output "black-out" option while maintaining audio, video and data parameter monitoring
- Two GPI inputs per video input are available to modify the display characteristics
- GPO output per video output is available to indicate user definable fault conditions
- Audio and GPI/Os are available on a female DB-25 connector
- RS-232 data logging port to log fault conditions
- 7761AVM-DC-BHP-15 Bulkhead Breakout Panel is available to facilitate wiring to the DB-25 connector (Up to 15 7761AVM2-DC or 7761AVM2-SDC cards can be wired per 3RU bulkhead panel)
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

Dual Channel Video and Analog Audio Monitoring

7761AVM2-DC/-SDC Block Diagram



Specifications

Analog Video Input:

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Inputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V +/- 1V
Input Impedance: 75Ω
Return Loss: >40dB up to 5MHz

S-Video Input (7761AVM2-SDC)

Number of Inputs: 2
Connector: IEC 933-5 (4-pin mini-DIN)
Signal Level: Y: 1.0Vp-p, C: 0.286Vp-p
Input Impedance: 75Ω

Analog Audio Input:

Number of Inputs: 8 (4 balanced inputs per video input channel)
Connector: Female DB-25
Input Impedance: 20 kΩ minimum (differential)
Sampling Frequency: 48kHz
Peak Signal and Common Mode Level: 30 dBu

Analog Video Output:

Standard: NTSC (SMPTE 170M) PAL (ITU624-4)
Number of Outputs: 2
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V ±0.1V
Return Loss: >35dB up to 5 MHz
Frequency Response: 0.8dB to 4 MHz
Differential Phase: <0.9° (<0.6° typical)
Differential Gain: <0.9% (<0.5 % typical)
SNR: >56dB to 5 MHz (shallow ramp)

Audio Bar Graphs:

Number of Graphs: 4 (1 group) per video input channel, 2 phase meters
Ballistics: DIN, BBC and Nordic N9

General Purpose In/Out:

Number of Inputs: 1 or 2 (configurable) per video input
Number of Outputs: 1 or 2 (configurable) per video output
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: Female DB-25
Signal Level: +5V nominal (high), 0V (low)

Data Logging Serial Port:

Standard: RS-232
Connector: Female DB-25
Baud Rate: 57600
Format: 8 bits, no parity, 2 stop bits and no flow control

Electrical:

Voltage: + 12VDC
Power: 13 W
EMI/RFI: Complies with FCC Part 15 class A
EU EMC Directive

Physical:

Number of slots: 1

Ordering Information:

7761AVM2-DC	Dual Channel Video & Analog Audio Monitoring
7761AVM2-SDC	Dual S-Video & Analog Audio Monitoring
7761AVM2-SDC-S	Dual S-Video & Analog Audio Monitoring with Dual S-Video Outputs

Ordering Options

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures:

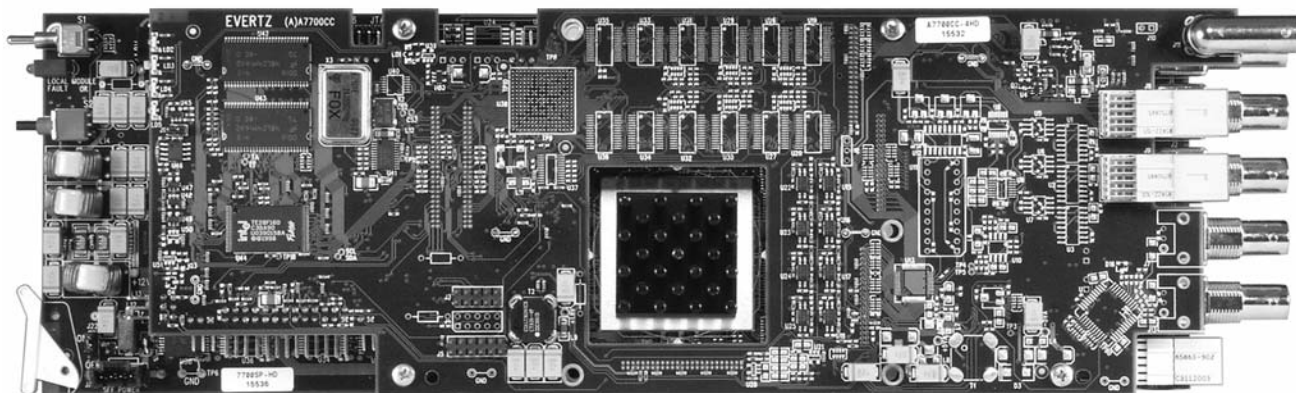
7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Breakout Panels and Cables:

7761AVM-BHP-15	Bulkhead Breakout Panel for 15 x 7761AVM-DC cards (includes 15-3ft cables)
WA7761AVMBHP3F	Breakout cable (3ft) for 7761AVM-DC models

Quattro™, Four SDI Video Quad Split Display with Digital Audio Monitoring

Model 7765AVM-4/-4A



Building on the popularity of the 7760AVM series of audio, video and data monitoring cards, Evertz's Quattro™ 7765AVM-4 SDI monitoring card increases the monitoring capacity by simultaneously accepting and analyzing four individual SDI/601 video signals. One multiplexed video output displays video, status and user-configurable fault condition alerts for each input in a 2x2-matrix format. Subsequently, the Quattro™ 7765AVM-4 SDI monitoring card provides a cost-effective solution not only for monitoring multiple channels in a broadcast facility, but also by offering facility managers the choice of using legacy or new output displays.

Equipped with standard audio and video (AVM) monitoring features including an on-screen, menu-driven display, user configurable audio level bar graphs and status windows, the 7765AVM-4 "Quattro" can simultaneously display four SDI/601 video signals with embedded audio through an HD (7765AVM-4-HD), SD (7765AVM-4-SD), Composite Analog (7765AVM-4-CA) or VGA (7765AVM-4-VGA) output, supporting 4:3 and 16:9 aspect ratios. Furthermore, the 7765AVM-4A "Quattro" series monitors the signal status of either embedded audio or externally supplied AES/EBU audio (3 AES/EBU inputs per video channel supported). Upon setting parameter thresholds and enabling fault conditions, any adverse behavior of any one input stream results in a clearly recognizable, user configurable on-screen, or GPI, fault alert message, immediately notifying operators of potential problems. The two-slot 7765AVM-4 and 7765AVM-4A cards fit conveniently into Evertz's 7700FR-C frame.

The 7765AVM-4 and -4A cards are also VistaLINK™-enabled, offering remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This product feature offers another solution to manage operations including signal monitoring and module configuration from SNMP-enabled control systems (Manager or NMS) locally or remotely.

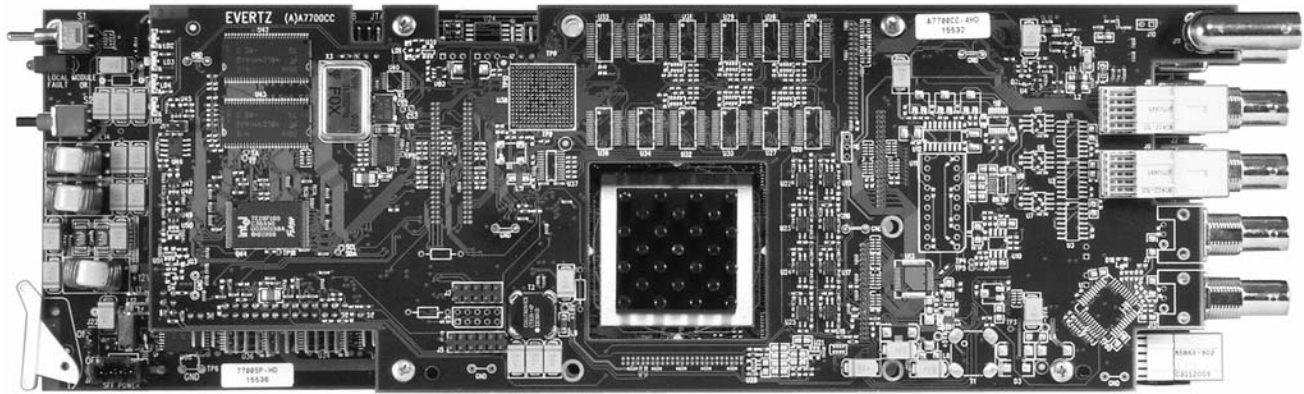
Features

- Four SDI/601 525 line or 625 line, 270 Mb/s component digital video inputs with embedded audio on 7765AVM-4 versions and embedded or external AES/EBU audio on 7765AVM-4A versions. (-VGA -CA and -SD versions support either 525 or 625 line inputs, 525 line inputs for -HD version.)
- One group (4 channels of audio) is demultiplexed from the SDI source and VU/PPM level and phase graphs are keyed next to the video picture
- Genlock reference loop input for proper timing (N/A on -VGA version)
- Decodes vertical interval time code (VITC) and "burns" the time code into the picture
- Decodes PESA format Source ID (8 characters) or VITC Source ID (5 or 9 characters) and burns the ID into the picture
- Decodes and displays Line 21 XDS packets containing network name, call letters, program name and time of day
- A comprehensive on screen display is available to configure the various features of the module
- User-configurable on screen display for source ID/UMD
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
- On screen messages triggered by fault conditions
- Fault condition logic menu option
- Detects frozen video (patent pending) and black video
- Four user-configurable fault condition alert messages per video input with configurable background colors and opacities
- User-configurable tally indicators on source ID messages
- H/V delay viewing configuration
- Standard HD-SDI, SD-SDI, Composite Analog and VGA-type outputs
- Support for 4:3 or 16:9 video inputs and output video displays
- Twelve GPI inputs are available to modify the display characteristics (4 GPI inputs available on 7765AVM-4A versions)
- Four GPO outputs to indicate user definable fault conditions
- External AES audio and GPI I/Os are available on a DB-25 connector
- RS-232 or RS-422 serial port (jumper configurable) for interface to common UMD protocols
- Optional Bulkhead Breakout Panel accessory that provides a convenient connection for AES/EBU audio and GPI I/O signals into the DB-25 on 7765AVM-4A modules
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

7700FR-C	3RU Multiframe which holds 15 modules
7701FR	1RU Multiframe which holds 3 modules
S7701FR	Standalone enclosure

Analog Quattro™, Four Analog Video & Quad Split with Analog Audio Monitoring

Model 7766AVM-4A



Evertz's 7766AVM-4A and 7766AVM-S4A Analog Quattro™ audio and video monitoring cards simultaneously accept and analyze up to four composite analog or S-Video inputs and optionally display up to four signals with alarm, status and audio level monitoring in a 2x2 matrix format. High resolution serial SD, analog RGB and composite analog outputs are available.

Equipped with standard features including an on-screen, menu-driven display, user configurable audio level and phase bar graphs, and status windows, the 7766AVM-4A/-S4A can simultaneously display four video signals and external analog audio with on-screen audio, video and data status information through SD, analog RGB and composite analog outputs. Upon setting parameter thresholds and enabling fault conditions, any adverse behavior of any one input stream results in a clearly recognizable, user configurable on-screen, or GPI fault alert message, immediately notifying operators of potential problems. The two-slot 7766AVM-4A/-S4A card fits conveniently into Evertz's 7700FR-C frame. Up to 28 signals can be monitored from the single 3RU frame.

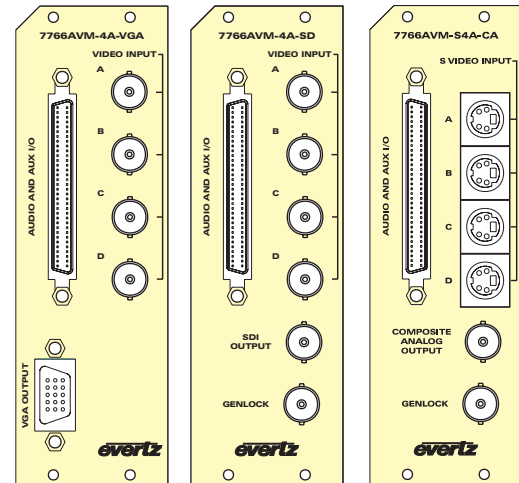
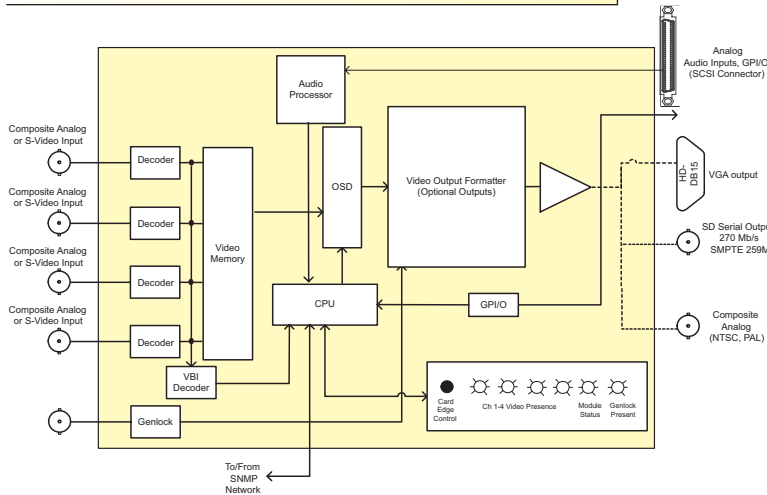
The 7766AVM-4A/-S4A cards are VistaLINK™ enabled offering remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage operations including signal monitoring and card configuration from SNMP-enabled control systems (Manager or NMS) locally or remotely.

Features

- Four composite analog (NTSC/PAL auto-detecting) inputs (BNC-type)
 - Optional four S-Video inputs
 - One analog RGB or Composite Analog output
 - 4 balanced audio inputs per video input channel is analyzed and VU/PPM level indicators are keyed as bar graphs beside the video output (16 analog audio channels per card)
 - H/V delay viewing configuration
 - Quadrant view or expanded display modes
 - Detects frozen and black video
 - Decodes vertical interval time code (VITC) and "burns" the time code into the picture
 - Decodes VITC Source ID (5 or 9 characters), PESA format Source ID (8 characters) or user-configurable default message (when not decoded) and burns the ID into the picture
 - A comprehensive on screen display is available to configure the various features of the module
 - Flexible configuration of the text and audio bar graph information displays
 - An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
 - Four user-configurable fault condition alert messages with independent fault threshold and duration settings
 - On screen messages can be triggered by the configured fault conditions
 - User-configurable tally indicators and configurable SID/UMD text and background colours
 - RS-232/RS-422 serial port (jumper configurable) for interface to common UMD protocols
 - Four GPI inputs (unassigned)
 - Four GPO outputs (dedicated 1 per video quadrant)
 - Audio and GPI/Os are available through SCSI connector
 - Fault condition logic menu option
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

Analog Quattro™, Four Analog Video & Quad Split with Analog Audio Monitoring

7766AVM-4A Block Diagram



Specifications

Analog Video Input:

Standard: NTSC (SMPTE 170M) PAL (ITU624-4)
Number of Inputs: 4
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V +/-1V
Input Impedance: 75Ω
Return Loss: > 40 dB up to 5MHz

S-Video Input (7766AVM-S4A-x):

Number of Inputs: 4
Connector: 4-pin mini DIN
Signal Level: Y: 1.0 Vp-p, C: 0.286 Vp-p
Input Impedance: 75Ω, sync negative, 75Ω terminated

Analog Audio Input:

Number of Inputs: 16 (2 balanced pair per video input)
Connector: 68-pin SCSI
Type: Balanced analog audio
Input Impedance: 20kΩ minimum (differential)
Sampling Frequency: 48kHz
Peak Signal and Common Mode Level: 30dBu

Serial Video Output (7766AVM-4A-SD & 7766AVM-S4A-SD):

Standard: SMPTE 259M-C
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 470ps nominal
Overshoot: <10% of amplitude

Analog Video Output (7766AVM-4A-CA & 7766AVM-S4A-CA):

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V +/-0.1V
Return Loss: > 35dB up to 5MHz
Frequency Response: 0.8dB to 4MHz
Differential Phase: < 0.9° (< 0.6° typical)
Differential Gain: < 0.9% (< 0.5% typical)
SNR: > 56dB to 5MHz (shallow ramp)

Analog Video Output (7766AVM-4A-VGA & 7766AVM-S4A-VGA):

Standard: VESA
Number of Outputs: 1
Connector: Female, high density DB-15
Video: 1Vp-p YPrPb/RGB or 0.7Vp-p VGA, 60Hz refresh
Impedance: 75Ω
Sync: 300 mV or 4V

Genlock Input:

Type: NTSC (SMPTE 170M) colour black
Level: 1Vp-p nominal
Connector: BNC per IEC 60169-8 Amendment 2

Audio Bar Graphs (per video output):

Number of Graphs: 4 (1 group) per video input channel, 2 phase meters
Ballistics: DIN, BBC and Nordic N9

General Purpose In/Out (GPI/GPO):

Number of Inputs: 4 (configurable)
Number of Outputs: 4 (dedicated)
Connector: 68-pin SCSI
Type: Opto-isolated, active low with internal pull-ups to +5V
Input Signal: Closure to ground
Signal Level: +5V nominal

Data Input/Output Serial Port:

Standard: 1 RS-232 or 1 RS-422 (jumper selectable)
Connector: 68-pin SCSI
Baud Rate: Up to 1 Mbaud
Format: RS-232: 8 bits, no parity, 2 stop bits and no flow control

Electrical:

Voltage: +12V DC
Power: 24 Watts
EM/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Number of slots: 2

Ordering Information:

7766AVM-4A-VGA Analog Quattro™ Four Composite Analog Video (BNC) and Analog Audio Monitoring with analog RGB output
7766AVM-4A-CA Analog Quattro™ Four Composite Analog Video (BNC) and Analog Audio Monitoring with Composite Analog output
7766AVM-4A-SD Analog Quattro™ Four Composite Analog Video (BNC) and Analog Audio Monitoring with Serial Digital output
7766AVM-S4A-VGA Analog Quattro™ Four S-Video and Analog Audio Monitoring with analog RGB output
7766AVM-S4A-CA Analog Quattro™ Four S-Video and Analog Audio Monitoring with Composite Analog output
7766AVM-S4A-SD Analog Quattro™ Four S-Video and Analog Audio Monitoring with Serial Digital output

Ordering Options:

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Breakout Panels and Cables:

7766AVM-4A-BHP-4 Bulkhead breakout panel, linking audio, GPI/O and comm port to up to four 7766AVM-4A/-S4A
7766AVM-4A-BHP-1 Bulkhead breakout panel, linking audio, GPI/O and comm port to one 7766AVM-4A/-S4A (included with every 7766AVM-4A and 7766AVM-S4A product)
WSCS133PEX4 Breakout cable (3ft) for 7766AVM-4A-BHP (will work for both "-4" or "-1" BHP models)

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

VIP™ Four Input Video Monitoring and Display

Model 7767VIP4-HSN



Building on the popularity of the Quattro™ series, Evertz's new 7767VIP4 signal monitoring module simultaneously accepts, auto-detects, analyzes and displays four synchronous or asynchronous HD/SD/Analog video signals. An additional fifth input is a computer graphic input for display of a dynamic background image. Ultimately displaying up to WUXGA (1920 x 1200) resolution, the 7767VIP4 module fits conveniently into Evertz's universally installed 7700FR-C frame and provides a cost-effective and space-efficient signal monitoring and display solution.

The 7767VIP4 module is VistaLINK™-enabled, offering remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This product feature offers another solution to manage operations including signal monitoring and module configuration from SNMP-enabled control systems (Manager or NMS) locally or remotely.

Features

Video Inputs:

- Up to four auto-sensing HD/SD/NTSC/PAL inputs (same BNC)
- Accepts either 4:3 or 16:9
- Auto-detects 525/625 format SD inputs (single frame rate conversion)
- A fifth input, (DVI-I up to UXGA resolution) source is used for background display, signal analyzer tools or for cascading multiple VIP modules together

Audio Inputs:

- Handles embedded, discrete unbalanced AES/EBU, and balanced analog audio (up to 16 AES and 4 L/R) via break-out panel
- VU/PPM level indicators

Video Output:

- One DVI-I output
 - Drive a single DVI-D and a single RGBHV (VGA-type) display simultaneously with same content up to WUXGA (1920x1200 resolution)
- One selectable HD/SD serial digital (BNC) video output, same content as DVI-I output, or select from input
- Minimal processing delay (~1 frame)
- Optional fiber output
- Optional support for "portrait" display via 2430GDAC-WARP
- Thumbnails of any or all selected inputs to VistaLINK™ PRO thumbnail server (or equivalent)

Graphics:

- User-configurable tally indicators and configurable UMD static and/or dynamically updated text, background colors
- User configurable borders
- LTC input drives digital clock display
- Count-up or down timer displays (GPI triggered)

Signal Monitoring:

- Extensive list of user-configurable signal fault conditions with "logic" settings
- Detects frozen video (patent pending) and black video
- User-configurable fault condition alert messages per video input with configurable background colors, opacities, thresholds and duration settings
- Closed caption presence detection

Auxiliary Inputs:

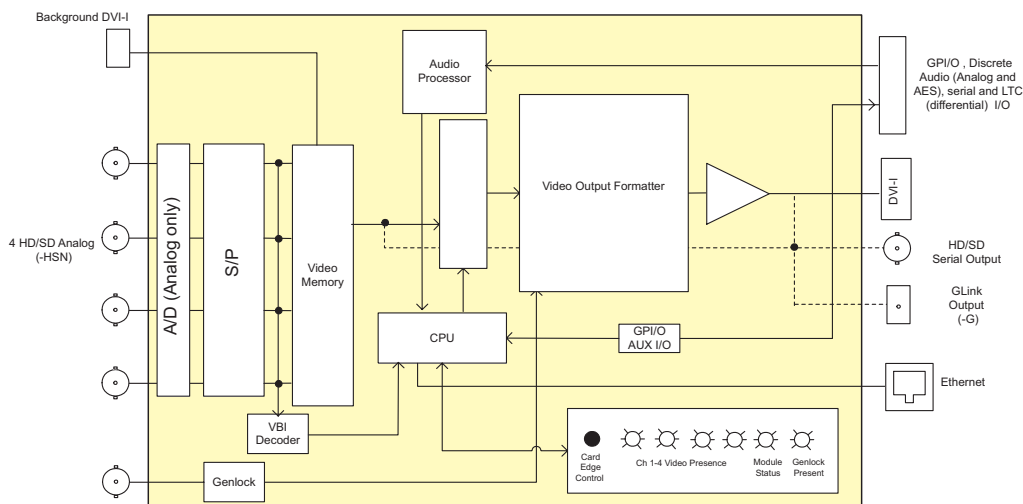
- RS-232/RS-422 communication port interface to common UMD protocols - TSL, Image Video
- 20 assignable GP inputs, 8 GP outputs

Physical:

- Number of slots - 3
- Genlock reference loop input for proper timing - 1 NTSC/PAL
- Fast power-cycle time (<3 seconds)

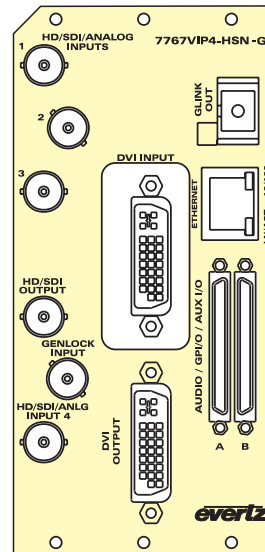
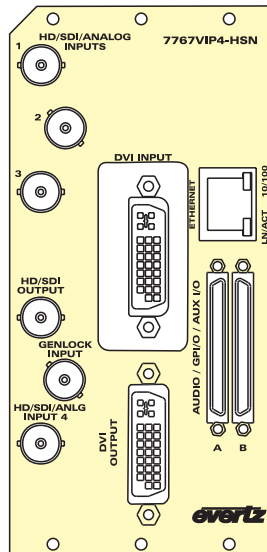
- Built-in VistaLINK™ support for remote monitoring and control via SNMP (using VistaLINK™ PRO)
- The 7767VIP module does not require a 7700FC VistaLINK™ Frame Controller. A direct Ethernet connection to the network for VistaLINK™ operations must be provided by user. Screen configurations via Maestro VIP GUI software (included)

7767VIP4 Block Diagram



VIP™ Four Input Video Monitoring and Display

Rear Panels



Specifications

Serial Video Inputs (-H, -S):

Standard: Auto-sensing HD-SDI (SMPTE 292M), SD-SDI (SMPTE 259M-C)
Number of Inputs: Up to 4
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 100m (Belden 1694A)
Return Loss: > 15 dB up to 270 Mb/s
Embedded Audio: SMPTE 272M-A

Composite Analog Video Inputs (-N):

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Inputs: Up to 4
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V ±0.1V
Input Impedance: 75Ω
Return Loss: 40dB up to 5MHz

Background (Computer) Video Input:

Standard: Auto-detecting, VESA (DVI-I, for DVI and RGBHV inputs)
Number of Inputs: 1
Connector: DVI-I (Female)
Input Resolution: 640 x 480 (VGA) to 1600 x 1200 (UXGA)
Signal Level: 1V nominal

Discrete Digital AES Audio Inputs:

Standard: SMPTE 276M
Number of Inputs: 2 AES per video input
Connector: Dual SCSI (F)
Resolution: 24-bit
Sampling Rate: 48 kHz
Impedance: 75Ω unbalanced

Discrete Analog Audio Inputs:

Number of Inputs: 12 balanced stereo audio pairs
Connector: Female DB-25
Input Impedance: 20 kΩ minimum (differential)
Sampling Frequency: 48kHz
Peak Signal and Common Mode Level: 30 dBu

Display Video Output:

Standard: VESA (DVI-I) up to WUXGA (1920 x 1200)
Number of Outputs: 1
Connector: DVI (with DVI to RGBHV Adapter)
Video: 1Vp-p YPrPb/RGB or 0.7Vp-p VGA, 60Hz refresh
Impedance: 75Ω

Serial Video Output:

Standard: Selectable HD/SD serial monitoring output (720p, 1080i, 625i, 525i)
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal (HD), 740ps nominal (SD)
Overshoot: <10% of amplitude

Genlock Input:

Type: NTSC/PAL color black
Level: 1V p-p nominal
Connector: BNC per IEC 60169-8 Amendment 2

General Purpose Interface I/O (GPI/GPO):

Number of Inputs: 20 (16 via 7767BHP-AUX breakout panel)
Number of Outputs: 8
Type:
 GPI 1 Opto-isolated, active low with internal pull-ups to +5V
 GPO 1 Relay closure to ground
Connector: Breakout panel TBlocks via SCSI connection to dual SCSI (F)
Input Signal: Closure to ground

Data Input/Output Serial Port:

Number of Ports: 1 RS-232 or 1 RS-422 (jumper configurable)
Connector: Breakout panel TBlocks via SCSI connection to dual SCSI (F)
Baud Rate: Up to 1Mbaud
Format: Configurable for various UMD interfaces

Ethernet:

Network Type: Fast Ethernet 100 Base-TX 1EEE 802.3U standard for 100Mbps baseband CSMA/CD local area network
Connector: RJ-45

Electrical:

Voltage: +12 VDC
Power: <39 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of Slots: 3

Ordering Information:

7767VIP4-HSN Up to four asynchronous HD/SD/NTSC/PAL inputs with embedded audio, one background DVI-I (DVI-D or RGBHV with adapter) input. Single DVI-I (DVI-D or RGBHV with adapter) or one serial monitor output. Includes VistaLINK VLPRO-C software configuration tool, GPI/O break-out panel (BHP-AUX) and Maestro-VIP display layout GUI
7767VIP4-HSN-G Up to four asynchronous HD/SD/NTSC/PAL inputs with embedded audio, one background DVI-I (DVI-D or RGBHV with adapter) input. Single DVI-I (DVI-D or RGBHV with adapter) or one serial monitor output. Includes VistaLINK VLPRO-C software configuration tool, GPI/O break-out panel (BHP-AUX) and Maestro-VIP display layout GUI. Single built-in fiber output (requires 2430GDAC on Rx end to display)
(For 7767VIP4-SN and 7767VIP4-N versions, contact factory)

Ordering Options & Accessories

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix
+3RU

3RU Rear Plate for use with 7700FR-C Multiframe

2430GDAC
2430GDAC-WARP
7767VIP-AI-U

GLink to DVI converter (extender requires -G module)
GLink to DVI converter (extender and portrait mode display, requires -G module)
Discrete unbalanced AES/EBU audio input (4 AES per video input) support with breakout panel

7767VIP-AI-BAL
3000MKT-AUX

Discrete balanced analog audio input support with breakout panel
Dual BHP-AUX auxiliary GPI/O and serial break-out panel rack mounting kit

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules
7702FR Standalone enclosure

VIP™ Twelve Input Video Monitoring and Display

Model 7767VIP12-HSN/-SN



Building on the popularity of both the Quattro™ series and MVM product lines, the VIP™ maintains the signal monitoring features common in both predecessors, offers additional display features and conveniently fits the universally installed 7700FR-C frame.

The VIP12 accepts, analyzes and displays up to 12 HD/SD analog video inputs, auto-sensing the format on the same BNC. An additional thirteenth input is a computer graphic input for a dynamically-updated background image. The VIP™ outputs up to WUXGA (1920 x 1200) resolution, providing an ideal solution to view a full-screen HD input signal in its native resolution. A user-configurable HD/SD serial output is also provided for facility routing or evidence monitoring & recording if desired, where both the DVI and serial outputs carry the same content simultaneously. The serial output can also output one of the selected inputs for analysis or streaming via encoder.

The VIP™ is VistaLINK™ -enabled, offering remote monitoring of faults as well as control and configuration through Simple Network Management Protocol (SNMP).

Features

Video Inputs:

- Twelve auto-sensing HD/SD/analog video inputs
- Accepts either 4:3 or 16:9
- Auto-detects 525/625 format SD inputs (single frame rate conversion)
- Computer graphic video input (DVI-I up to UXGA) for background display, signal analyzer tools or cascading multiple VIP modules

Audio Inputs:

- Handles embedded or unbalanced AES/EBU, and balanced analog audio (up to 48 AES and 12 L/R) via break-out panel
- VU/PPM level indicators

Video Output:

- One DVI-I output
 - Drive a single DVI-D and a single RGBHV (VGA-type) display simultaneously with same content up to WUXGA (1920x1200 resolution)
- One selectable HD/SD serial digital (BNC) video output, also carrying same content as DVI-I output or select from input
- Minimal processing delay (~1 frame)
- Optional fiber output
- Optional support for "portrait" display via 2430GDAC-WARP
- Thumbnails of any or all selected inputs to VistaLINK™ PRO Thumbnail Server (or equivalent)

Graphics:

- User-configurable tally indicators and configurable UMD static and/or dynamically updated text, background colors
- User configurable borders
- LTC input drives digital clock display
- Count-up or down timer displays (GPI triggered)

Signal Monitoring:

- Extensive list of user-configurable signal fault conditions with logic settings
- On screen messages triggered by fault conditions
- Detects frozen video (patent pending) and black video
- User-configurable fault condition alert messages per video input with configurable background colors, opacities, thresholds and durations
- Closed caption presence detection

Auxiliary Inputs:

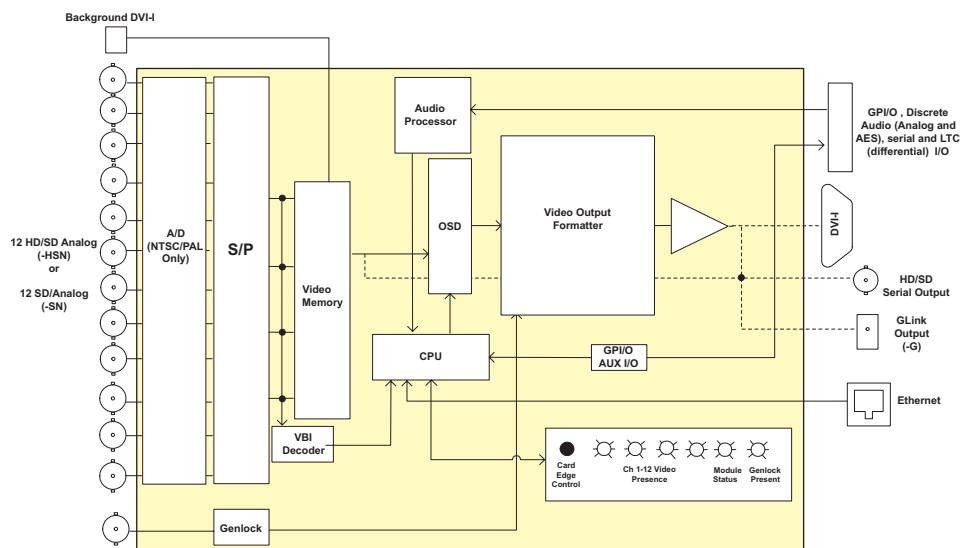
- RS-232/RS-422 communication port Interface to common UMD protocols - TSL, Image Video
- 20 assignable GP inputs, 8 GP outputs

Physical:

- Number of slots - 4
- Genlock reference loop input for proper timing - 1 NTSC/PAL
- Fast power-cycle time (<3 seconds)

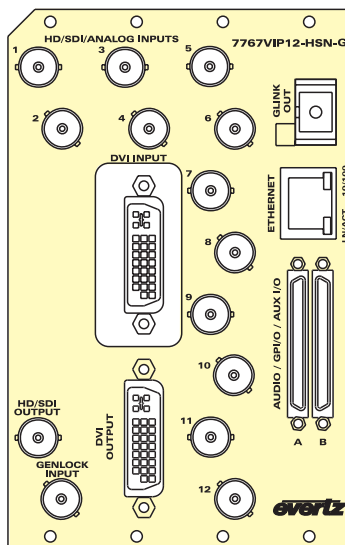
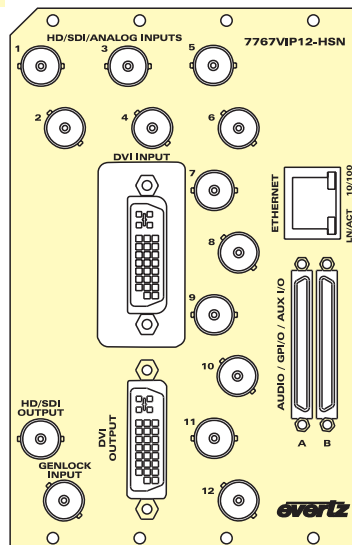
- Built-in VistaLINK™ support for remote monitoring and control via SNMP (using VistaLINK™ PRO)
- The 7767VIP module does not require a 7700FC VistaLINK™ Frame Controller. A direct Ethernet connection to the network for VistaLINK™ operations must be provided by user. Screen configurations via Maestro VIP GUI software (included)

7767VIP12 Block Diagram



VIP™ Twelve Input Video Monitoring and Display

Rear Panels



Specifications

Serial Video Inputs (-H, -S):

Standard: HD-SDI (SMPTE 292M), and/or SD-SDI (SMPTE 259M-C)
Number of Inputs: 12
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 100m (Belden 1694A)
Return Loss: > 15dB up to 270 Mb/s
Embedded Audio: SMPTE 272M-A

Composite Analog Video Inputs (-N):

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Inputs: 12
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V nominal
DC Offset: 0V \pm 0.1V
Input Impedance: 75 Ω
Return Loss: 40dB up to 5MHz

Background (Computer) Video Input:

Standard: Auto-detecting, VESA (DVI-I, for DVI and RGBHV inputs)
Number of Inputs: 1
Connector: DVI-I (Female)
Input Resolution: 640 x 480 (VGA) to 1600 x 1200 (UXGA)
Signal Level: 1V nominal

Discrete Digital AES Audio Inputs:

Standard: SMPTE 276M
Number of Inputs: 2 AES per video input
Connector: Dual SCSI (F) with BHP
Resolution: 24-bit
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced

Discrete Analog Audio Inputs:

Number of Inputs: 12 balanced stereo audio pairs
Connector: Dual SCSI (F) with BHP
Input Impedance: 20k Ω min. (differential)
Sampling Frequency: 48kHz
Peak Signal and Common Model Level: 30dBu

Display Video Output:

Standard: VESA (DVI-I) up to WUXGA (1920 x 1200)
Number of Outputs: 1
Connector: DVI (with DVI to RGBHV Adapter)
Video: 1Vp-p YPrPb/RGB or 0.7Vp-p VGA, 60Hz refresh
Impedance: 75 Ω

Serial Video Output:

Standard: Selectable HD/SD serial monitoring output (720p, 1080i, 625i, 525i)
Number of Outputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 200ps nominal (HD), 740ps nominal (SD)
Overshoot: <10% of amplitude

Genlock Input:

Type: NTSC/PAL color black
Level: 1V p-p nominal
Connector: BNC per IEC 60169-8 Amendment 2

General Purpose Interface I/O (GPI/GPO):

Number of Inputs: 20 (16 on 7767BHP-AUX)
Number of Outputs: 8
Type:
GPI 1 Opto-isolated, active low with internal pull-ups to +5V
GPO 1 Relay closure to ground
Connector: Breakout panel TBLOCKS via SCSI connection to dual SCSI (F)
Input Signal: Closure to ground

Input/Output Serial Port:

Number of Ports: 1 RS-232 or 1 RS-422 (jumper configurable)
Connector: Breakout panel TBLOCKS via SCSI connection to dual SCSI (F)
Baud Rate: Up to 1Mbaud
Format: Configurable for various UMD interfaces

Ethernet:

Network Type: Fast Ethernet 100 Base-TX 1EEE 802.3U standard for 100Mbps baseband
CSMA/CD local area network
Connector: RJ-45

Electrical:

Voltage: +12VDC
Power: <50 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Physical:

Number of Slots: 4

Ordering Information:

7767VIP12-HSN	Up to twelve asynchronous HD/SD/NTSC/PAL inputs with embedded audio, one back ground DVH (DVI-D or RGBHV with adapter) input. Single DVH (DVI-D or RGBHV with adapter) or one serial monitor output. Includes VistaLINK VLPRO-C software configuration tool, GPI/O break-out panel (BHP-AUX) and Maestro-VIP display layout GUI.
7767VIP12-HSN-G	Up to twelve asynchronous HD/SD/NTSC/PAL inputs with embedded audio, one back ground DVH (DVI-D or RGBHV with adapter) input. Single DVH (DVI-D or RGBHV with adapter) or one serial monitor output. Includes VistaLINK VLPRO-C software configuration tool, GPI/O break-out panel (BHP-AUX) and Maestro-VIP display layout GUI. Single built-in fiber output (requires 2430GDAC on Rx end to display).
7767VIP12-SN	Up to twelve asynchronous SD/NTSC/PAL inputs with embedded audio, one back ground DVH (DVI-D or RGBHV with adapter) input. Single DVH (DVI-D or RGBHV with adapter) or one serial monitor output. Includes VistaLINK VLPRO-C software configuration tool, GPI/O break-out panel (BHP-AUX) and Maestro-VIP display layout GUI.
7767VIP12-SN-G	Up to twelve asynchronous SD/NTSC/PAL inputs with embedded audio, one back ground DVH (DVI-D or RGBHV with adapter) input. Single DVH (DVI-D or RGBHV with adapter) or one serial monitor output. Includes VistaLINK VLPRO-C software configuration tool, GPI/O break-out panel (BHP-AUX) and Maestro-VIP display layout GUI. Single built-in fiber output (requires 2430GDAC on Rx end to display).

(For 7767VIP12-N versions, contact factory)

Ordering Options & Accessories

Rear Plate must be specified at time of order
Eg: Model + 3RU

Rear Plate Suffix

+3RU 3RU Rear Plate for use with 7700FR-C Multiframe

2430GDAC

GLink to DVI converter (extender requires -G module)

2430GDAC-WARP

GLink to DVI converter (extender and portrait mode display, requires -G module)

7767VIP-AI-U

Discrete unbalanced AES/EBU audio input (4 AES per video input) support with breakout panel

7767VIP-AI-BAL

Discrete balanced analog audio input support with breakout panel

3000MKT-AUX

Dual BHP-AUX auxiliary GPI/O and serial break-out panel rack mounting kit

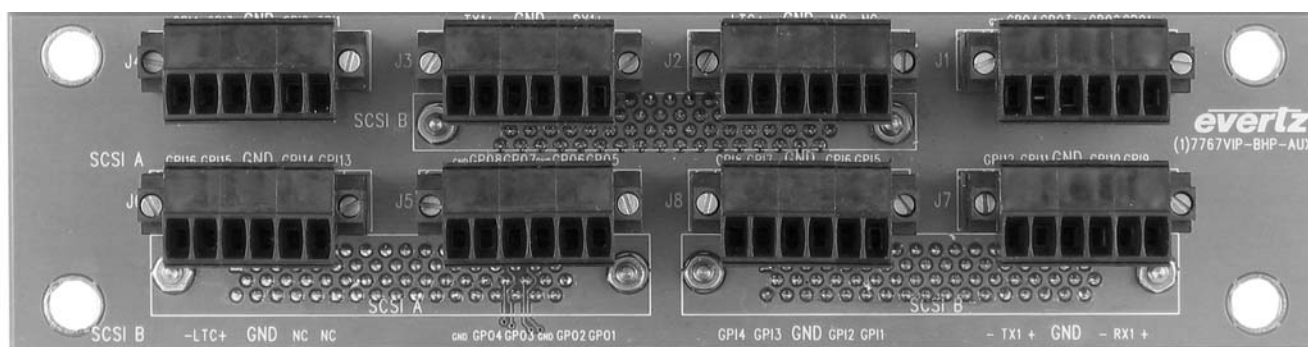
Enclosures:

7700FR-C

3RU Multiframe which holds 15 modules

Models 7767BHP-AUX 7767BHP-BAUX 7767BHP-UAUX

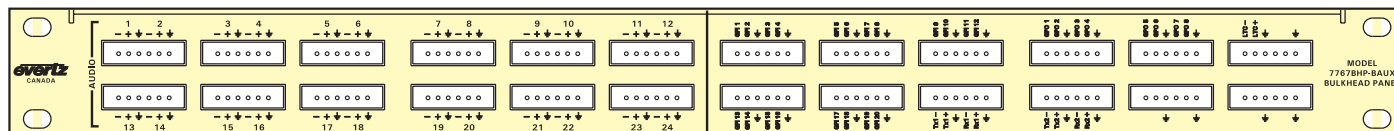
Bulkhead Breakout Panels (BHP) provide a convenient way of connecting audio and auxiliary input and output signals into VIP module SCSI rear plate connectors. BHPs may be outfitted with BNCs and/or terminal strips, extending AES, GPI/O, Tx/Rx, Analog Audio and GND connections as described below. BHPs occupy 1/2RU, 1RU or 2RU of rack space and are designed for mounting at the rear of the rack panel. BHPs are included with specific line item order options as defined below.



7767BHP-AUX (included with every VIP4 or VIP12 module)

The 7767BHP-AUX is outfitted with eight terminal blocks and provides connectivity for 16 GPI inputs, 8 GPI outputs, LTC, and serial RS-232/422. The 7767BHP-AUX is included with every VIP4 and VIP12 module. Furthermore, one 7767BHP-AUX has 2 modes of operation:

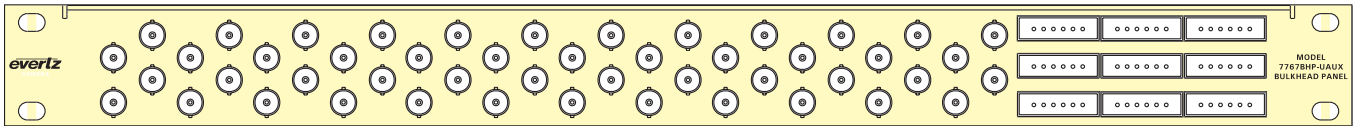
1. Single VIP module mode - provides full AUX I/O as described above per VIP module
2. Dual VIP modules mode - provides 4 GPI inputs, 4 GPI outputs, LTC and serial connections for 2 VIP modules



7767BHP-BAUX (included with 7767VIP-AI-BAL)

The 7767BHP-BAUX provides terminal blocks for mappable balanced analog audio inputs to the VIP module. In addition, this breakout panel is also outfitted with the complete set of GPI inputs (20), GPI outputs (8), LTC differential inputs, serial ports (RS-232/RS-422) and one group AES outputs. This breakout panel replaces the 7767BHP-AUX.

VIP™ Bulkhead Breakout Panels



7767BHP-UAUX (included with 7767VIP-AI-U)

The 7767BHP-UAUX provides unbalanced AES/EBU inputs via BNCs to the VIP module. It is possible to provide up to 4 unbalanced AES/EBU inputs per video input channel on the VIP. In addition, this breakout panel is also outfitted with the complete set of GPI inputs (20), GPI outputs (8), LTC differential inputs one serial port (RS-232/RS-422) and one group AES output. This breakout panel replaces the 7767BHP-AUX.



3000MKT-AUX

For mounting convenience, a BHP mounting kit (3000MKT-AUX) is available with mounting hardware. It is shown in the picture above with two mounted AUX-BHPs.

Ordering Information

- | | |
|-----------------------|---|
| 7767VIP-AI-U | Discrete unbalanced AES/EBU audio input (4 AES per video input) support with breakout panel |
| 7767VIP-AI-BAL | Discrete balanced analog audio input support with breakout panel |
| 3000MKT-AUX | Dual BHP-AUX auxiliary GPI/O and serial break-out panel rack mounting kit |

If additional breakout panels are required, contact factory for ordering information

VistaLINK™ Network Control Panel (2RU)

Model 9000NCP2

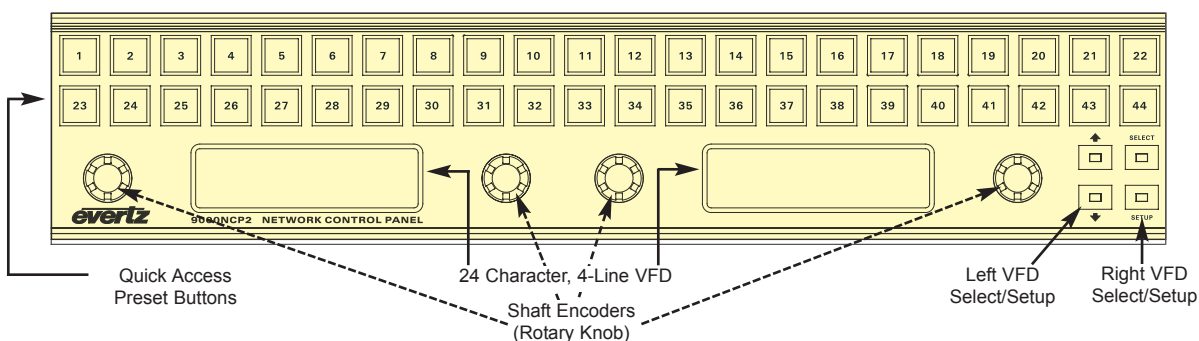


The 2RU 9000NCP2 VistaLINK™ Network Control Panel (NCP) is a low-powered, rack mounted control panel interfacing to VistaLINK™ enabled frames and modules, allowing for real-time selection and configuration control of enabled parameters.

The 9000NCP2 NCP connects to the network via Ethernet and communicates via Simple Network Management Protocol (SNMP). In its simplest network configuration, the NCP2 can be directly connected to a single frame via the frame controller using a cross-over network cable. In advanced systems, multiple NCPs can be connected within the same network, each capable of configuring all addressable parameters in every networked frame, or limited to a certain, user-defined set of frames, cards or parameters. With Evertz VistaLINK™ PRO server running on the same network, NCP units are further enabled with custom labels, preset quick-access configuration buttons and masking/privilege control.

Features

- Low power, rack-mountable, 2RU control panel
- Two, 4-line, 24 alphanumeric digit per line vacuum fluorescent display (VFD) featuring very high brightness and widest viewing angles
- 44 illuminated, tactile and full-size quick access pushbuttons with four position and selector rotary controls (shaft encoders)
- Provides convenient and fast configuration access for up to 4 simultaneous proc controls via split-screen display feature
- Built-in Simple Network Management Protocol (SNMP) communication interface over Ethernet connection
- Operational configuration control of key VistaLINK™ -enabled product parameters (visit www.evertz.com for updated list of modules and parameters)
- Quick access preset button, frame and card labels, and configuration privileges control available via VistaLINK™



Specifications

Serial I/O (COM1):

Standard: RS-232
Connector: Female DB-9
Baud Rate: 57600
Format: 8 bits, no parity, 2 stop bits, no hardware flow control (COM2 not available)

Ethernet Input/Output:

Standard: IEEE 802.3 (10BaseT), IEEE 8002.3u (100BaseTx)
Connector: 1 RJ45
Cable Requirements:
10 Base T: UTP category 3, 4 or 5 cable up to 328ft/100m (2 pairs)
100 Base Tx: UTP category 5 cable up to 328ft/100m (2 pairs)

Electrical:

Voltage: + 12VDC
Power: 11 Watts
EMI/RFI: Complies with FCC Part 15, Class A
EU EMC Directive

Ordering Information:

9000NCP2 VistaLINK™ Network Control Panel (2RU)

VistaLINK™ Network Control Panel (1RU)

Model 9000NCP



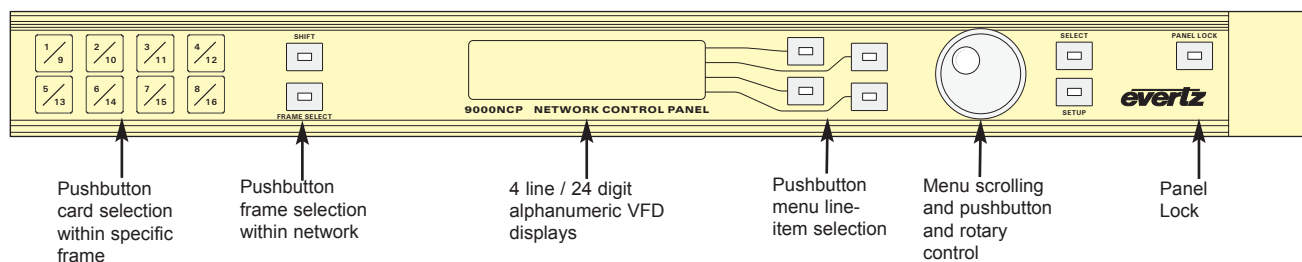
The 1RU 9000NCP VistaLINK™ Network Control Panel (NCP) is a low-powered, rack mounted control panel interfacing to VistaLINK™ enabled frames and modules, allowing for real-time selection and configuration control of enabled parameters.

The 9000NCP connects to the network via Ethernet and communicates via Simple Network Management Protocol (SNMP). In its simplest network configuration, the 9000NCP can be directly connected to a single frame's 7700FC VistaLINK™ Frame Controller via a cross-over network cable.

The 9000NCP is used to control a subset of an enabled module's full parameter set. Specifically "proc amp" functions such as video & audio level adjustments and gain control are adjustable through the 9000NCP.

Features

- Low power, rack-mountable and compact 1RU control panel
- Single, 4-line, 24 alphanumeric digit per line vacuum fluorescent display (VFD) featuring very high brightness and widest viewing angles
- 16 (8+Shift Key) illuminated, tactile and full-size quick-access pushbuttons with position and selector rotary control (shaft encoder)
- Built-in Simple Network Management Protocol (SNMP) communication interface over Ethernet connection
- Operational configuration control of key VistaLINK™ -enabled product parameters (visit www.evertz.com for updated list of modules and parameters)
- Quick access preset button, frame and card labels, and configuration privileges control available via VistaLINK™



Specifications

Serial I/O (COM1):

Standard: RS-232
Connector: Female DB-9
Baud Rate: 57600
Format: 8 bits, no parity, 2 stop bits, no hardware flow control (COM2 not available)

Ethernet Input/Output:

Standard: IEEE 802.3 (10BaseT), IEEE 802.3u (100BaseTx)
Connector: 1 RJ45

Cable Requirements:

10 Base T: UTP category 3, 4 or 5 cable up to 328ft/100m (2 pairs)
100 Base Tx: UTP category 5 cable up to 328ft/100m (2 pairs)

Electrical:

Voltage: + 12VDC
Power: 9 Watts
EMI/RFI: Complies with FCC Part 15, class A
EU EMC Directive

Ordering Information:

9000NCP VistaLINK™ Network Control Panel (1RU)

AES XLR BNC Bulk Impedance Converters

Model AESIMP-12M (XLR Male to BNC) & AESIMP-12F (XLR Female to BNC)

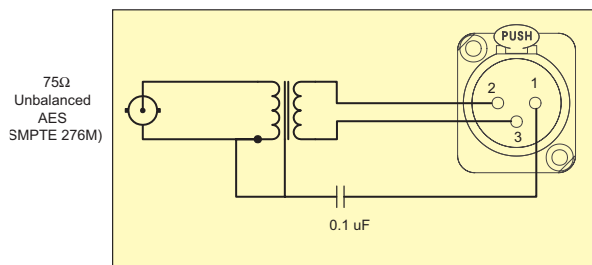
The AESIMP-12 series impedance converters allow transmission of AES/EBU digital audio signals, with sampling rates ranging from 22 kHz to 96 kHz, over 75Ω coaxial cables. The conversion transformer changes a balanced 110Ω transmission line to an unbalanced 75Ω transmission line.

The AESIMP-12 series provides twelve XLR-3 type connectors (male or female) on the balanced side and BNC type connector on the unbalanced side. Two versions of the AESIMP-12 are available. The AESIMP6F6M give 6 converters in each direction. The AESIMP-1M is a single channel converter.

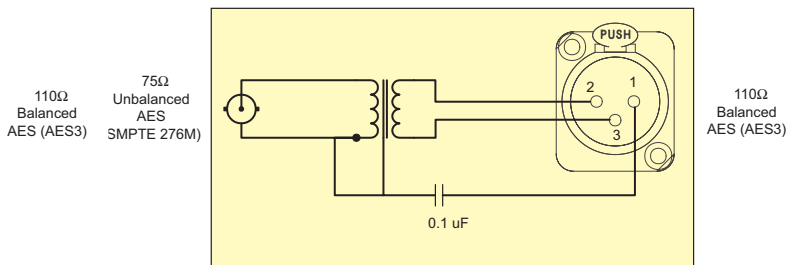
PART NUMBER	110Ω CONNECTOR		75Ω CONNECTOR
	3 PIN XLR FEMALE	3 PIN XLR MALE	
AESIMP-1M		1	1 BNC
AESIMP-6F6M	6	6	12 BNC
AESIMP-12F	12	BNC	12 BNC
AESIMP-12M		12	12 BNC

The rack mounting ears may be reversed to orient the panel for the greatest ease of installation. An identification strip holder is provided over the BNC connectors to assist in labeling sources and/or destinations.

Block Diagrams



Model AESIMP-12F Block Diagram



Model AESIMP-12M Block Diagram

Specifications

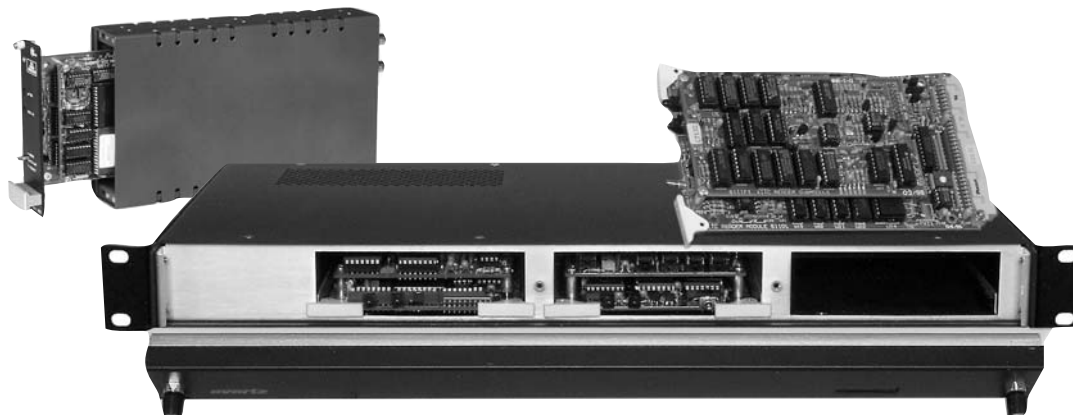
Number of Channels:	12
Coupling:	Transformer
Turns Ratio:	1.22:1
Unbalanced AES:	
Standard:	SMPTE 276M, single ended AES
Connectors:	BNC per IEC 60169-8 Amendment 2
Signal Level:	Approx. balanced level x 0.8, 5 V p-p maximum
Impedance:	75Ω unbalanced
Balanced AES:	
Standard:	AES3-1992 balanced AES
Connectors:	3 pin Male XLR (AESIMP-12M) or 3 pin Female XLR (AESIMP12F)
Signal Level:	Approx. unbalanced level x 1.22, 5 V p-p maximum
Impedance:	110Ω balanced

Ordering Information:

AESIMP-1M	In-line transformer with a single BNC to a single male
AESIMP-6F6M	AES Impedance changer for mobile fiber systems
AESIMP-12F	12 Channel female XLR to BNC AES Impedance Matching Panel
AESIMP-12M	12 Channel male XLR to BNC AES Impedance Matching Panel

VITC Timecode Generator/Translator

Model 621



The EV-BLOC 621 module is a full featured vertical interval time code (VITC) generator. Easily accessible DIP switches are used to preset parameters such as VITC line numbers, 2, 4, or 8 field locking, drop frame and source ID code. An optional LTC reader sub-module upgrades the 621 to an LTC to VITC translator. Remote control inputs permit generator reset/start, user bit transfer and tally control (used for ON AIR indication in source ID applications). In addition, 6 uncommitted inputs are available for remote control of downstream equipment via the video path.

Features

- VITC Generator: 4/8 field color frames, resettable to 00:00:00:00 or jam-synced to longitudinal time code (LTR option)
- Can be synchronized to a common time code generator to accommodate isolated video sources. User bits may be transferred from the common generator or preset locally, using easily accessible DIP switches
- User bits in each module can be encoded to uniquely identify its video source. The time code bits can be set to zero, for cameras etc., or jam-synced to time-coded sources such as VTR's
- Six control inputs can be utilized to control VTR's etc. via the program video path
- Special dual standard LTC to VITC Translator for use with 4025TR (No color framing, Source ID or GPIs)

Specifications:

Video:

Input: 1V p-p Hi-Z loop
Connectors: 2 BNC per IEC 60169-8 Amendment 2
Output: Composite video 1V p-p
Differential Gain: < 0.5%
Differential Phase: < 0.5°
Frequency Response: ± 0.5dB to 5MHz

Longitudinal Code Reader (LTC Option):

Standard: SMPTE 12M
Input: -20 dBm to +12dBm, 1/4" stereo phone jack
Speed: 1/30 to 70 times play speed forward and reverse (machine dependent)

Physical:

Dimensions: 3.94"H x 6.3"L x 1.4"W
(100mm H x 160mm L x 33mm W)

Ordering Information: VITC Timecode Generator/Translator

X = N for NTSC or P for PAL (Please specify when ordering)

**Standard units generate VITC in vertical interval only:
Lines 6 to 21 for PAL, 10 to 20 for NTSC**

(Modules for mounting in the 1RU frames)

EJ621x:	VITC Generator & Source ID Encoder
EJ621x-LTR:	LTC to VITC Translator & Source ID Encoder
S621x:	Standalone VITC Generator & Source ID Encoder
S621x-LTR:	Standalone LTC to VITC Translator & Source ID Encoder

Ordering Options:

+MPEG MPEG option generates VITC in active picture lines : 10 to 25 for PAL, 14 to 24 for NTSC

Enclosure:

4600T-3P: 1RU Frame - parallel I/O (3 modules max) with power supply

Model 622

The EV-BLOC 622 module is a vertical interval time code reader and longitudinal time code generator in one slim euro-card package containing features not found anywhere else. When used as a translator from VITC to LTC, a unique soft locking scheme assures error free play speed code regardless of speed variations of the code being read. If the VTR is bumped in and out of sync by an editor or synchronizer, the translated LTC framing follows gradually without missing a beat. The 622 reader contains all the necessary video processing circuits and therefore requires no external signals other than the video signal containing the VITC.

Features

- Reads vertical interval time code from about 20 times play speed down to still frame, providing time and user data out as LTC and multiplexed parallel BCD. An optional video inserter (VCG) keys the data into the picture
- VITC to LTC translator for use with LTC only editing equipment or readers
- User bits encoded with a special code from an EV-BLOC EJ621 module are displayed as unique source identification using the optional VCG
- Six grounding output switches respond to specific user bit codes from a 621 encoder to (remotely) control a variety of devices via the program video path or off tape

Specifications:

Video:

Input:	Composite video 1v p-p High impedance bridging input loop 2 BNC per IEC 60169-8 Amendment 2 connectors
Output:	Composite video 1v p-p 2 BNC per IEC 60169-8 Amendment 2 connectors
Differential Gain:	< 0.5%
Differential Phase:	< 0.5°
Frequency Response:	± 0.5dB to 5MHz

Vertical Interval Code Reader:

Input:	Composite video with SMPTE 12M VITC
Speed:	Still frame to more than 20 times play speed forward and reverse (machine dependent)

LTC Translator:

Output:	Play speed regenerated SMPTE 12M LTC phase-locked to video input at play speed level 0dBm, 1/4" stereo phone jack
Modes:	Individual lines, pair of lines, range of lines, auto (first valid line of code)

Video Character Generator (VCG option):

Input:	Composite video from VITC reader
Output:	Composite video with high resolution white characters keyed in. Switchable black background or edging, 2 sizes, 15 positions on raster
Parallel I/O:	Multiplexed digit-wide BCD data out to drive displays or parallel computer interfaces, or 6 open collector switches activated by user bits
Physical:	
Dimensions:	3.94"H x 6.3"L x 1.4"W (100mm H x 160mm L x 33mm W)

Ordering Information: VITC Timecode Reader/Translator

X = N for NTSC or P for PAL (Please specify when ordering)
Standard units reads VITC in vertical interval only:
Lines 6 to 21 for PAL, 10 to 20 for NTSC

(Modules for mounting in the 1RU frames)

EJ622x:	VITC to LTC Translator
EJ622x-VCG:	VITC to LTC Translator with VCG & Source ID Decoder
S622x:	VITC to LTC Translator
S622x-VCG:	VITC to LTC Translator with VCG & Source ID Decoder

Ordering Options:

+MPEG	MPEG option reads VITC in active picture lines : 10 to 25 for PAL, 14 to 24 for NTSC
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Enclosure:

4600T-3P:	1RU Frame - parallel I/O (3 modules max) with power supply
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LTC Reader, Phase Restorer

Model 623

The EV-BLOC 623 module contains a full speed (1/30 to 70 times play) longitudinal time code (LTC) reader, an LTC translator/phase restorer and an RS-232 serial interface. Installing the optional plug-in VITC sub-module, gives the reader tremendous additional capabilities. It can now read VITC at speeds from still frame to an excess of 20 times play speed.

The front panel mode switch allows the LTC/VITC reader pair to operate in either an LTC or VITC only mode or in an automatic switchover mode. The powerful firmware automatically selects valid code from either source and provides accurate time code reading from still frame to 70 times play speed.

Features

- Reads vertical interval time code from about 20 times play speed down to still frame, providing time and user bits out as LTC
- Reads LTC up to 70x play speed
- VITC to LTC translator for use with LTC only editing equipment or readers
- RS-232 interface for sending time code to a PC

Specifications:

Longitudinal Code Reader:

Standard: SMPTE 12M
Input: -20 dBm to +12dBm, 1/4" stereo phone jack
Speed: 1/30 to 70 times play speed forward and reverse (machine dependent)

Vertical Interval Code Reader (623-VIR):

Input: Composite video with SMPTE 12M VITC
Speed: Still frame to more than 20 times play speed
Modes: Individual lines, pair of lines, range of lines, auto (first valid line of code) forward and reverse (machine dependent)

LTC Translator:

Output: Play speed regenerated SMPTE/EBU LTC phase-locked to video input at play speed
Level: Level 0dBm, 1/4" stereo phone jack

Serial Remote Control:

RS-232/RS-422 9 pin "D" connector
Computer access to all functions including Reader Time and User Bit data

Ordering Information:LTC Reader, Phase Restorer

X = N for NTSC or P for PAL (Please specify when ordering)
(Modules for mounting in the 1RU frames)

EJ623x:	LTC/VITC Reader Translator
EJ623x-VIR:	LTC/VITC Reader Translator with VITC Submodule
S623x:	Standalone LTC/VITC Reader Translator
S623x-VIR:	Standalone LTC/VITC Reader with VITC Submodule

Enclosure:

4600T-3S: 1RU Frame - serial I/O (3 modules max) with power supply

Data Digital Display

Model 1200DD & 1201DD



1200DD



1201DD

The 1200DD & 1201DD are LED digital clocks with 7-segment-digits display. They may operate as a timecode-reading clock or as a digital SMPTE/EBU serial timecode reader, simply displaying the input timecode.

In addition to SMPTE/EBU timecode, the 1200DD & 1201DD can operate on the internal quartz time base. This multi-way reference capability allows easy integration into new or existing clock systems.

The 1200DD & 1201DD are rack mountable. The 1200DD face has 2.25" tall digits and the 1201DD has 1.00" tall digits which may display HH:MM:SS AM/PM or HH:MM:SS FF, depending on the control settings. The brightness of the digital LEDs are adjustable.

Clock installation is simple when one of the time sources is available. Apply power, connect time and the clock takes care of the rest, instantly setting to the correct time. If time source fails, the colons flash twice per second to signal its absence and the clock automatically switches to the pre-selected secondary reference. Any time discrepancy on return of timecode is instantly corrected. This also applies to timecode changes such as Standard Time to Daylight Saving Time.

Both clocks may be preset to display an offset from local time. This local offset allows the display of any or all time zones at one location. This offset is user-programmable from -12 hours to +12 hours.

When no source of timecode is available, the 1200DD & 1201DD may be configured as timecode generators, using their internal quartz crystal. When used as a generator, they can both drive multiple high impedance, timecode-reading devices.

If AC power is lost, they maintain time internally via a crystal oscillator. Self-setting to this time will occur if no input time source is available on power up.

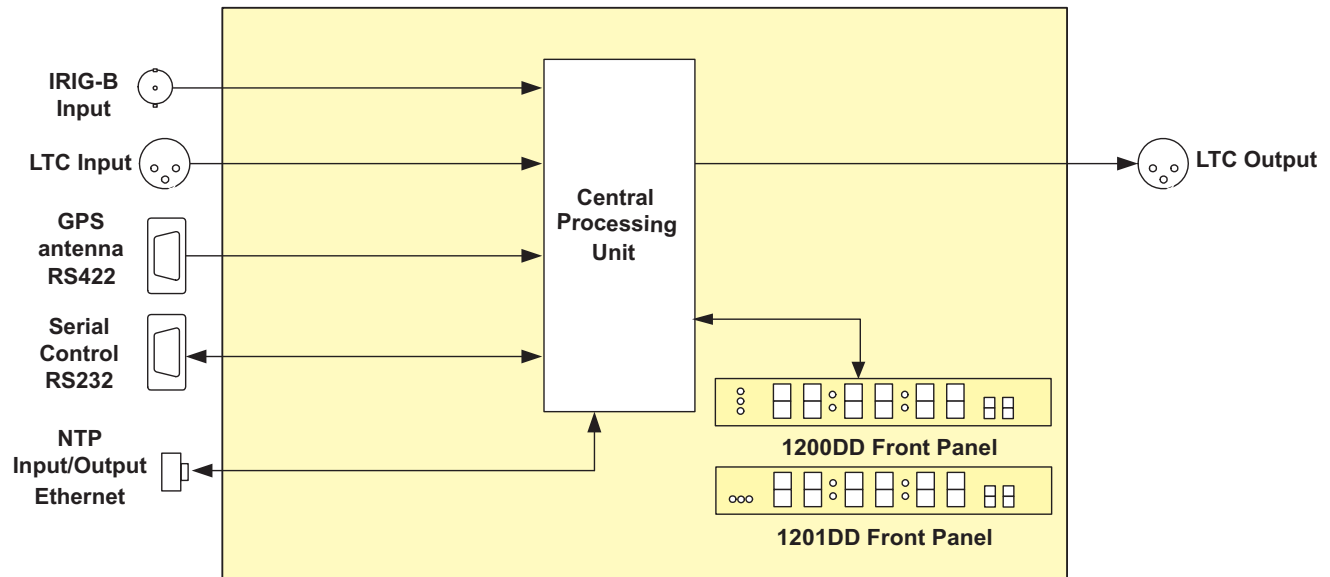
The rear panel input connectors for timecode and output are XLR connectors.

When operating with no time source, the clock can be accurately set by means of three miniature pushbuttons on the front panel. One of the buttons selects the manual set mode. The other two buttons change the time display in appropriate increments. These buttons may also be used to program a local offset from timecode.

Features

- Completely self-setting with SMPTE/EBU timecode input or battery back-up
- Built-in quartz time base oscillator with battery back-up
- May be operated as a timecode reader for use with countdowns
- Digital display is user-selectable between HH:MM:SS, 12/24 hour, HH:MM:SS FF and date
- May be configured as a timecode generator to drive other clocks
- LED brightness is adjustable
- Runs on 50/60 Hz, 115/230 VAC power line
- User-programmable time offsets
- Rack mount

Model 1200DD & 1201DD Block Diagram



Specifications

Linear Time Code Input:

Standard: SMPTE 12M
Impedance: Hi-Z, balanced
Connector: 3 pin female XLR
Level: 4Vp-p, ± 8 dB

Linear Time Code Output:

Standard: SMPTE 12M
Impedance: Lo-Z, balanced
Level: 2Vp-p nominal unloaded
Connector: 3 pin male XLR

Serial Port:

Connector: Female DB-9
Level: RS-232
Baud Rate: 57.6 kBaud
Format: 8 data bits, no parity, 2 stop bits

Free Run Accuracy

Internal: Crystal, ± 50 seconds/month
Battery Backup: Crystal, ± 50 seconds/month, 0-50°C

Electrical:

Power: Auto ranging 100 to 240 VAC 50/60 Hz 15 VA
Safety: ETL Listed
 Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
 EU EMC Directive

Physical:

Dimensions

1200DD 17.25" W x 3.5" H x 2.75" D
 (438 mm W x 89 mm H x 70 mm D)
1201DD 17.25" W x 1.75" H x 2.70" D
 (438 mm W x 45 mm H x 69 mm D)

Controls:

Front: 3 pushbuttons
Rear: Serial port com.
Local Offset: Any amount, user selectable

Ordering Information:

1200DD 2RU Rack-mount Digital Display
1201DD 1RU Rack-mount Digital Display

Analog Clock Display

Model 1212 & 1216

The models 1212 and 1216 multifunction analog clock displays can act as a slave clock display or as a self contained pre-settable master clock.

Features

- SMPTE/EBU timecode input
- Three motors for quiet operation and rapid hand setting
- Addressable slave clocks with programmable time offsets
- Automatic Daylight Saving time adjustment
- Single cable distribution for both power and timecode
- Low voltage (12V) operation
- Master or Slave operation with battery backed up clock
- Sweep or Step second hand movement
- Optional Illumination
- Two sizes 12" or 16"



The introduction of Evertz analog time displays takes master and slave clock technology to new levels of convenience and excellence. The clocks are microprocessor controlled and employ separate direct drive motors for each hand. This means that, as well as being able to set the time almost instantaneously, the new displays are also silent in operation. The hands of the clocks can be programmed to move in sweep mode or in steps.

Each slave clock can be programmed for automatic daylight saving time adjustment, as well as for any time zone offset using a laptop computer. It is then only necessary to supply the clock system with Universal Coordinated Time (UTC) from the master clock. Daylight saving time changes will be automatic, as will adjustments for different time zones.

Each clock can be used as a master or slave clock. When used as a master, it generates timecode for distribution to other slave clocks. In fact, any clock in the chain can generate timecode as soon as it loses timecode input from the master. The system is therefore extremely robust and reliable.

The problems of power distribution have also been considerably simplified. With other clock products, it is necessary to install power outlets wherever clocks are to be located. With the Evertz system slave clocks are powered from a single feed that distributes both power and modulated timecode. The power is introduced at one of the 1212 slave clocks and from there it is distributed to the other downstream clocks. If the system is large, power can be introduced at multiple convenient slave clock locations.

Internal crystal oscillators ensure that the clocks will continue to operate in the absence of input timecode. Internal battery back-up ensures that each clock will continue to keep time in the absence of timecode and power. When power resumes, the hands will immediately reset to the correct time.

Evertz slave clocks are offered in two sizes. Backlighting is available for all models.

Specifications

Specifications:

Time Code:

Standard: SMPTE 12M

Connectors: Screw terminal block

Input Level: 1 V p-p nominal

Input Impedance: 40 k Ω nominal

Output Level

Powered: 2 V p-p with 11 VDC nominal offset to drive downstream slave clocks

Non-Powered: Looped through from input

Serial Control:

Standard: RS-232-C

Baud: 2400

Format: 8-bits, 1 Stop Bit, no flow control

Connector: Female 9 pin D

Function: Control commands for setting time zone offset, daylight saving time, and operational modes. Commands sent to downstream slave clocks over time code user bits.

Time Keeping:

Accuracy: 1 second per day free running on internal crystal oscillator.

Battery: 3V Lithium

Time Zone Offset: Set from DIP switches or serial command
0 to 23.5 hours in 1/2 hour increments

Switches/Controls:

Pushbutton and toggle switch for setting time manually

8 DIP switches:

- set sweep/step motion
- set default time code rate when no incoming time code
- set timecode offset or allow software control of time offset

Electrical:

Power: Auto ranging 115/230 VAC 50/60 Hz 30 VA or 12 VDC from upstream powered clocks

Safety: ETL Listed

Complies with EU safety directive

EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

Physical

Dimensions:

Model 1212 13" W x 13" H x 2.5" D
(330 mm W x 330 mm H x 64 mm D)

Model 1216 17" W x 17" H x 2.5" D
(432 mm W x 432 mm H x 64 mm D)

Weight:

Model 1212 6.5 lb. (2.9 Kg)

Model 1216 10.5 lb. (4.75 Kg)

Ordering Information:

1212	12" diameter analog clock display
1216	16" diameter analog clock display
1212L	12" diameter analog clock display with back lighting
1216L	16" diameter analog clock display with back lighting

Digital Clock Display

The model 1275A is a multifunction time of day display, that can act as a slave to a master clock system or as a self contained, presettable clock.

Model 1275A



Specifications

Functional:	
Code input:	SMPTE/EBU Time code 20k Ω balanced or unbalanced DQS-B6 available on special order
Accuracy:	Approximately 1 second per week on internal crystal oscillator
Time zone:	+/- 12 hours. Offset from SMPTE/EBU code input (1 hour increments)
Electrical:	
Power:	
1275A-110:	115V 60Hz 15VA
1275A-220:	220V 50Hz 15VA
Safety:	ETL Listed
EMI/RFI:	Complies with EU safety directive Complies with FCC Part 15 Class A EU EMC Directive

Sixty bright rectangular LEDs are mounted in a circular arrangement simulating an analog second hand. Twelve individual round LEDs indicate the hour. In addition, the hours, minutes and seconds are displayed in digital format.

As a slave display the unit will read SMPTE/EBU time code. The user can program time zone offsets from the incoming code. The DQS-B6 code format can be ordered as a special order.

As a standalone clock, it can be programmed to operate in either 12 or 24 hour mode. Two unobtrusive front panel push buttons allow presetting and accurate synchronization to a standard time source.

An eight-position DIP switch permits user selection of four different operating and display modes and the time zone offset.

Beautifully finished with black wood trim the 1275A is ideally suited for studio, lobby, board room or office mounting.

Physical:	
Dimensions:	9.6" W x 9.6" H x 2.125" D (244mm W x 244mm H x 54mm D) 1" (25mm) diameter hole in rear panel to accommodate electrical conduit
Weight:	4.4lb

Ordering Information:	
1275A-110	Digital Clock Display 115V/60Hz
1275A-220	Digital Clock Display 220V/50Hz
For DQS-B6	Order 1275A-xxx-DQS

Time Code Generator/Reader with Character Inserter

Model 5010



Features

- Generates time code in accordance with SMPTE 12M locked to NTSC or PAL video or free run on internal crystal oscillator
- High resolution Character Inserter, with three Character sizes: 8,16 and 32 lines, time and user bits separately positionable on raster
- Reads LTC from 1/30th to 70x play speed
- Well proven input circuitry design permits reliable recovery of even severely distorted code
- Momentary or continuous Jam-sync modes
- Time and user bits are presettable from the front panel
- RS-232 serial port permits interfacing to computers
- EBU ↔ SMPTE drop frame time code translator mode
- Parallel control of commonly used functions
- User bit Transfer from Reader Time or User bits
- On-screen programming menu
- Date/Time Zone may be encoded into user bits according to SMPTE 309M
- Generates and reads universal co-ordinated time (UTC) or local time in time/date mode
- Automatic daylight savings time adjustment in time/date mode
- 2 General purpose outputs can be assigned to several output modes

Model 5010-VITC

The 5010-VITC is a Time Code Generator/Reader/Character Inserter for both Longitudinal and Vertical Interval Time code. As well as having all the listed 5010 features, the 5010-VITC also has the following additional features.

- Vertical Interval Time code Generator and Reader
- Separate genlock and PGM video inputs
- Set VITC Generator Line numbers from the front panel
- Translates LTC to VITC or VITC to LTC
- Reads VITC over the full shuttle range of most VTR's.
- Selectable reader line range
- Optional Bypass relay on VITC Generator

Model 5010-24Fps

The 5010-24Fps and 5010-VITC-24Fps are special purpose time code generators designed to work with the 23.98Fps time code commonly in use with the high definition 1080p/24 video format.

- Genlocks to 23.98 'slow PAL' or NTSC
- 24 FPS ↔ 30 FPS time code translator mode
- Momentary or continuous Jam-sync modes
- Locks to 6Hz reference in 24Fps mode

Time Code Generator/Reader with Character Inserter

Time Code Feature Comparison

	5010-GPSII	5010-VITC-GPSII	5950	5010	5010-VITC
LTC Generator					
Adjustable Output Level					
VITC Generator					
LTC Reader					
VITC Reader					
VITC to LTC Translator					
LTC to VITC Translator					
LTC Re-shaper					
PAL and NTSC					
Colour Framing					
Drop Frame					
Set User Bits (0-9, A-F)					
Transfer RDR. Time or UB to GEN, UB					
SMPTE ↔ EBU Time code translator					
Date/Time Zone in User Bits					
Momentary and continue. Jam-sync					
Character Generator					
On-screen programming menu					
GPS Referenced Time Code					
Serial Remote Control					
GPI Remote Control					
GP Outputs					

Specifications

LTC Generator:

Standard: SMPTE 12M
NTSC 2/4 field; PAL 4/8 field menu selectable
NTSC or 24Fps (5010-24Fps only)
Output: 3 pin male XLR type
Level: Adjustable, 0.5V to 4.5V p-p
Rise Time: 40 +/- 10 μ s
Jitter: < 2 μ s

LTC Reader:

Standard: SMPTE, 12M Time code
Input: 3 pin female XLR type
Level: 0.2 to 4V p-p, balanced or unbalanced
Speed: 1/30th to 70x play speed, fwd and rev, machine dependent

VITC Generator (5010-VITC):

Input: Comp. Video 1V p-p, 75 Ω terminated
Outputs: 2 Comp. Video + keyed VITC
1 Output bypass relay protected when +BP option installed

Differential Gain: <0.5%

Differential Phase: <0.5°

VITC Reader (5010-VITC):

Input: Comp. video 1V p-p, Hi-Z, BNC Loop
Speed: Still frame to >40x play

Character Generator

Input: Comp. video 1V p-p, 75 Ω terminated
Output: Com. video 1V p-p + keyed high resolution characters, selectable background and sizes

Serial Remote Control (5010 & 5010-VITC):

RS-232/422 interface, 9 pin "D" connector
Computer control of all functions, selectable baud rate

Physical:

Dimensions: 19"W x 1.75"H x 7.75"D
(483mm W x 45mm H x 196mm D)
Weight: 7 lbs. (3.5Kg)

Electrical:

Power: Auto ranging 100-230VAC 50/60Hz 30VA
Safety: ETL Listed
Complies with EU safety directive
Complies with FCC Part 15 Class A
EU EMC Directive

EMI/RFI:

Ordering Information:

5010	Time Code Generator/Reader
5010-24Fps	NTSC/24Fps Time Code Generator/Reader
5010-VITC	Time Code Generator/Reader with VITC
5010-VITC-24Fps	NTSC/24Fps Time Code Generator/Reader with VITC

Ordering Options:

+BP Optional bypass relay for 5010-VITC, and 5010-VITC-24Fps

Time Code Generator/Reader with Character Inserter, and GPS Antenna

Model 5010-GPSII

The Evertz 5010-GPSII Time Code Master combines the features of our standard 5010 time code generator with the ability to produce GPS referenced SMPTE/EBU time code anywhere on the face of the globe. The GPS (Global Positioning System) technology provides the 5010-GPSII Time Code Master with an accurate source of time reference. The system is ideally suited for OB or mobile operations and any professional television broadcast applications where accurate time references are a must. The 5010-GPSII system may be programmed to request a time reference from the GPS receiver automatically, daily, or on demand. The 5010-GPSII can be ordered in two configurations. Model 5010-GPSII is an LTC Generator, Reader, Character Inserter with Accutime 2000 antenna. Model 5010-VITC-GPSII comes complete with Vertical Interval Time Code capability.

Features

- Generates Time code in accordance with SMPTE 12M locked to NTSC or PAL video
- Can be operated as standard time code generator/reader or as a GPS referred time code master
- Date/Time Zone encoded into user bits according to SMPTE 309M
- Generates and reads universal co-ordinated time (UTC) or local time in time/date mode
- Automatic daylight savings time adjustment in time/date mode
- High resolution Character Inserter, with three Character sizes, 8, 16 and 32 lines, time and user bits separately positionable on raster
- Reads LTC from 1/30th to 70x play speed. Well proven input circuitry design permits reliable recovery of even severely distorted code
- Momentary or continuous Jam-sync modes
- Time and user bits are presettable from the front panel
- Parallel control of commonly used functions
- User bit Transfer from Reader Time or User bits
- On-screen programming menu
- GPS receiver, 50ft of cable (optional 100 & 400 ft. cables for longer receiver distances)
- Ideal for OB or Mobile applications
- Easy mounting and installation
- 2 General purpose outputs can be assigned to several output modes
- Tally output on loss of lock to GPS receiver
- Optional bypass relay on 5010-VITC-GPSII

Model 5010-VITC-GPSII

Features

As well as having all the listed 5010-GPSII features, the 5010-GPSII-VITC has the following additional features:

- Vertical Interval Time Code Generator, and Reader
- Separate genlock and PGM video inputs
- Set VITC Generator Line numbers from the front panel
- Translates LTC to VITC or VITC to LTC
- Reads VITC over the full shuttle range of most VTR's
- Selectable reader line range

Specifications:

LTC Generator:

Standard: SMPTE 12M
NTSC 2/4 field; PAL 4/8 field menu selectable

Output: 3 pin male XLR type

Level: Adjustable, 0.5V to 4.5V p-p

Rise Time: 40 +/- 10 μ s

Jitter: < 2 μ s

LTC Reader:

Standard: SMPTE, EBU Time code

Input: 3 pin female XLR type

Level: 0.2 to 4V p-p, balanced or unbalanced

Speed: 1/30th to 70x play speed, fwd and rev, machine dependent

GPS Receiver:

Temperature: -30°C to +70°C

Humidity: 95% R.H. Condensing at 60°C

Dimensions: 5.8" D x 3.9" H (147mm x 100mm)

Cable Options: Standard 50'
Optional 100' (order WA-T76)
Optional 400' (order WA-T11)

VITC Generator: (5010-VITC-GPSII)

Input: Composite Video 1Vp-p, 75 Ω terminated

Outputs: 2 Composite Video + keyed VITC
1 Output bypass relay protected when +BP option is installed

Differential Gain: <0.5%

Differential Phase: <0.5°

VITC Reader (5010-VITC-GPSII):

Input: Composite video 1V p-p, Hi-Z, BNC Loop

Speed: Still frame to >40x play

Character Generator

Input: Composite video 1V p-p, 75 Ω terminated

Output: Com. video 1V p-p + keyed high resolution characters, selectable background and sizes

Physical:

Dimensions: 19"W x 1.75"H x 7.75"D
(483mm W x 45mm H x 196mm D)

Weight: 7 lbs. (3.5Kg)

Electrical:

Power: Auto ranging 100-240VAC 50/60Hz 30VA

Safety: ETL listed
Complies with EU safety directive
Complies with FCC Part 15 Class A
EU EMC Directive

EMI/RFI:

Ordering Information:

Comes with standard GPS Receiver and 50 ft. weatherproof cable

5010-GPSII	Time Code Generator with GPSII
5010-VITC-GPSII	VITC Time Code Generator with GPSII

Ordering Options:

+BP	Bypass relay for 5010-VITC-GPSII
WA-T76	100 Feet Weatherproof Cable for GPS Receiver
WA-T11	400 Feet Weatherproof Cable for GPS Receiver

Time Code Analyzer

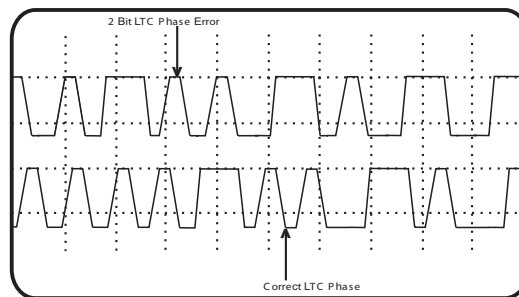
Model 5300

The Model 5300 LTC/VITC Time Code Analyzer combines the latest LSI technology with sophisticated microcontroller firmware to provide a powerful, flexible time code analyzer system. The model 5300, a LTC/VITC reader / analyzer and multi-function character inserter is an invaluable verification and troubleshooting tool for the Video, Audio and Film Post Production industries. Its power and flexibility are unsurpassed in time code analyzer applications. A 16 digit alphanumeric display can be quickly delegated to show the required data. The Time Code Analyzer contains an LTC and VITC reader that can be operated independent of each other, or can be linked to form an auto LTC/VITC reader.

Features

- Detects time code counting sequence errors
- Detects color framing sequence errors with respect to a reference video input. Detects changes in the status of the color frame input (changing phase, or color/non color changes etc.)
- Detects Time code dropouts and has a user definable dropout length
- Compares LTC and VITC numbers and reports differences between them
- Displays on screen reports of Time code problems
- Audible alarm plus a contact closure to drive an external alarm
- User definable thresholds for most alarm conditions
- Error messages available on RS-232 port for computer logging and time code verification
- On screen programming and front panel menus
- Dual standard PAL and NTSC
- Detects LTC phase problems with respect to video sync
- High resolution character inserter with three character sizes: 8, 16 and 32 lines, time and user bits separately positionable on screen
- VITC to LTC translator
- Regenerates incoming LTC to correct LTC phase problems

5300 Time Code Phase



Specifications:

LTC Reader:

Standard: SMPTE 12M
25, 30Fps Drop & Non Drop Frame
Connector: XLR Type 3 pin female connector
Signal Level: 0.2 to 4V p-p, balanced or unbalanced
Speed: 1/30th to 70x play speed, forward and rev, machine dependent

VITC Reader:

Input: NTSC or PAL 1V pp,
Connector: BNC per IEC 60169-8 Amendment 2
Speed: Still frame to <40x play, VTR dependant
Connector: BNC per IEC 60169-8 Amendment 2

Character Generator:

Input: Char. Input from VITC Reader input
Output: NTSC or PAL 1Vp-p + keyed high resolution characters, selectable background and sizes
Connector: BNC per IEC 60169-8 Amendment 2

LTC Translator:

Connector: XLR Type 3 pin male
Level: Adjustable 0.5V to 4.5V p-p
Rise Time: 40 ± 10µs
Jitter: <2 µs

Gen Lock: Reader input video 1 V p-p, Hi-Z, BNC loop

Parallel Remote Control:

Input: 6 TTL compatible inputs for control of selected functions
Output: 2 open collector general purpose outputs

Physical:

Dimensions: 19" W x 1.75" H x 7.75" D
(483mm W x 45mm H x 196mm D)
Weight: 7 lbs (3.5kg)

Electrical:

Voltage: 115/230 VAC, 50/60Hz, 30VA
Safety: ETL Listed
Complies with EU safety directive
Complies with FCC Part 15 Class A
EU EMC Directive

EMI/RFI:

Ordering Information:

5300 Time Code Analyzer

Automatic Changeover

Model 5600ACO/ACO2



5600ACO



5600ACO2

The 5600ACO/ACO2 Automatic Changeovers are intended for use with two 5600MSC Master Clock / Sync Generators. The 5600ACO/ACO2 system uses latching relays to ensure maximum reliability and minimal disruption in the event of any failure. The complete system provides the highest level of security for television station video and time synchronization systems. The 5600ACO is a 1RU device which is an ACO for a subset of the 5600MSC outputs. The 5600ACO2 is a 2RU ACO for all outputs of the 5600MSC. Two power supplies are included as a standard feature, to alleviate any single point of failure concerns.

The front panel has three switches, recessed into the panel for added security. There is an AUTO / MANUAL switch, a GPI / FRONT PANEL switch and an A / B select switch for manual changeover. In automatic mode, all signals from both 5600MSCs are monitored to detect any abnormal signals. For example if a level, pulse width, phase, time code error or other abnormality is detected, the 5600ACO's circuitry will trigger and the entire bank of signals will be switched to the backup 5600MSC. In manual mode the changeover can be operated from a GPI or from the front panel switch. LEDs provide status information as to the health of the two 5600MSCs, together with indication as to which one is active. In addition two GPO outputs indicate which master is active and when the inputs from both masters are not the same.

Each 5600MSC is equipped with 2 GPI inputs and 2 GPO outputs. To facilitate installation, these connections are brought through to a 2 x 6 pin terminal block on the 5600ACO. The outputs from the 5600MSCs are passed straight through the 5600ACO's. The inputs to the 5600MSCs are internally split by a 'Y' connector, to ensure that both 5600MSCs receive the same GPI contact closures.

In the event of a changeover occurrence, it is necessary that all outputs on one 5600MSC have the same timing as those on the other. Identical timing for both 5600MSCs is assured by locking both to the same frequency and phase source (e.g. GPS or by genlocking one 5600MSC to the other). Identical phasing of the independent black outputs is assured by implementing the "Syncro" mode in the 5600MSCs. To use this mode, both 5600MSC communication ports are connected together using the link cable supplied with the 5600ACO. With both 5600MSCs operating in Syncro mode, timing adjustments made to one 5600MSC will be automatically applied to both. The link cable is connected permanently, so that any system re-timing will be applied to both 5600MSC units. (See system connection diagram on 5600MSC brochure)

Features

- Three front panel switches select automatic, front panel or GPI activation of changeover
- Front panel switches are recessed to prevent accidental operation
- Front panel status LEDs show the health of each of the inputs
- Front panel status LEDs show the operational modes of the changeover
- Redundant power supply standard
- GPIO input/outputs
- Automatic changeover is a voting system based on which source has the most good signals and that the good signals on the present master are also on the backup

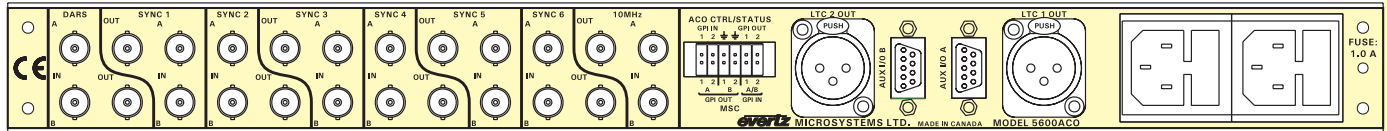
5600ACO Protected Outputs

- 6 video/sync or other coaxial signals
- 10MHz frequency reference output
- DARS output.
- 2 Linear timecode outputs

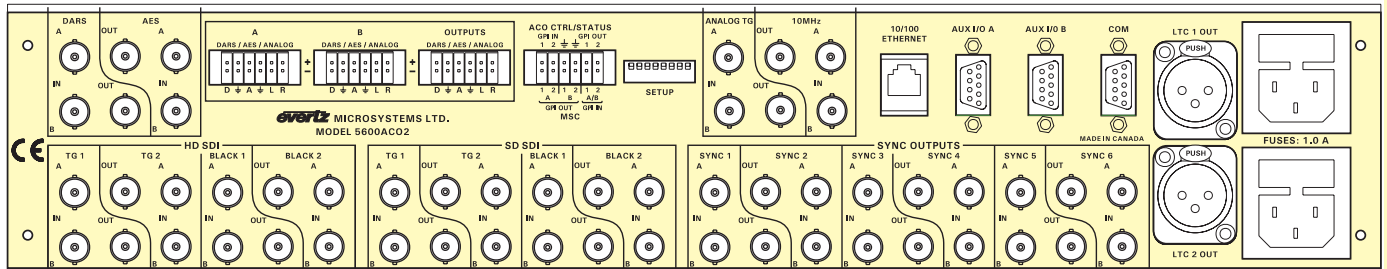
5600ACO2 Protected Outputs

- 6 video/sync outputs
- 10MHz frequency reference output
- Balanced and unbalanced DARS and AES outputs
- 2 Linear timecode outputs
- 4 HD SD SDI test signal outputs
- 4 SD SDI test signal outputs
- 1 Analog video test signal output
- Balanced analog audio output

5600ACO Rear Panel



5600ACO2 Rear Panel



Specifications:

LTC Inputs and Outputs:

Standard SMPTE 12M frame rate set by 5600MSC
Inputs: 2 per 5600MSC
Outputs: 2
Connectors
Inputs: Female DB9
Outputs: 3 pin male XLR type
Signal Level: Set in 5600MSC

Coaxial Inputs and Outputs:

Type: Depends on signal connected from 5600MSC
DARS, bi-level or tri-level sync, color black, 10 MHz
Number: 8 groups each consisting of two inputs and one output
Connector: BNC per IEC 60169-8 Amendment 2

ACO General Purpose Inputs and Output:

Inputs:

GPI1: Master select in Manual GPI control mode
Low: Selects Master A
High: Selects Master B
GPI2: Future use

Outputs:

GPO1: Low: Master A is selected
High: Master B is selected
GPO2: Low: Master A & Master B differ or PSU failure
High: Master A and B have equivalent signals

Type

Inputs: Opto-isolated input with internal pull-up to +5 Volts
Outputs: Normally closed relay to ground. 10k Ω internal pull-up to +5Volts when relay is in active position

Connector: 4 pins plus 2 ground pins on 12 pin removable terminal block

Signal Level: +5V nominal

MSC General Purpose Inputs and Output:

Inputs: 2 GPI inputs connected to both Master A and Master B
Outputs: 2 GPI outputs connected from Master A through AUX I/O A
2 GPI outputs connected from Master B through AUX I/O B
Connector: 6 pins on 12 pin removable terminal block
Signal Level: As specified in 5600MSC manual

Changeover conditions:

Changeover is a voting system based on which source has the most good signals and that the good signals on the current master are also present on the backup master.

The input signals are considered good according to the following criteria:

Video: Level below 70 IRE
Sync: H timing detect
10MHz: 3dB level below 0.3Vp-p
DARS: Sync word error
LTC: Level below 0.3Vp-p
Incorrect sync word

Electrical:

Power: Auto ranging 100 - 240 Volts AC, 50/60 Hz, 30 VA
Configuration: Dual redundant supplies
Fuse Rating: 250 V, 1 amp, time delay
Safety: ETL Listed
Complies with EU safety directives
EMI/RFI: Complies with FCC Part 15 Class A
Complies with EU EMC Directive

Physical:

5600ACO:

Dimensions:

19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

5600ACO2:

Dimensions:

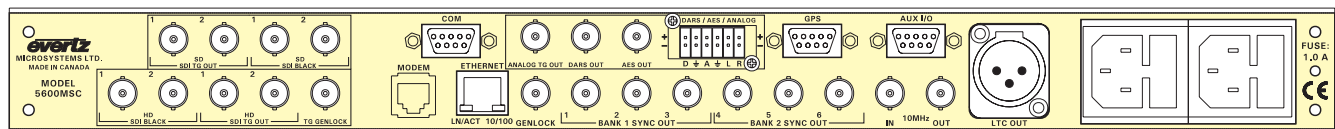
19" W x 3.5" H x 18.75" D.
(483mm W x 90mm H x 477mm D)
Weight: 16 lbs. (3.5Kg)

Ordering Information:

5600ACO 1RU Automatic Changeover System complete with 2 power supplies, 2 power cords and 3 DB9 cables (BNC cables not included)
5600ACO2 2RU Automatic Changeover System complete with 2 power supplies, 2 power cords and 3 DB9 cables (BNC cables not included)

Master SPG / Master Clock System

Model 5600MSC



5600MSC Rear Panel

The 5600MSC Master Sync and Clock Generator, is both a broadcast quality master sync pulse generator (SPG) and a master clock. It provides all of the synchronizing signals needed in a 21st century TV station at the same time as solving the problem of locking the in-house master clock system to the master video sync pulse generator.

A high stability, temperature controlled oscillator, provides the 5600MSC with better than 0.5×10^{-8} (or 0.005ppm) frequency reference. The free running drift of this 10MHz reference will be less than 0.1Hz (which amounts to less than 1 millisecond time drift per day). This guarantees that any frequency drift, with time and temperature, will be within the tolerances expected from the best SPGs or master clocks available in the industry. The 5600MSC may also be referenced to an external 5 MHz or 10 MHz master oscillator if higher stability is required. Both the SPG and the Master Clock sections, may be referenced to high stability time and frequency standards present in the Global Position System (GPS) by adding the GPS option. The 5600MSC provides a high stability 10MHz output reference for use by other devices.

The SPG section provides two banks of three timeable outputs. These six BNC outputs may be configured to provide 6 independently timed color black (black burst) outputs or 6 independently timed HDTV tri-level sync outputs, or 3 of each signal type. Each color black output can optionally carry vertical interval time code (VITC) on a user specified set of lines.

When referenced to the optional GPS receiver, the start of the NTSC four field sequence, or the PAL eight field sequence, will coincide with a specific point in the GPS code. In this way, by referencing all the 5600MSCs in a system to GPS, they will all be automatically locked to each other. This is ideal for applications requiring remote facility frequency, phase and time locked! GPS heads may be remoted from the unit with standard 50 ft. cables included or optional 100 ft. & 400 ft. weatherproof cables.. For remote GPS head requirements of greater than 400 ft. or fiber optic isolation, GPS Data Fiber Transmitters & Receivers are also available (7707GPS-DT, 7707GPS-DR).

The unit also has absolute time reference support (ATR). ATR is a set of data currently being proposed by SMPTE and will be inserted onto the SMPTE 318M universal reference signal. This information gives the absolute time of the signal in seconds, and fractions of a second since the SMPTE Epoch (midnight, January 1, 1958 UTC). ATR tells when the signal was created, regardless of current time when the signal is received and provides an additional means of locking two 5600MSCs together. (This feature will be implemented when the signal is standardized by SMPTE.)

The master clock section provides a primary linear time code (LTC) output on an XLR connector and a 9 pin D connector, as well as a secondary LTC output available only on the 9 pin D connector. The time code may be set from the front panel or referenced to a number of different sources. Having two LTC outputs provides the ability to drive 24 and 30 Fps, or drop-frame and non-drop frame timecode simultaneously. Time may be externally referenced to GPS, or via modem to a high-level time source. Time derived from such sources can be offset from UTC to a specific time zone as required. When referenced to GPS or by modem, the 5600MSC can provide RFC-1305 compliant NTP via Ethernet, and operates in broadcast and server mode. GPS, NTP and Modem access are all options for the 5600MSC. The 5600MSC includes a battery backed-up real time clock to maintain its time while power is not applied to the unit.

There are two test signal generator options available. The STG option provides a composite analog video test signal output, AES and balanced analog audio tone generators and a digital audio reference output (DARS). The STG option also provides two standard definition SDI test signal outputs and two SDI black outputs. The HTG option provides two high definition SDI test signal outputs and two HD SDI black outputs.

All versions of the 5600MSC offer an AUX I/O port and a COM port for software upgrades and/or interconnecting two 5600MSC units (when used with the 5600ACO). An optional redundant power supply is also available.

Two 5600MSC units in combination with an Automatic Change Over (model 5600ACO) provide an extra degree of reliability where dual redundant installations are required. The ACO provides relay changeover for the two LTC outputs, the six Sync pulse outputs, the 10 MHz reference output, and the GPI/O interface. A serial cable interconnecting the COM ports of the two 5600MSC units guarantees that the configuration and timing of the units are identical so that changeovers are done with minimal disruption of the plant timing reference.

Master SPG / Master Clock System

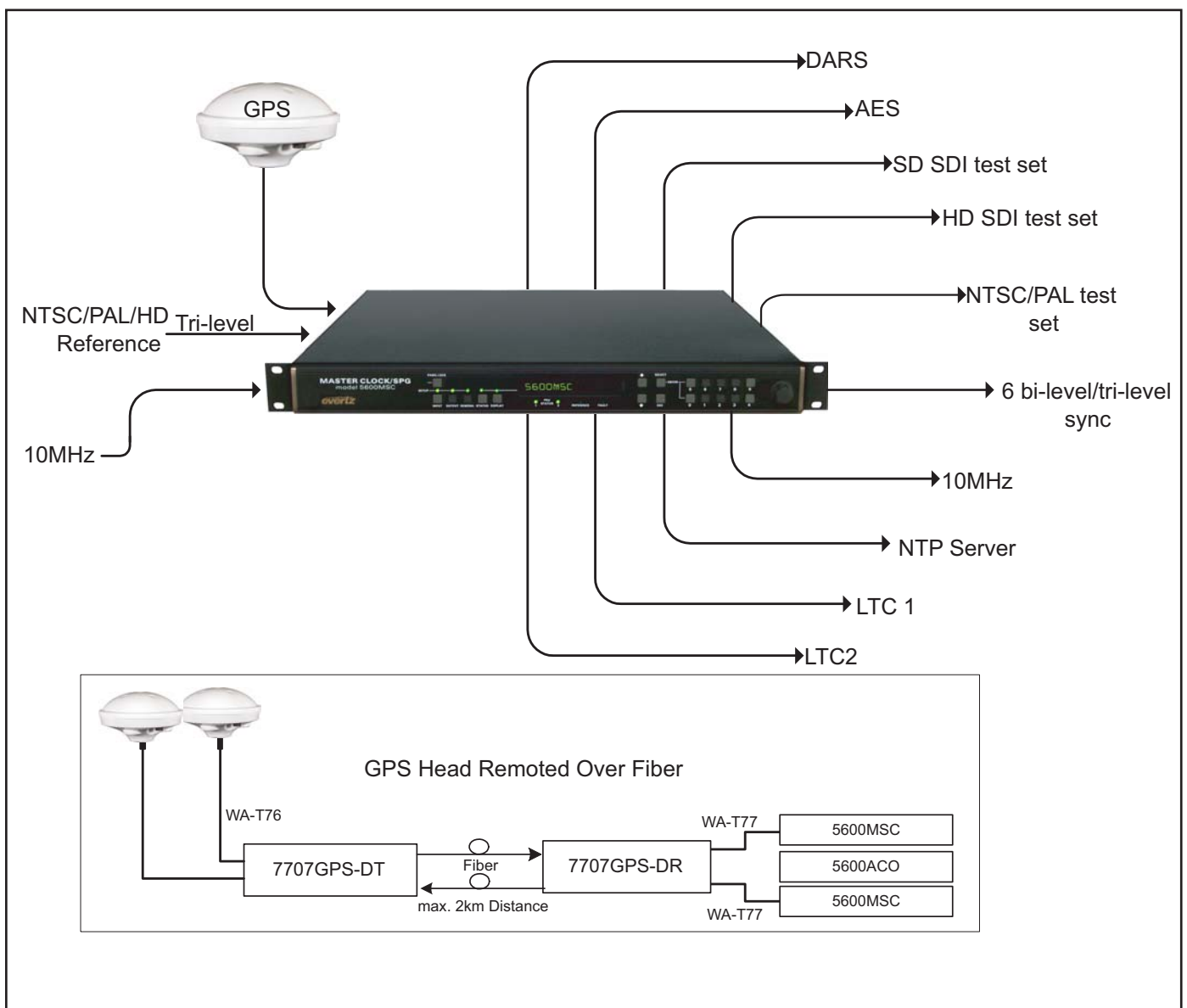
Features:

- 6 independently timeable reference outputs
- Bi-level or Tri-level outputs selectable (can provide 3 tri-level HD sync. outputs and 3 black burst outputs simultaneously)
- 2 Independent LTC Time Code outputs
- 5MHz/10MHz frequency reference input
- GPS option for frequency and time reference
- 10MHz frequency reference output
- Output frequency stability guaranteed better than 0.5×10^{-8} (or 0.005ppm)
- Optional Modem for time reference dial up
- 2 GPS based units will be in time and phase even when remotely separated by miles
- Optional analog TG output, with DARS and analog audio tone outputs
- Optional SD SDI test generator outputs
- Optional HD SDI test generator outputs
- Optional Network Time Protocol Server (NTP) server support (GPS option should be ordered with NTP option)
- 16 digit Alpha-numeric display, with 16 pushbuttons
- Rack mountable
- Optional redundant power supply
- Automatic changeover unit available for dual redundant systems applications
- Compatible with Dual GPS Data Fiber Receivers & Transmitters

Application Note:

- Audio word clock may be generated from DARS with 520DARS-W module (Refer to 520DARS-W brochure)

Redundant Master Clock/SPG System with Auto Changeover



Master SPG / Master Clock System

Specifications:

Analog Sync Outputs:

Standards: SMPTE 170M (NTSC-M), ITU-R BT.470-6 (PAL-B) SMPTE 274M (1080i/60, 1080i/50, 1080p/30, 1080p/30sF, 1080p/25, 1080p/25sF, 1080p/24 and the 1/1.001 divisor versions where applicable) SMPTE 296M (720/60, 720p/59.94) 1 Hz and 6 Hz pulse (and the 1/1.001 divisor versions)

Connector: 6 BNC per IEC 60169-8 Amendment 2

Number of Outputs: 6 (2 banks of 3) configured as:
6 color black (black & burst) - selectable with VITC On/Off or
6 HD tri-level sync or
3 color black (black & burst) and 3 HD tri-level sync
All outputs independently timeable

Output	Possible Sync Output Combinations				Example
1	Any combination of PAL and/or NTSC Colour Black 6Hz 1Hz	Group A Any combination of 24/50/60Hz based Tri-Level Syncs	Group B Any combination of 23.98/59.94Hz based Tri-Level Syncs	3 of any signals from groups A or B or C	NTSC
2					NTSC
3					PAL
4				3 of any signals from groups A or B or C	1080i/59.94
5					720p/59.94
6					1080p/23.98

DC Offset: 0V +/- 0.1V
Return Loss: > 40 dB up to 5MHz
SNR: > 75dB

10MHz Input and Output:

Input: 0.5 Vp-p min level, 75Ω (Relay Bypass Protected)

Output: 1Vpp (75Ω terminated)

Connector: BNC per IEC 60169-8 Amendment 2

Signal Type: Sine wave. Harmonics < 40dB typical

Long Term Oscillator Stability

Free Running: 0.01ppm

External Ref: 5 or 10 MHz external reference autodetect (max locking range +/- 0.1ppm) GPS with +G option

LTC Outputs:

Standard: SMPTE 12M

Frame Rate: Nominal 24, 25, and 30 (drop frame and non drop frame)

Number of outputs: 2

Connectors: 3 pin male XLR type, Female DB9

Level:

Unpowered: Adjustable, 0.5V to 4.5V p-p

Powered: 2V p-p with 11 VDC offset to drive downstream 1200 series slave clocks

Output Impedance: 66Ω balanced (unpowered)

Rise Time: 40 +/- 10 μs

Jitter: < 2 μs

Communications and Control:

Serial Port:

Connector: Female DB-9

Level: RS232

Baud Rate: 57.6 Kbaud

Format: 8 data bits, no parity, 2 stop bits

Modem: (with "+M" option installed):

Connector: RJ-11 telephone jack

Baud Rate: 300 baud Bell 103 compatible

Ethernet: (NTP port with "+T" option installed):

Network Type: Fast Ethernet 100 Base-TX IEEE 802.3u standard for 100 Mbps baseband CSMA/CD local area network
Ethernet 10 Base-T IEEE 802.3 standard for 10 Mbps baseband CSMA/CD local area network

Connector: RJ-45

NTP Standard: RFC-1305 compliant, broadcast and server mode support.
Must be referenced to GPS or have been synchronized via modem within the last 10 days (as per RFC-1305)

GPS Receiver (with "+GP" option installed)

Temperature: -40°C to +70°C

Humidity: 95% R.H. Condensing at 60°C

Dimensions: 5.8" D x 3.9" H (147mm x 100mm)

Cable Options: Standard 50'
Optional 100' (order WA-T76)
Optional 100' (order WA-T77 (for 7707GPS-DR to 5600MSC only))
Optional 400' (order WA-T11)

DARS & AES Test Generator Outputs (with "+STG" option installed)

Standard:

Unbalanced: SMPTE 276M single ended AES (24-bits) (1Vp-p into 75Ω)

Balanced: AES3-1992 (24-bits) (4Vp-p unterminated)

Number of Outputs:

DARS: 1 unbalanced, 1 balanced

AES Test Gen: 1 unbalanced, 1 balanced

Connector:

Unbalanced: BNC per IEC 60169-8 Amendment 2

Balanced: Removable Terminal Strip

Sampling Rate: 48 kHz

Impedance:

Unbalanced: 75Ω unbalanced

Balanced: 110Ω balanced

Return Loss: >25dB to 10MHz (with external 75Ω termination)

AES Tones: Menu selectable

Analog Composite Video Test Signal Generator (with "+STG" option installed)

Standard: SMPTE 170M (NTSC-M)
ITU-R BT470-6 (PAL-B)

Number of Outputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1V p-p nominal

DC Offset: 0V ± 0.1V

Output Impedance: 75Ω

Return Loss: >35dB to 10MHz (with external 75Ω termination)

SNR: > 75dB

Genlock Input:

Type: Autodetects standard SMPTE 170M (NTSC-M), ITU-R BT.470-6 (PAL-B), Color Black 1 V p-p Composite Bi-level sync (525i/59.94 or 625i/50) 300 mV
HD Tri-level Sync (same HD standards as sync outputs)

Master SPG / Master Clock System

Number of Inputs: 1
Connector: BNC per IEC 60169-8 Amendment 2
Video: Max: 2Vp-p video
Min: Sync level 150mV
Frequency Lock Range: ± 50 ppm from nominal
Input Impedance: High impedance, isolated, differential - external termination required
Return Loss: > 25dB to 10MHz (with external 75 Ω termination)

Analog Audio Tone Generator (with "+STG" option installed)

Number of Outputs: 2
Type: Balanced analog audio
Connector: 6 pins on 12 pin removable terminal strips
Output Impedance: 66 Ω
Signal Level: -20 to +2 dBu into 10 k Ω load

HDTV Test Generator Outputs (with "+HTG" option installed)

Standards: SMPTE 292M 4:2:2, YCbCr
SMPTE 372M dual link 4:4:4 GBRA
Same standards as HD sync outputs
Number of Outputs:
4:2:2 2 outputs of selected test signal
2 outputs of black video
4:4:4 2 dual link outputs of selected test signal
Embedded Audio: Up to 2 audio groups as specified in SMPTE 299M. Selectable tone frequencies (from 60 Hz to 10 kHz) and audio group.
Audio can be embedded on test signal or black or both outputs. Audio Level is set to -20 dB Full Scale
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V +/-0.5V
Rise and Fall Time: 200ps nominal
Overshoot: < 10% of amplitude
Jitter: < 0.2 UI
Genlock Input: HD Tri-level Sync or NTSC or PAL Color
Black 1V p-p, (provided from one of the Sync outputs)

SDI Test Generator Outputs (with "+STG" option installed)

Standard: SMPTE 259M-C (270 Mb/s)
Number of Outputs: 2 outputs of selected test signal
2 outputs of black video
Embedded Audio: Up to 4 groups as specified in SMPTE 292M.
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V +/-0.5V
Rise and Fall Time: 900ps nominal
Overshoot: < 10% of amplitude
Return Loss: > 15 dB up to 270Mb/s
Jitter: < 0.2 UI
Genlock: Provided internally by 5600MSC

General Purpose Inputs and Output

Number of Inputs: 2
Number of Outputs: 2 (function menu selectable)
Type: Opto-isolated, active low with internal pull-ups to + 5 volts
Connector: 4 pins plus 2 ground pins on 9 pin female D connector
Signal Level: +5V nominal

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Voltage: Auto ranging 100 - 240 Volts AC, 50/60 Hz 30VA
Configuration: Optional redundant supply available with +2PS option
Fuse Rating: 250 V, 1 amp, time delay
Safety: ETL Listed
Complies with EU safety directives
EMI/RFI: Complies with FCC Part 15 Class A
Complies with EU EMC Directive

Ordering Information:

5600MSC	Master SPG / Master Clock System
5600ACO	1RU Automatic Change Over System (see individual brochure)
5600ACO2	2RU Automatic Change Over System (see individual brochure)

Ordering Options (5600MSC):

+2PS	Redundant power supply
+M	Modem Option
+GP	GPS Option (includes GPS receiver and 50' weatherproof cable)
+T	Network Time Protocol (Should be ordered with +GP or +M option)
+STG	NTSC/PAL test signal generator Audio tone generator (analog) DARS generator (balanced & unbalanced) AES generator (balanced & unbalanced) PLUS an SD SDI Test Generator with 2 SD SDI test signals and 2 SD SDI black
+HTG	HD SDI Test Generator with 2 HD SDI test signals & 2 HD SDI black

Accessories:

WA-T76:	100' weatherproof cable for 5600MSC, GPSII & 7707GPS-DT
WA-T77:	100' weatherproof cable for 7707GPS-DR to 5600MSC
WA-T11:	400' weatherproof cable for GPS receiver

For remote GPS head requirements of greater than 400' cables or fiber optic isolation order:

7707GPS-DT	Dual GPS Data Fiber Transmitter
7707GPS-DR	Dual GPS Data Fiber Receiver

5950 VITC/LTC Time Code Reader/Character Inserter

Digital Source ID Encoder

Model 8010-SIE



The 8010-SIE series Source ID Encoders provide a cost-effective method of keying timecode, source ID and machine status information into the digital video. The 8010-SIE uses Digital VITC (D-VITC) to encode the source ID information into the video. The 8010-SIE series VITC generator's lines can be easily programmed from the front panel. The model 8010-SIE also contains a high speed reader for Linear Time Code (LTC) and Vertical Interval Time code (VITC) reader, and contains a high resolution character inserter which can insert onto the program output as well as an optional analog monitoring output.

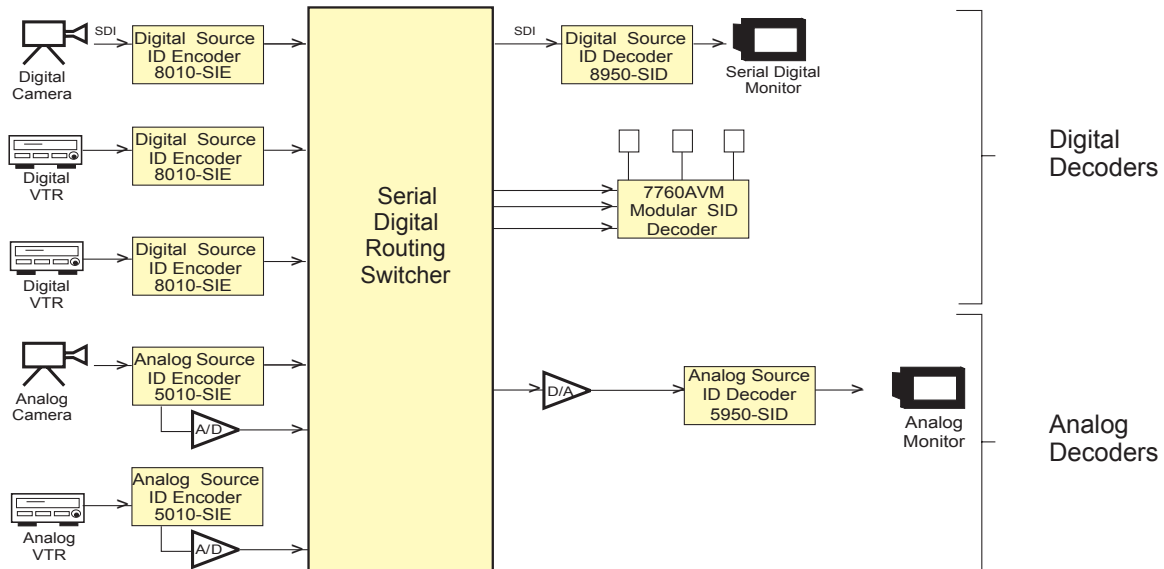
The 8010-SIE operates in one of four modes. In VTR mode, it is designed to listen to communications between a VTR and its controller, and take time code and machine status. In LVS mode, the 8010-SIE is designed to interface to a Profile Disk recorder running the LVS software. The serial port of the LVS device sends recorder status, scene and control information to the 8010-SIE. In RDR mode, the 8010-SIE takes time from its LTC or VITC reader and in GEN mode it allows the user to preset a time into the time code generator. In all modes, the source ID name is programmed from the front panel of the 8010-SIE and encoded into the user bits.

Features

- Accepts 4:2:2 (525 and 625 line) digital video
- Serial digital video input provides automatic cable equalization on cable lengths up to 200 meters of low loss coax such as Belden 8281
- Serial digital video bypass output activates on power loss
- Auxiliary serial digital video output (not bypass protected)
- Passes embedded audio and other ancillary data signals
- Character Inserter displays timecode, source ID and VTR status in the picture
- Separate positioning of each character window
- Active low 'VCG ON/OFF' GPI can be used to remotely turn the character generator on and off
- Serial interface reads status LVS info and CTL information from the Profile in LVS mode or Timecode and VTR status from a Sony protocol VTR in VTR mode
- LTC and VITC Time Code reader to supply time code in RDR modes
- 16 digit Alpha-numeric display, with 16 pushbuttons
- Rack mountable

Digital Source ID Encoder

8010-SIE Configuration Diagram



Specifications:

Serial Digital Video Input:

Standards: SMPTE 259M (270 Mb/s)
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 200m @ 270 Mb/s with Belden 8281 or equivalent cable 150m @ 270 Mb/s when bypass relay is active
Return Loss: > 15 dB up to 540 Mb/s

Serial Digital Video Outputs:

Number of Outputs: 1 with relay bypass, 1 additional output.
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800 mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 470 ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 540 Mb/s
Wide Band Jitter: < 0.2 UI

Analog Monitor Video Outputs (optional):

Standards: Analog composite NTSC if input is 525i/59.94 video
Analog composite PAL if input is 625i/50 video
Connectors: 2 BNC per IEC 60169-8 Amendment 2
Signal Level: 1 V p-p nominal, internally adjustable
DC Offset: 0V \pm 0.1V
Return Loss: >35dB up to 5 MHz
Frequency Response: 0.8dB to 4 MHz
Differential Phase: <0.9° (<0.6° typical)
Differential Gain: <0.9% (<0.5 % typical)
SNR: >56dB to 5 MHz (shallow ramp)
Impedance: 75 Ω

Electrical:

Voltage: 110 - 230 Volts AC, 50/60 Hz - unit auto senses input voltage
Fuse Rating: 250 V, 1/4 amp, time delay
Power: 30 VA
Safety: ETL Listed, complies with EU safety directives
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC directive

Physical:

Single Power Supply Version:

Dimensions: 19" W x 1.75" H x 7.75" D.
(483mm W x 45mm H x 196mm D)
Weight: 7 lbs. (3.2 Kg)

Dual Power Supply Version:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5 Kg)

Ordering Information:

8010-SIE	Digital Source ID Encoder
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Ordering Options:

+2PS	Redundant Power Supply
+MON	Analog Monitoring Option
+BP	Bypass Relay Option

SDI Time Code Generator/Reader with Character Inserter

Model 8010TM



The 8010TM SDI Time Code Master is a full function time code reader/generator system for serial digital video. The 8010TM is a combination generator/reader for Linear Time Code (LTC) and Digital Vertical Interval Time Code (D-VITC), and contains a high resolution character inserter that can burn the generator or reader numbers directly into the digital program output as well as an optional analog monitoring output. A 16 digit alphanumeric display can be quickly delegated to show the required data.

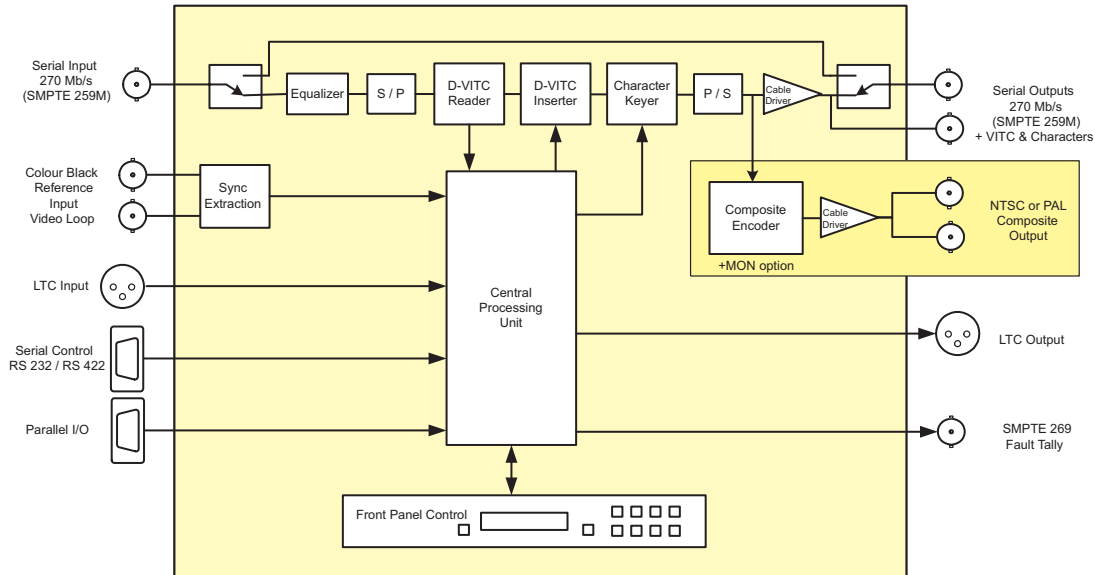
The 8010TM will accept 525 or 625 line component digital video. The 8010TM's time code generator can be preset to lock to the digital program video either by simple frame locking, or where necessary it will colour lock to an analog Colour Reference in accordance with the 4 field NTSC or 8 field PAL colour sequence.

Features

- Accepts 4:2:2 (525 and 625 line) digital video signals
- Serial digital video input provides automatic cable equalization on cable lengths up to 200 meters of low loss coax such as Belden 8281
- Optional bypass relay for program path protection on power loss
- Auxiliary serial digital video output (not bypass protected)
- Passes embedded audio and other ancillary data signals
- LTC and D-VITC Time Code reader with line select
- LTC and D-VITC Time Code generator with line select
- Character Inserter displays reader and generator time and user bits in the picture
- Separate positioning of each character window
- 16 digit Alpha-numeric display, with 16 pushbuttons
- Serial Remote Control of most functions - Broadcasts reader data or sends it on request.
- Rack mountable
- Momentary or continuous jam sync modes
- User bit transfer from reader time or user bits
- EBU/SMPTE Time Code Converter
- Optional composite monitor output converts digital video to analog
- GPI Remote Control mode allows user to pass remote control contact closure information in VITC user bits
- Recalculates EDH after VITC and character insertion

SDI Time Code Generator/Reader with Character Inserter

8010TM Block Diagram



Specifications:

Serial Digital Video Input:

Standards:	SMPTE 259M-C (270 Mb/s)
Connector:	1 BNC per IEC 60169-8 Amendment 2
Equalization:	Automatic 200m @ 270 Mb/s with Belden 8281 or equivalent cable 150m @ 270 Mb/s when bypass relay is active
Return Loss:	> 15 dB up to 540 Mb/s

Serial Digital Video Outputs:

Number of Outputs:	1 with relay bypass, 1 additional output
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800 mV nominal
DC Offset:	0V \pm 0.5V
Rise and Fall Time:	900 ps nominal
Overshoot:	<10% of amplitude
Return Loss:	> 15 dB up to 540 Mb/s
Wide Band Jitter:	< 0.2 UI

Analog Monitor Video Outputs (with +MON option):

Standards:	Analog composite NTSC if input is 525i/59.94 video Analog composite PAL if input is 625i/50 video
Connectors:	2 BNC per IEC 60169-8 Amendment 2
Signal Level:	1 V p-p nominal, internally adjustable
DC Offset:	0V \pm 0.1V
Return Loss:	>35dB up to 5 MHz
Frequency Response:	0.8dB to 4 MHz
Differential Phase:	<0.9°(<0.6° typical)
Differential Gain:	<0.9% (<0.5 % typical)
SNR:	>56dB to 5 MHz (shallow ramp)
Impedance:	75 Ω

Electrical:

Power:	Auto ranging 100-240VAC 50/60Hz 30VA
Safety:	ETL listed Complies with EU safety directives
EMI/RFI:	Complies with FCC Part 15 Class A EU EMC Directive

Physical:

Dimensions:	19" W x 1.75" H x 18.75" D (483mm W x 45mm H x 477mm D)
Weight:	8 lbs. (3.5Kg)

Ordering Information:

8010TM	SDI Time Code Generator/Reader with Character Inserter
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Ordering Options:

+2PS	Redundant Power Supply
+MON	Analog Monitoring Option
+BP	Bypass Relay Option

SDI Time Code Master with IRIG Reader

Model 8010TM-IRIG

The 8010TM-IRIG SDI Time Code Master is a full function time code reader/generator system for serial digital video. The 8010TM-IRIG is a combination generator for SMPTE Linear Time Code (LTC) and Digital Vertical Interval Time Code (D-VITC), reader for IRIG-B code and D-VITC (standard SMPTE time code and special IRIG encoded VITC), and contains a high resolution character inserter which can be burn the generator or reader numbers directly into the digital program output as well as an optional analog monitoring output.

The 8010TM-IRIG reads IRIG-B code commonly in use within the United States government agencies and supporting private industries and provides a display of days, hours, minutes, seconds and milliseconds in the character inserter. This IRIG information is inserted into a special line of vertical interval time code which is protected by a unique cyclic redundancy checkword (CRC) so that (tape recorders and other devices) do not confuse it with standard SMPTE 12M D-VITC. This special D-VITC can be decoded by the 8010TM-IRIG's D-VITC reader to allow you to encode the IRIG information onto a 'clean' video tape and then display the IRIG information later on playback.

The 8010TM-IRIG SMPTE Time code generator can also be slaved to incoming IRIG code. The millisecond count will be converted to the closest frame number and can also be stored in the generator user bits along with the IRIG day of the year. In the continuous jam sync mode, the generator is slaved to the reader, and will follow code any discontinuities of the reader. The generator may also be momentarily synchronized to the reader, and then it continues to increment normally regardless of the reader code. Momentary jam is the recommended mode when synchronizing to IRIG-B sources so that the resulting SMPTE time code does not contain discontinuities due to the different time bases of 29.97 frame per second video and real time of the IRIG code. In NTSC related video systems, the SMPTE generator should be operated in the Drop Frame counting mode when trying to synchronize the SMPTE generator to IRIG.

The 8010TM-IRIG will accept 525 or 625 line component digital video. The 8010TM-IRIG's SMPTE time code generator can be preset to lock to the digital program video either by simple frame locking, or where necessary it will colour lock to an analog Colour Reference in accordance with the 4 field NTSC or 8 field PAL colour sequence.

In NTSC related color systems operation, with a frame rate of 29.97002618 Hz where the time of day is used for indexing, the generator may be operated in the drop frame mode. Special indicators in the front panel display and in the character inserter indicate that the unit is operating in the drop frame format.

Both the generator and reader are capable of working with the unassigned user bits. Several modes of operation are possible. The generator may be preset to insert hexadecimal values for each group in the generated code, and the reader will read hexadecimal values for each binary group. In addition, the user may select the transfer of either reader time or reader user bits into the generator user bits, thus, allowing pre-edit frame addresses to be preserved when new continuous time code is laid down.

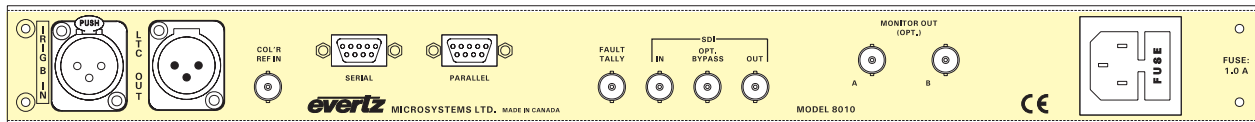
The high-resolution character inserter provides six independently positionable windows to show time and user bits for the generator and readers simultaneously. When the IRIG or VITC readers are operating in the IRIG DAY mode, there are two independently positionable windows for each reader to show the IRIG time to millisecond precision and the IRIG day respectively. Three character sizes and the choice of white or black characters with or without contrasting background mask are selected from the front panel.

Features

- Accepts 4:2:2 (525 and 625 line) digital video
- Serial digital video input provides automatic cable equalization on cable lengths up to 200 meters of low loss coax such as Belden 8281
- Optional Bypass relay for Serial digital video program output activates on power loss or from the front panel menu
- Auxiliary serial digital video output (not bypass protected)
- Passes embedded audio and other ancillary data signals
- LTC and D-VITC SMPTE Time Code generator
- IRIG data encoded to second line of VITC generator with special CRC
- SMPTE D-VITC Time Code or IRIG encoded D-VITC reader
- IRIG reader reads 1 kHz IRIG-B format sine wave amplitude modulated and pulse width modulated codes (formats B002 and B122)
- SMPTE Time Code LTC and D-VITC generators can be slaved momentarily or continuously to IRIG reader - converts milliseconds to closest video frame number. Milliseconds and days can be transferred to VITC user bits.
- Character Inserter displays IRIG day and time to millisecond resolution in the picture in IRIG modes
- Character Inserter displays time and user bits in the picture in SMPTE modes
- Separate positioning of each character window
- 16 digit Alpha-numeric display, with 16 pushbuttons
- Momentary and Continuous jam sync modes
- User bit transfer from reader time or user bits
- 25 \leftrightarrow 30 Fps Time code converter
- Optional composite monitor output converts digital video to analog
- GPI Remote Control mode allows user to pass remote control contact closure information in VITC user bits
- Recalculates and inserts EDH on the SDI output
- Serial Remote Control of most functions - Broadcasts reader data or sends it on request
- Rack mountable

SDI Time Code Master with IRIG Reader

8010TM-IRIG Rear Panel



Specifications:

Serial Digital Video Input:

Standards: SMPTE 259M (270 Mb/s)
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic 200m @ 270 Mb/s with Belden 8281 or equivalent cable
150m @ 270 Mb/s when bypass relay is

active

Return Loss: > 15 dB up to 540 Mb/s

Serial Digital Video Outputs:

Number of Outputs: 1 with relay bypass, 1 additional output.
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800 mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 900 ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB up to 540 Mb/s
Wide Band Jitter: < 0.2 UI

Analog Monitor Video Outputs (optional):

Standards: Analog composite NTSC if input is 525i/59.94 video
Analog composite PAL if input is 625i/50

video

Connectors: 2 BNC per IEC 60169-8 Amendment 2
Signal Level: 1 V p-p nominal, internally adjustable
DC Offset: 0V \pm 0.1V
Return Loss: >35dB up to 5 MHz
Frequency Response: 0.8dB to 4 MHz
Differential Phase: <0.9° (<0.6° typical)
Differential Gain: <0.9% (<0.5 % typical)
SNR: >56dB to 5 MHz (shallow ramp)
Impedance: 75 Ω

LTC Generators:

Standard: SMPTE 12M
Frame Rate: 25 and 30 Fps nominal
Connector: 3 pin male XLR
Level: Adjustable, 0.5V to 4V p-p

IRIG Reader:

Standard: IRIG 200-95 Formats B002 and B122
Connector: 3 pin female XLR
Level: 0.2 to 4V p-p, balanced or unbalanced

General Purpose Inputs and Outputs:

Inputs: 6, programmable control functions
Outputs: 2, programmable tally functions
Connector: 9 pin female "D"
Type: Opto-isolated, active low
Signal Level: Pulled up to +5 volts. 3.3V DC provided

Serial Remote Control:

Standard: RS-232 or RS-422, programmable baud rate
Connector: 9 pin female "D"
Control: Firmware upgrade, serial remote control of all functions

Electrical:

Voltage: Autoranging 100 - 240 Volts AC, 50/60 Hz
Power: 30 VA
Fuse Rating: 250 V, 1 amp, time delay
Safety: ETL Listed, complies with EU safety directives
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Physical:

Single Power Supply version:

Dimensions: 19" W x 1.75" H x 7.75" D.
(483mm W x 45mm H x 196mm D)
Weight: 7 lbs. (3.2 Kg)

Dual Power Supply version:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5 Kg)

Ordering Information:

8010TM-IRIG SDI Time Code Master with IRIG Reader

Ordering Options:

+2PS Redundant Power Supply
+MON Analog Monitoring Option
+BP Bypass Relay Option

HD Source ID Encoder

Model HD9010-SIE

The HD9010-SIE HDTV Source ID Encoder provides a cost-effective method of inserting timecode, source ID and machine status information into the high definition digital video. The HD9010-SIE uses RP188 Ancillary Time Code (ATC) to encode the source ID information into the video. The HD9010-SIE is a combination dual generator/ dual reader for Linear Time Code (LTC) and RP188 Ancillary Time Code (ATC), and contains a high resolution character inserter which can be burn the generator or reader numbers and source ID directly into the serial digital program output.

The HD9010-SIE operates in one of four modes. In VTR mode, it is designed to listen to communications between a VTR and its controller, and take time code and machine status. In LVS mode, the HD9010-SIE is designed to interface to a Profile Disk recorder running the LVS software. The serial port of the LVS device sends recorder status, scene and control information to the HD9010-SIE. In RDR mode, the HD9010-SIE takes time from its LTC or VITC reader and in GEN mode it allows the user to preset a time into the time code generator. In all modes, the source ID name is programmed from the front panel of the HD9010-SIE and encoded into the user bits.

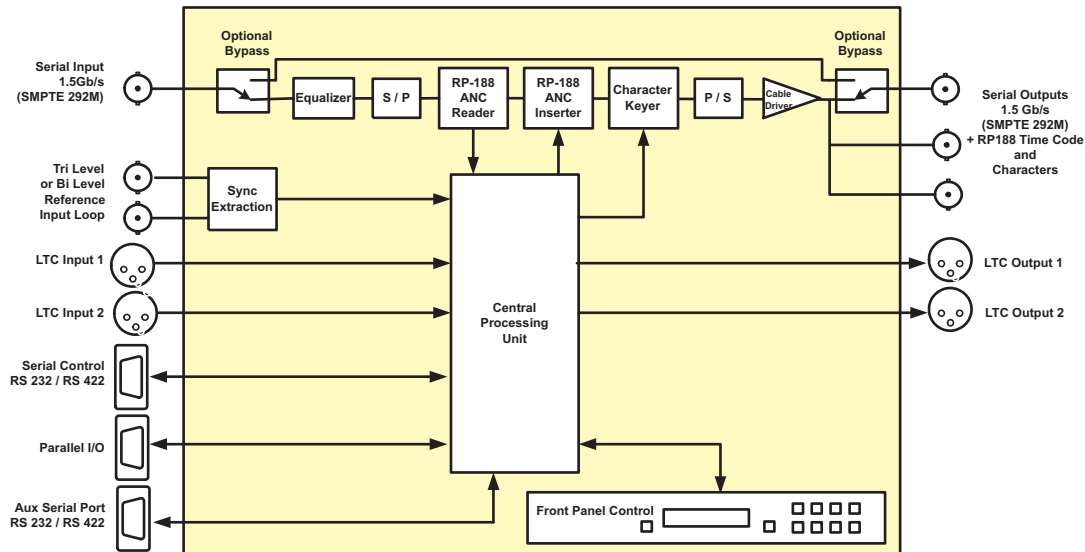
The HD9010-SIE will accept SMPTE 292M (1.5 Gb/s) high definition serial digital video. The HD9010-SIE generators can be slaved to incoming LTC or ATC or can be set to free run. The generators may also be momentarily synchronized to one of the readers, and then it continues to increment normally regardless of the reader code. The second LTC output normally follows the primary output, however the two generators can be operated at different frame rates to supply both 24Fps and 30Fps time code when shooting in a 1080p/24 environment.

The high-resolution character inserter provides independently positionable windows to show time, source ID, status, LVS info and control information on the program output. The choice of white or black characters with or without contrasting background mask is selected from the front panel menu.

Features

- Video formats supported: 1080i/60, 1080i/50, 1080p/30sF, 1080p/25sF, 1080p/24sF, 1035i/60, 720p/60, 720p/50 and the 1/1.001 divisor versions where applicable
- Embeds source ID information into RP188 LTC and VITC ancillary timecode packets on output video
- Read line auto detected, insertion line for RP188 programmable
- Two LTC readers and two LTC generators operate at 24, 25 or 30 Fps nominal rate in accordance with SMPTE 12M specification
- Genlocks to NTSC/PAL colour black or HD Tri-level sync
- Character Inserter displays timecode, source ID and VTR status in the picture. Windows can be positioned and turned off and on independently
- White or black characters on contrasting background,
- Serial interface reads status LVS info and CTL information from the Profile in LVS mode and Timecode and VTR status from a Sony protocol VTR in VTR mode
- LTC and ATC Time Code reader to supply time code in RDR modes
- Front panel display and control using menu system
- Optional: dual power supply configuration
- Parallel GPI/O and serial remote control
- Field upgradeable firmware as new features become available
- Optional input relay bypass for power failure bypass protection

HD9010-SIE Block Diagram



Specifications

HDTV Serial Digital Video Input:

Standard: 1.485 Gb/sec HDTV Serial component digital SMPTE 292M
Connector: BNC per IEC 60169-8 Amendment 2.
Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694 or equivalent cable

HDTV Serial Digital Video Outputs:

Standard: SMPTE 292M, same as input
Outputs: 2 Program video with RP188 Ancillary Time code embedded and optional characters
Connector: BNC per IEC 60169-8 Amendment 2.
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: < 0.15 UI

Reference Input:

Type: HD Tri-level Sync, NTSC or PAL Colour Black 1 V p-p, or Composite bi-level sync (525i/59.94 or 625i/50) 300 mV
Connector: BNC loop per IEC 60169-8 Amendment 2.
Termination: High Impedance

LTC Generators:

Standard: SMPTE 12M
Frame Rate: 24, 25 and 30 Fps nominal
Connector: 3 pin male XLR type connector.
Level: Adjustable, 0.5V to 4.5V p-p

LTC Readers:

Standard: SMPTE 12M
Frame Rate: 24, 25 and 30 Fps nominal
Connector: 3 pin female XLR type connector
Level: 0.2 to 4V p-p, balanced or unbalanced

Serial Ports:

Standard: RS-232
Number: 2 ports
Baud Rate:
COM1: 57600 baud (115,200 for Rev 2 hardware) for firmware upgrades
AUX COM: Programmable for data broadcast applications
Connector: Programmable
Control: 9 pin female "D"
COM1: Firmware upgrades, time code data broadcast
AUX COM: Programmable - future use

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D.
 (483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

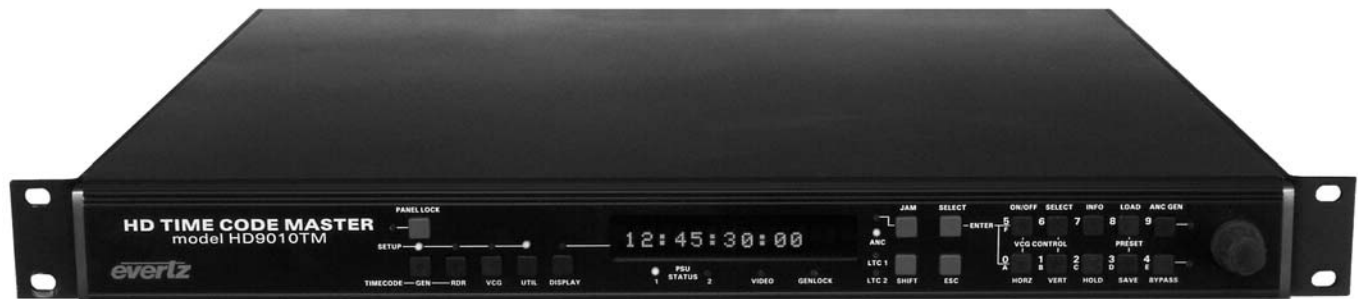
Power: Auto ranging, 100 to 240 VAC, 50/60 Hz 30 VA
Safety: ETL listed
 Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
 EU EMC Directive

Ordering Information:

HD9010-SIE HD Source ID Encoder

HD Time Code Generator/Reader

Model HD9010TM



The HD9010TM HDTV Time Code Master is a full function time code reader/generator system for high definition serial digital video. The HD9010TM is a combination dual generator/dual reader for Linear Time Code (LTC) and RP188 Ancillary Time Code (ATC), and contains a high resolution character inserter which can burn the generator or reader numbers directly into the serial digital program output.

The HD9010TM will accept SMPTE 292M (1.5 Gb/s) high definition serial digital video. The HD9010TM's time code generators can be preset to lock to the input video or to an analog colour black signal. When generating 24Fps timecode it will also lock to a 6Hz pulse.

The HD9010TM generators can be slaved to incoming LTC or ATC or can be set to free run. The generators may also be momentarily synchronized to one of the readers, and then continue to increment normally regardless of the reader code. The second LTC output normally follows the primary output, however the two generators can be operated at different frame rates to supply both 24Fps and 30Fps time code when used in a 1080p/24 environment.

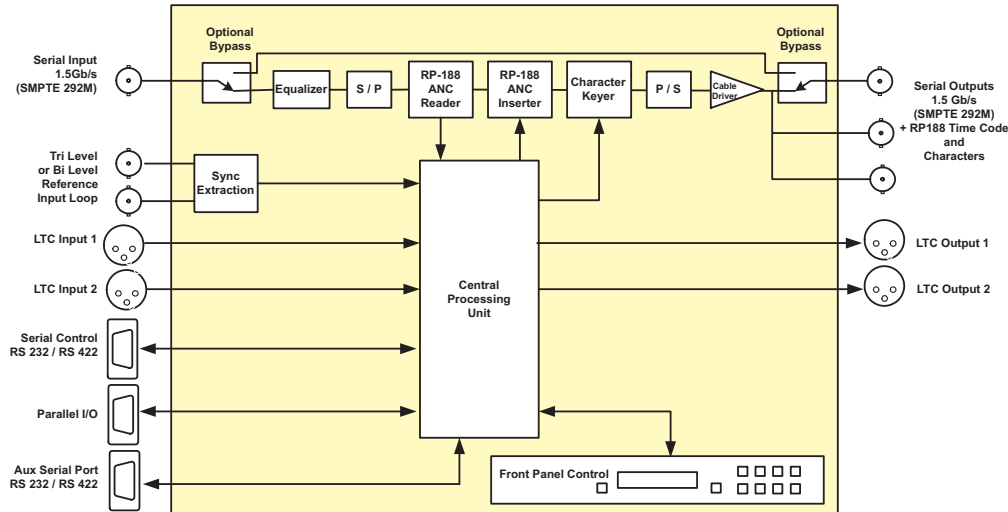
The high-resolution character inserter provides independently positionable windows to show time and user bits for the generator and readers simultaneously. One character size and the choice of white or black characters with or without contrasting background mask are available.

Features

- Video formats supported: 1080i/60, 1080i/50, 1080p/30sF, 1080p/25sF, 1080p/24sF, 1035i/60, 720p/60 and the 1/1.001 divisor versions where applicable
- Reads RP188 LTC and VITC ancillary time code packets from incoming video.
- Generates RP188 LTC and VITC ancillary time code packets on output video
- RP188 reader line auto detected, generator insertion line programmable
- Two LTC readers and two LTC generators operate at 24, 25 or 30 Fps nominal rate in accordance with SMPTE 12M specification
- Generates 24 Fps and 30 Fps simultaneously
- RP-188 ↔ LTC translator
- Genlocks to NTSC/PAL color black
- Generates character burn in windows for the reader and generator time and user bit data. Windows can be positioned and turned off and on independently
- One vertical size of character windows, white or black on contrasting background,
- Front panel display and control using menu system
- Parallel GPI/O
- Field upgradeable firmware as new features become available
- Optional dual power supply configuration
- Optional input relay bypass for power failure bypass protection

HD Time Code Generator/Reader

HD9010TM Block Diagram



Specifications:

Serial Video Input:

Standard: SMPTE 292M (1.5 Gb/s), SMPTE 274M, SMPTE 296M, SMPTE 349M
1080i/60, 1080i/50, 1080p/30sF, 1080p/25sF, 1080p/24sF, 1035i/60, 720p/60, and the 1/1.001 divisor versions where applicable
software selectable or autodetect
BNC per IEC 60169-8 Amendment 2
Input Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694 or equivalent cable (50m with +HBP option)
Return Loss: >15 dB up to 1 GHz
>10 dB up to 1.5 GHz (with +HBP option)

Serial Video Output:

Number of Outputs: 1 relay bypassed with +HBP option
2 non bypassed
BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: 200ps nominal
Overshoot: <10% of amplitude
Jitter: < 0.2 UI

LTC Generators:

Standard: SMPTE 12M
Number: 2
Frame Rate: 24, 25 and 30 Fps nominal
Connectors: 3 pin male XLR type connector
Level: Adjustable, 0.5V to 4.5V p-p
Rise Time: 40 \pm 10 μ s
Jitter: < 2 μ s

LTC Readers:

Standard: SMPTE 12M
Number: 2
Frame Rate: 24, 25 and 30 Fps nominal
Connectors: 3 pin female XLR type connector
Level: 0.2 to 4V p-p, balanced or unbalanced
Speed: 1/30th to 50 x play speed, VTR dependent

Video Reference:

Type: Menu selectable - depends on video format
NTSC or PAL Colour Black 1 V p-p
Composite Bi-level sync (525i/59.94 or 625i/50) 300 mV
Connectors: 2 BNC per IEC 60169-8 Amendment 2
Termination: High impedance loop through

General Purpose In/Out:

Number: 5 programmable input or output functions
Type: Active low with internal pull-ups to +5V
Connector: Female High Density DB-9
Signal Level: +5V nominal

Serial Remote Control:

Standard: RS-232, 57600 baud
Connector: 9 pin female "D"
Control: Firmware upgrade

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)

Electrical:

Power: Auto ranging 100-240 VAC 50/60 Hz 30VA
Safety: ETL listed
Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

HD9010TM HD Time Code Generator/Reader

Ordering Options:

+HBP Bypass Relay Protection
+2PS Redundant Power Supply

HD Time Code Master with IRIG Reader

Model HD9010TM-IRIG



The HD9010TM-IRIG HDTV Time Code Master with IRIG-B Reader is a full function time code reader/generator system for SMPTE 292M (1.5 Gb/s) high definition serial digital video. The HD9010TM-IRIG is a combination generator/reader for SMPTE 12M Linear Time Code (LTC) and SMPTE RP188 Ancillary Time Code (ATC), a reader for IRIG-B code, and a generator/reader of Vertical Ancillary Data (VANC) packets containing the IRIG-B code. The HD9010TM also contains a high resolution character inserter that can burn the generator or reader numbers directly into the serial digital program output.

The HD9010TM-IRIG reads IRIG-B code commonly in use within the United States government agencies and supporting private industries and provides a display of days, hours, minutes, seconds and milliseconds in the character inserter. This IRIG information is inserted into a special ancillary data packet in the vertical ancillary data space (VANC) of the SMPTE 292M serial bitstream. This special VANC packet be decoded by the HD9010TM-IRIG's VANC reader to allow you to encode the IRIG information onto a 'clean' video tape and then display the IRIG information later on playback.

The HD9010TM-IRIG SMPTE Time code generator is output as LTC and ATC and can also be slaved to incoming IRIG serial time code. The millisecond count will be converted to the closest frame number and can also be stored in the generator user bits along with the IRIG day of the year. In the continuous jam sync mode, the generator is slaved to the IRIG-B reader, and will follow code any discontinuities of the reader. The generator may also be momentarily synchronised to the IRIG-B reader, and then it continues to increment normally regardless of the reader code. Momentary jam is the recommended mode when synchronising to IRIG-B sources so that the resulting SMPTE time code does not contain discontinuities due to the different time bases of 29.97 frame per second video and real time of the IRIG code. In NTSC related video systems, the SMPTE generator should be operated in the Drop Frame counting mode when trying to synchronise the SMPTE generator to IRIG.

The HD9010TM-IRIG SMPTE Time code generator can also be slaved to incoming LTC or ATC, or can be set to free run. The generator may also be momentarily synchronised to one of the readers, and then continue to increment normally regardless of the reader code. The second LTC output normally follows the primary output, however the two generators can be operated at different frame rates to supply both 24Fps and 30Fps time code when used in a 1080p/24 environment.

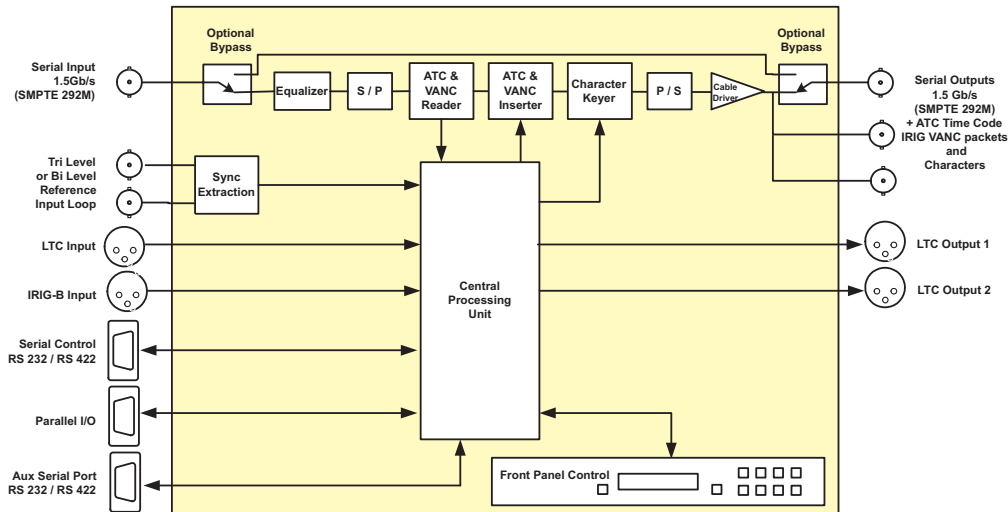
The high-resolution character inserter provides independently positionable windows to show time and user bits for the SMPTE generator and readers simultaneously. When the IRIG or VANC readers are operating in the IRIG DAY mode, there are two independently positionable windows for each reader to show the IRIG time to millisecond precision and the IRIG day respectively. The choice of white or black characters with or without contrasting background mask is available.

Features

- Video formats supported: 1080i/60, 1080i/50, 1080p/30sF, 1080p/25sF, 1080p/24sF, 1035i/60, 720p/60 and the 1/1.001 divisor versions where applicable
- IRIG reader reads 1 kHz IRIG-B format sine wave amplitude modulated and pulse width modulated codes (formats B122 and B022)
- Encodes IRIG data in VANC packets on output video.
- Reads IRIG data encoded in VANC packet from incoming video
- Generates RP188 LTC and VITC ancillary timecode packets on output video
- Reads RP188 LTC and VITC ancillary time code (ATC) packets.
- Insertion line for VANC packets programmable, read line auto detected
- One LTC reader and two LTC generators operate at 24, 25 or 30 Fps nominal rate in accordance with SMPTE 12M specification
- Generates to 24 Fps and 30 Fps LTC simultaneously
- RP-188 ↔ LTC translator
- Genlocks to NTSC/PAL color black or HD Tri-level sync (feature not implemented at this time)
- Character windows for the reader and generator time and user bit data. Windows can be positioned and turned off and on independently
- White or black characters on contrasting background
- Front panel display and control using menu system
- Optional: dual power supply configuration
- Parallel GPI/O and serial remote control
- Field upgradeable firmware as new features become available
- Optional input relay bypass for power failure bypass protection

HD Time Code Master with IRIG Reader

HD9010TM-IRIG Block Diagram



Specifications:

HDTV Serial Digital Video Input:

Standard: SMPTE 292M (1.5 Gb/s), SMPTE 274M, SMPTE 296M, SMPTE 349M
1080i/60, 1080i/50, 1080p/30sF, 1080p/25sF, 1080p/24sF, 1035i/60, 720p/60, and the 1/1.001 divisor versions where applicable software selectable or autodetect

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694A or equivalent cable

HDTV Serial Digital Video Outputs:

Standard: SMPTE 292M, same as input

Outputs: 2 Program video with RP188 Ancillary time-code embedded and optional characters

Connectors: BNC per IEC 60169-8 Amendment 2

Signal Level: 800mV nominal

DC Offset: 0V \pm 0.5V

Rise and Fall Time: 200ps nominal

Overshoot: <10% of amplitude

Wide Band Jitter: < 0.2 UI

Reference Input:

Type: NTSC or PAL Color Black 1 V p-p, or Composite bi-level sync (525i/59.94 or 625i/50) 300 mV

Connector: BNC loop per IEC 60169-8 Amendment 2

Termination: High Impedance

LTC Generator:

Standard: SMPTE 12M

Frame Rate: 24, 25 and 30 Fps nominal

Connectors: 3 pin male XLR type connector

Level: Adjustable, 0.5V to 4.5V p-p

LTC Reader:

Standard: SMPTE 12M

Frame Rate: 24, 25 and 30 Fps nominal

Connector: 3 pin female XLR type connector

Level: 0.2 to 4V p-p, balanced or unbalanced

IRIG Reader:

Standard: IRIG 200-95 Formats B002 and B122

Connector: 3 pin female XLR type connector

Level: 0.2 to 4V p-p, balanced or unbalanced

Serial Remote Control:

Standard: RS-232, 57600 baud

Connector: 9 pin female "D"

Control: Firmware upgrade

Physical:

Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)

Weight: 8 lbs. (3.5Kg)

Electrical:

Power: 115/230 V AC 50/60 Hz, 30 VA

Safety: ETL listed
Complies with EU safety directive

EMI/RFI: Complies with FCC Part 15 Class A, EU EMC Directive

Ordering Information:

HD9010TM-IRIG HD Time Code Master with IRIG Reader

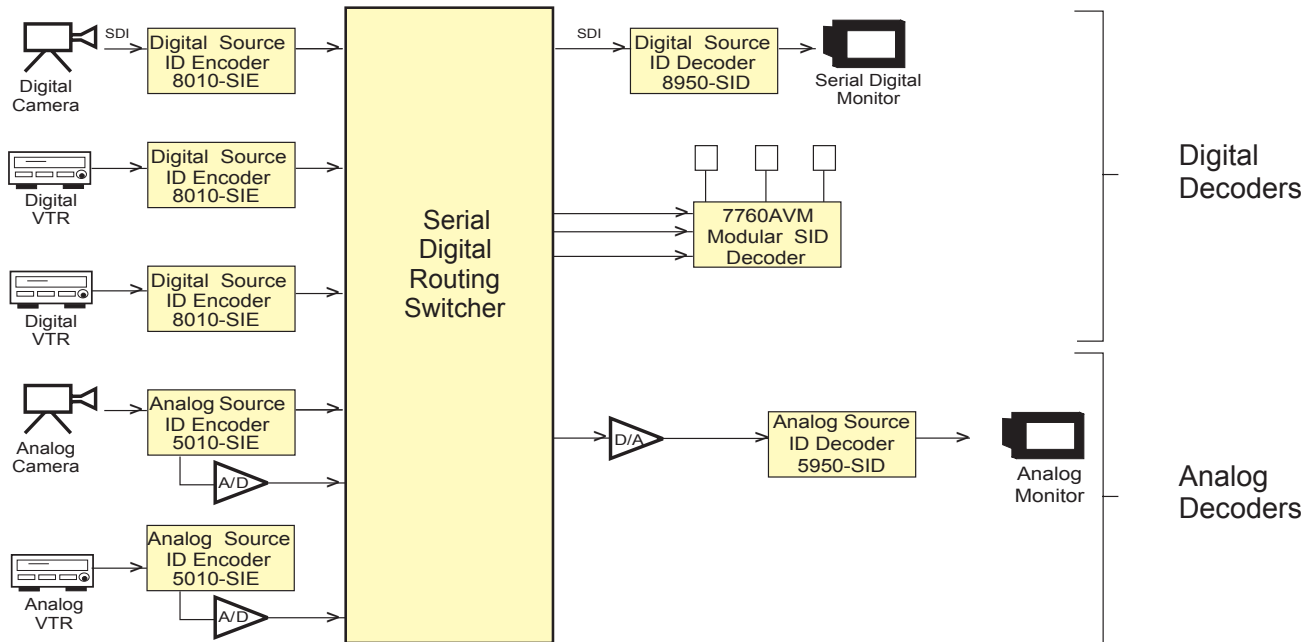
Ordering Options:

+HBP Bypass Relay Protection

+2PS Redundant Power Supply

Source Identification Systems

Vertical Interval Source ID Block Diagram



Block Diagram of Analog & Digital Source Identification Systems

Evertz has developed a line of analog and digital source identification encoders and decoders for use by broadcasters and other large facilities. These units have the ability to encode source ID, along with VTR time code and status into the vertical interval using Vertical Interval time code. Decoders at the monitors extract this information and display it in the picture or on under monitor displays. The range of equipment includes standalone encoders and decoders and modular decoders which are ideally suited for monitoring walls. The technology used in these devices can be readily adapted to specialized requirements for any facility.

(Contact factory for further information or to discuss specific applications)

evertz

PROFESSIONAL



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