

evertz

2005 Catalogo

*A sezioni distinte
per Categorie Prodotti
+ articoli in ordine alfabetico*

con Bookmark

PROFESSIONAL

SHOW

ASSCON

Professional Show s.p.a.

Sede Centrale : Via Praimbole 15 - 35010 Limena (PD)

Sede di Roma : Via Monte Pertica 32 - 00100 Roma

Sede di Milano : Via Santa Maria 83 - 20093 Cologno Monzese (MI)

Sede di Trento : Via Brennero 165/13 - 38100 Trento)

Tel: +390498657111

Tel: +390637513188

Tel: +390225397214

Tel: +390461422133

Combo HD & SD Digital Auto Signal 2x1 Change Over



Model 500ACO2-HD/SD

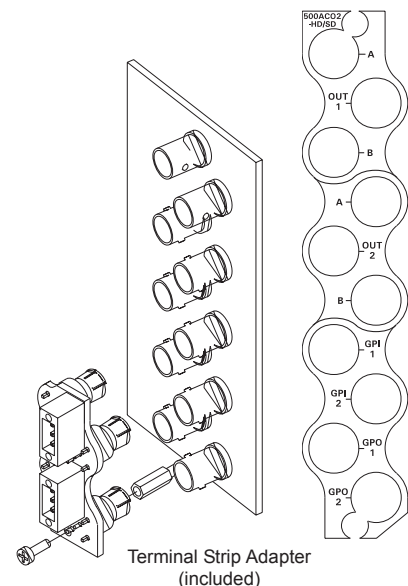
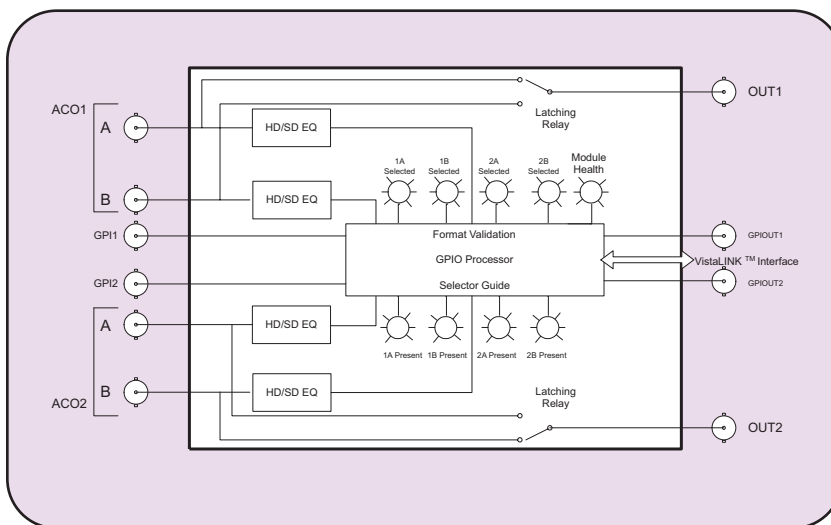
The Evertz 500ACO2-HD/SD dual SDI Autochangeover is designed to provide extension to the 5600ACO for HD or SD SDI, DVB-ASI, AES audio and analog video. The unit can also be operated as a standalone changeover unit with two independent 2X1. The 500ACO uses latching relays to ensure maximum reliability 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 switcher
 - GPI Control - two independently GPI controlled 2x1 switcher
 - 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™ -enabled 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 ±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: Two 3 pin terminal blocks with one ground each.
Signal Level: +5V nominal

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:

500ACO2-HD/SD

Combo HD & SD Digital Auto Signal Change Over

Enclosures:

500FR
S501FR

exponent
Compact High Density Distribution Frame
Standalone enclosure

Analog Video Distribution Amplifier

500ADA

The 500ADA Analog Distribution Amplifier is a general purpose amplifier for distributing 75Ω 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.

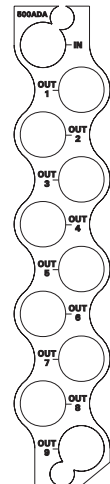
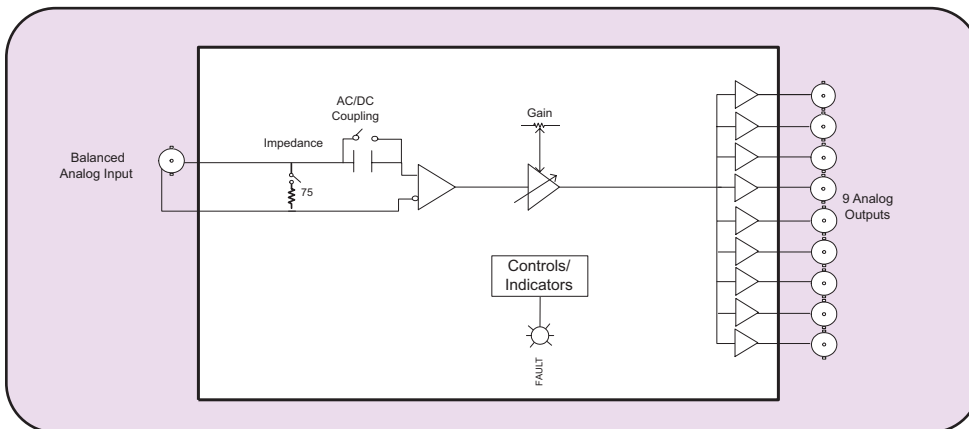
Features

- 75Ω 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

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: 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: 9 Per Card
Connector: BNC per IEC 60169-8 Amendment 2
Output impedance: 75Ω
Gain control range: ± 5dB
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, 32dB 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

Ordering Information:

500ADA

Analog Video Distribution Amplifier (1 x 9)

Enclosures:

500FR
S501FR

exponent

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.

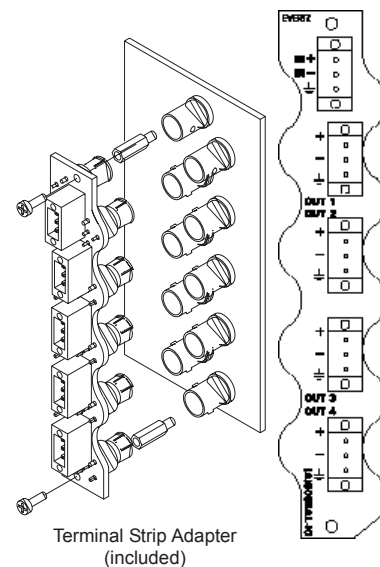
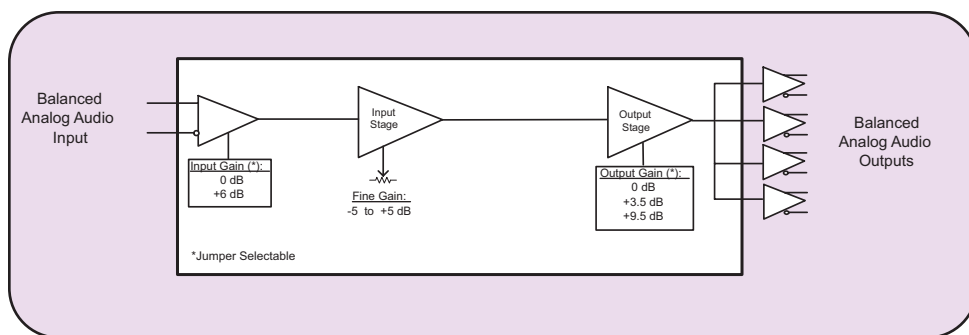
Features

- 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

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 |
|-------------------------|---|

Ordering Information:

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

Enclosures:

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

Analog Video Distribution Amplifier with Cable Equalization



500ADA-EQ

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

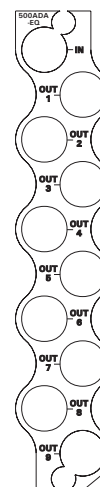
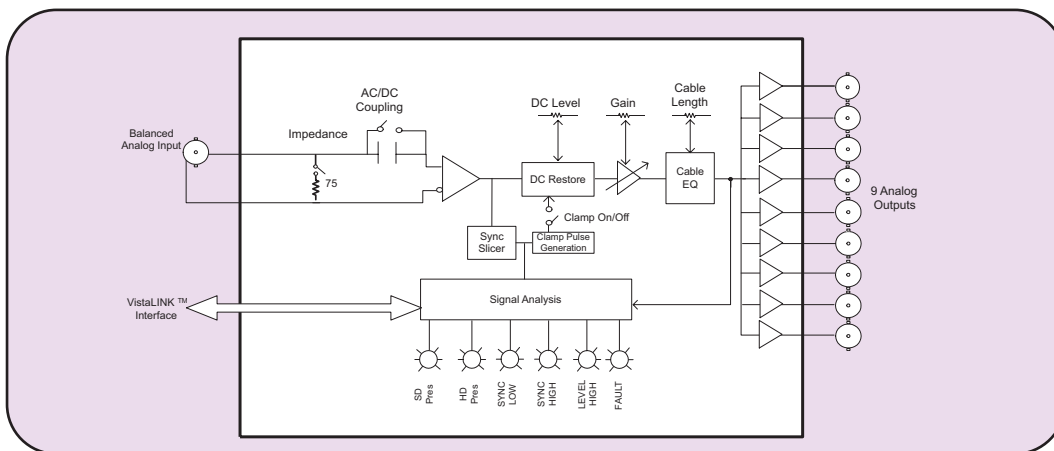
- 75Ω or high impedance input (jumper selectable)
- High common mode range and common mode rejection ratio (CMRR)
- Gain control
- Jumper selectable AC or DC coupling
- Jumper selectable fast or slow back porch clamp
- DC level control when clamp is enabled
- Cable equalizer adjustment range: 0 to 300m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

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

Card Edge LEDs:

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

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:

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:

9 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

< ±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 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:

1.2 Watts

EMI/RFI:

Complies with FCC Part 15 Class A EU EMC Directive

Physical:

Number of Slots:

1

Ordering Information:

500ADA-EQ

Analog Video Distribution Amplifier with Cable Equalization (1 x 9)

Enclosure:

500FR

S501FR

exponent

Compact High Density Distribution Frame Standalone enclosure

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.

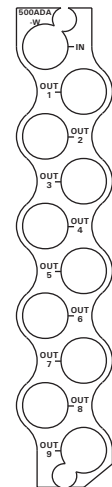
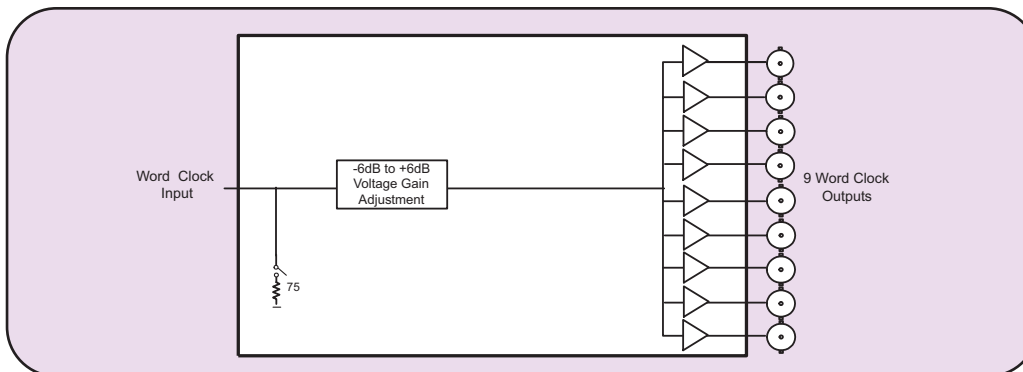
Features

- 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 (1k 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 |
|-------------------------|---|

Ordering Information: 500ADA-W

Word Clock Distribution Amplifier (1x9)

Enclosures: 500FR S501FR

exponent
Compact High Density Distribution Frame
Standalone enclosure

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 75 Ω 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 75 Ω coax
- EQ and reclock provide extended cable length compensation (>1000m)

Outputs:

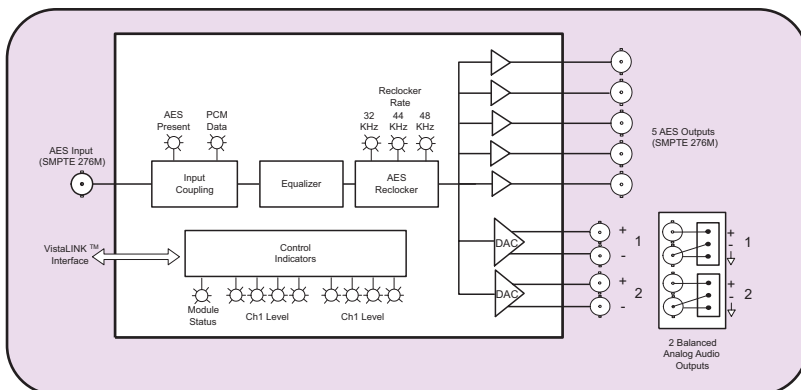
- Five 75 Ω coax outputs
- 2 balanced analog audio outputs

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: 75 Ω , 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: 75 Ω unbalanced
Return Loss: > 25 dB, 100 kHz to 6.0 MHz

Analog Audio Outputs:

- Number of Outputs:** 4
Type: Balanced analog audio
Connector: Two 3 pin removable terminal strips on BNC adapter panel
Output Impedance: 66 Ω
Output Load: 600 Ω or high impedance (10 K Ω)
Signal Level: 0dB FS => +12 to +24.8 dBu into 10 K Ω 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:

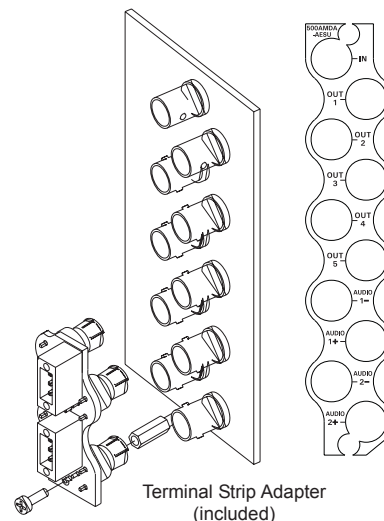
- Number of slots:** 1

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



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

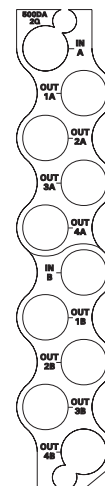
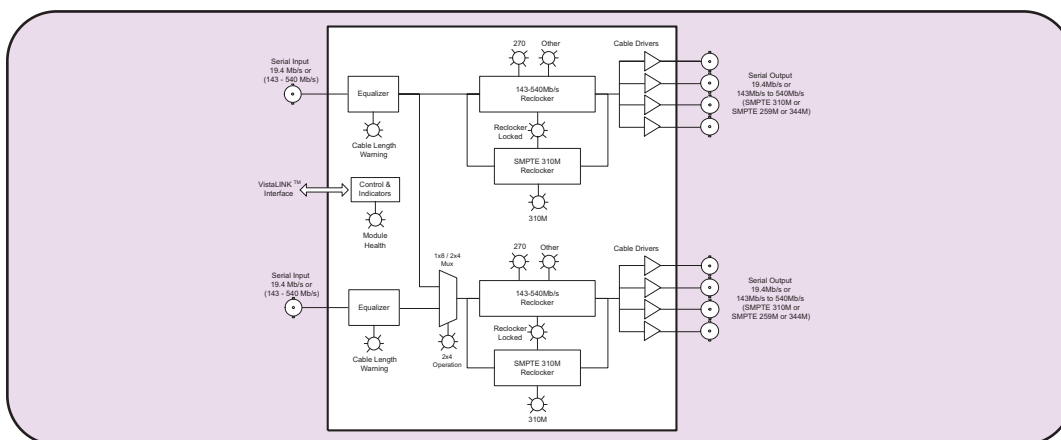
Inputs:

- 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

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)
> 15 dB up to 270 Mb/s

Return Loss:

Serial Video Output:

Number of Outputs

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

S501FR

exponent

Compact High Density Distribution Frame
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 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:

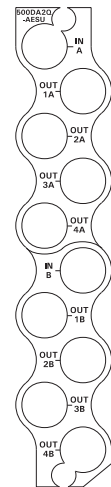
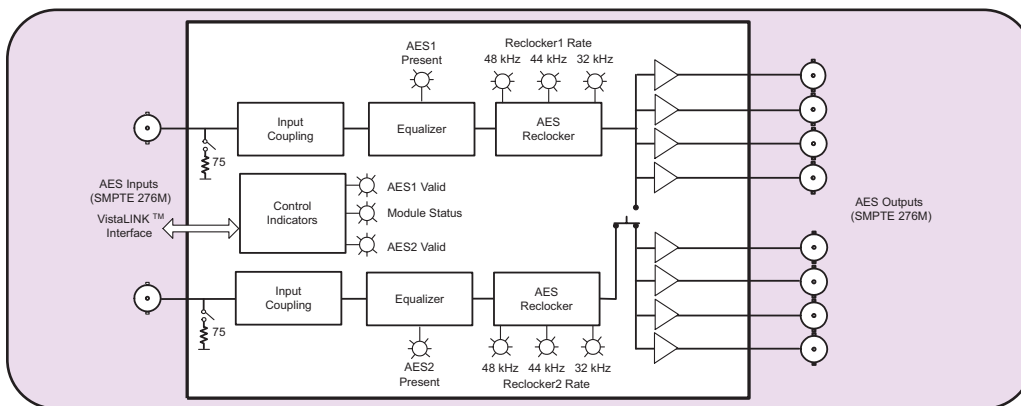
- 2 inputs
- SMPTE 276M standard for AES audio on 75Ω coax
- EQ and reclock provide extended cable length compensation (>1500m)
- Transformer coupled 75Ω unbalanced input

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

Combo HD/SD SDI Dual Reclocking Distribution Amplifier (32 Ix4 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

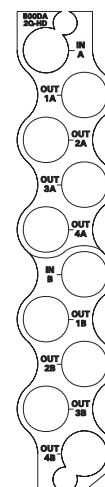
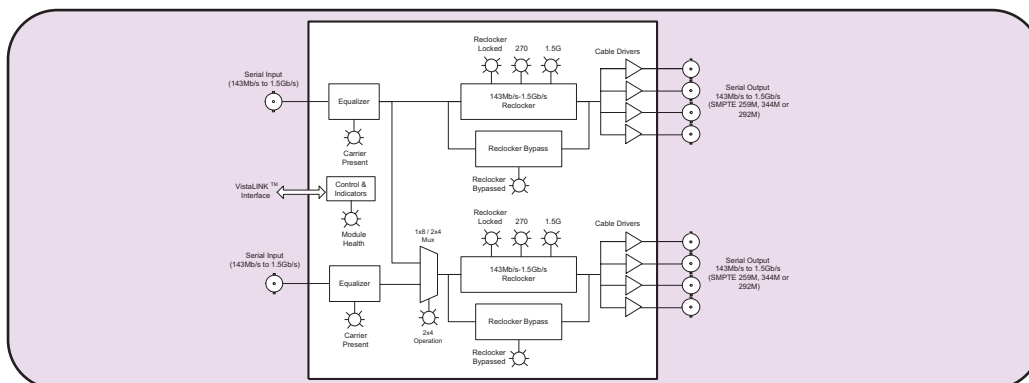
- Normal mode for SMPTE 292M (1.5 Gb/s) SMPTE 259M (143 - 360 Mb/s) or SMPTE 344M (540 Mb/s) signals - autodetects correct bit rate
- Jumper selectable mode for DVB-ASI
- Jumper selectable non-reclock mode for SMPTE 310M(19.4Mb/s) signals or any other SDI signal within the 143 Mb/s to 1.5 Gb/s range
- 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

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

1 x 8 Mode:

8 reclocked from Input A (1)
Reclockers can be bypassed

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

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

exponent

Compact High Density Distribution Frame
Standalone enclosure

S501FR

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 HDSDI modules within 500FR

Outputs:

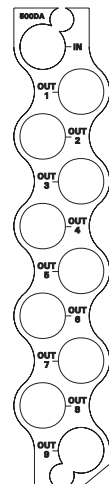
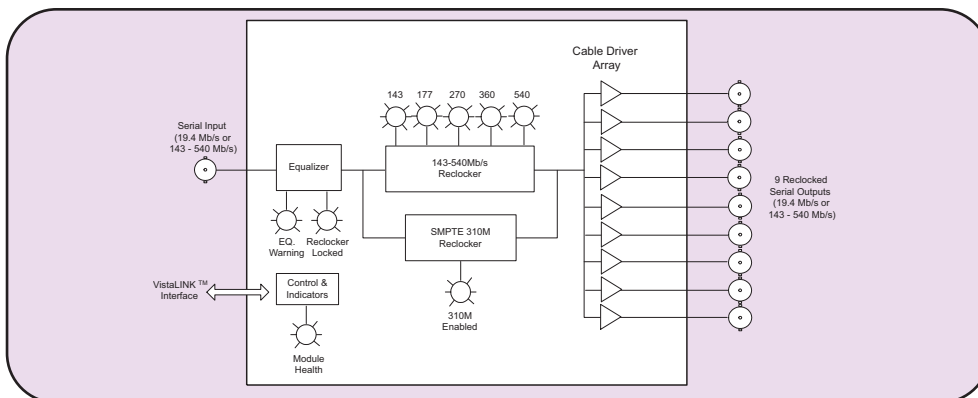
- 9 reclocked outputs
- Return loss > 15dB up to 540Mb/s
- Wideband jitter <0.2 UI

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 HDSDI 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

S501FR

Compact High Density Distribution Frame
Standalone enclosure

Balanced AES Audio Distribution Amplifier



Model 500DA-AESB

The 500DA-AESB is a four output reclocking and auto equalizing DA for unbalanced 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:

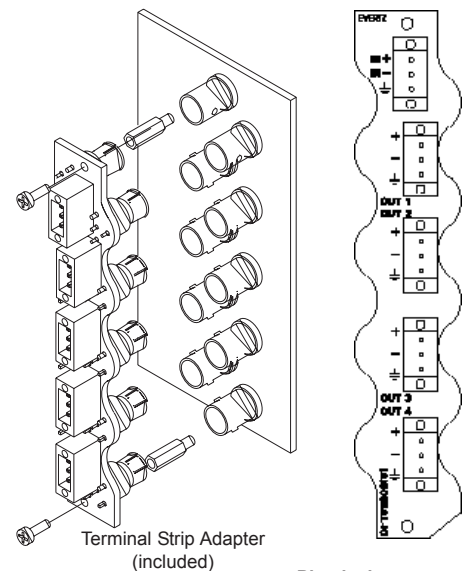
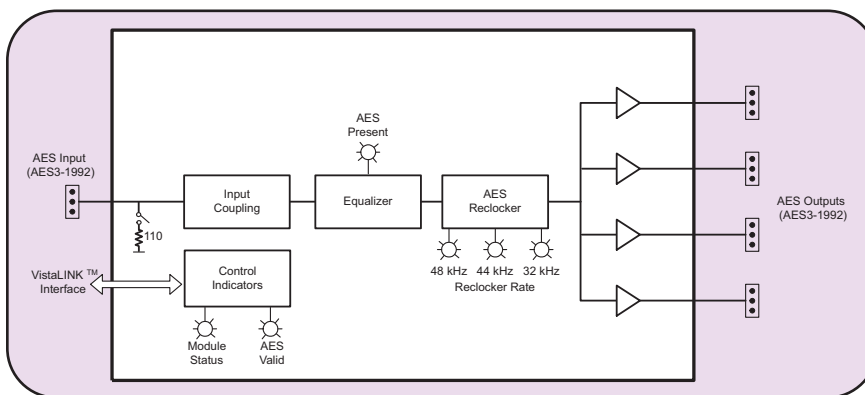
- Four 110 Ω balanced

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

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-AESB

Enclosure:

500FR
S501FR

Physical:

Balanced AES Audio Distribution Amplifier (1x4)

exponent

Compact High Density Distribution Frame
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

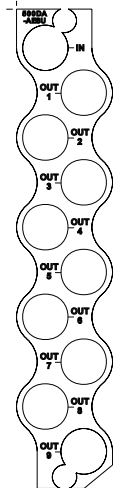
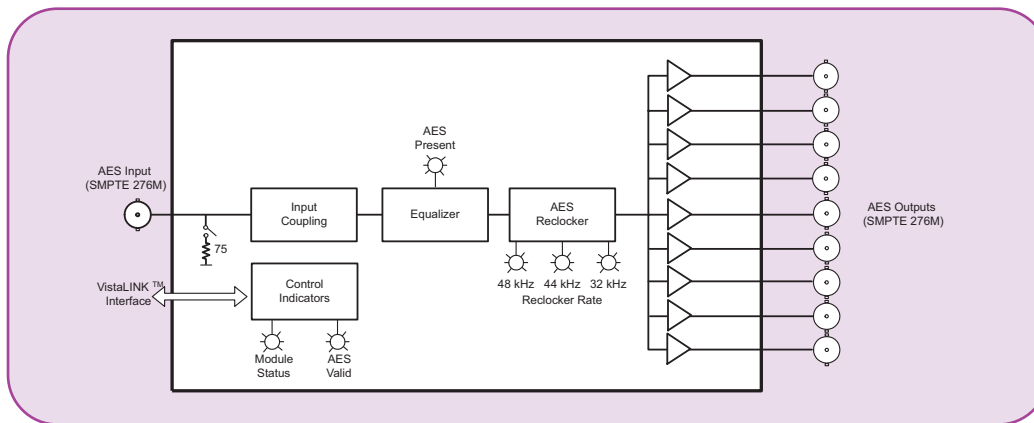
Outputs:

- 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
S501FR

exponent
Compact High Density Distribution Frame
Standalone enclosure

Combo HD/SD SDI Reclocking Distribution Amplifier



Model 500DA-HD

The Evertz 500DA-HD Reclocking Distribution Amplifier provides reliable distribution of your HDTV and SDTV SDI 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 serial outputs.

The 500DA-HD has 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.

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 540 Mb/s), SMPTE 292M (1.5 Gb/s) signals or DVB-ASI signals

Outputs:

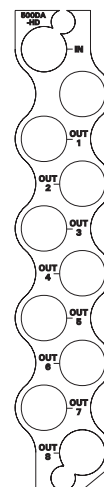
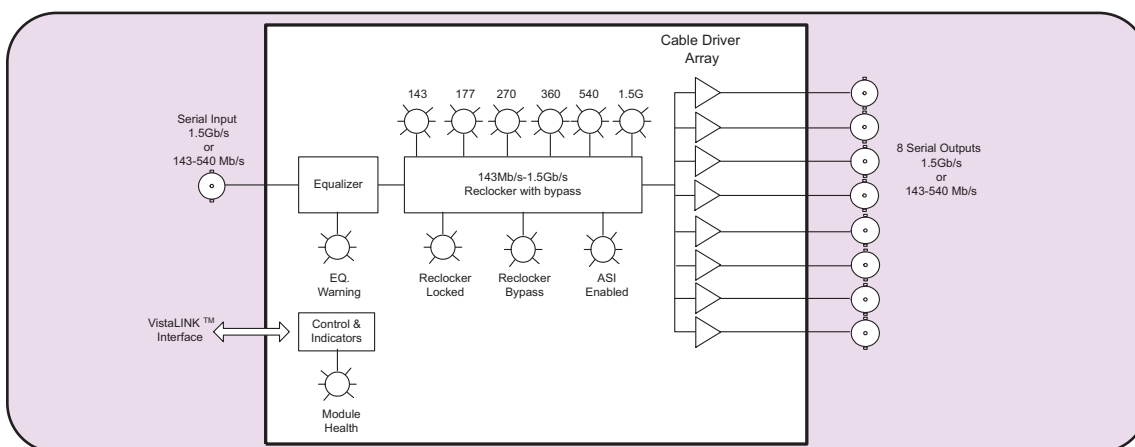
- Independent isolated output drivers to ensure no cross channel loading effects (i.e. no need to terminate unused outputs)

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

Equalization: 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)

Enclosure:

500FR

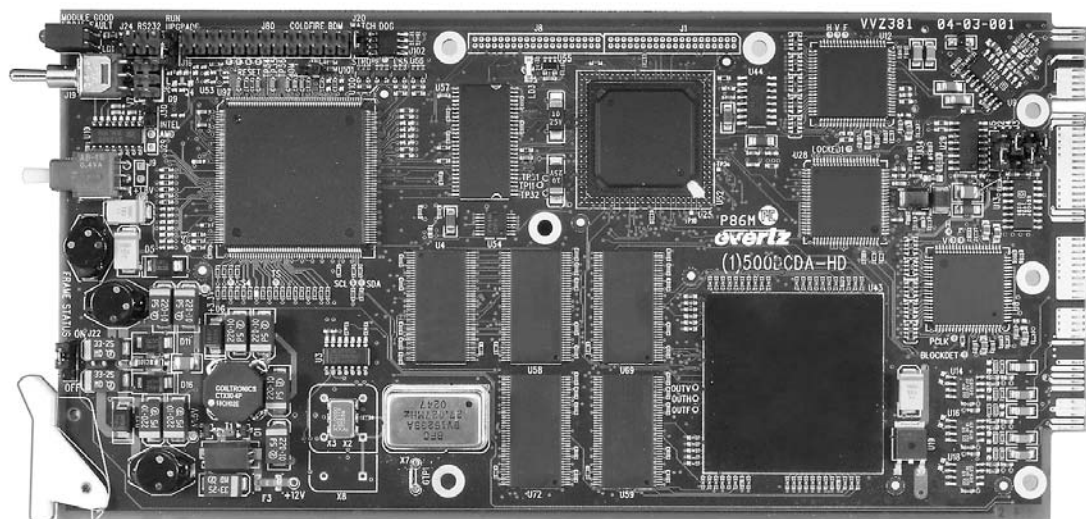
S501FR

exponent

Compact High Density Distribution Frame
Standalone enclosure

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 270 Mb/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 270 Mb/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
- 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



Model 500FC Frame Controller

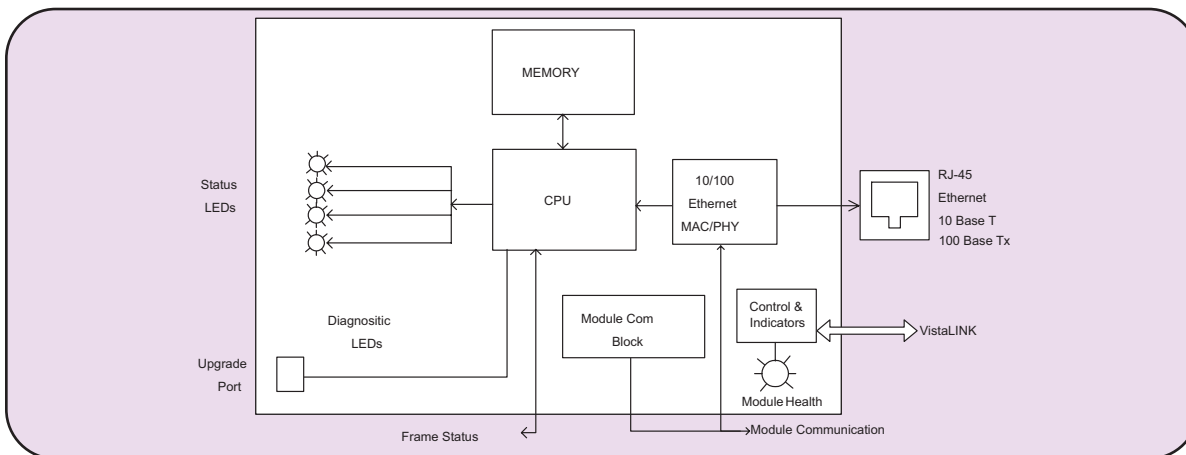
The 500FC VistaLINK™ Frame Controller card provides a single point of access to communicate with VistaLINK™-enabled 500 series modules. The 500FC VistaLINK™ Frame Controller provides a 10Base-T/100Base-TX Ethernet port and communication is facilitated through the use of Simple Network Management Protocol (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

exponent

Compact High Density Distribution Frame

Model 500FR



Specifications

Electrical:

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

Maximum Power

160 W

Dissipation:

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

EMC:

EU EMC Directive

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

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

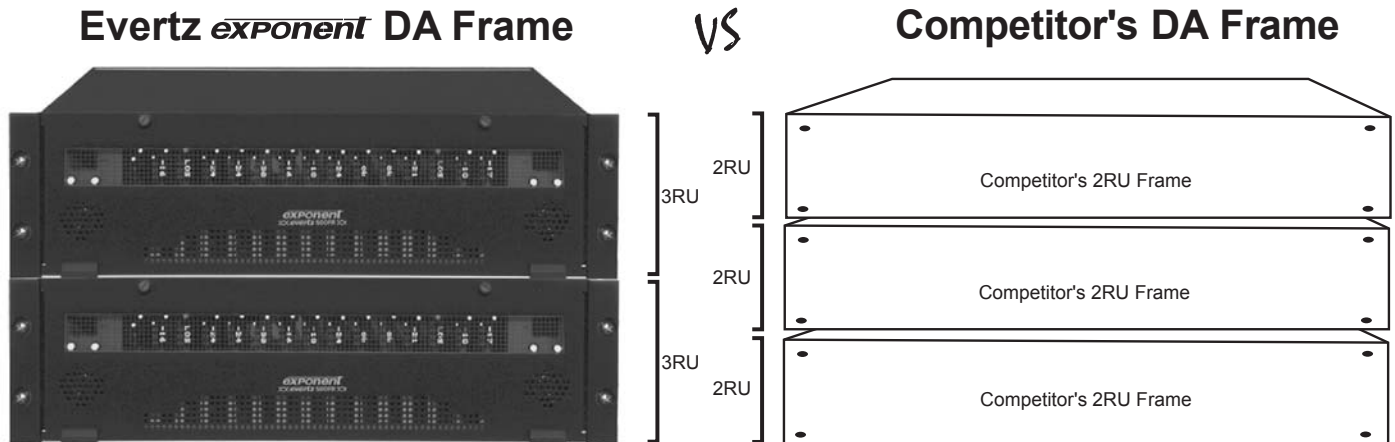
Accessories:

S501FR-RP

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

An Industry Comparison

(based on 6RU of Rack Space)



Total Number of Output BNC'S per 6RU= 288
270
(Depending on manufacturer)

Total Number of Output BNC'S per 6RU=240-

Total Power Supplies per 6RU= 4 (with redundancy)
dancy)

Total Power Supplies per 6RU= 6 (with redun-

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 not cross channel leading effects (i.e. no need to terminate unused outputs)
- Selectable NTSC pedestal on/off

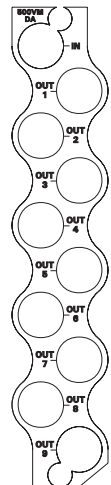
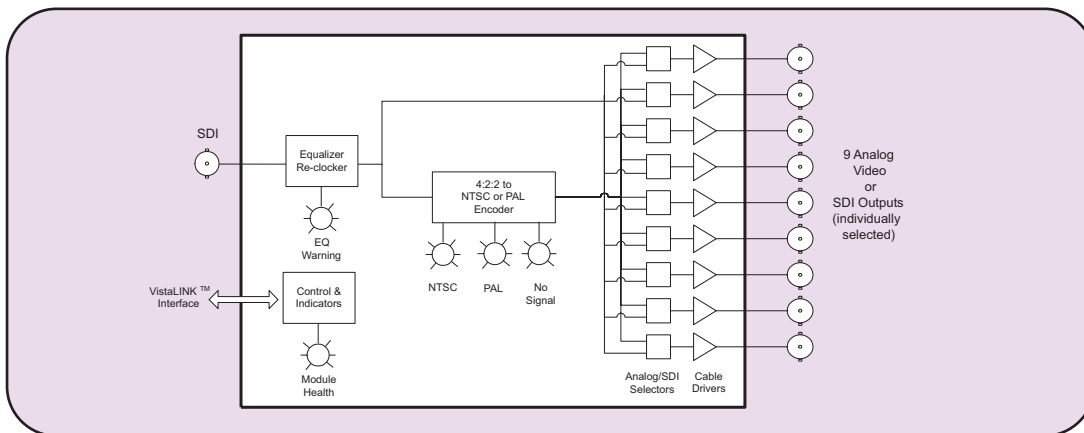
Input:

- 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
S501FR

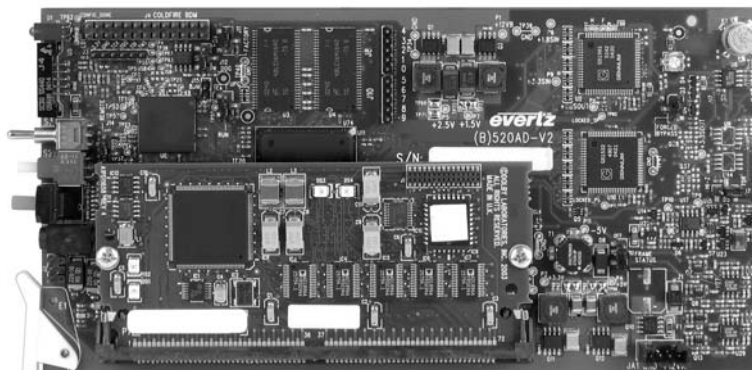
exponent

Compact High Density Distribution Frame
Standalone enclosure

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 5 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.

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 to match Dolby decoder audio delay (up to 6 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
- 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:

- 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:

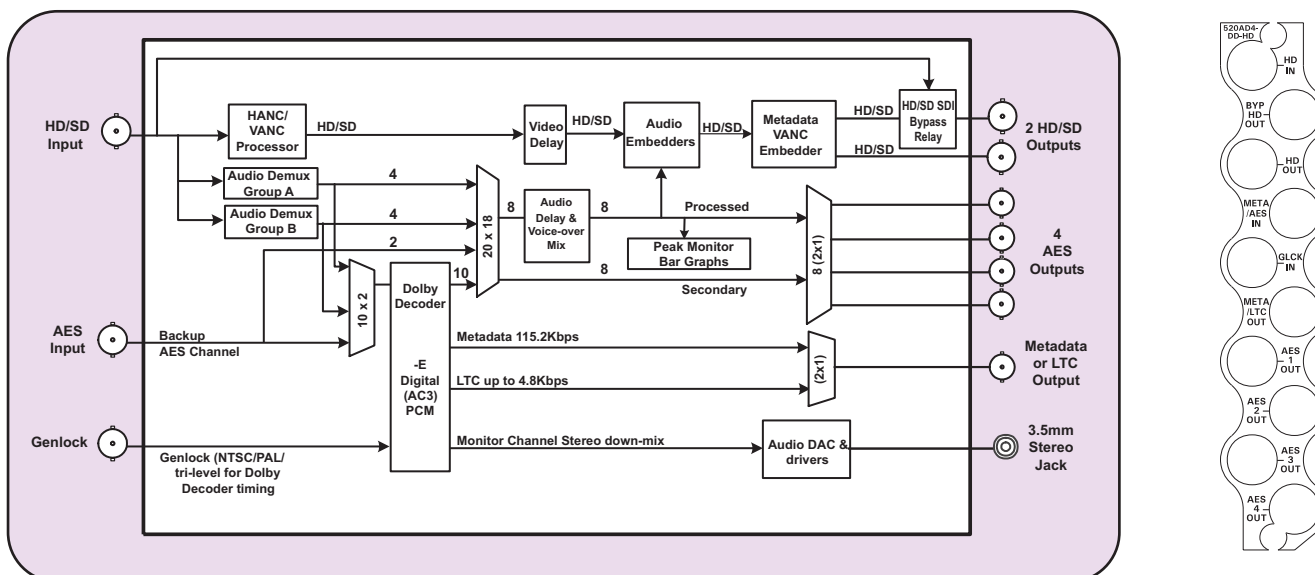
- 2 processed HD outputs (1 protected with bypass relay)
- 4 AES de-embedded and processed outputs
- 1 BNC configurable as LTC or Dolby metadata (RS422/485)

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



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: 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

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

Programmable Delay: Up to approx. 3 seconds (user adjustable)

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

Additional Video Delay: 0 to 6 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

Enclosures:

500FR
S501FR

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

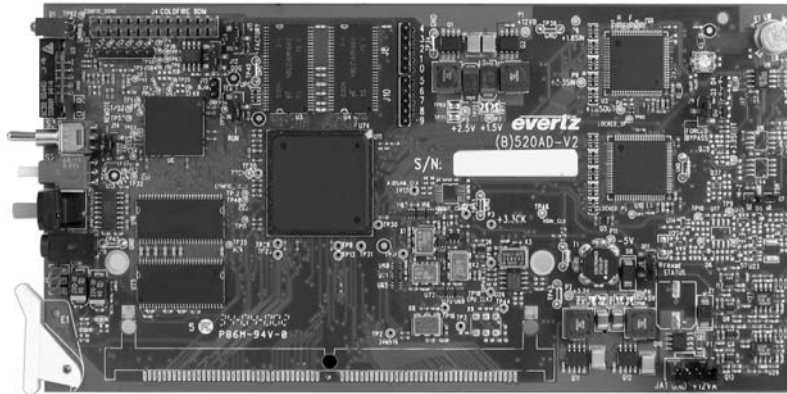
exponent

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 6 frames to alleviate any lip sync system issues.

The selected channels may be mixed with 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 6 frames) and audio delay (3 sec)
- 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

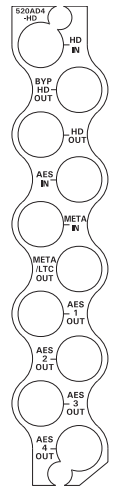
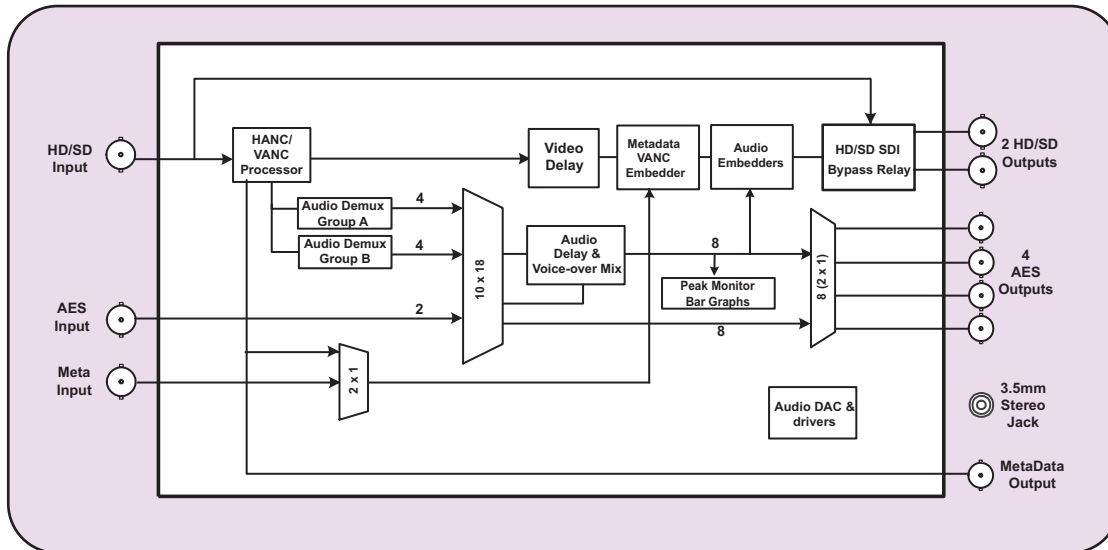
Outputs:

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

Card Edge LED's:

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

Model 520AD4-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 1694 (or equivalent), 25m with bypass relay installed

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 single ended AES

Number of Inputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Input Level: 0.2 to 2.5 Vp-p (5 Vp-p tolerant)

Input Impedance: 75 Ω

Return Loss: >25dB 100kHz to 6MHz with external termination

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

Sample Rate: 48kHz ± 100 ppm

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

System Performance:

De-embedding Latency: 600 μ s nominal

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

Additional Video Delay: 0 to 6 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

Unbalanced AES Word Clock Extractor Audio Distribution Amplifier

520DARS-W



The 520DARS-W provides a compact method 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 audio outputs.

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

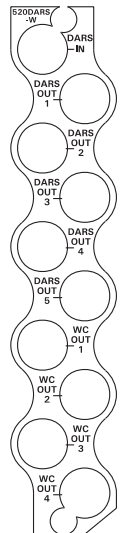
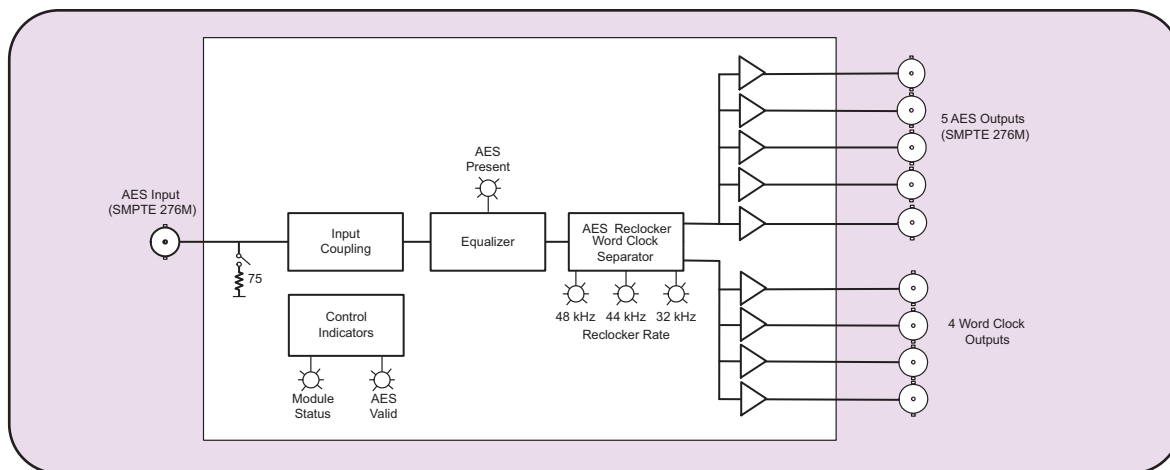
The 520DARS-W is housed in the 500FR *exponent* Frame that will hold up to 16 modules.

Features

- Supports AES audio over 75Ω coax (SMPTE 276M)
- 4 word clock outputs (AES11-2003)
- 5 reclocked 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

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 degree |
| 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 are for mounting in the 1RU frame)

| | |
|--------------------|---|
| EJ622x: | VITC to LTC Translator |
| EJ622x-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 |
|--------------|--|

Enclosure:

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

1a

1a

2

2

3

3

4

4

5

5

6

6

7

7

8

8

9

9

10

10

11

11

12

12

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

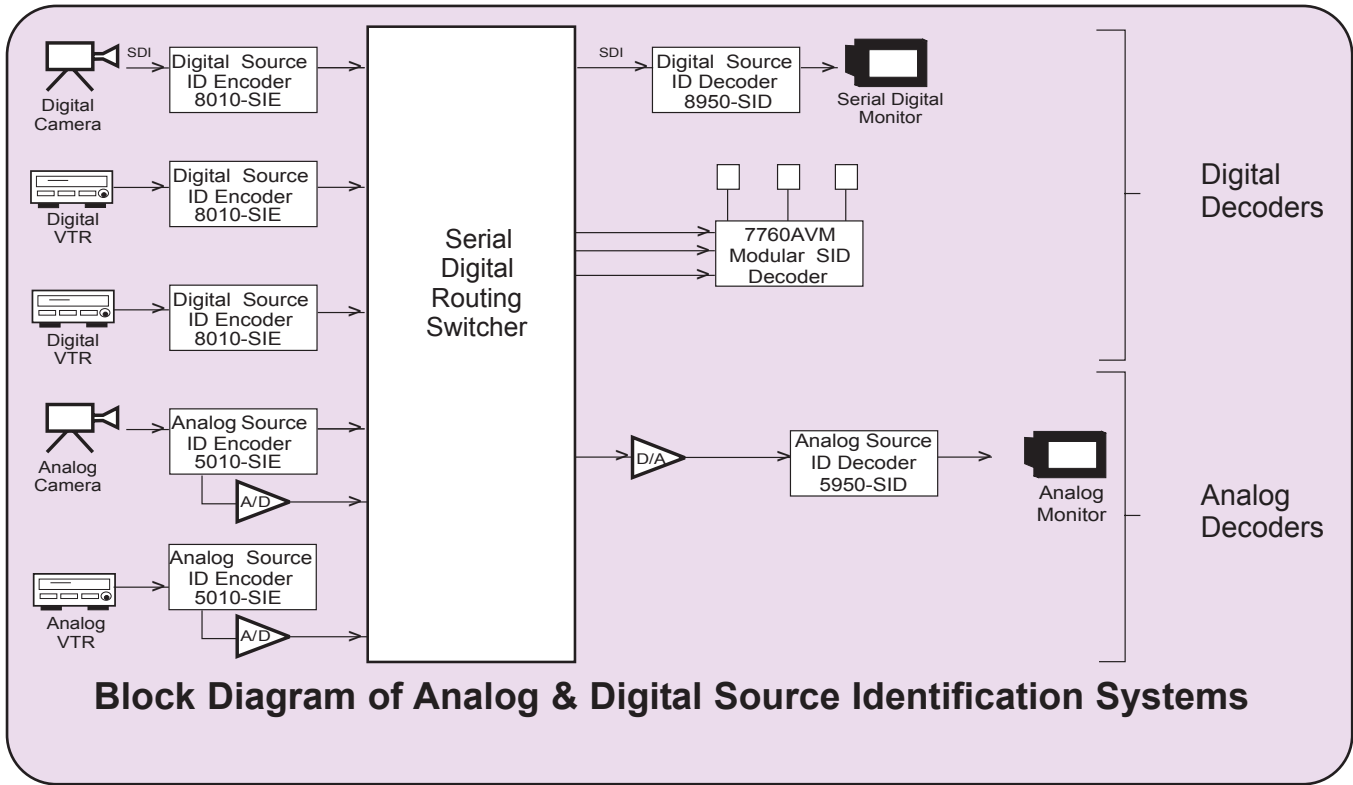
X = N for NTSC or P for PAL (Please specify when ordering)
(Modules are for mounting in the 1RU frame)

| | |
|-------------|--|
| EJ623x: | LTC/VITC Reader Translator |
| EJ623x-VIR: | LTC/VITC Reader Translator with VITC Submodule |

Enclosure:

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

Vertical Interval Source ID Block Diagram



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)

- 1a
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

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.

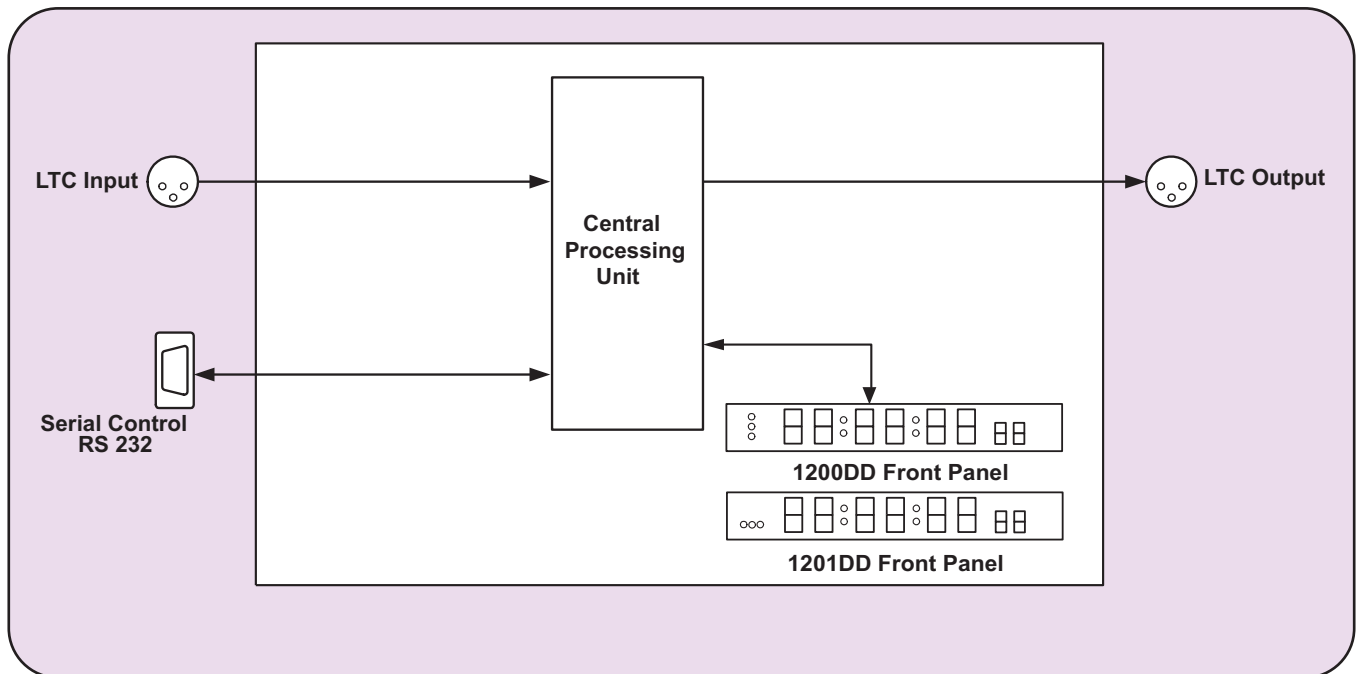
The rear panel input connectors for timecode and output are XLR connectors.

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 sec/month
Battery Backup: Crystal, ± 50 sec/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

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

1a

1a

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.

2

2

Model 1275A

3

3

4

4

5

5

6

6

7

7

8

8

9

9

10

10

Specifications

11

11

Functional:

- Code input:** SMPTE/EBU Time code
20kΩ 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)

12

12

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

SDI Miniature Optical Transmitter

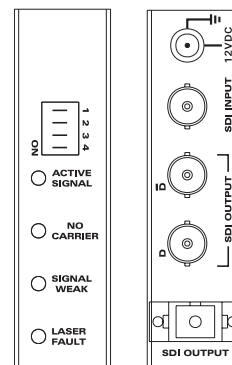
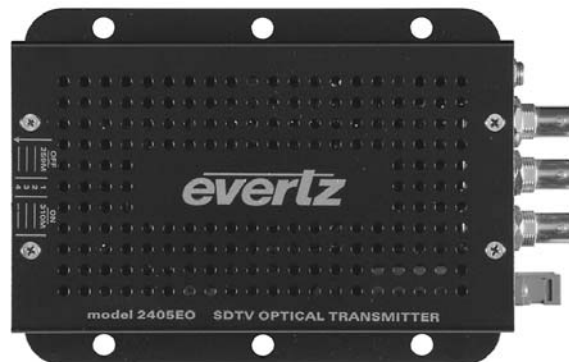
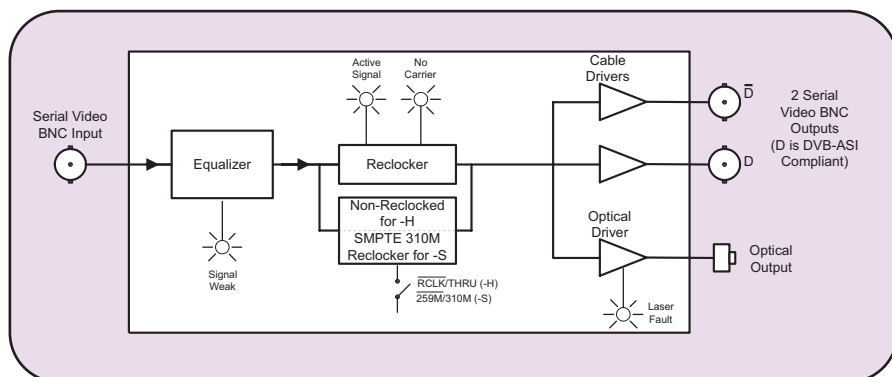
19.4Mb/s or 143-540Mb/s

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 |

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 |

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

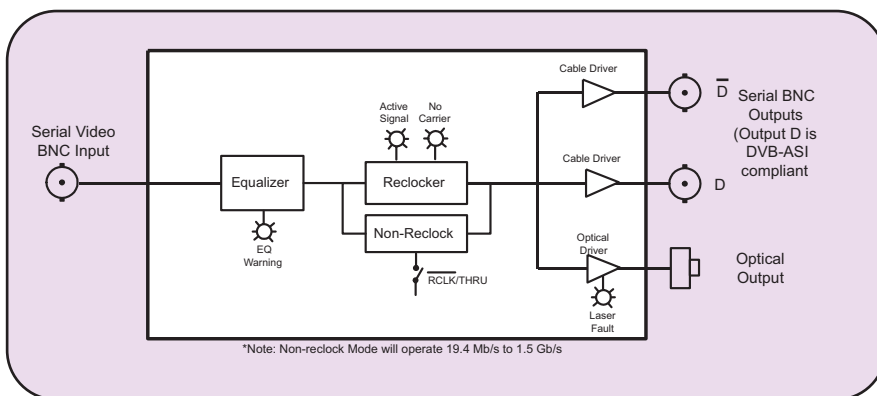
Model 2405EO-HD

Features

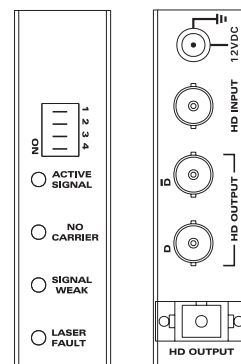
- Operation from 19.4Mb/s to 1.5Gb/s
 - Reclocking for SMPTE 292M (1.485Gb/s)
 - Non-reclocking for all other rates from 19.4 Mb/s to 1.5Gb/s including SMPTE 259M, SMPTE 305M, SMPTE 310M, M2S, DVB-ASI
- Available in 1310nm, 1550nm and up to sixteen different CWDM wavelengths (ITU-T G.694.2 compliant)
- 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



2405EO-HD Block Diagram



*Note: Non-reclock Mode will operate 19.4 Mb/s to 1.5 Gb/s



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 1694 (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
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

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 |

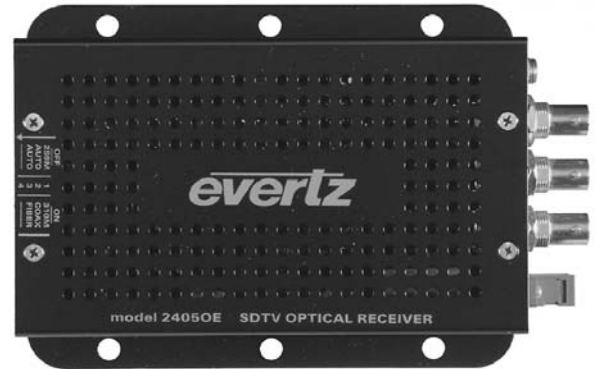
SDI Miniature Optical Receiver

19.4Mb/s or 143-540Mb/s

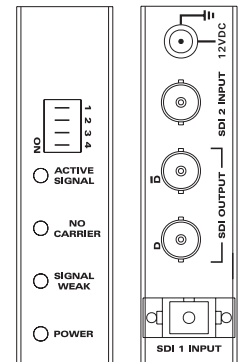
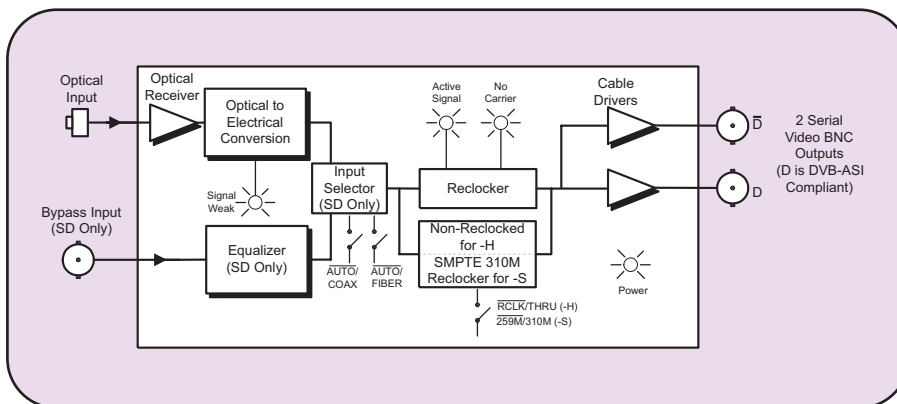
Model 2405OE

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 single-mode and multi-mode fiber optic cable
- 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 |

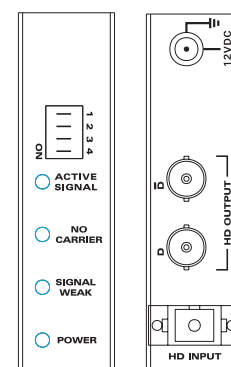
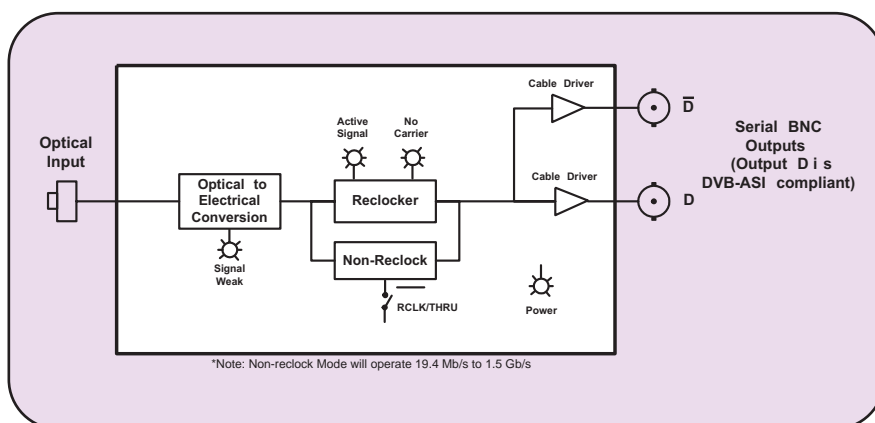
HDTV Miniature Optical Receiver, 19.4Mb/s to 1.5Gb/s

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:

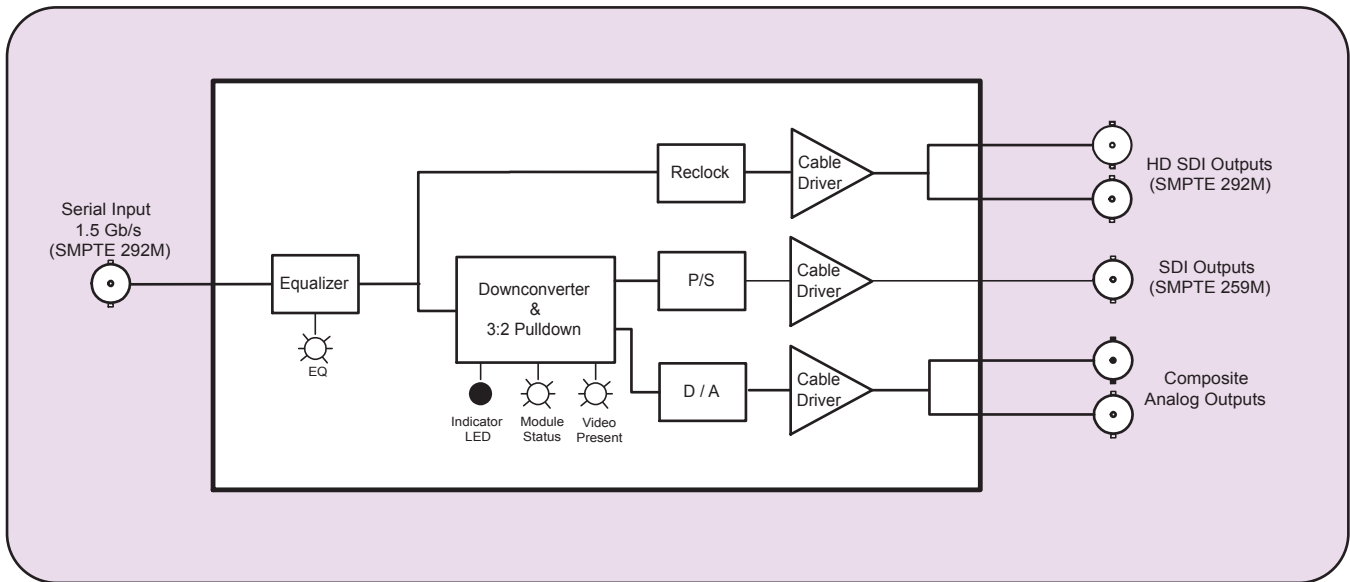
- Serial digital 1.5 Gb/s HD
- SMPTE 292M Standards: 1080i/60, 1080i/59.94, 1080i/50, 720p60 & 720p/59.94, 1080p/24sF, 1080i/23.98sF & 1080p/25sF

Output:

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

HD Miniature Monitoring Downconverter

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, 1 BNC per IEC 60169-8 Amendment 2

Connector: 75 Ω

Impedance: Automatic 75m @ 1.5Gb/s with Belden 1694 (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 \pm 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 \pm 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 \pm 0.1V

Return Loss: > 45 dB up to 6 MHz

Impedance: 75 Ω

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

1a

2

3

4

5

6

7

8

9

10

11

12

HD Miniature Digital to Analog Converter

Model 2430DAC-HD



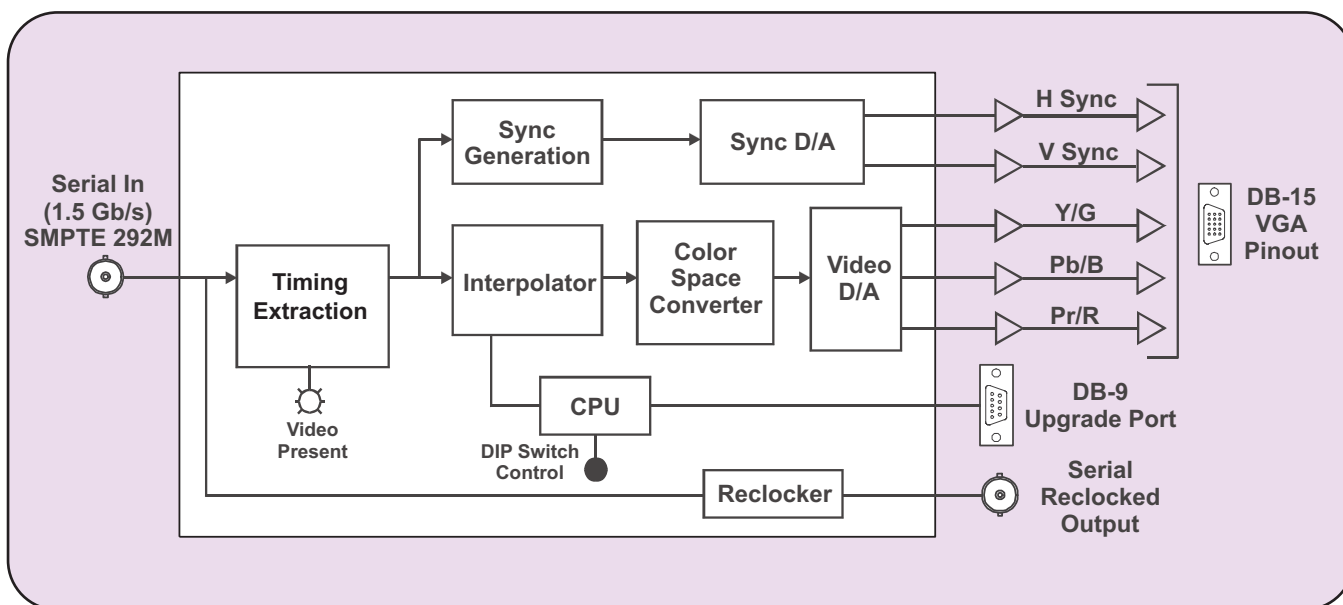
The 2430DAC-HD is a professional quality digital to analog converter for HDTV. The 2430DAC-HD supports all signal standards specified in SMPTE 240M, SMPTE 274M and SMPTE 296M.

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 1694 (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 ±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
300mV or 4V
Sync: 75Ω
Impedance: 75Ω
DC Offset: 0V ±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:

WPGABNC5 VGA to BNC - 6' Monitor Adapter Cable

GLink™ to DVI-I Converter

Model 2430GDAC



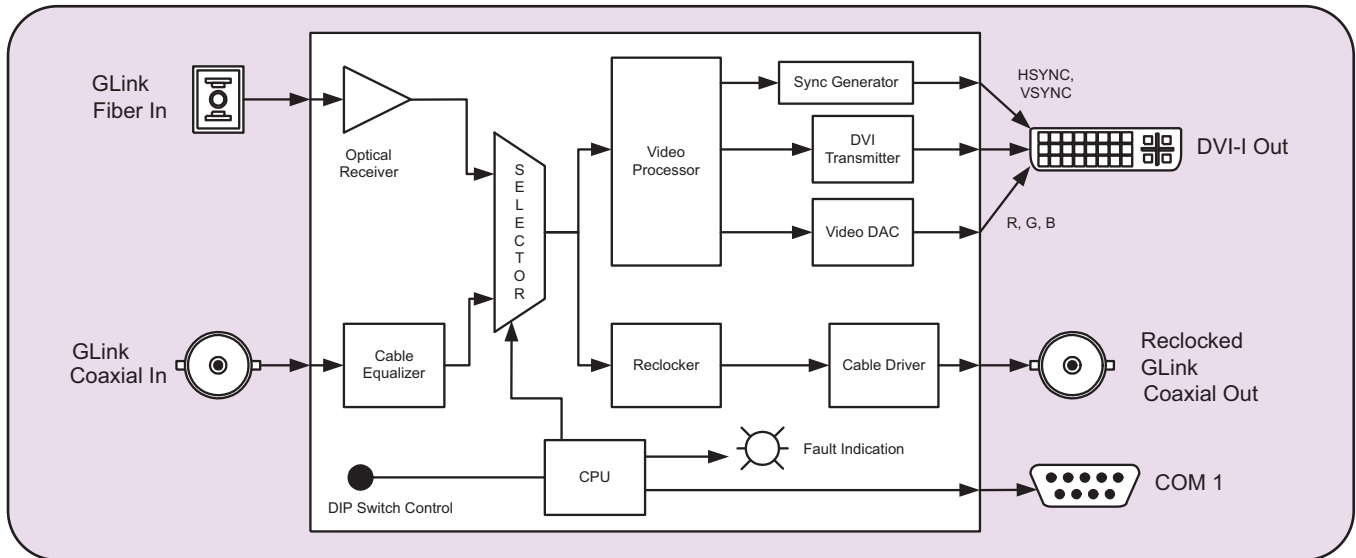
The 2430GDAC GLink D to A Converter provides a simple extension to Evertz multi-display systems by converting a GLink video signal over coaxial or fiber optic cable into a digital DVI signal and analog RGB signal that can be displayed on a computer monitor or flat panel screen, thereby eliminating the 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
2430GDAC-WARP

GLink to DVI converter
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

MVP - Multi-image Display and Monitoring System

Model 3000MVP



- Broadcast and computer video inputs
- Auto-detecting HD, SD and analog video inputs
- 4:3, 16:9 and 9:16 output display modes
 - On screen display (OSD):
 - Audio level bar and phase graphs
 - Decode up to 2 groups of audio
 - Map analog or AES audio to video input
- Real time video, audio and data signal status
- Decoded closed captioning
- Decoded time code
- Fault alert messages
- Tally, border, under monitor and side-monitor displays
- User configurable clocks and timers
- Independent window size adjustment



Features

Modular:

- Fully hot-swappable, front-loading input and output modules and dual redundant power supplies

Expandable:

- 15-slot frame with octal auto-detecting video input modules
- Daisy-chain frames for a multitude of videos displayed on a single or multiple screen

Redundant

- Optional second power supply unit
- Optional second display processor card

Configuration, Control and Monitoring

- Layout and system configuration through "MVP Express" Layout Editor
- Quick access configuration control through 9000NCP Control Panel
- Monitoring through VistaLINK™ PRO Network Management Software. VistaLINK™ offers remote monitoring 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)
- Border/Tally and UMD interface to common switchers through published protocols

Signal Monitoring/Fault Alarming

- User definable fault conditions, thresholds and durations through configuration software tool
- Additional Monitoring Features:
 - Regionalized freeze and black detection
 - Input Expandable view to quarter and full screen
 - On-screen active picture display resizing
 - Closed caption and Teletext detection, display and XDS monitoring option

- Configurable on-screen audio bar graph (with ballistics) and signal status display
- Monitored Conditions: Loss of video, Picture freeze, Picture black, Loss of Active Picture, Peak Video Level, Black Level, Input Standard detection, AP/FF EDH Errors, Loss of Audio, Audio Silence, Audio Format, Audio Phase Reversal, Audio too loud, Audio Mono Detection, Loss of VITC, Loss of Source ID, Loss of Program Rating (V-Chip), Loss of Closed Captioning, GPI, Active Format (Region) Description (AFD) detection, Teletext (subtitle) detection, source input change-over, logo presence, WINK detection.

Applications

Broadcast Applications:

- Broadcast Facility/Master Control
- Satellite Uplink and Downlink Facilities
- Production and Post Production
- Control Room
- OB Vans

Enterprise (Non-broadcast) Applications:

- Surveillance and Security
- Traffic and Transportation Control
- Defense
- Video Conferencing
- Gaming and Entertainment
- Information Displays

The MVP™ revolutionizes the multi-display marketplace with a highly flexible, intuitive, simple yet comprehensive approach to virtual wall monitor applications. The possibility of displaying any input signal to any output monitor can now be realized without the need for a preview switcher or patch panel.

With HD/SD/Composite Analog (NTSC/PAL) auto-sensing video inputs on the same BNC, the MVP™ proves its versatility, especially in applications transitioning to DTV and especially HDTV. Future proofing your multi-image display needs is possible today

Features:

- Auto-sensing, asynchronous HD/SD/Analog video (with embedded audio support) inputs on the same BNC connector, with minimal processor delay to output display
- Configurable aspect ratios
- Up to 72 unique inputs per display or hundreds across several displays
- Multiple scaling of the same video input - display the same video input at different resolutions at the same time
- Dual, independent interconnect between a single video input module and two output modules
- On-screen display signal monitoring/fault detection
- Integrated signal monitoring with VistaLINK™ PRO (true SNMP interface)
- Simple, real-time on screen display configuration through drag-drop routines using multi-platform MVP Maestro™ software
- Support for external balanced analog and balanced or unbalanced AES/EBU audio
- Configurable support for high resolution up to UXGA (1600x1200) for CRT, flat panel, LCD, plasma and projection displays
- Front-loading, hot-swappable signal input/output modules in a 6RU, 15 slot frame
- Dual, fully redundant, front loading and hot-swappable power supplies
- Multiple, user-configurable static/dynamic UMD and on-screen text, tallies, fault messages, audio bar graph ballistics & other graphics
- VBI data (i.e. Closed Captioning, Program Rating, etc.) monitoring and display
- Multiple, user-configurable analog and digital clocks
- Importable bitmap or overlay images for a customized display
- Up to 64 GPI inputs and 44 GPI outputs
- Standard LTC, Genlock (both NTSC and PAL), serial communication (RS-232/422) inputs
- Selectable audio monitoring output
- Touchscreen or desktop control panel configuration options

To order, start with a standard display package and add modules as required

Video and Audio Input Modules:

3000MVP-OV-SN

Octal (8) auto-sensing SD-SDI/Composite Analog (NTSC, PAL-x) video, with embedded audio input module

3000MVP-OV-HSN

Octal (8) auto-sensing HD-SDI/Composite Analog (NTSC, PAL-x) video, with embedded audio input module

3000MVP-GI-2

Dual (2) computer video auto-sensing input module (up to UXGA resolution)

3000MVP-GI-4

Quad (4) computer video auto-sensing input module (up to UXGA resolution)

3000MVP-AI+BHPU

32 AES/EBU (4 AES/video) audio input module (one unbalanced 75W, 32 BNC breakout panel provided)

3000MVP-AI+BHPBAL

64 analog (8ch /video) or 32 AES/EBU (4 AES/video) audio input module - configurable for balanced analog or balanced AES digital inputs (one balanced 110W terminal block breakout panel is provided)

Output Modules:

3000MVP-PPV-5

Single output display processor module. Output up to 40 unique video inputs to drive a single display

3000MVP-PPV-5+D

Dual output display processor module. Output up to 40 unique video inputs across two displays

3000MVP-PPV-9

Single output display processor module. Output up to 72 unique video inputs to drive a single display

3000MVP-PPV-9+D

Dual output display processor module. Output up to 72 unique video inputs across two displays

Frame and Accessories

3000FR

3000 Series 6RU Frame (ships with 1 3000PS Power Supply Unit)

3000FC

3000 Series Frame Controller

3000PS

3000 Series Power Supply Unit (PSU)

3000DCP

Desktop Control Panel. Make quick-select screen configuration changes from the convenience of a pushbutton console

3000BHP-AUX

Breakout bulkhead panel for AUX I/O interfacing including GPI.O, LTC input and serial communications. One panel with cable is included with every PPV module

3000BHP-DVIO

Breakout bulkhead panel used in conjunction with the PPV-x+D option to break out dual DVI support. Once panel (and cable) is included with every PPV-x+D module

Maestro™

MVP™ software layout configuration editor and operator's control mode. A copy of the latest MVP Maestro™ version is included with every MVP™ system shipment

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 dangle 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.

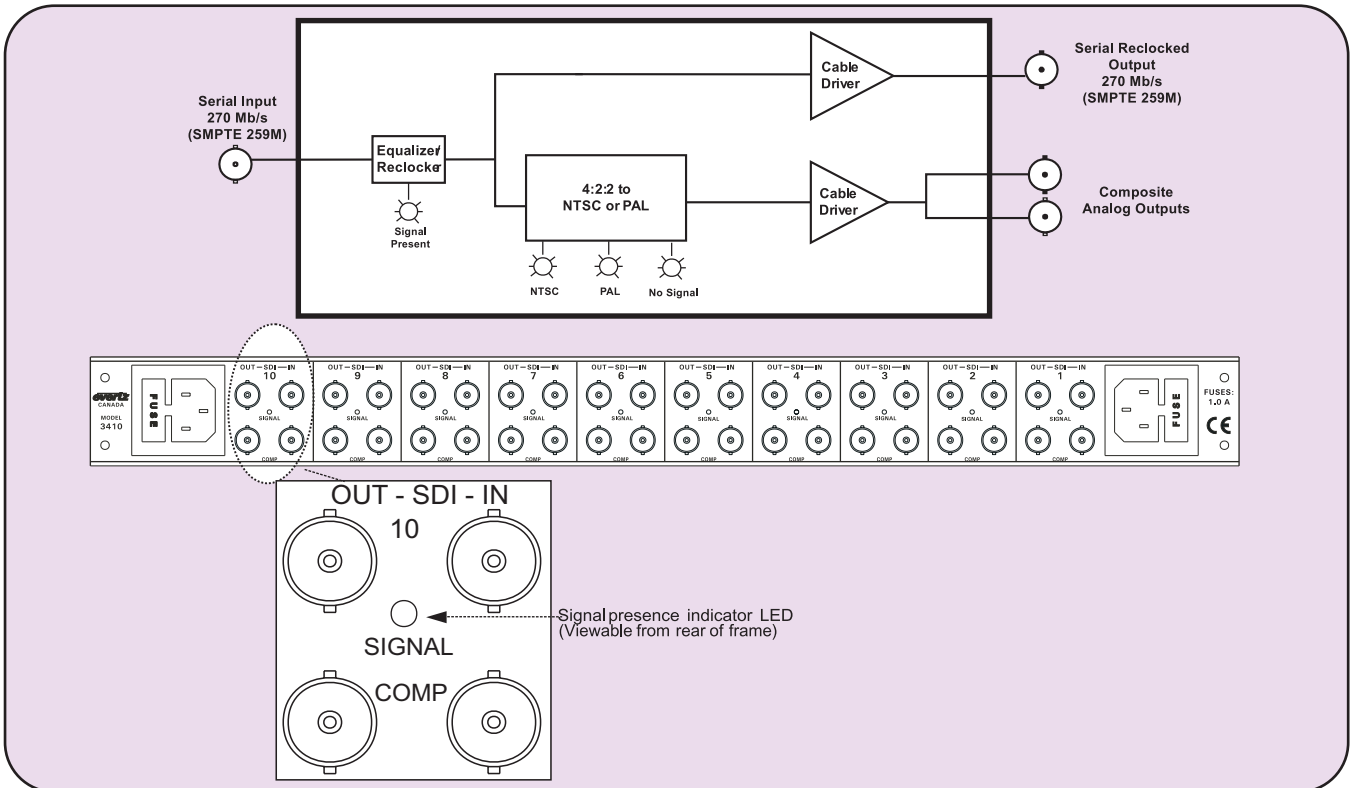
Having the Multivert mounted in the rear of the monitor racks eliminates the need for long analog cable runs from modular converters in the equipment rack room to the monitors, thus eliminating the need for analog equalizing DA's.

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 |
|-------------|------------------------|

1a

2

3

4

5

6

7

8

9

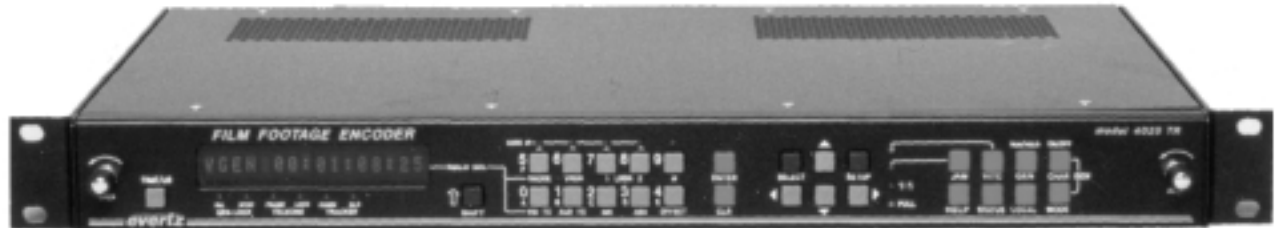
10

11

12

Film Footage Encoder

Model 4025TR



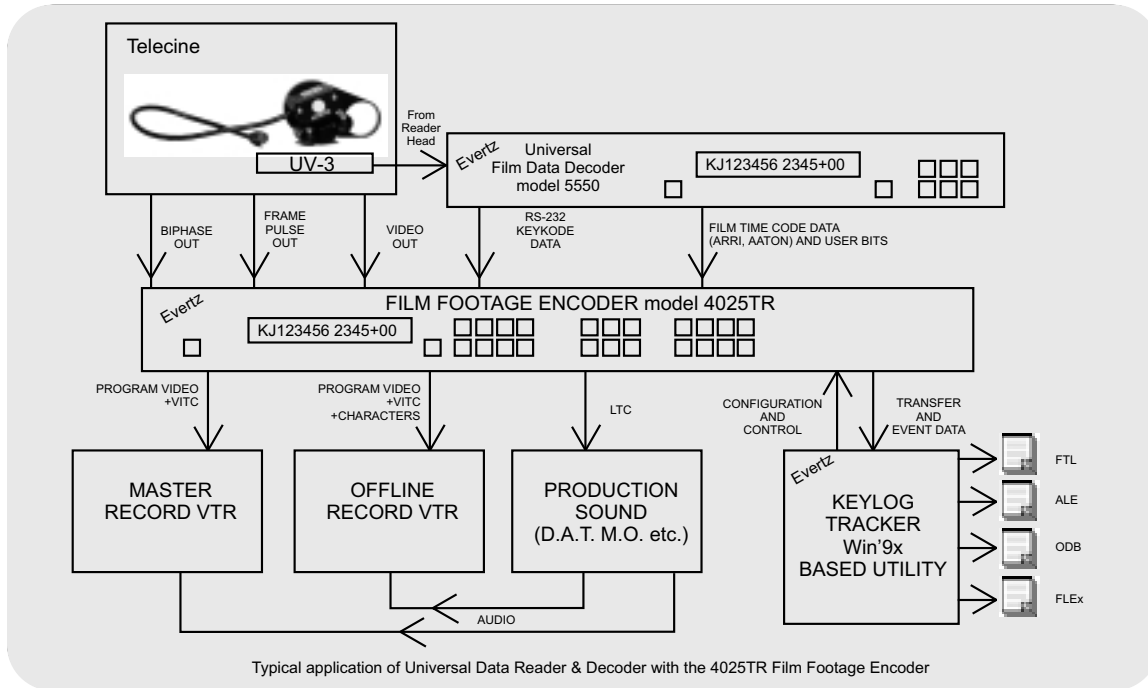
The 4025TR is a powerful NTSC/PAL VITC and LTC Time code Generator, Reader Character Inserter designed specifically to aid in the Video Post Production of material originated on film. The 4025TR uses the Telecine bi-phase quadrature output and frame advance pulse to generate Time code with field accurate film edge numbers encoded. The 4025TR interfaces to external KeyCode Readers to automatically encode KeyCode information into the user bits. A 3-line VITC generator permits encoding of the full KeyCode number including frames and pull down, as well as the Video and Audio Time code without multiplexing. The VITC data can be keyed directly into Digital Video signals with the optional 8025 Digital Video Keyer. The Character Inserter can be used to display Video and Audio Time code, full KeyCode, and ink numbers in 4 separately positionable windows.

Features:

- Dual Standard (NTSC and PAL) selectable
- Built-in LTC and VITC Generators, can be slaved to Telecine bi-phase
- Built-in LTC and VITC Readers to jam sync the Generator to external Time code sources
- "Field accurate" edge number encoding follows Telecine 3/2 pull down sequence in NTSC 24 frames per second transfers
- Encodes full KeyCode, Video Time code, Production Audio Time code and user bits, and film format information in VITC using 3 line VITC format
- Optional firmware allows the 4025TR to read film frame rate 'In camera Time code' (from 5550 Decoder) and transcode it to Video rate Time code useful for slaving Audio machine chase synchronizers. The 4025TR compensates for Time code head offsets from the gate
- Supports Cintel, Philips, ITK and Sony Telecines
- Manual entry of KeyCode or Ink numbers
- Supports 16mm, 35mm 3 perf and 4 perf film formats
- Video Delay Compensation to accommodate delays introduced by noise reducers and decoders
- Multiple project configurations can be stored and recalled to facilitate easy set up of the system from job to job with the Tracker program
- Supports decrementing Key numbers on 35mm 4perf film
- Can operate stand alone for most applications, but full power is realized when controlled by the Tracker software
- Pre-store delay compensation to accommodate film delays introduced by film grain reducers and Telecine options

Film Footage Encoder

Film System Block Diagram



4025TR Specifications:

Telecine Interface:

Tach Input:: 2 phase quadrature pulses, 1, 2, 5 or 10 x film frame rate, TTL level
Frame Pulse: Cintel: >1.6 Vp-p active low, 1 pulse per film frame. Philips: TTL Level FRID, 1 edge per film frame

Parallel I/O:

Film Type/Rate/Framing: 3 closure to ground inputs for film gauge/transfer rate and frame centering

GPI: 2 closure to ground inputs for centering, generator start/stop and Data Log Trigger

Keycode Reader Interface:

Aux I/O: 9 pin female connector RS-232, 9600 baud
7 bit, even parity. Compatible with Evertz, ARRI, CP and RIM decoders

Keylog Tracker Interface:

Serial I/O: 9 pin female D 38400 baud connector RS-232

LTC Generator:

Standard: PAL 25 FPS or NTSC 29.97 FPS-DF and NDF
Output: 3 pin male XLR type connector
Level: adjustable, 0.5 to 4.5 V pp.
Rise Time: 40 ± 10 µsec.
Jitter: <2 µsec.

VITC Generator (Analog):

Input: Comp. Video 1 V p-p, BNC loop
Output: (2) Comp. Video + keyed in VITC
Diff. gain: <0.5%
Diff. phase: <0.5%

VITC Generator (Digital):

Input: Reference sync extracted from Digital video by 8025, BNC loop
Output: TTL level VITC Key and Fill 2 BNC's for interface to 8025 Digital Video Keyer

LTC Reader:

Standard: SMPTE, EBU Time code
Input: 3 pin female XLR type connector
Level: -20 to +12dbm, balanced or unbalanced
Speed: 1/30th to 70x play speed, forward and rev. machine dependant

VITC Reader:

Input: Comp. video 1V p-p, High Z, BNC loop
Speed: Still frame to >40x play, VTR dependant

Character Generator:

Input: Comp. video 1V p-p, High Z, BNC loop
Output:: Comp. video 1V p-p + keyed high resolution characters, selectable background and sizes

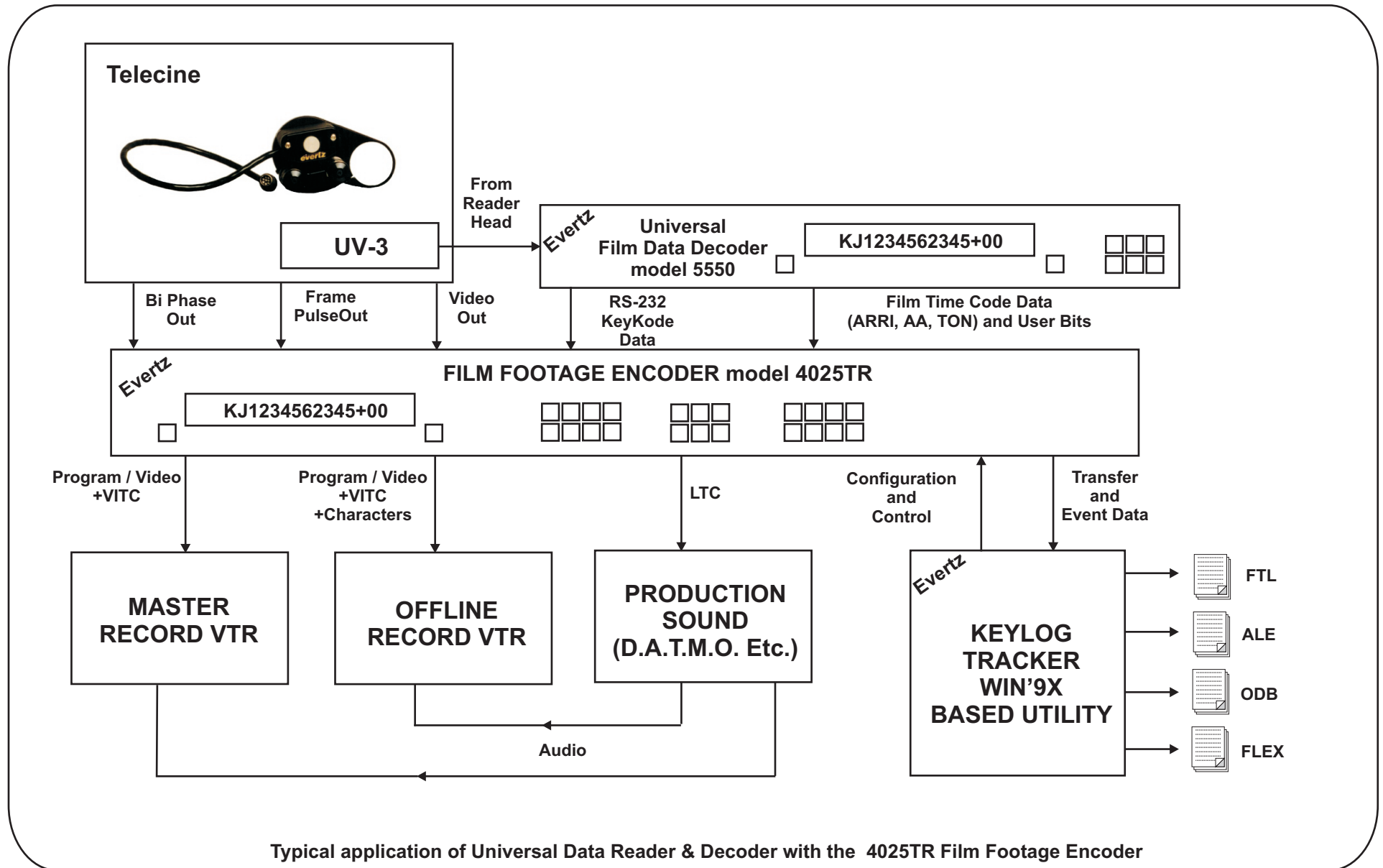
Physical:

Dimensions: 19"W x 1.75"H x 9.5"D
483mmW x 45mmH x 229mmD

Electrical:

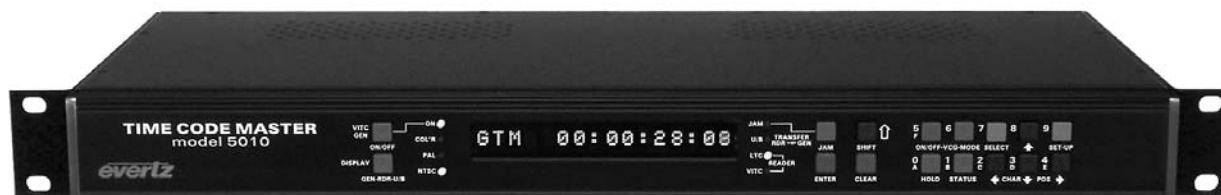
Power: 115/230 VAC, 50/60 Hz, 30 VA, ETL listed
EMI/RFI: Complies with FCC regulations for class A devices

Film System Block Diagram



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

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, High 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

1a

2

3

4

5

6

7

8

9

10

11

12

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

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

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 sec

Jitter: < 2 μ sec

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: Comp. Video 1V p-p, 75 Ω terminated

Outputs: 2 Comp. 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: Comp. video 1V p-p, High 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

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

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

Ordering Information:

Comes with standard GPS Receiver and 50 ft. weather-proof 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

1a

2

3

4

5

6

7

8

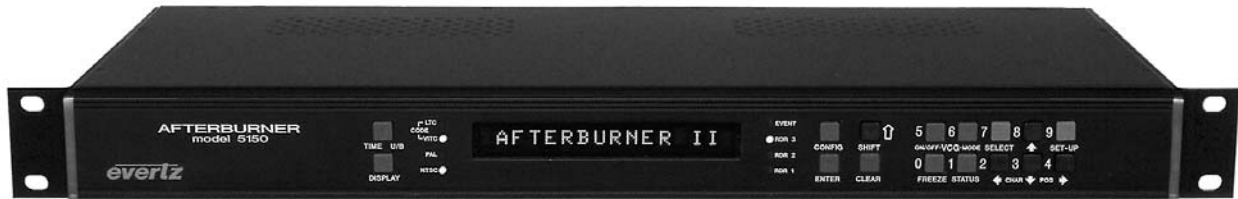
9

10

11

12

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 speed 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 timecode 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 60169-8 Amendment 2
Speed: Still frame to <40x play, VTR dependant
Impedance: High Z

LTC Translator:

Connector: XLR Type 3 pin male
Signal Level: Adjustable 0.5V to 4.5V p-p
Rise Time: 40 ± 10µs
Jitter: <2µs
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 60169-8 Amendment 2

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

1a

2

3

4

5

6

7

8

9

10

11

12

Time Code Analyzer

Model 5300

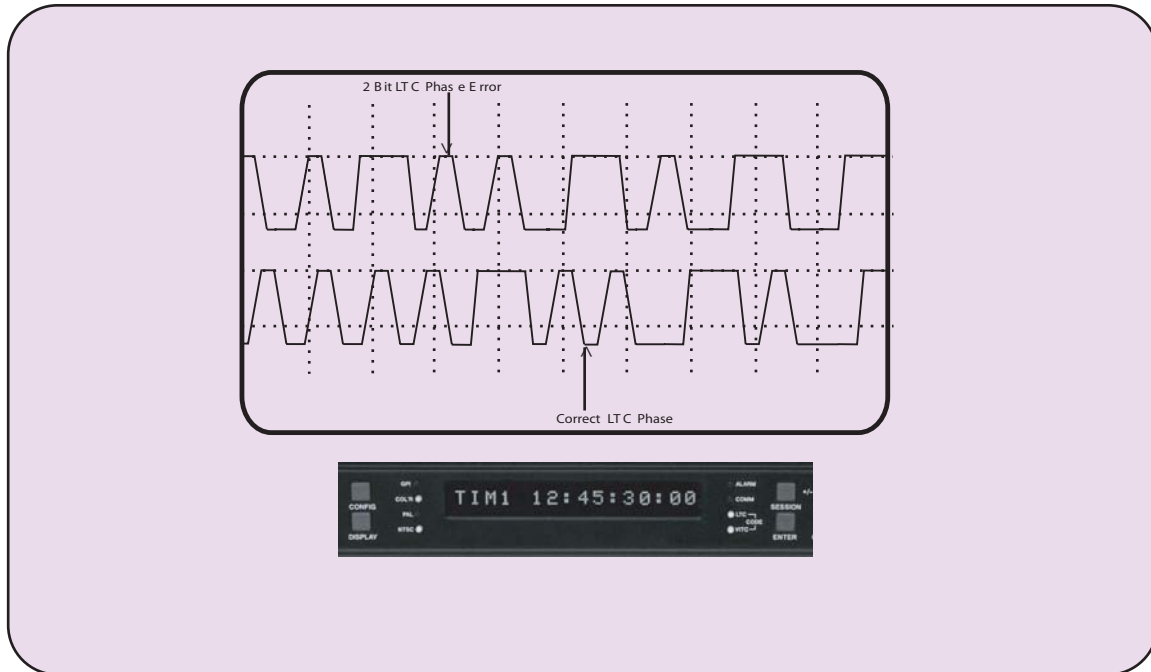


The Model 5300 LTC/VITC Time Code Analyzer combines the latest LSI technology with sophisticated microcontroller firmware to provide a powerful, flexible time code analyzer system. The model 5300, a LTC/VITC reader / analyzer and multi-function character inserter is an invaluable verification and troubleshooting 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 1V p-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 ± 10µsec

Jitter: <2 µsec

Gen Lock: Reader input video 1 V p-p, High 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

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

Ordering Information:

5300 Time Code Analyzer

1a

2

3

4

5

6

7

8

9

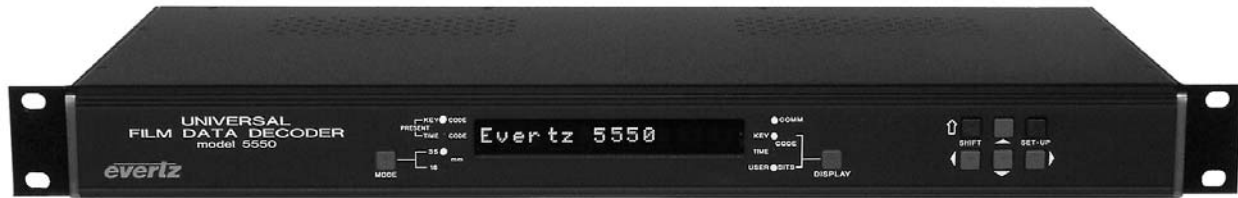
10

11

12

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

5550/KR-16/35

5550/UV-3

5550/UVT-3

5550/UVS-3

Universal Decoder

5550 Decoder with KR16/35 Head & 10ft.cable

5550 Decoder with UV-3 Head & 20 ft. cable

5550 Decoder with UVT-3 (Touchless) Head & 20 ft. cable

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

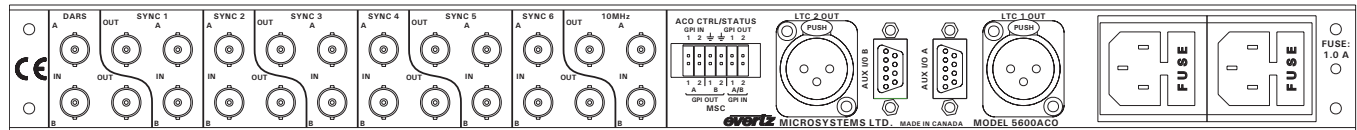
5600ACO Protected Outputs

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

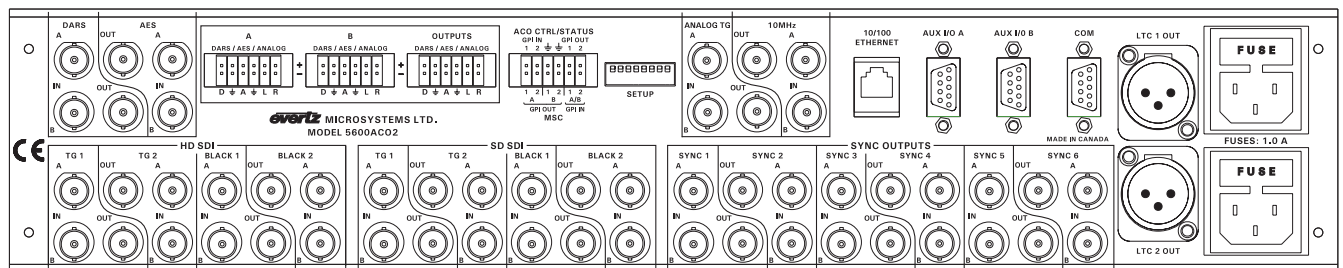
5600ACO2 Protected Outputs

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

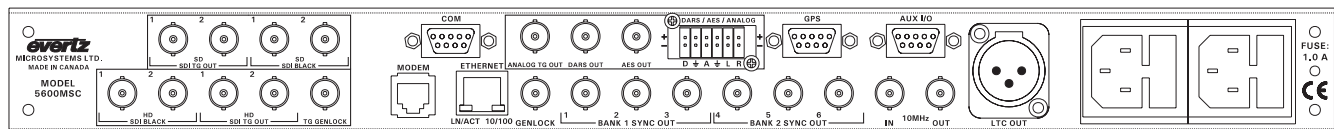
5600ACO:
Dimensions: 19" W x 1.75" H x 18.75" D.
 (483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)
5600ACO2:
Dimensions: 19" W x 3.5" H x 18.75" D.
 (483mm W x 90mm H x 477mm D)
Weight: 16 lbs. (3.5Kg)

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

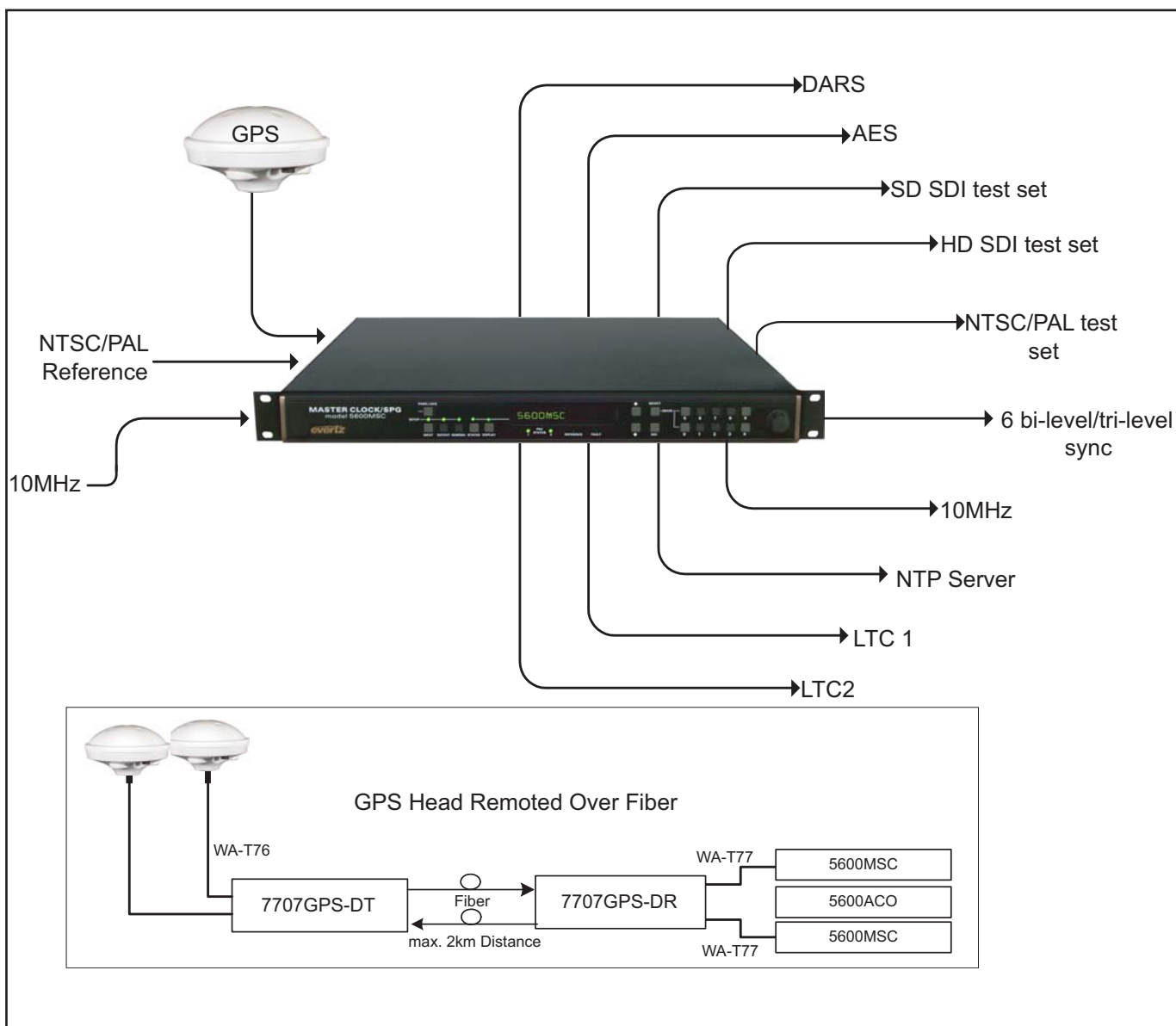
Features:

- 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 B Any combination of 24/50/60Hz based Tri-Level Syncs | Group C 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 - 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:

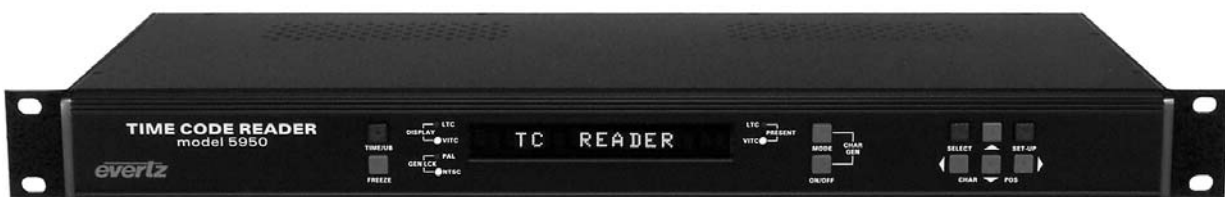
WA-T76: 100' weatherproof cable for 5600MSC, GPSII & 7707GPS-DT
WA-T77: 100' weatherproof cable for 7707GPS-DR to 5600MSC
WA-T11: 400' weatherproof cable for GPS receiver

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.

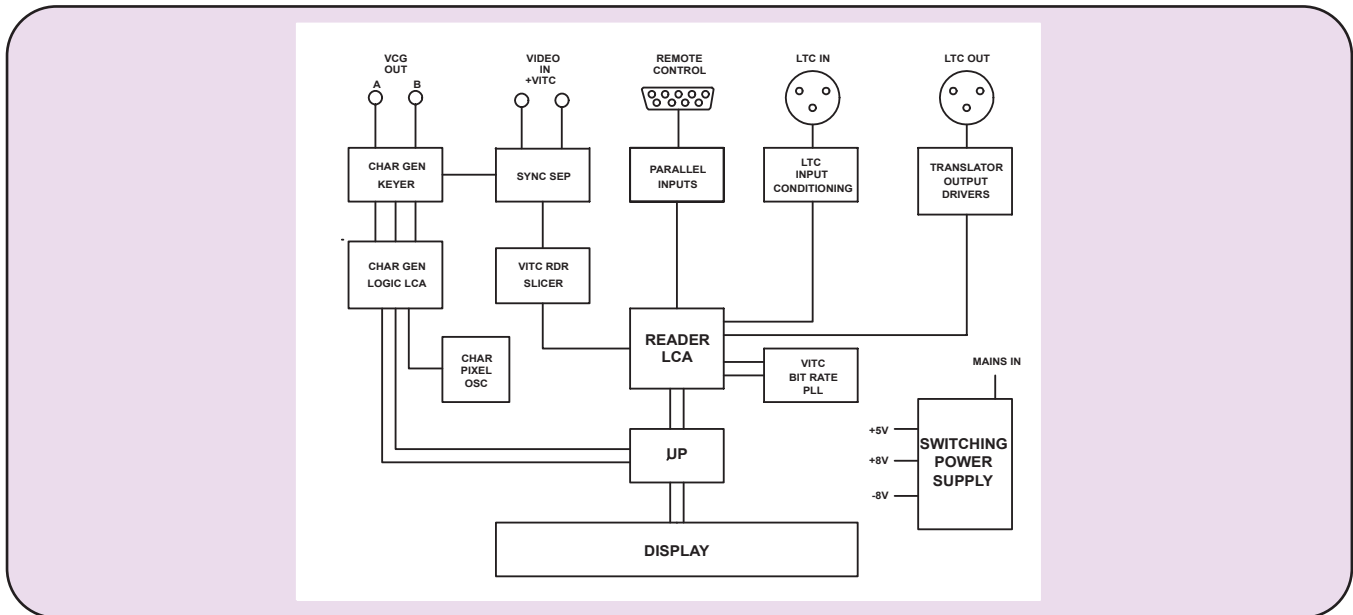
The high resolution Character Inserter can display Time code, User bits, or both. 3 Character sizes: 8, 16, and 32 lines are available. The Characters can be white with or without a black background, or black with or without a white background. The windows are separately positionable on the raster and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

VITC/LTC Time Code Reader Character Inserter

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: High Z

LTC Translator:

Connector: XLR Type 3 pin male
Signal Level: Adjustable 0.5V to 4.5V p-p
Rise Time: $40 \pm 10\mu\text{s}$
Jitter: $<2\mu\text{s}$
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
Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

5950 VITC/LTC Time Code Reader/Character Inserter

1a

2

3

4

5

6

7

8

9

10

11

12

Analog Video Distribution Amplifier

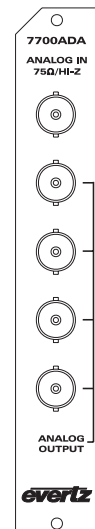
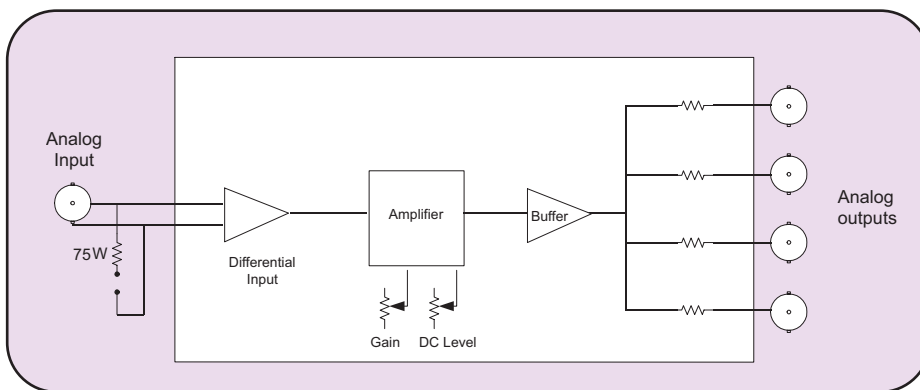
Model 7700ADA

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 Rear Plate for use with 7701FR Multiframe
Standalone Enclosure Rear Plate

+1RU

+SA

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.

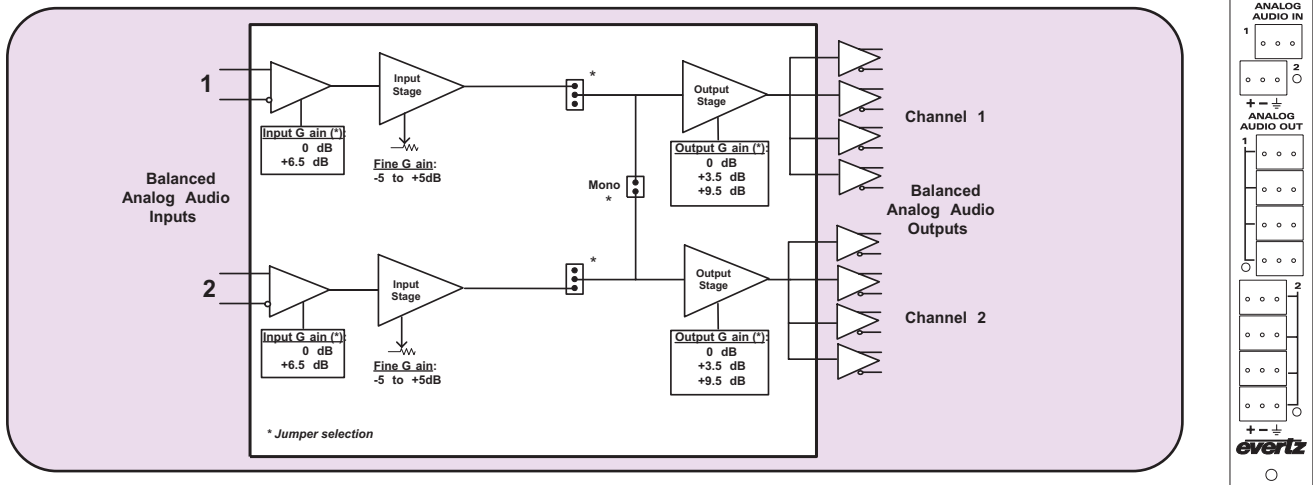
Features

- 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 | > ±17 V |
| Input impedance: | |
| 0 dB input gain | 33 kΩ |
| +6.5 dB input gain | 15 kΩ |

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 600Ω load |
| Output impedance: | 66Ω |
| 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 600Ω 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 |
|------------------|---|

Ordering Information:

| | |
|-------------|--|
| 7700ADA-AUD | Dual Analog Audio 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 |

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.

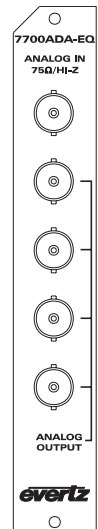
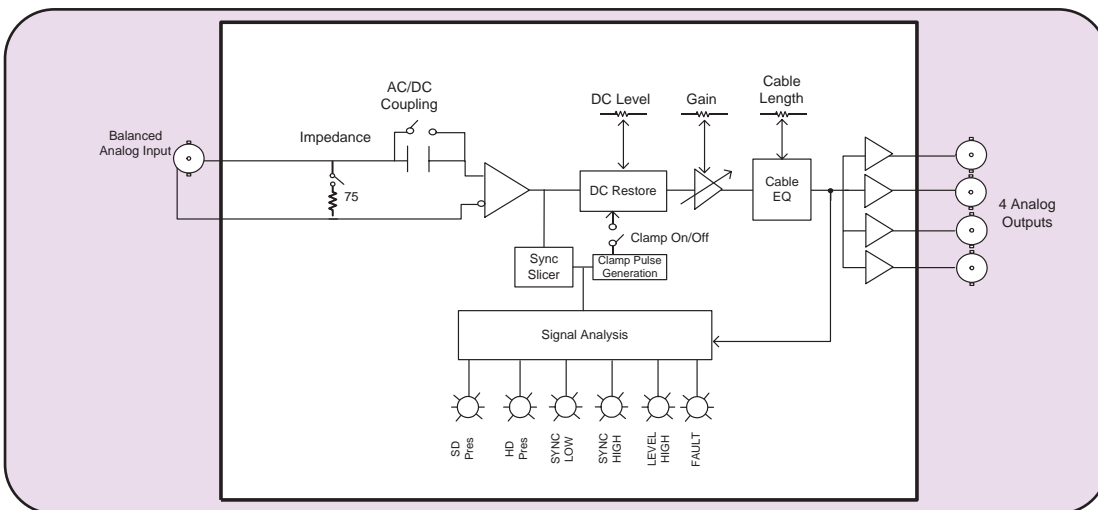
Features

- 75Ω or high impedance input (jumper selectable)
- High common mode range and common mode rejection ratio (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

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
< 0.19 deg 0 to 300m
Differential Gain: <+/-0.1% for all cable lengths
Differential Phase: <+/-0.1% for all cable lengths
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

Ordering Information:

7700ADA-EQ Analog Video Equalizing 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

1a

2

3

4

5

6

7

8

9

10

11

12

10MHz-3GHz RF 1x8 Active Splitter

Model 7700DA8-RF

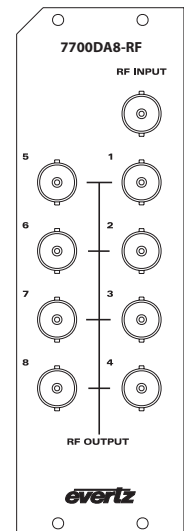
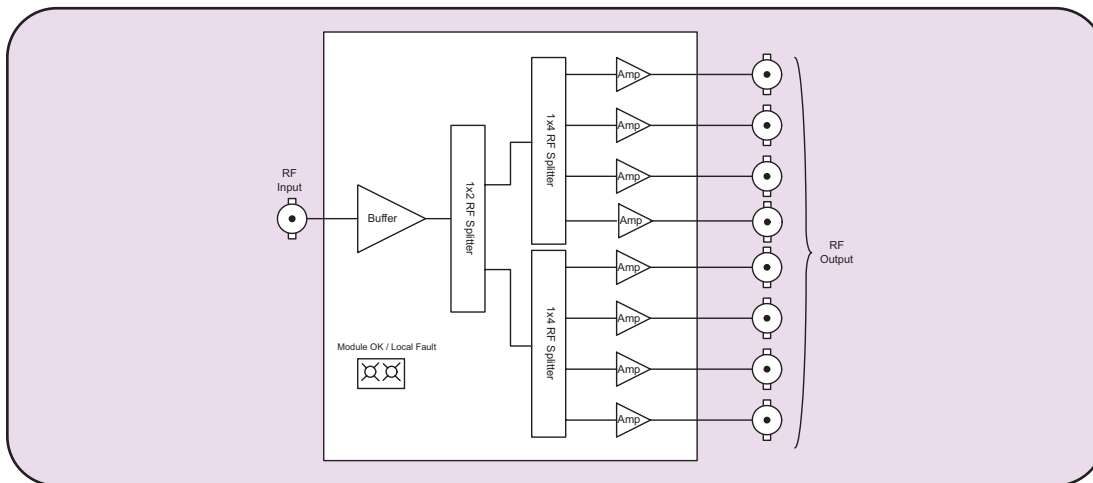
The Evertz 7700DA8-RF 1x8 Active Splitter provides inexpensive, amplification and distribution of RF signals from 10MHz to 3GHz. The 7700DA8-RF handles any RF modulated input signal and provides 8 buffered isolated outputs for further signal distribution. Typical applications include amplification and distribution of 950MHz-2150MHz L-Band and 70MHz-140MHz IF signals.

The 7700DA8-RF occupies two slots and can be housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which holds up to 7 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)
- Protocol independent - transmits all modulation formats
- Fixed RF gain of 0dB
- Fully hot-swappable from front of frame

7700DA8-RF Block Diagram



Specifications

RF Input:

| | |
|------------------------|---|
| Connector: | 1 BNC per IEC 60169-8 Amendment 2 (F-Type optional) |
| I/O Impedance: | 75Ω (50Ω optional) |
| Return Loss | >12dB |
| Input Frequency Range: | 10MHz - 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 (50Ω optional) |

| | |
|---------------------------|--------------------------------|
| Return Loss | >10dB |
| 10MHz to 2200MHz: | >15dB |
| 2200MHz to 3GHz: | >10dB |
| Gain: | 0dB |
| Intermodulation Products: | <-50dBc (@ -20dBm input power) |
| Signal To Noise: | >55dB (@ -20dBm input power) |
| Frequency Response | |
| 10MHz to 200MHz: | <±2dB |
| 200MHz to 2.7GHz: | <±1.5dB |
| 2.7GHz to 3GHz: | <±2dB |
| Isolation: | |
| 10MHz to 350MHz: | >15dB |
| 350MHz to 3GHz: | >20dB |

Physical:

| | |
|------------------|---|
| Number of Slots: | 2 |
|------------------|---|

Electrical:

| | |
|----------|--|
| Voltage: | +12VDC |
| Power: | 8 Watts |
| EMI/RFI: | Complies with FCC Part 15, Class A EU EMC Directive |

Ordering Information:

| | |
|-------------------|-------------------------------------|
| 7700DA8-RF | 10MHz - 3GHz RF 1x8 Active 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 |
| +SA | Standalone Enclosure Rear Plate |

Impedance Suffix:

| | |
|------------|-------------------|
| +50 | 50Ω I/O impedance |
|------------|-------------------|

Connector Suffix

| | |
|-------------|----------------------------|
| +F75 | 75Ω, F-Type rear connector |
|-------------|----------------------------|

Enclosures:

| | |
|-----------------|---------------------------------------|
| 7700FR-C | 3RU Multiframe which holds 17 modules |
| 7701FR | 1RU Multiframe which holds 3 modules |
| S7701FR | Standalone enclosure |

Auto Equalizing Balanced AES Distribution Amplifier

Model 7700DA-AESB

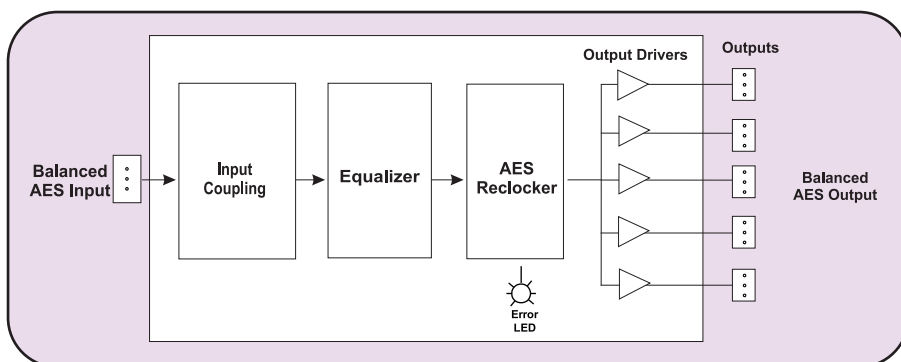
The 7700DA-AESB is a five output DA with auto equalizing input and reclocking for 110Ω balanced AES signals. The DA will automatically equalize AES signals on Belden 1800B cable when the drive signal is 7V p-p. The DA will reclock data with sampling frequencies of 32kHz, 44.1kHz, 48kHz and 96kHz.

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 Complies with EU EMC Directive |

Physical:

| | |
|------------------|---|
| Number of Slots: | 1 |
|------------------|---|

Ordering Information:

| | |
|-------------|--|
| 7700DA-AESB | Autoequalizing Balanced 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 |

1a

2

3

4

5

6

7

8

9

10

11

12

Auto Equalizing Unbalanced AES/EBU Distribution Amplifier

Model 7700DA-AESU

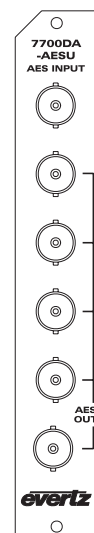
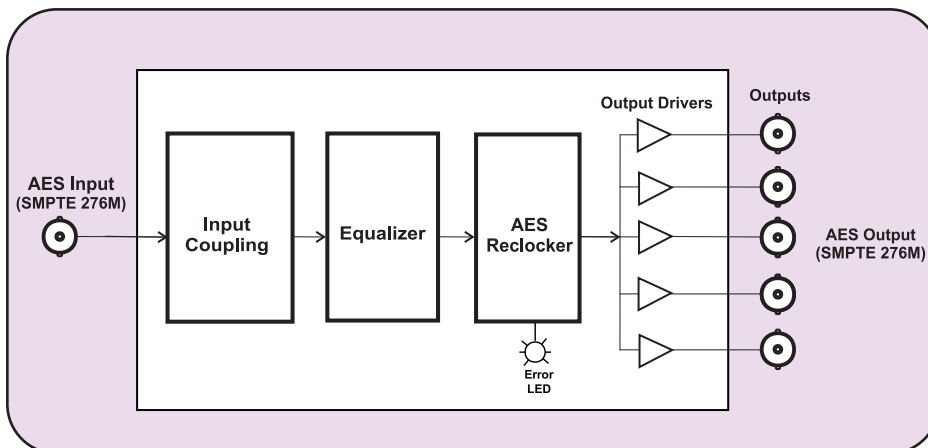
The 7700DA-AESU is a five output reclocking and auto equalizing DA for 75Ω unbalanced AES signals. The DA will automatically equalize AES signals on Belden 1694A coax to 1500m. The DA will reclock data with sampling frequencies of 32kHz, 44.1kHz, 48kHz and 96kHz.

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 biphasic 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
Complies with 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

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 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 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

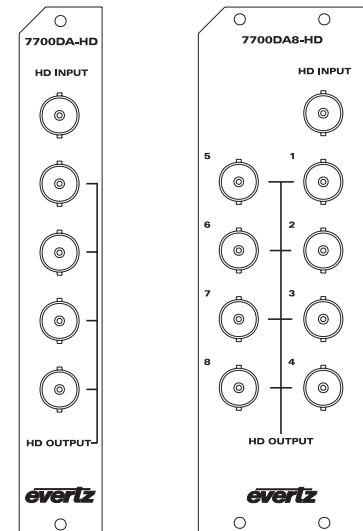
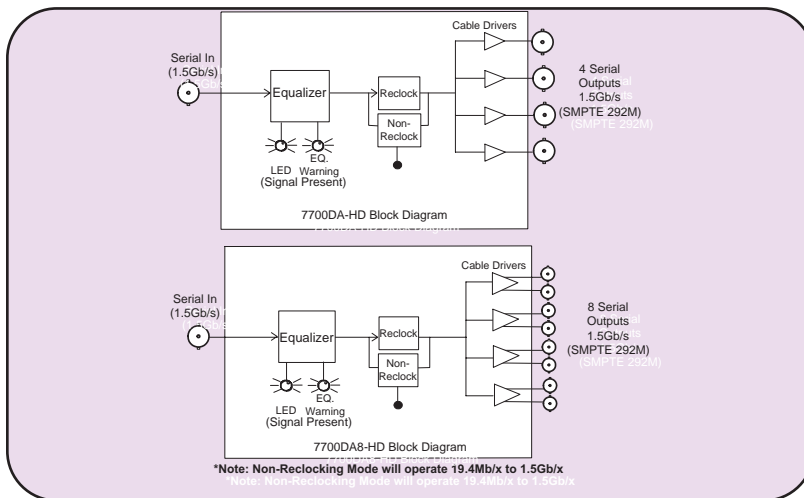
Input:

- SMPTE 292M (1.5 Gb/s) - Reclocking mode
- SMPTE 310M/259M, 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 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 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

10MHz-3GHz RF 1x4 Active Splitter

Model 7700DA-RF

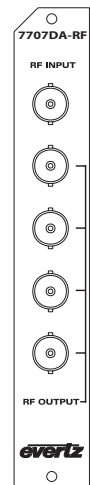
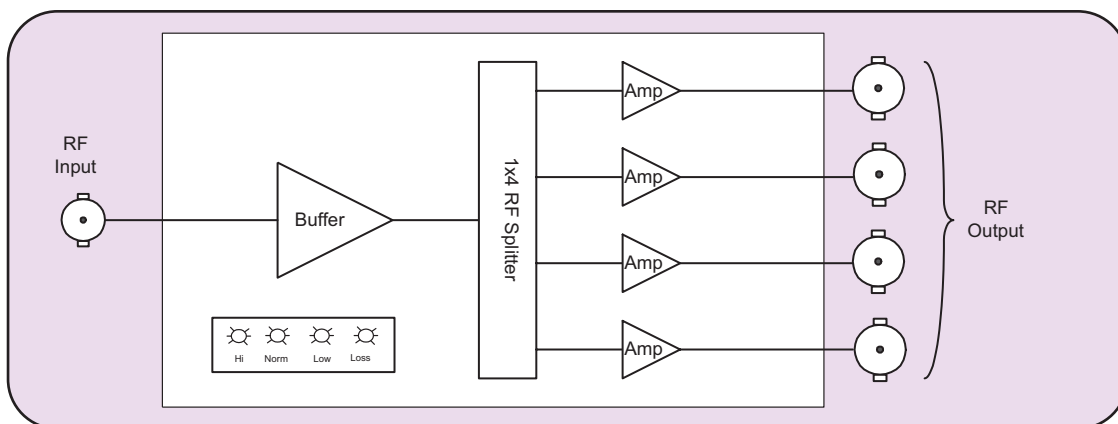
The Evertz 7700DA-RF 1x4 Active Splitter provides inexpensive, amplification and distribution of RF signals from 10MHz to 3GHz. The 7700DA-RF handles any RF modulated input signal and provides 4 buffered isolated outputs for further signal distribution. Typical applications include amplification and distribution of 950MHz-2150MHz L-Band and 70MHz-140MHz IF signals.

The 7700DA-RF occupies 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

- Amplification and distribution of RF signals from 10MHz to 3GHz
- Wide dynamic range (-20 to -60dBm)
- Protocol independent - transmits all modulation formats
- 5dB of RF gain
- Tally output upon loss of signal for quality monitoring
- Independent isolated output drivers to ensure no cross channel loading effects (i.e. no need to terminate unused outputs)
- Input RF signal strength indication LEDs
- Fully hot-swappable from front of frame

7700DA-RF Block Diagram



Specifications

RF Input:

Connector: 1 BNC per IEC 60169-8 Amendment 2 (F-Type optional)

I/O Impedance: 75Ω (50Ω optional)

Return Loss

10MHz to 2500MHz: 15dB

2500MHz to 3GHz: 8dB

Input Frequency Range: 10MHz - 3GHz

Input Power Range: -20 to -60dBm

RF Output:

Number of outputs: 4

Connector: BNC per IEC 60169-8 Amendment 2 (F-Type optional)

I/O Impedance: 75Ω (50Ω optional)

Return Loss

10MHz to 2500MHz: 15dB

2500MHz to 3GHz: 12dB

Gain: +5dB

Intermodulation Products: <-50dB (@ -20dBm input power)

Signal To Noise: >55dB (@ -20dBm input power)

Frequency Response

10MHz to 200MHz: ±1.5dB

200MHz to 2500MHz: ±1.0dB

2500MHz to 3GHz: ±1.75dB

Physical:

Number of Slots: 1

Electrical:

Voltage: +12VDC

Power: 6 Watts

EMI/RFI: Complies with FCC Part 15 Class A

Complies with EU EMC Directive

Ordering Information:

7700DA-RF

10MHz - 3GHz RF 1x4 Active 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

+SA

Standalone Enclosure Rear Plate

Impedance Suffix:

+50

50Ω I/O impedance

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

VistaLINK™ Frame Controller



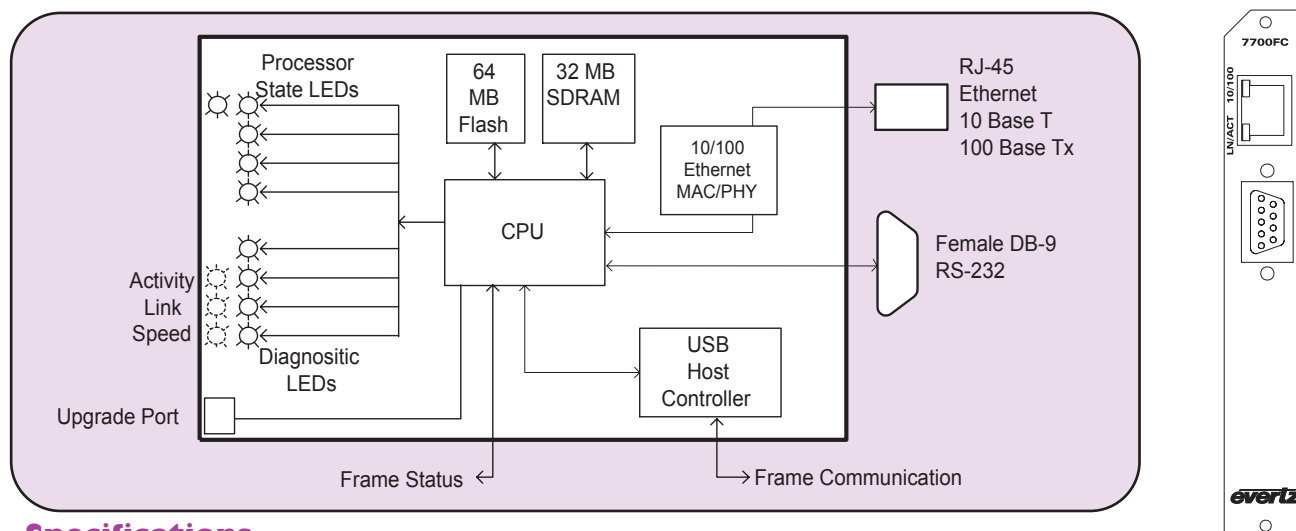
Model 7700FC VistaLINK™ Frame Controller

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, 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

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: | 75 W |
| S7701FR: | 25 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: | 19"W x 1.75"H x 14.5"D 483mm W x 45mm h x 368mm D |

Temperature:

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

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 |
| 7700-RB | Locking Bar for front of cards in 7700FR-C |
| +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 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).

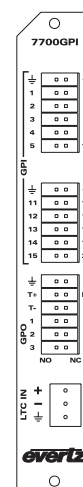
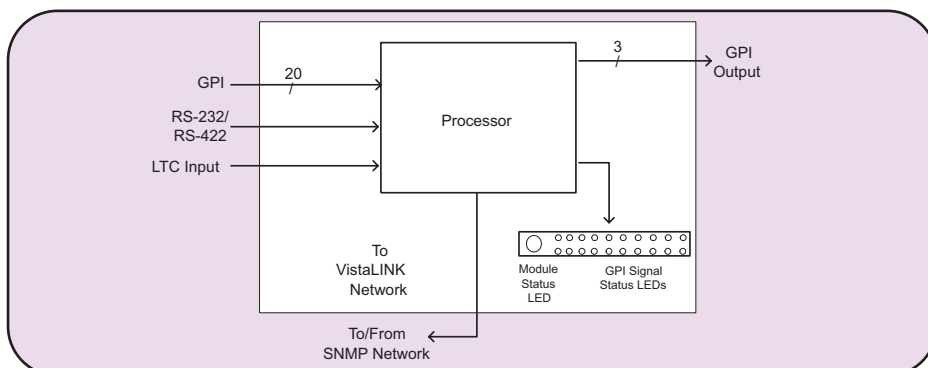
The GPI module is also equipped with three NC/NO GPI outputs (GPO) and can be utilized to relay a “message” from the VistaLINK™ system to connected gear. Configuration changes or additional fault alarming are possible through this interface.

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

2 X 2 HD/SD SDI Selector/Bypass Router with

Model 7700SS-2x2



The 7700SS-2x2 is a HD/SD SDI bypass router. This single slot 7700 series module can be set to operate with HD or SD SDI inputs and provides a program output as well as a preview output.

The program output is bypass relay protected and provides a clean video and embedded audio switching. This 2x2 selector/bypass router is equipped with SoftSwitch™. 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. (note although the input autotimers allow for 2 inputs that are not perfectly phased with one another, it is required that the two inputs are frequency locked to each other and the reference). In addition to video protection, embedded PCM audio may be protected using Evertz patent pending SoftSwitch™ technology to mitigate audible pops when switches are performed. Embedded SoftSwitch™ process is applied to all 4 audio groups (up to 16 PCM channels). For Dolby E or AC-3 applications, SoftSwitch™ can be disabled by the user.

The preview output is NOT a SoftSwitch™ or clean switch protected output. It is meant for preview only applications.

The two inputs are being monitored at all times for a variety of error conditions based on user selected thresholds.

- | | |
|--|---|
| <ul style="list-style-type: none">* Video loss or invalid at input* Picture Freeze Detection (patent pending)* Picture Black Detection (patent pending)* AP and FF Error Detection & Handling (EDH)* Loss of audio* Audio format error* Audio phase reversal* Audio too loud* Audio silence detect (too quiet)* Audio mono detect | <p>For SD SDI inputs also detected is:</p> <ul style="list-style-type: none">* Loss of VITC* Loss of Source ID* Loss of Program Rating* Loss of Closed Captioning |
|--|---|

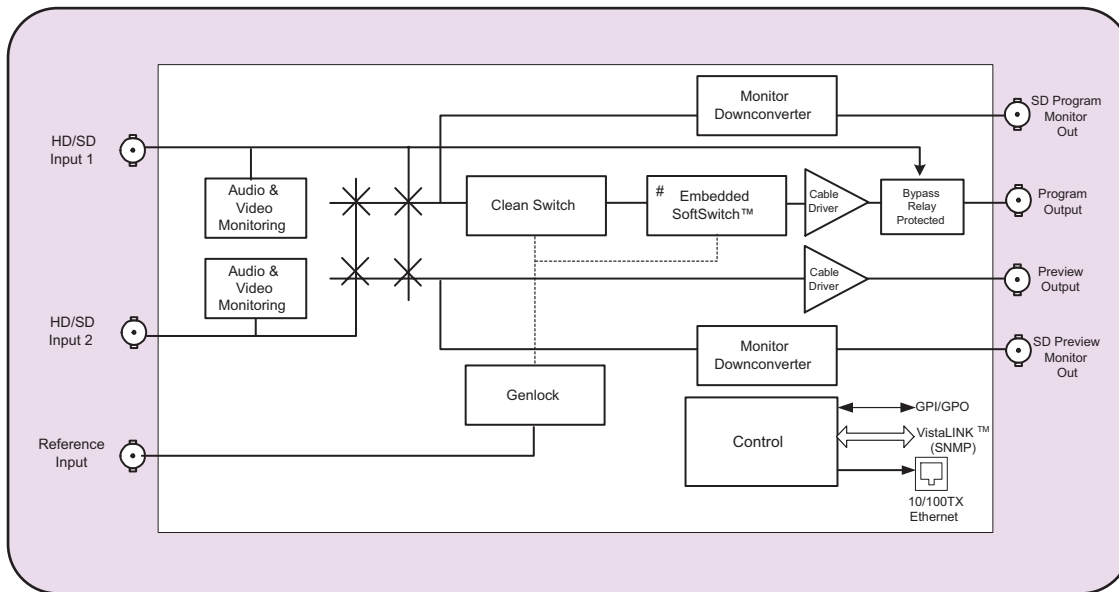
Output selection is controlled by contact closures (GPI control), via network control panels (9000NCP, 9000NCP2), or via VistaLINK™. VistaLINK™ can be configured to trigger a change based on specific errors and thresholds.

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.

Features

- Switch point is controllable
- Clean switch video and SoftSwitch™ audio
- Bypass relay protection on program output
- GPI control & tally
- Genlock input for reference switching
- Downconverted preview and program output

7700SS-2x2 Block Diagram



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 with Belden 1694 or equivalent cable
HD Automatic to 115m @ 1.5Gb/s with Belden 1694 or equivalent cable

Return Loss: SD > 15dB up to 270MHz
HD > 13dB up to 1.5GHz

Serial Video Output (Program/Preview):

Outputs: 2 (1 program 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/Fall Time: 200ps nominal (HD) or 900ps nominal (SD)

Overshoot: < 10% of amplitude

Wideband Jitter: < 0.16UI (HD) or < 0.10UI (SD)

Serial Video Output (SD Program/Preview):

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: < 0.16UI (HD) or < 0.10UI (SD)

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

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: 8 Watts

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

Physical:

Number of slots: 1

Ordering Information:

7700SS-2x2 2 x 2 HD/SD SDI Selector/Bypass Video/Audio Monitor Router 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

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 / 7703BPX-IF 2 x 1 protection switches for IF frequencies provides 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 user with the ability to locally or remotely configure and monitor parameters such as module status, selected input, power level and switching threshold.

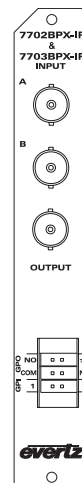
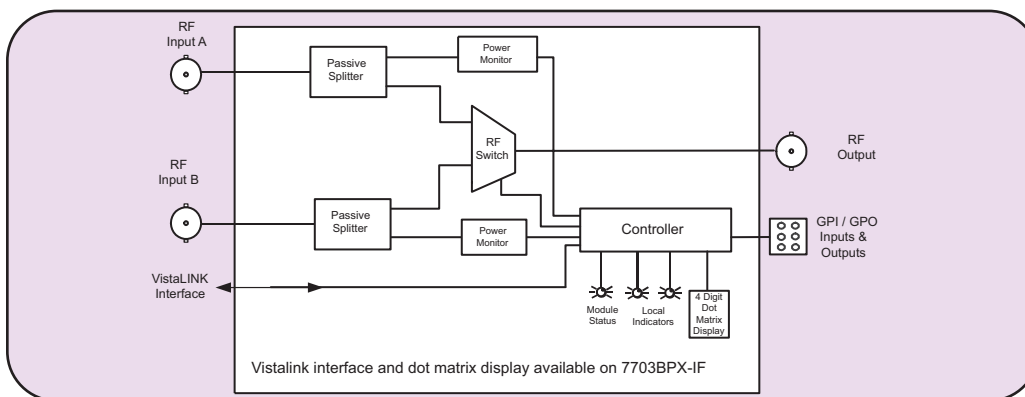
In the application of automatic changeover, the 7702BPX-IF and 7703BPX-IF can be configured to have a MAIN input and a STANDBY input. In this configuration, it will automatically switch to the Standby input when the Main input power is weak or lost. It can be also be configured to have auto or manual 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, or a 3RU frame which holds up to 15 modules or a standalone enclosure which holds 1 module.

Features

- 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 channels, output channel and power levels below threshold
- Fully hot swappable from front of frame
- Wide operating frequency range, 10MHz to 850MHz
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability on 7703BPX-IF version only

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 |
| Signal Range: | 10MHz to 850MHz |
| Return Loss: | >12dB |
| 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: | 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 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:

| | |
|------|----------------------------|
| +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 |

2 x 1 RF Protection Switch for L band Frequencies

Model 7702BPX-LB & 7703BPX-LB



The 7702BPX-LB / 7703BPX-LB L band 2 x 1 protection switches 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 user with the ability to locally or remotely configure and monitor parameters such as module status, selected input, power level and switching threshold.

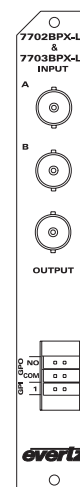
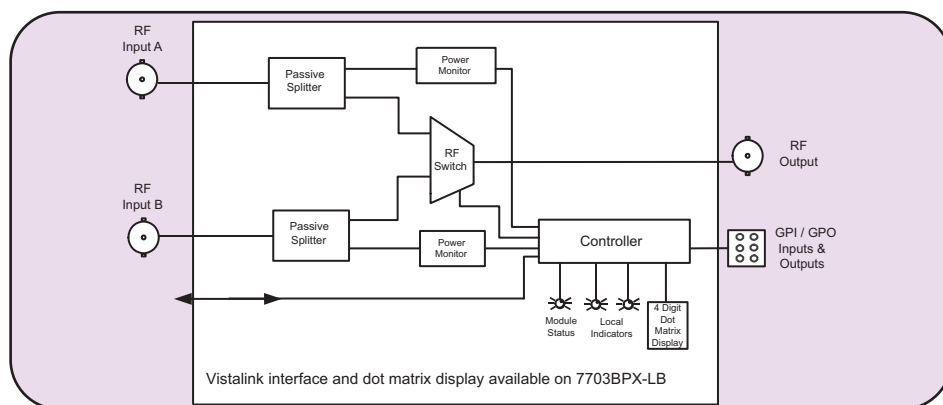
In the application of automatic changeover, the 7702BPX-LB and 7703BPX-LB can be configured to have a MAIN input and a STANDBY input. In this configuration, it will automatically switch to the Standby input when the Main input power is weak or lost. It can be also be configured to have auto or manual 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, or a 3RU frame which holds up to 15 modules or a standalone enclosure which holds 1 module.

Features

- 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 channels, output channel and power levels below threshold
- Fully hot swappable from front of frame
- Wide operating frequency range, 950MHz - 2250MHz
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled on 7703BPX-LB version only

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 |
|------------------|---|

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 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:

| | |
|------|----------------------------|
| +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 |

2 x 1 RF Protection Switch

Model 7702BPX-RF

The 7702BPX-RF is a wide band 2 x 1 RF protection switch that provides auto-changeover functionality to protect against link failure.

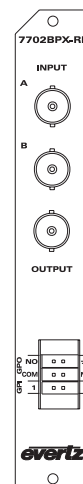
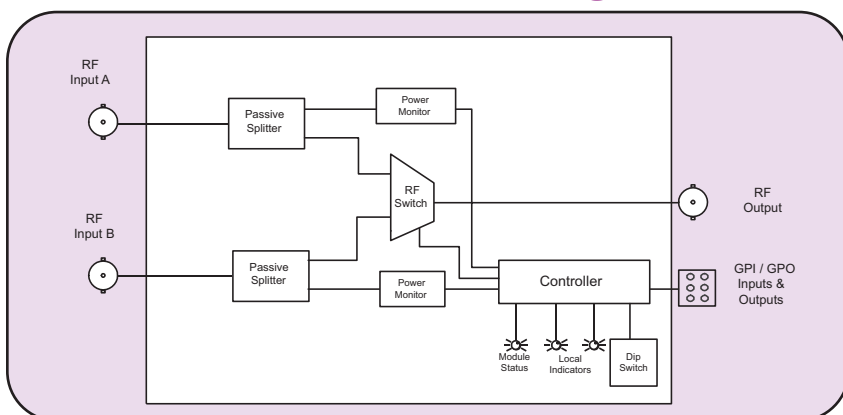
In the application of auto-changeover, the 7702BPX-RF can be configured to have a MAIN input and a STANDBY input. In this configuration, it will automatically switch to the Standby input when the Main input power is weak or lost. It can also be configured to have auto or manual switch back to the Main input when the signal is re-established.

The 7702BPX-RF occupies one card slot and can be housed in either a 1RU frame which holds up to 3 modules, or a 3RU frame which holds up to 15 modules or a standalone enclosure which holds 1 module.

Features

- Intelligent auto-switching with input power detection
- Maintains switch state and RF channel on loss of power to card or frame
- Supports automatic or manual control via GPI
- Switch state indication via GPO
- Card edge LEDs indicate active channels, output channel and power levels below threshold
- Wide band operation (30MHz - 2250MHz)
- Fully Hot-swappable from front of frame

Model 7702BPX-RF 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 (50Ω optional) |
| Signal Range: | 30MHz to 2250MHz |
| 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: | 3 Watts |

Physical:

| | |
|------------------|---|
| Number of Slots: | 1 |
|------------------|---|

Ordering Information:

7702BPX-RF: 2 x 1 RF Bypass Protection Switch

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:

| | |
|------|----------------------------|
| +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 1x4 Active Splitter



Model 7702DA4-RF & 7703DA4-RF

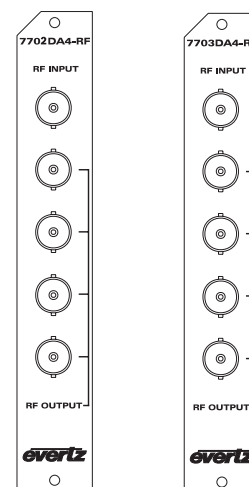
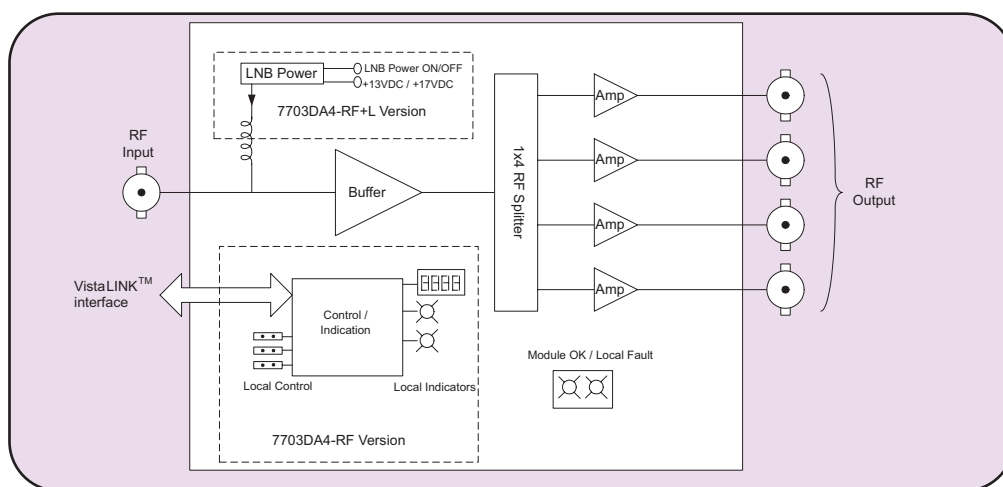
The 7702DA4-RF / 7703DA4-RF 1x4 Active Splitters provide inexpensive amplification and distribution of RF signals from 10MHz to 3GHz. The 7702DA4-RF / 7703DA4-RF handle any RF input modulation format and provide 4 buffered isolated outputs for further signal distribution. Typical applications include 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)
- AGC gain mode with adjustable output gain level on 7703DA4-RF version
- Manual gain mode with adjustable output gain of -10dB to +10dB 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 (50Ω optional)
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 (50Ω optional)
Return Loss
10MHz to 2200MHz: >15dB
2200MHz to 3GHz: >10dB
Gain:
7702DA4-RF: 0dB
7703DA4-RF: -10dB to +10dB
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

Impedance Suffix:
+50 50Ω I/O impedance

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

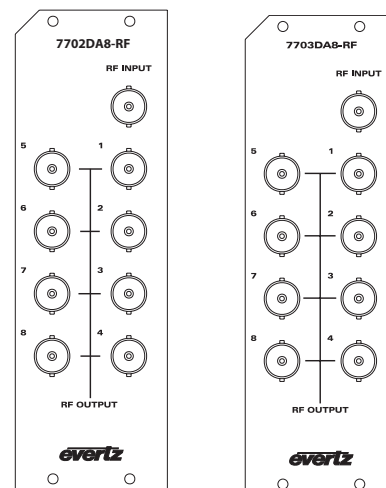
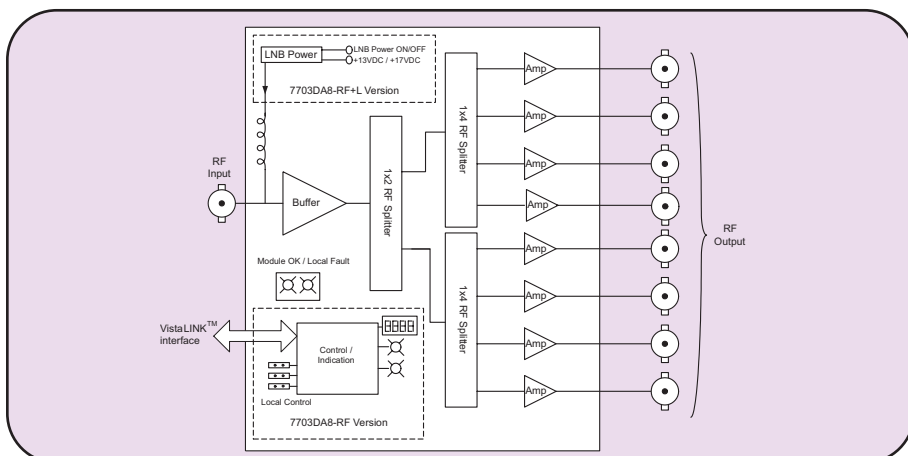
The 7702DA8-RF / 7703DA8-RF 1x 8 Active Splitters provide inexpensive amplification and distribution of RF signals from 10MHz to 3GHz. The 7702DA8-RF / 7703DA8-RF handle any RF input modulation format and provide 8 buffered isolated outputs for further signal distribution. Typical applications include 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 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)
- AGC gain mode with adjustable output gain level on 7703DA8-RF version
- Manual gain mode with adjustable output gain of -10dB to +10dB 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 (50Ω optional) |
| 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 (50Ω optional) |
| Return Loss | |
| 10MHz to 2200MHz: | >15dB |
| 2200MHz to 3GHz: | >10dB |
| Gain: | |
| 7702DA8-RF: | 0dB |
| 7703DA8-RF: | -10dB to +10dB |
| 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 |
| 7703DA8-RF |

10MHz - 3GHz RF 1x8 Active Splitter
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 |
| +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

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 |
| 7701FR |
| S7701FR |

3RU Multiframe which holds 15 modules
1RU Multiframe which holds 3 modules
Standalone enclosure

2 x 1 RF Protection Switch with VistaLINK™ Monitoring



Model 7703BPX-RF

The 7703BPX-RF is a wide band 2 x 1 RF protection switch that provides auto-changeover functionality to protect against link failure.

The 7703BPX-RF 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.

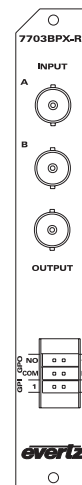
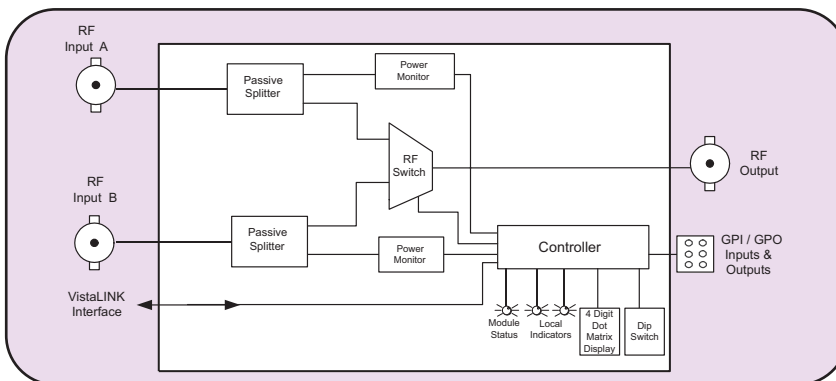
In the application of auto-changeover, the 7703BPX-RF can be configured to have a MAIN input and a STANDBY input. In this configuration, it will automatically switch to the Standby input when the Main input power is weak or lost. It can also be configured to have auto or manual switch back to the Main input when the signal is re-established.

The 7703BPX-RF occupies one card slot and can be housed in either a 1RU frame which holds up to 3 modules, or a 3RU frame which holds up to 15 modules or a standalone enclosure which holds 1 module.

Features

- Intelligent auto-switching with input power detection and user definable thresholds
- Maintains switch state and RF channel on loss of power to card or frame
- Supports automatic or manual control via SNMP or GPI
- Switch state indication via GPO
- Card edge LEDs indicate active channels, output channel and power levels below threshold
- GPI override for remote switching
- Fully hot-swappable from front of frame
- Wide band operation (30MHz - 2250MHz)
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability

Model 7703BPX-RF Block Diagram



Specifications

RF Input/Output:

| | |
|--------------------|---------------------------------|
| Inputs: | 2 |
| Outputs: | 1 |
| Connector: | BNC per IEC 60169-8 Amendment 2 |
| I/O Impedance: | 75Ω (50Ω optional) |
| Signal Range: | 30MHz to 2250MHz |
| 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 |
|------------------|---|

Ordering Information:

| | |
|-------------|--|
| 7703BPX-RF: | 2 x 1 RF Bypass Protection Switch, 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:

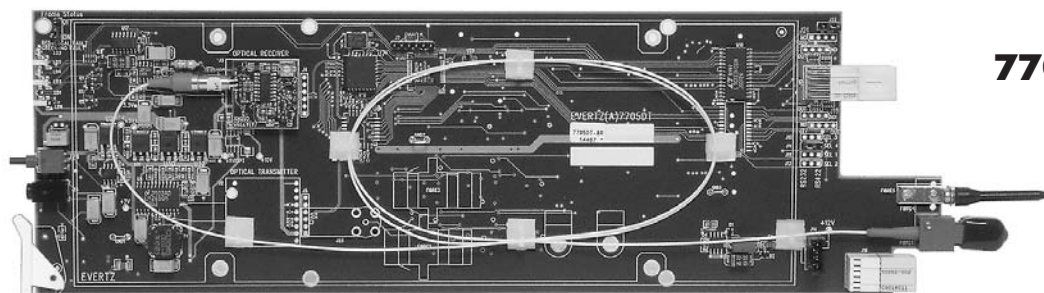
| | |
|------|----------------------------|
| +F75 | 75Ω, F-Type Rear Connector |
|------|----------------------------|

Enclosures:

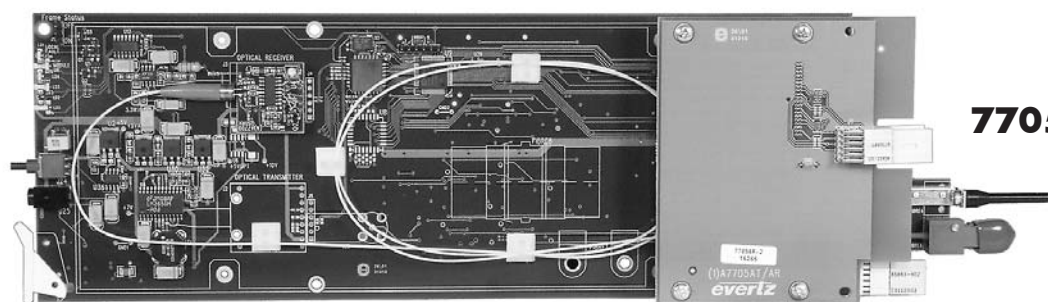
| | |
|----------|---------------------------------------|
| 7700FR-C | 3RU Multiframe which holds 15 modules |
| 7701FR | 1RU Multiframe which holds 3 modules |
| S7701FR | Standalone enclosure |

Multi-Channel AES Audio Fiber Receiver Demux

Models 7705AR/7705AR-2



7705AR



7705AR-2

The 7705AR AES Audio Fiber Receiver Demux, provides an economical method of receiving up to six AES audio signals (twelve mono) one uni-directional RS-232/422 control signal and one LTC signal over a single wavelength or fiber optic cable, with minimum latency. AES audio reclocking is provided for jitter reduction.

The 7705AR is available in a single slot version with AES, RS-232/422 and LTC signals on a DB25 connector or in a dual slot version with RS232/422 and LTC signals on the DB25 connector and the six AES signals on six BNC connectors.

The 7705AR 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

- Supports SMPTE compliant AES audio signals with 48kHz or 96kHz sampling rate
- Provides reclocking on AES outputs
- Low channel latency ($<1\mu s$) for 7705AT/AR pair
- Monitoring of AES channels via stereo head phone jack and pushbutton channel selector at card edge
- Supports multi-mode or single-mode fiber
- Fully hot swappable from front of frame with no fiber or cabling disconnect/reconnect required
- 1RU, 3RU, single standalone frame options

Inputs:

- One fiber input with SC/PC, ST/PC, FC/PC connector options

Outputs:

- Six single ended AES, one RS-232/422 and one balanced LTC

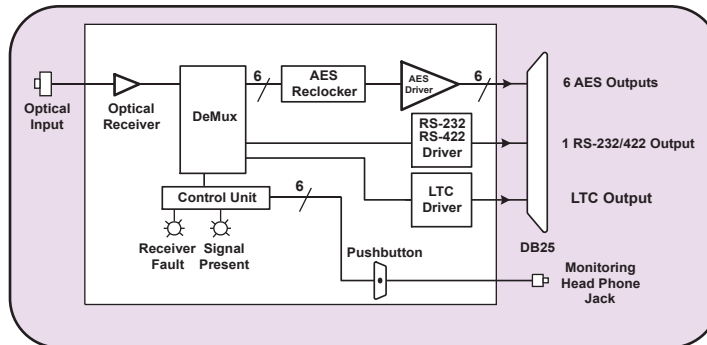
Card Edge LEDs:

- Local fault
- Module ok
- Optical link valid
- Audio channel monitor status

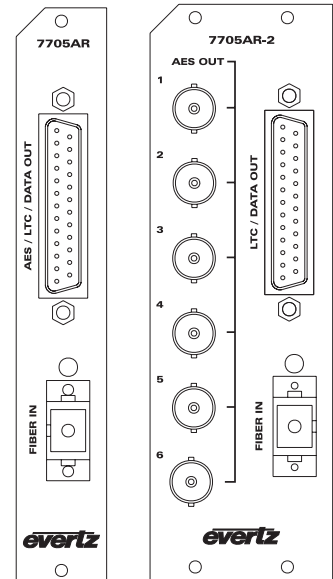
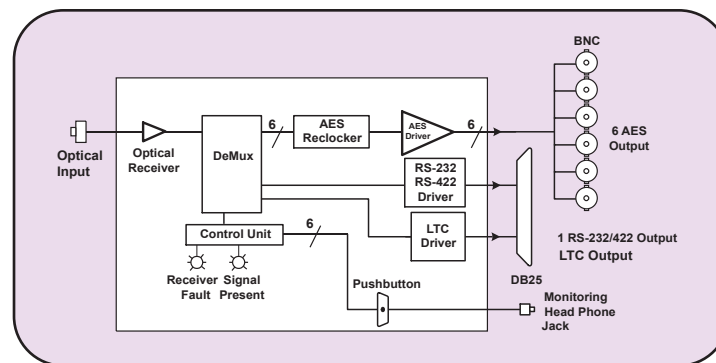
Multi-Channel AES Audio Fiber Receiver Demux

7705AR/7705AR-2 Block Diagrams

7705AR



7705AR-2



Specifications

AES Audio Outputs:

| | |
|--------------------|----------------|
| Number of Outputs: | 6 |
| Connector: | Female DB25 |
| Resolution: | Up to 24 bits |
| Sampling Rate: | 48kHz or 96kHz |
| Latency: | < 1μs |
| Signal Level: | 1V p-p ± 0.1V |
| Impedance: | 75Ω unbalanced |

Data Outputs:

| | |
|------------------|----------------------------------|
| Number of Ports: | 1 RS-232/RS-422(uni-directional) |
| Connector: | Female DB25 |
| Baud Rate: | Up to 3M baud |
| Latency: | < 1μs |

LTC Output:

| | |
|--------------------|----------------|
| Standard: | SMPTE 12M |
| Number of Outputs: | 1 Balanced |
| Connector: | Female DB25 |
| Signal Levels: | 1V p-p nominal |
| Rise/Fall Times: | 40μs ± 10μs |
| Impedance: | 110 Ω balanced |

Audio Monitoring Output:

| | |
|------------------|-------------------------|
| Number of Ports: | 1 |
| Connector: | 3.5mm female audio jack |

Optical Input:

| | |
|-----------------------|------------------------------------|
| Number of Inputs: | 1 |
| Connector: | SC/PC, ST/PC, FC/PC female housing |
| Operating Wavelength: | 1270nm - 1610nm |
| Maximum Input Power: | 0dBm |
| Optical Sensitivity: | -28dBm |

Electrical:

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

Physical:

| | |
|------------------|---|
| Number of Slots: | |
| 7705AR | 1 |
| 7705AR-2 | 2 |

Ordering Information:

Multi-Channel AES Audio Fiber Transmitter Demux

| | |
|----------|-------------------------------|
| 7705AR | Audio receiver in single slot |
| 7705AR-2 | Audio receiver in dual slot |

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:

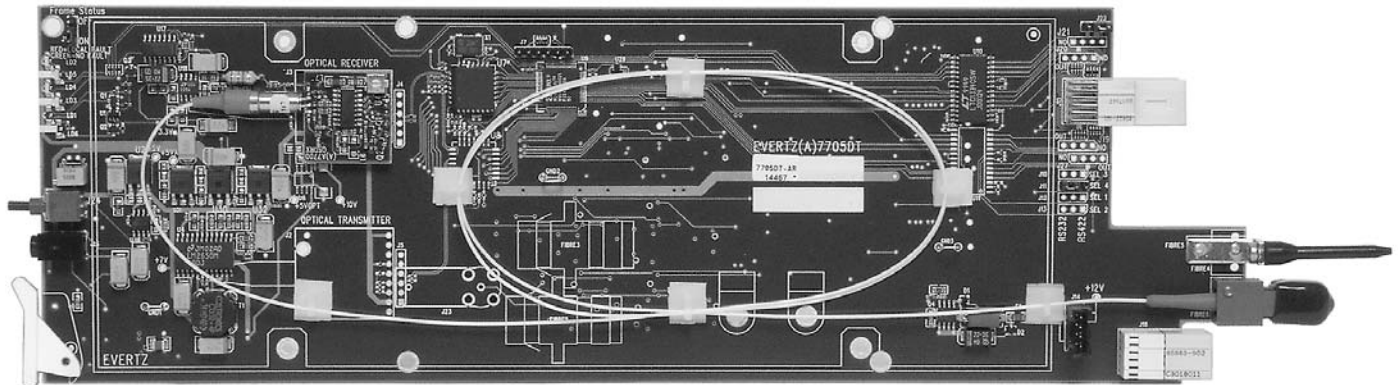
| | |
|-------------|--|
| 7705AR-BC1F | 1 meter Break-out Cable, 25 Pin D to 6 Female BNC, Male XLR, 4 pin terminal strip |
|-------------|--|

Enclosures:

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

Eight Channel AES Audio Fiber Receiver Demux

Models 7705AR-8



The 7705AR-8 AES Audio Fiber Receiver Demux provides an economical method of receiving up to eight AES audio signals (sixteen mono) over a single wavelength or fiber optic cable with minimum latency. AES audio reclocking is provided for jitter reduction.

The 7705AR-8 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.

Features

- Supports SMPTE compliant AES audio signals with a sampling rate of either 48kHz or 96kHz
- Provides reclocking on AES outputs
- Low channel latency ($<1\mu$ s) for 7705AT-8/AR-8 pair
- Monitoring of AES channels via stereo head phone jack and push button channel selector at card edge
- Supports multi-mode or single-mode fiber
- Fully hot swappable from front of frame with no fiber or cabling disconnect/reconnect required
- 1RU, 3RU, single standalone frame options

Inputs:

- One fiber input with SC/PC, ST/PC, FC/PC connector options

Outputs:

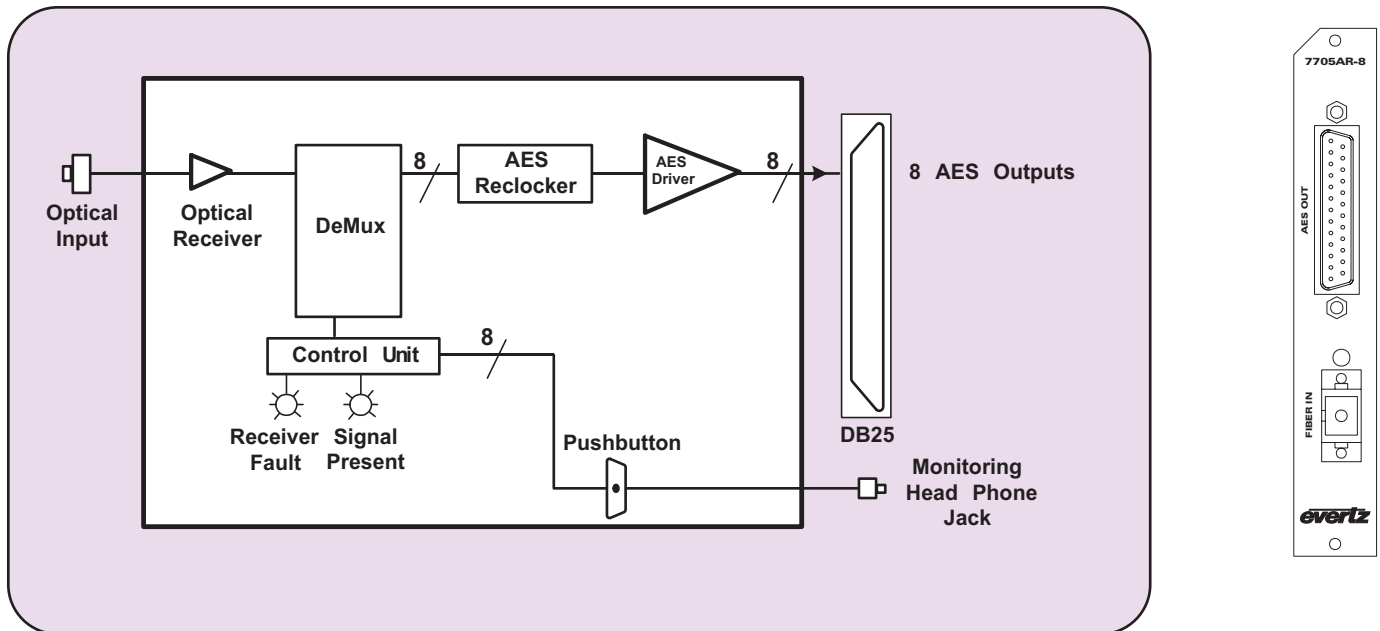
- Eight single ended AES outputs

Card Edge LEDs:

- Receiver Fault
- Module OK
- Optical Link Valid
- Audio channel monitor status

Eight Channel AES Audio Fiber Receiver Demux

7705AR-8 Block Diagram



Specifications

AES Audio Outputs:

| | |
|--------------------|----------------|
| Number of Outputs: | 8 |
| Connector: | Female DB25 |
| Resolution: | Up to 24-bits |
| Sampling Rate: | 48kHz or 96kHz |
| Latency: | < 1μs |
| Signal Level: | 1V p-p ± 0.1V |
| Impedance: | 75Ω unbalanced |

Audio Monitoring Output:

| | |
|------------------|-------------------------|
| Number of Ports: | 1 |
| Connector: | 3.5mm female audio jack |

Optical Input:

| | |
|-----------------------|------------------------------------|
| Number of Inputs: | 1 |
| Connector: | SC/PC, ST/PC, FC/PC female housing |
| Operating Wavelength: | 1270nm - 1610nm |
| Maximum Input Power: | 0dBm |
| Optical Sensitivity: | -28dBm |

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:

Audio Receiver Demux for up to 8 AES Channels

7705AR-8

8 Channel AES Audio Fiber Receiver Demux

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:

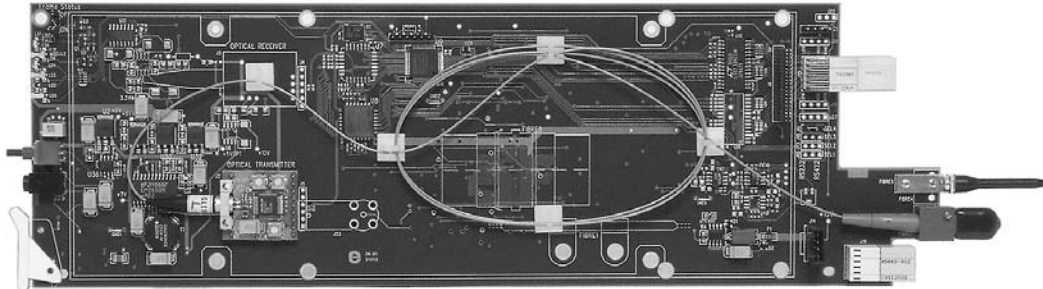
| | |
|---------------|---|
| 7705AR-8-BC1M | 1 meter Break-out Cable, 25 Pin D to 8 Male BNC |
|---------------|---|

Enclosures:

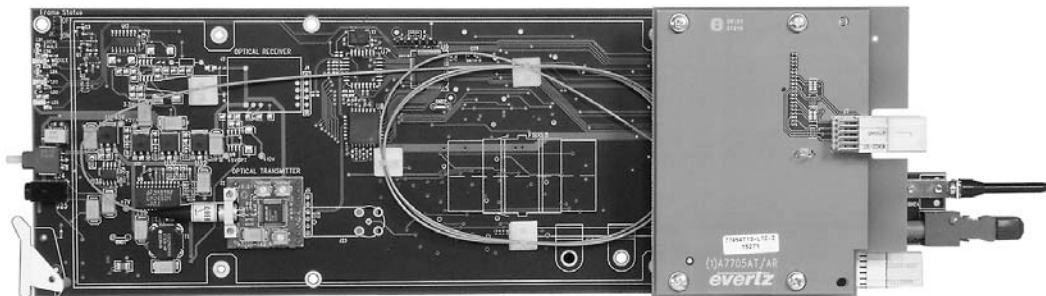
| | |
|----------|---------------------------------------|
| 7700FR-C | 3RU Multiframe which holds 15 modules |
| 7701FR | 1RU Multiframe which holds 3 modules |
| S7701FR | Standalone enclosure |

Multi-Channel AES Audio Fiber Transmitter Mux

Models 7705AT/7705AT-2



7705AT



7705AT2

The 7705AT AES Audio Fiber Transmitter Mux provides an economical method of transmitting up to six AES audio signals (twelve mono), one uni-directional RS-232/422 control signal and one LTC signal over a single wavelength or fiber optic cable, with minimum latency. AES audio reclocking is provided on the companion 7705AR for jitter reduction.

The fiber optic output of the 7705AT is available in 1310nm, 1550nm or any one of up to sixteen coarse wave division multiplexing (CWDM) wavelengths in the 1270nm to 1610nm range.

The 7705AT is available in a single slot version with AES, RS-232/422 and LTC signals on a DB-25 connector or in a dual slot version with RS-232/422 and LTC on the DB25 connector and the six AES signals on six BNC connectors.

The 7705AT can be housed in either a 1 RU 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 that will hold 1 module.

Features

- Supports SMPTE compliant AES audio signals with 48kHz or 96kHz sampling rate
- Low channel latency ($< 1\mu\text{s}$) for 7705AT/AR pair
- Monitoring of AES channels via stereo head phone jack and pushbutton channel selector at card edge
- Supports multi-mode or single-mode fiber
- Fully hot swappable from front of frame with no fiber or cabling disconnect/reconnect required
- 1RU, 3RU, single standalone frame options

Outputs:

- One fiber output available in 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2 compliant) with SC/PC, ST/PC, FC/PC connector option

Card Edge LEDs:

- Local fault
- Module Ok
- Optical transmitter fault
- Audio channel monitor status

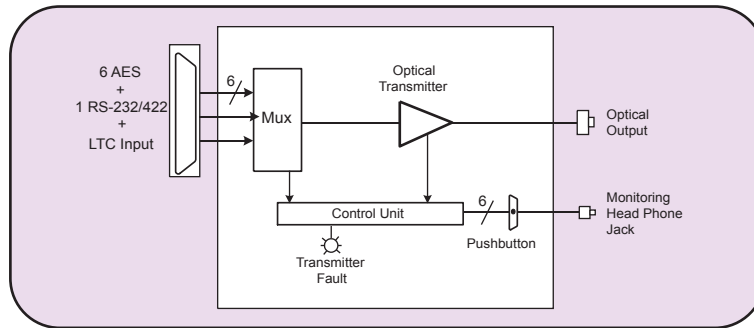
Inputs:

- Six single-ended AES audio, one RS-232/422 and one balanced LTC

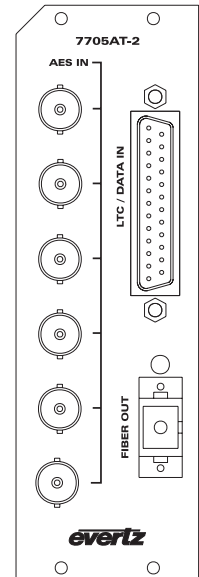
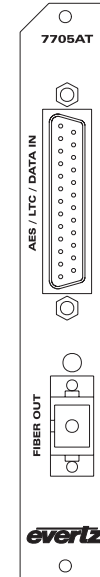
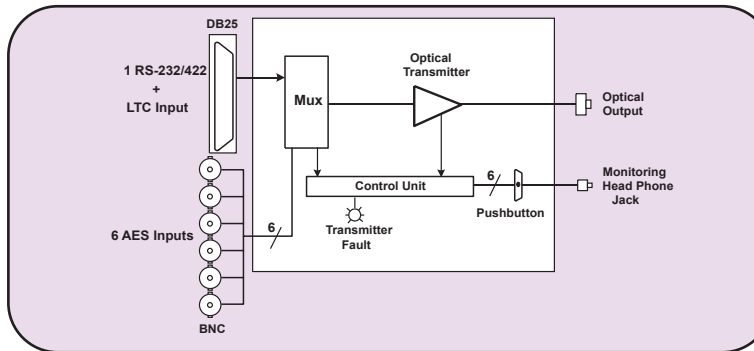
Multi-Channel AES Audio Fiber Transmitter Mux

7705AT/7705AT-2 Block Diagrams

7705AT



7705AT-2



Specifications

AES Audio Input:

| | |
|-------------------|-----------------------|
| Number of Inputs: | 6 |
| Connectors: | |
| Single Slot: | Female DB25 |
| Dual Slot: | 6 BNC's per IEC 169-8 |
| Resolution: | Up to 24 bits |
| Sampling Rate: | 48kHz or 96kHz |
| Latency: | < 1µs |
| Signal Level: | 0.2V - 2V |
| Impedance: | 75Ω unbalanced |

Data Inputs:

| | |
|-------------------|----------------------------------|
| Number of Inputs: | 1 RS-232/RS-422(uni-directional) |
| Connector: | Female DB25 |
| Baud Rate: | Up to 3M baud |
| Latency: | < 1µs |

Audio Monitoring Output:

| | |
|------------------|-------------------------|
| Number of Ports: | 1 |
| Connector: | 3.5mm female audio jack |

LTC Input:

| | |
|-------------------|----------------|
| Standard: | SMPTE 12M |
| Number of Inputs: | 1 Balanced |
| Connector: | Female DB25 |
| Rise/Fall Time: | 40 µs ± 10 µs |
| Signal Level: | 0.2 to 4V p-p |
| Impedance: | 110 Ω balanced |

Optical Output:

| | |
|---------------------|---|
| Number of Outputs: | 1 |
| Connector: | SC/PC, ST/PC, FC/PC female housing |
| Return Loss: | > 14dB |
| Rise and Fall Time: | 400-700ps |
| Jitter: | < 0.2 UI |
| Fiber Type: | Single mode or multi mode |
| Nominal Wavelength: | 1310nm, 1550nm |
| CWDM Wavelengths: | 1270nm to 1610nm (see ordering information) |

Optical Power:

| | |
|-------------|--------------|
| 1310nm FP: | -5dBm ± 1dBm |
| 1550nm DFB: | 0dBm ± 1dBm |
| CWDM DFB: | 0dBm ± 1dBm |

Electrical:

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

Physical:

| | |
|------------------|---|
| Number of Slots: | |
| 7705AT | 1 |
| 7705AT-2 | 2 |

Ordering Information:

| | |
|-------------------|--|
| 7705AT13 | 1310nm FP laser |
| 7705AT15 | 1550nm DFB laser |
| 7705ATxx | CWDM wavelength where xx= 27(1270nm), 29(1290nm), 31(1310nm), 33(1330nm), 35(1350nm), 37(1370nm), 43(1430nm), 45(1450), 47(1470nm), 49(1490nm), 51(1510nm), 53(1530nm), 55(1550nm), 57(1570nm), 59(1590nm), 61(1610nm) |
| 7705AT13-2 | 1310nm FP Laser, Dual Slot |
| 7705AT15-2 | 1550nm DFB Laser, Dual Slot |
| 7705ATxx-2 | CWDM wavelength where xx= 27(1270nm), 29(1290nm), 31(1310nm), 33(1330nm), 35(1350nm), 37(1370nm), 43(1430nm), 45(1450), 47(1470nm), 49(1490nm), 51(1510nm), 53(1530nm), 55(1550nm), 57(1570nm), 59(1590nm), 61(1610nm) |

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:

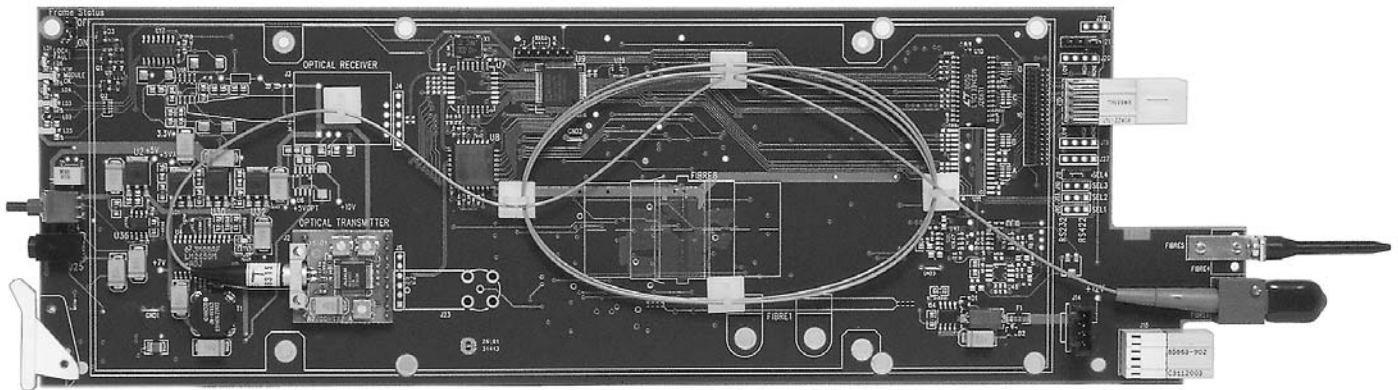
| | |
|--------------------|---|
| 7705AT-BC1F | 1 meter Break-out Cable, 25 Pin D to 6 Female BNC, Female XLR, 4 pin terminal strip |
|--------------------|---|

Enclosures:

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

Eight Channel AES Audio Fiber Transmitter Mux

Models 7705AT-8



The 7705AT-8 AES Audio Fiber Transmitter Mux provides an economical method of transmitting up to eight AES audio signals (sixteen mono) over a single wavelength or fiber optic cable with minimum latency. AES audio reclocking is provided on the 7705AR-8 for jitter reduction.

The fiber optic output of the 7705AT-8 is available in 1310nm, 1550nm or any one of the sixteen coarse wave division multiplexing (CWDM) wavelengths between 1270nm and 1610nm.

The 7705AT-8 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.

Features

- Supports SMPTE compliant AES audio signals with a sampling rate of either 48kHz or 96kHz
- Low channel latency < 1 μ s for 7705AT-8/AR-8 pair
- Monitoring of AES channels via stereo head phone jack and push button channel selector at card edge
- Supports multi-mode or single-mode fiber
- Fully hot swappable from front of frame with no fiber or cabling disconnect/reconnect required
- 1RU, 3RU, single standalone frame options

Inputs:

- Eight single-ended AES audio inputs on a DB-25 connector

Outputs:

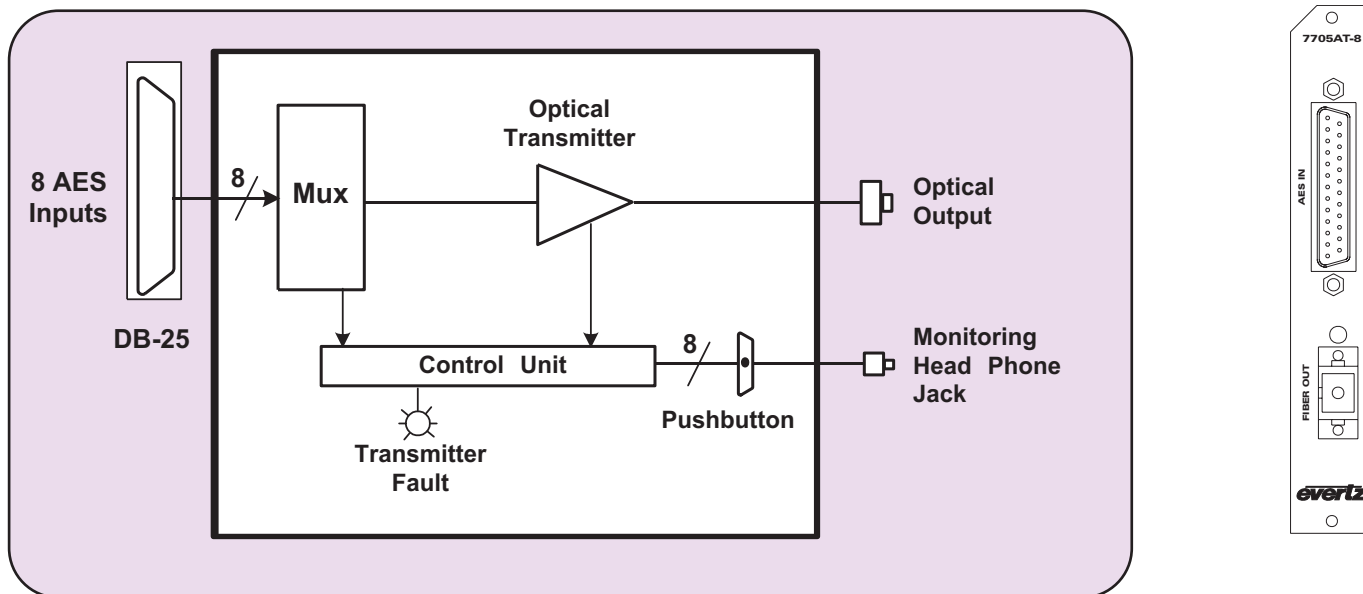
- One fiber output, available in 1310nm, 1550nm and up to sixteen CWDM wavelengths (ITU-T G.694.2) compliant
- SC/PC, ST/PC, FC/PC connector options

Card Edge LEDs:

- Optical Signal Presence
- Transmitter Fault
- AES Signal Presence

Eight Channel AES Audio Fiber Transmitter Mux

7705AT-8 Block Diagram



Specifications

AES Audio Inputs:

| | |
|-------------------|------------------------|
| Number of Inputs: | 8 |
| Connector: | Female DB25 |
| Resolution: | Up to 24-bits |
| Sampling Rate: | 48kHz or 96kHz |
| Latency: | < 1 μ s |
| Signal Level: | 0.2V - 2V |
| Impedance: | 75 Ω unbalanced |

Audio Monitoring Output:

| | |
|------------------|-------------------------|
| Number of Ports: | 1 |
| Connector: | 3.5mm female audio jack |

Optical Output:

| | |
|---------------------|------------------------------------|
| Number of Outputs: | 1 |
| Connector: | SC/PC, ST/PC, FC/PC female housing |
| Return Loss: | > 14 dB |
| Rise and Fall Time: | 400-700ps |
| Jitter: | < 0.2 UI |
| Nominal Wavelength: | 1310nm, 1550nm |
| CWDM Wavelength: | 1270nm to 1610nm |

Optical Power:

| | |
|-------------|------------------|
| 1310nm FP: | -5dBm \pm 1dBm |
| 1550nm DFB: | 0dBm \pm 1dBm |
| CWDM DFB: | 0dBm \pm 1dBm |

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:

Eight Channel AES Audio Fiber Transmitter Mux

| | |
|-------------------|--|
| 7705AT13-8 | 1310nm FP laser |
| 7705AT15-8 | 1550nm DFB laser |
| 7705ATxx-8 | CWDM wavelength where xx= 27(1270nm), 29(1290nm), 31(1310nm), 33(1330nm), 35(1350nm), 37(1370nm), 43(1430nm), 45(1450), 47(1470nm), 49(1490nm), 51(1510nm), 53(1530nm), 55(1550nm), 57(1570nm), 59(1590nm), 61(1610nm) |

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:

| | |
|----------------------|---|
| 7705AT-8-BC1M | 1 meter Break-out Cable, 25 Pin D to 8 Male BNC |
| 7705AT-BCIF | Optional breakout cable |

Enclosures:

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

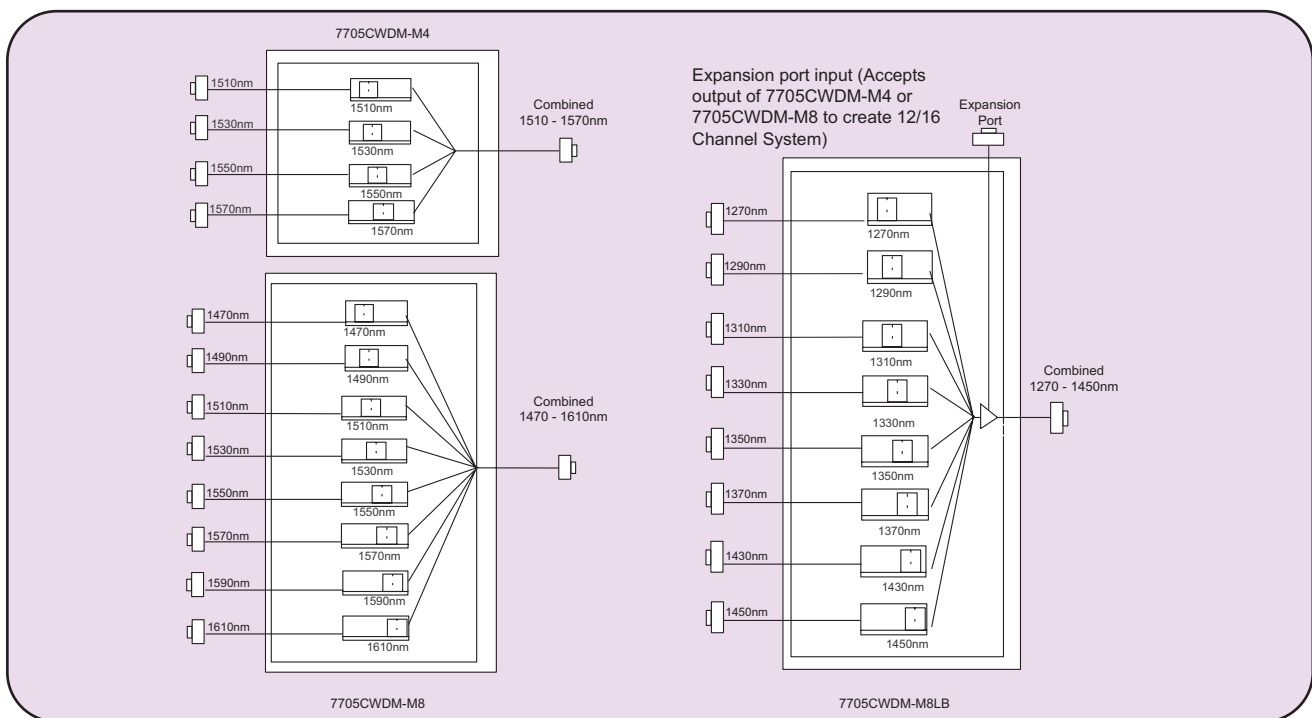
Coarse WDM Optical Modules

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's standard 3RU or 1RU Multiframe

7705CWDM Block Diagrams



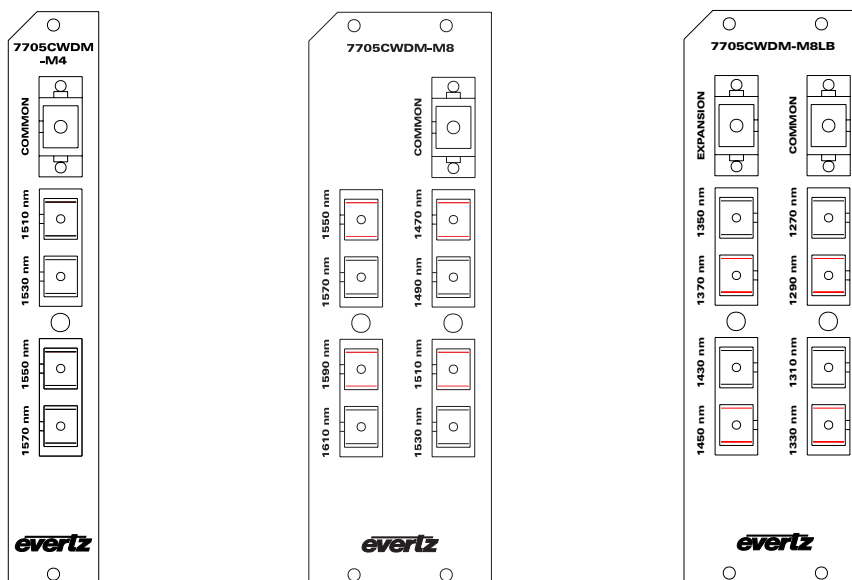
Applications

- 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 μ m core / 125 μ m 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

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 |

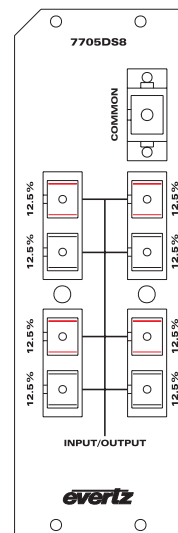
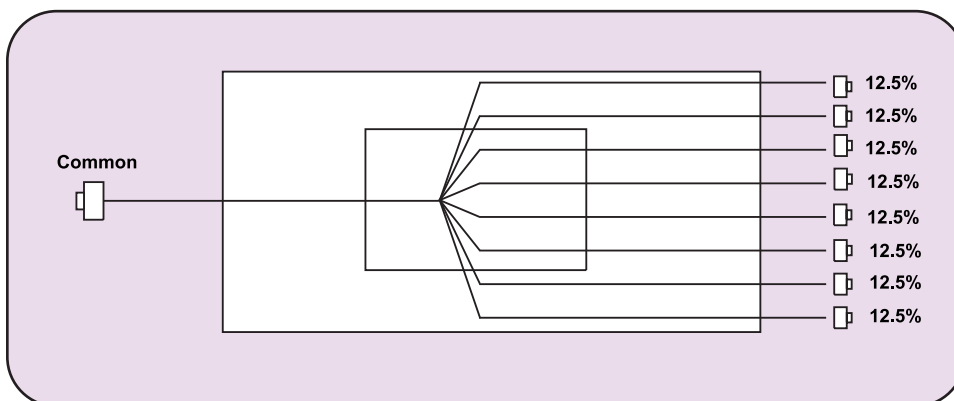
Eight Channel Optical Splitter

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-CMultiframe |
| +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

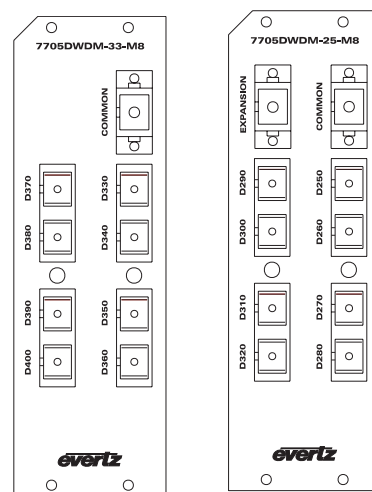
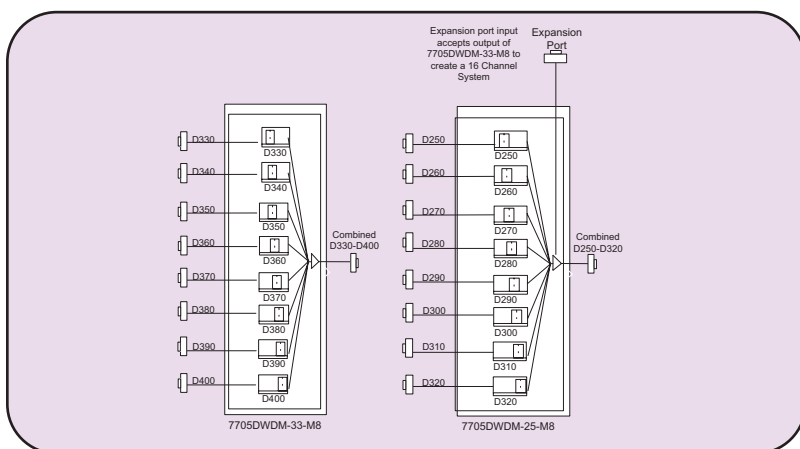
Model 7705DWDM

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: | 0.8nm (100 Ghz) |
| Passband @ 0.5dB: | ± 0.11nm |
| Channel Uniformity: | < 1.5dB |
| Isolation Adjacent Channel: | > 30dB |
| Directivity: | > 50dB |
| Fiber Size: | 9 µm core / 125 µm 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 |

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 |

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)

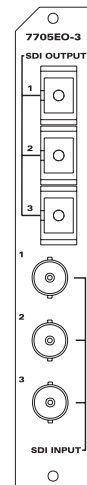
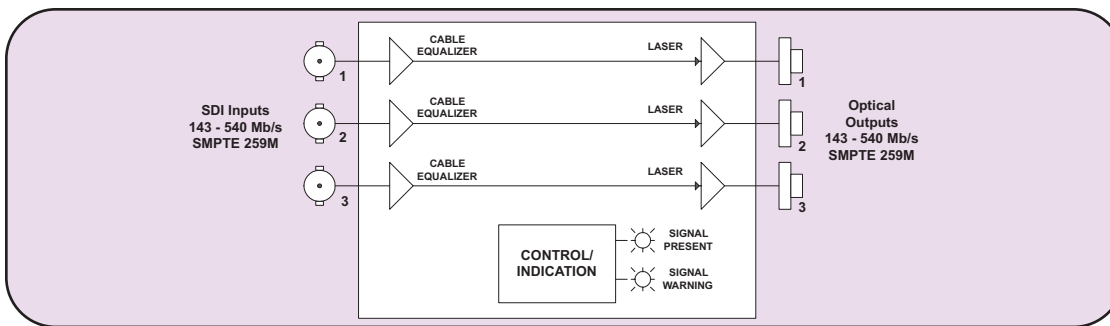
Outputs:

- 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

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

Physical:

Number of Slots: 1

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

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

SDI Electrical to Optical Converter

19.4Mb/s or 143-540Mb/s

Model 7705EO13 / 7705EO15

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 or a 3RU frame which will hold up to 15 modules

Input:

- Automatic input cable equalization to >300m @270Mb/s (Belden 8281)

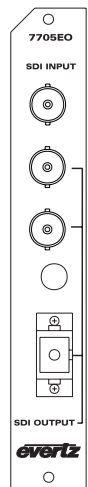
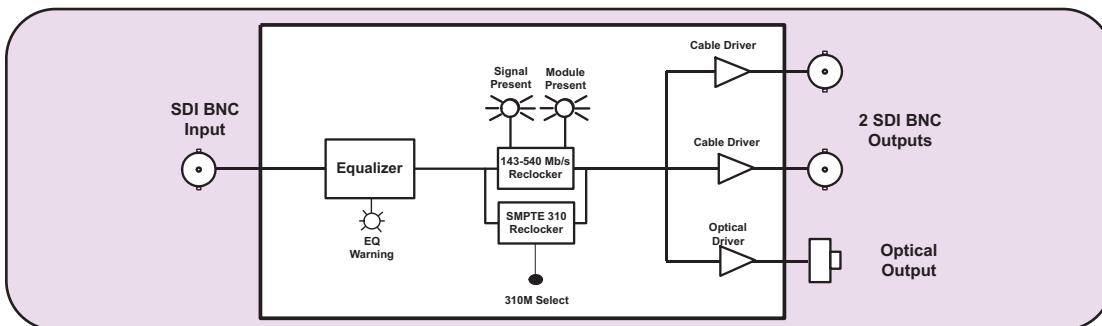
Outputs:

- 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
1550nmDFB: 0 dBm ± 1dBm

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:

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

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

For standalone applications see 2400 series fiber modules

HDTV Electrical to Optical Converter, 19.4Mb/s to 1.5Gb/s

Model 7705EO13-HD / 7705EO15-HD / 7705EO13HD-L

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 or a 3RU frame that will hold up to 15 modules

Input:

- Automatic input cable equalization to 130m (Belden 1694A)

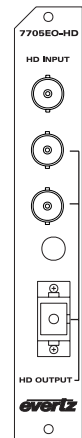
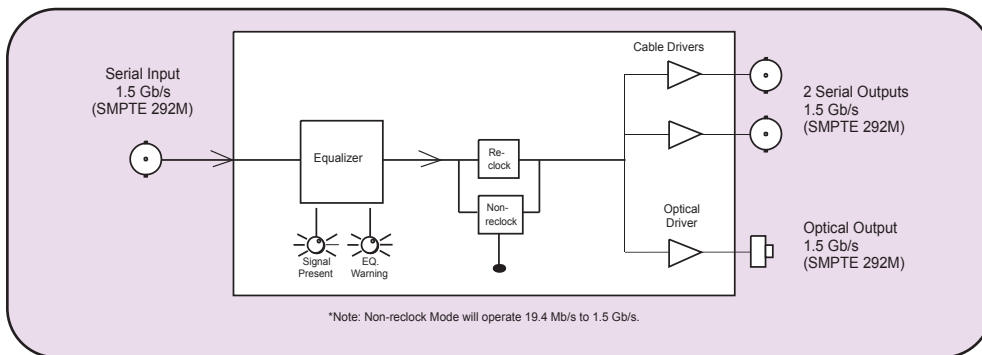
Outputs:

- 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



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 ± 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 ± 1dBm
1310nm/1550nm DFB 0 dBm ± 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

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

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

For standalone applications see 2405 series fiber modules

70/140MHz IF Fiber Receiver

Model 7705IFR

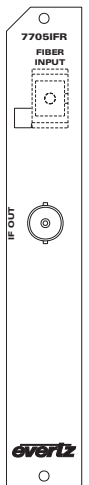
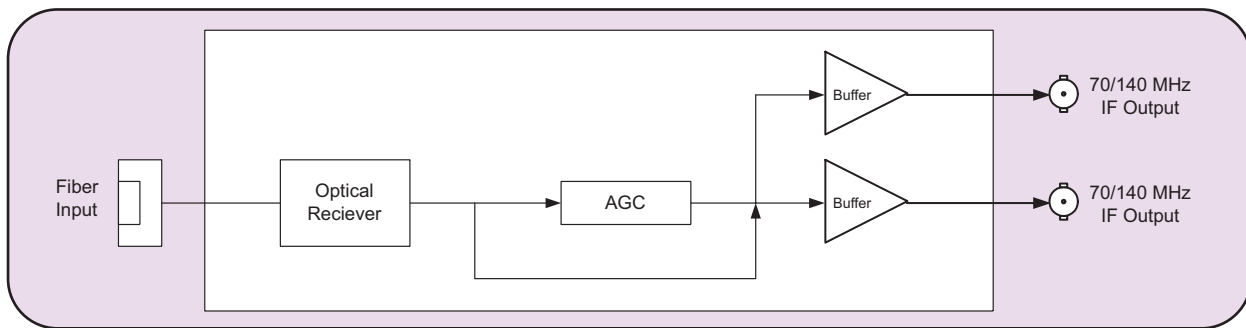
The 7705IFR is a fiber optic receiver for 70/140 MHz IF signals. The 7705IFR accepts a fiber optic input from the companion 7705IFT and provides two 70/140 MHz IF output signals via BNCs.

The 7705IFR 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

- 10-200MHz bandwidth
- Protocol transparent - receives all video, audio and data modulation formats
- Two IF outputs for extra signal distribution or monitoring functions
- User selectable IF output power
- 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 connector options
- Fully hot swappable from front of frame

7705IFR Block Diagram



Specifications

RF Output:

| | |
|----------------------|---|
| Connector: | BNC |
| I/O Impedance: | 75 or 50 Ω |
| Return Loss: | 15dB (min) |
| Carrier to Noise: | 40dB @ 1MHz BW / 5dB Optical Loss (min) |
| Output Signal Range: | |
| AGC: | -20dBm RF output power with -5dBm to -10dBm optical input power |

7705IFT Condition Manual:

AGC mode with -20 to -35dBm input RF power
-20dBm RF output power with -10dBm optical input power

7705IFT Condition

AGC mode with -20 to -35dBm input RF power

Intermodulation Products: -40dBc (max)

Optical Input:

| | |
|-------------------------------------|----------------------------|
| Number of inputs: | 1 |
| Connector: | Female SC/PC, ST/PC, FC/PC |
| Maximum Input Power: | 0dBm |
| Maximum Optical System Attenuation: | 5dB |

Electrical:

| | |
|----------|---|
| Voltage: | +12VDC |
| Power: | 5 Watts |
| EMI/RFI: | Complies with FCC regulations for class A devices EU EMC directive |

Physical:

| | |
|------------------|---|
| Number of slots: | 1 |
|------------------|---|

Ordering Information:

Note: 75 Ω I/O impedance ships standard

7705IFR

70/140 MHz 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 |

Impedance Suffix

| | |
|-----|---------------------------|
| +50 | 50 Ω I/O Impedance |
|-----|---------------------------|

Connector Suffix

| | |
|------|-------------------------------------|
| +SC | SC/PC |
| +SCA | SC/APC (Angle Polished) |
| +ST | ST/PC |
| +FC | FC/PC |
| +FCA | FC/APC (Angle Polished) |
| +F75 | 75 Ω , 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 Receiver

Model 7705IFRA

(Replaces the 7705IFR & offers improved performance and wider operating range)

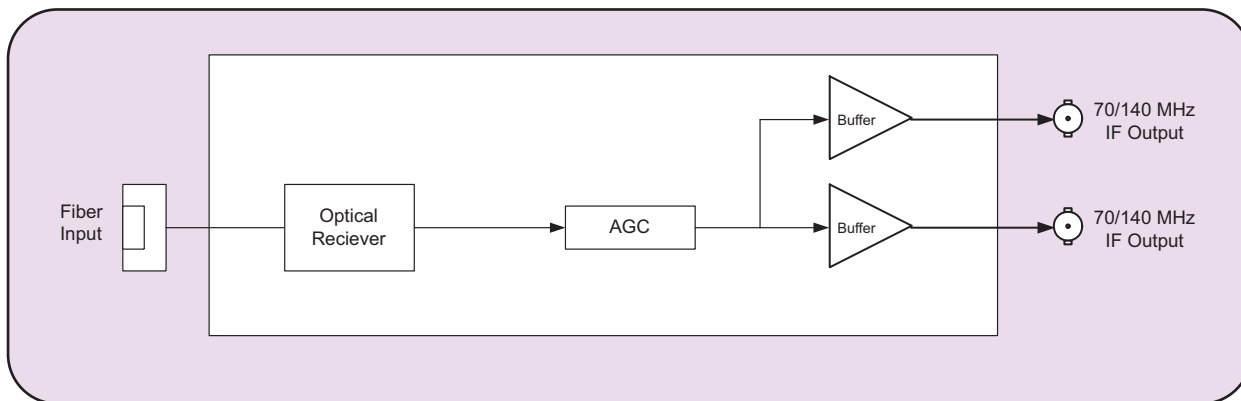
The 7705IFRA is a fiber optic receiver for 70/140 MHz IF signals. The 7705IFRA accepts a fiber optic input from the companion 7705IFTA and provides two 70/140 MHz IF output signals via BNCs.

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 -40dB @ 1MHz |
| Carrier to Noise: | |
| Output Signal Level: | -10dBm constant (within AGC range) |
| AGC: | -5 to -65 (depends on RF input level & optical loss) |
| Manual: | |
| 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**

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 |
| +SCA | SC/APC (Angle Polished) |
| +ST | ST/PC |
| +FC | FC/PC |
| +FCA | 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 7705IFT

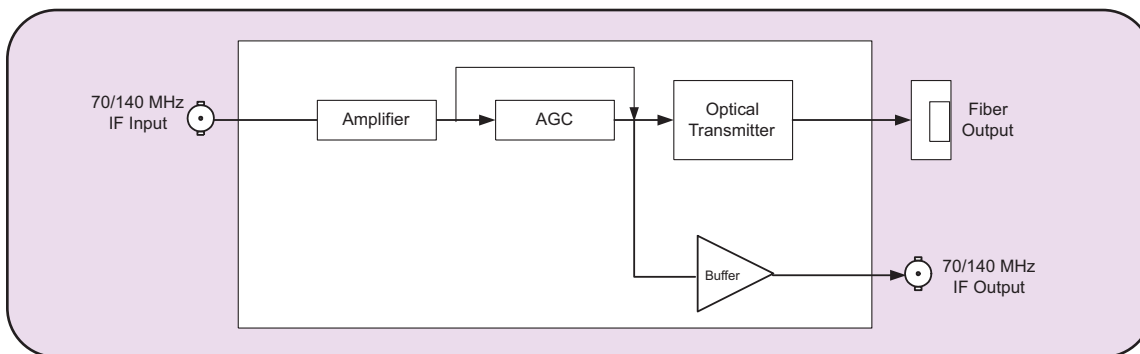
The 7705IFT is a fiber optic transmitter for 70/140 MHz IF signals. The 7705IFT accepts one 70/140 MHz coaxial input and provides a fiber optic output signal at 1310nm. An IF BNC output is provided for monitoring or further signal distribution.

The 7705IFT 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

- Operation up to 10km
- 10-200 MHz bandwidth
- Protocol transparent - transmits all video, audio and data modulation formats
- Automatic gain control on IF input
- Additional IF BNC output
- Supports single-mode and multi-mode fiber optic cable
- Available in SC/PC, ST/PC, FC/PC connector options
- Fully hot swappable from front of frame

7705IFT Block Diagram



Specifications

IF Input:

| | |
|---------------------|--------------------------------------|
| Connector: | 1 BNC per IEC 60169-8 Amendment 2 |
| I/O Impedance: | 75 or 50Ω (See Ordering Information) |
| Return Loss: | 15dB |
| Input Signal Range: | |
| AGC | AGC hold range -20 to -35dBm |
| Manual | Max input -15dBm |

IF Output:

| | |
|----------------|---|
| Connector: | 1 BNC per IEC 60169-8 Amendment 2 |
| I/O Impedance: | 75 or 50Ω (See Ordering Information) |
| Return Loss: | 15dB |
| Output Level: | -25dBm |
| AGC | When input is in AGC range (20 to -35dBm); -20dBm constant |
| Manual | Input level +15dB |

Optical Output:

| | |
|-----------------------|----------------------------|
| Number of outputs: | 1 |
| Connector: | Female SC/PC, ST/PC, FC/PC |
| Operating Wavelength: | 1310nm |
| Optical Power: | |
| 1310nm FP: | 5dBm ± 1dBm |

Electrical:

| | |
|----------|---|
| Voltage: | +12VDC |
| Power: | 4 Watts |
| EMI/RFI: | Complies with FCC Part 15 Class A EU EMC Directive |

Physical:

| | |
|------------------|---|
| Number of slots: | 1 |
|------------------|---|

Ordering Information:

Note: 75Ω I/O impedance ships standard

| | |
|-----------|---|
| 7705IFT13 | 70/140 Mhz IF Fiber Transmitter, 1310 nm, up to 30 Km |
|-----------|---|

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 |
| +SCA | SC/APC (Angle Polished) |
| +ST | ST/PC |
| +FC | FC/PC |
| +FCA | 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

Model 7705IFTA

(Replaces the 7705IFT & offers improved performance and wider operating range)

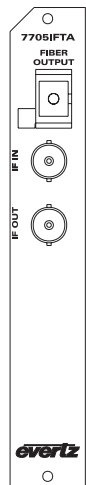
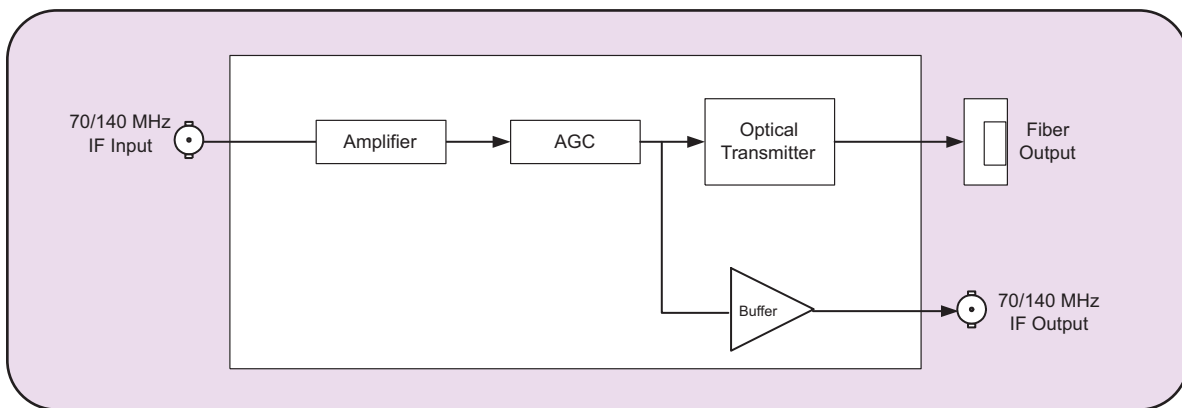
The 7705IFTA is a fiber optic transmitter for 70/140 MHz IF signals. The 7705IFTA accepts one 70/140 MHz coaxial input and provides a fiber optic output signal at 1310nm. An IF BNC output is also provided for monitoring or further signal distribution.

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)
(Input signal) + 15dB

Manual mode:
Intermodulation Products: -50dBc (-10dBm RF in, AGC 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

Ordering Information: 70/140MHz IF Fiber Transmitter
Note: 75Ω I/O impedance ships standard

7705IFTA13 1310nm FP Laser, Medium Haul (<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
+SCA SC/APC (Angle Polished)
+ST ST/PC
+FC FC/PC
+FCA 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

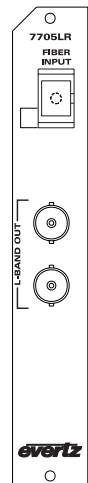
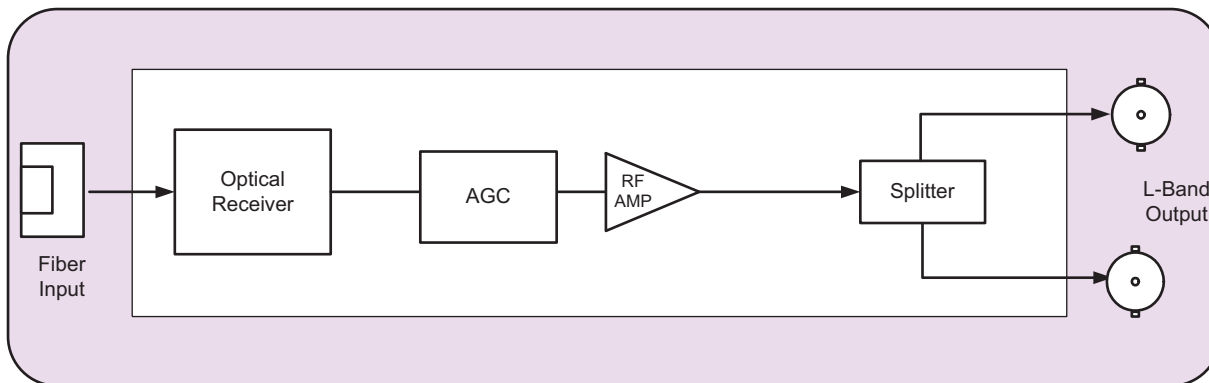
The 7705LR is a fiber optic receiver for L-Band satellite signals. The 7705LR accepts a fiber optic input from the 7705LTA and provides two L-Band RF output signals via BNCs.

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**

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 |
| +SCA | SC/APC (Angle Polished) |
| +ST | ST/PC |
| +FC | FC/PC |
| +FCA | 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-13

(Replaces the 7705LT & offers improved performance and wider operating range)

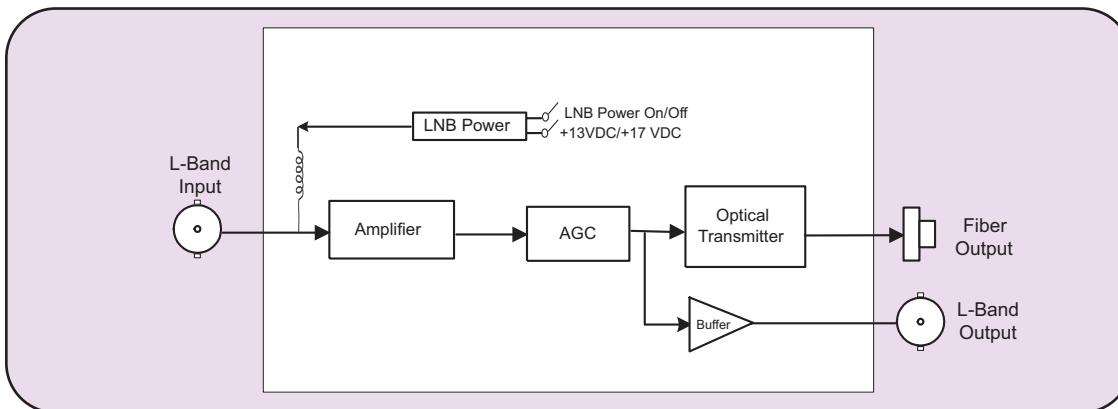
The 7705LTA is a fiber optic transmitter for L-Band satellite signals. The 7705LTA accepts one L-Band coaxial input and provides a fiber optic output signal at 1310nm. An L-Band BNC RF output is also provided for monitoring or further signal distribution.

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

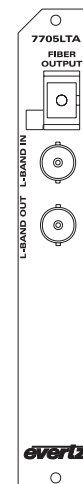
+50 50Ω I/O impedance

Connector Suffix

+SC SC/PC
+SCA SC/APC (Angle Polished)
+ST ST/PC
+FC FC/PC
+FCA 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.

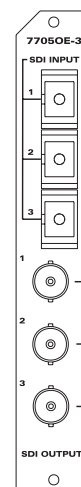
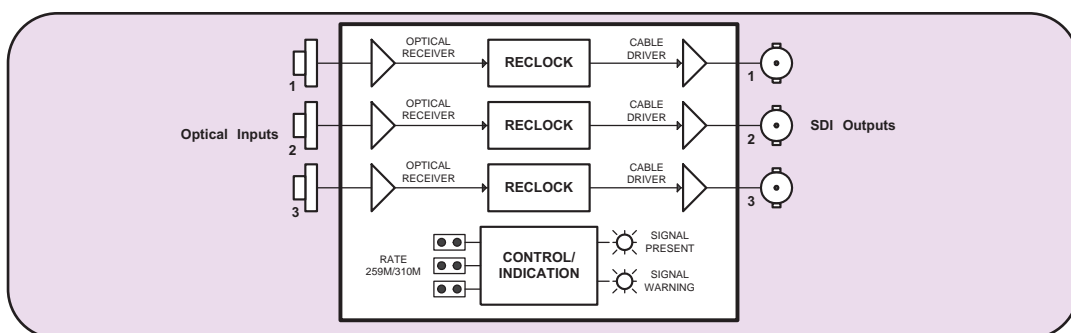
Outputs:

- 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

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

Input:

- Optical input range from 1270nm to 1610nm
- Input sensitivity to -32dBm
- SC/PC, ST/PC, FC/PC connector options

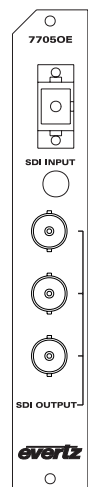
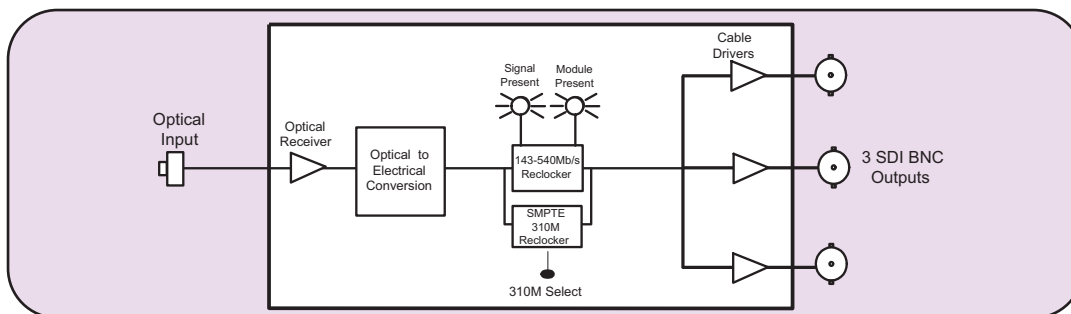
Outputs:

- 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

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

For standalone applications see 2400 series fiber modules

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 or a 3RU frame that will hold up to 15 modules

Input:

- Optical input range from 1270nm to 1610nm
- Input sensitivity up to -23dBm
- SC/PC, ST/PC, FC/PC connector options

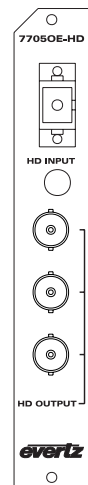
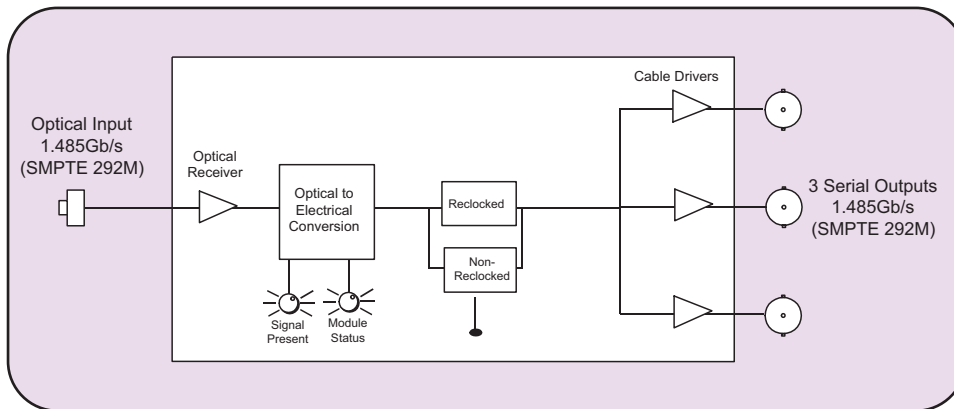
Outputs:

- 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 Information: 7705OE-HD

HDTV Optical to Electrical Converter, 19.4Mb/s to 1.5 Gb/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

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

For standalone applications see 2405 series fiber modules

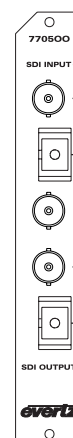
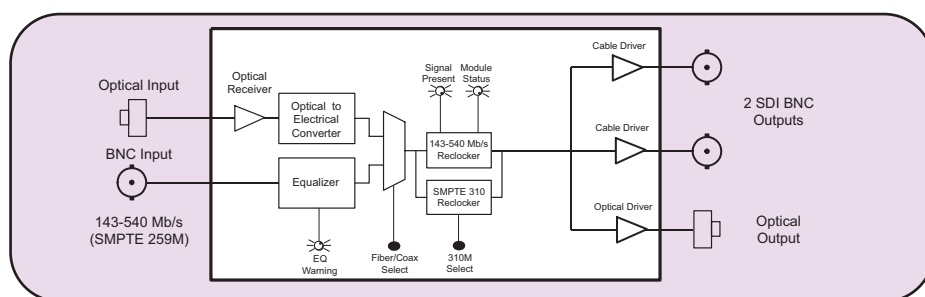
Optical Regenerator/Wavelength Converter, 19.4Mb/s to 540Mb/s

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

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:
770500I3 Optical to Optical Wavelength Converter for rates to 540 Mb/s, 1270-1610nm input, 1310nm FP laser output
770500I5 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

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 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

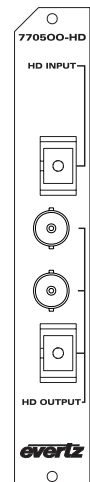
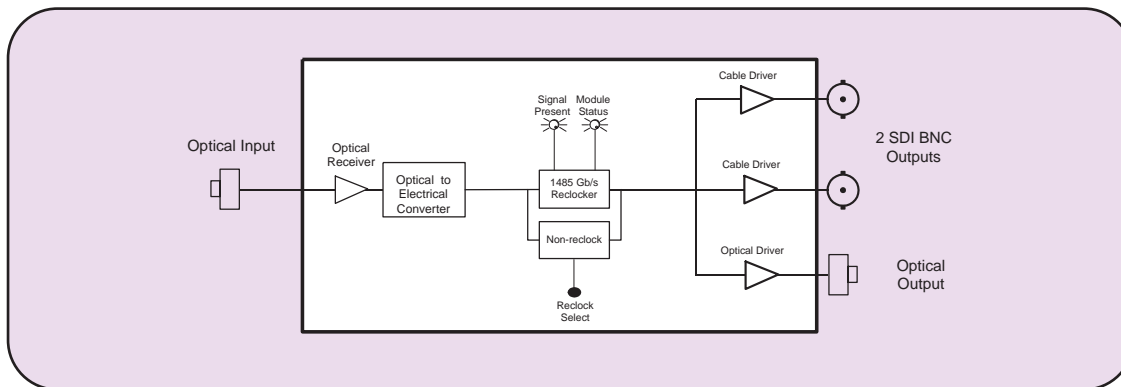
Input:

- 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 |
| Non-Reclock Mode: | SMPTE 310M (19.4Mb/s) or 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 |
| EMI/RFI: | Complies with FCC Part 15 Class A EU EMC Directive |

Physical:

| | |
|------------------|---|
| Number of Slots: | 1 |
|------------------|---|

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 |

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 |

I 310/I 550nm WDM & Optical Splitters

Model 7705WDM, 7705WDM I 3/I 5, 7705DS & 7705MS

Features

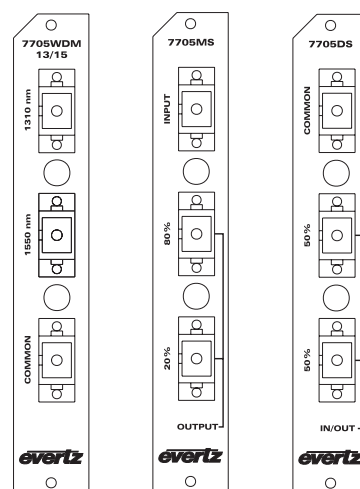
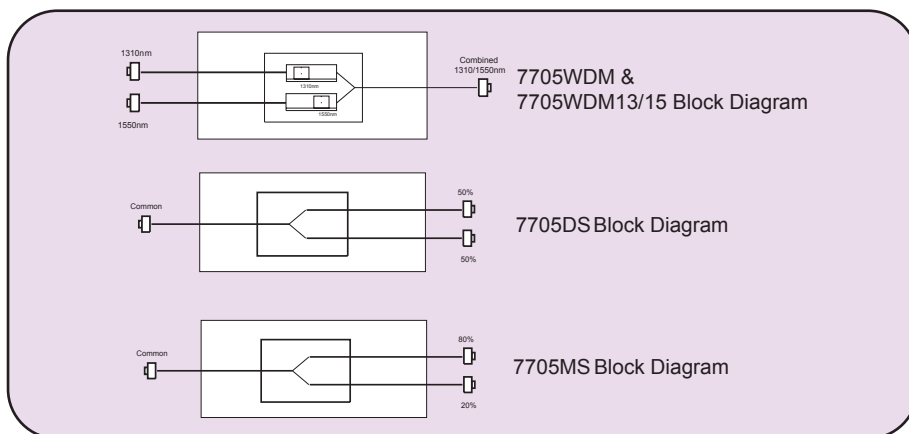
7705WDM (Wideband Wavelength Division Multiplexor)
7705WDM13/15 (Standard Wavelength Division Multiplexor)
7705DS (Fiber Distribution Splitter) &
7705MS (Fiber Monitoring Splitter)

- 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, 7705WDM I 3/I 5, 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

I 310/I 550nm WDM & Optical Splitters

Model 7705WDM, 7705WDM I 3/I 5, 7705DS & 7705MS

Features

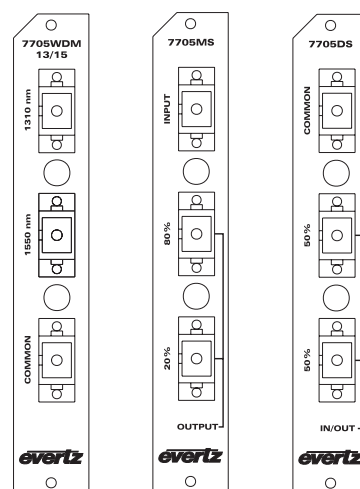
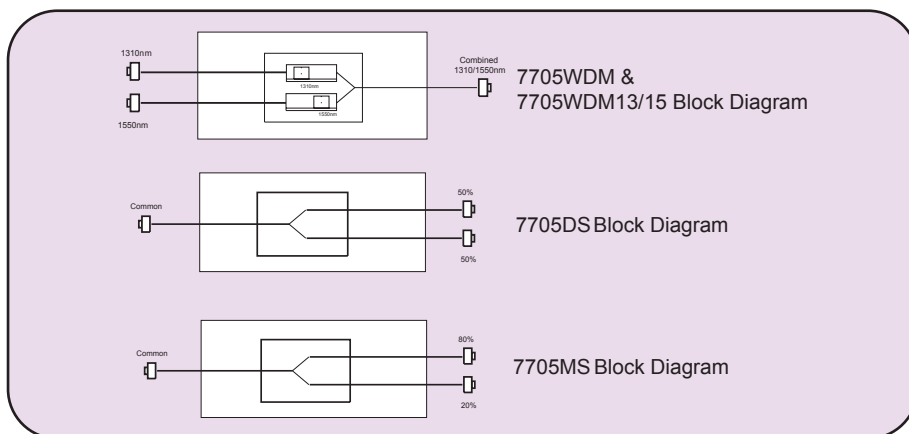
7705WDM (Wideband Wavelength Division Multiplexor)
7705WDM13/15 (Standard Wavelength Division Multiplexor)
7705DS (Fiber Distribution Splitter) &
7705MS (Fiber Monitoring Splitter)

- 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, 7705WDM I 3/I 5, 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

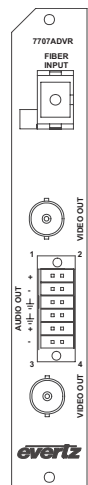
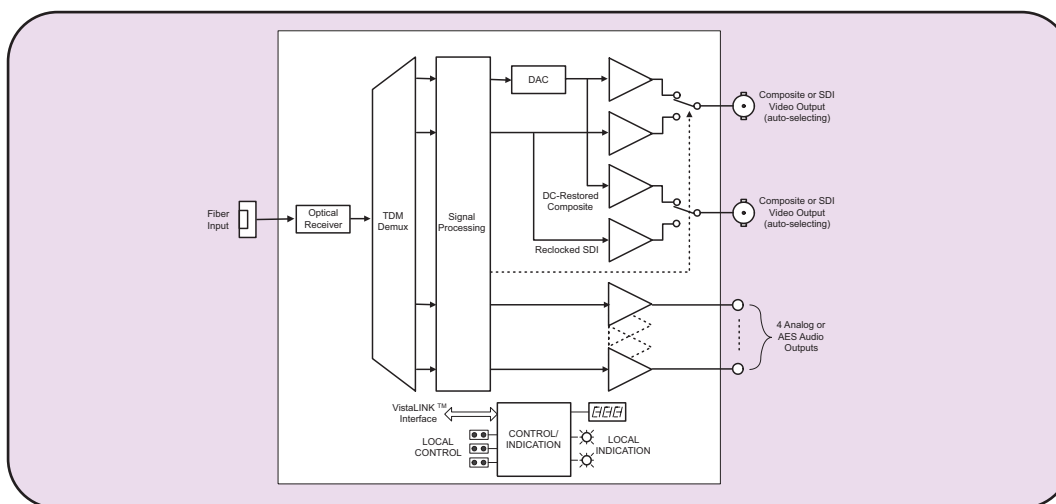
Model 7707ADVR



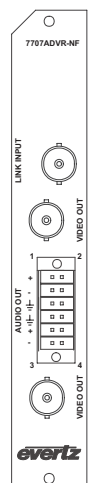
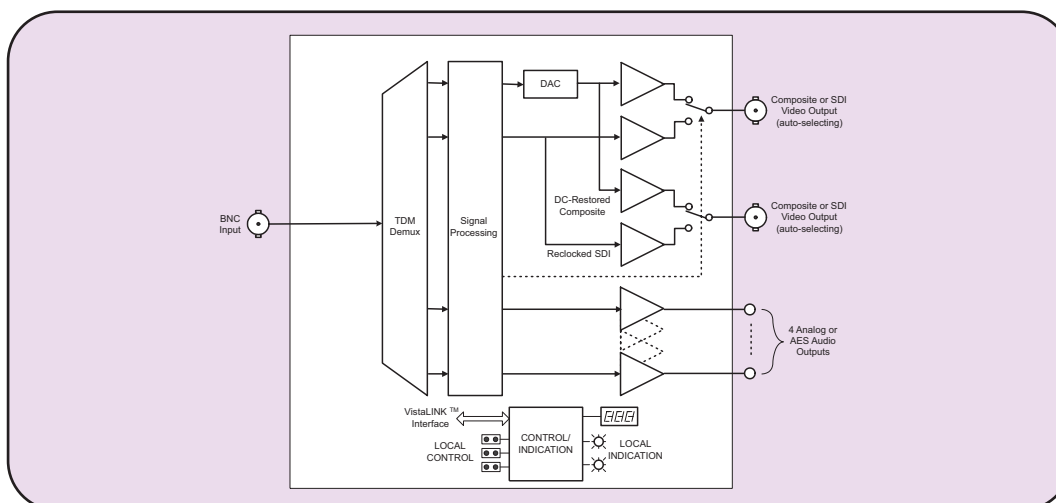
Features

- Single card fiber optic receiver for one analog or SDI video signal and four analog or four 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
- 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-R6244 (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: 98% - 103%

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: | < 0.15UI |

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 |
| EMI/RFI: | Complies with FCC Part 15 Class A EU EMC directive. |

Physical:

| | |
|------------------|---|
| Number of slots: | 1 |
|------------------|---|

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

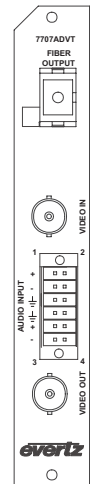
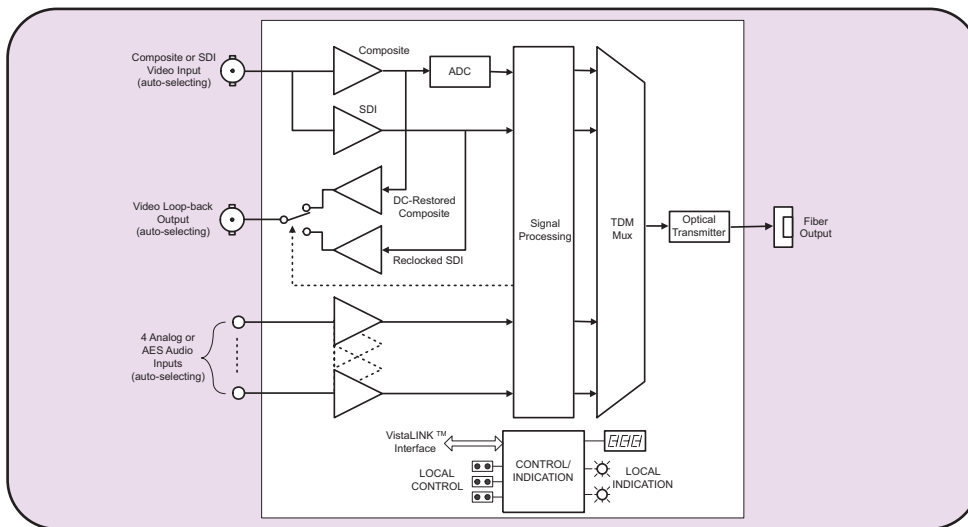
Model 7707ADVT



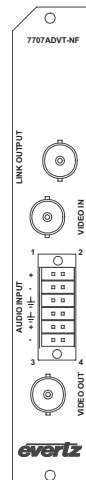
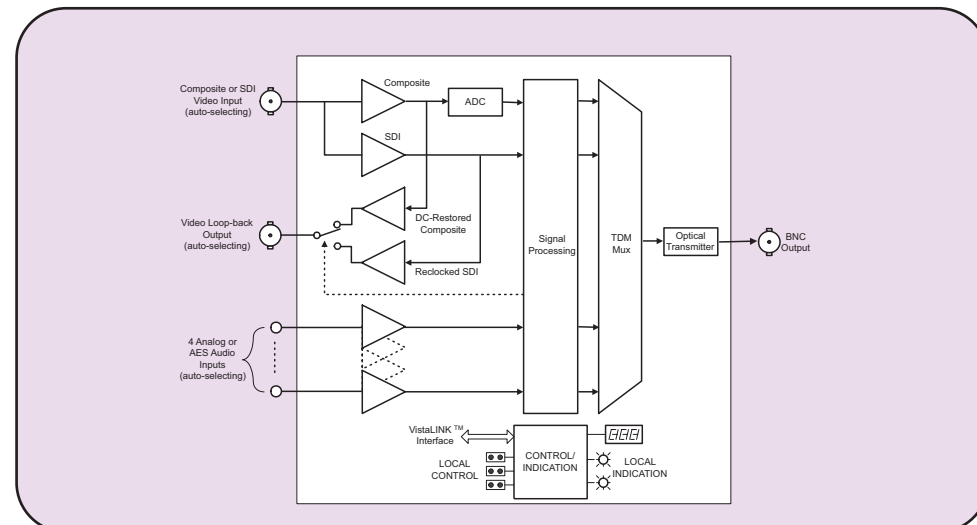
Features

- Single card fiber optic transmitter for one analog or SDI video signal 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
- 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)

7707ADVT Block Diagram



7707ADVT-NF Block Diagram



Analog or SDI Video with 4-Channel Analog or AES Audio Fiber Transmitter

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 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 |
| Number of Outputs: | |
| Fiber Version | 1 BNC per IEC 60169-8 Amendment 2 |
| NF Version | 2 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: | NTSC, SMPTE 170M, PAL, ITU-R 624-4 |
| Number of Outputs: | |
| Fiber Version | 1 BNC per IEC 60169-8 Amendment 2. |
| NF Version | 2 BNC per IEC 60169-8 Amendment 2. |
| 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 BNC per IEC 60169-8 Amendment 2. |
| NF Version | 2 BNC per IEC 60169-8 Amendment 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) |
| EMI/RFI: | Complies with FCC Part 15 Class A EU EMC directive. |

Physical:

| | |
|------------------|---|
| Number of slots: | 1 |
|------------------|---|

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™ |
|------------|---|

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™ |
|--------------|---|

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-CMultiframe |
| +1RU | 1RU Rear Plate for use with 7701FR Multiframe |
| +SA | Standalone Enclosure Rear Plate |

Connector Suffix

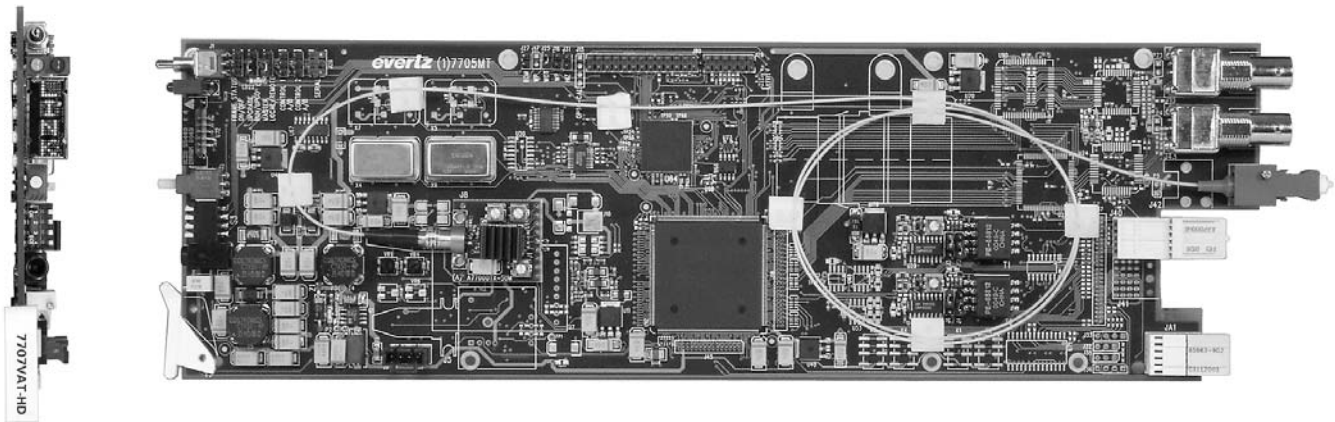
| | |
|-----|-------|
| +SC | SC/PC |
| +ST | ST/PC |
| +FC | FC/PC |

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 7707AE-EO-HD



The 7707AE-EO-HD is a VistaLINK™ -enabled fiber transmitter for HDTV or SDTV video and AES audio. This single card module accepts one HD-SDI or SDI video plus four AES audio and transmits them on a single fiber. The companion 7707AD-OE-HD, HD-SDI video and AES audio receiver converts the HD-SDI and AES back to separate video and audio.

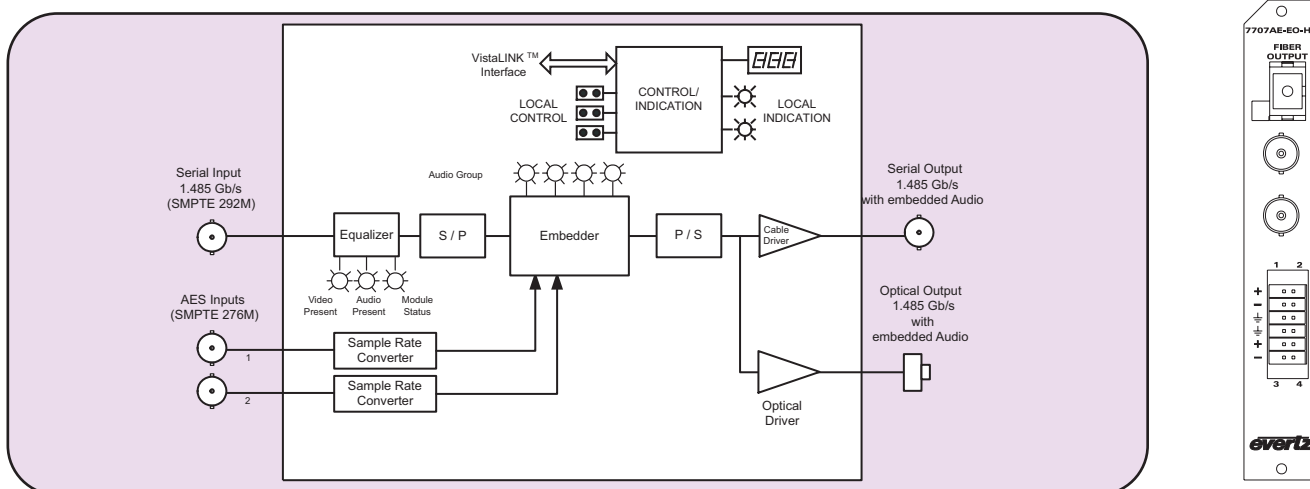
The fiber output is available in an assortment of optical wavelengths accomodating 1310/1550nm, CWDM and DWDM transmission schemes. The 7707AE-EO-HD occupies one card slot and can be housed in a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone enclosure holding 1 module.

Features

- Supports HDTV or SDTV video and four AES audio fiber optic transmitter
- 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
- 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 input coaxial cable length equalization
- Automatic coaxial input equalization to 130m at 1.485Gb/s and 300m at 270Mb/s (Belden 1694)
- 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

HD-SDI with 4 AES Audio Fiber Transmitter

7707AE-EO-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M, SMPTE 259M-C, DVB-ASI
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 130m @ 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 Inputs: 4 (Jumper selectable for balanced or unbalanced)
Standard:
Unbalanced AES: SMPTE 276M
Balanced AES: AES3-1992
Other: Dolby E compliant
Connector: 12 pin removable terminal block
Signal Level:
Unbalanced: 1V p-p ±0.1V
Balanced: 0.2 to 7Vp-p
Equalization: Up to 500m @ 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

System Performance: (7707AE-EO--HD +7707AD-OE-HD)

Video Input To Output Delay: < 1.5 μs
Audio to Video delay: < 1μs

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

Electrical:

Voltage: +12VDC
Power: 11 Watts (Non-DWDM)
 13 Watts (DWDM)
 Complies with FCC Part 15, Class A
 EU EMC Directive

Ordering Information:

7707AE-EO13-HD 1310nm, FP Laser
7707AE-EO15-HD 1550nm, DFB Laser

For CWDM applications please refer to the end of the fiber section for details
7707AE-EOxx-HD HD-SDI with 4 AES Audio Fiber Transmitter, CWDM Laser

For DWDM application please refer to end of fiber section for details
7707AE-EODyyy-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

Eight/Sixteen Channel AES Audio Fiber Receiver Demux

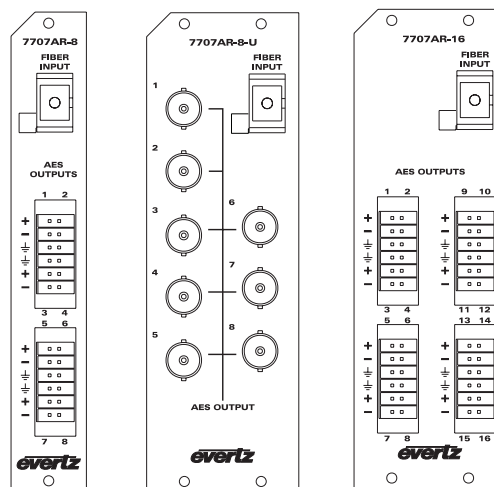
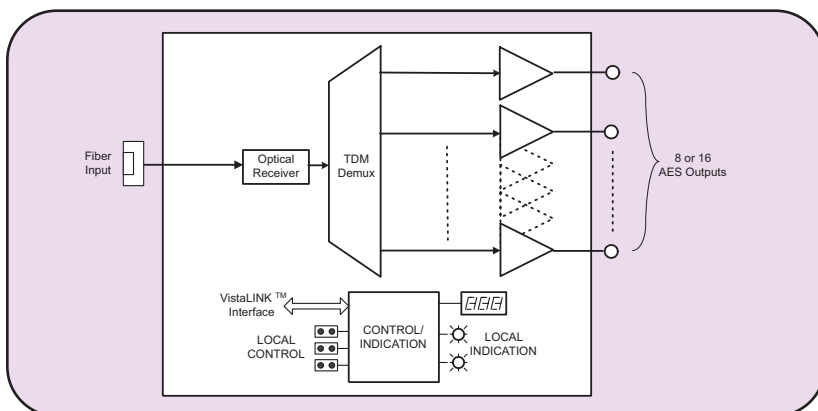
Models 7707AR-8/7707AR-8U 7707AR-16



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™

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

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order

Eg: Model +SC +3RU

Rear Plate Suffix

+3RU

+1RU

+SA

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

3RU Rear Plate for use with 7700FR-C Multiframe

1RU Rear Plate for use with 7701FR Multiframe

Standalone Enclosure Rear Plate

Connector Suffix

+SC

+ST

+FC

SC/PC

ST/PC

FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC

CB-FP1M-STPC

CB-FP5M-SCPC

CB-FP5M-STPC

CB-FP10M-SCPC

CB-FP10M-STPC

Single mode fiber cable, 1m, SC/PC male termination

Single mode fiber cable, 1m, ST/PC male termination

Single mode fiber cable, 5m, SC/PC male termination

Single mode fiber cable, 5m, ST/PC male termination

Single mode fiber cable, 10m, SC/PC male termination

Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C

7701FR

S7701FR

3RU Multiframe which holds 15 modules

1RU Multiframe which holds 3 modules

Standalone enclosure

Eight/Twelve Channel Analog Audio Fiber Receiver Demux

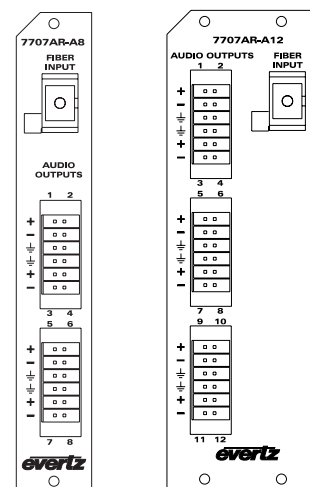
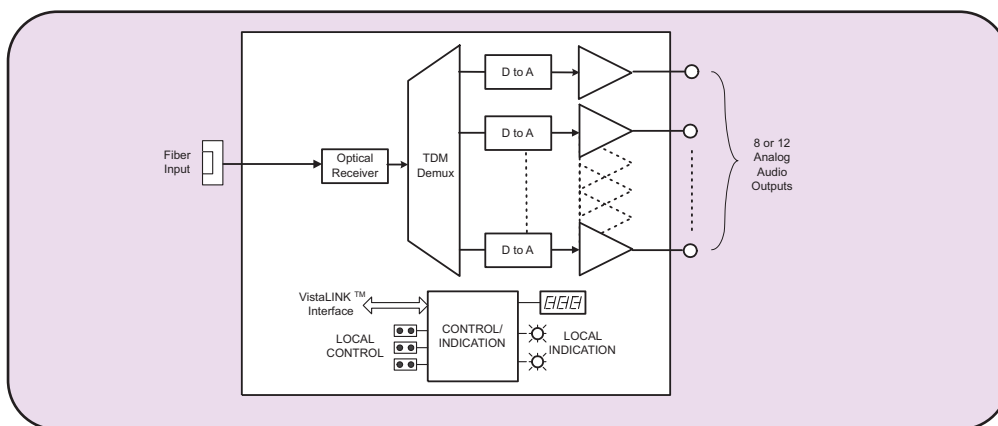
Models 7707AR-A8/7707AR-A12



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 card-edge display or remotely through SNMP and VistaLINK™

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

7707AR-A12

Eight Channel Analog Audio Fiber Receiver, Demux VistaLINK™ Monitoring
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

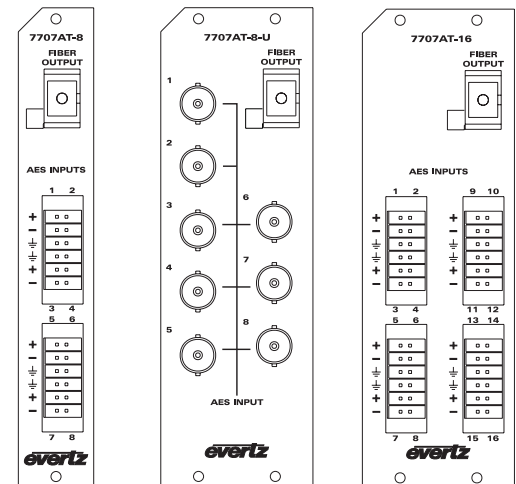
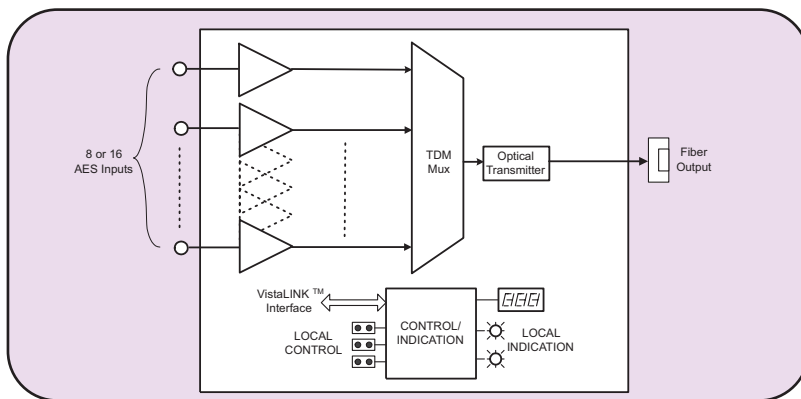
Models 7707AT-8/7707AT-8U 7707AT-16



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 |
| Power: | |

EMI/RFI:

| | |
|--------------|---------------------------------------|
| 7707AT-8/8U: | 6 Watts (Non DWDM) or 9 Watts (DWDM) |
| 7707AT-16: | 8 Watts (Non DWDM) or 11 Watts (DWDM) |
| | Complies with FCC Part 15 Class A |
| | EU EMC Directive |

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 |
|------------------|--------------------|

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

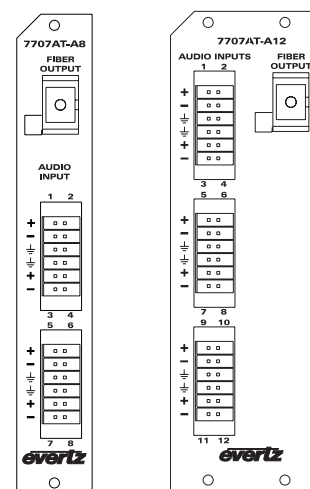
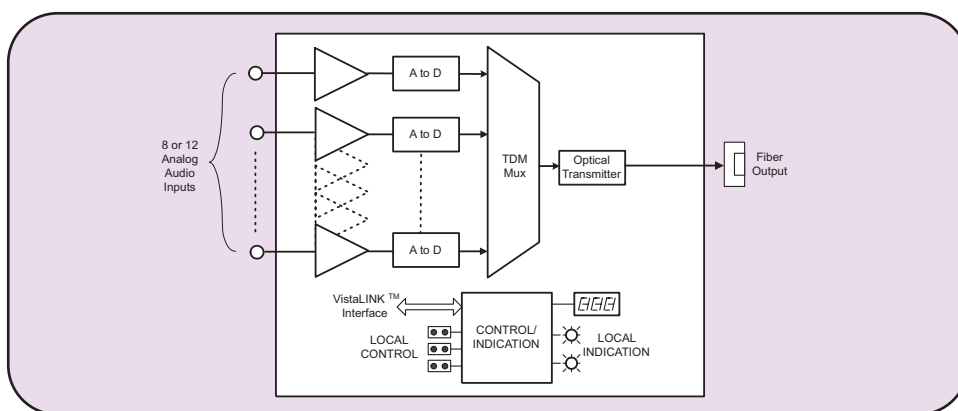
Models 7707AT-A8/7707AT-A12



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™

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

Physical:

| | |
|----------------------|---------|
| 7700 frame mounting: | |
| Number of Slots: | |
| 7707AT-A8: | 1 slot |
| 7707AT-A12: | 2 slots |
| 7701 frame mounting: | |
| Number of Slots: | 1 slot |

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 |

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 |

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.

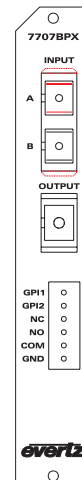
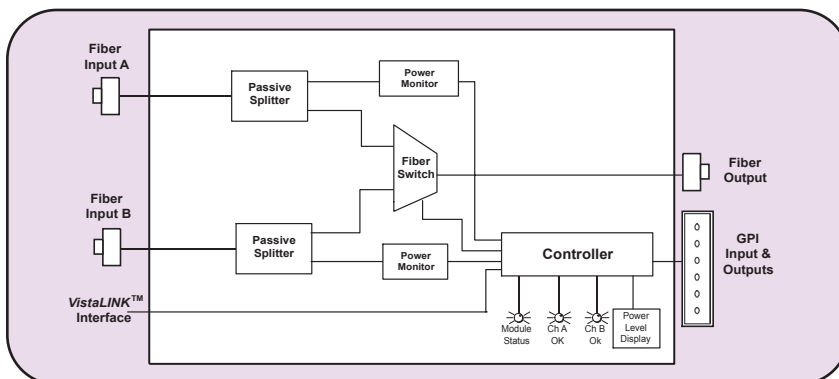
In the application of auto-changeover, the 7707BPX can be configured to have a MAIN input and a STANDBY input. In this configuration, it will automatically switch to the Standby input when the Main input power is weak or lost. It can also be configured to have auto or manual switch back to the Main input 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 msec |
| 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 |
|------------------|---|

Ordering Information:

| | |
|----------|--|
| 7707BPX: | 2 x 1 Optical Bypass Protection Switch |
|----------|--|

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 |

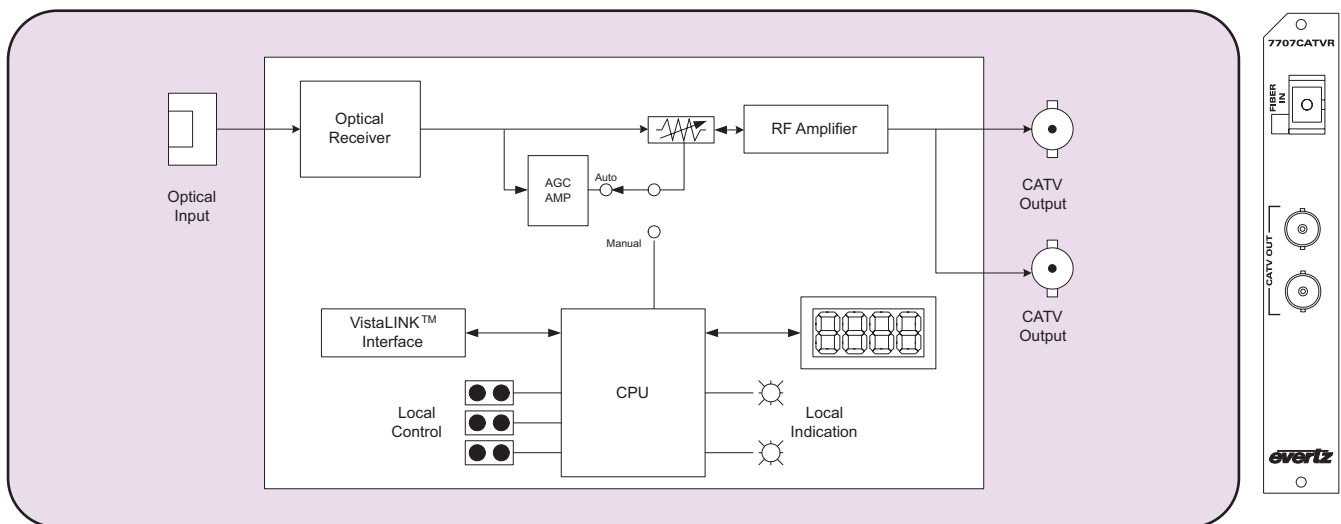
Model 7707CATVR



Features

- 80/110 Channel PAL/NTSC CATV fiber optic receiver
- 40-860 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

7707CATVR Block Diagram



Specifications

CATV Outputs:

| | |
|------------------|-------------------------|
| Connector: | 2 F-Type (BNC optional) |
| I/O Impedance: | 75Ω |
| Return Loss: | 16dB |
| SMSR: | 30dB min |
| Back Reflection: | -50dB |
| CSO: | -64dB |
| CTB: | -67dB |
| CNR: | 50dB |
| RF Flatness: | ± 1dB |

Optical Input:

| | |
|-----------------------|----------|
| Connector: | 1 SC/APC |
| Operating Wavelength: | 1310nm |
| Optical Link Budget: | 14dB |

Electrical:

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

Physical:

| | |
|------------------|---|
| Number of slots: | 1 |
|------------------|---|

Ordering Information:

| | |
|------------------|--|
| 7707CATVR | 80/110 Channel PAL/NTSC CATV Fiber Receiver, SC/APC connector, 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

| | |
|-------------|-------------------------|
| +SCA | SC/APC (Angle Polished) |
| +FCA | FC/APC (Angle Polished) |

Enclosures:

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

CATV Fiber Transmitter

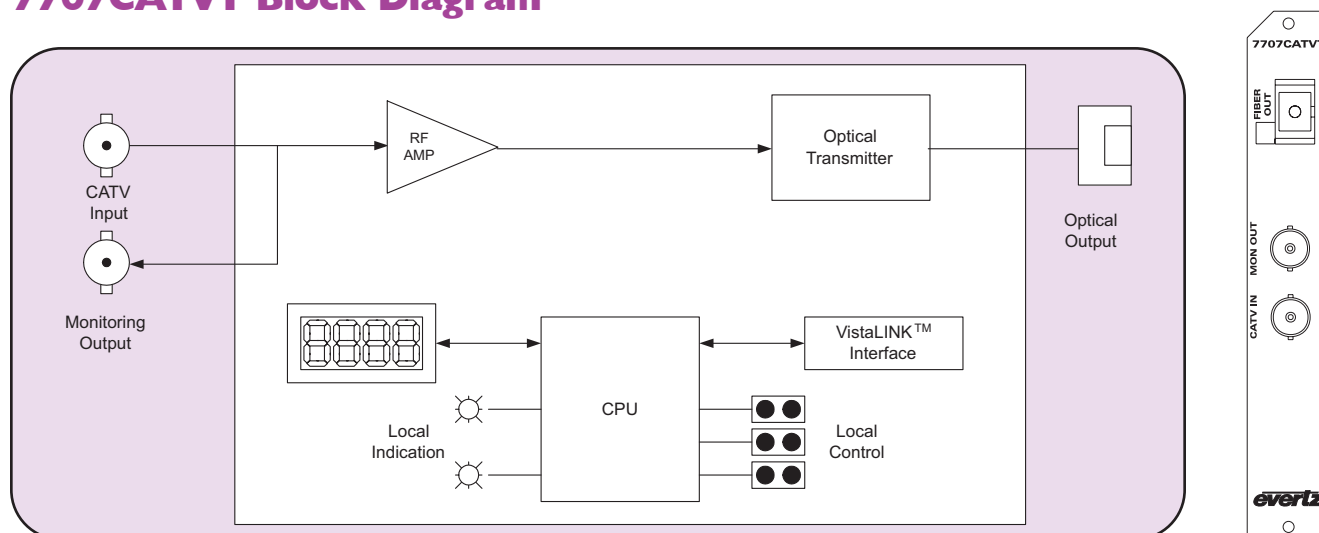
Model 7707CATVT

Features

- 80/110 Channel PAL/NTSC CATV fiber optic transmitter
- 40-860 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



7707CATVT Block Diagram



Specifications

CATV Input:

Number of Inputs: 1, 80/110 channel, PAL/NTSC CATV signal
Bandwidth: 40-860 MHz
Connector: 1 F-Type (BNC optional)
I/O Impedance: 75Ω
Return Loss: 12dB

Monitoring Output:

Number of Outputs: 1
Connector: F-Type (BNC optional)
I/O Impedance: 75Ω
Signal Level: (Input) -20dB
RF Flatness: ± 2dB

Optical Output:

Connector: 1 SC/APC
Operating Wavelength 1310nm
Output Power
110-11: +11dBm ± 1dBm
110-6: +6dBm ± 1dBm
Fiber Size: 9µm core / 125µm overall

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:

7707CATVT13-110-6 1310nm, DFB Laser, +6dBm 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

Connector Suffix

+SCA SC/APC (Angle Polished)
+FCA FC/APC (Angle Polished)

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 | | |

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 |

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

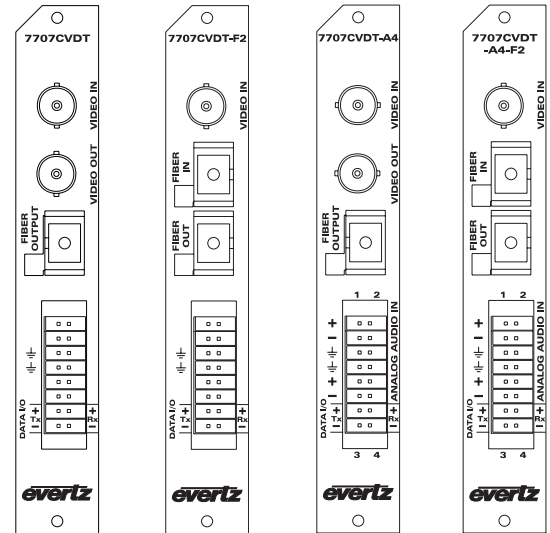
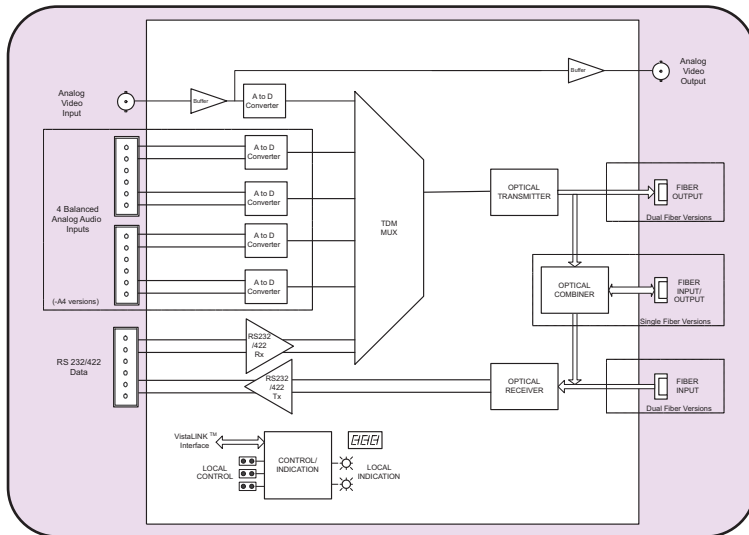
- Single card fiber optic transmitter for analog video, four analog audio (-A4 version) and bi-directional RS232/422
- Supports both NTSC and PAL video signals
- Broadcast quality analog video and audio performance
- 2 bi-directional RS232 or 1 bi-directional RS422
- Superior digital data transmission
- 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 | | | | | 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 | | | | | | | |

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 |
|------------------|---|

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 |

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 |

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.

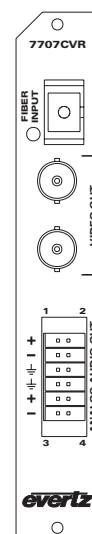
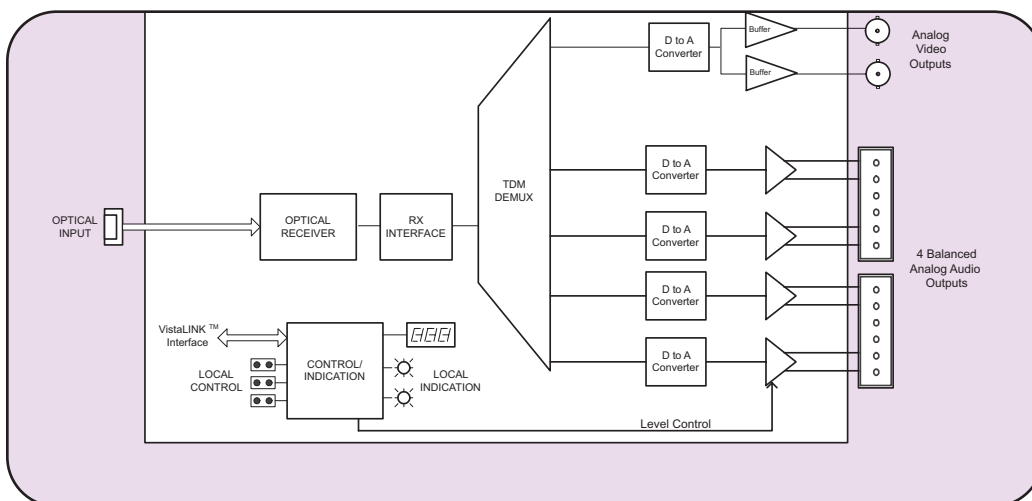
The 7707CVR-2 Dual Composite Video and Analog Audio Fiber Receiver is a dual channel version that accepts a fiber optic input, from the companion 7707CVT-2 transmitter, demultiplexes the signals, performs D to A conversion and outputs 2 NTSC or PAL analog video signals and up to four balanced analog 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

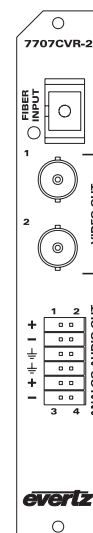
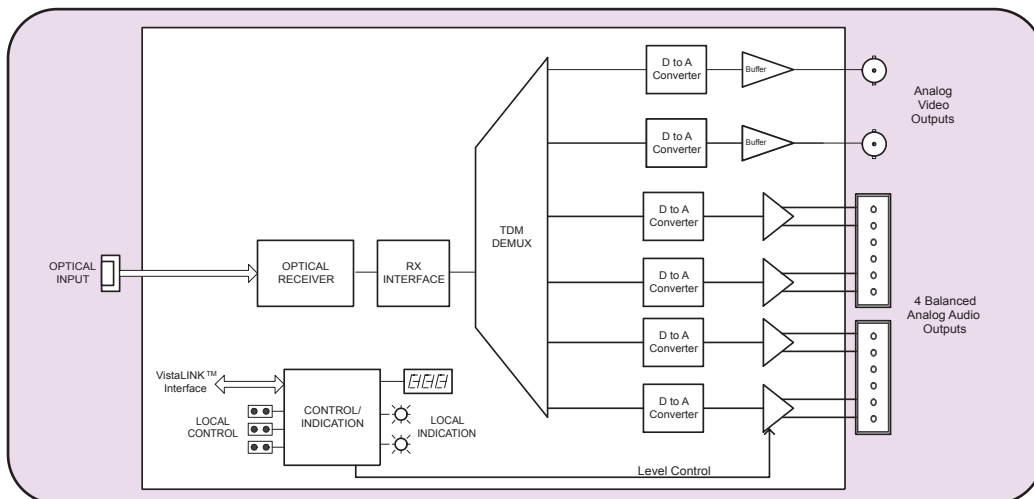
- Single card fiber optic receiver for one or two analog video and four analog audio signals
- Supports both NTSC and PAL video signals
- Broadcast quality analog video and audio performance
- Meets or exceeds EIA/TIA RS250-C short haul specifications for analog video and audio transport
- Adjustable 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.

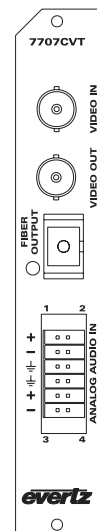
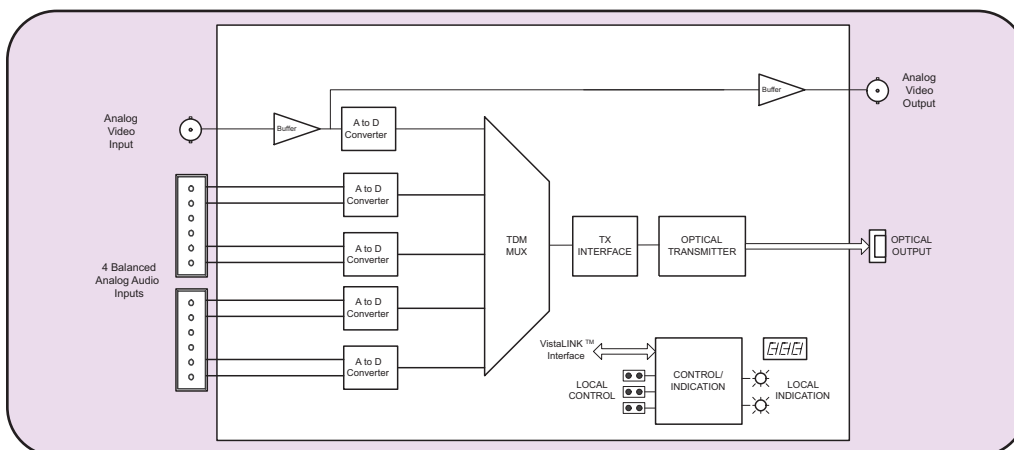
The fiber optic output of the 7707CVT and 7707CVT-2 is available in an assortment of optical wavelengths, accommodating 1310nm/1550nm, CWDM and DWDM transmission schemes.

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

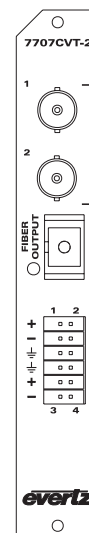
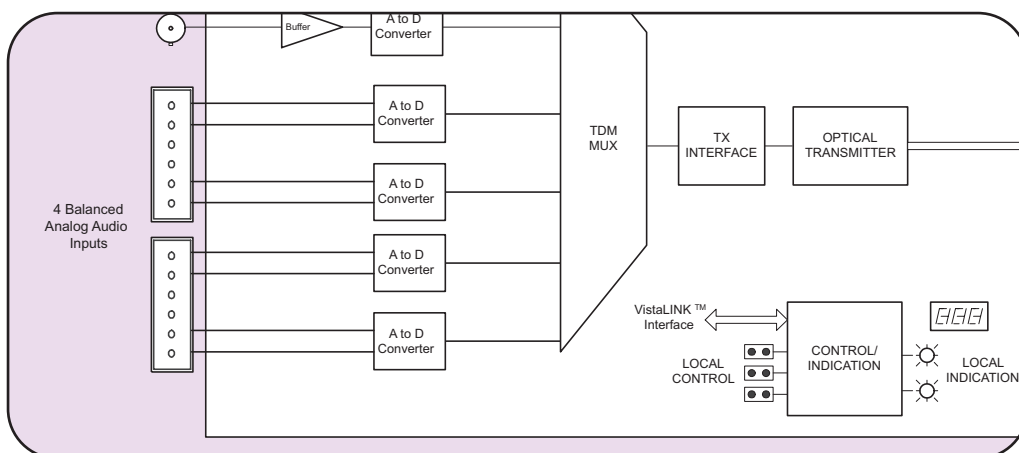
- Single card fiber optic transmitter for one or two analog video and four analog audio signals
- Supports both NTSC and PAL video signals
- Broadcast quality analog video and audio performance
- Meets or exceeds EIA/TIA RS250-C short haul specifications for analog video and audio transport
- Superior 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) |
| EMI/RFI: | Complies with FCC Part 15, Class A EU EMC directive. |

Physical:

| | |
|-------------------------------------|---|
| 7700 or 7701 frame mounting: | |
| Number of slots: | 1 |

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 | |
| Example: | 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 |

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 |

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

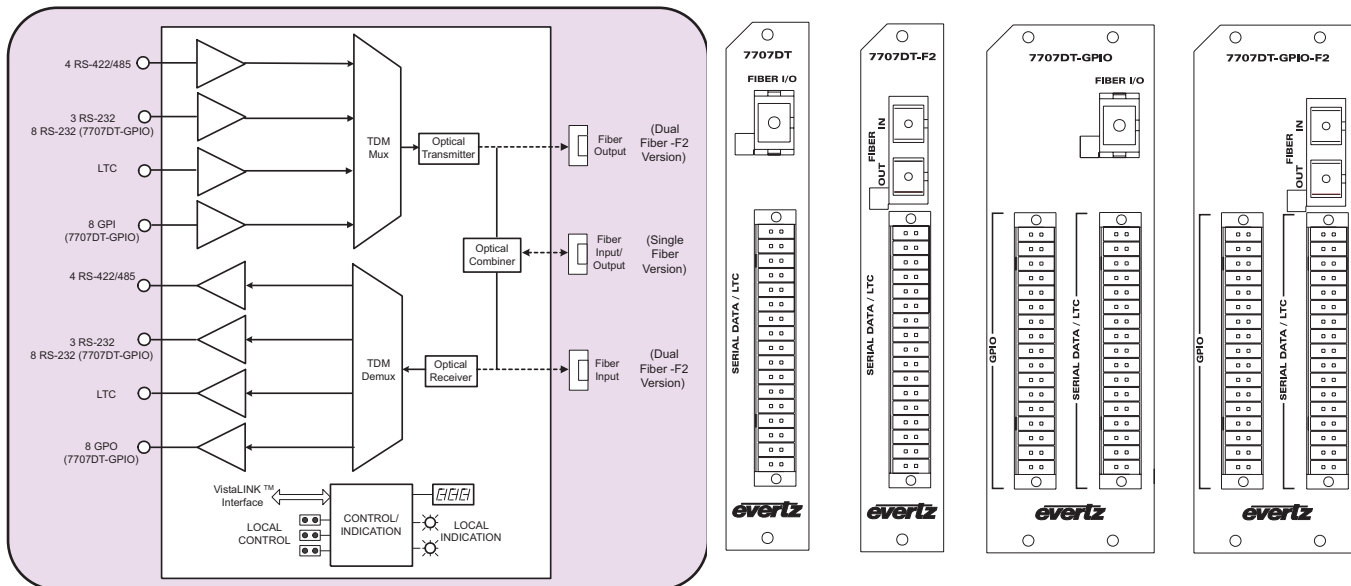
- 7707DT transports four RS-422 or RS-485, three RS-232, and one LTC
- 7707DT-GPIO version provides five additional RS-232 and eight General Purpose Input/Outputs (GPIO)
- Selectable termination and failsafe bias settings for RS-422/485 data inputs
- Selectable network timeouts for RS-485 accommodates 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*** | 7707DTDxx-F2 | +7dBm | 7707DTDyyy-F2 | -28dBm | Different DWDM wavelengths on 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 | | | | | | | |

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: | SMPT 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: | |
| Safe Voltage Range: | -20V to +10V |
| Off Condition (min): | +3.5V |
| On Condition (max): | +2.5V (active low) |
| Input Current (min): | 1mA |
| 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) |
| EMI/RFI: | 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 |

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

| | |
|--------------------|--|
| 7707DTDyyy-F2 | Multi RS232/422 Fiber Data Transceiver, dual fiber, DWDM TX |
| 7707DTDyyy-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 |

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 |

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)

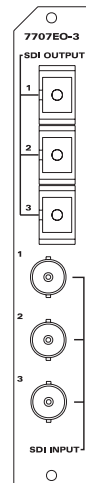
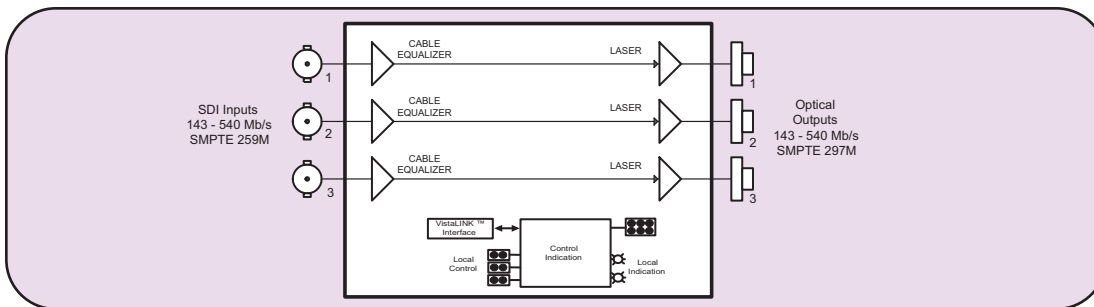
Outputs:

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

Physical:

Number of Slots: 1

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

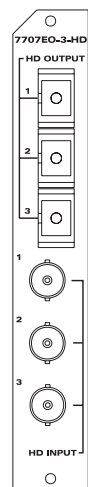
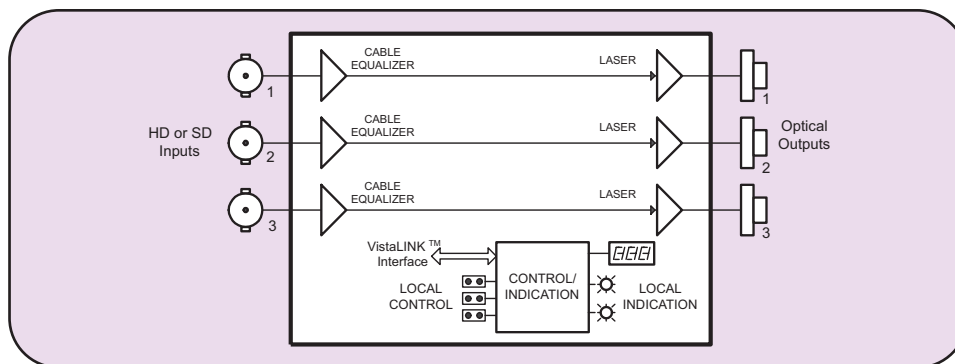


Model 7707EO-3-HD

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

Physical:
Number of Slots: 1

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

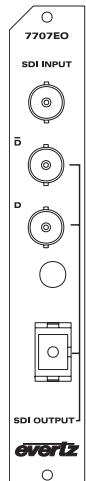
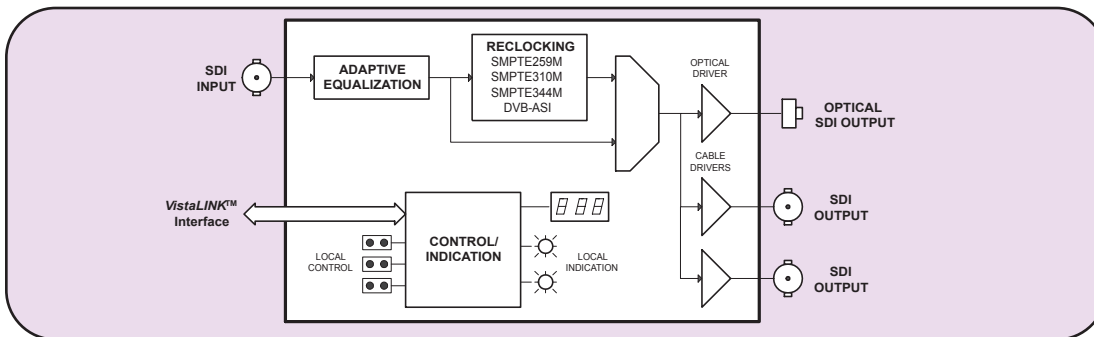
SDI Electrical to Optical Converter, 19.4Mb/s or 143-540Mb/s, VistaLINK™ Monitoring

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 to up 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 ±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 ± 1dBm
- 1550nm & CWDM: 0dBm ± 1dBm
- DWDM DFB: 7dBm ± 1dBm

Electrical:

Voltage: +12V DC

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

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

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 |

DS3 Electrical to Optical Converter

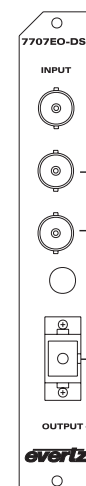
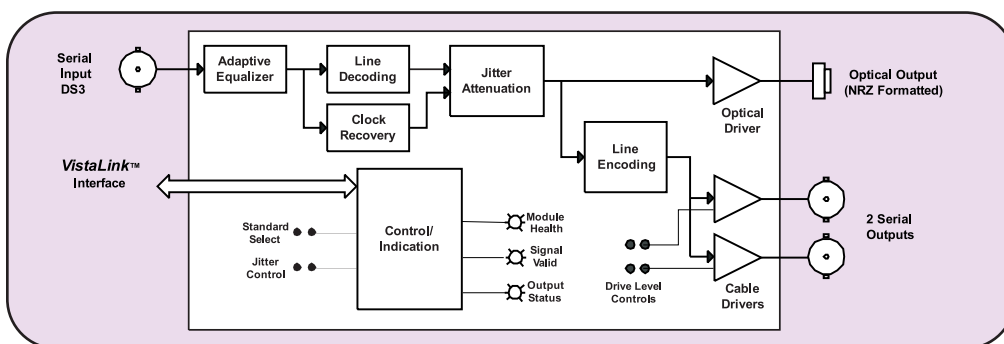


Model 7707EO-DS3

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 |
|------------------|---|

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 |

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 |

E3 Electrical to Optical Converter

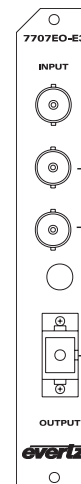
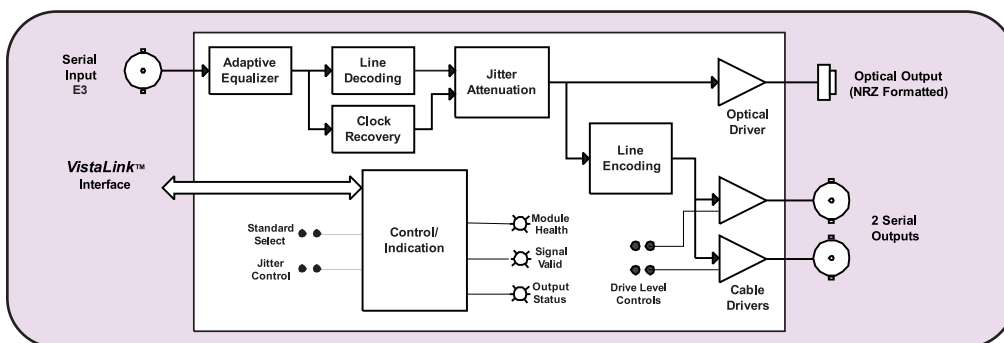


Model 7707EO-E3

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 DS3 @ 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

Ordering Information:

7707EO13-E3 E3 Electrical to Optical Converter, VistaLINK™, 1310nm, FP Laser

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

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 |

HDTV Electrical to Optical Converter

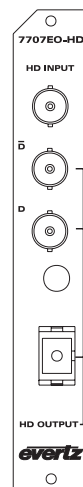
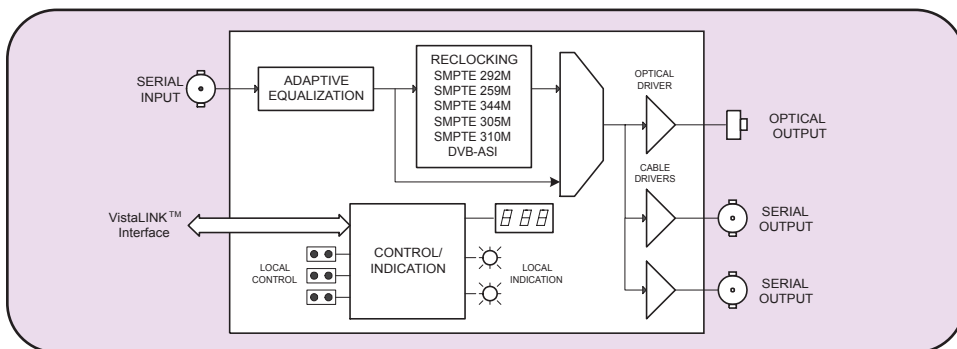
19.4Mb/s to 1.5Gb/s

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 \pm 80mV

DC Offset:

0V \pm 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 \pm 1dBm

1310/1550nm DFB: 0dBm \pm 1dBm

CWDM: 0dBm \pm 1dBm

DWDM: 7dBm \pm 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

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

Ex: 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

For standalone applications also see 2405 series fiber module

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 |

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:

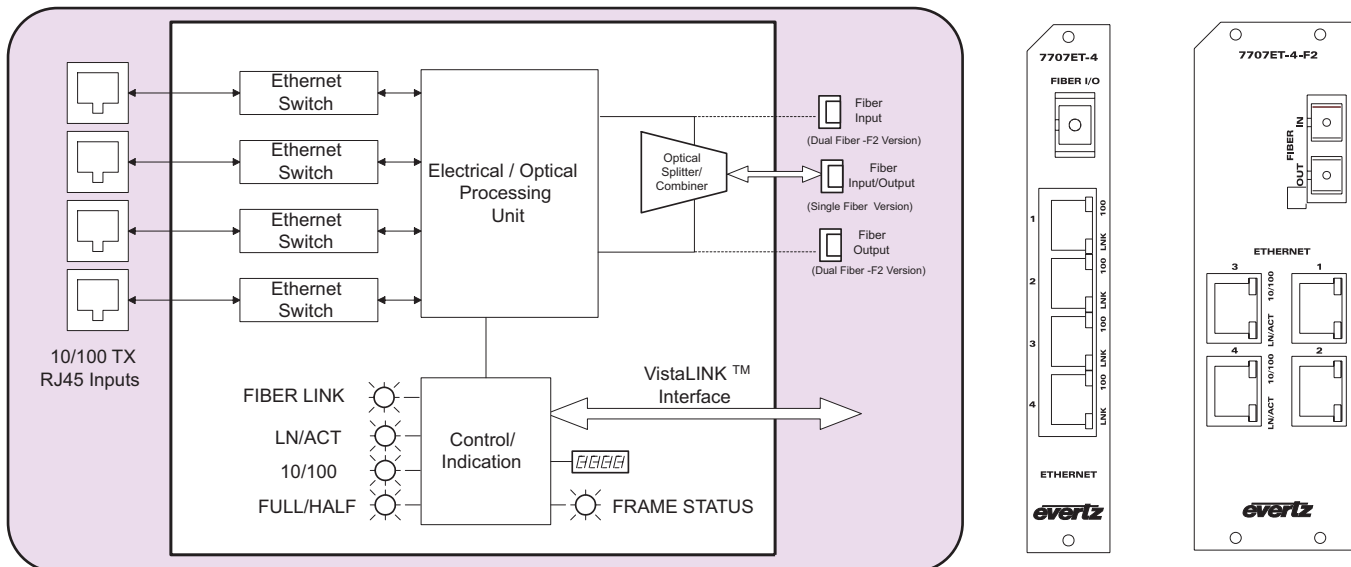
- Frame status
- 10/100 Speed indication on copper ports
- Full Duplex/Collision indication on copper ports
- Link activity on copper ports
- Received optical power level

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 ** 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 | |

Quad Ethernet Fiber Transceiver

Model 7707ET-4-Block Diagram



Specifications

Ethernet Input/Output:

Standard: IEEE 802.3 10BASE-T
802.3u 100BASE-TX
4 RJ45 ports

Connectors:

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

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

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 |

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

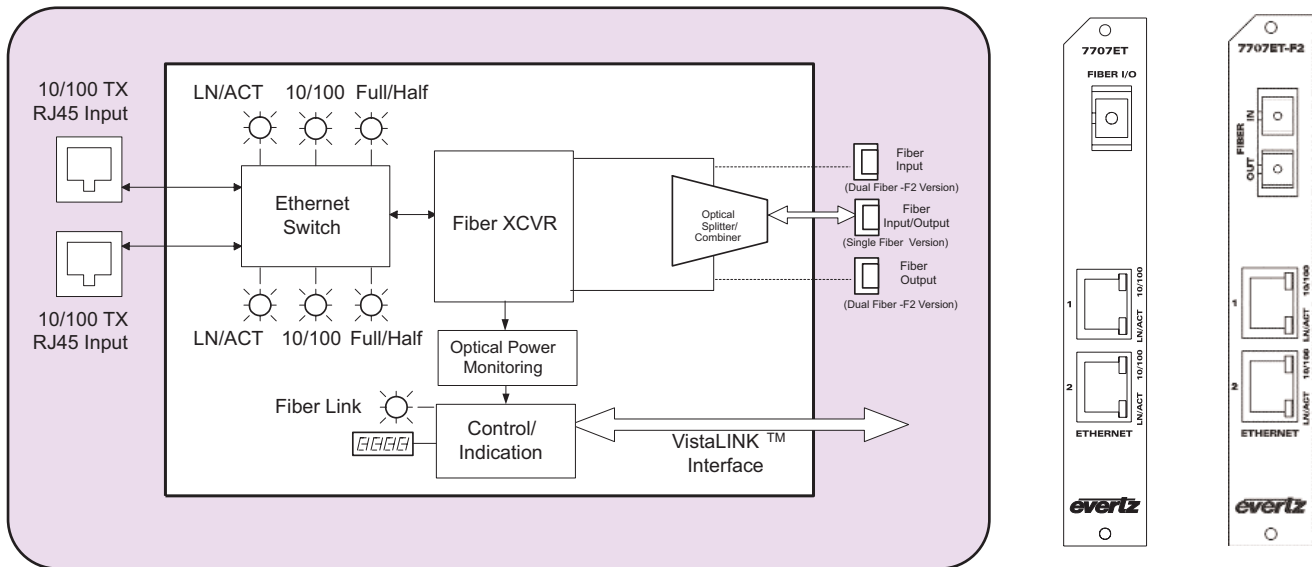
Status Indicators:

- 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 ± 1 dBm | |
| ** 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 |
|-------------------------|---|

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 |
|--------------------|---|

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 |

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 |

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™ 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:

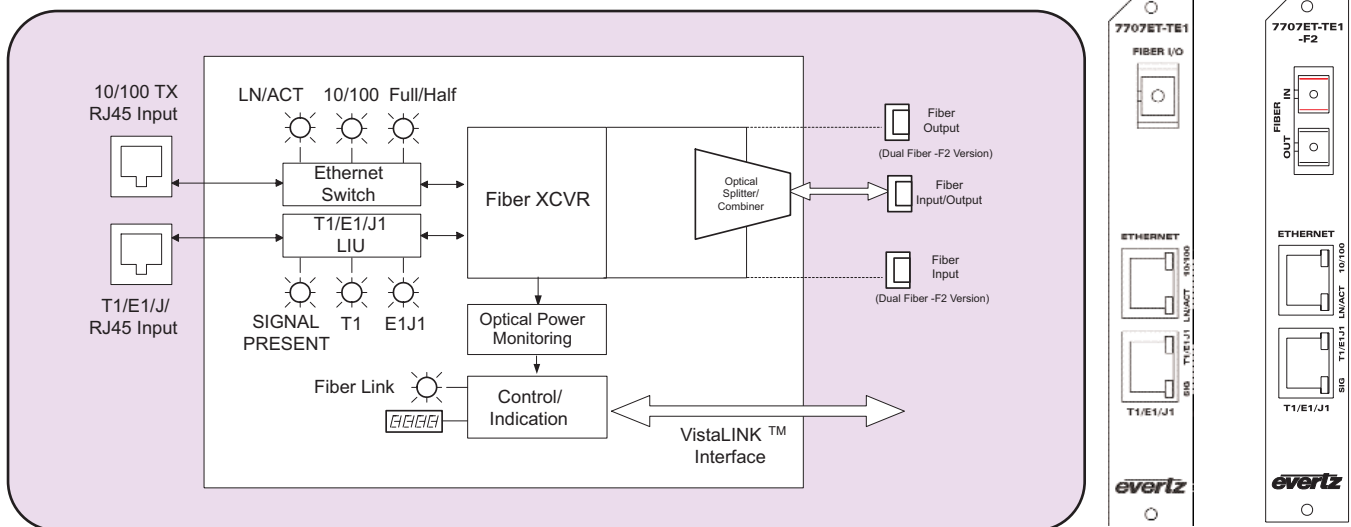
- Frame status
- Fiber link indication
- 10/100 Speed indication
- Ethernet Full Duplex/Collision indication
- Ethernet Link activity
- T1/E1/J1 Signal Presence

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- | +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) |
| EMI/RFI: | Complies with FCC Part 15 Class A EU EMC directive |

Physical:

| | |
|------------------|---|
| Number of slots: | 1 |
|------------------|---|

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™ |
|-----------------|--|

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™ |
|-------------------|--|

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 |

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 |

Dual GPS Data Fiber Receiver

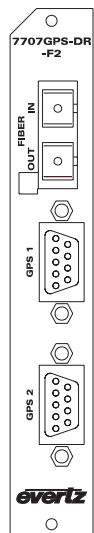
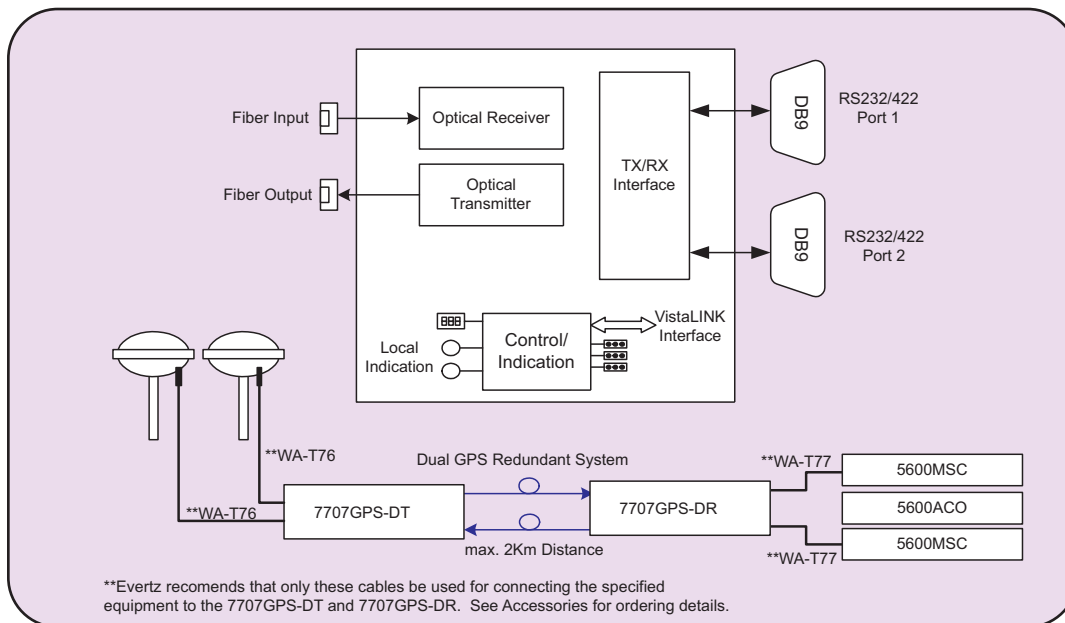
Model 7707GPS-DR



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



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
Standard: 1310nm, 1550nm (nominal)

Output Power:

Dual Fiber (F2)
1310nm FP (Standard): -7dBm ±1dBm
1550nm DFB: 0dBm ±1dBm

Electrical:

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

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

Ordering Information:

7707GPS13-DR-F2 Dual GPS Data Fiber Receiver, 1310nm FP Tx and Rx
7707GPS15-DR-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

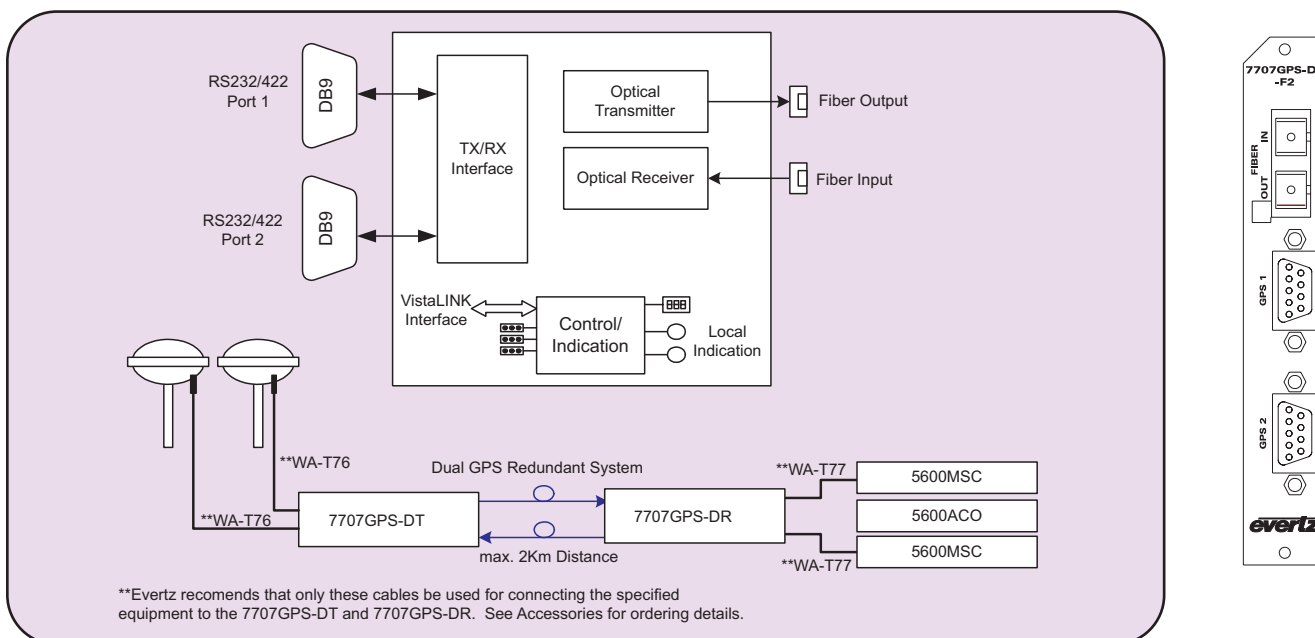
Model 7707GPS-DT



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 | |
| Standard: | 1310nm, 1550nm (nominal) |

Output Power:

| | |
|-----------------------|-------------|
| Dual Fiber (F2) | |
| 1310nm FP (Standard): | -7dBm ±1dBm |
| 1550nm DFB: | 0dBm ±1dBm |

Electrical:

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

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 |

Ordering Information:

| | |
|-----------------|---|
| 7707GPS13-DT-F2 | Dual GPS Data Fiber Transmitter, 1310nm FP Tx and Rx |
| 7707GPS15-DT-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)

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

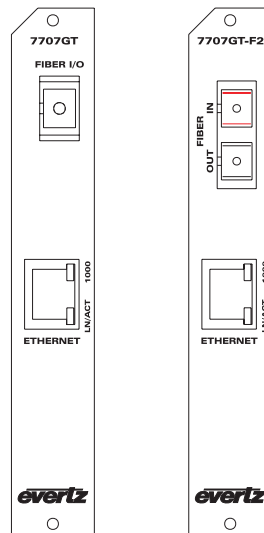
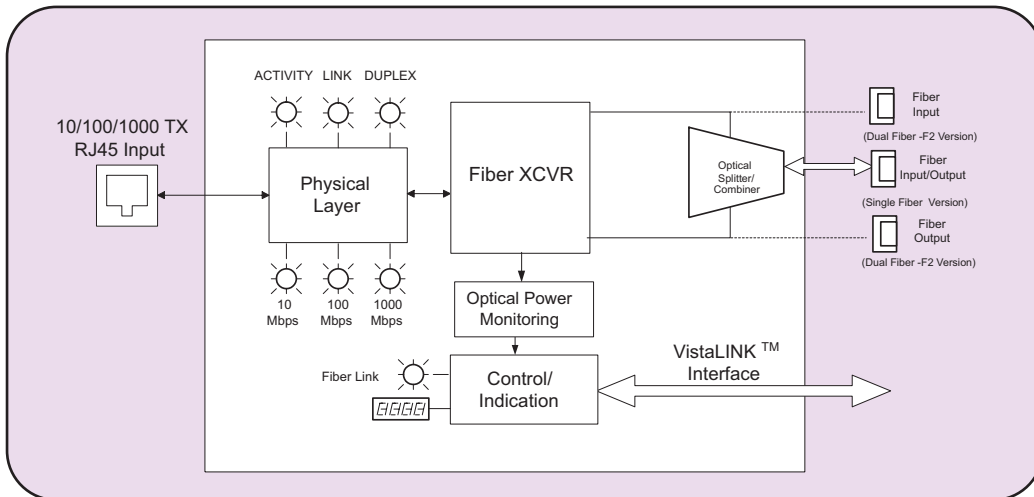
Status Indication:

- 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 | |

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)

EMI/RFI:

Complies with FCC Part 15 Class A
EU EMC directive

Physical:

Number of slots:

1

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

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

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 |

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

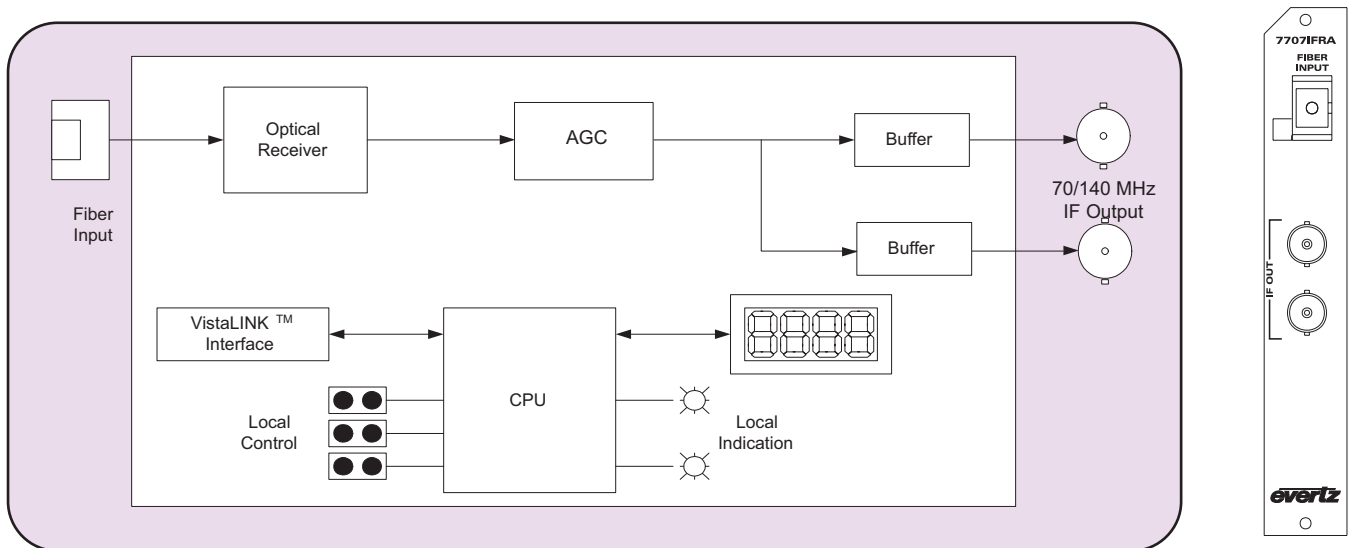
- 30-200 MHz bandwidth
- Protocol transparent - receives all video, audio and data modulation formats
- Supports manual and automatic gain control (AGC)
- Wide AGC hold range (45dB) using 7707IFTA + 7707IFRA
- Two IF outputs for extra signal distribution or monitoring functions
- IF output power independent 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: | 1 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 |
| Carrier to Noise: | -40dB @ 1MHz |
| 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) |
| 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 |
| 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 |
| +SCA | SC/APC (Angle Polished) |
| +ST | ST/PC |
| +FC | FC/PC |
| +FCA | 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

Model 7707IFT



The 7707IFT is a VistaLINK™ - enabled fiber optic transmitter for 70/140 MHz IF signals. The 7707IFT accepts one 70/140 MHz coaxial input and provides a fiber optic output signal at 1310nm, 1550nm or up to sixteen CWDM wavelengths. An IF BNC output is also provided for monitoring or further signal distribution. Monitoring and control of card status and parameters is provided locally at the card edge and remotely via VistaLINK™ capability.

The 7707IFT 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

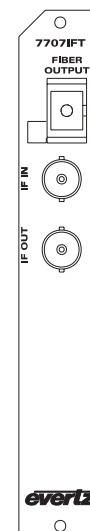
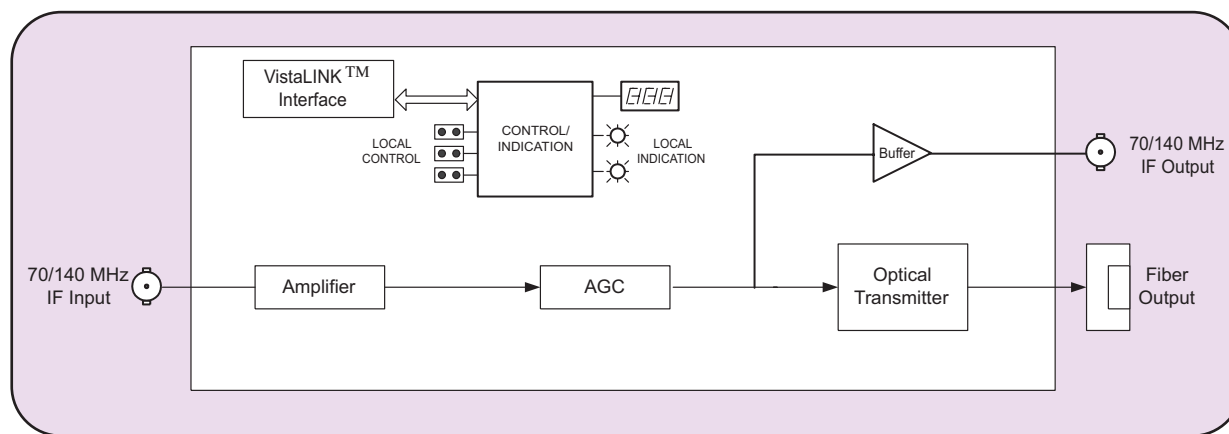
- 10-200 MHz bandwidth
- Protocol transparent - transmits all video, audio and data modulation formats
- Automatic gain control on IF input
- Additional IF BNC output
- Comprehensive signal and status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ capability
- Optical output wavelengths of 1310nm, 1550nm and up to sixteen WDM wavelengths (ITU-T G.694.2 compliant)
- Supports multi-mode and single-mode fiber
- Available in SC/PC, ST/PC, FC/PC connector options
- Fully hot swappable from front of frame

Application Guide

| APPLICATION | OPTICAL/LINK BUDGET | FREQUENCY | PRODUCT | DESCRIPTION |
|---|---------------------|-----------|--|-------------------|
| Medium Haul | 13dB / 25km | 10-200MHz | 7707IFT13M | 1310nm FP, 0dBm |
| Long Haul @ 1310nm | 16dB / 40km | 10-200MHz | 7707IFT13L | 1310nm DFB, +1dBm |
| Long Haul @ 1550nm | 16dB / 55km | 10-200MHz | 7707IFT15 | 1550nm DFB, +1dBm |
| Long Haul (Multi-carrier CWDM)* | 13dB / 45km* | 10-200MHz | 7707IFTxx | CWDM DFB, +1dBm* |
| Fiber Loss: 0.4/0.3dB per km @1310nm/1550nm | | | * Assumes 8 Ch CWDM @ 3.5db Loss for Mux+Demux | |

70/140MHz IF Fiber Transmitter

7707IFT Block Diagram



Specifications

IF Input:

Connector: 1 BNC
I/O Impedance: 75 or 50Ω (See Ordering Information)
Return Loss: 15dB
Input Signal Range: -20 to -5dBm

IF Output:

Connector: 1 BNC
I/O Impedance: 75 or 50Ω (See Ordering Information)
Return Loss: 15dB
Output Level: -25dBm

Optical Output:

Number of outputs: 1
Connector: Female SC/PC, ST/PC, FC/PC
Operating Wavelength:
Standard: 1310nm, 1550nm (nominal)
CWDM: 1270nm to 1610nm (See Ordering Information)

Optical Power:

1310nm FP: 0dBm ±1dBm
1310nm, 1550nm
& CWDM DFB: +1dBm ±1dBm

Electrical:

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

Physical:

Number of slots: 1

Ordering Information: 70/140MHz IF Fiber Transmitter

7707IFT13M 1310nm, FP Laser, Medium Haul (<25km)
7707IFT13L 1310nm, DFB Laser, Long Haul (40Km)
7707IFT15 1550nm, DFB Laser, Long Haul (55Km)

For CWDM Applications:

7707IFT27 1270nm, CWDM DFB Laser
7707IFT29 1290nm, CWDM DFB Laser
7707IFT31 1310nm, CWDM DFB Laser
7707IFT33 1330nm, CWDM DFB Laser
7707IFT35 1350nm, CWDM DFB Laser
7707IFT37 1370nm, CWDM DFB Laser
7707IFT43 1430nm, CWDM DFB Laser
7707IFT45 1450nm, CWDM DFB Laser
7707IFT47 1470nm, CWDM DFB Laser
7707IFT49 1490nm, CWDM DFB Laser
7707IFT51 1510nm, CWDM DFB Laser
7707IFT53 1530nm, CWDM DFB Laser
7707IFT55 1550nm, CWDM DFB Laser
7707IFT57 1570nm, CWDM DFB Laser
7707IFT59 1590nm, CWDM DFB Laser
7707IFT61 1610nm, CWDM DFB Laser

Note: 75Ω I/O impedance ships standard

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
+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

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 |

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

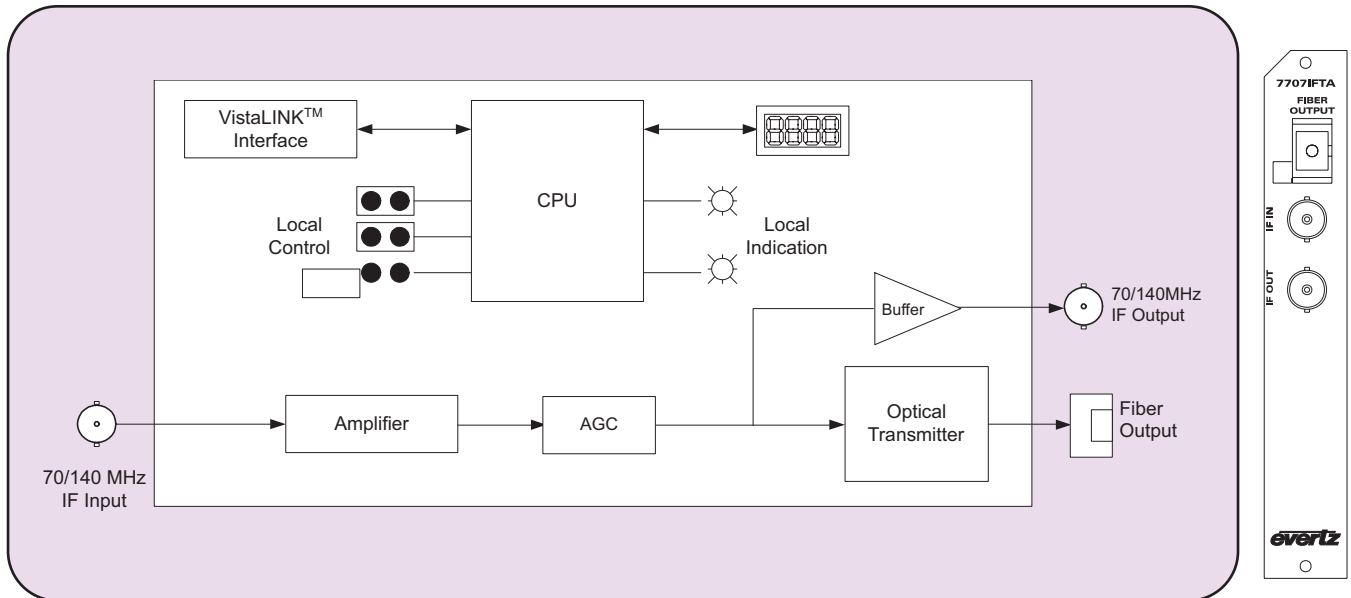
- 30-200 MHz bandwidth
- Wide dynamic range RF input (-5 to -65dBm)
- Protocol transparent - transmits all video, audio and data modulation formats
- Supports manual and automatic gain control on IF input
- Wide AGC hold range (45dB) using 7707IFTA + 7707IFRA
- Additional IF BNC output for monitoring 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)
(Input signal) + (manual Gain setting)
Manual mode: -50dBc (-10dBm RF in, AGC mode)
Intermodulation Products: -50dBc (-10dBm RF in, AGC 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

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™

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™

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
+SCA SC/APC (Angle Polished, available with 7707IFTA13 only)
+ST ST/PC
+FC FC/PC
+FCA 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

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 |

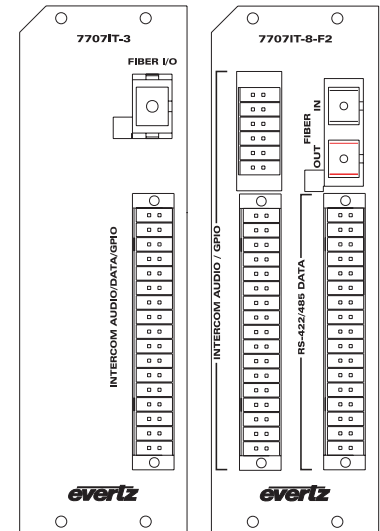
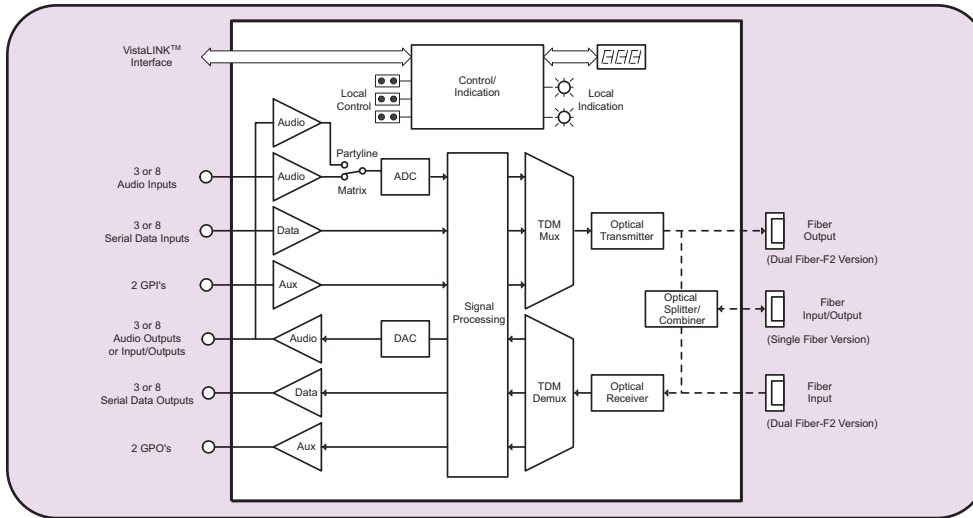
Multi-Channel Intercom Fiber Transceivers



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™
- 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 $\pm 1\text{dBm}$
Fiber loss= 0.35/0.25dB per km @1310nm/1550nm

Multi-Channel Intercom Fiber Transceivers

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: > 10k Ω

Output Impedance: 66 Ω

Signal Resolution: 24-Bits

Sampling Rate: 52.7kHz

Frequency Response: 20Hz to 20kHz

Gain Flatness: \pm 2dB

Input Level(max): +20dBu

Output Level(max):

Into 10K Ω +20dBu

Into 600 Ω +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: >10k Ω

Signal Resolution: 24-Bit

Sampling Rate: 52.7kHz

Sidetone Null: > 25dB

Sidetone Null Range: 100 Ω to 300 Ω load

Frequency Response: 120Hz to 20kHz

Gain Flatness: \pm 2dB

Input Level(max): +5dBu

Output Level(max): +5dBu (into 200 Ω load)

Signal/Noise Ratio: > 75dB

THD: < 0.1%

Crosstalk: < -60dB

Controllable Gain: -5dB to +5dB (into 200 Ω load)

Receive Signaling: 4VDCmin (ClearCom), 20KHz \pm 500Hz (RTS)

Send Signaling: 11VDCmin (ClearCom), 20KHz \pm 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: 120 Ω or Open (selectable)

Input Failsafe Bias: 200mV (3.3mA into 60 Ω) 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(typ): 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

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:

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

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 |

L-Band Satellite Fiber Receiver with VistaLINK™ Monitoring



Model 7707LR

The 7707LR is a VistaLINK™ -enabled fiber optic receiver for L-Band Satellite signals. The 7707LR accepts a fiber optic input from the companion 7707LTA and provides two 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 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

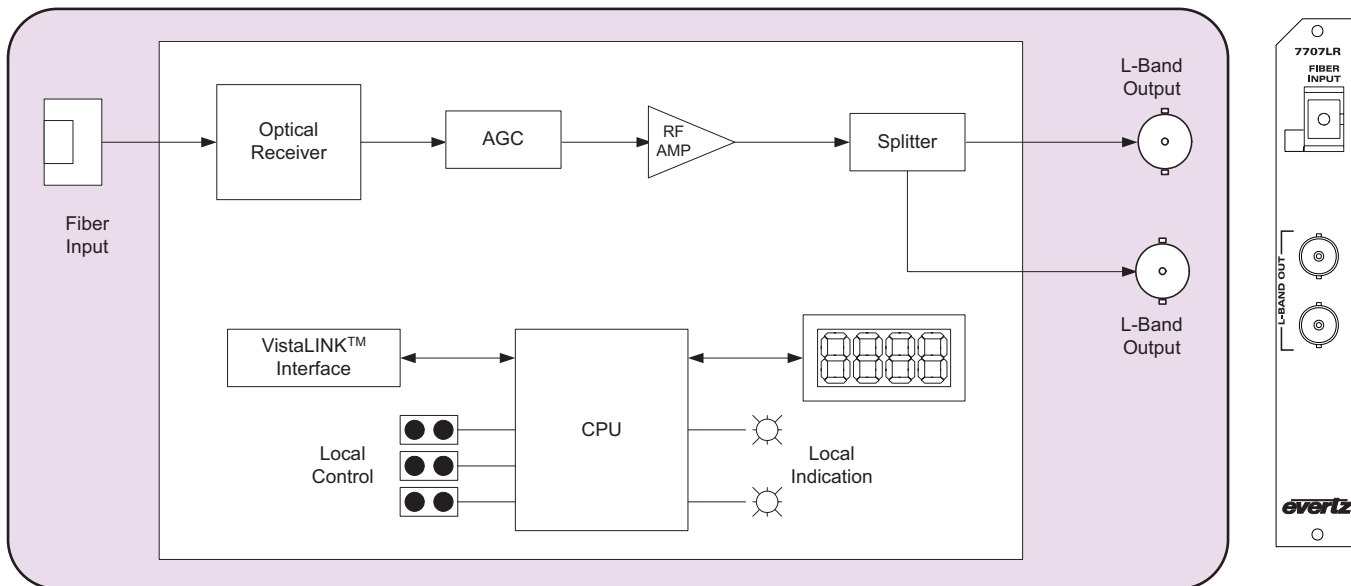
- Broadband operation - 950 to 2250MHz
- Protocol transparent - receives all video, audio and data modulation formats
- Supports manual and automatic gain control (AGC)
- Wide AGC hold range (50dB) using 7707LTA + 7707LR
- Two L-Band RF outputs for extra signal distribution or monitoring functions
- RF output independent of optical loss (within AGC range)
- Available with BNC or F-Type connector options
- 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 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 | 0dBm | 7707LR | -14dBm | 1310nm FP laser on Tx |
| Medium Haul | 16dB/45km | 7707LTA13L | +2dBm | 7707LR | -14dBm | 1310nm DFB laser on Tx |
| Long Haul | 16dB/64km | 7707LTA15 | +2dBm | 7707LR | -14dBm | 1550nm DFB laser on Tx |
| Long Haul | 25dB/71km | 7707LTA13L | +2dBm | 7707LR-H | -23dBm | 1310nm DFB laser on Tx, High Sensitivity RX |
| Long Haul | 25dB/100km | 7707LTA15 | +2dBm | 7707LR-H | -23dBm | 1550nm DFB laser on Tx, High Sensitivity RX |
| MULTI-SIGNAL PER FIBER (WAVELENGTH MUX/DEMUX) | | | | | | |
| Medium Haul | 12.5dB/50km | 7707LTAxx | +2dBm | 7707LR | -14dBm | 1470nm-1610nm CWDM DFB laser on Tx, with 8 Ch CWDM Mux/Demux* |
| Long Haul | 21.5dB/86km* | 7707LTAxx | +2dBm | 7707LR-H | -23dBm | 1470nm-1610nm CWDM DFB laser on Tx, High Sensitivity RX, 8 Ch CWDM Mux/Demux* |
| Long Haul | 16dB/64km** | 7707LTADyyy | +7dBm | 7707LR | -14dBm | DWDM DFB laser on Tx, with 8 Ch DWDM Mux/Demux** |
| Long Haul | 25dB/100km** | 7707LTADyyy | +7dBm | 7707LR-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 | | | | | | |

L-Band Satellite Fiber Receiver with VistaLINK™ Monitoring

7707LR Block Diagram



Specifications

RF Outputs:

Connector: 2 BNC's (F-type optional)
I/O Impedance: 75Ω (50Ω optional) (See Ordering Information)
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 in on TX, 1m fiber, AGC mode on TX & RX)

Carrier to Noise: 37dB @ any 36MHz BW
Noise Figure: (AGC mode on 7707LTA and 7707LR)
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

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

L-Band Satellite Fiber Receiver, VistaLINK™ Monitoring

7707LR-H

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
+SCA SC/APC (Angle Polished)
+ST ST/PC
+FC FC/PC
+FCA 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

(Replaces the 7707LT & offers improved performance and wider operating range)

The 7707LTA is a VistaLINK™-enabled fiber optic transmitter for L-Band satellite signals. The 7707LTA accepts one L-Band coaxial input and provides 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 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

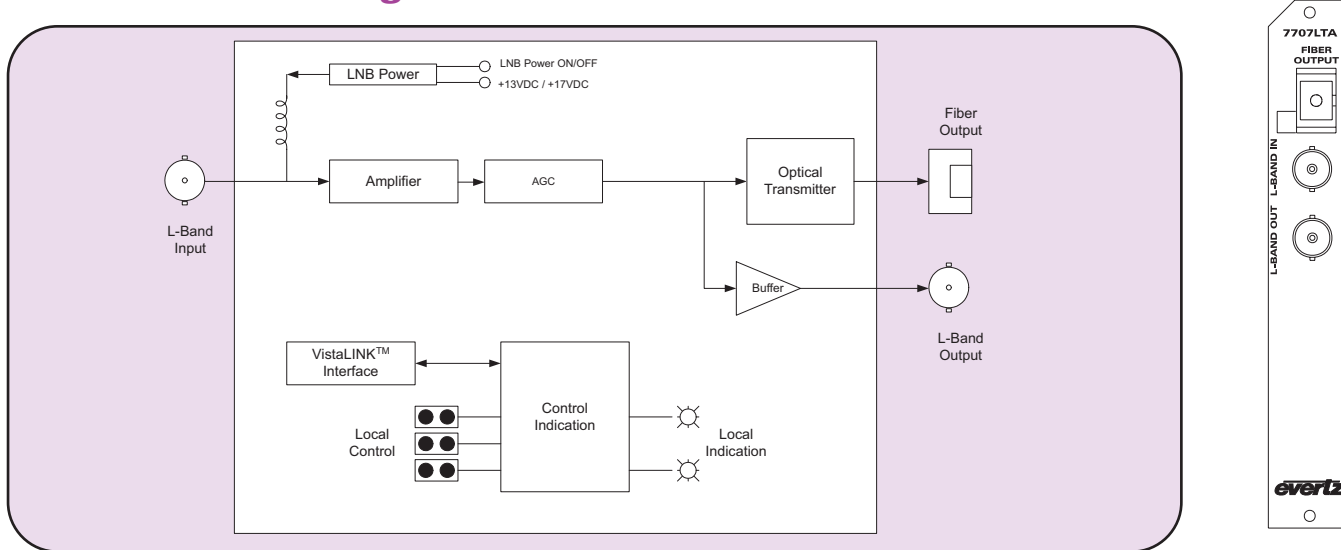
- Broadband operation - 950 to 2250 MHz
- Wide dynamic range RF input (-20 to -65dBm)
- Protocol transparent - transmits all video, audio and data modulation formats
- Supports manual and automatic gain control (AGC)
- Wide AGC hold range (50dB) using 7707LTA + 7707LR
- Additional L-Band BNC output for 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 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 | 0dBm | 7707LR | -14dBm | 1310nm FP laser on Tx |
| Medium Haul | 16dB/45km | 7707LTA13L | +2dBm | 7707LR | -14dBm | 1310nm DFB laser on Tx |
| Long Haul | 16dB/64km | 7707LTA15 | +2dBm | 7707LR | -14dBm | 1550nm DFB laser on Tx |
| Long Haul | 25dB/71km | 7707LTA13L | +2dBm | 7707LR-H | -23dBm | 1310nm DFB laser on Tx, High Sensitivity RX |
| Long Haul | 25dB/100km | 7707LTA15 | +2dBm | 7707LR-H | -23dBm | 1550nm DFB laser on Tx, High Sensitivity RX |
| MULTI-SIGNAL PER FIBER (WAVELENGTH MUX/DEMUX) | | | | | | |
| Medium Haul | 12.5dB/50km | 7707LTAxx | +2dBm | 7707LR | -14dBm | 1470nm-1610nm CWDM DFB laser on Tx, with 8 Ch CWDM Mux/Demux* |
| Long Haul | 21.5dB/86km* | 7707LTAxx | +2dBm | 7707LR-H | -23dBm | 1470nm-1610nm CWDM DFB laser on Tx, High Sensitivity RX, 8 Ch CWDM Mux/Demux* |
| Long Haul | 16dB/64km** | 7707LTADyyy | +7dBm | 7707LR | -14dBm | DWDM DFB laser on Tx, with 8 Ch DWDM Mux/Demux** |
| Long Haul | 25dB/100km** | 7707LTADyyy | +7dBm | 7707LR-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 | | | | | | |

L-Band Satellite Fiber Transmitter with VistaLINK™ Monitoring

7707LTA Block Diagram



Specifications

RF Input:

Connector: 1 BNC per IEC 60169-8 Amendment 2 (F-type optional)
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:

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: 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 signal) + (manual Gain setting) -5dB
Intermodulation Products: -55dBc (-20dBm RF in, AGC 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 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:

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

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

7707LTAx

L-Band Satellite Fiber Transmitter, CWDM wavelength, with VistaLINK™

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

7707LTADy

L-Band Satellite Fiber Transmitter, DWDM wavelength, with 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

Impedance Suffix

+50 50Ω I/O impedance

Connector Suffix

+SC SC/PC
+SCA SC/APC (Angle Polished available with 7707LTA13 only)
+ST ST/PC
+FC FC/PC
+FCA 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

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 |

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

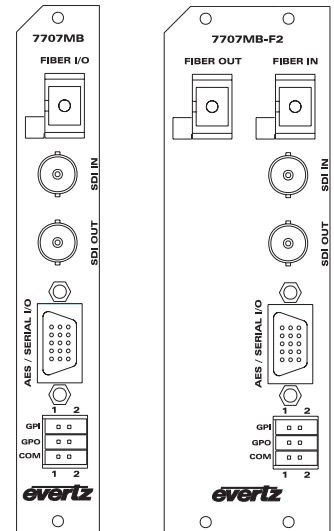
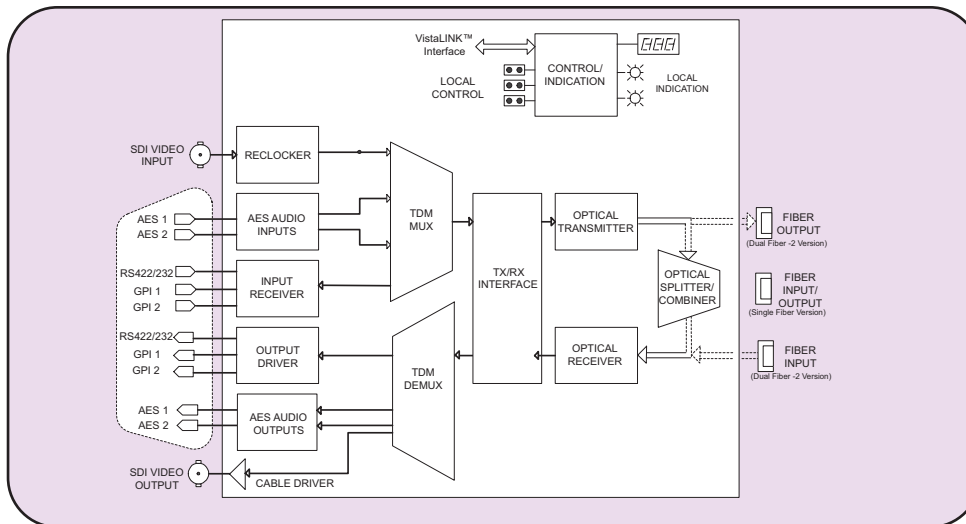
- Bi-directional fiber optic transceiver for 1 SDI Video, 2 AES Audio, 1 RS-232/422 and 2 GPI/O
- Supports 525 or 625 line 4:2:2 component SDI signals
- Supports 32, 44.1, 48 kHz AES audio
- Dolby E compatible
- Supports bi-directional RS422 rates up to 3 Mb/s
- Low Audio to Video latency
- Signal transport 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
Unbalanced AES: AES3-1992
Balanced: Dolby E compatible
Other: 2 (Jumper selectable for balanced or unbalanced)
Connector: 4 pins on female high density DB-15
Signal Level: 1Vp-p \pm 0.1V
Unbalanced: 2 to 7Vp-p with Level Jumper set to HI, 1 to 2Vp-p with level jumper set to LO
Balanced: 300m Ω @ 48kHz with Belden 1800B or equivalent cable
Equalization: Up to 24 bits
Resolution: 32, 44.1, 48 kHz
Sampling Rate: Unbalanced - 75 Ω , Balanced - 110 Ω
Impedance:

AES Audio Outputs:

Standard: SMPTE 276M
Unbalanced: AES3-1992
Balanced: Dolby E compatible
Other: 2 regenerated (Jumper selectable for balanced or unbalanced)
Number of Outputs: 4 pins on female high density DB-15
Connector: 4 pins on female high density DB-15
Signal Level: 1Vp-p
Unbalanced: 5Vp-p
Balanced: Up to 24 bits
Resolution: 32, 44.1, 48 kHz
Sampling Rate: < 20ns
Intrinsic Jitter: Unbalanced - 75 Ω , Balanced - 110 Ω
Impedance:

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)
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC directive

Physical:

Number of slots: 1

Ordering Information:

7707MB13

Bi-directional SDI, 2 AES, RS232/422, GPI/O Fiber Transceiver, single fiber, 1310nm FP TX & RX, VistaLINK™
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
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
Bi-directional SDI, 2 AES, RS232/422, GPI/O Fiber Transceiver, dual fiber, 1310nm FP TX & RX, VistaLINK™

7707MB13M-W

7707MB15-W

7707MB13-F2

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 & Accessories:

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 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

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 |

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 GPI/O 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's 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

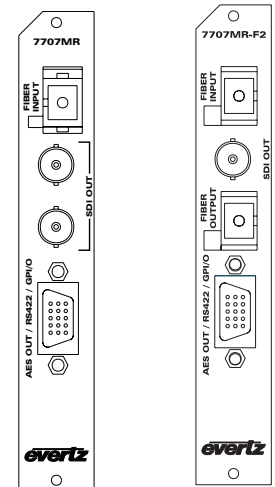
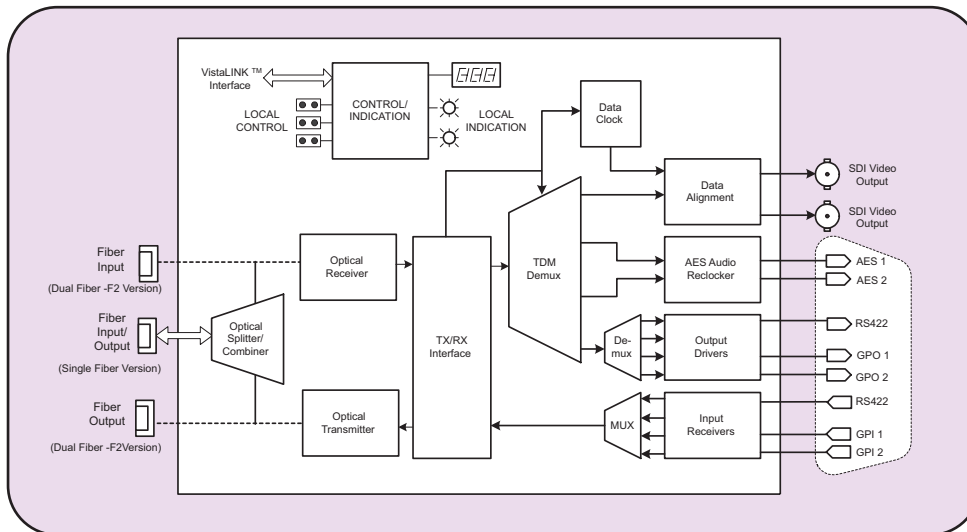
- SDI Video, 2 AES Audio, 1 bi-directional RS232/422 and 2 GPI/O fiber optic receiver
- Supports 525 or 625 line 4:2:2 component SDI signals
- Supports SDTi signals
- Supports 32, 44.1, 48 kHz AES audio
- Dolby E compatible
- Supports bi-directional RS422 rates up to 3 Mb/s
- Incorporates Evertz SoftSwitch™ (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 ** 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 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 Ordering Information
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:
Unbalanced AES: SMPTE 276M
Balanced: AES3-1992
Other: 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 - 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)
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC directive

Physical:

Number of slots: 1

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

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 |

HD-SDI, 4 AES Audio Bi-Directional RS232/422, 1 GPIO/GPO, Fiber Receiver

Model 7707MR-HD



Features

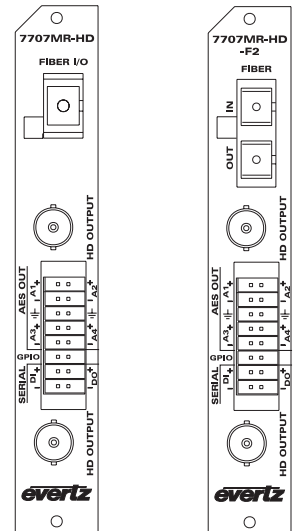
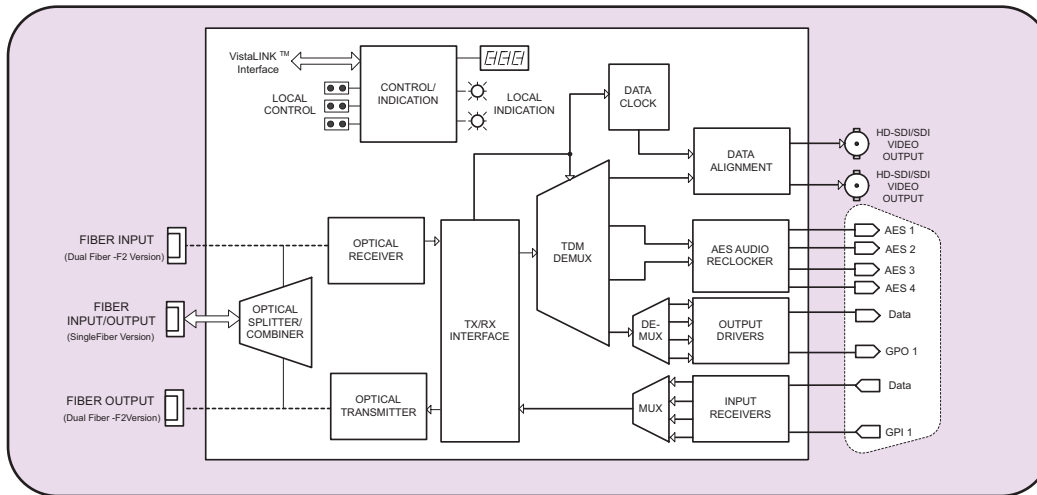
- Supports HD-SDI, SDI and DVB-ASI video
- Demultiplexes up to 4 AES audio, bi-directional RS-232/422 and 1 GPIO with HD-SDI or SDI
- Supports all SMPTE 292M (1.485Gb/s) rates/standards
- Supports 525/625 line component 4:2:2 SDI @ 270 Mb/s
- Supports 32, 44.1, 48 kHz AES audio
- Handles bi-directional RS-422 rates up to 3 Mb/s
- Low Audio to Video latency
- Dolby E compatible
- Signal transport over fiber uninterrupted by loss of input Video, AES, Serial Data or GPIO 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
- 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 with no fiber disconnect/reconnect required
- 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* | 7707MT13-HD | -10dBm | 7707MR13-HD | -19dBm | 1310nm, bi-directional, one fiber |
| Single-Mode | 1(WDM) | 20dB/57km | 7707MT15-HD-W | -1dBm | 7707MR13L-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-H | 0dBm | 7707MRxx-HD-F2-H | -28dBm | Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**, high sensitivity receiver |
| 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-H | +7dBm | 7707MRDxxx-HD-F2-H | -28dBm | Different DWDM wavelengths for 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 | | | | | | | |

HD-SDI, 4 AES Audio Bi-Directional RS232/422, 1 GPI/GPO, Fiber Receiver

7707MR-HD Block Diagram



Specifications

Optical Input/Output:

Connector:

Single Fiber:

1 Female SC/PC, ST/PC or FC/PC

Dual Fiber (F2):

2 Female SC/PC, ST/PC or FC/PC

Return Loss:

> 14dB

Input Wavelengths:

1270nm to 1610nm

Maximum Input Power:

-1dBm(standard), -8dBm (-F2-H versions)

Input Optical Sensitivity:

See Application Configuration Chart

Output Wavelengths:

See Ordering Information

Output Power:

See Application Configuration Chart

Serial Video Outputs:

Number of Outputs:

2 regenerated

Standard:

SMPT 292M, SMPT 259M-C, DVB-ASI

Connector:

BNC per IEC 60169-8 Amendment 2

Signal Level:

800mV nominal

DC Offset:

0V \pm 0.5V

Rise and Fall Time:

< 270ps for HD-SDI, < 900ps for SDI or DVB-ASI

Overshoot:

< 10% of amplitude

Return Loss:

> 15dB up to 1.485Gb/s

Wide Band Jitter:

< 0.2 UI

AES Audio Outputs:

Number of Outputs:

4 regenerated (user selectable for balanced or unbalanced)

Standard:

Unbalanced AES:

SMPT 276M

Balanced AES:

AES3-1992

Other:

Dolby E compatible

Connector:

8 pins on female high density DB-15

Signal Level:

Unbalanced:

1 Vp-p \pm 0.1V

Balanced:

5 Vp-p \pm 0.1V

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 (user 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:

1

Type:

Opto-isolated, active low

Connector:

1 pin on female high density DB-15

Signal Drive Level:

Open or closure to ground

General Purpose Outputs:

Number of Outputs:

1

Type:

"Dry Contact" relay closure

Connector:

1 pin on female high density DB-15

Signal Level:

Normally open

System Performance (7707MT-HD + 7707MR-HD):

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)

EMI/RFI:

Complies with FCC Part 15 Class A

EU EMC directive

Physical:

Number of slots:

1

Ordering Information:

7707MR13-HD

HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, single fiber, 1310nm FP Tx & Rx, VistaLINK™

7707MR13L-HD-W

HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, single fiber, WDM, 1310nm DFB Tx, Rx on 1550nm, VistaLINK™. Use with 7707MT15-HD-W

7707MR13-HD-F2

HD-SDI, 4 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-HD-F2

HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, dual fiber, CWDM TX, VistaLINK™

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

7707MRxx-HD-F2-H

HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, dual fiber, CWDM Tx, High sensitivity Rx, VistaLINK™

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

7707MRDyyy-HD-F2

HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, dual fiber, DWDM Tx, VistaLINK™

For Long Distance DWDM, please refer to the end of the fiber section for ordering information

7707MRDyyy-HD-F2-H

HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, dual fiber, DWDM TX, High sensitivity RX, VistaLINK™

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

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 |

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

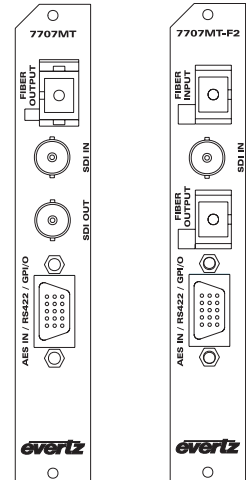
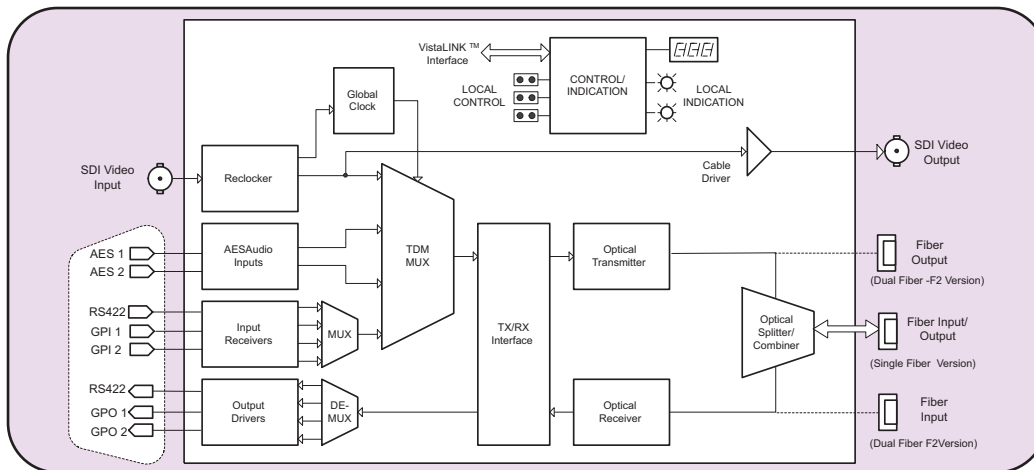
- SDI Video, 2 AES Audio, 1 bi-directional RS-232/422 and 2 GPI/O fiber optic transmitter
- Supports 525 or 625 line 4:2:2 component SDI signals
- Supports SDTi signals
- Supports 32, 44.1, 48 KHz AES audio inputs
- Dolby E compatible
- Supports bi-directional RS422 signals at baud rates up to 3 Mb/s
- 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:
Unbalanced: SMPTE 276M
Balanced: AES3-1992
Other: Dolby E compatible
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 7Vp-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)
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC directive

Physical:

Number of slots: 1

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

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 |

HD-SDI, 4 AES Audio, Bi-Directional RS-232/422, 1 GPI/GPO, Fiber Transmitter

Model 7707MT-HD



Features

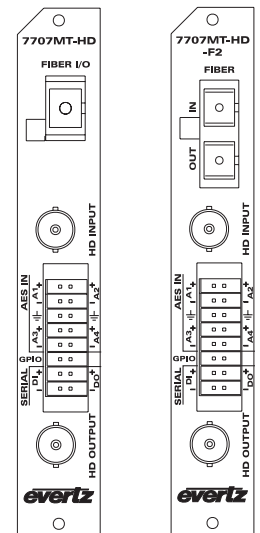
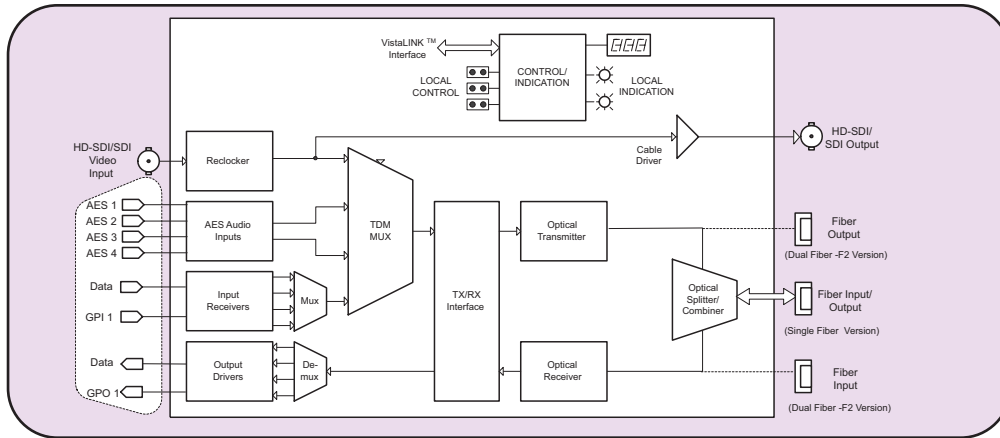
- Supports HD-SDI, SDI and DVB-ASI video
- Multiplexes up to 4 AES audio, bi-directional RS-232/422 and 1 GPIO with HD-SDI or SDI
- Supports all SMPTE 292M (1.485Gb/s) rates/standards
- Supports 525/625 line component 4:2:2 SDI @ 270 Mb/s
- Supports 32, 44.1, 48kHz AES audio inputs
- Handles bi-directional RS422 rates up to 3Mb/s
- 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
- Signal transport over fiber uninterrupted by loss of Video, AES, Serial Data or GPI/O input 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
- 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-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 disconnect/reconnect required
- 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* | 7707MT13-HD | -10dBm | 7707MR13-HD | -19dBm | 1310nm, bi-directional, one fiber |
| Single-Mode | 1(WDM) | 20dB/57km | 7707MT15-HD-W | -1dBm | 7707MR13L-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-H | 0dBm | 7707MRxx-HD-F2-H | -28dBm | Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**, high sensitivity receiver |
| 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-H | +7dBm | 7707MRDxxx-HD-F2-H | -28dBm | Different DWDM wavelengths for 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 | |

HD-SDI, 4 AES Audio Bi-Directional RS-232/422, 1 GPI/GPO, Fiber Transmitter

7707MT-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M, SMPTE 259M-C, DVB-ASI
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 100m @ 1.485 Gb/s and 300m @ 270 Mb/s with Belden 1694A or equivalent cable
Return Loss: > 15 dB up to 1.485 Gb/s

Serial Video Output:

Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: < 270ps for HD-SDI, < 900ps for SDI or DVB-ASI
Overshoot: < 10% of amplitude
Return Loss: > 15dB up to 1.485 Gb/s
Wide Band Jitter: < 0.2 UI

AES Audio Inputs:

Number of Inputs: 4 (user selectable for balanced or unbalanced input)
Standard:
Unbalanced AES: SMPTE 276M
Balanced AES: AES3-1992
Other: Dolby E compatible
Connector: 8 pins on female high density DB-15
Signal Level:
Unbalanced: 1V p-p \pm 0.1V
Balanced: 5Vp-p \pm 0.1V
Equalization: Up to 500m @ 48kHz with Belden 1800B or equivalent cable
Resolution: Up to 24 bits
Sampling Rate: 32, 44.1, 48 kHz
Impedance: 75 Ω (unbalanced), 110 Ω (balanced)

Serial Data Ports:

Number of Ports: 1 RS-422 or 2 RS-232 (user selectable)
Connector: 4 pins (plus ground) on female high density DB-15
Baud Rate: Up to 3 Mb/s for RS-422 (Determined by incoming data)

General Purpose Inputs:

Number of Inputs: 1
Type: Opto-isolated, active low
Connector: 1 pin on female high density DB-15
Signal Drive Level: Open or closure to ground

General Purpose Outputs:

Number of Outputs: 1
Type: "Dry Contact" relay closure to ground
Connector: 1 pin on female high density DB-15
Signal Level: Normally open

Optical Input/Output:

Connector:
Single Fiber: 1 Female SC/PC, ST/PC or FC/PC
Dual Fiber (F2): 2 Female SC/PC, ST/PC or FC/PC
Return Loss: > 14dB
Input Wavelengths: 1270nm to 1610nm
Maximum Input Power: -1dBm(standard), -8dBm (-F2-H)
Input Optical Sensitivity: See Application Configuration Chart
Output Wavelengths: See Ordering Information
Output Power: See Application Configuration Chart

System Performance (7707MT-HD + 7707MR-HD):

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)

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

Physical:

Number of slots: 1

Ordering Information:

7707MT13-HD HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter, single fiber, 1310nm FP Tx & Rx, VistaLINK™
7707MT15-HD-W HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter, single fiber, WDM, 1550nm DFB Tx, Rx on 1310nm, VistaLINK™. Use with 7707MR13L-HD-W
7707MT13-HD-F2 HD-SDI, 4 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-HD-F2 HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter, dual fiber, CWDM Tx, VistaLINK™

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

7707MTxx-HD-F2-H HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter, dual fiber, CWDM Tx, High sensitivity Rx, VistaLINK™

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

7707MTDyyy-HD-F2 HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter, dual fiber, DWDM Tx, VistaLINK™

For Long Distance DWDM, please refer to the end of the fiber section for ordering information

7707MTDyyy-HD-F2-H HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter, dual fiber, DWDM Tx, High sensitivity Rx, VistaLINK™

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

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 |

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 15 modules
- 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

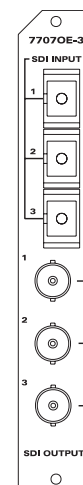
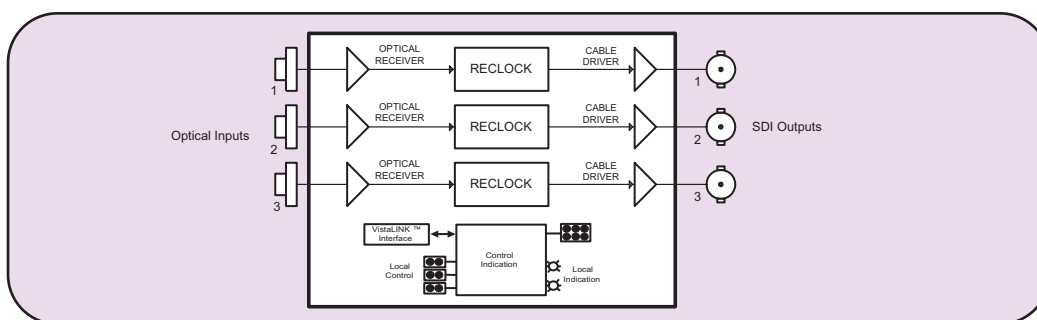
Outputs:

- 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

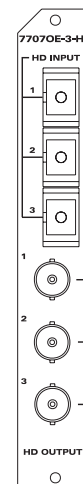
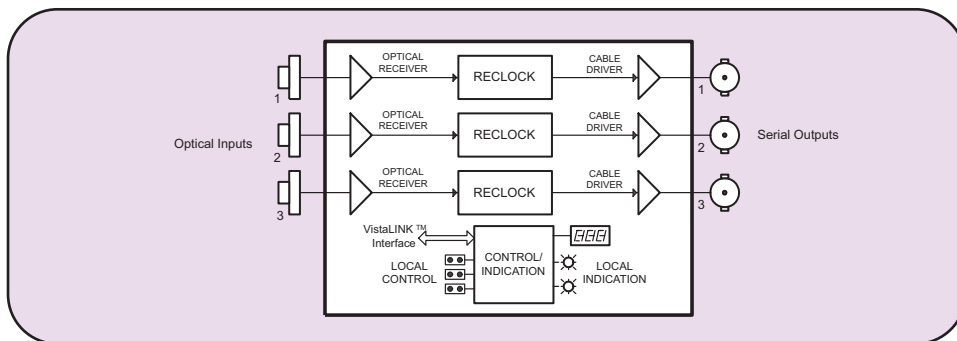
19.4Mb/s to 1.485Gb/s

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

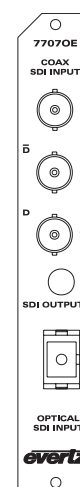
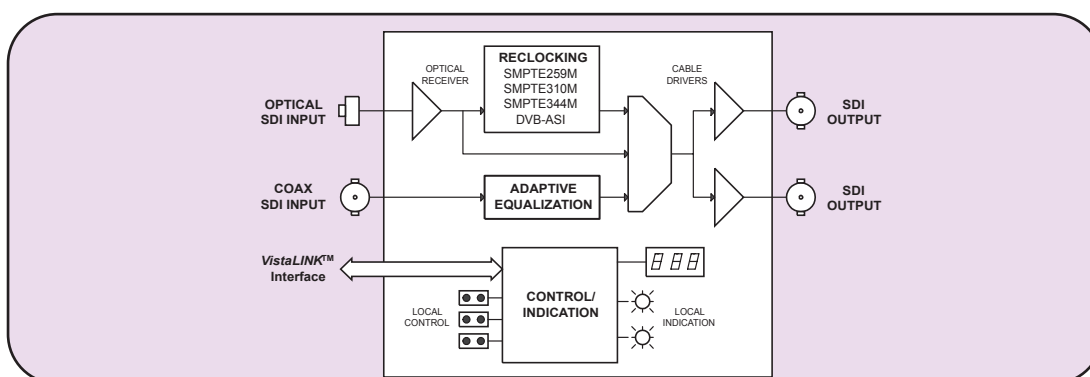
Model 7707OE

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-relocked 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

Ex: 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

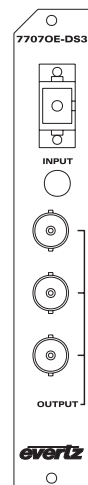
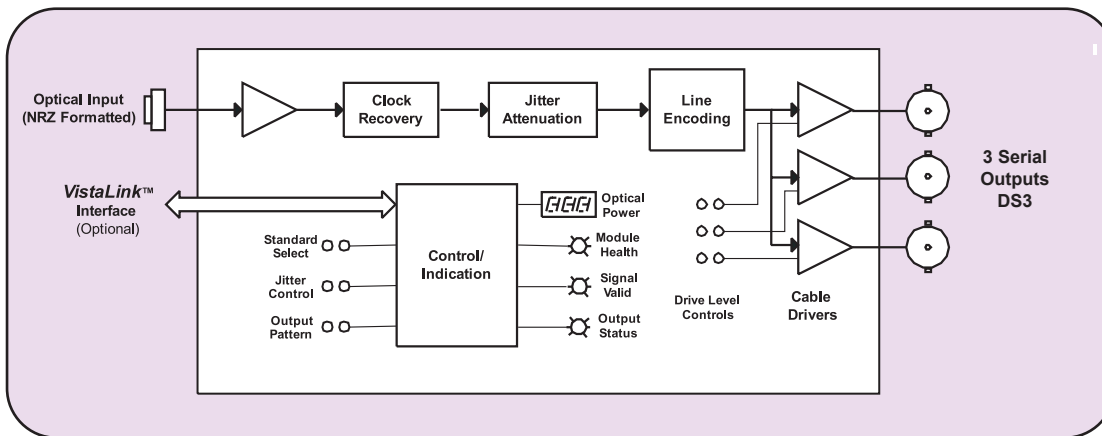


Model 7707OE-DS3

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 inputs/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

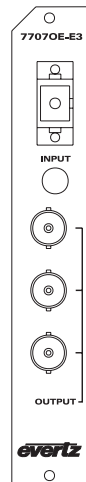
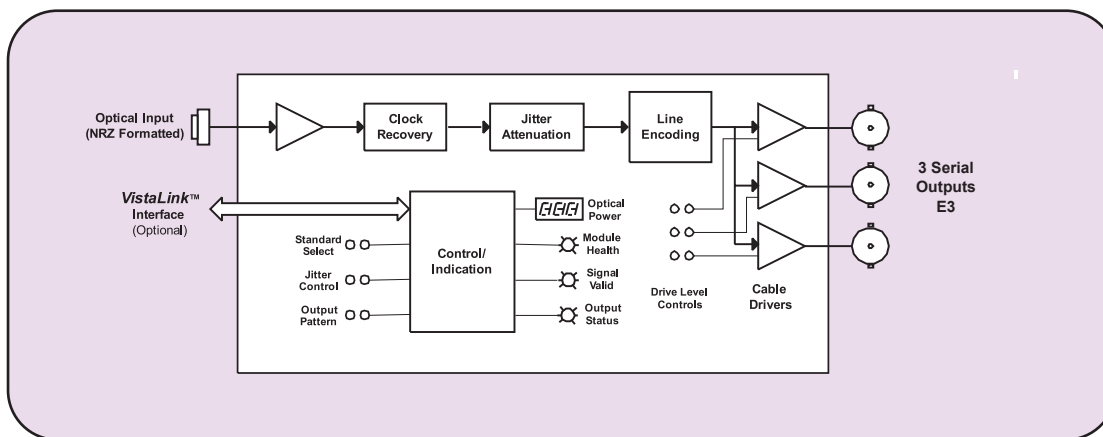


Model 7707OE-E3

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 inputs/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 Information:

7707OE-E3 E3 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

HDTV Optical to Electrical Converter

19.4Mb/s to 1.5Gb/s

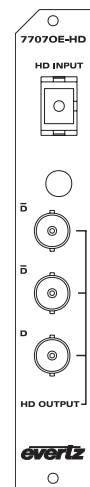
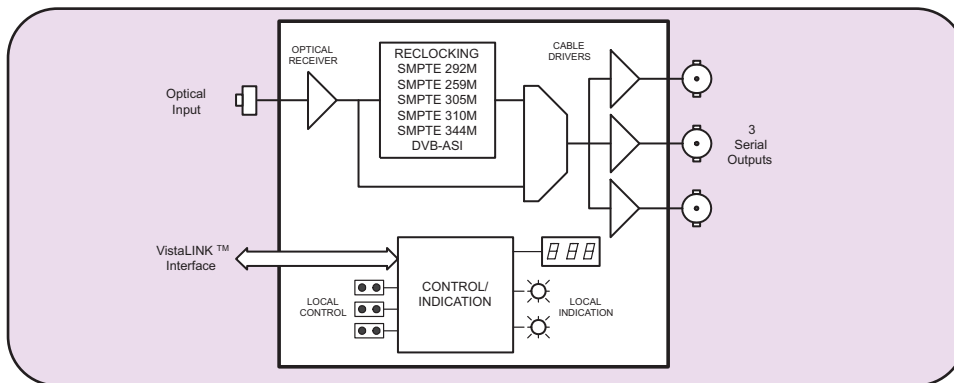


Model 7707OE-HD

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

For standalone applications also see 2405 series fiber modules

Optical Regenerator/Wavelength Converter, 19.4Mb/s to 540Mb/s, VistaLINK™

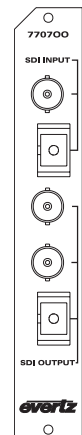
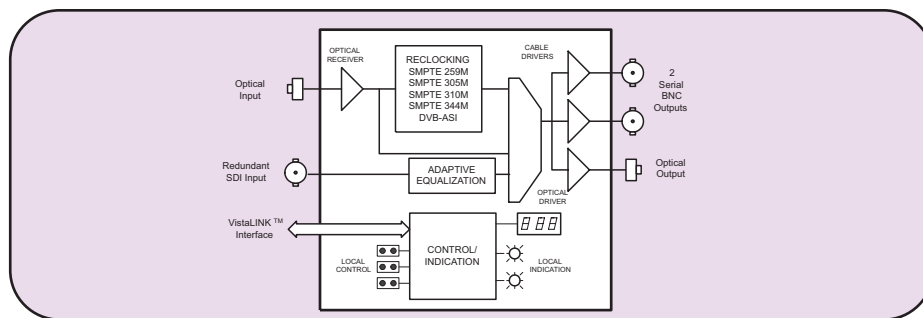
Model 770700

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)

Physical:
Number of Slots 1

Electrical:

Voltage: +12V DC
Power: 6 Watts (Non DWDM), 9 Watts (DWDM)

Ordering Information:

77070013 Optical Regenerator / Wavelength Converter for rates to 540Mb/s, 1270nm to 1610nm input, 1310nm FP output
77070015 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

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

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 |

Optical Regenerator/Wavelength Converter, 19.4Mb/s to 1.485Gb/s, VistaLINK™

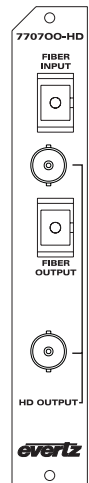
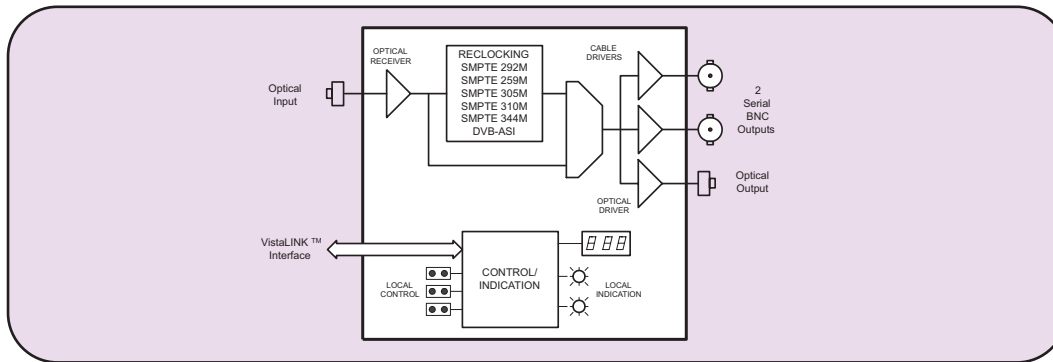


Model 770700-HD

Features

- Optical wavelength converter and/or optical repeater
- 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), DVB-ASI (270Mb/s), SMPTE 344M (540Mb/s), and SMPTE 305M (SDTi) rates
- Auto rate selection and indication for all SDI and HD-SDI data rates from 143Mb/s to 1.485Gb/s
- Wide range optical input (1270nm-1610nm)
- Supports single-mode and multi-mode fiber optic cable
- Reclocked optical input, with selectable non-reclock mode
- BNC outputs 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 (SDI only)
- Fully hot swappable from front of frame

770700-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 |
| Operating Wavelength: | 1270nm - 1610nm |
| Max. Input Power: | |
| Standard: | -1dBm |
| High Sensitivity (-H): | -8dBm |
| Optical Sensitivity Standard: | -23dBm @ 1.485Gb/s |
| High Sensitivity (-H): | -28dBm @ 1.485Gb/s |

Optical Output:

| | |
|---------------------|--------------------------------------|
| Number of Outputs: | 1 reclocked |
| 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 |

Optical 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) |
| EMI/RFI: | Complies with FCC Part 15 Class A EU EMC directive |

Physical:

| | |
|------------------------------|---|
| 7700 or 7701 frame mounting: | 1 |
| Number of slots: | |

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 |

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 |

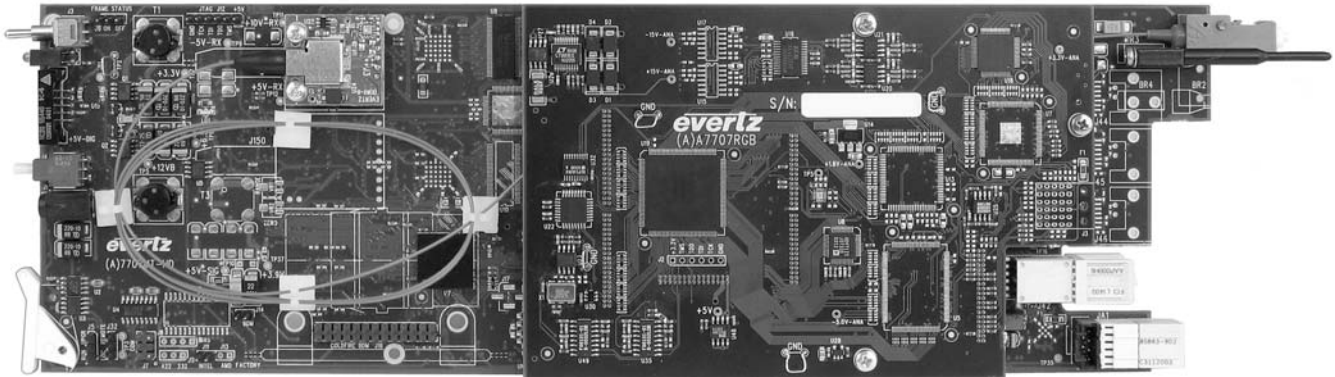
DWDM Transmitter Ordering Options - 100GHz/0.8nm Channel Grid - Based on ITU G.694.1

| 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 |

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 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

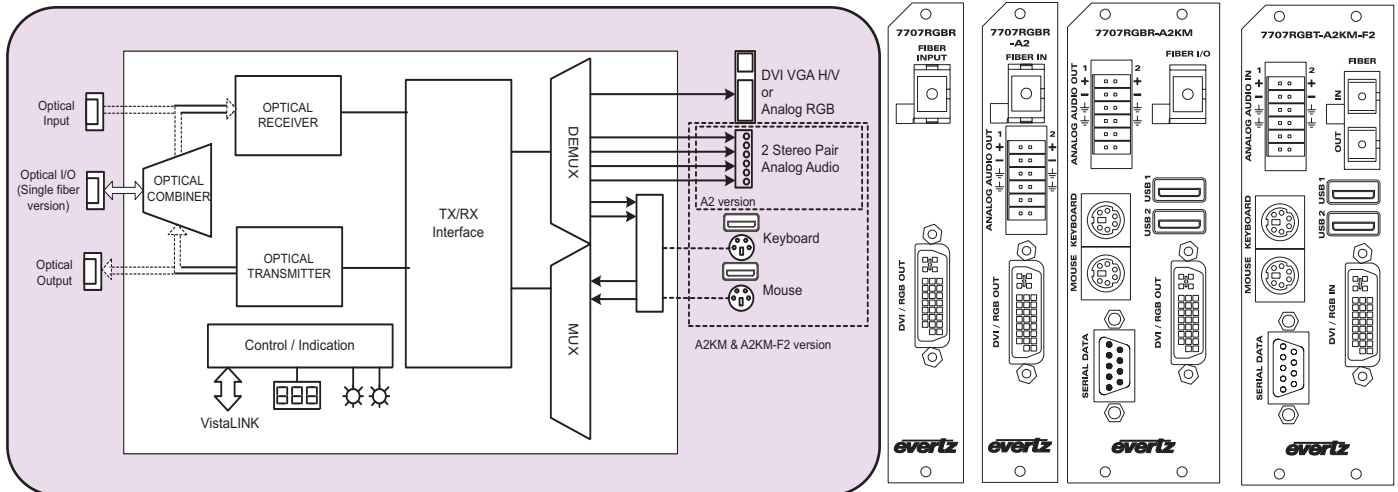
** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB

*** Assumes 8 Ch DWDM Mux/Demux loss of 5dB

Tx Power/Rx Sensitivity are nominal values ± 1 dBm
Fiber loss= 0.35/0.25dB per km @1310nm/1550nm

RGBHV/DVI/KVM Fiber Receiver VistaLINK™ Monitoring

7707RGR 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)

Ordering Information:

7707RGR RGBHV/DVI Fiber Receiver
7707RGR-A2 RGBHV/DVI +2 Analog Audio Fiber Receiver
7707RGR13-A2KM-F2 RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Receiver, dual fiber, 1310nm TX & RX

7707RGR13-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

7707RGRxx-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

7707RGRDyyy-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

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

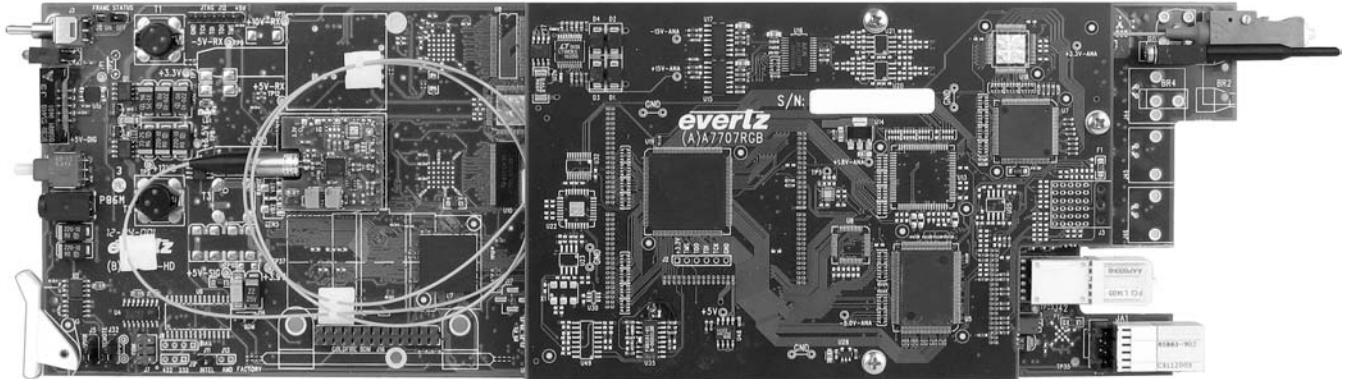
| Laser Ordering Number (Dyyy) | ITU Channel Number | Frequency (GHz) | Wavelength (nm) | Transmitter Module (Example) |
|------------------------------|--------------------|-----------------|-----------------|------------------------------|
| D200 | 20 | 192,000 | 1561.42 | Contact Factory |
| D210 | 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 |

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 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-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

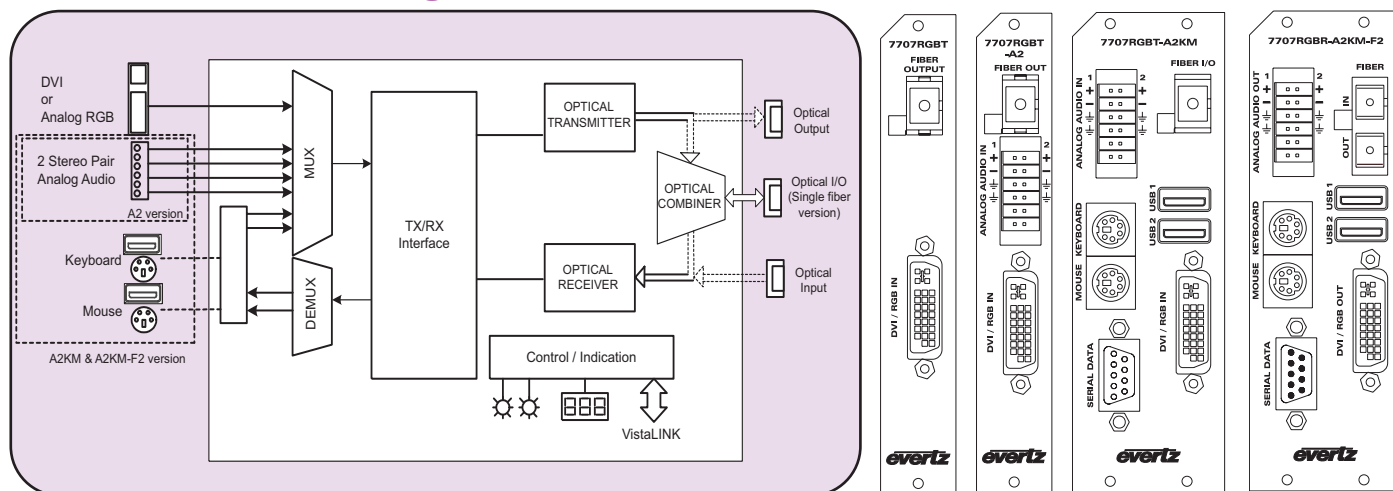
** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB

*** Assumes 8 Ch DWDM Mux/Demux loss of 5dB

Tx Power/Rx Sensitivity are nominal values ± 1 dBm
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-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-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-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)

Ordering Information:

7707RGBT13 RGBHV/DVI Fiber Transmitter, 1310nm FP
7707RGBT13-A2 RGBHV/DVI + 2 Analog Audio Fiber Transmitter, 1310nm FP
7707RGBT13-A2KM-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-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-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

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 |

SDI with 2 AES Audio Fiber Receiver

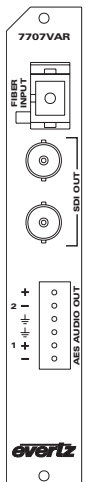
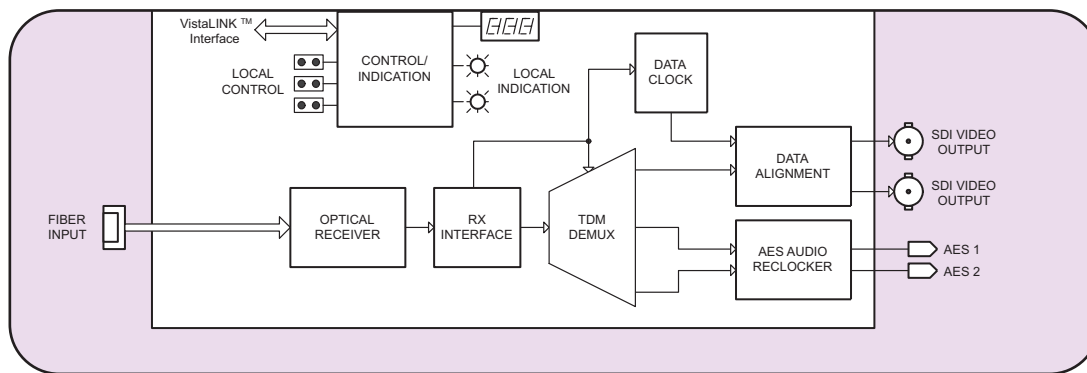
Models 7707VAR

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 \pm 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: | 75 Ω |
| Balanced: | 110 Ω |

System Performance: (7707VAR + 7707VAR)

| | |
|------------------------------|---|
| Video Input To Output Delay: | < 1.5 μ s |
| Audio to Video delay: | < 1 μ s 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 |
|---------|--|

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

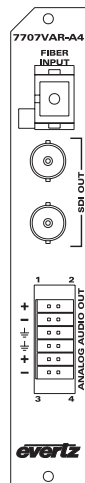
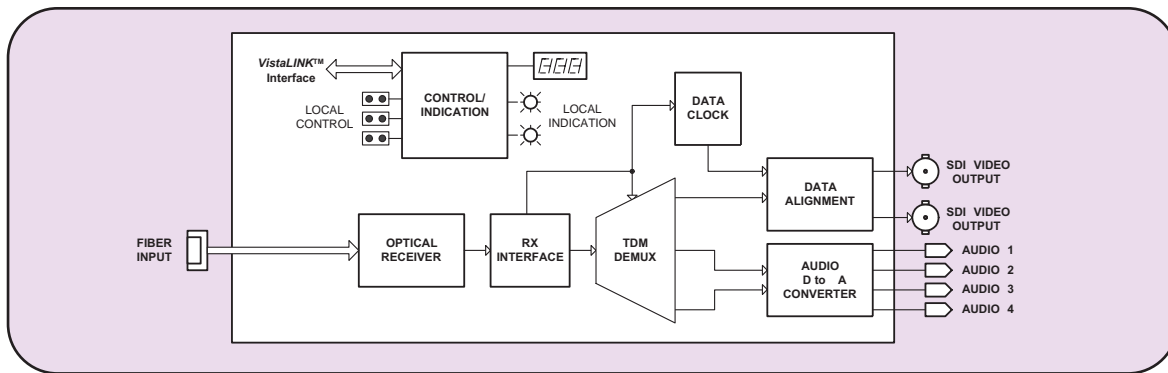
Model 7707VAR-A4

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 \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 |

Analog Audio Outputs:

| | |
|---------------------|-------------------------------|
| Number of Outputs: | 4 |
| Type: | Balanced analog audio |
| Connector: | 12 pin removal 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: (7707VAR-A4 + 7707VAR-A4)

| | |
|------------------------------|-------------|
| Video Input To Output Delay: | < 2 μ s |
| 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 |
|------------------|---|

Ordering Information:

| | |
|------------|--|
| 7707VAR-A4 | SDI with 4 Analog Audio 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

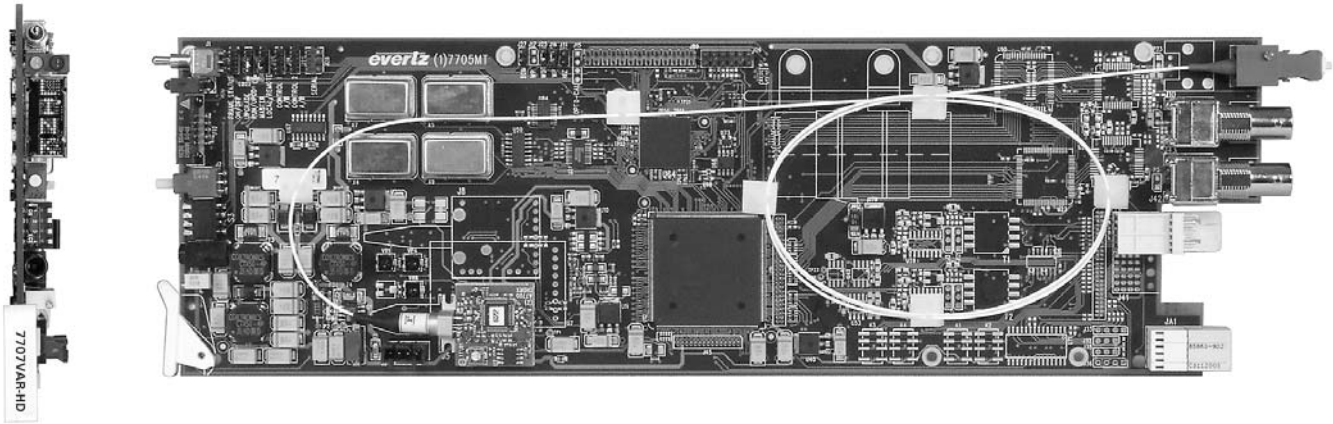
| | |
|-----|-------|
| +SC | SC/PC |
| +ST | ST/PC |
| +FC | FC/PC |

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 demultiplexes one HD-SDI, SDI or DVB-ASI video plus four AES Audio signals that have been combined by the companion 7707VAT-HD, HD-SDI and AES Audio Fiber Optic Transmitter module.

The 7707VAR-HD with 7707VAT-HD will transparently pass incoming HDTV or SDTV 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.

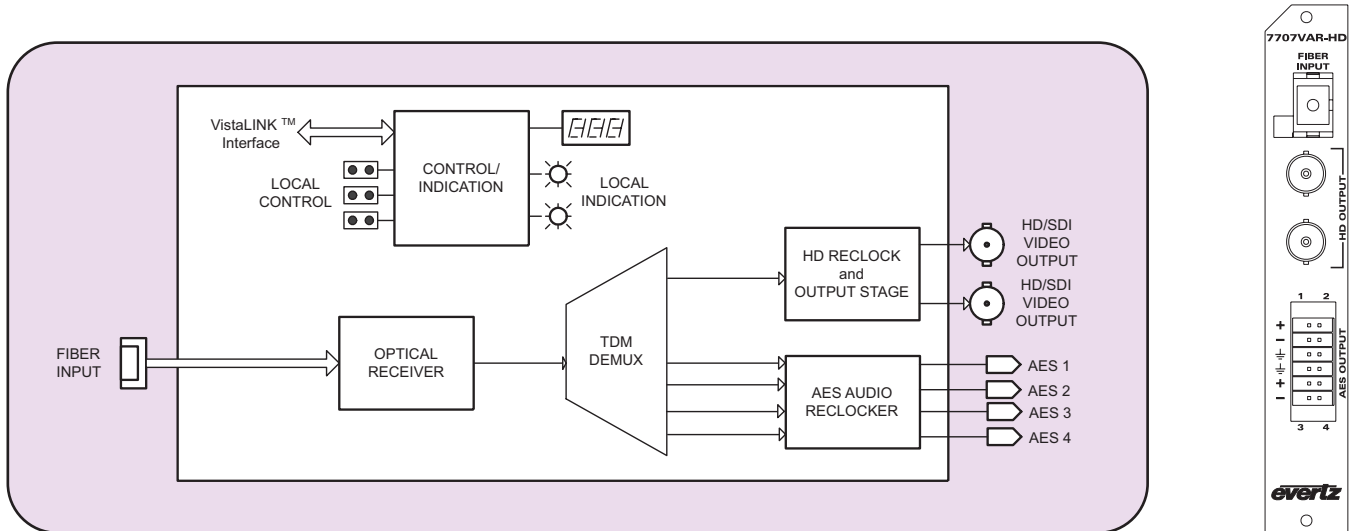
The 7707VAR-HD occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- Supports HD-SDI, SDI and DVB-ASI video
- Demultiplexes up to 4 AES audio with HD-SDI or SDI
- 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
- Dolby E compatible
- Low Audio to Video latency
- HD/SDI Video regeneration for low jitter serial outputs
- 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
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required

HD-SDI with 4 AES Audio Fiber Receiver

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: -8dBm

Optical Sensitivity:

Standard: -23dBm
High Sensitivity
-H version: -28dBm

Serial Video Outputs:

Number of Outputs: 2 regenerated
Standard: SMPTE 292M, SMPTE 259M-C, DVB-ASI
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Rise and Fall Time: < 270ps for HDSDI, < 900ps for SDI or DVB-ASI
Overshoot: <10% of amplitude
Return Loss: > 15dB up to 1.485Gb/s
Wide Band Jitter: < 0.2 UI

AES Audio Outputs:

Standards

Unbalanced AES: SMPTE 276M
Balanced AES: AES3-1992
Other: Dolby E compliant
Number of Outputs: 4 regenerated (user selectable for balanced or unbalanced)

Connector: 12 pin removable terminal block

Signal Level:

Unbalanced: 1 Vp-p $\pm 0.1V$
Balanced: 5 Vp-p $\pm 0.1V$

Resolution:

Up to 24-bits

Sampling Rate:

32, 44.1, 48 kHz

Intrinsic Jitter:

< 20ns

Impedance:

Unbalanced: 75 Ω
Balanced: 110 Ω

System Performance (7707VAT-HD + 7707VAR-HD):

Video Input To Output

Delay: < 2 μs

Audio to Video delay: < 1 μs

Electrical:

Voltage: +12VDC
Power: 11 Watts
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC directive

Physical:

Number of slots: 1

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

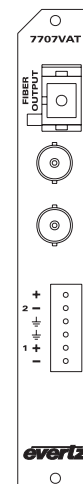
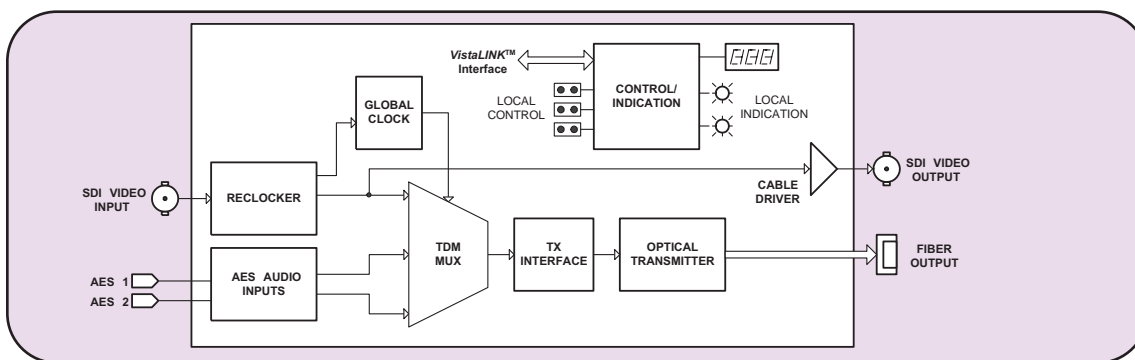
Models 7707VAT



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 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

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: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: >15 dB at 270 Mb/s
Wide Band Jitter: <0.2 UI

AES Audio Inputs:

Number of Inputs: 2 (Jumper selectable for balanced or unbalanced input)
Standard: SMPTE 276M
Unbalanced AES: AES3-1992
Balanced AES: AES3-1992
Other: Dolby E compatible
Connector: 6 pin removable terminal block

Signal Level:
Unbalanced: 1V p-p ±0.1V
Balanced: 2 to 7Vp-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
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)
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™

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

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 |

SDI with 4 Analog Audio Fiber Transmitter

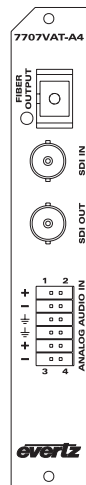
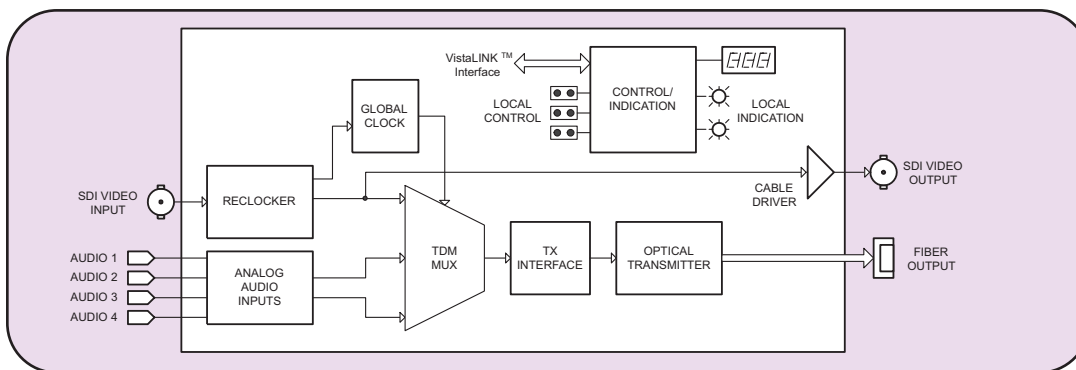
Models 7707VAT-A4

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 reclocked
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 removal 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

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

7707VATDyxx-A4 SDI with 4 Analog Audio Fiber Transmitter, DWDM DFB Laser, 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

CWDM & DWDM Wavelength Ordering Information

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

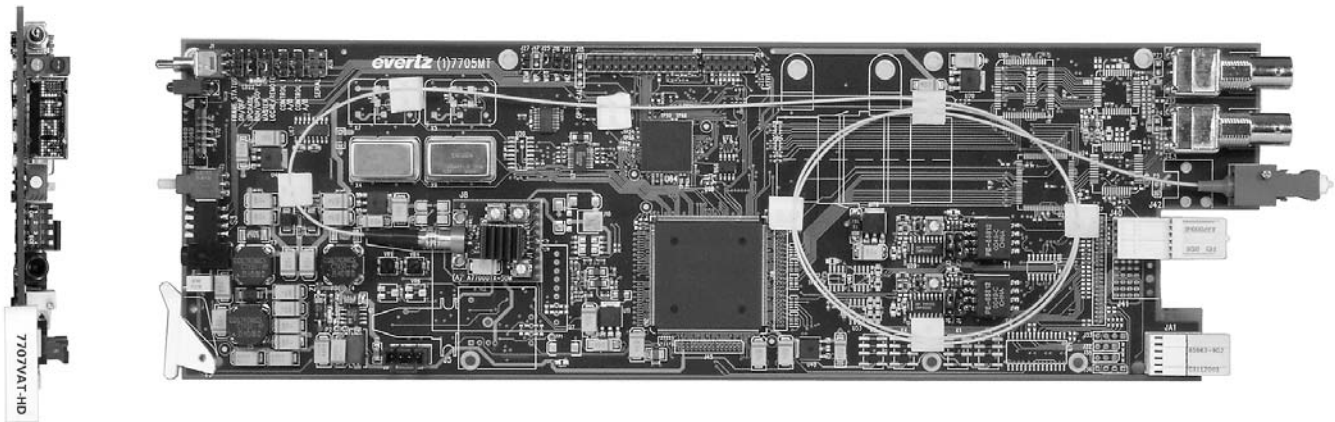
| Laser Ordering Number (xx) | Wavelength (nm) | Transmitter Module (Example) |
|----------------------------|-----------------|------------------------------|
| 27 | 1270 | 7707EO27 |
| 29 | 1290 | 7707EO29 |
| 31 | 1310 | 7707EO31 |
| 33 | 1330 | 7707EO33 |
| 35 | 1350 | 7707EO35 |
| 37 | 1370 | 7707EO37 |
| 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 |

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, SDI or DVB-ASI video plus four AES audio signals, combines them and transmits them over a single fiber. The companion 7707VAR-HD, HD-SDI and AES Audio Fiber Optic Receiver, demultiplexes the signals and converts them back to separate HDTV or SDTV video and AES audio feeds.

The 7707VAT-HD with 7707VAR-HD will transparently pass incoming HDTV or SDTV 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 provided.

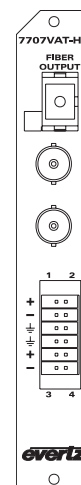
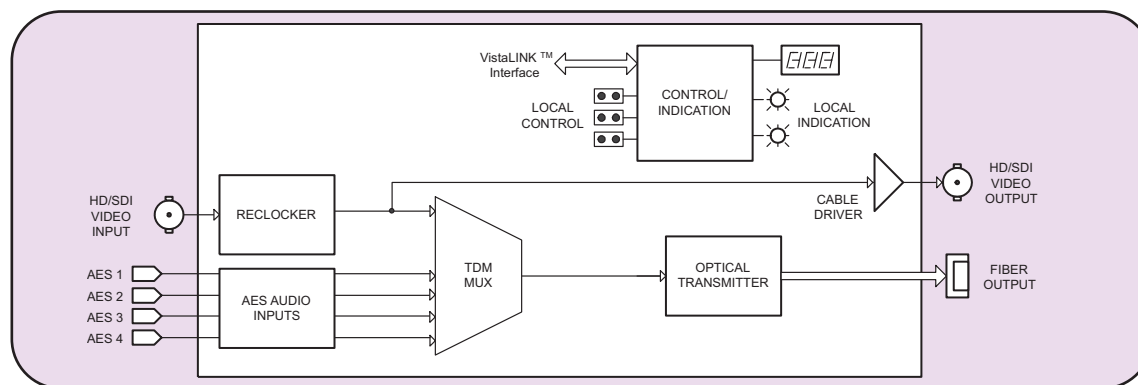
The fiber output is available in an assortment of optical wavelengths, accommodating 1310/1550nm, CWDM and DWDM transmission schemes. The 7707VAT-HD occupies one card slot and can be housed in the 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- Supports HD-SDI, SDI and DVB-ASI video
- Multiplexes up to 4 AES audio with HD-SDI or SDI
- 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
- 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
- Automatic coaxial input equalization to 130m at 1.485Gb/s and 300m at 270Mb/s (Belden 1694)
- 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
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required

HD-SDI with 4 AES Audio Fiber Transmitter

7707VAT-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M, SMPTE 259M-C, DVB-ASI
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 130m @ 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 reclocked
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: < 270ps for HD-SDI, < 900ps for SDI or DVB-ASI
Overshoot: <10% of amplitude
Return Loss: >15 dB up to 1.485Gb/s
Wide Band Jitter: <0.2 UI

AES Audio Inputs:

Number of Inputs: 4 (user selectable for balanced or unbalanced)
Standard:
 Unbalanced AES: SMPTE 276M
 Balanced AES: AES3-1992
 Other: Dolby E compliant
Connector: 12 pin removable terminal block
Signal Level:
 Unbalanced: 1V p-p \pm 0.1V
 Balanced: 0.2 to 7Vp-p
Equalization: Up to 500m @ 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

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 \pm 1dBm
 1550nm & CWDM DFB 0dBm \pm 1dBm
 DWDM DFB 7dBm \pm 1dBm

System Performance: (7707VAT-HD +7707VAR-HD)

Video Input To Output Delay: < 2 μ s
Audio to Video delay: < 1 μ s

Electrical:

Voltage: +12VDC
Power: 11 Watts (Non-DWDM)
13 Watts (DWDM)
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 CWDM Laser

For DWDM application please refer to end of fiber section for details
7707VATDyyy-HD 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

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 |

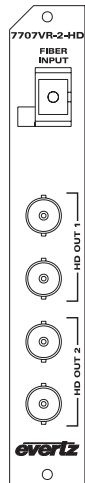
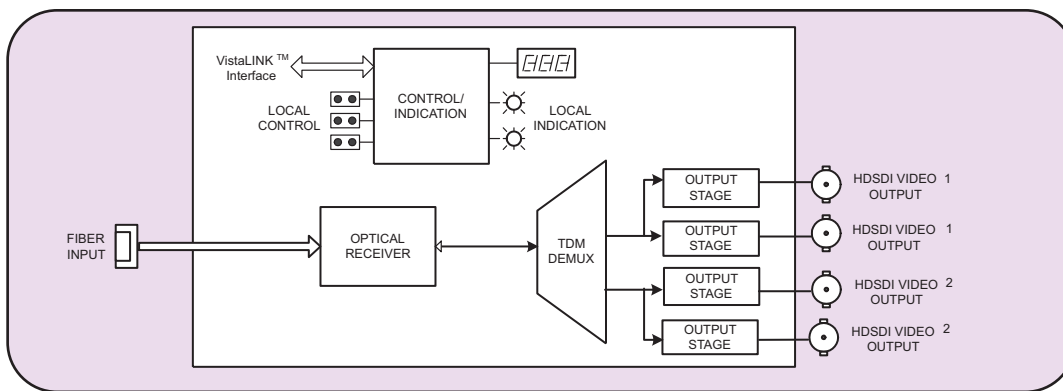


Model 7707VR-2-HD

Features

- Single card demultiplexer for two 1.485Gb/s HDSDI video signals
- HDSDI video regeneration on outputs
- 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 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-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: | -8dBm |
| Optical Sensitivity | |
| Standard Version: | -21dBm |
| -H Version: | -28dBm |

Serial Video Outputs:

| | |
|---------------------|---------------------------------|
| Standards: | SMPTE 292M |
| Number of Outputs: | 2 SETS OF 2 HDSDI 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 at 1.485Gb/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 |
|------------------|---|

Ordering Information:

| | |
|---------------|--|
| 7707VR-2-HD | Dual HDSDI Fiber Receiver, VistaLINK™ Monitoring |
| 7707VR-2-HD-H | Dual HDSDI 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 |

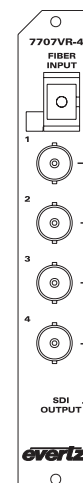
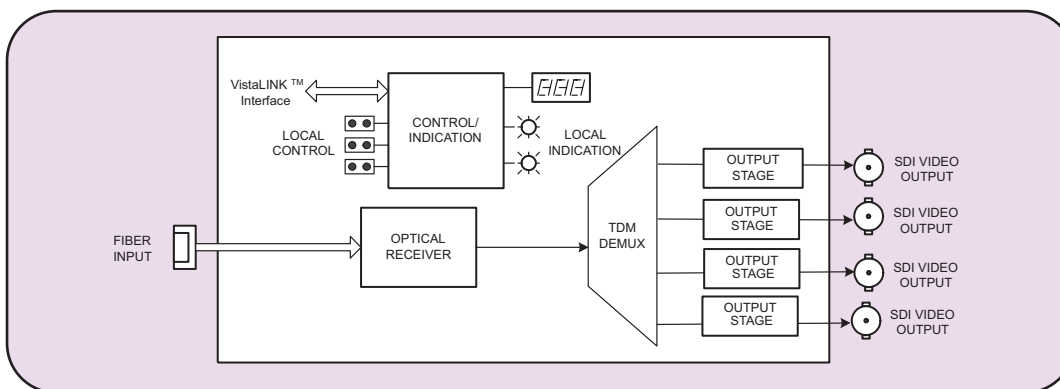
Model 7707VR-4

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 ±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 |
|------------------|---|

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 |

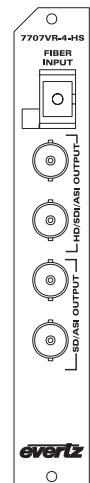
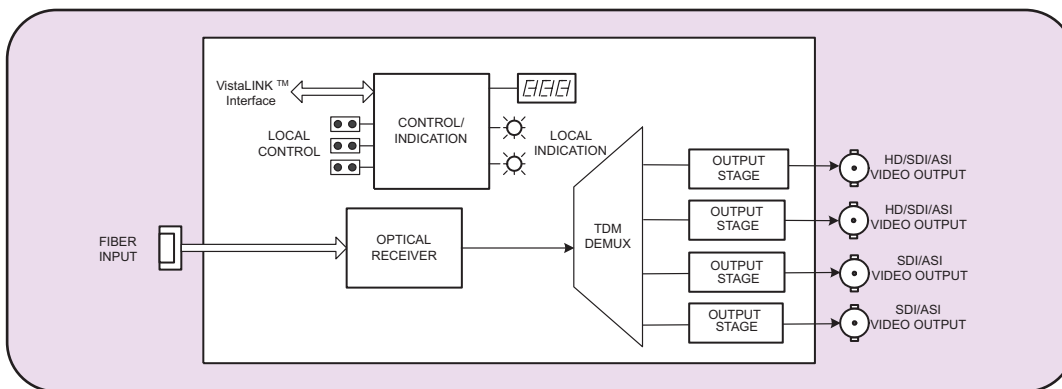
Quad SD/Dual HD Fiber Receiver

Model 7707VR-4-HS

Features

- Single card TDM 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 299M-C, DVB-ASI |
| Outputs 3&4 | SMPTE 299M-C, DVB-ASI |
| Connector: | BNC per IEC 60169-8 Amendment 2 |
| Signal Level: | 800mV nominal |
| DC Offset: | 0V \pm 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

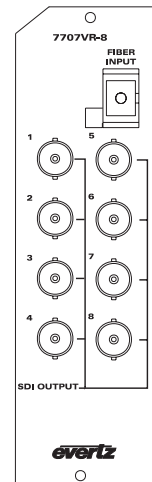
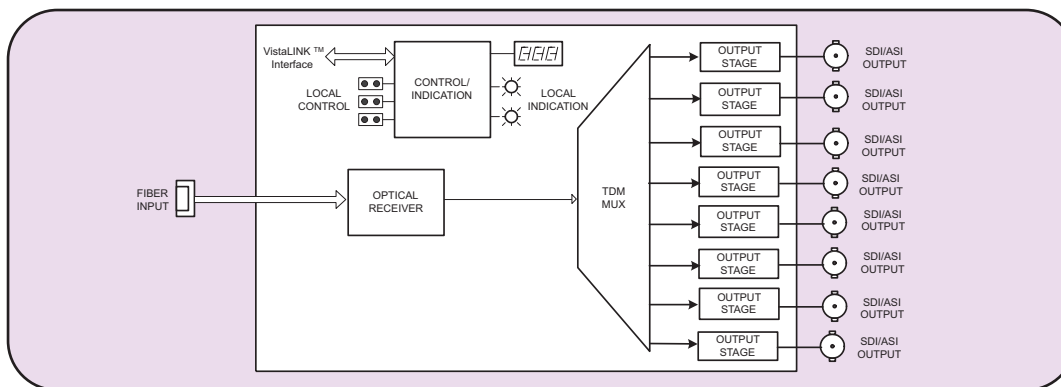
Model 7707VR-8

Features

- Single card demultiplexer for eight 270Mb/s SDI, SDTi or DVB-ASI video signals
- Low jitter SDI/ASI 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
- 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
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Occupies two card slots & can be housed in a standalone frame, a 1RU frame holding up to 3 modules or a 3RU frame holding up to 7 dual slot modules



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: | -20dBm |
| -H Version: | -28dBm |

Serial Video Outputs:

| | |
|---------------------|--|
| Standards: | SMPTE 259M-C, 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: | 14 Watts |

Physical:

| | |
|------------------|---|
| Number of slots: | 2 |
|------------------|---|

Ordering Information:

7707VR-8

7707VR-8-H

Eight SDI/ASI Demux Fiber Receiver, VistaLINK™ Monitoring
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 HDSDI Fiber Transmitter

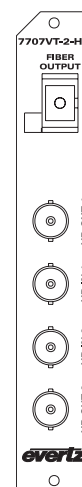
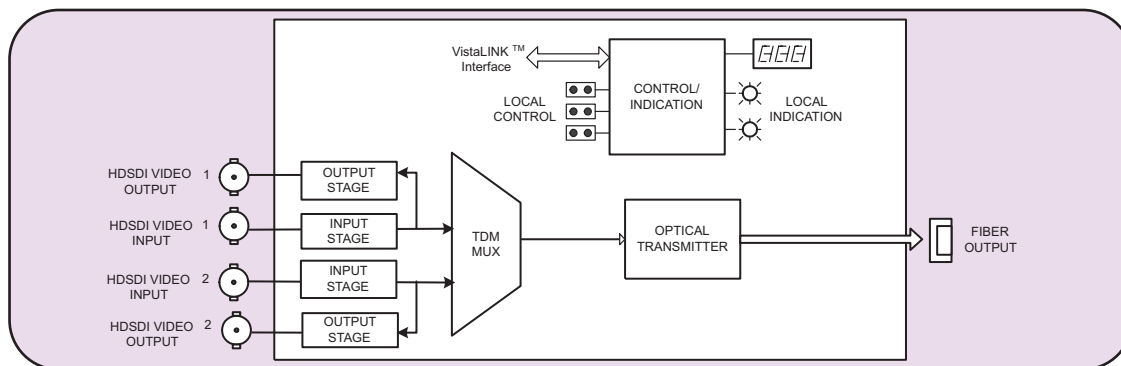


Model 7707VT-2-HD

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 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-2-HD Block Diagram



Specifications

Serial Video Input:

| | |
|-------------------|---|
| Standard: | SMPTE 292M |
| Number of Inputs: | 2 independent HDSDI 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 HDSDI 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 at 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 |
| Rise and Fall Time: | 200ps nominal |
| 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) |
| 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 |

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 |

Quad SDI Fiber Transmitter

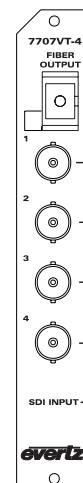
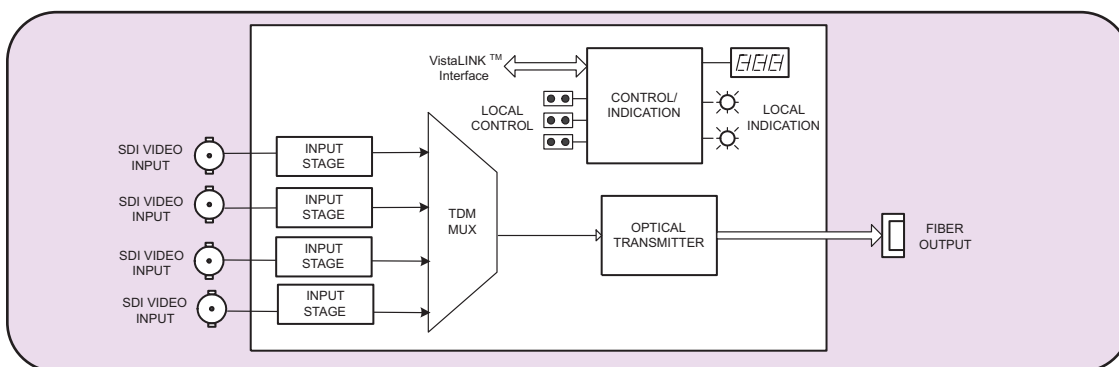


Model 7707VT-4

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)
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC directive

Physical:

Number of slots: 1

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

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 |

Quad SD/Dual HD Fiber Transmitter

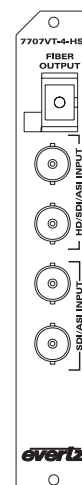
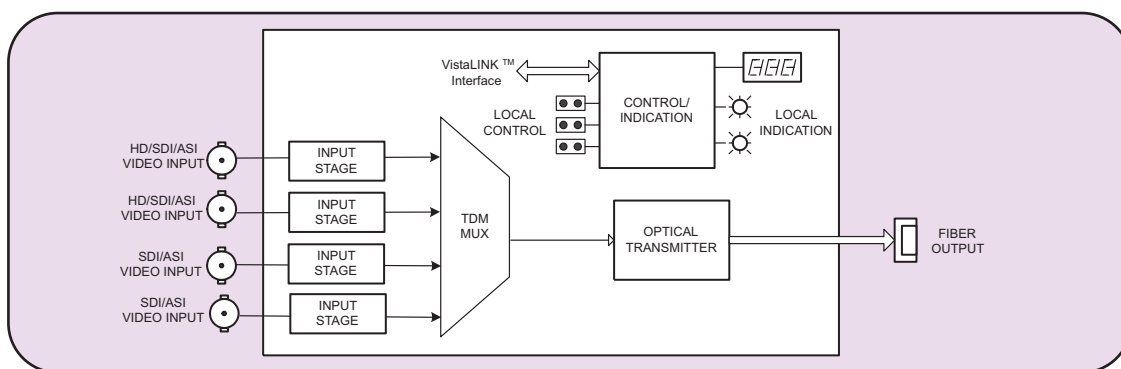


Model 7707VT-4-HS

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

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™

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™

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

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 |

8 Channel SDI/ASI Fiber Transmitter

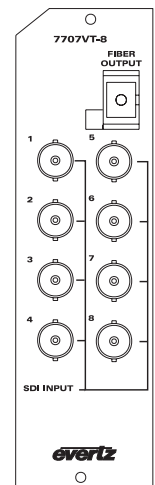
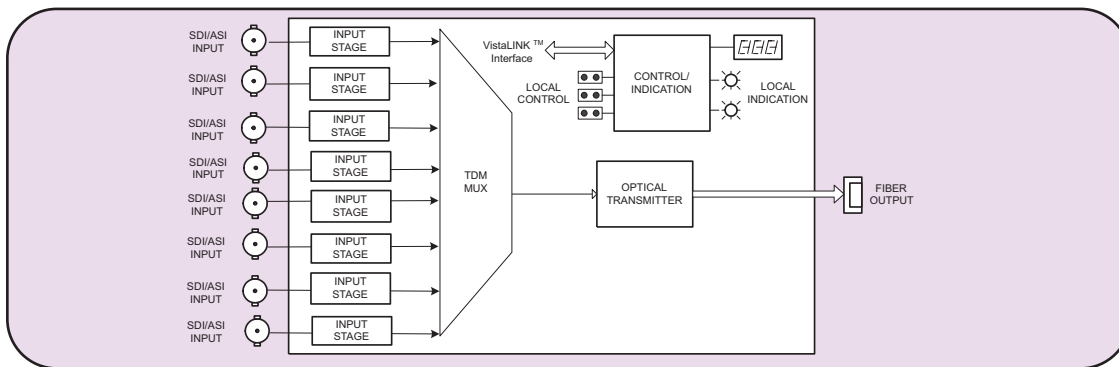


Model 7707VT-8

Features

- Single card multiplexer for eight 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
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Automatic coaxial input equalization up to 250m at 270Mb/s (Belden 8281)
- 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 two card slots & can be housed in a standalone frame, a 1RU frame holding up to 3 modules or a 3RU frame holding up to 7 dual slot modules

7707VT-8 Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C, 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

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: 12 Watts (Non DWDM), 15 Watts (DWDM)

Physical:

Number of slots: 2

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

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 |

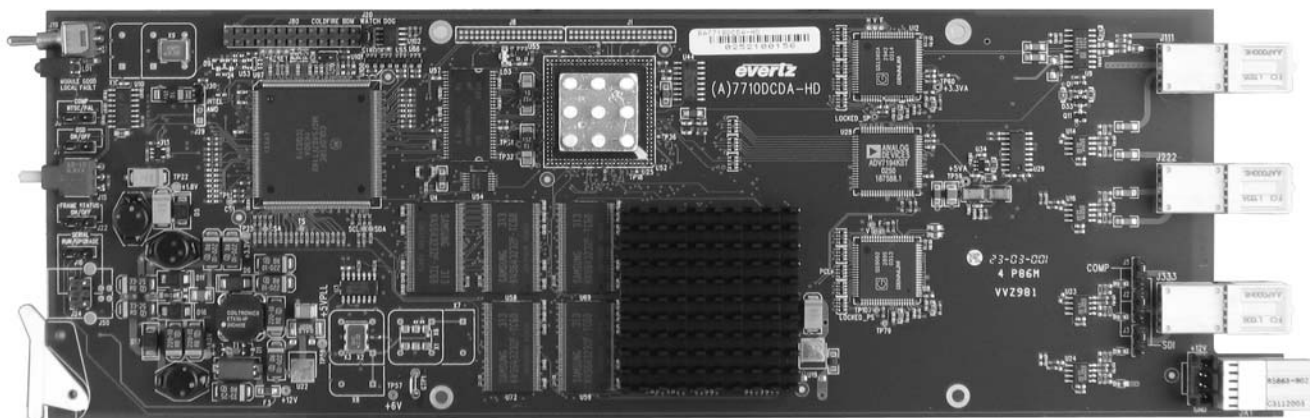
DWDM Transmitter Ordering Options - 100GHz/0.8nm Channel Grid - Based on ITU G.694.1

| 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 |

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 provides card edge LEDs to indicate signal present and audio groups present.

When the +CCM option is fitted, 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.

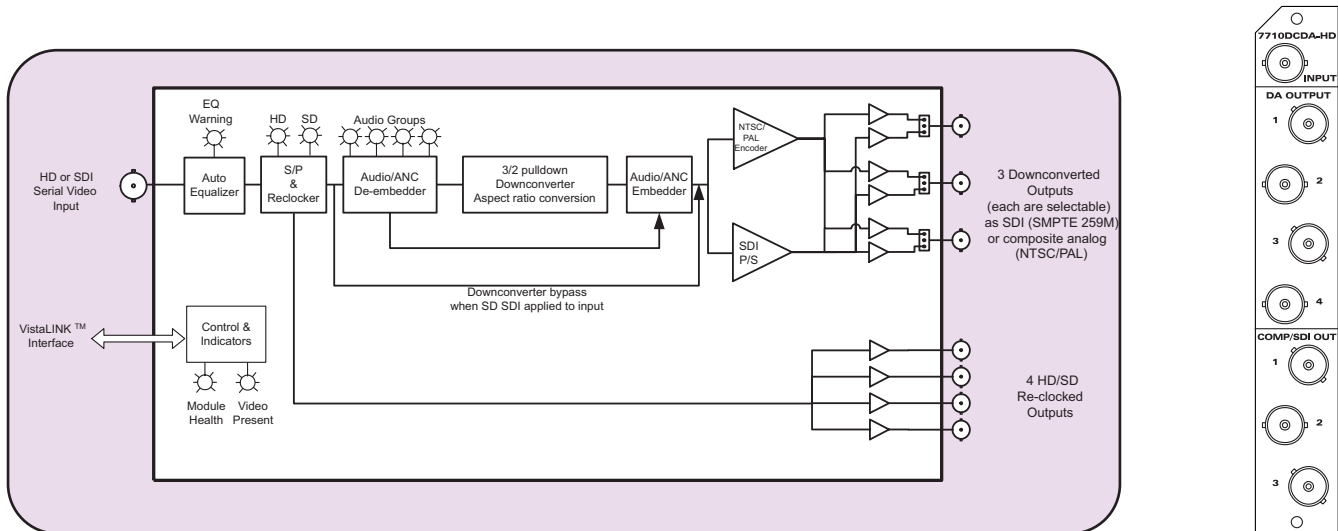
The 7710DCDA-HD occupies one card slot in the 3RU frame, which will hold up to 15 modules or the 1RU frame, which will hold up to three modules.

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
- Card Edge LEDs for signal presence, equalization warning, audio groups present, module status
- VistaLINK™ enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 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 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 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 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 |
|-------------------------|---|

Ordering Information:

| | |
|--------------------|--|
| 7710DCDA-HD | HD Down Converter and Distribution Amplifier (4 HD reclocked 1.5Gb/s, selectable 3 SD SDI outputs or 3 composite analog outputs) |
|--------------------|--|

Ordering Options

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

| | |
|-------------|------------------------------|
| +CCM | Closed Captioning Monitoring |
|-------------|------------------------------|

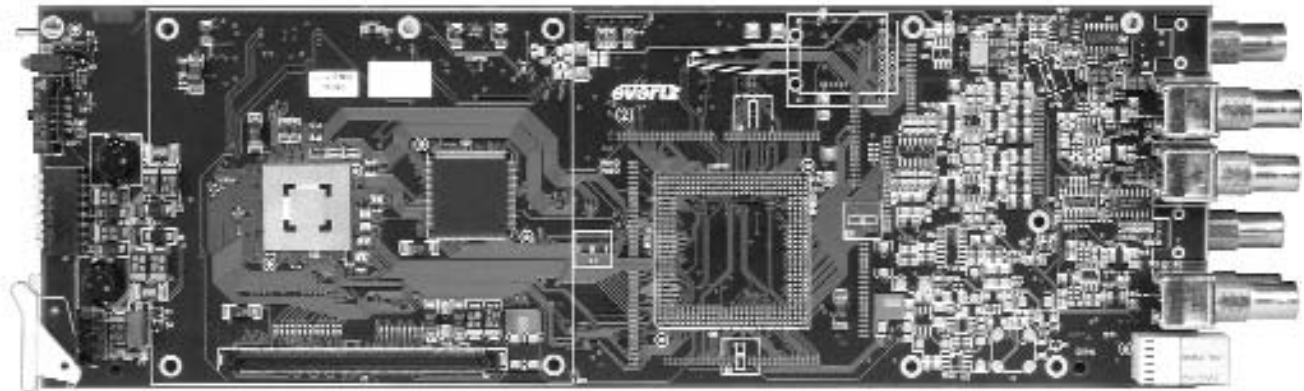
Rear Plate Suffix

| | |
|-------------|---|
| +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 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.

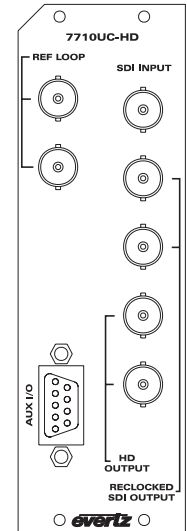
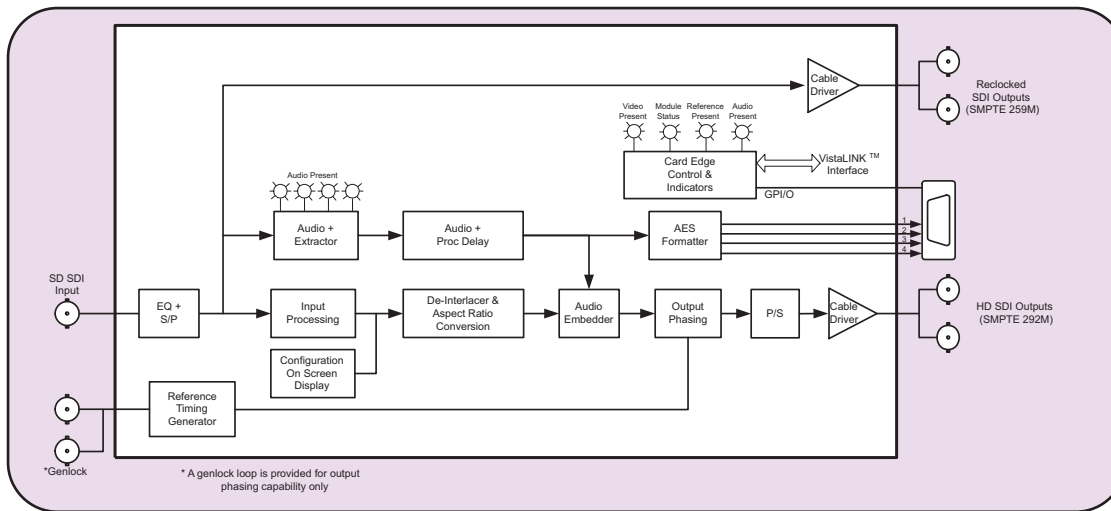
Features

- 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

Connector: Composite bi-level sync (525i or 625i) 300 mV

Termination: BNC Loop per IEC 60169-8 Amendment 2 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:

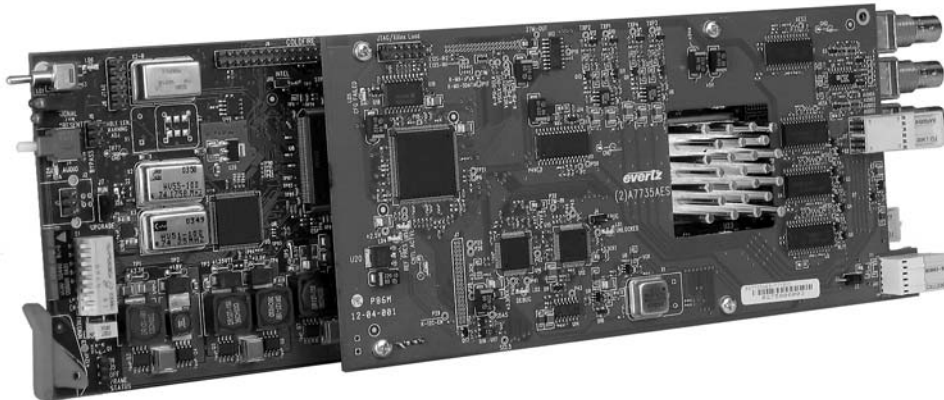
7700FR-C 3RU Multiframe, which holds 15 modules

7701FR 1RU Multiframe, which holds 3 modules

S7701FR Standalone Enclosure

HD 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:

| | |
|------------------|---|
| 7710XC-HD | Provides HD <-> HD cross-conversion with video proc, closed caption and timecode support (VANC support) |
| 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) |
| 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 BNCs and embedded audio, video proc, closed caption and timecode support |
| 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 |

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.

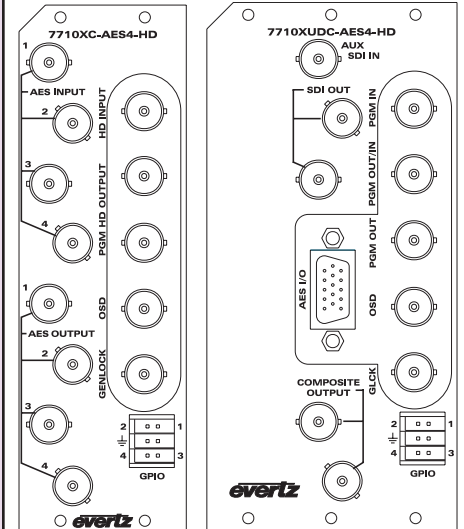
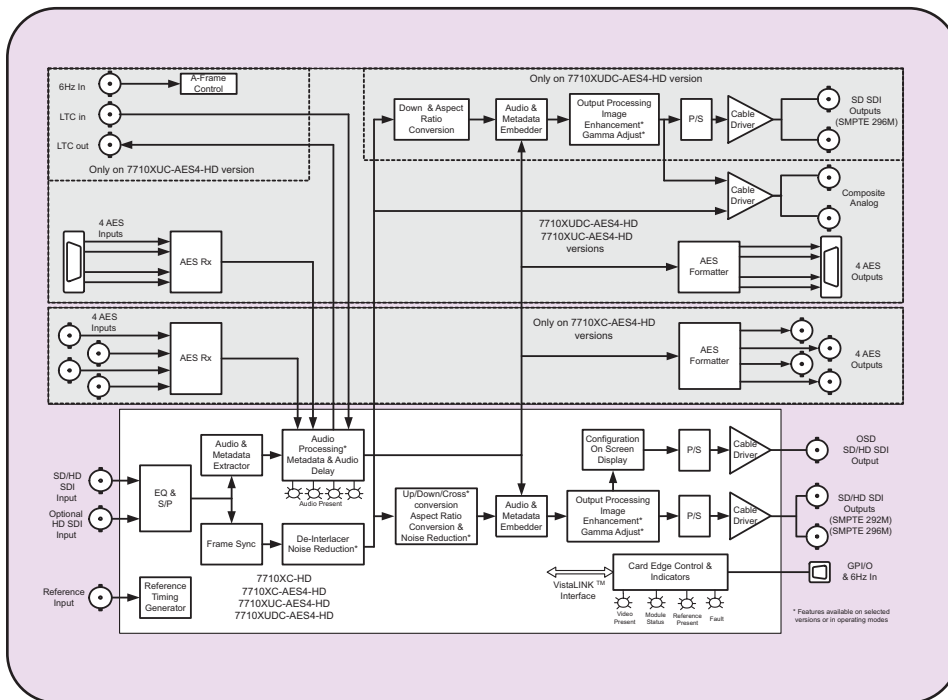
All 7710XC-HD series modules occupy two card slots in the 3RU frame which will hold up to 15 modules, except for the 7710XUDC-AES4-HD which occupies three slots. All modules, except the 7710XUDC-AES4-HD are also available for the 1RU frame which will hold up to three modules. The units also provide card 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 ±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: 75Ω

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:

Inputs: User Preset select, fade or cut for keyer, fade to black

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: 75Ω (jumper selectable)

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

7710XC-HD

7710XC-AES4-HD

7710XUC-AES4-HD

7710XUDC-AES4-HD

HD Up/Cross Converter with HD-SDI Outputs with VANC, support

HD Up/Cross Converter with HD-SDI Outputs with VANC, Embedded Audio and discrete AES support

HD Up/Cross Converter with VANC, Embedded Audio and discrete AES support

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 7710XUDC-AES4-HD)
1RU rear plate for use with 7701FR Multiframe

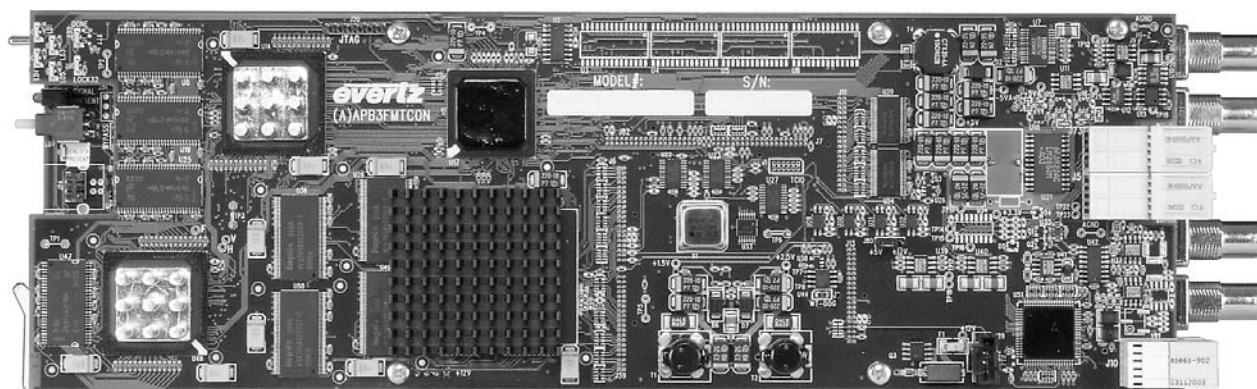
Enclosures:

7700FR-C: 3RU Multiframe which holds 15 modules

7701FR: 1RU Multiframe which holds 3 modules

HD Broadcast Quality Down Converter

Model 7711HDC



The 7711HDC is a high quality down converter for your 1.5 Gb/s HDTV signals. The 7711HDC supports all major HD formats, provides extensive control over the down-conversion process, and seamlessly transfers 2 groups of HANC embedded audio and VANC based metadata to the down-converted outputs. With both SDI 601 digital and Broadcast quality composite outputs, the 7711HDC fits easily into a plant that is fully digital, analog, or mixed. Configuration menus and Status Windows can be activated on an additional pair of composite monitoring outputs making the 7711HDC easy to configure and trouble shoot during installation.

Features

Formats:

- 1080i/59.94, 720p/59.94, 480p/59.94, 1080i/50, 1080p/23.98sF, 1080p/25sF, 1080p/29.97sF, 1035i/59.94

Video Processing:

- High quality 10 bit HD to SD down conversion
- Advanced De-interlacing featuring controls for:
 - Field and Frame Mode
 - Noise Reduction
 - Motion Compensation
 - Horizontal, Vertical Detail Edge Enhancement
- Aspect Ratio Conversion:
 - 16:9/14:9/13:9 Letter Box, 4:3 Side Cut, 4:3 Squeeze
 - Selectable Horizontal/Vertical Filters for control of Picture Sharpness
- HD ITU rec. 709 to SDI ITU rec. 601 color space conversion
- RP188/6Hz Pulse 3:2 Pull-down conversion of 1080p/23.98sF to 525i/59.94
- Automatic input standard and frame rate detection
- Adjustable output timing with respect to reference input

Audio (N-EAES4 only):

- De-embeds, delays and re-embeds 2 groups of audio on SDI 601 outputs
- 4 AES outputs
- Transparent support of embedded PCM, AC3, Dolby E audio

VANC (N-EAES4 only):

- Extraction of RP188 Timecode and conversion to VITC on SDI/Analog outputs
- Extraction of HD Captions and insertion into SDI/Analog outputs

Outputs:

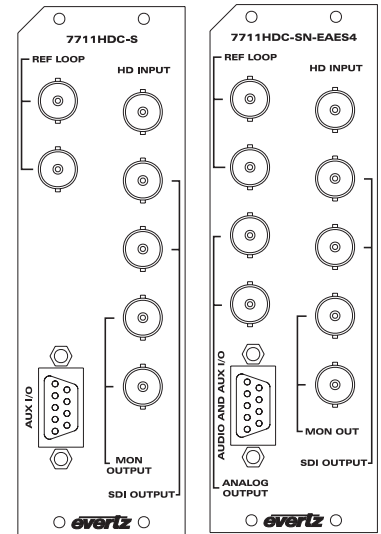
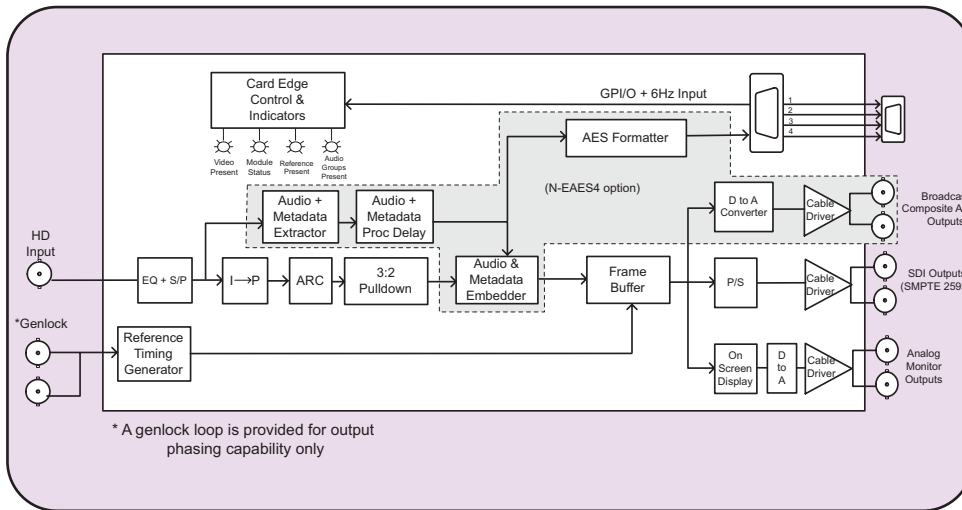
- 2 601 SDI outputs
- 2 High Quality Composite outputs (N-EAES4 option)
- 2 Monitoring Composite outputs with On Screen Display for easy user configuration

Control and Indication:

- Config and control via card edge push-button and toggle switch
- 10 User Presets for storing module configurations
- GPIs for selecting user presets
- LEDs indicating: Module Status/Fault, Video Presence, Reference Presence, Embedded Audio Presence
- VistaLINK™ - enabled offering remote control and capabilities via SNMP 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 VistaLINK™ PRO or 9000NCP Network Control Panel.

HD Broadcast Quality Down Converter

7711HDC Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M 1.5Gb/s Input
Formats: 1080i/59.94, 720p/59.94, 480p/59.94, 1080i/50, 1080p/23.98sF, 1080p/25sF, 1080p/29.97sF, 1035i/59.94
Connector: 1 BNC input per IEC 169-8
Impedance: 75Ω
Equalization: Automatic 100m @1.5Gb/s with (Belden1694)
Return Loss: >10dB to 1.5Gb/s

Serial Video Output:

Standard: Serial component SMPTE 259M-C
Number of Outputs: 2
Connector: BNC per IEC 169-8
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 Loop per IEC 169-8
Termination: High impedance loop or internal 75Ω termination (jumper selectable)

Analog Video Output (N-EAES4 only):

Standard: NTSC, SMPTE 170M, PAL, ITU624-4
Number of Outputs: 2
Connector: BNC per IEC 169-8
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:

Standard: NTSC, SMPTE 170M, PAL, ITU624-4
Number of Outputs: 2
Connector: BNC per IEC 169-8
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 (N-EAES4 only):

Number of Outputs: 4
Standard: SMPTE 276M, single ended AES
Connector: Female high density DB-15
Sampling Rate: Synchronous 48kHz
Impedance: 75Ω unbalanced

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 Prest 1 & 2 select

Input to Output Processing Delay:

Minimum Delay Mode: 2 to 4 frames depending 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 VANC: Audio, captions and VITC are delayed and re-embedded in time with the output picture (7711HC-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:

7711HDC-S HD Broadcast Quality Downconverter with SDI outputs
7711HDC-SN-EAES4 HD Broadcast Quality Downconverter with SDI and Broadcast Analog Outputs with VANC support & AES/Embedded Audio Support

Accessories:

| | |
|----------------|---|
| 9000NCP | VistaLINK™ Genera Purpose Network Control Panel |
|----------------|---|

Ordering Options:

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

Rear Plate Suffix

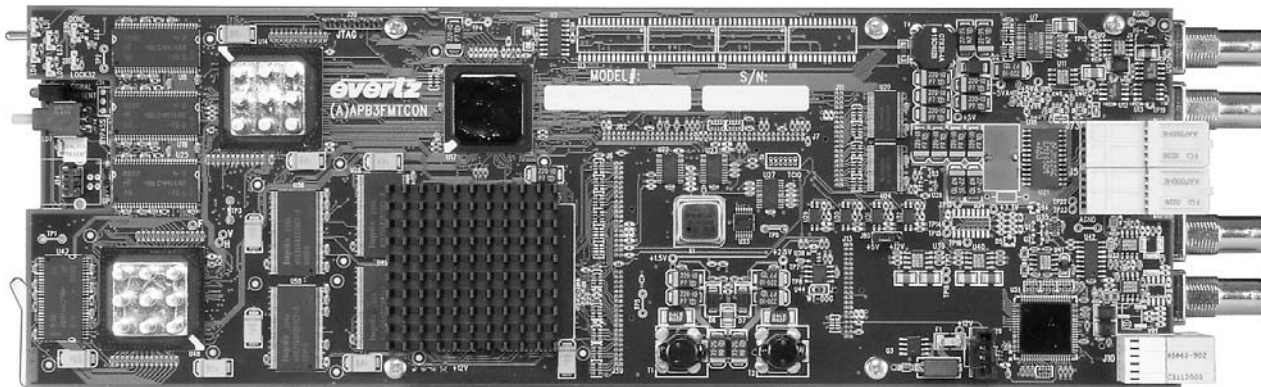
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

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

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.

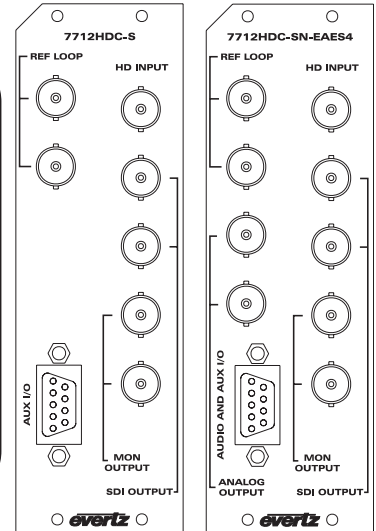
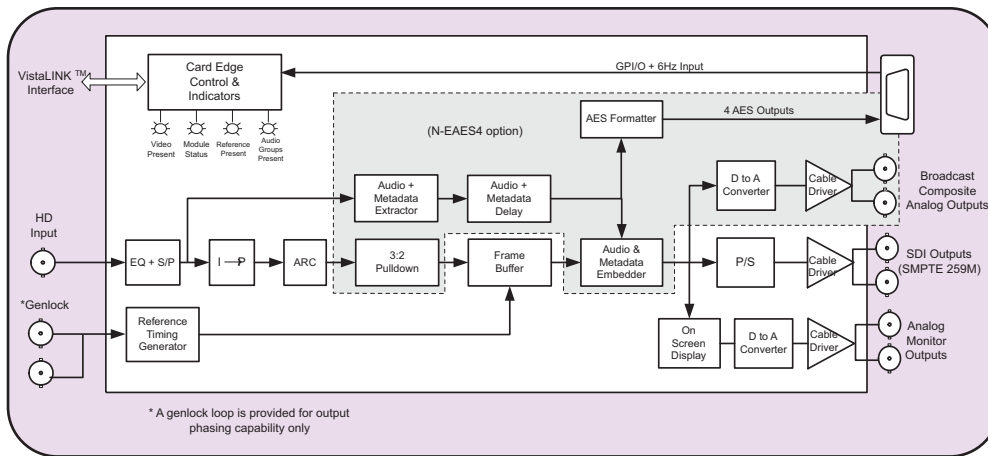
The 7712HDC occupies two card slots in the 3 RU frame which will hold up to 15 modules or one slot in the 1RU frame which will hold up to three modules or a standalone enclosure which will hold 1 module.

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™ or 9000NCP Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

HD Broadcast Quality Down Converter

7712HDC Block Diagram



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

Accessories:

WP-7711HDC-SN-EAES4 7712HDC-SN-EAES4/7710UC-HD AES/GPIO Breakout Cable

9000NCP VistaLINK™ General Purpose Network Control Panel

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

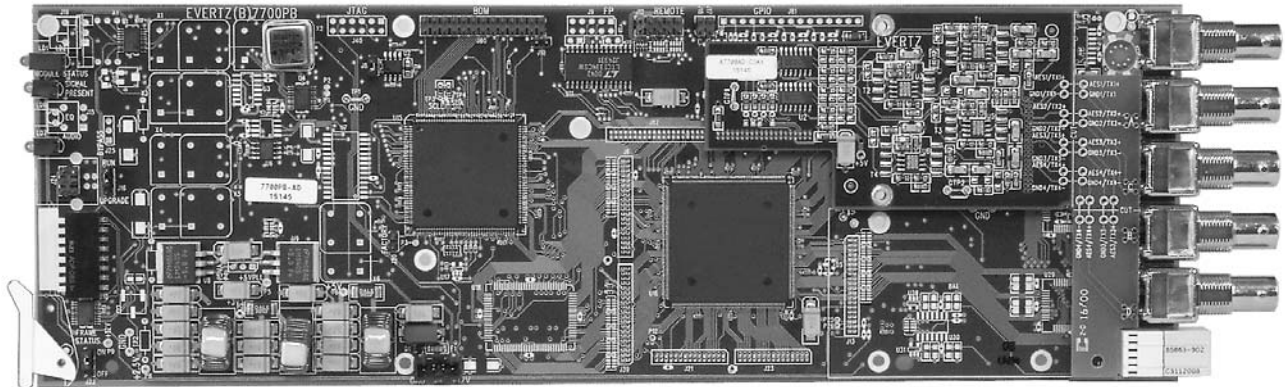
Enclosures:

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.

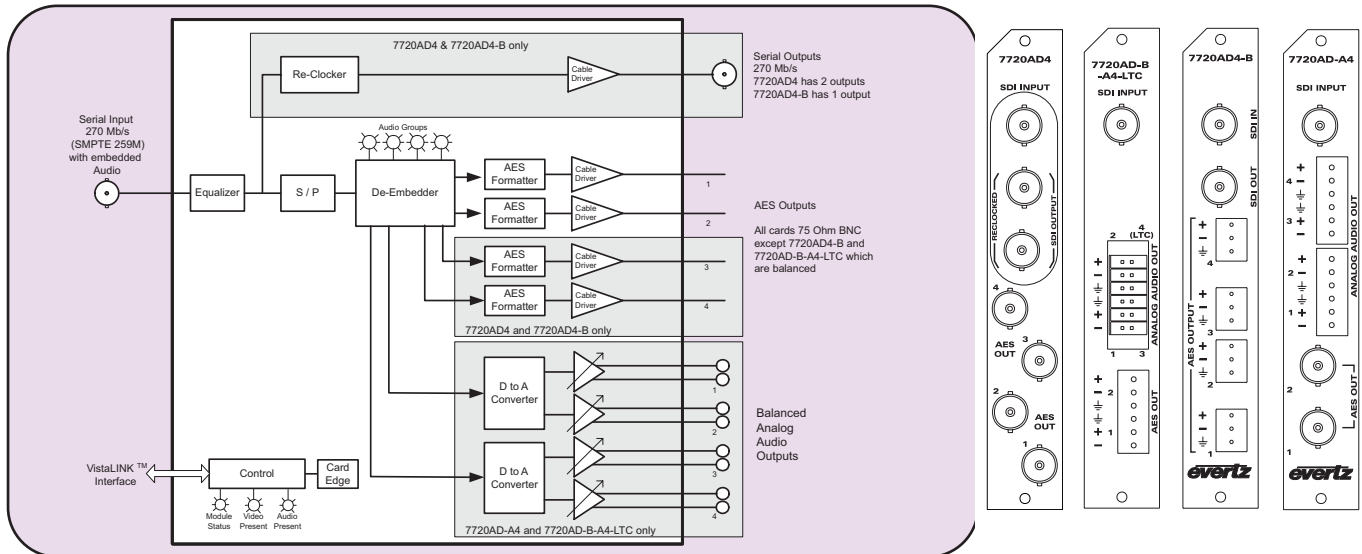
| Model | Audio Outputs | | Video 270Mb/s SDI Re-clockedOutputs |
|-----------------|---------------|-------------|--|
| | AES | Analog | |
| 7720AD-A4 | 2 Unbalanced | 4 | -- |
| 7720AD-B-A4-LTC | 2 Balanced | 3 +LTC or 4 | -- |
| 7720AD4 | 4 Unbalanced | -- | 2 |
| 7720AD4-B | 4 Balanced | -- | 1 |

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: 75 Ω balanced
Dynamic Range: 20-bit

Input to Output Processing Delay:

SDI to AES: 1.35 mSec (A4 versions)
600 μ Sec all other versions
SDI to Analog: 2.25 mSec (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

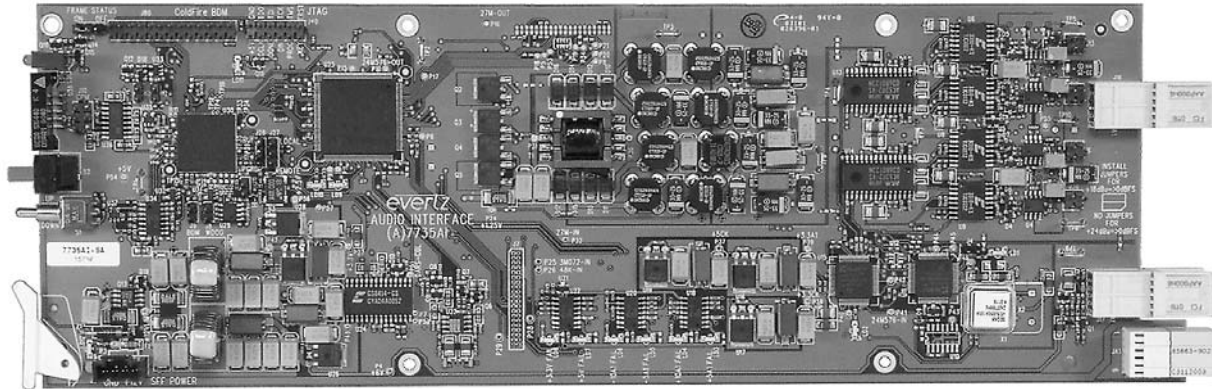
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

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

Quad Analog Audio to Dual AES Converter

Model 7720ADC-A4



Card Edge Audio Level Adjust Display



Card Edge 4 Channel "VU" Bargraph Meters



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.

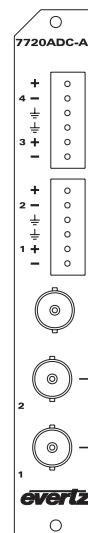
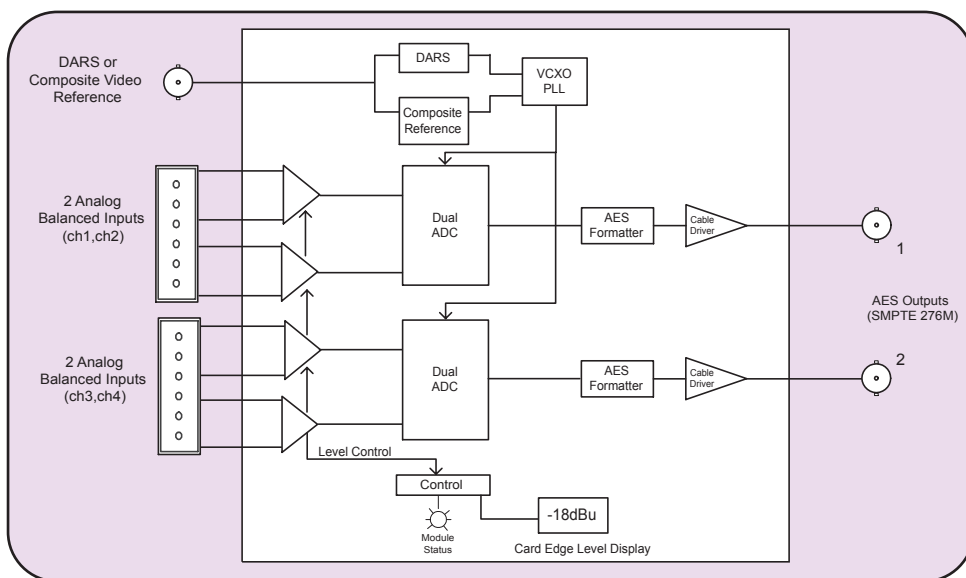
The audio ADC features a card edge VU meter for quick confidence monitoring. Four separate level indicators are provided via bargraphs for quick validation of audio program material.

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 for remote monitoring and control via SNMP (using VistaLINK™ PROPRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

Quad Analog Audio to Dual AES Converter

7720ADC-A4 Block Diagram



Specifications

Analog Audio Input:

| | |
|----------------------------|--|
| Number of Inputs: | 4 |
| Type: | Balanced analog audio |
| Connector: | Removable terminal strip |
| Input Impedance: | 10k Ω minimum (differential) |
| Sampling Frequency: | 48kHz (freerun or locked to the reference) |
| Signal Level: | 0dB FS = 8dBu to 27dBu(programmable via 0dB/+6dB jumper and card edge fine gain with -10... +10dB range) |
| Frequency Response: | +/- 0.1dB (20Hz to 20kHz) |
| SNR: | 100dB with input at -1dBFS |
| THD+N: | <0.001% (>100dB) @ 20Hz to 20kHz, -1 dB FS |
| CMRR: | >100dB @ 1kHz |
| Crosstalk: | < -100dB @ 20Hz-20kHz |
| Inter-channel Phase error: | < 1°, 20Hz-20kHz |

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) |
| DARS: | SMPTE 276M, 1Vp-p |
| Frequency Lock Range: | \pm 100ppm from nominal |
| Input Impedance: | High impedance |
| Return Loss: | >25dB to 10MHz (with external 75 Ω termination) |

AES Audio Output:

| | |
|--------------------|---------------------------------|
| Standard: | SMPTE 276M single ended AES |
| 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: | 0.87m Sec |

Electrical:

| | |
|----------|---|
| Voltage: | + 12VDC |
| Power: | 10 Watts (nominal) |
| EMI/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: Model + 3RU

Rear Plate Suffix

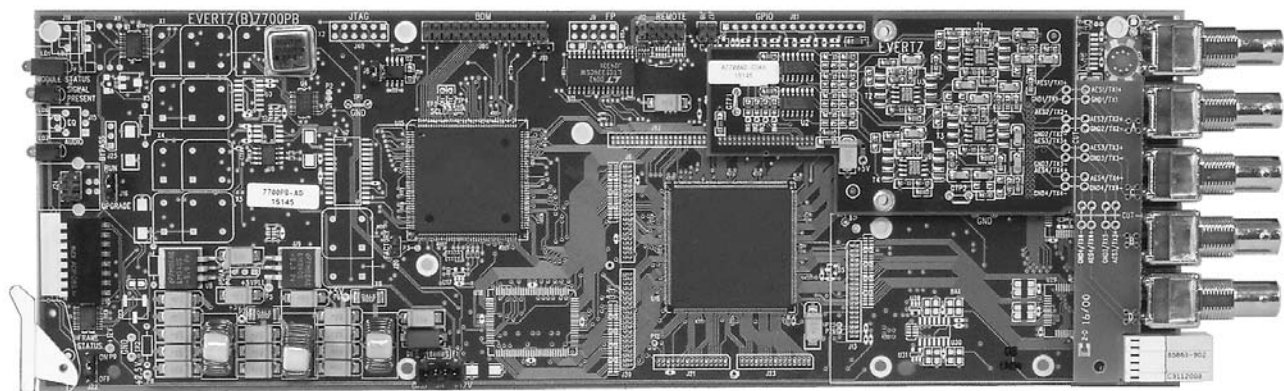
| | |
|------|---|
| +3RU | 3RU Rear Plate for use with 7700FR-C Multiframe |
| +1RU | 1RU Rear Plate for use with 7701FR Multiframe |
| +SA | Standalone Enclosure Rear Plate |

Enclosures:

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



Model 7720AD-HD, 7720AD-A4-HD & 7720AD4-HD



The 7720AD-HD series Audio De-embedders extract embedded audio as specified by SMPTE 299M from a 1.5 Gb/s serial HDTV video signal.

SMPTE 299M allows for up to four groups (4 channels/group) to be embedded within a serial HDTV signal. The 7720AD-HD can de-embed one audio group onto two single ended AES outputs. The 7720AD-HD-A4 de-embeds one group onto four analog audio channels. The 7720AD4-HD can de-embed two audio groups onto four single ended AES outputs. The de-embedded audio can be delayed up to 3 seconds to retune audio to match video processing delays. The 7720AD-HD series are Dolby E compliant.

| Model | Audio Outputs | | Video 1.5Gb/s Reclocked Outputs |
|-----------|---------------|--------|---------------------------------------|
| | AES | Analog | |
| 7720AD-HD | 2 | -- | 2 |
| 7720AD-A4 | -- | 4 | -- |
| 7720AD4 | 4 | -- | -- |

Features

Card Edge LED's:

- Video Signal presence
- Module Status
- Audio Presence - Audio Group Indicator

Controls:

- Audio group selection via card edge DIP switches
- Audio channel swapping selection via card edge DIP switches
- Lock De-embedder groups to maintain phase of outputs on 7720AD4-HD

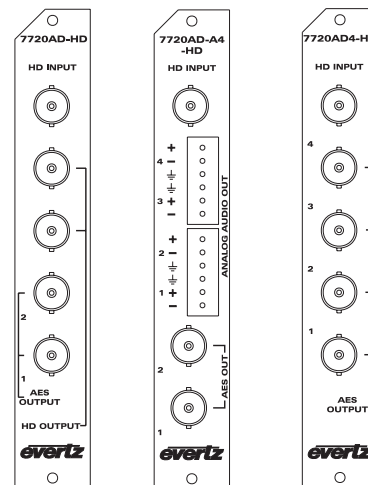
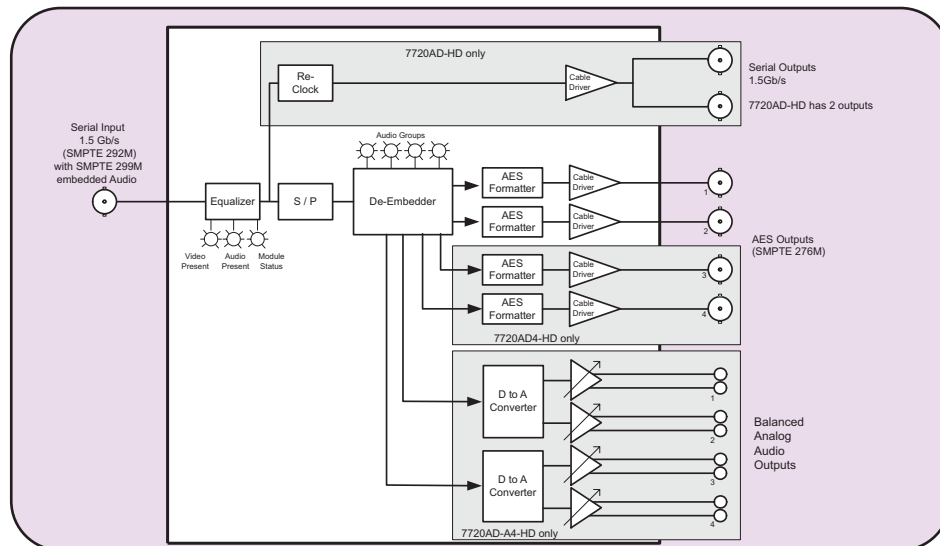
Inputs:

- SMPTE 292M - 1.5Gb/s serial digital
- Auto equalization to 125m

Outputs:

- Variety of outputs (depending on configuration)

7720AD-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 169-8
Equalization: Automatic 125m @ 1.5Gb/s with Belden 1694 (or equivalent)

Reclocked Serial Video Output:

Standard: Same as input
Number of Outputs: 2 on 7720AD-HD
0 on 7720AD-A4-HD, 7720AD4-HD
Connector: BNC per IEC 169-8
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

AES Audio Output:

Standard: SMPTE 276M, single ended AES
Number of Outputs: 2 on 7720AD-HD & 7720AD-A4-HD
4 on 7720AD4-HD
Connector: BNC per IEC 169-8
Sampling Rate: 48kHz
Impedance: 75 Ω
Delay: 9 samples to approx. 3 seconds (user adjustable)
Resolution: 24-bit

Analog Audio Output (7720AD-A4-HD Only):

Number of Outputs: 4
Type: Balanced analog audio
Connector: 6 pin terminal strip
Output Impedance: 66 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:

Deembedding Latency:

HD SDI to AES: 1.35mSec (7720AD-A4-HD)
600 μ Sec all other versions
HD SDI to Analog: 2.25mSec

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-HD HD SDI AES Audio De-embedder with 2 unbalanced AES outputs
7720AD-A4-HD HD SDI Audio De-embedder with 2 unbalanced AES and 4 analog audio outputs
7720AD4-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

SDI AES Audio Embedder & Fiber Receiver



Model 7720AD-OE

The 7720AD-EO Audio De-embedder extracts embedded audio as specified in SMPTE 272M from a 270Mb/s fiber optic input signal.

SMPTE 272M allocates four 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. 7720AD series De-embedders are Dolby E compliant.

Features

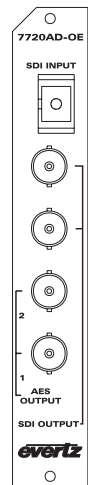
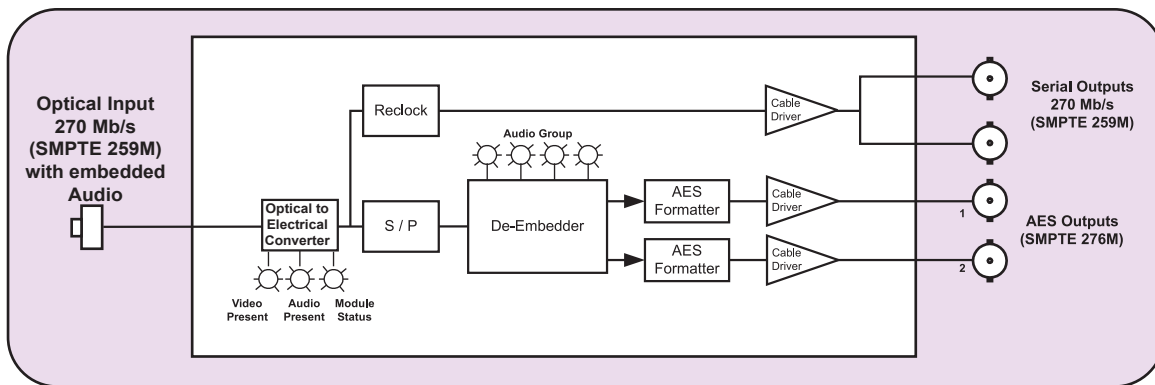
Controls:

- Audio group selection via card edge DIP switches
- Audio channel swapping selection via card edge DIP switches

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

HD AES Audio De-embedder & Fiber Receiver



Model 7720AD-OE-HD

Features

Card Edge LED's:

- Video Signal presence
- Module Status
- Audio Presence - Audio Group Indicator

Controls:

- Audio group selection via card edge DIP switches
- Audio channel swapping selection via card edge DIP switches

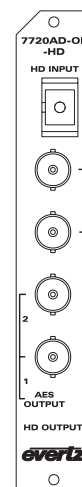
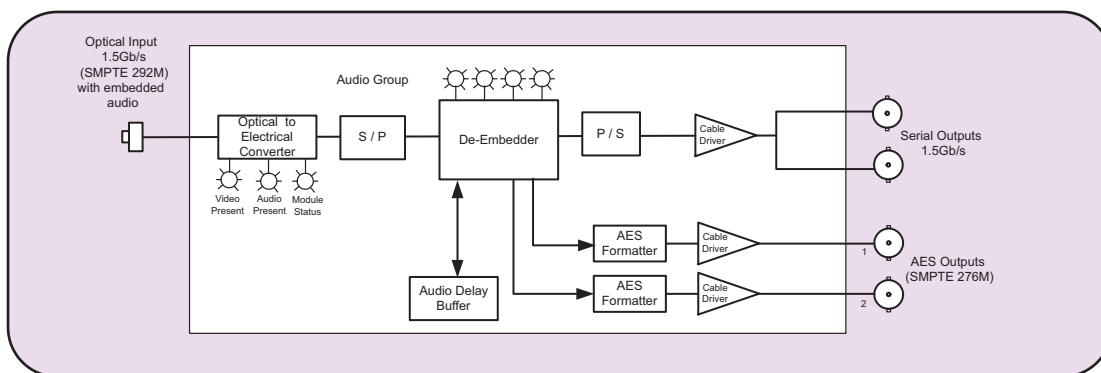
Inputs:

- SMPTE 292M - 1.5Gb/s serial digital on fiber optic input

Outputs:

- 2 serial HD-SDI outputs
- 2 single ended AES outputs

7720AD-OE-HD 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: | -23dBm |

Reclocked Serial Video Output:

| | |
|---------------------|---------------------------------|
| Standard: | SMPTE 292M |
| 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: | 270ps nominal |
| Overshoot: | <10% of amplitude |
| Wide Band Jitter: | <0.2 UI |

AES Audio Output:

| | |
|--------------------|--|
| Standard: | SMPTE 276M, single ended AES |
| Number of Outputs: | 2 |
| 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 |

System Performance:

| | |
|----------------------|---|
| Deembedding Latency: | |
| HD SDI to AES: | 1.35 mSec (7720AD-A4-HD) 600 mSec all other versions |
| HD SDI to Analog: | 2.25 mSec |

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-HD | HD 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 |

Connector Suffix

| | |
|-----|-------|
| +SC | SC/PC |
| +ST | ST/PC |
| +FC | FC/PC |

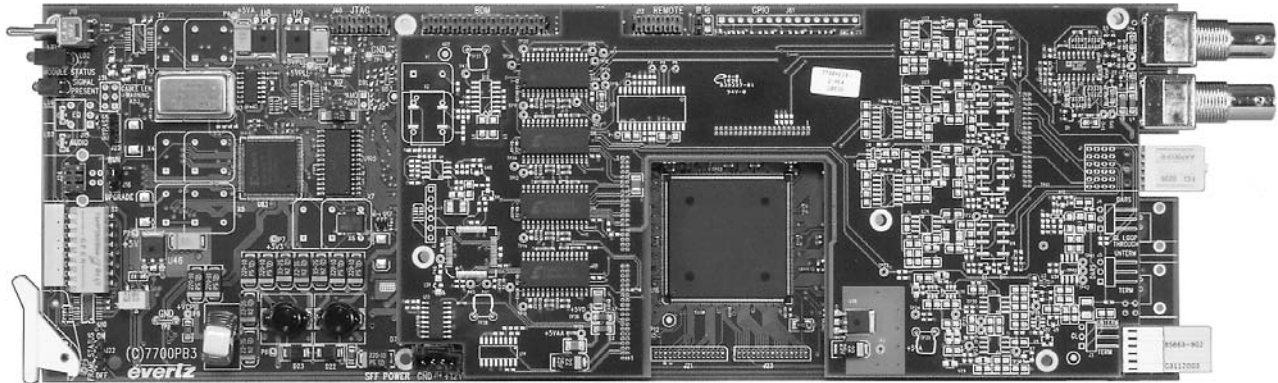
Enclosures:

| | |
|----------|--|
| 7700FR-C | 3RU Multiframe, which holds 15 modules |
| 7701FR | 1RU Multiframe, which holds 3 modules |

Note: This module not available in a 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 Deembedder facilitates audio demultiplexing at the destination.

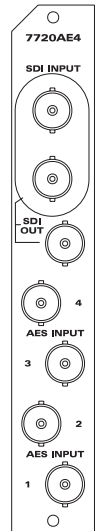
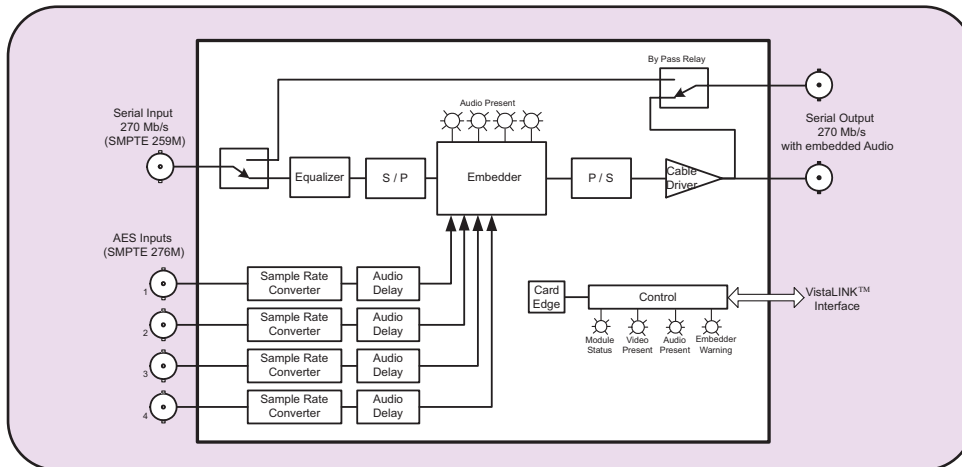
SMPTE 272M allocates four groups of four audio channels that can be embedded into the SMPTE 259M bitstream. The 7720AE4 embeds up to 4 AES audio signals into two groups on the SDI outputs for discrete 5.1 audio applications. The 7720AE4 is Dolby E compliant when the sample rate converters are turned 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™ PROPRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

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 mSec

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

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.

SMPTE 272M allocates four groups of four audio channels that can be embedded into the SMPTE 259M bistream. The 7720AE-EO has the ability to select the audio channel group where the audio will be inserted. The 7720AE series Embedders are Dolby E compliant.

Features

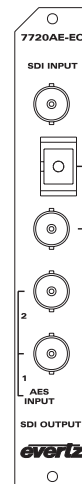
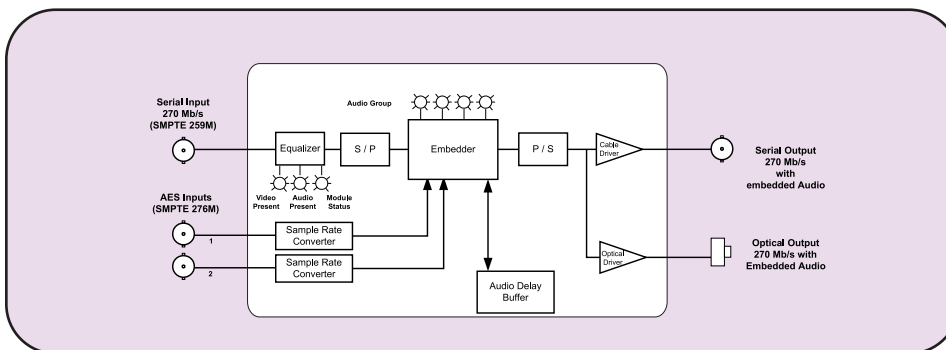
Controls:

- 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, IEC 169-8 |
| Equalization: | Automatic to 300m @ 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 FB: | 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 |

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 |

HD AES Audio Embedder & Fiber Transmitter



Model 7720AE-EO-HD

The 7720AE-EO-HD Audio Embedder inserts two AES audio signals into a SMPTE 292M compliant, 1.485Gb/s HDSDI video signal as specified in SMPTE 299M. In addition to an HDSDI output the 7720AE-EO-HD provides a fiber optic output with embedded audio. The 7720AE-EO-HD will do a seamless audio embed when the input video is switched properly in the vertical interval.

SMPTE 299M allocates four groups of four audio channels that can be embedded into the SMPTE 292M bitstream. The 7720AE-EO-HD has the ability to select the audio channel group where the audio will be inserted. The 7720AE-EO-HD is Dolby E compliant.

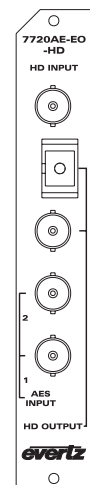
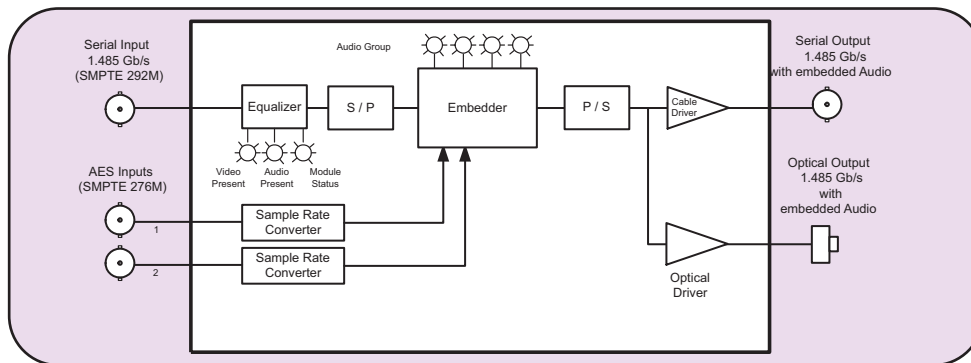
Features

- Audio group selection via card edge DIP switches
- Selectable clean or pass through embedding mechanism
- Sample rate conversion disable to permit Dolby E embedding

Card Edge LEDs:

- Video Signal Presence
- Module Status
- Audio Presence - Upstream Audio Group Indicators

7720AE-EO-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M, (1080i/50, 1080i/60, 1080i/59.94, 1080p23.98sF, 1080p24sF, 1080p25sF, 720p/60, 720p/59.94)
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 125m @ 1.485Gb/s with Belden 1694(or equivalent)

AES Audio Inputs:

Number of Inputs: 2
Standard: SMPTE 276M, single ended AES, Dolby E compatible
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V p-p $\pm 0.1V$
Resolution: 24-bit
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced

Serial Video Output With Embedded Audio:

Number of Outputs: 1
Standard: SMPTE 292M Video, SMPTE 299M Audio
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
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 Information)
Output Power:
1310nm FP: -7dBm ± 1 dBm
1310nm/1550nm DFB: 0 dBm ± 1 dBm
CWDM DFB: 0 dBm ± 1 dBm

System Performance:

Embedding Latency: 1.3 to 3 mSec

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:

7720AE-EO13-HD HD AES Audio Embedder & Fiber Transmitter, 1310nm, FP, Laser
7720AE-EO13-HD-L HD AES Audio Embedder & Fiber Transmitter, 1310nm, DFB, Laser
7720AE-EO15-HD HD AES Audio Embedder & Fiber Transmitter, 1550nm, DFB, Laser

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

7720AE-EOxx-HD HD AES Audio Embedder & Fiber Transmitter, CWDM 1270nm to 1610nm DFB, 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

CWDM & DWDM Wavelength Ordering Information

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

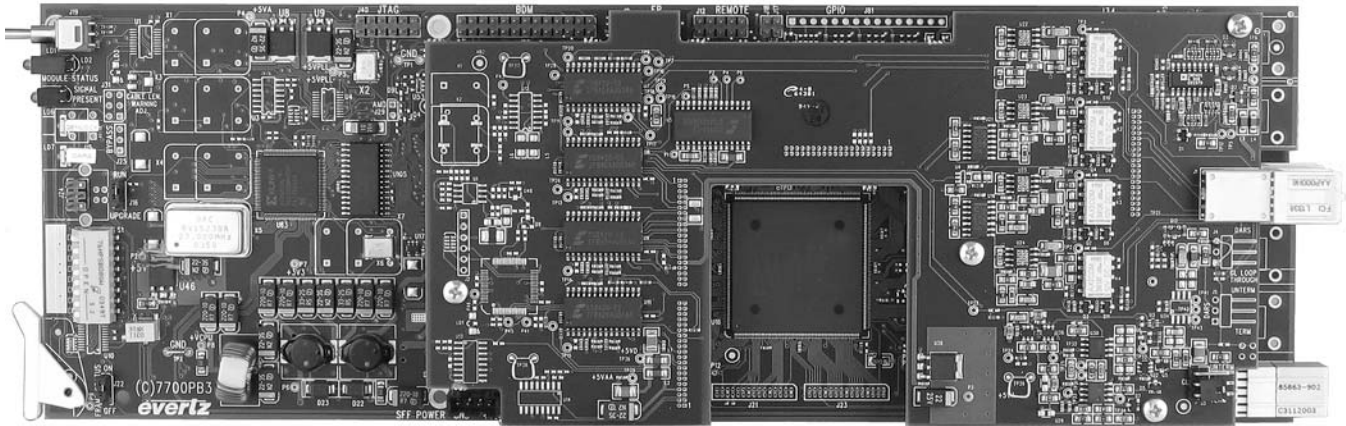
| Laser Ordering Number (xx) | Wavelength (nm) | Transmitter Module (Example) |
|----------------------------|-----------------|------------------------------|
| 27 | 1270 | 7707EO27 |
| 29 | 1290 | 7707EO29 |
| 31 | 1310 | 7707EO31 |
| 33 | 1330 | 7707EO33 |
| 35 | 1350 | 7707EO35 |
| 37 | 1370 | 7707EO37 |
| 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 |

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)

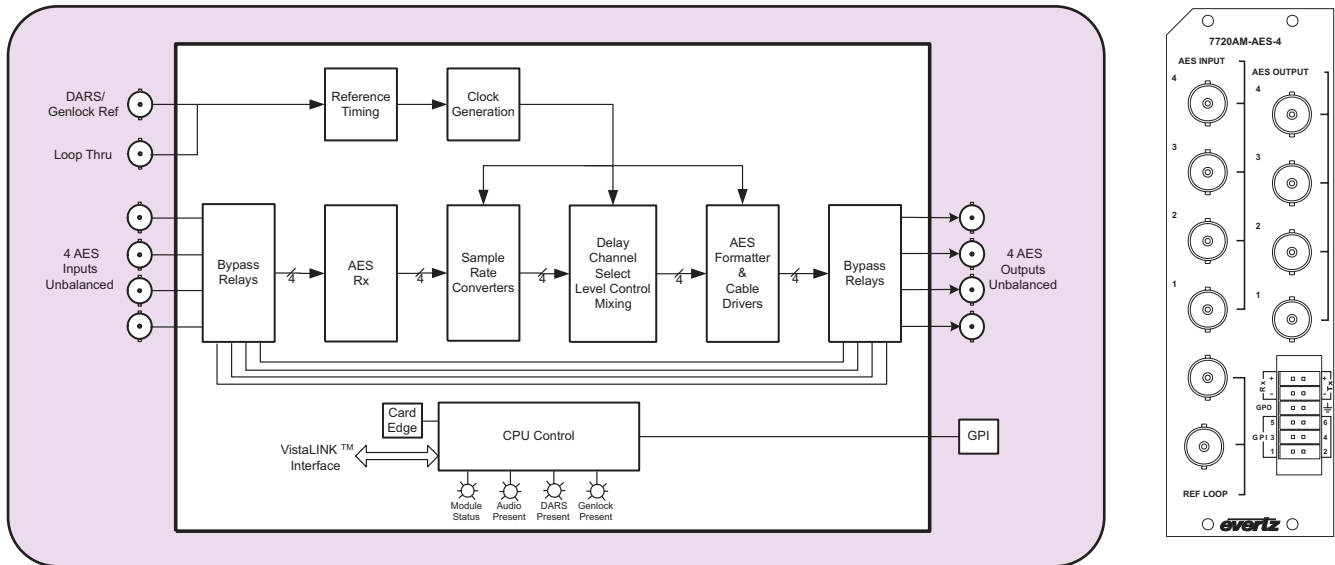
Features

- 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
- VistaLINK™ -enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO or 9000NCP 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
- 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

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
Type: Opto-isolated, active low with internal pull-ups to +5V
Connector: 8 pins on 12 pin removable terminal block
Signal Level: +5V nominal

Data Logging Serial Port:

Standard: RS 422
Connector: 5 pins on 12 pin removable terminal block
Function: (not used at this time)

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

Ordering Options:

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

Rear Plate Suffix

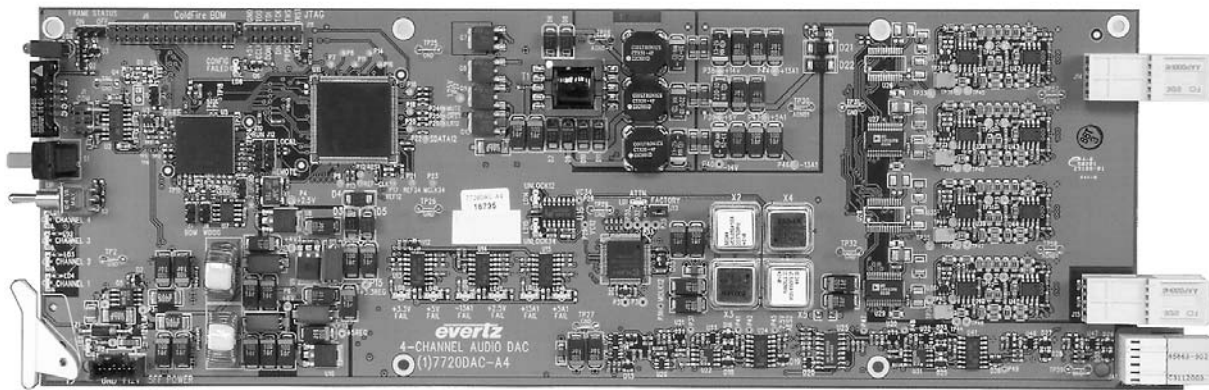
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe

Enclosures:

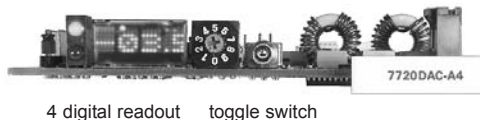
7700FR-C 3RU Multiframe, which holds 15 modules
7701FR 1RU Multiframe, which holds 3 modules

Dual AES to Quad Analog Audio Converter

Model 7720DAC-A4



Card Edge Audio Level Adjust Display



4 digital readout toggle switch

Card Edge 4 Channel "VU" Bargraph Meters



4 digital readout

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.

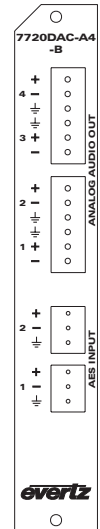
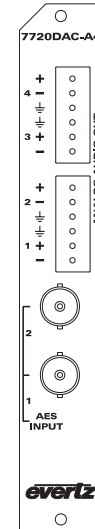
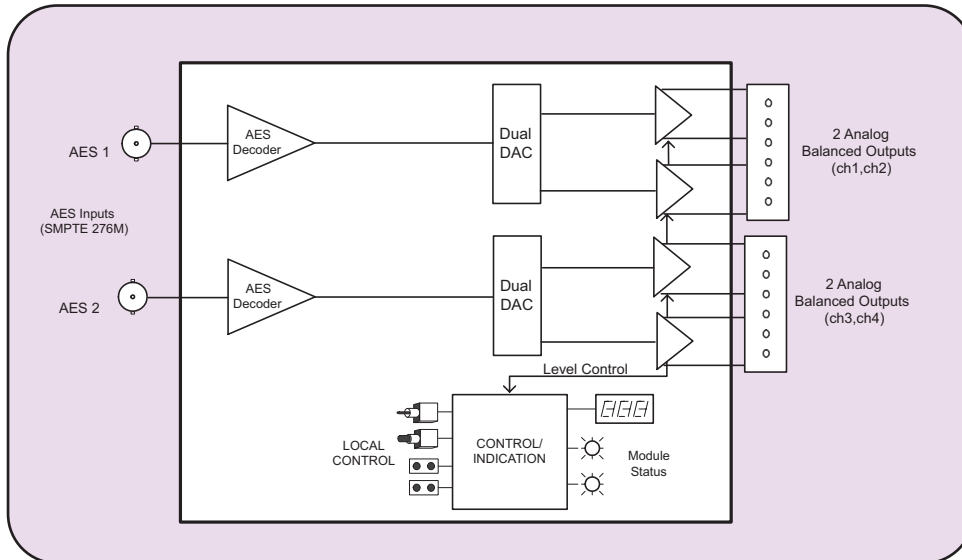
The audio DAC features a card edge VU meter for quick confidence monitoring. Four separate level indicators are provided via bargraphs for quick validation of audio program material.

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 capabilities via SNMP 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 VistaLINK™ PRO or 9000NCP Network Control Panel.

Dual AES to Quad Analog Audio Converter

7720DAC-A4 Block Diagram



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: < ± 0.05dB (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: 0.95m Sec

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

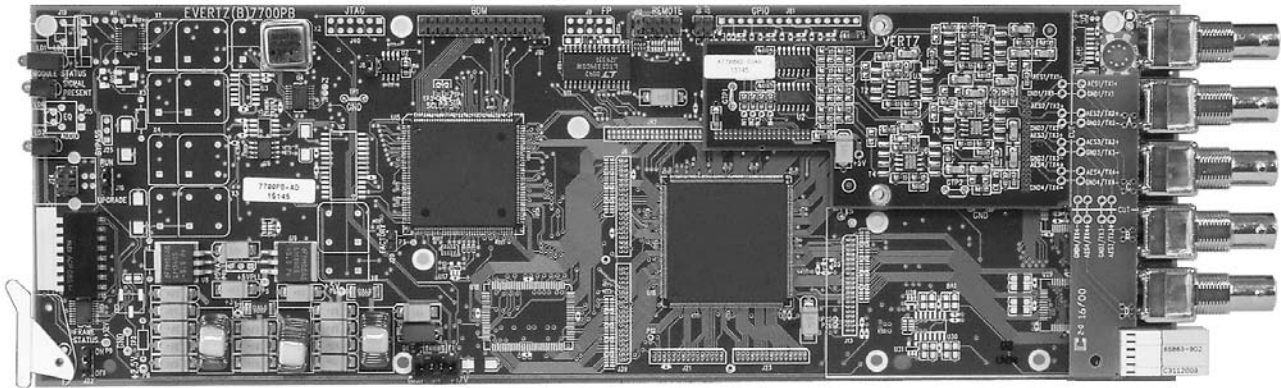
Enclosures:

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.

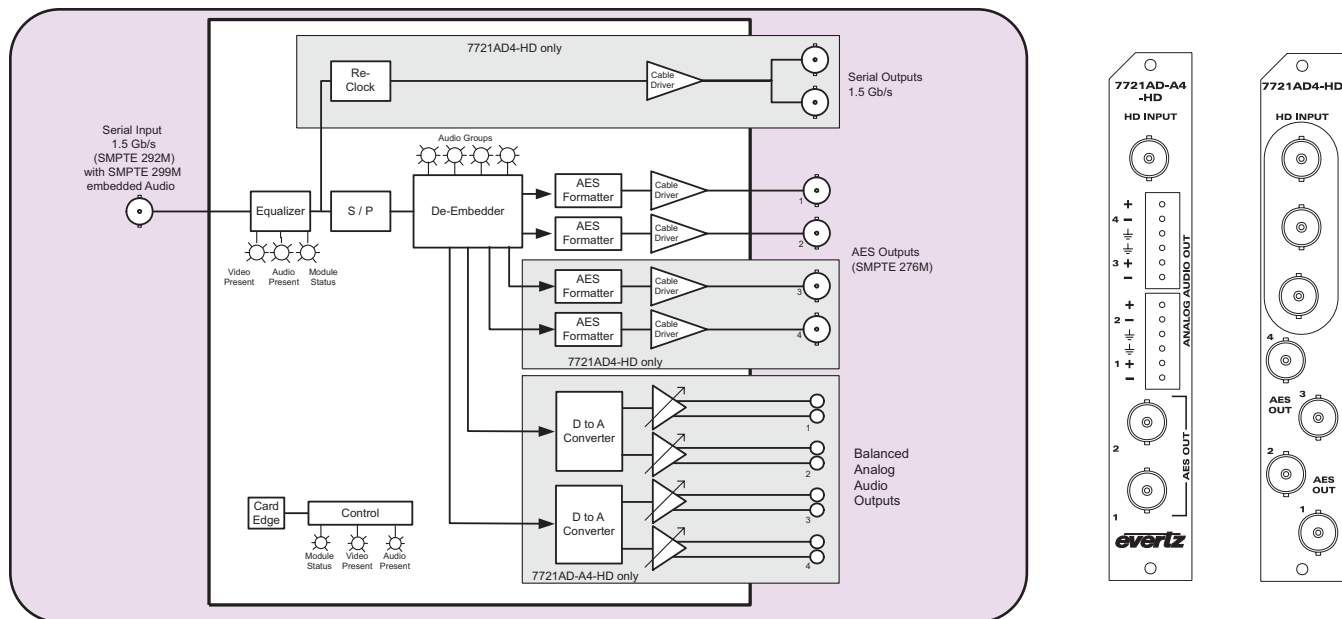
| Model | Audio Outputs | | Video 1.5Gb/s Reclocked Outputs |
|--------------|---------------|--------|---------------------------------------|
| | AES | Analog | |
| 7721AD4-HD | 4 | -- | 2 |
| 7721AD-A4-HD | 2 | 4 | -- |

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

HD SDI AES Audio De-embedder

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)

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
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: 66 Ω balanced
Sampling Frequency: 48kHz
Signal Level: 0dB FS => 8 to 24dBu into 10k Ω load (user settable)
0dB FS => 8 to 22dBu into 600 Ω load (user settable)

Frequency Response: < ± 0.1 dB (20Hz to 20kHz)

Dynamic Range: 24-bit

THD+N: > 90dB RMS @ 1kHz with 24dBu output

Crosstalk: > 90dB RMS (20Hz to 20kHz)

System Performance:

Deembedding Latency:

HD SDI to AES: 1.35mSec (7721AD-A4-HD)
600 μ Sec (7721AD4-HD)
HD SDI to Analog: 2.25mSec (7721AD-A4-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

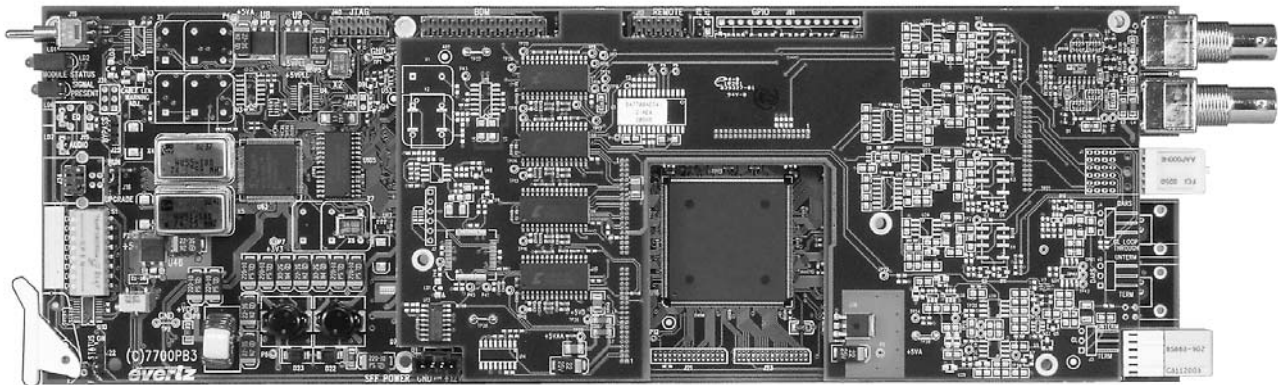
+3RU 3RU Rear Plate for use with 7700FR-C
Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

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

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 Deembedder facilitates audio demultiplexing at the destination.

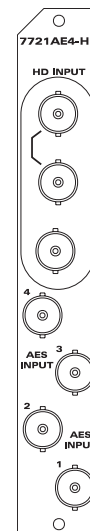
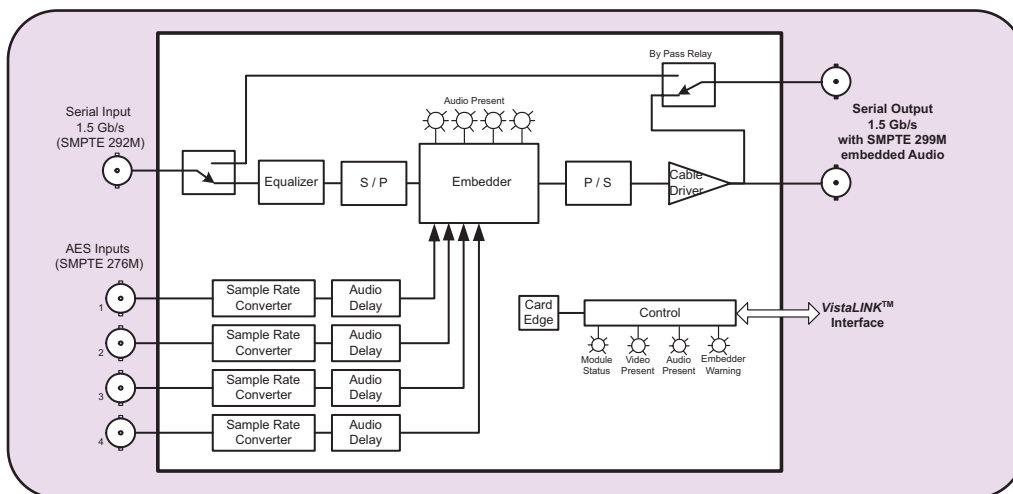
SMPTE 299M allocates four groups of four audio pairs that can be embedded into the SMPTE 292M bitstream. The 7721AE4-HD embeds up to 4 AES audio signals into two groups on the HD-SDI outputs for discrete 5.1 audio applications. The 7721AE4-HD is Dolby E compliant when the sample rate converters are turned 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/30sF, 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: > 15 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: > 15 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 mSec

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

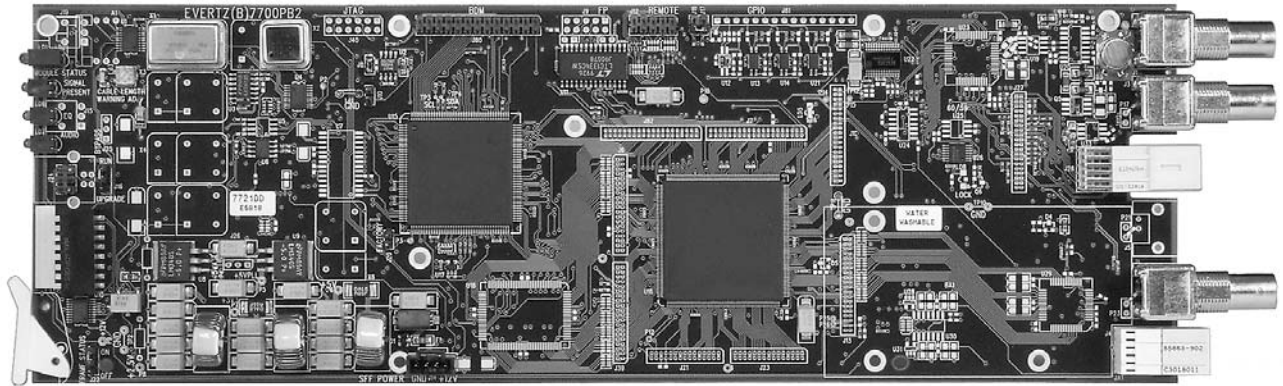
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

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

SDI Data De-embedder

Model 7721DD



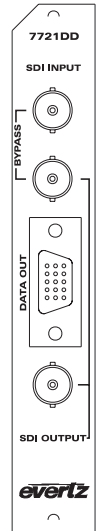
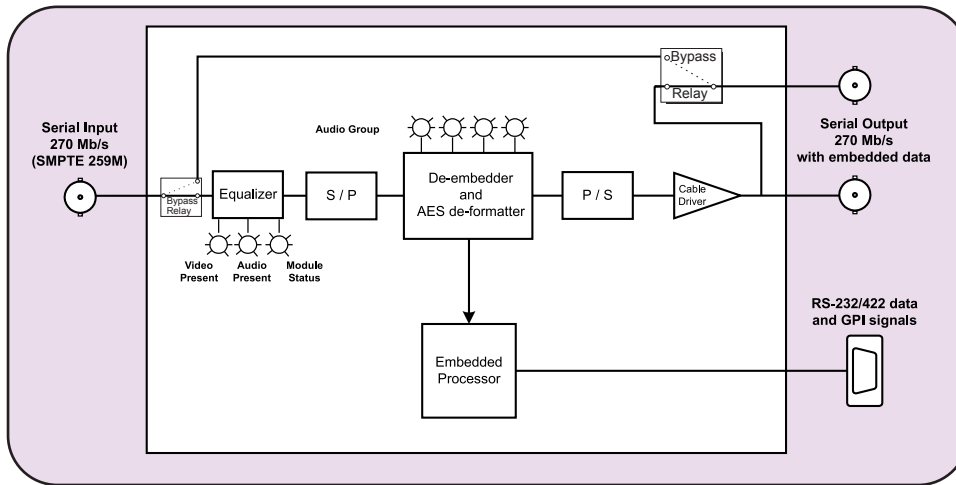
The 7721DD SDI data de-embedder extracts data that has been embedded into a 270 Mb/s SDI video signal by the 7721DE data embedder and outputs these as a RS-232 or RS-422 data stream and GPO contact closure information. The data packets are first de-embedded from the input video then de-formatted from AES audio packets into the original data format stream.

A data error detection and correction scheme is also applied to maintain data integrity. At the embedded packet layer, data packets resemble and have the same group DIDs as embedded audio packets.

Features

- Automatic detection of 525 and 625 line SDI video input
- Supports even, odd or no parity serial input data channel
- Auto insertion of black video on loss of input video
- De-embedding mechanism based on SMPTE 272M-A
- De-formats AES audio (sub-frame mode) to generic data content according to SMPTE 337M
- Share the same group DIDs as embedded audio, selectable from group 1 to 4
- Channel selection for extracting packetized data from one of four channels within a data group
- Supports data error detection and correction, or minimum delay mode without correction
- One RS-232/422 serial output with automatic output baud rate at 9600, 14400, 19200, 38400 or 57600
- Six TTL level GPO signals activated when corresponding GPI inputs on 7721DE are activated
- Removes all data/audio packets with selected group ID
- EDH generation on video output
- Card edge LEDs indicate video signal presence and data presence, cable equalization and module fault
- Program output bypass relay protected

7721DD 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 200m @ 270Mb/s with Belden 8281 (or equivalent) |
| Return Loss: | > 15 dB up to 270 Mb/s |

Serial Video Outputs with Embedded Data:

| | |
|----------------------------|-------------------------------------|
| Number of Outputs: | 2 (1 output bypass relay protected) |
| 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 |

Serial Data Output:

| | |
|----------------------------|--|
| Standard: | RS-232 or RS-422 - Jumper Selectable |
| Connector: | Female High Density DB-15 |
| Baud Rate: | 9600, 14400, 19200, 38400 or 57600 automatic |
| Format: | 8 bits, parity (one, even, odd), 1 stop bit |
| De-embedding Delay: | Approx. 2ms at 9600 baud |

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 |

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:

| | |
|---------------|----------------------|
| 7721DD | SDI Data De-embedder |
|---------------|----------------------|

Ordering Options

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

Rear Plate Suffix

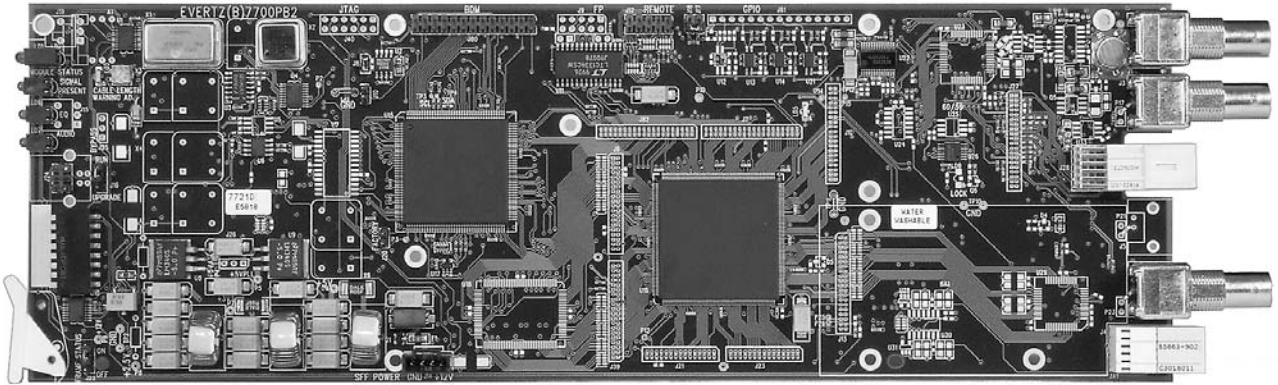
| | |
|-------------|---|
| +3RU | 3RU Rear Plate for use with 7700FR-C Multiframe |
| +1RU | 1RU Rear Plate for use with 7701FR Multiframe |
| +SA | Standalone Enclosure Rear Plate |

Enclosures:

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

SDI Data Embedder

Model 7721DE



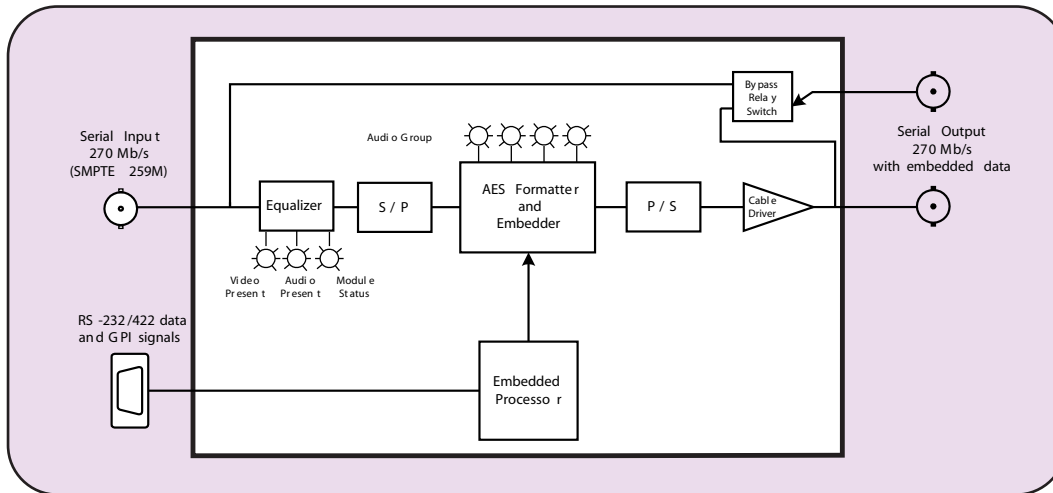
The 7721DE SDI Data Embedder inserts an RS-232/422 serial data stream and GPI contact closure information into a SMPTE 259M-C (270 Mb/s) SDI video signal. The input data is first formatted into an AES audio signal, according to SMPTE 337M, then embedded into the video stream according to SMPTE 272M-A specification.

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 525 and 625 line SDI video input
- Automatic activation of an internal black video signal on the loss of video input
- One RS-232/422 serial input with selectable baud rate at 9600, 14400, 19200, 38400, 57600
- Packetize data into sub-frame AES format according to SMPTE 337M
- Embedding mechanism based on SMPTE 272M-A
- Share the same group DIDs as embedded audio, selectable from group 1 to 4
- Channel selection for data mapping into one of four channels within a data group
- Redundant data transmission to allow data error detection and correction at the receiver end
- Clean or pass-through data embedding
- Automatically removes the existing embedded packets when a conflict of group DID occurs
- Six TTL level GPI inputs to embed simple control information into the video input. Will activate corresponding GPO outputs on 7721DD
- EDH generation on video output
- Card edge LEDs indicate video signal presence, data presence, cable equalization and module fault
- Program output bypass relay protected

7721DE 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 300m @ 270Mb/s with Belden 8281 (or equivalent) |
| Return Loss: | > 15 dB up to 270 Mb/s |

Serial Video Outputs with Embedded Data:

| | |
|----------------------------|-------------------------------------|
| Number of Outputs: | 2 (1 output bypass relay protected) |
| 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 |

Serial Data Input:

| | |
|-------------------------|---|
| Standard: | RS-232 or RS-422 - Jumper Selectable |
| Connector: | Female High Density DB-15 |
| Baud Rate: | 9600, 14400, 19200, 38400 or 57600 switch selectable |
| Format: | 8 bits, parity (none, even, odd), 1 stop bit |
| Embedding Delay: | Approx. 5ms at 9600 baud |
| Note: | Guaranteed to embed serial input into the same video field when its arrival time is 1.55ms before the end of each field |

General Purpose Inputs:

| | |
|--------------------------|---|
| Number of Inputs: | 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 |
| Sample Rate: | Eight times SDI video frame rate |

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:

7721DE SDI Data Embedder

Ordering Options

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

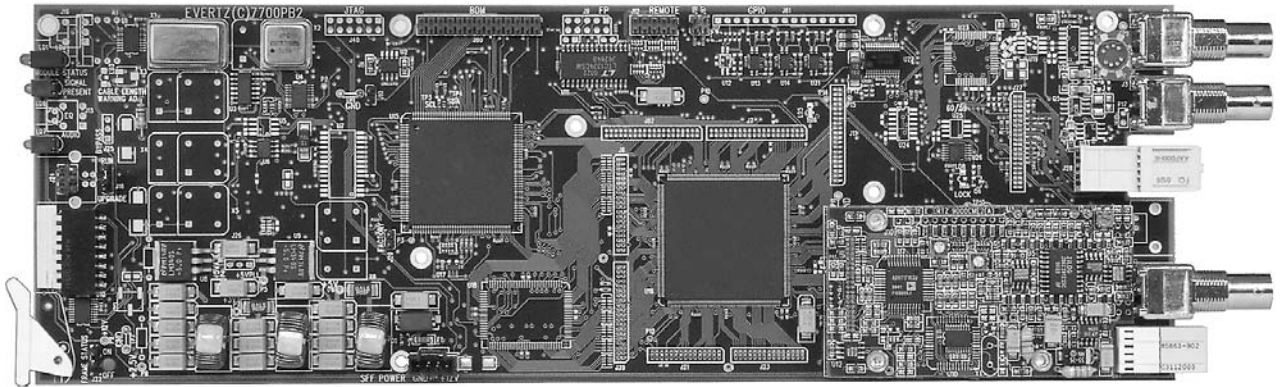
Rear Plate Suffix

| | |
|-------------|---|
| +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 |

Model 7721GPI-D



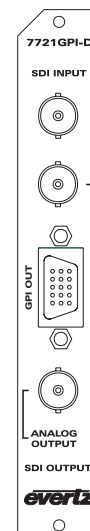
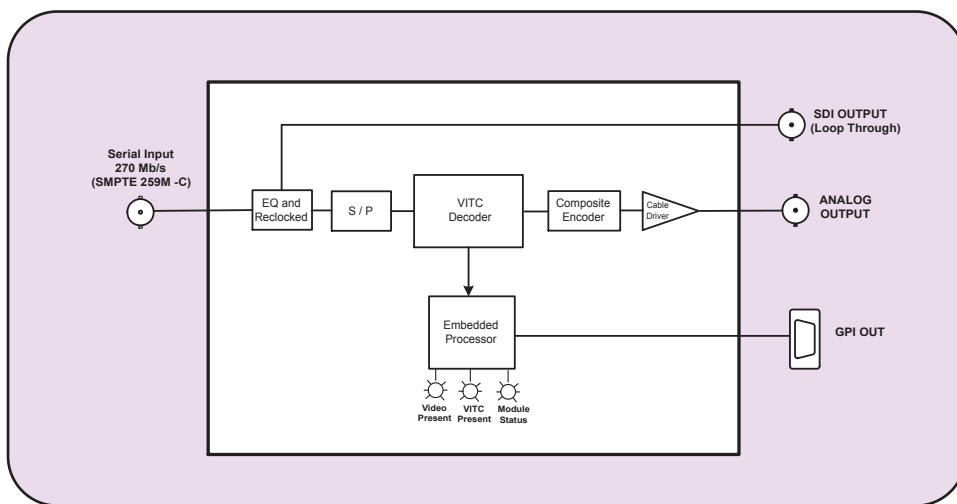
The 7721GPI-D SDI GPI Decoder extracts GPI data that has been embedded into a 270 Mb/s SDI video signal by the Evertz 8010TM GPI embedder. The GPI data is decoded from the user bits on a specified VITC line and 6 general purpose optoisolated outputs are provided.

See “GPI Transmission System Application Note” in the technical paper section of this catalog.

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 |
|-------------------------|---|

Ordering Information:

| | |
|------------------|-----------------|
| 7721GPI-D | SDI GPI Decoder |
|------------------|-----------------|

Ordering Options

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

Rear Plate Suffix

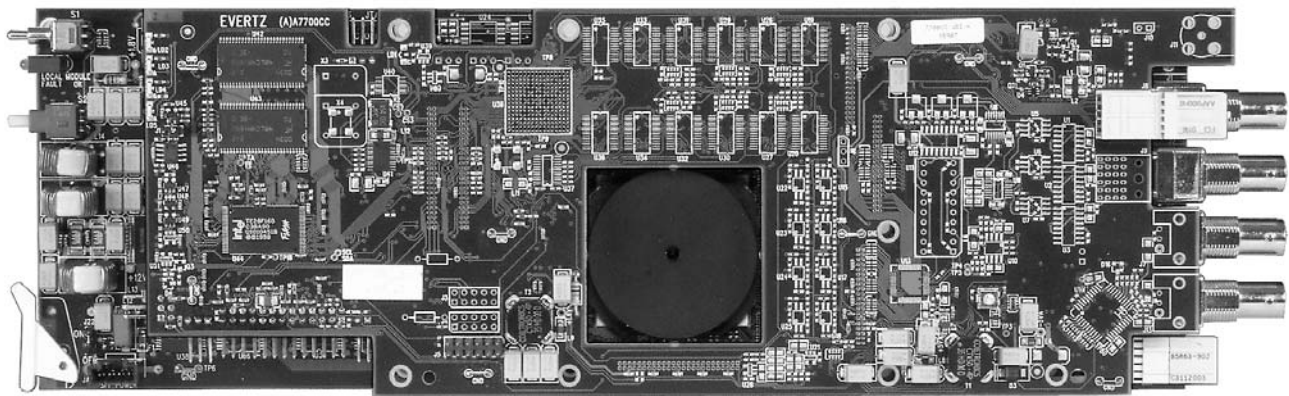
| | |
|-------------|---|
| +3RU | 3RU Rear Plate for use with 7700FR-C Multiframe |
| +1RU | 1RU Rear Plate for use with 7701FR Multiframe |
| +SA | Standalone Enclosure Rear Plate |

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.

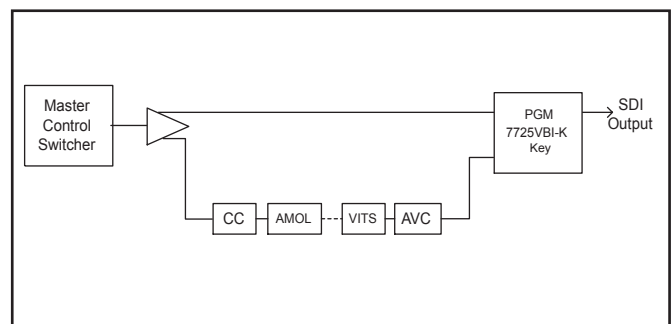
Features:

- 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:

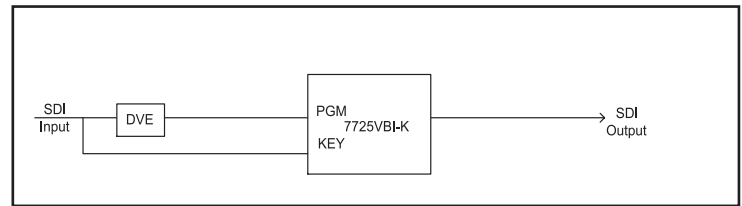
Master control output chain protection

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.



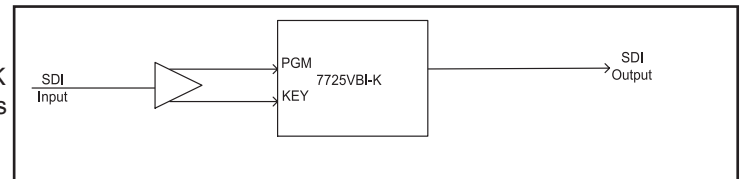
Line 21 caption squeeze back bypass (VBI bridging)

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

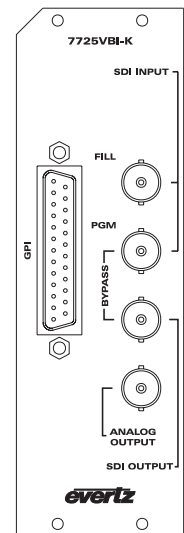
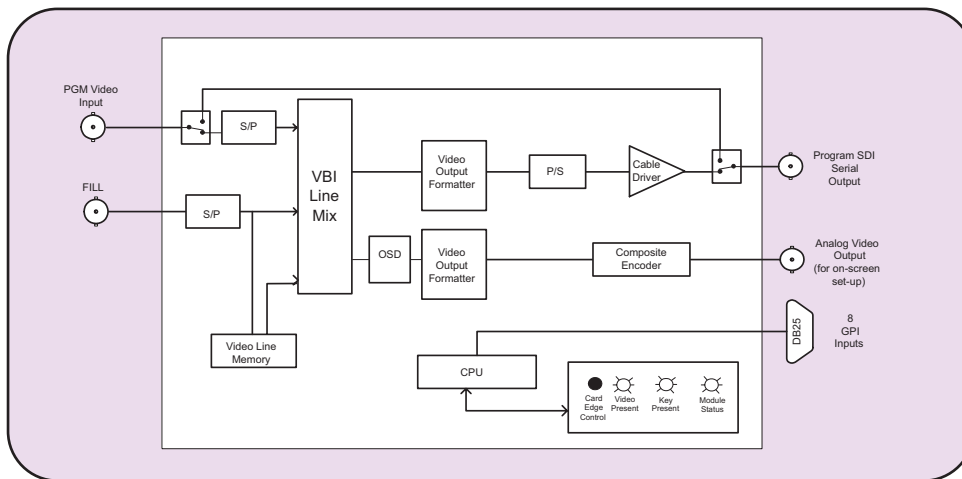


VBI Line Shuffler

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: <0.9deg. (<0.6deg. 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

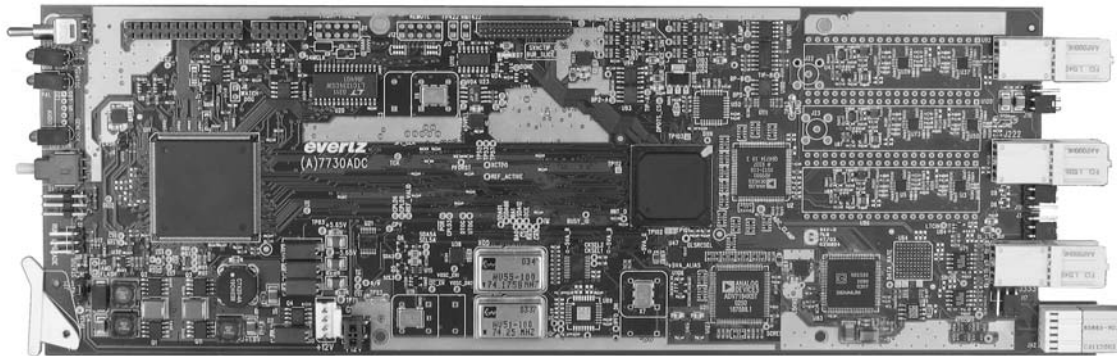
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

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). 75W 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

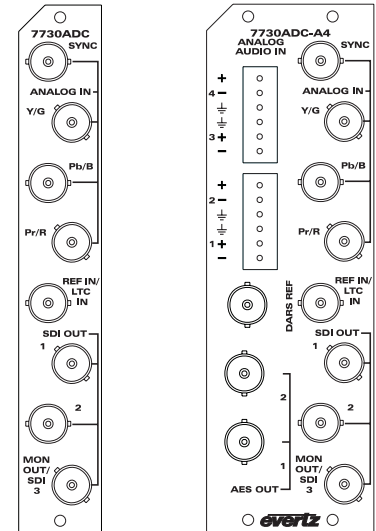
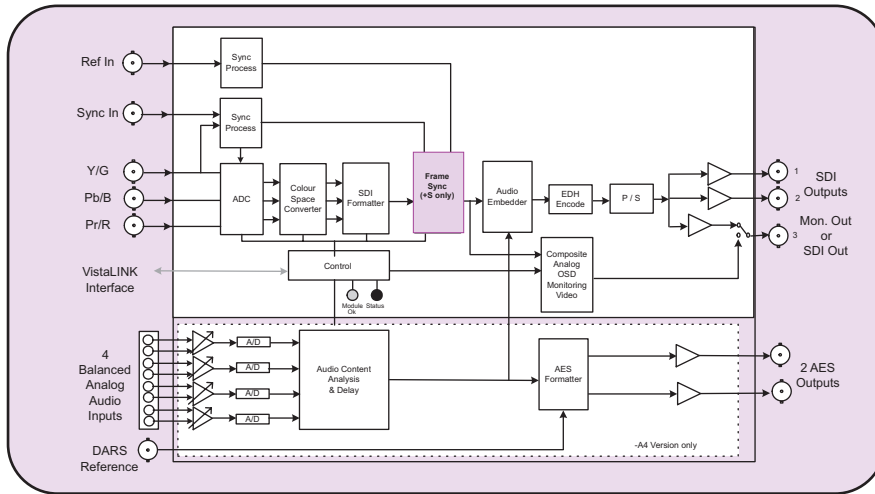
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

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

Component Analog Video to SDI Converter

7730ADC Block Diagram



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: < -??dBrms (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:

Frequency Response: +/- 10dB
SNR: +/- 0.1dB (20Hz to 20kHz) (broadcast quality)
THD+N: 100dB with input at -0.5dBFS
<0.001% (>100dB) @ 20Hz to 20kHz, -0.5 dB FS (input video locked to genlock video)
>100dB @ 1kHz

CMRR:

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: 2.1μsec
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)
Approx. 1.5 lbs. (0.7 Kg)

Weight:

Ordering Information:

7730ADC:

7730ADC-A4:

Component Analog Video to SDI Converter
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

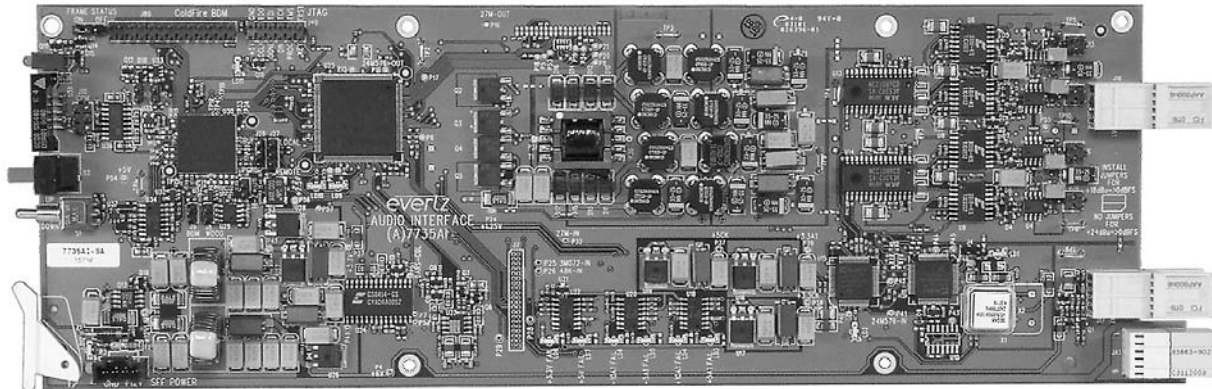
1RU Multiframe which holds 3 modules

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

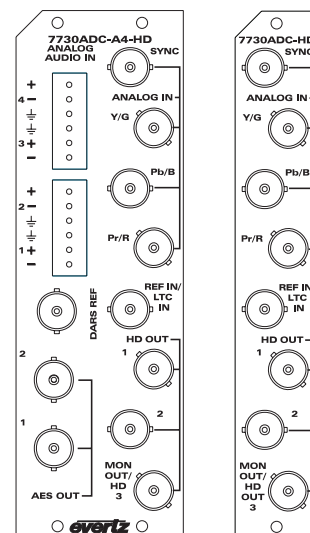
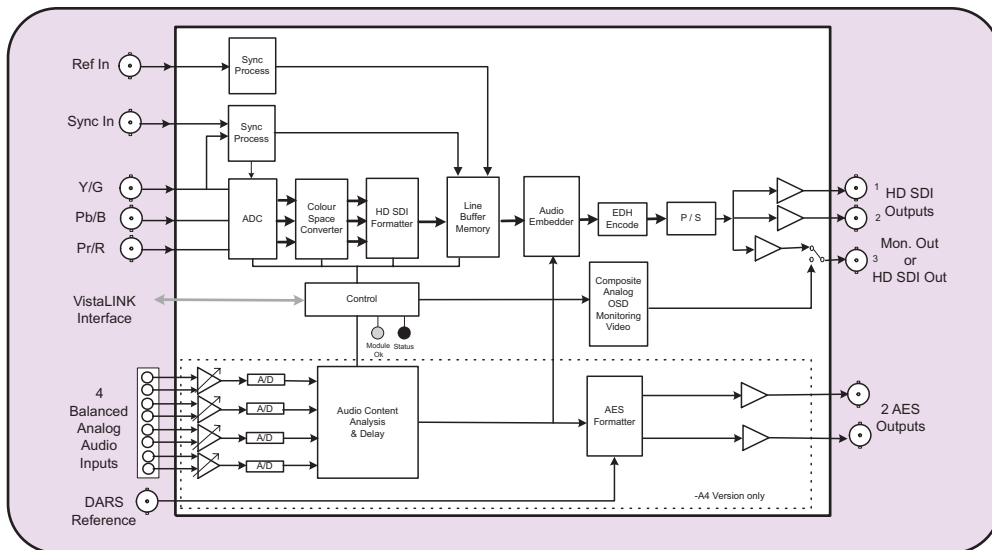
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

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 sec
Maximum Delay: 1 line plus 0.5 μ sec

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 sec
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
Weight: Approx. 1.5 lbs. (0.7 Kg)

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

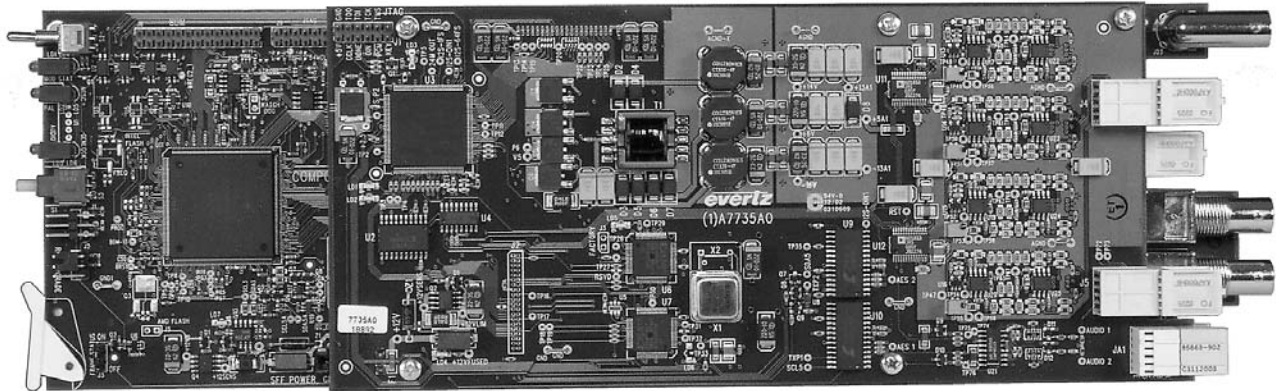
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

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 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

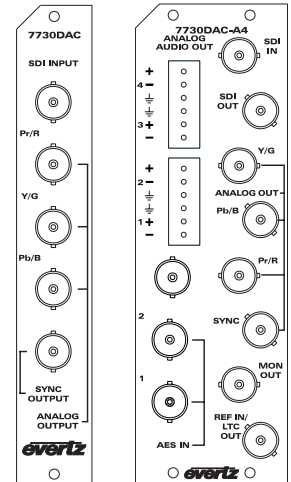
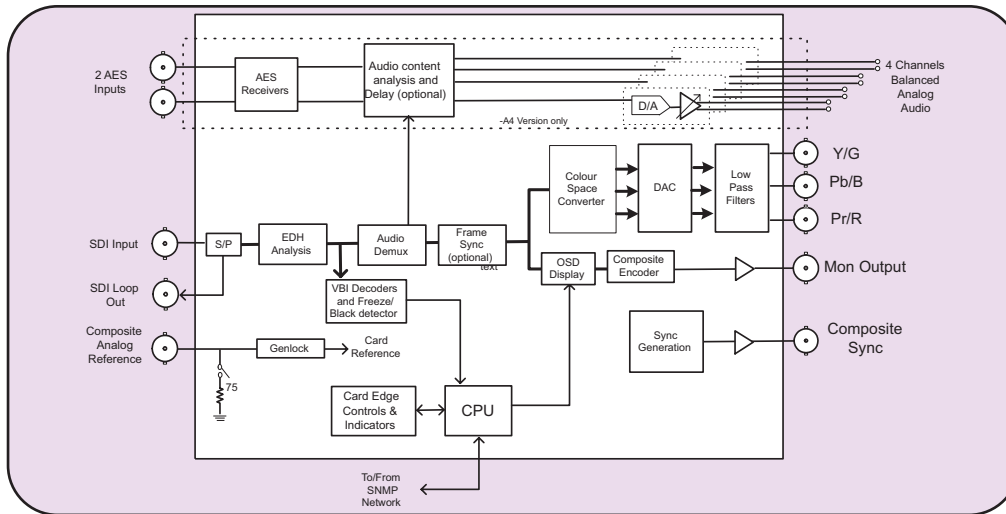
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

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

SDI D to A Component Analog Video Converter

7730DAC Block Diagram



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: ± 75 ppm 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: $\geq \pm 7.5\%$ (All components)
Black level control range: ± 10 IRE
Input Impedance: 75 Ω
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: ± 75 ppm from nominal
Input Impedance: 75 Ω or High impedance (jumper selectable)
Return Loss: >35dB to 10MHz

Video Performance:

Frequency Response: $< \pm 0.1$ dB (100kHz to 4.1MHz)
Noise Floor: < -73 dBrms (15kHz to 5MHz)
Inter-channel Delay: $\leq \pm 5$ ns
Minimum Delay: 3 μ sec
Maximum Delay: 1 frame plus 3 μ sec

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: $< \pm 0.05$ dB (20Hz to 20kHz)
Dynamic range: 24 bits when AES inputs selected, 20 bits when embedded audio selected
THD+N: $< 0.001\%$ (> 100 dB) @ 1kHz, -1dBFS
Crosstalk: < -105 dB (20Hz to 20kHz)
DC Offset: $< \pm 30$ mV
SNR: > 110 dB "A" Weighting
Inter-Channel Phase Error: $< \pm 1^\circ$ (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: 3.5 μ sec

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

Rear Plate Suffix

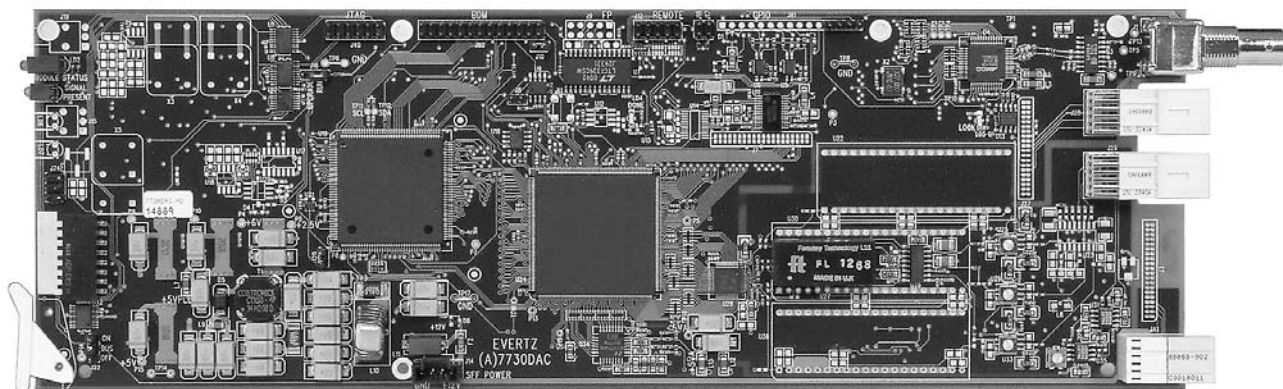
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

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.

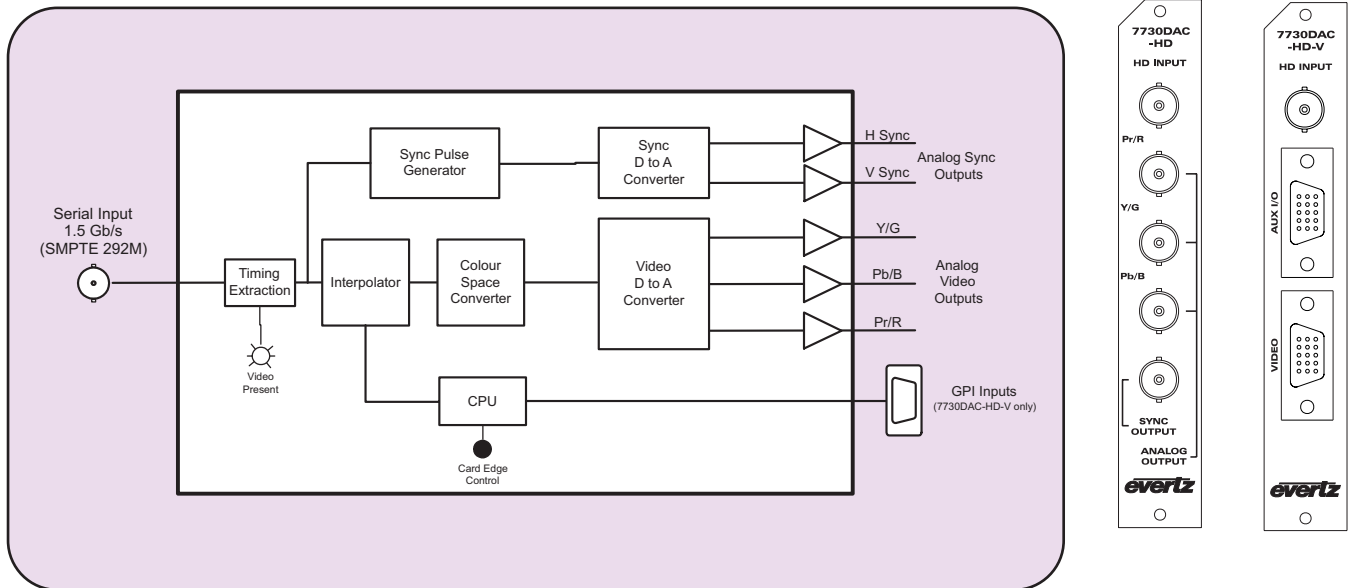
Card edge control allows the user to select RGB, YPrPb or VGA outputs. User controlled 4:3 alignment markers also allow for convenient framing of the video signal. The 7730DAC-HD is available in two versions to easily interface to standard broadcast monitors or VGA computer monitors.

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

HD SDI to HD Component Analog Video Converter

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 jumpered 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:

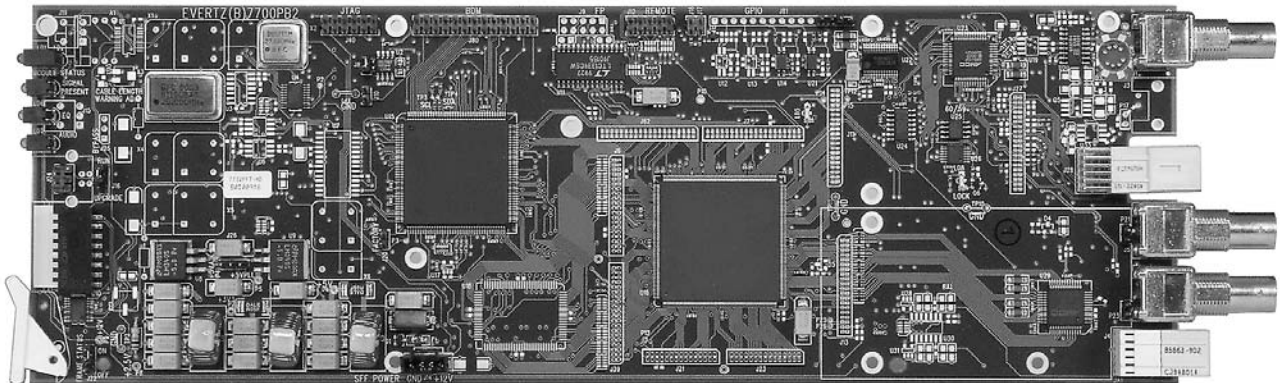
WPVGABNC5: VGA to BNC - 6' Monitor Adapter Cable

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:

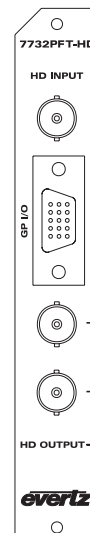
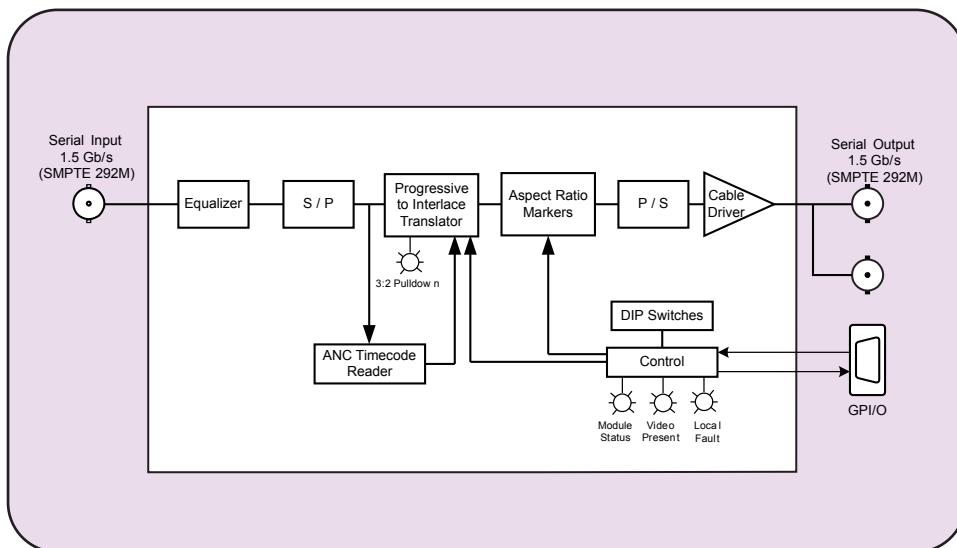
- SMPTE 292M - 1.5Gb/s serial digital 1080p/24sF (23.98Fps)
- Transparent pass-through input for all other SMPTE 292M HD video formats
- Auto equalization to 130m

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

HDTV Progressive Format Translator

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
Outputs: 1 for 3:2 pulldown tally

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:

7732PFT-HD HDTV Progressive Format Translator

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

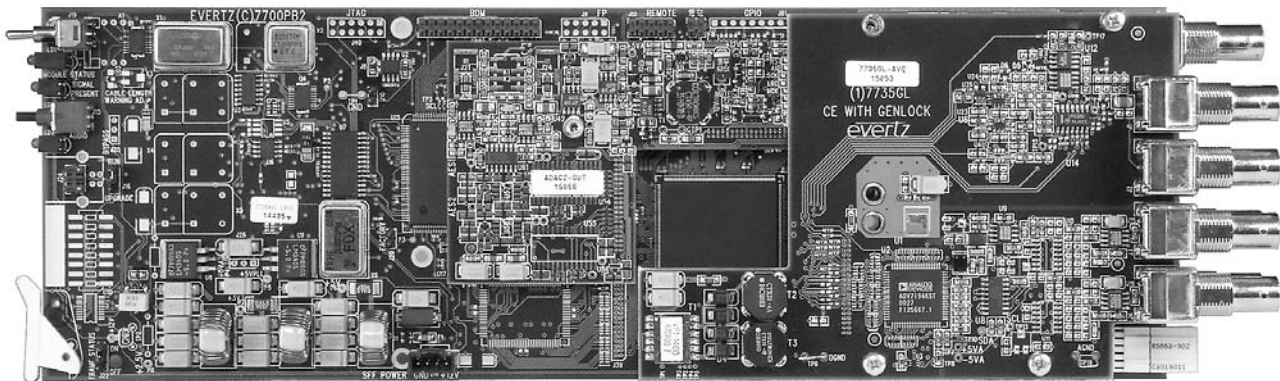
Enclosures:

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



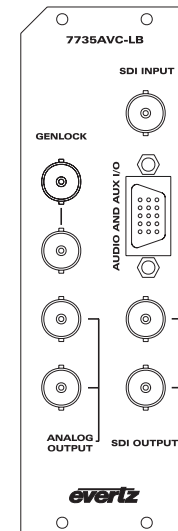
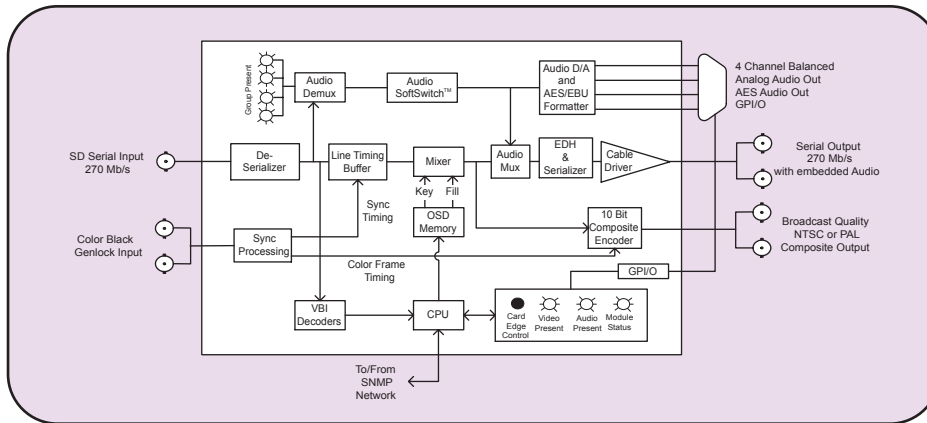
The 7735AVC-LB is a 10-bit component SDI to composite analog converter with line synchronizing buffer, audio demultiplex and digital to analog converter. The 7735AVC-LB is also equipped with Evertz's SoftSwitch™ technology which mitigates audio pops during hot-switching while maintaining consistent video 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 or 9000NCP Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

SDI Video D to A with Line Buffer, Quad Audio DAC with SoftSwitch™

7735AVC-LB Block Diagram



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: < 3degrees

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:

THD+N: > 84dB RMS
> 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™

Accessories:

| | |
|----------------|--|
| 9000NCP | VistaLINK™ General Purpose Network Control Panel |
|----------------|--|

Ordering Options

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

Rear Plate Suffix

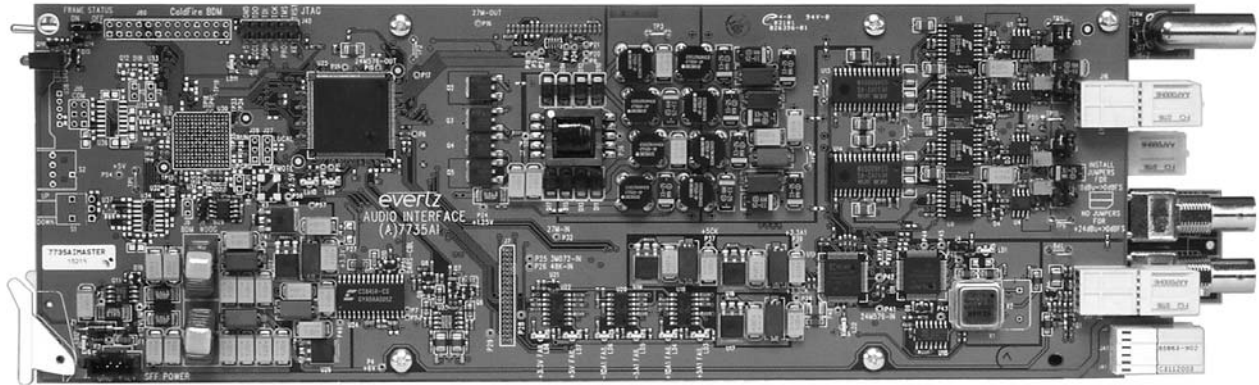
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

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

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:

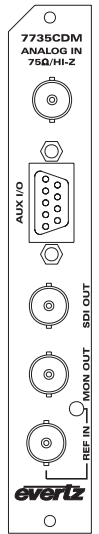
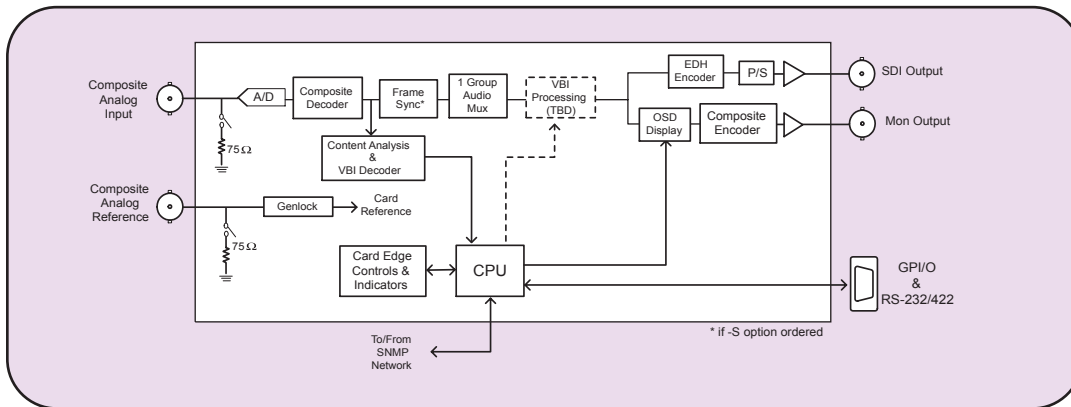
- 4 balanced analog audio inputs on 2 removable barrier strips
- High impedance inputs (user supplies termination resistors for other impedance's)
- Analog audio input levels are adjustable. Jumpers set coarse input levels, fine input levels are set by software control
- Audio delay equivalent video 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:

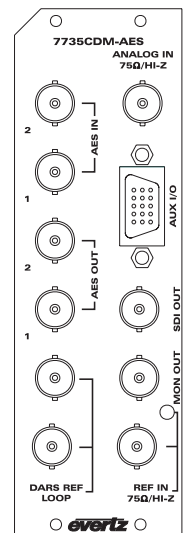
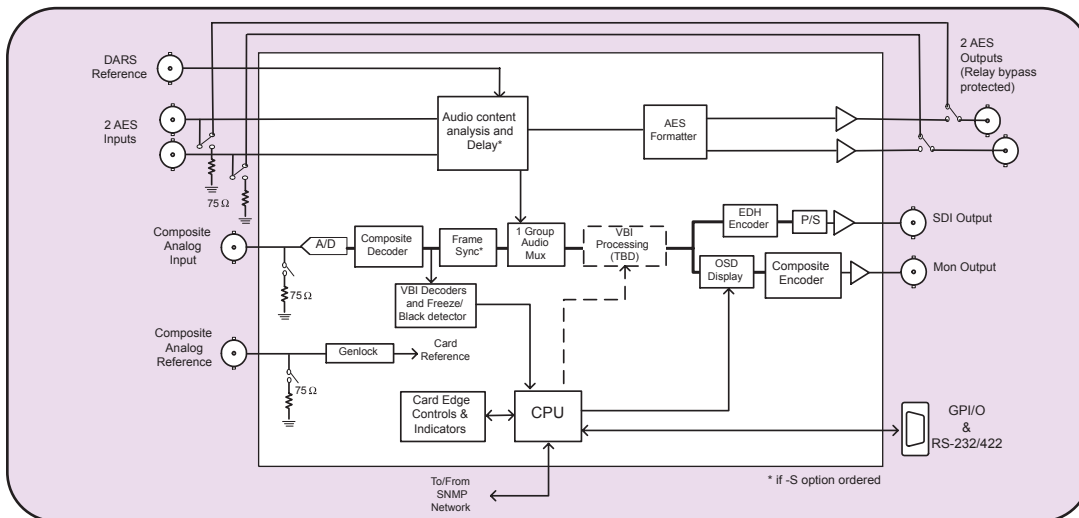
- 75Ω coaxial (unbalanced) AES inputs (2) on BNC
- Audio delay equivalent to video delay
- Additional audio delay (5 seconds) or Advance (1 frame)
- One group (2 channels of audio) is multiplexed on the outgoing digital video
- 2 unbalanced AES audio outputs delayed equivalently to the video delay
- 75Ω coaxial (unbalanced) DARS reference input on BNC
- Loss of video modes: pass audio, mute audio
- Bypass relay protection

Composite Video A to D with optional Frame Synchronizer, Quad Audio ADC & Audio Embedder

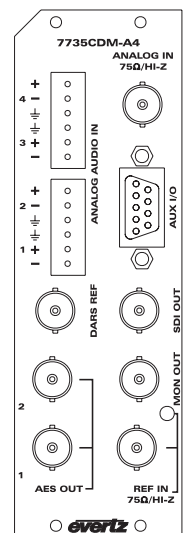
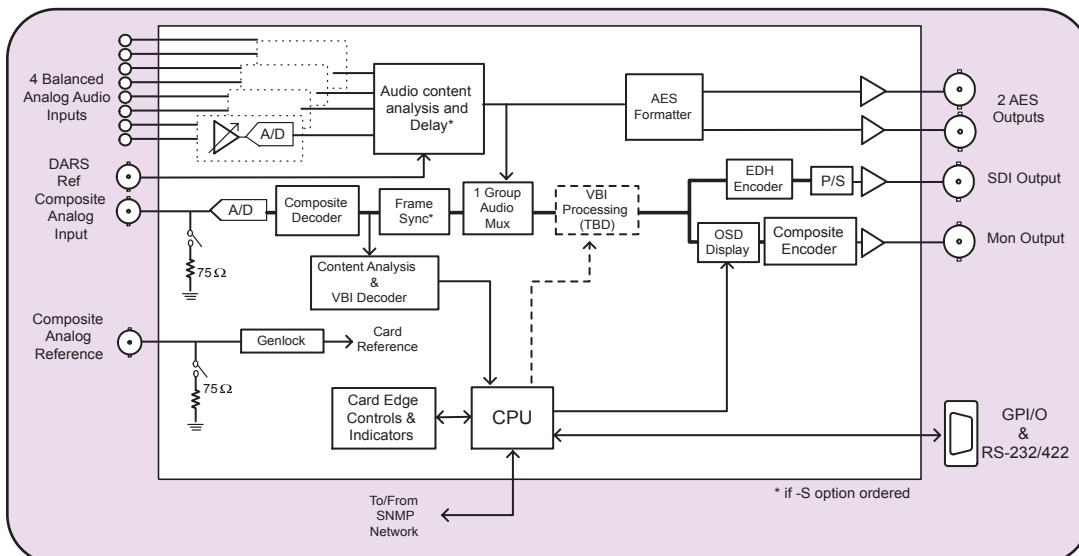
7735CDM Block Diagram



7735CDM-AES Block Diagram



7735CDM-A4 Block Diagram



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: ± 20 deg. (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: $\leq \pm 9$ 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: +/- 10dB
Frequency Response: +/- 0.1dB (20Hz to 20kHz)(broadcast quality)
SNR: 100dB with input at -0.5dB FS
THD+N: <0.001% (>100dB) @ 1kHz, -0.5dB FS (rev 2)
<0.001% (>100dB) @ 20Hz to 20kHz, -0.5dB FS (input video locked to genlock video)
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)

Accessories:

Ordering Options

| | |
|---------|--|
| 9000NCP | VistaLINK™ General Purpose Network Control Panel |
|---------|--|

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

+S Optional frame synchronizer

Rear Plate Suffix

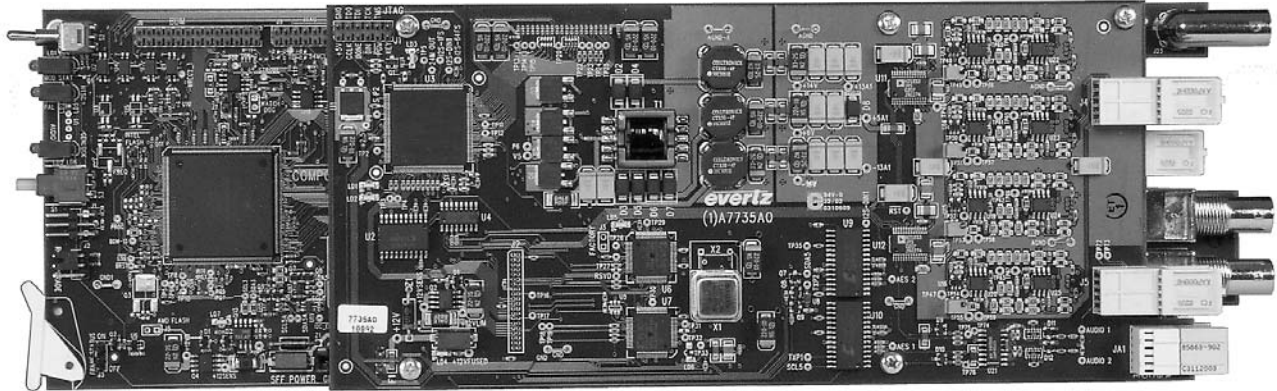
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

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

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 or 9000NCP Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

The Features of "-A4" option are:

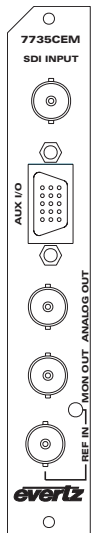
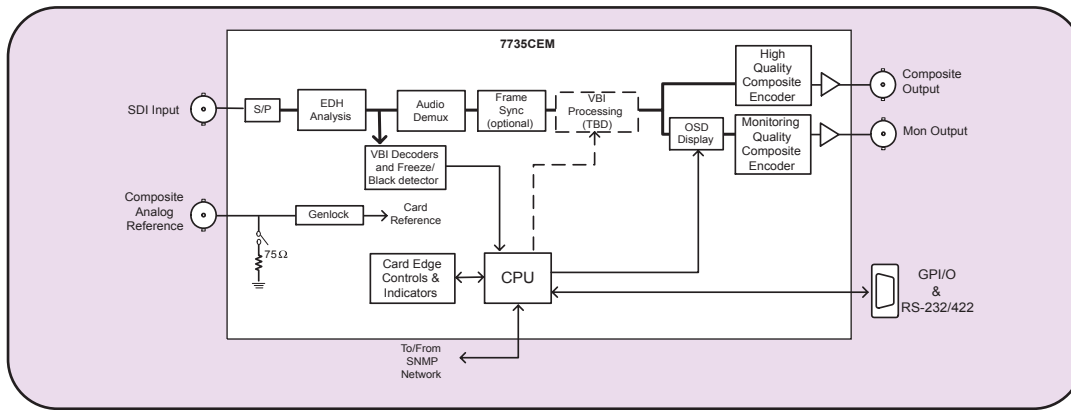
- One group (4 channels) of synchronous 20-bit audio is de-multiplexed from the incoming digital video
- 2 unbalanced AES audio inputs (up to 48kHz, 24-bits) on BNC
- User selects EITHER the de-embedded audio or the input AES audio
- The selected audio is delayed equivalently to the video delay with 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:

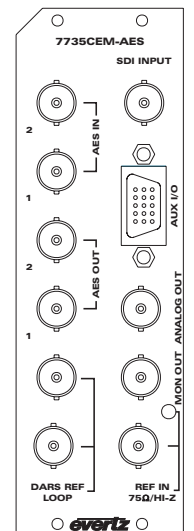
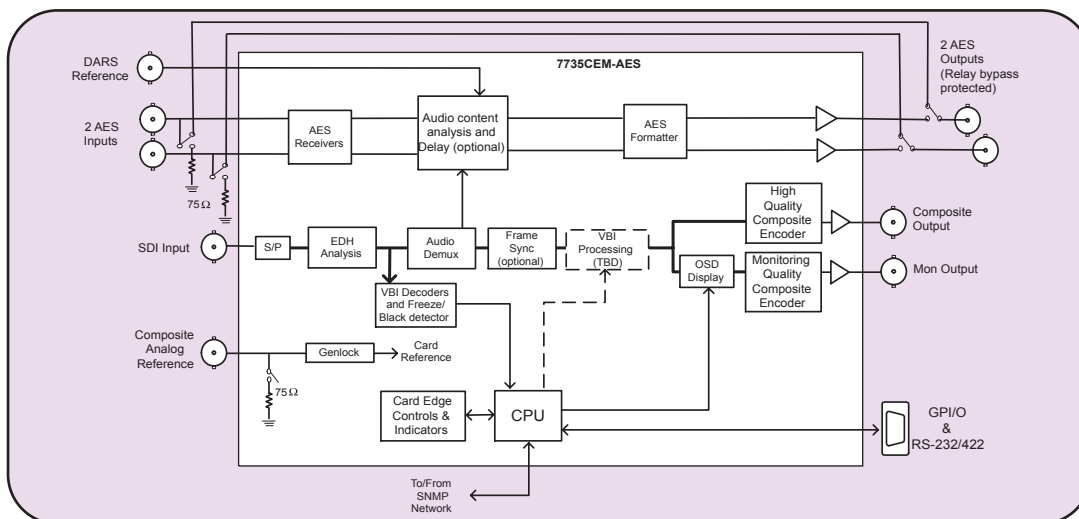
- 75Ω coaxial (unbalanced) AES inputs (2) on BNC
- One group (4 channels of audio) is de-multiplexed on the incoming digital video
- User selects EITHER the de-embedded audio or the input AES audio
- Audio delay equivalent to video delay (with +S option)
- Additional audio delay of up to 5 seconds
- 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

Component Video D to A with optional Frame Synchronizer Audio Demux and Audio DAC

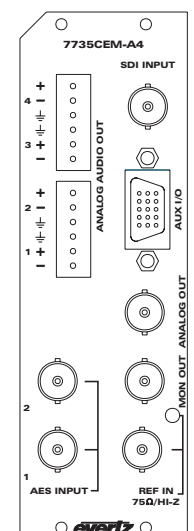
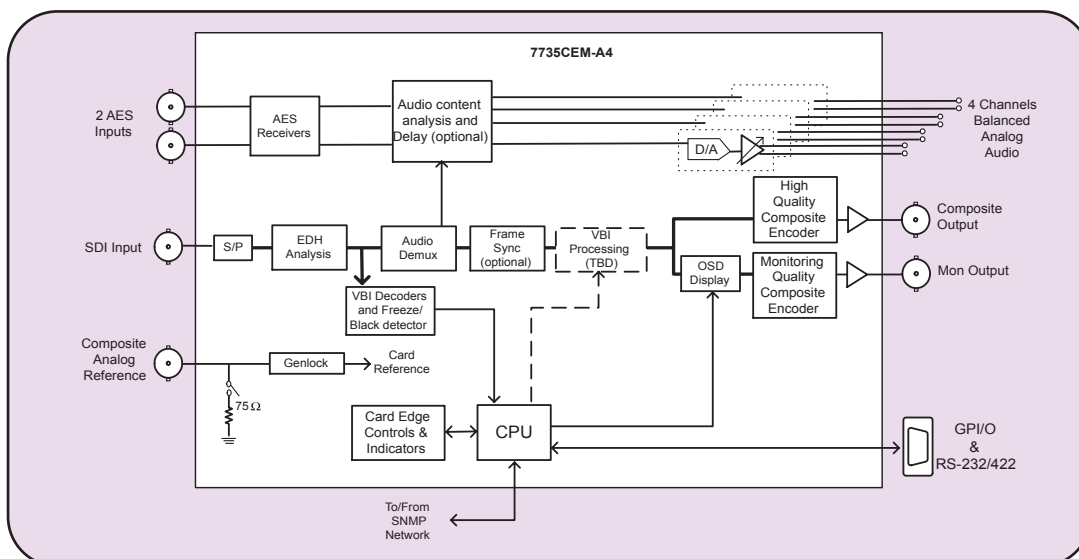
7735CEM Block Diagram



7735CEM-AES Block Diagram



7735CEM-A4 Block Diagram



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 deg. (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 degrees |
| 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: | 3.5μsec |

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:

| | |
|----------------|--|
| 9000NCP | 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 Decoder



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 embedded. 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

The Features of the Decoding Process:

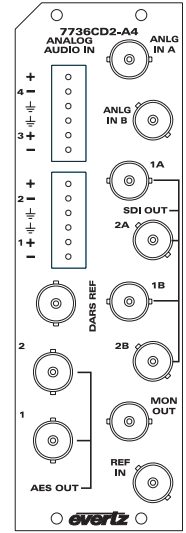
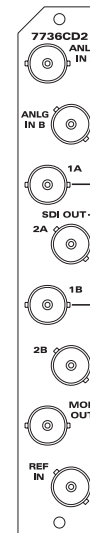
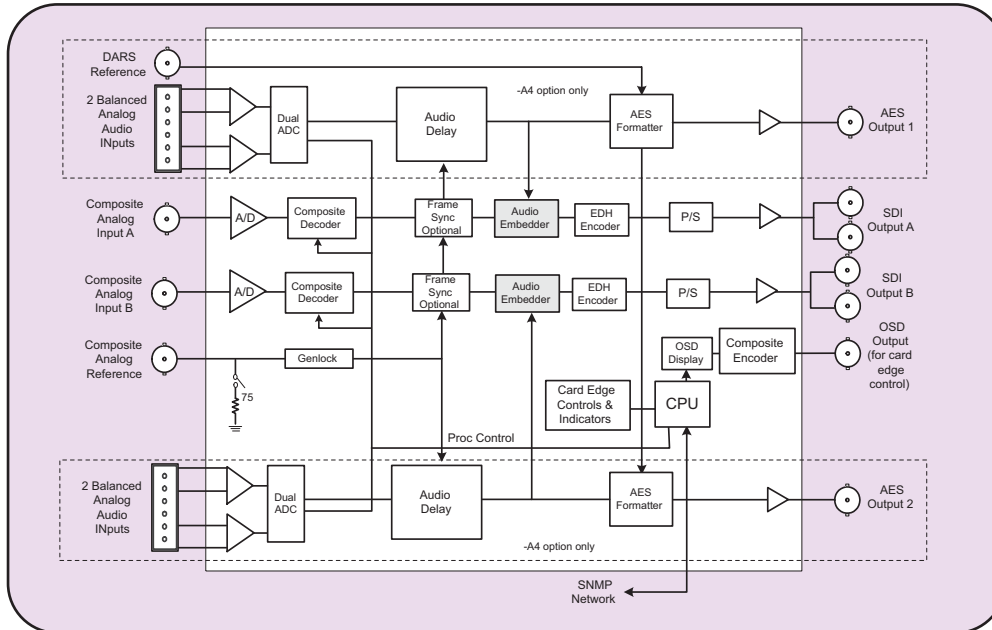
- 12 bit, 8fsc sampling of input video.
- Internal processing to maintain 10 bit digital video quality
- Patented Faroudja adaptive 2D comb filtering technology
- Mode for support of non-time base corrected signals

- 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:

- 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)
C/L Gain: $< \pm 0.5\%$
C/L Delay: < 9 ns
Minimum Delay: 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 -0.5 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 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

Rear Plate Suffix

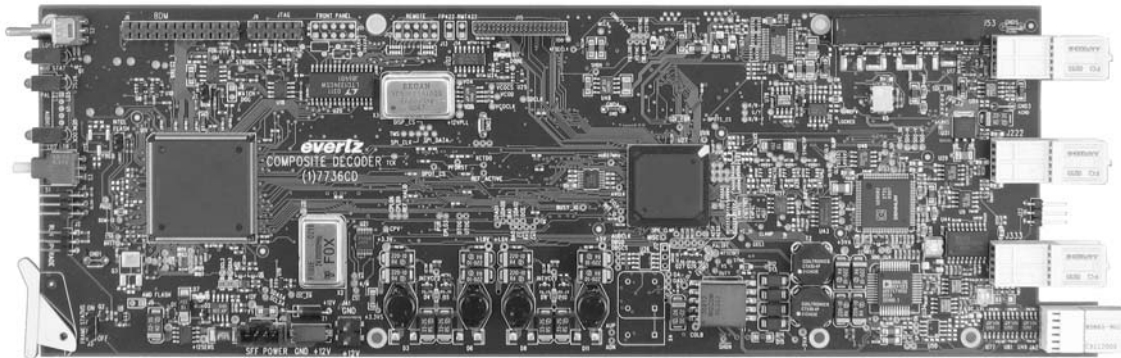
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

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



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)

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

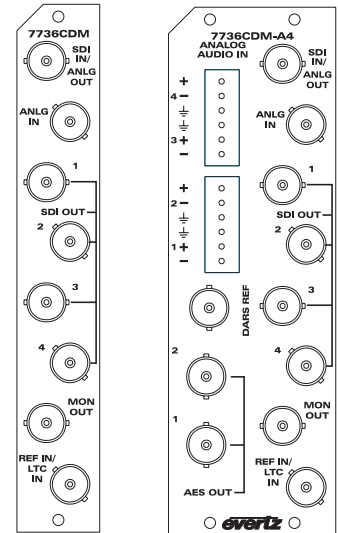
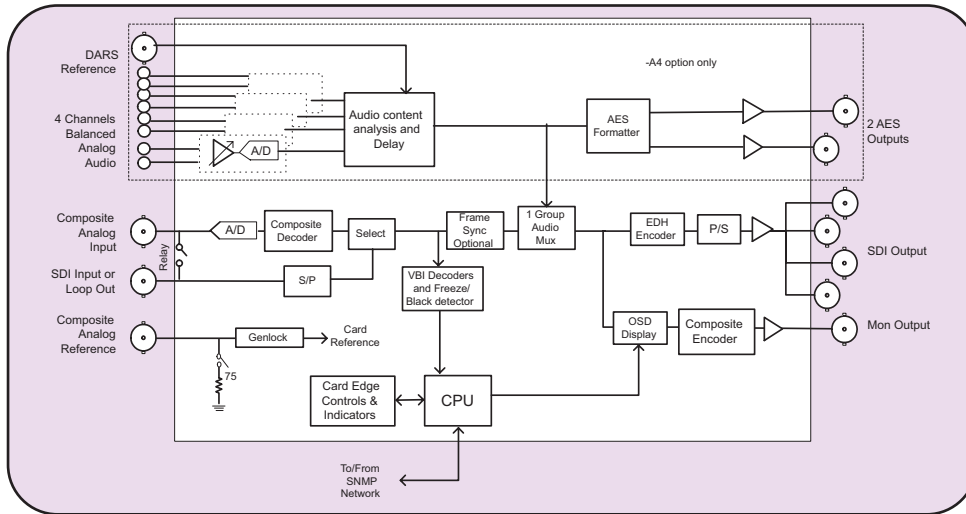
- Flexible configuration of the text and audio bar graph information displays
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
- On screen messages can be triggered by the configured fault conditions
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO 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 (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: ± 20 deg. (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)

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: $\leq \pm 0.1$ dB (100kHz to 4.2MHz)

Differential Gain: $\leq \pm 0.5\%$ typical

Differential Phase: $\leq \pm 0.2$ deg. typical

Noise Floor: < -56 dBrms (black video, 15kHz to 5MHz)
 < -60 dBrms (VBI lines, black video, 15kHz to 5MHz)

C/L Gain: $\pm 0.5\%$

C/L Delay: ≤ 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:

Level Control Range: 0dB FS \Rightarrow 18 or 24dBu (jumper selectable)
 ± 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) @ 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: 2.1msec

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:

Number of slots: 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

7736CDM-A4

Ordering Options

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

+S

Optional frame synchronizer

9000NCP

VistaLINK™ General Purpose Network Control Panel

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

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 75 Ω 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.

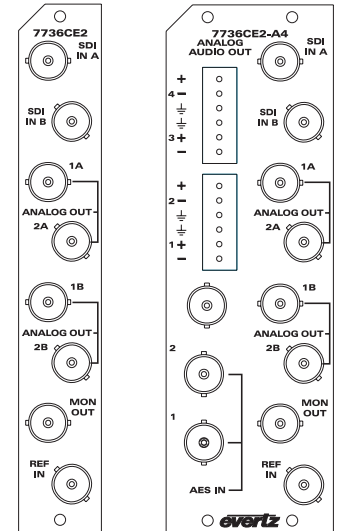
The Features of "-A4" Option:

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 (66 Ω).
- 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.

7736CE2 Block Diagram

TO FOLLOW



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: ± 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: 2 per input video
 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: < \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 (both channels 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: > \pm 10ppm (> \pm 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 (2 per video channel)
 Type: Balanced analog audio
 Connector: Two 6 pin removable terminal strips
 Output Impedance: 60 Ω balanced
 Sampling Frequency: 48kHz
 Signal Level: 0dBFS \Rightarrow 12 to 25dBu (user settable)

Frequency Response:

Dynamic range: < \pm 0.05dB (20Hz to 20kHz)
 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: < \pm 30mV
 SNR: >110dB "A" Weighting
 Inter-Channel Phase Error: < \pm 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: 110 Ω
 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

Rear Plate Suffix

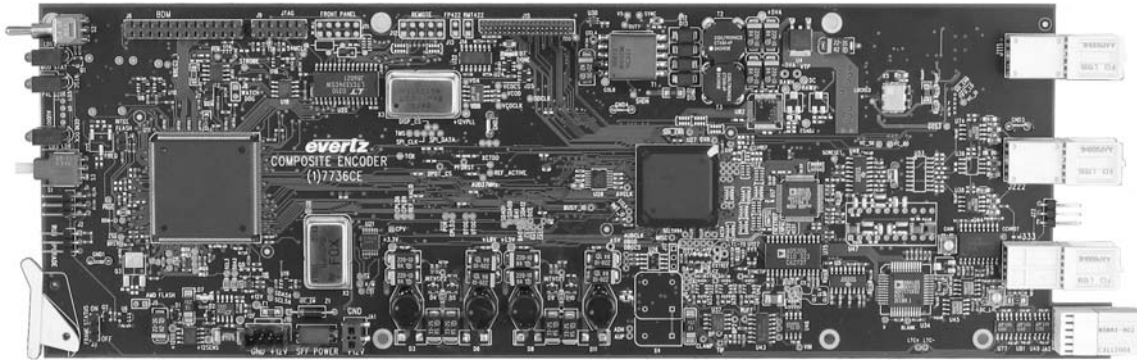
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
 +1RU 1RU Rear Plate for use with 7701FR Multiframe
 +SA Standalone Enclosure Rear Plate

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, -A4-B)



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

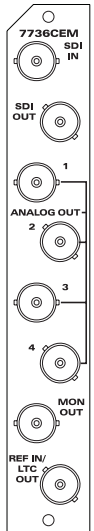
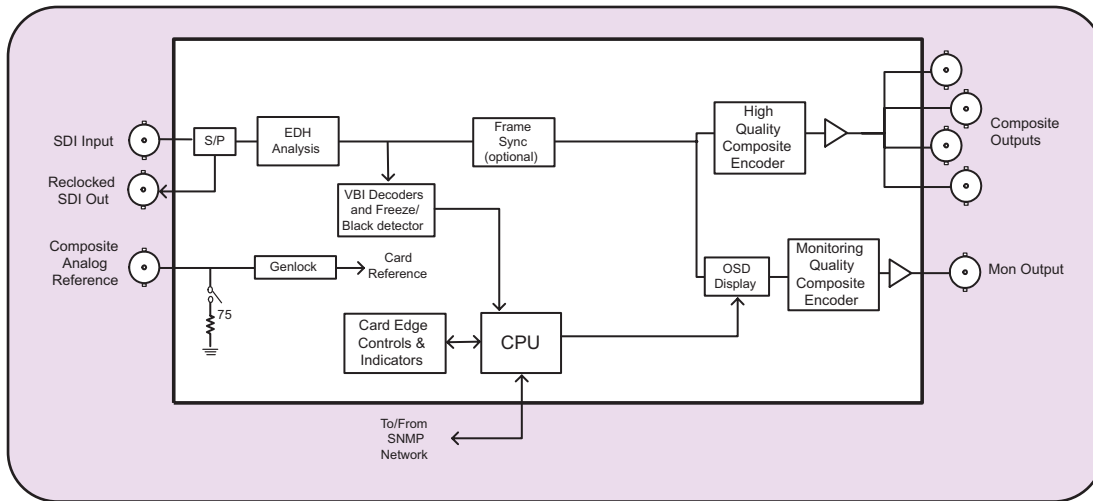
- An extensive list of error conditions can be monitored and fault conditions can be configured from these conditions
- On screen messages can be triggered by the configured fault conditions
- VistaLINK™ -enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO or 9000NCP Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

The Features of "-A4" version are:

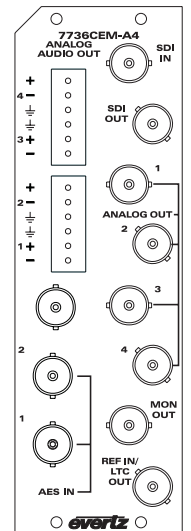
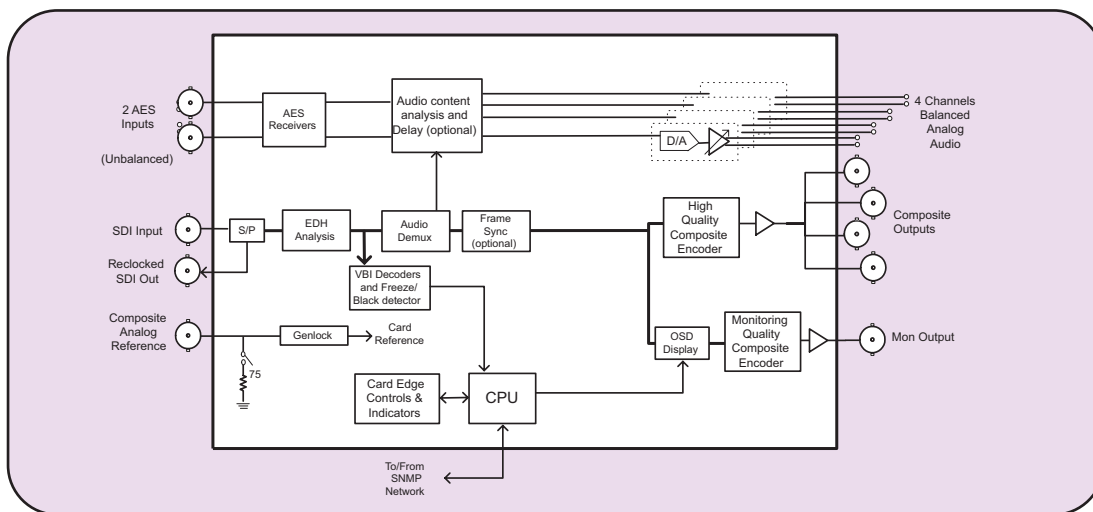
- One group (4 channels) of synchronous 20-bit audio is de-multiplexed from the incoming digital video
- 2 unbalanced or balanced AES audio inputs (up to 48kHz, 24 bits) on BNC terminal strip
- User selects EITHER the de-embedded audio or the input AES audio
- The selected audio is delayed equivalently 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

Component SDI to Composite Analog Video Encoder with optional Frame Synchronizer

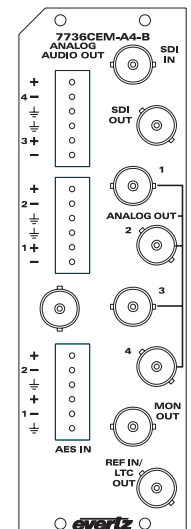
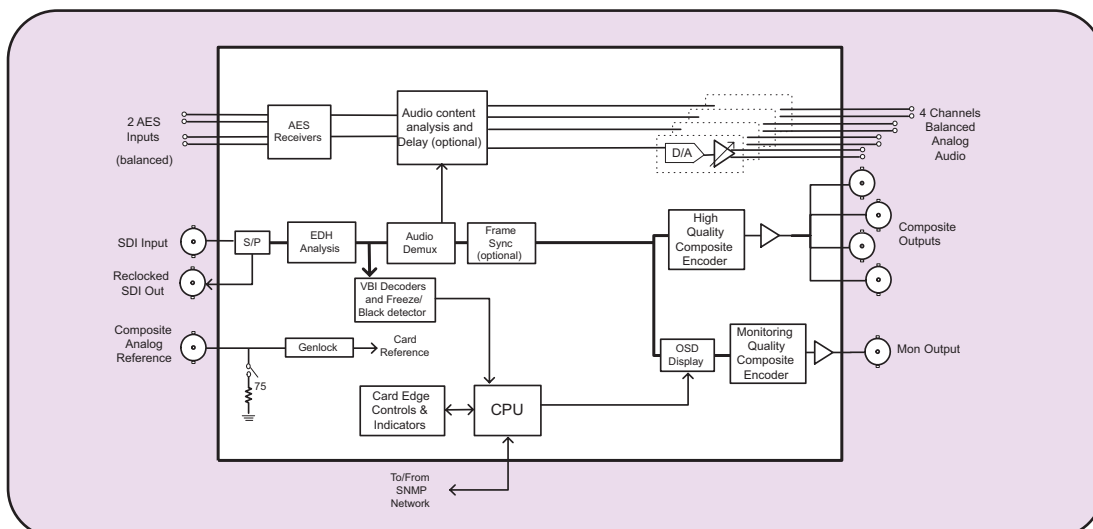
7736CEM Block Diagram



7736CEM-A4 Block Diagram



7736CEM-A4-B Block Diagram



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 deg. (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 degrees |
| 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: | 3.5μsec |

Balanced AES Audio Inputs (-A4-B version 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: | 9.25 Watts CEM + 16.75 Watts (-A4 or -A4-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, -A4-B |
|------------------|--|

Ordering Information: **7736CEM**

7736CEM-A4

7736CEM-A4-B

Component SDI to composite analog video encoder (optional Frame Synchronizer available)

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)

Component SDI to composite analog video encoder with quad audio DAC (audio source is embedded or from dual balanced AES inputs) (optional Frame Synchronizer available)

Ordering Options

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

+S Optional frame synchronizer

| | |
|----------------|--|
| 9000NCP | VistaLINK™ General Purpose Network Control |
|----------------|--|

Rear Plate Suffix

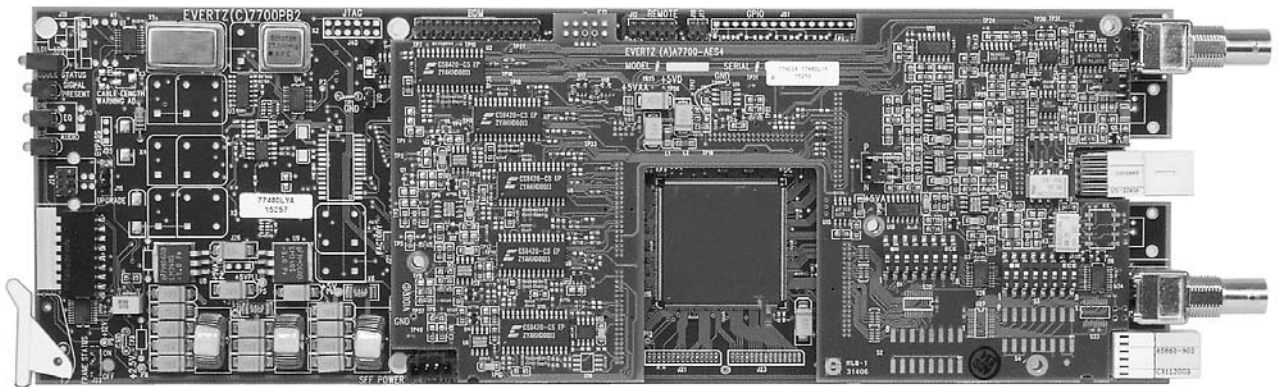
| | |
|-------------|---|
| +3RU | 3RU Rear Plate for use with 7700FR-Multiframe |
| +1RU | 1RU Rear Plate for use with 7701FR Multiframe |
| +SA | Standalone Enclosure Rear Plate |

Enclosures:

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

Quad AES Delay

Model 7740DLY-AES4

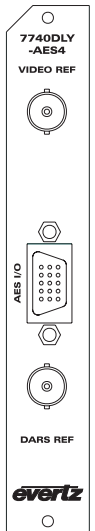
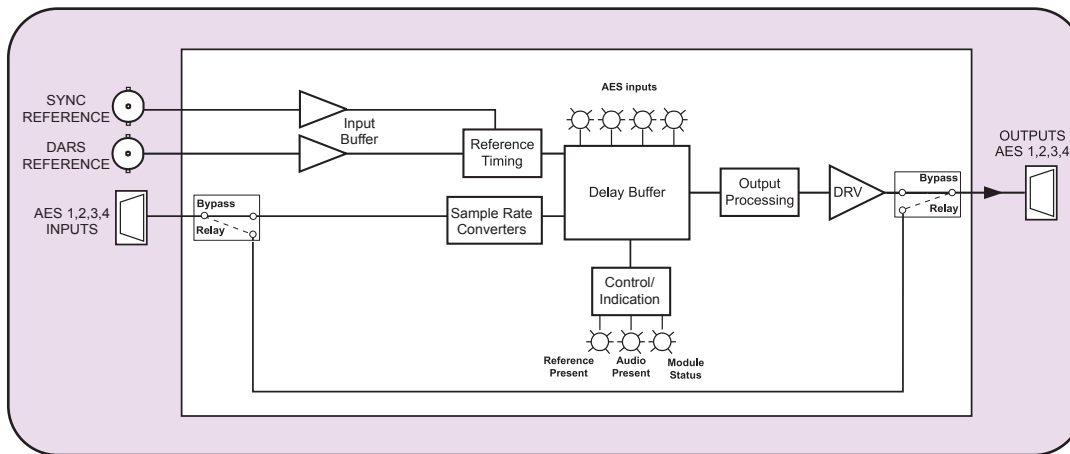


The 7740DLY-AES4 digital audio delay provides a cost effective method of retiming AES Audio. The module accepts either an analog composite sync or AES digital audio reference, and maximum of four asynchronous / synchronous 48kHz unbalanced AES digital audio inputs; and provides four synchronous outputs with selectable delay values. Each AES pair can be sample rate converted along with independent channel swap operation. External loop-through connections can be applied to cascade delays in order to achieve longer delay values.

Features

- Automatically detect and lock to either external analog composite sync or AES digital audio reference
- Delay four 48kHz unbalanced AES digital audio inputs simultaneously
- Independent controls for each AES input pair
- Supports audio sample resolutions of 20 and 24 bits
- Selectable sample rate conversion or pass through input audio processing
- Support audio channel swap operation for all AES inputs simultaneously
- Selectable fine or coarse delay in 1.04 ms (50 samples) or video field, respectively
- Maximum delay of 2.13 seconds and 2.56 seconds for NTSC and PAL mode, respectively
- Bypass relay outputs at the loss of power
- Card edge LEDs indicate reference presence, audio input presence and swap mode operation.

7740DLY-AES4 Block Diagram



Specifications

AES Audio Inputs and Outputs:

| | |
|---------------------------|-----------------------|
| Standard: | SMPTE 276 |
| Number of Inputs: | 4 AES @ 48kHz |
| Number of Outputs: | 4 AES @ 48kHz |
| Connector: | 15 pin High density D |
| Resolution: | 20 or 24-bit |
| Sampling Rate: | 48 khz |
| Signal Level: | 1V p-p |

Video Reference:

| | |
|---------------------|--|
| Type: | NTSC or PAL colour black nominal 1 Vp-p composite bi-level sync (525i or 625i) 300mV nominal |
| Connector: | 1 BNC per IEC 169-8 |
| Termination: | 75Ω (jumper selectable) |

AES Digital Audio Reference:

| | |
|-----------------------|-------------------|
| Standard: | SMPTE 276M |
| Connector: | BNC per IEC 169-8 |
| Resolution: | 20 or 24-bit |
| Sampling Rate: | 48 khz |
| Impedance: | 75Ω |

Analog Composite Sync Reference:

| | |
|-------------------|--|
| Standard: | NTSC or PAL 1Vp-p or color black or composite bi-level sync 300 mV |
| Connector: | BNC per IEC 169-8 |
| Impedance: | 75Ω |

Electrical:

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

Phyiscal:

| | |
|-------------------------|---|
| Number of Slots: | 1 |
|-------------------------|---|

Ordering Information:

| | |
|---------------------|---|
| 7740DLY-AES4 | Quad AES Delay (includes breakout cable for High Density DB15 to 8 BNC's) |
|---------------------|---|

Ordering Options

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

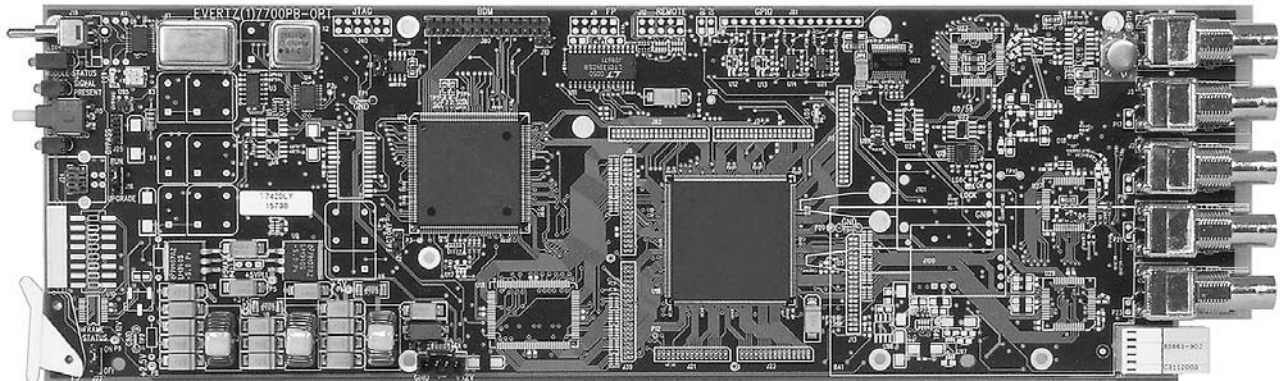
Rear Plate Suffix

| | |
|-------------|---|
| +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 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.

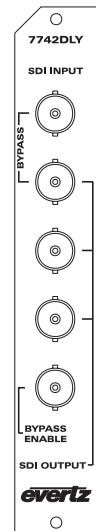
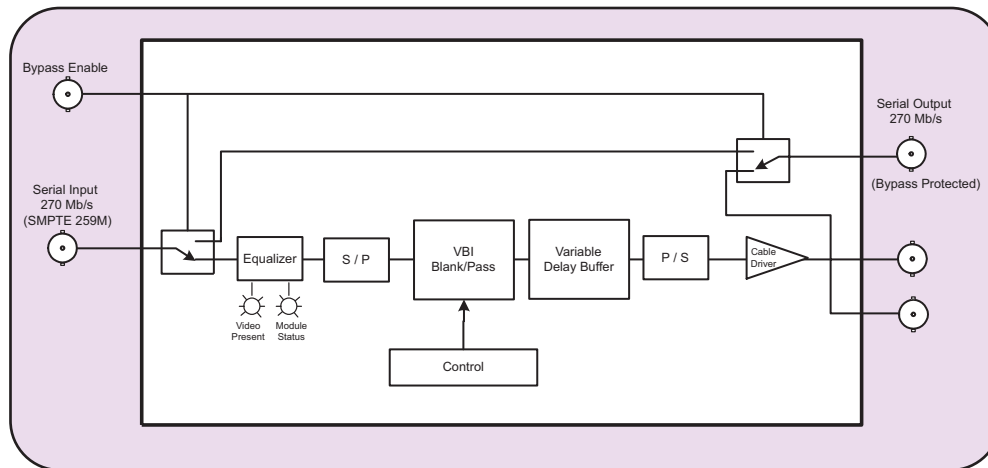
With the broadcast environment in mind, the module features bypass relay protection on one output.

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 nsec (22 samples) |
| Maximum Delay: | 525 line: 70 frames, 625 line: 59 frames (approx 2.3 seconds) |

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

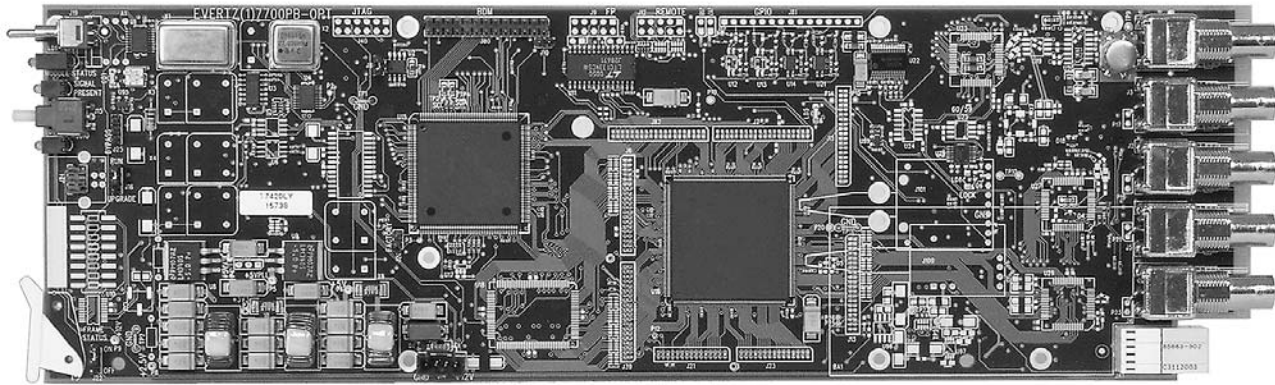
| | |
|-------------|---|
| +3RU | 3RU Rear Plate for use with 7700FR-C Multiframe |
| +1RU | 1RU Rear Plate for use with 7701FR Multiframe |
| +SA | Standalone Enclosure Rear Plate |

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.

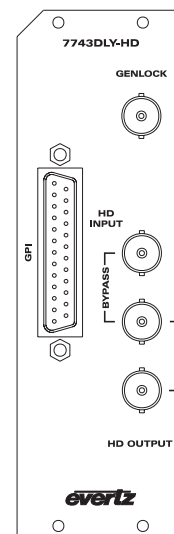
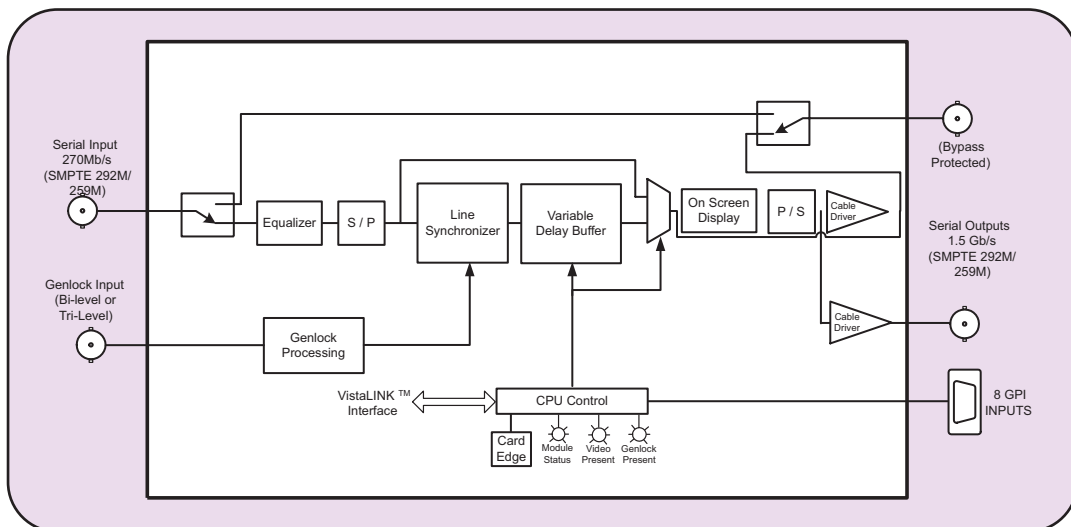
The 7743DLY-HD is capable of up to 3.2 seconds of delay for HD and up to 16.5 seconds of delay for SD.

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 or 9000NCP 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 or equivalent cable
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 \pm 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 \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

Genlock Input:

Type: HD Tri-level Sync, (See Table 3 in manual)
 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)

Functional:

Minimum Delay: 65.5 msec (1770 samples) for standard definition,
 37.7 msec (2800 samples) for high definition
Maximum Delay: approx. 16.5 sec for standard definition, approx.
 3.2 sec 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

Accessories:

7700FC VistaLINK™ Frame Controller
9000NCP VistaLINK™ General Purpose Network Control Panel

Ordering Options

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

Rear Plate Suffix

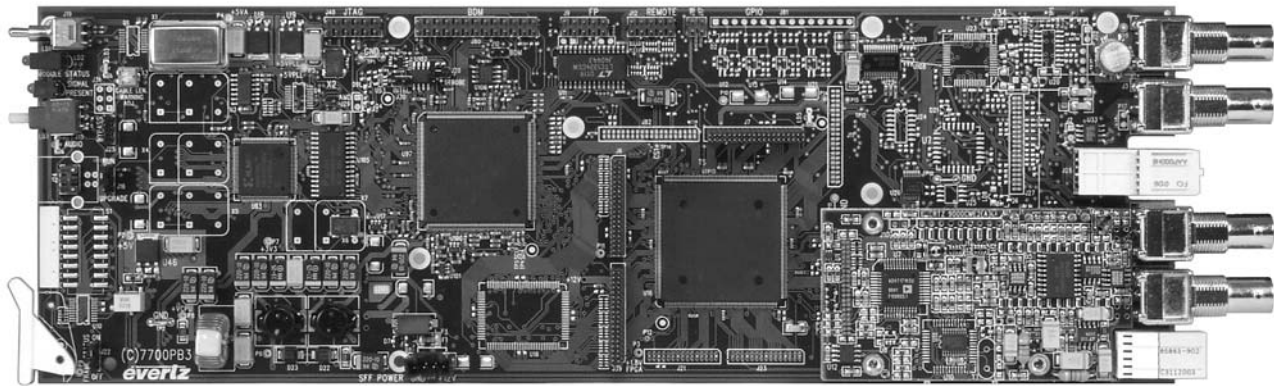
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

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

SDI 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

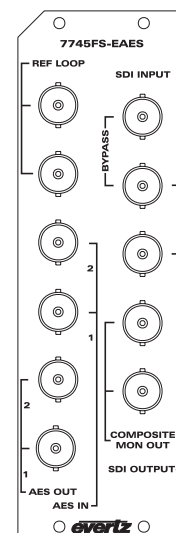
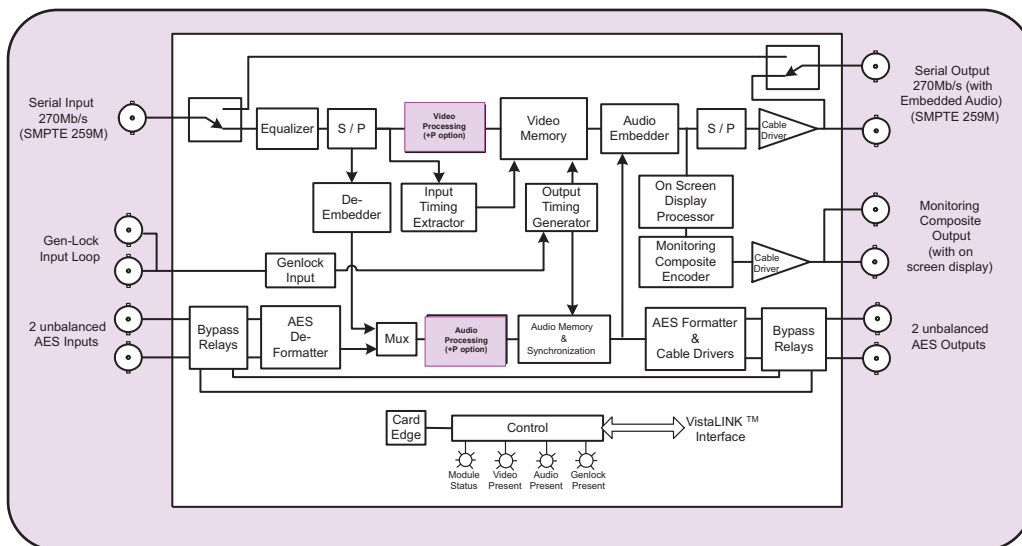
- Synchronized audio is output as 2 AES signals and embedded onto the SDI video output
- AES outputs bypass relay protected on power loss
- Selected audio source is delayed equivalent to the video delay through the synchronizer
- Additional, user selected, audio delay may be added to, or removed from 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 or 9000NCP 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
Equalization: Automatic 300m @ 270Mb/s Belden 8281(or equivalent)
Return Loss: >15dB to 270MHz

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 ± 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 1V-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: 75Ω
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 μs to 1 frame 3 μs
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
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

| | |
|----------------|--|
| 9000NCP | VistaLINK™ General Purpose Network Control Panel |
|----------------|--|

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

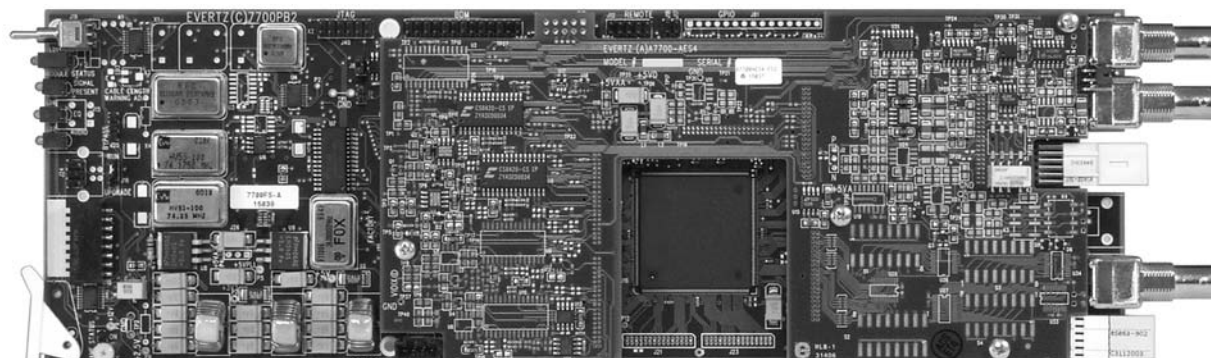
Enclosures:

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

Note: This module not available in a standalone enclosure

HD Frame Synchronizer

Model 7746FS-HD



The 7746FS-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 7746FS-HD is currently available in two versions to suit various application requirements.

| Model | Synchronizes | | | AES Audio | |
|-----------------|--------------|------------------------|-----------|-----------|---------|
| | Video | Embedded Audio | AES Audio | Inputs | Outputs |
| 7746FS-HD | Yes | Demux and mux 2 Groups | No | - | -- |
| 7746FS-EAES4-HD | Yes | Demux and mux 2 Groups | 4 | 4 | 4 |

On the 7746FS-HD version the video and any embedded audio present is synchronized. (There are no audio sample rate converters on the 7746FS-HD) 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. The 7746FS-EAES4-HD version can also adjust audio parameters such as gain, mixing stereo pairs into monaural and reassignment of audio channels within the groups.

The card functions can be controlled from the card edge or through the VistaLINK™ interface.

Features

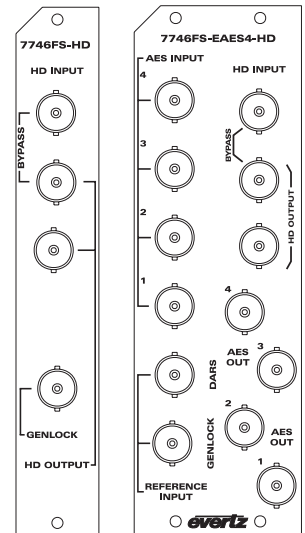
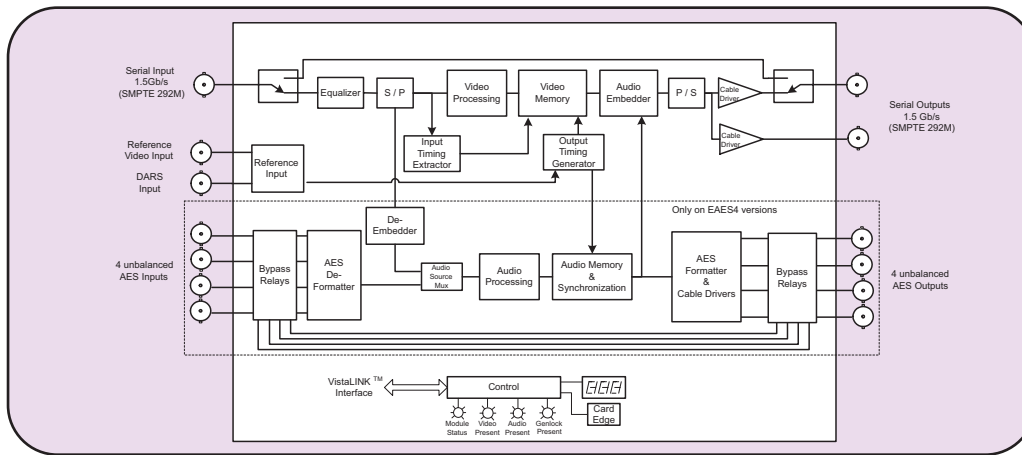
- Synchronizes 1080i/60, 1080i/59.94, 1080i/50, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94, 480p/59.94, 525i/59.94 or 625i/50
- Minimum video input to output delay - 3 lines
- Maximum video input to output delay - 1 frame plus 3 lines
- 12 additional frames of delay can be added for interlaced video 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) - available only for HD video standards at the time of writing.
- 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
- VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO or 9000NCP 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
- 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 within the embedded groups

HD Frame Synchronizer

7746FS-HD Block Diagram



Specifications

Serial Video Input:

Standard: DIP switch selectable
1.485 Gb/sec 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

Audio (7746FS-EAES4-HD only)

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:
7746FS-HD 12 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 7746FS-HD
2 for 7746FS-EAES4-HD
7701 frame mounting:
Number of slots: 1 for 7746FS-HD
1 for 7746FS-EAES4-HD

Ordering Information:

7746FS-HD HD Frame Synchronizer
7746FS-EAES4-HD HD Frame Synchronizer with 4 AES audio pairs and embedded audio processing & AES Support

Ordering Options and Accessories:

7700FC VistaLINK™ Frame Controller
9000NCP VistaLINK™ General Purpose Network Control Panel

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

Rear Plate Suffix

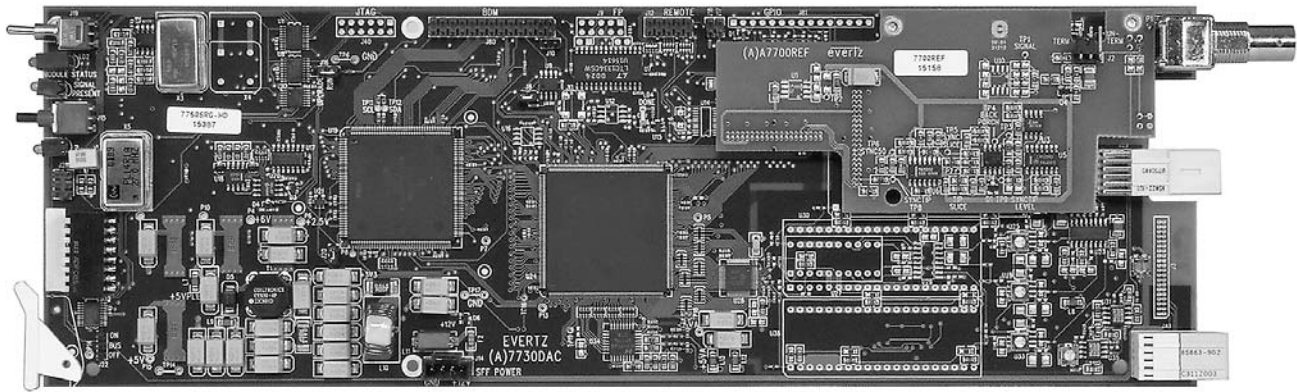
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe

Enclosures:

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

HD 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.

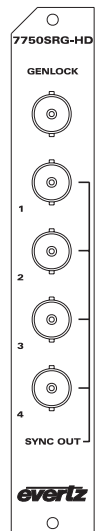
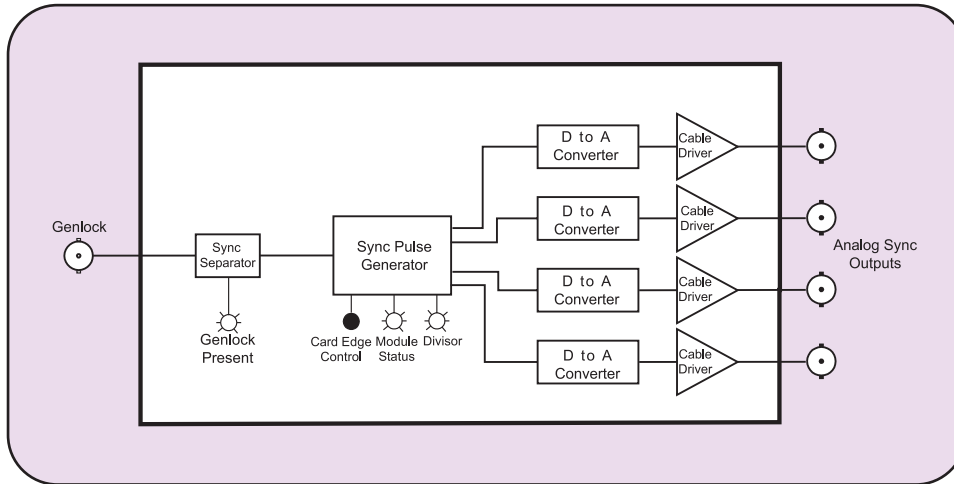
The 7750SRG-HD generates all analog sync signals defined by SMPTE 274M (1080i/p) and SMPTE 296M (720p) as well as those required for NTSC, PAL and slow PAL (625i/48) applications. The four independent sync outputs can be configured to output different sync signals. The common combinations of HDTV and 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
- Front panel LEDs indicate gen lock presence, module fault

Block Diagram 7750SRG-HD



Selectable Sync Output Options

| 1 | 1080i/60 | 1080p/24sF | 625i/48 | 6Hz |
|----|------------------|------------|------------|-------|
| 2 | 1080i/50 | 1080p/24sF | 625i/48 | 1Hz |
| 3 | 1080p/30 | 1080p/24sF | 625i/48 | 6Hz |
| 4 | 1080p/25 | 1080p/24sF | 625i/48 | 1Hz |
| 5 | 1080p/24 | 1080p/24sF | 625i/48 | 625i/ |
| 6 | 1080p/24sF | 1080p/24sF | 625i/48 | 625i/ |
| 7 | 720p/60 | 1080p/24sF | 625i/48 | 6Hz |
| 8 | 1035i/60 | 1080p/24sF | 625i/48 | 6Hz |
| 9 | 1080i/60 | 720p/60 | 525i/59.94 | 525i/ |
| 10 | 1080i/60 V Drive | 1080p/24sF | 625i/48 | 6Hz |

1/1.001 Multiple Set Via DIP Switch Where Applicable
(See 7750SRG-HD manual for more switch setting)

Specifications

Genlock Input:

Type: NTSC or PAL Color Black 1 V p-p
Composite Bi-level sync(525i or 625i)300 mV
Connector: 1 BNC per IEC 60169-8 Amendment 2
Termination: 75 Ω (jumper selectable)

Analog Sync Outputs:

Number of Outputs: 4
Standard: SMPTE 274M, 296M, NTSC, PAL, 6 Hz TTL,

Connectors: HDSD (Selectable as per above Table)
4 BNC per IEC 60169-8 Amendment 2
Signal Level: HD Sync outputs: 600mV nominal tri-level
SD Sync outputs: 300mV nominal bi-level
6 Hz output: TTL

Electrical:

Power: +12VDC
Voltage: 6 Watts
EMI/RFI: 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 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

NTSC Slave Sync Generator

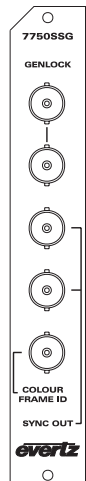
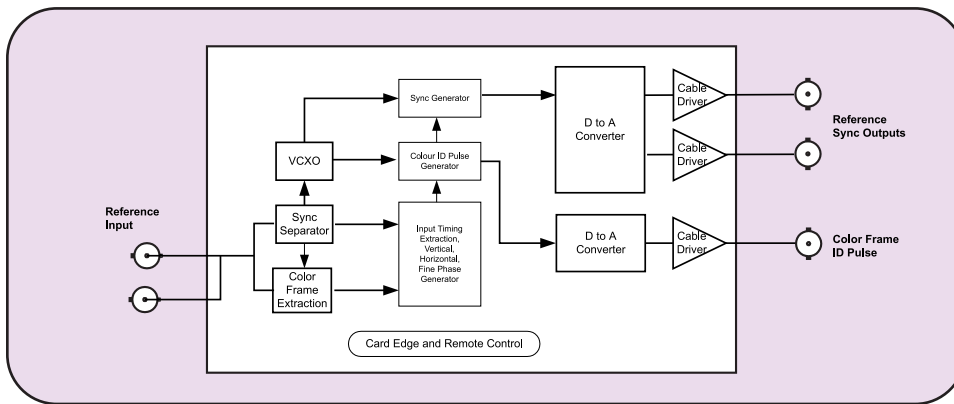
Model 7750SSG

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 degrees

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 \pm 100mV
Return Loss: >35 dB up to 5 MHz
SC/H Phase: < 1 degree
Sync rise/fall time: 140 \pm 20ns
V Phasing: Infinite lines
H Phasing: Infinite samples (37ns/sample)
Fine Phasing: \pm 24 degrees, 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: 75 Ω
DC Offset: 0V \pm 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

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.

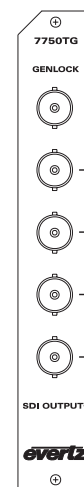
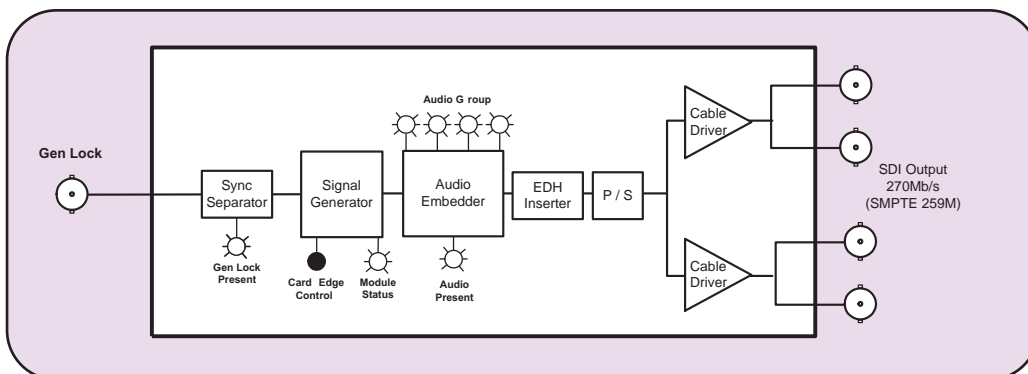
The 7750TG provides an analog genlock input that allows you to synchronize the test signals to your plant horizontal and vertical timing.

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

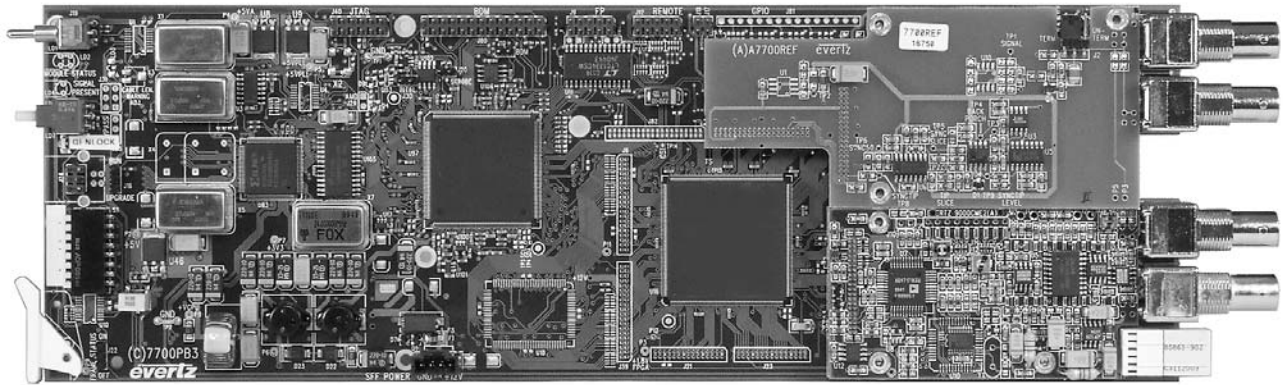
1RU Multiframe which holds 3 modules

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.

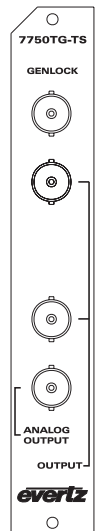
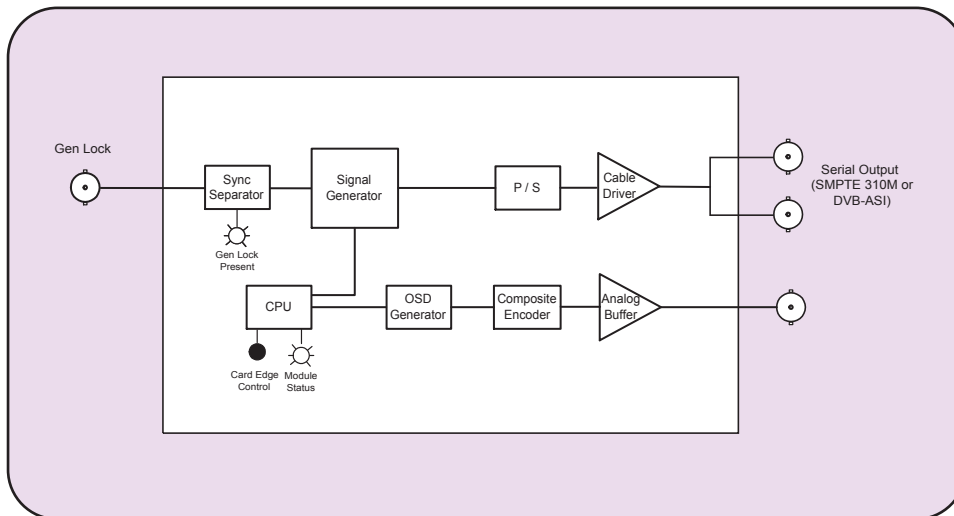
The 7750TG-TS provides an analog genlock input that allows you to synchronize the test signals to your plant horizontal and vertical timing.

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 colour 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

Transport Stream Generator

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 \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

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

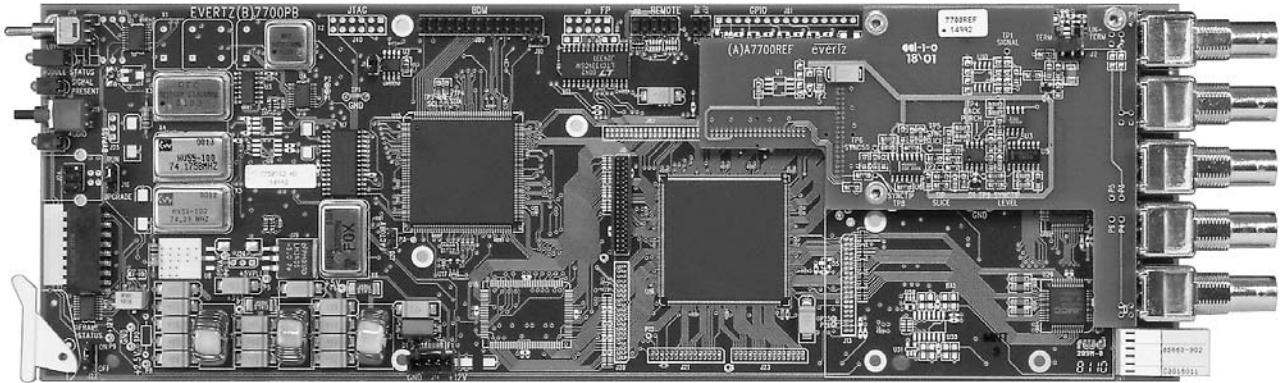
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

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.

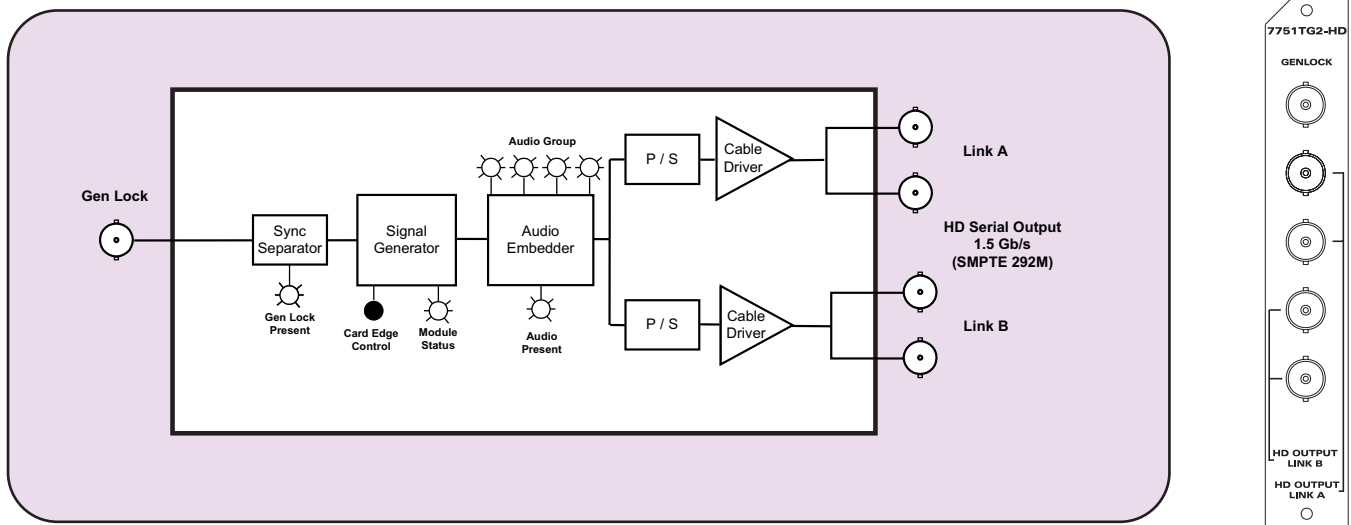
Separate audio tones can be embedded into each channel of two of the four embedded audio groups. The user can select which of the audio groups the tones will be embedded into. In dual link mode, the selected audio groups will be embedded into each link. The Audio level is fixed at -20 dB full scale.

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, colour black embedded audio tones for 2 groups selectable audio group assignment
- 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

Dual HD Test Signal Generator with Embedded Audio

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

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

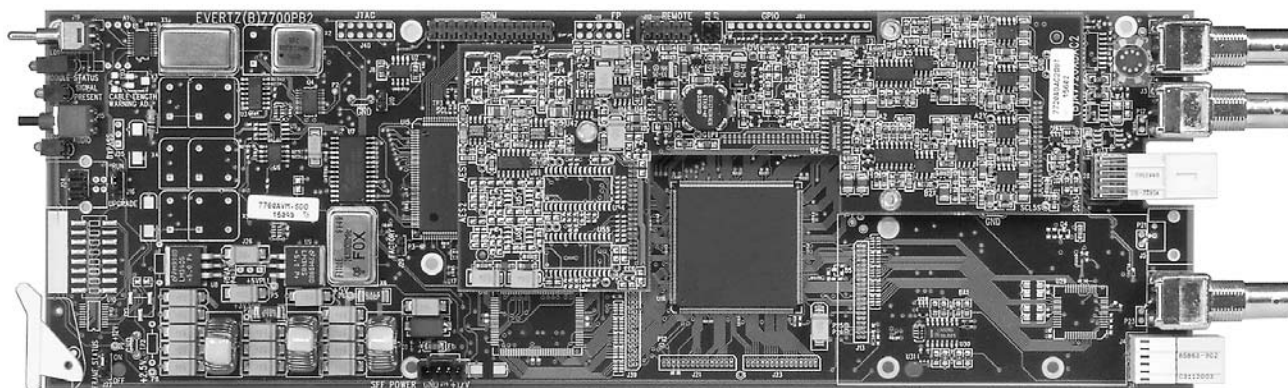
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

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 7760AVM



The 7760AVM 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 7760AVM 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.

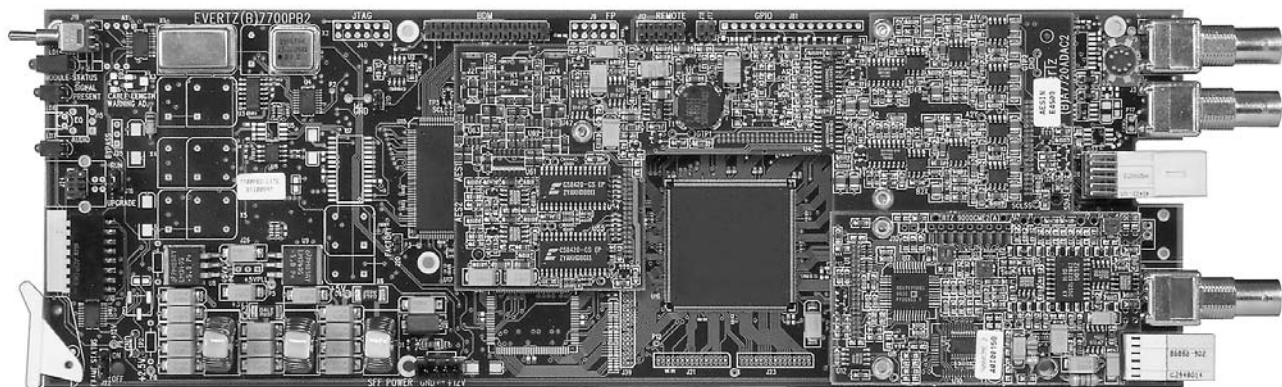
| 7760AVM-X | | | | | | | | |
|--|-----|----|----|----|----|---|---|----|
| Feature | x = | A | B | C | D | E | F | G |
| Reclocked SDI Output | | 1 | 1 | 1 | 1 | 2 | 2 | 0 |
| SDI Outputs with Superimposed Information | | 0 | 1 | 0 | 1 | 2 | 2 | 1 |
| Composite analog outputs with superimposed information | | 1 | 0 | 1 | 0 | 2 | 2 | 1 |
| Closed Caption Decoding (analog outputs only, not on SDI outputs) | | Y | N | Y | N | Y | Y | Y |
| AES/EBU Digital Audio Inputs | | 0 | 0 | 2 | 2 | 0 | 2 | 0 |
| AES/EBU Digital Audio Outputs | | 2 | 2 | 0 | 0 | 2 | 0 | 2 |
| Analog Audio Outputs | | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Max. Number of cards in a 7700FR-C | | 15 | 15 | 15 | 15 | 7 | 7 | 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 analog audio outputs available for content monitoring
- Analog audio output levels are adjustable
- Analog audio outputs can be set so both are a mono mix of the selected channel pair
- 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
- Program rating (V-Chip) display
- Large font display of VITC, SID, Program rating and fault messages
- A comprehensive on screen display is available to configure the various features of the module
- AVM configware software allows you to quickly copy configurations to multiple modules
- 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 or black video (patent pending)
- 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 for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

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

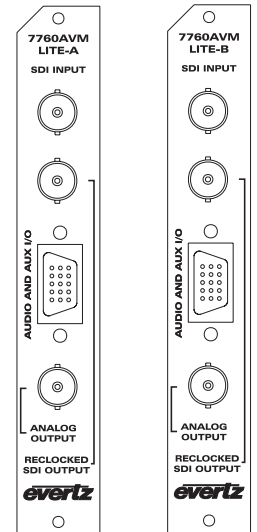
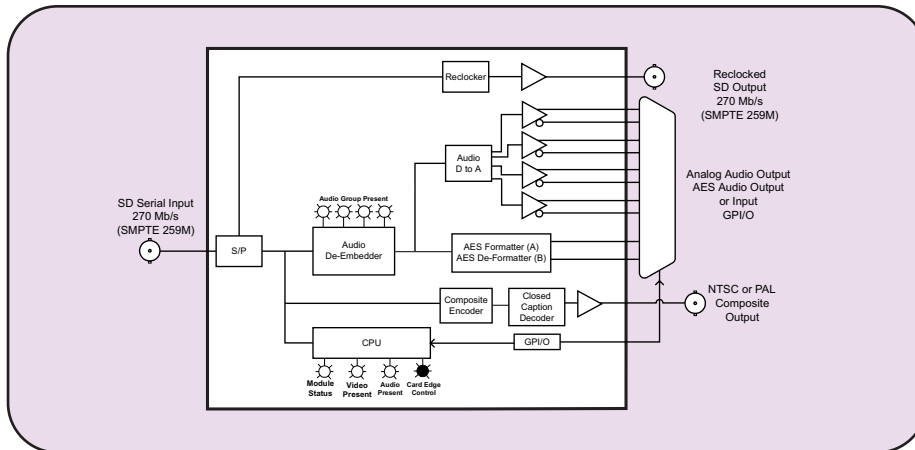
- Audio channel swapping selection via card edge DIP switches
- Selectable NTSC pedestal on/off

Card Edge LED's:

- Module Status
- Local Fault
- Video Signal Presence
- Audio groups present in input video
- Selected audio group presence

SDI Video and Audio Monitoring/Conversion (without on screen display)

7760AVM-LITE 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 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

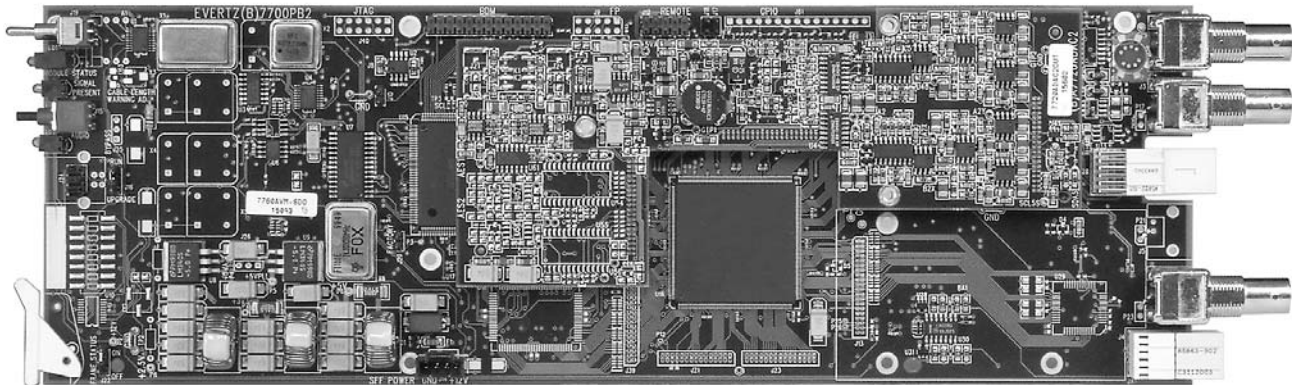
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

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's 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).

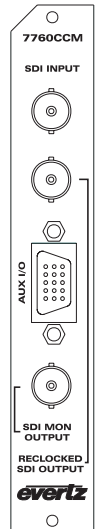
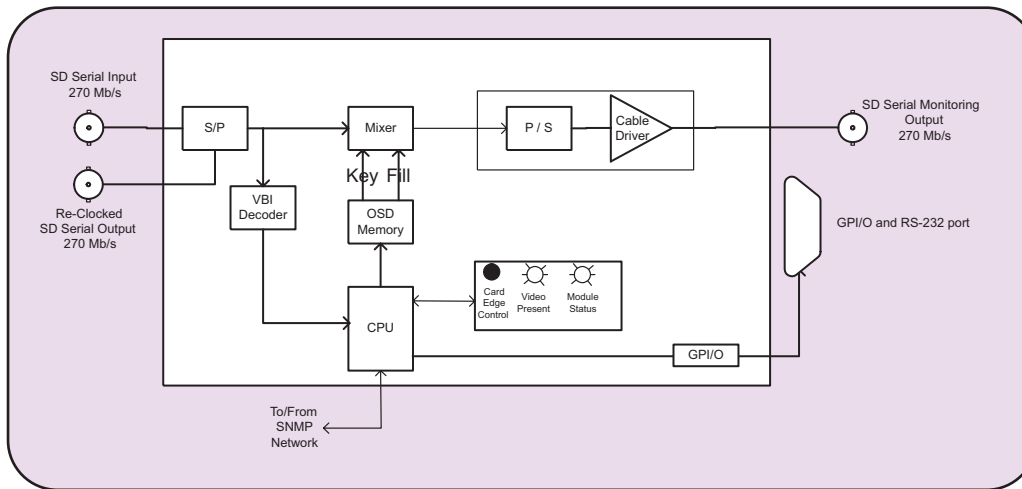
The single-slot, 7760CCM module fits conveniently into Evertz's 7700FR-C, 7701FR frames or standalone enclosure.

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) containing 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's 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

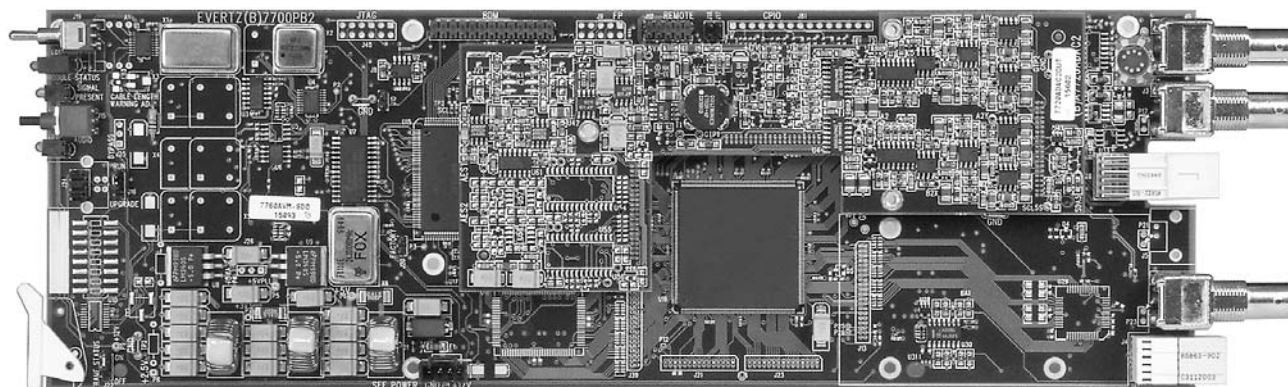
+3RU 3RU Rear Plate for use with 7700FR-C
Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

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

Model 7760CCM-HD

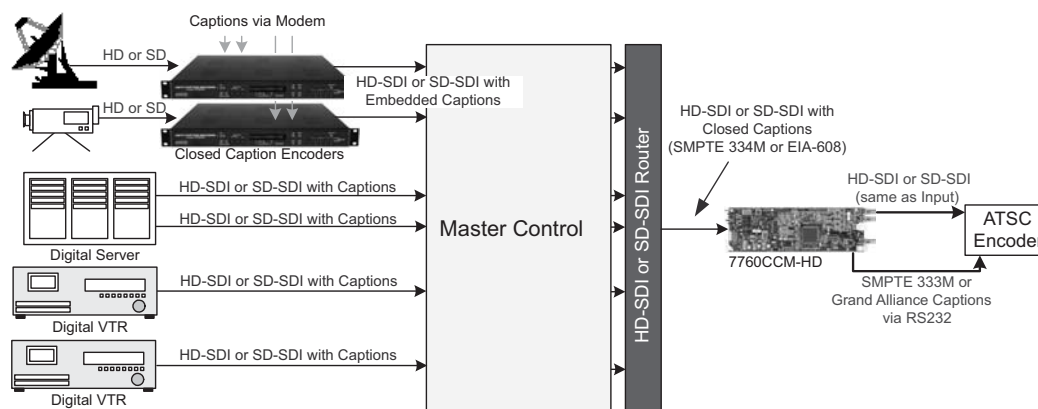


The 7760CCM-HD Closed Caption card is a EIA608 / EIA708 translator and extends the signal monitoring capabilities of the Evertz monitoring product line by focusing on closed captioning (EIA-608 & EIA-708) and Extended Data Service (XDS). The 7760CCM-HD has the capability to translate EIA608 captions 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

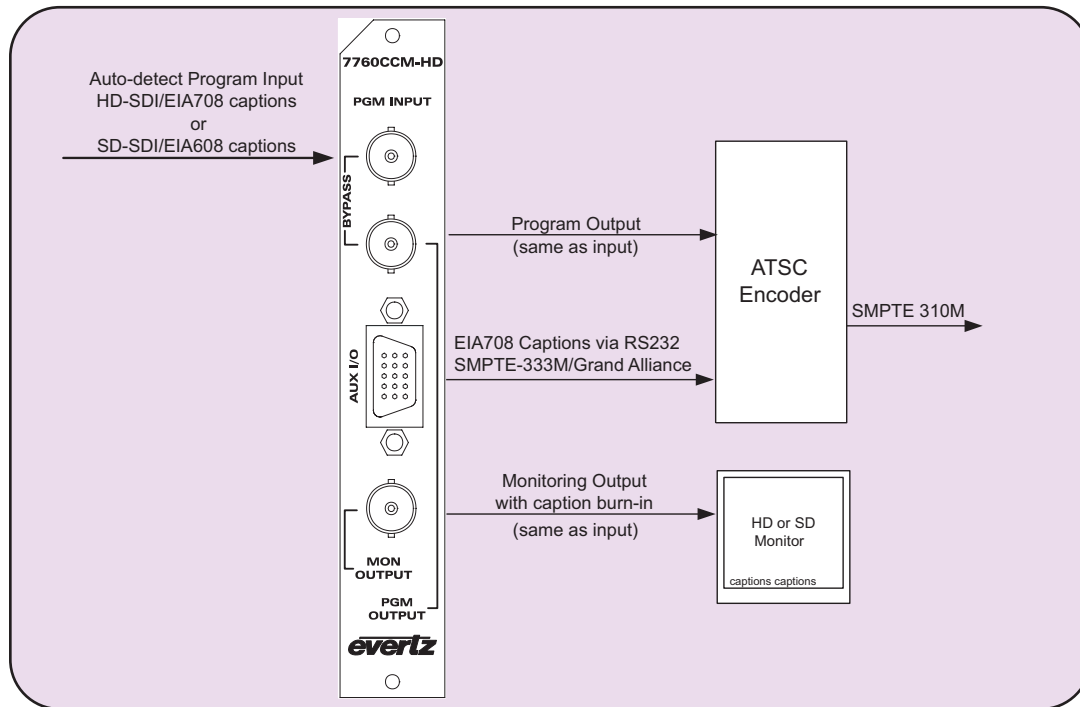


Features

- 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

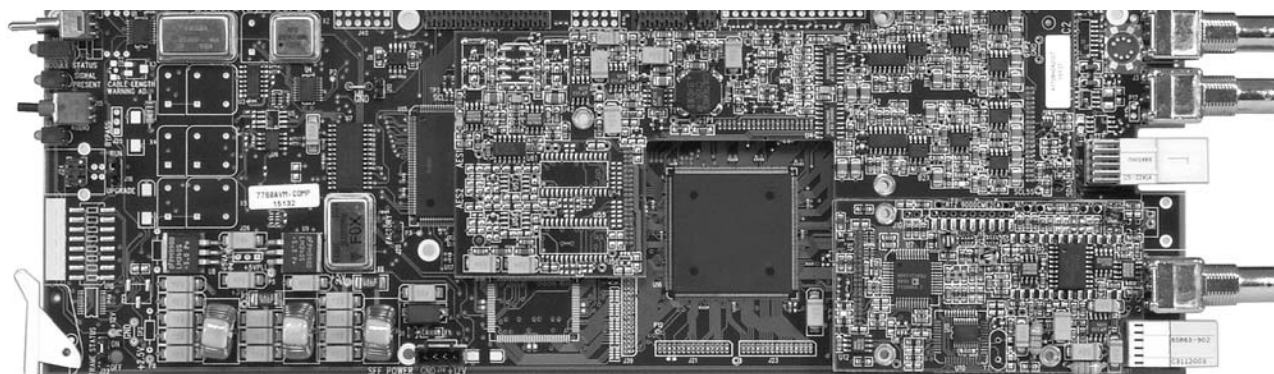
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

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.

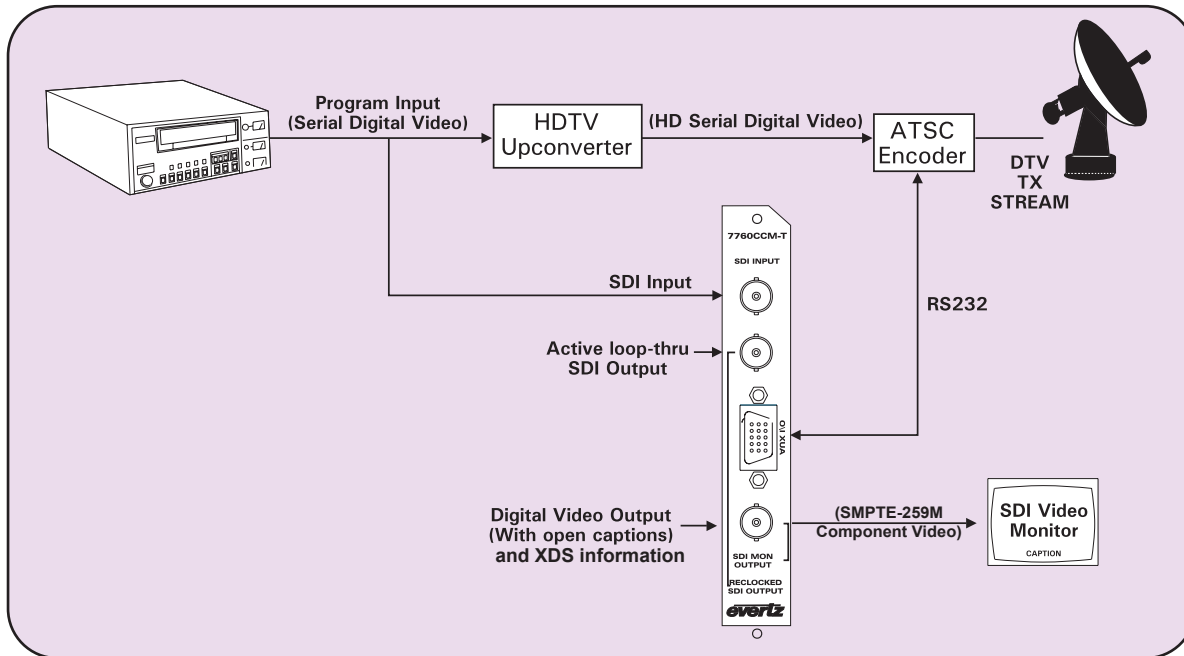
The 7760CCM-T incorporates the fault reporting capabilities inherent in the AVM product line. There are four user-configurable fault alerts that are triggered upon loss of video, loss of CC waveform, parity errors, field inversions, control codes and invalid XDS parameters. The 7760CCM-T is also VistaLINK™-enabled, offering remote monitoring, control and configuration capabilities.

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
Connector: 1 BNC per IEC 60169-8 Amendment 2
Termination: 75Ω
Equalization: Automatic >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:
 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

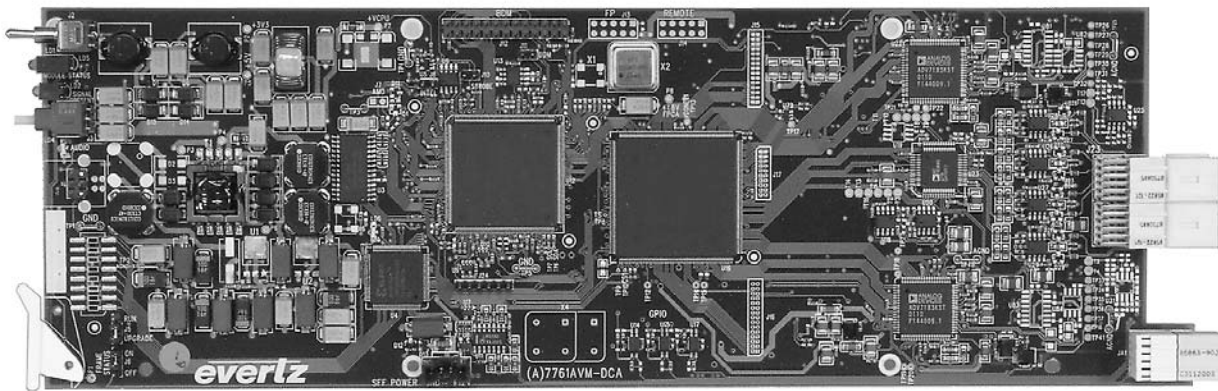
Enclosures:

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

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™.

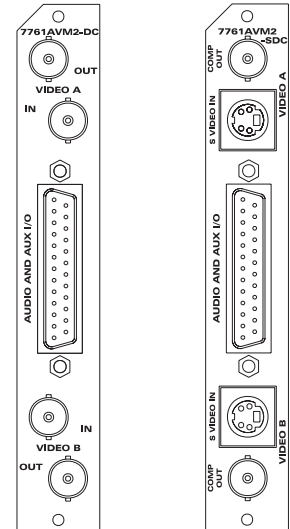
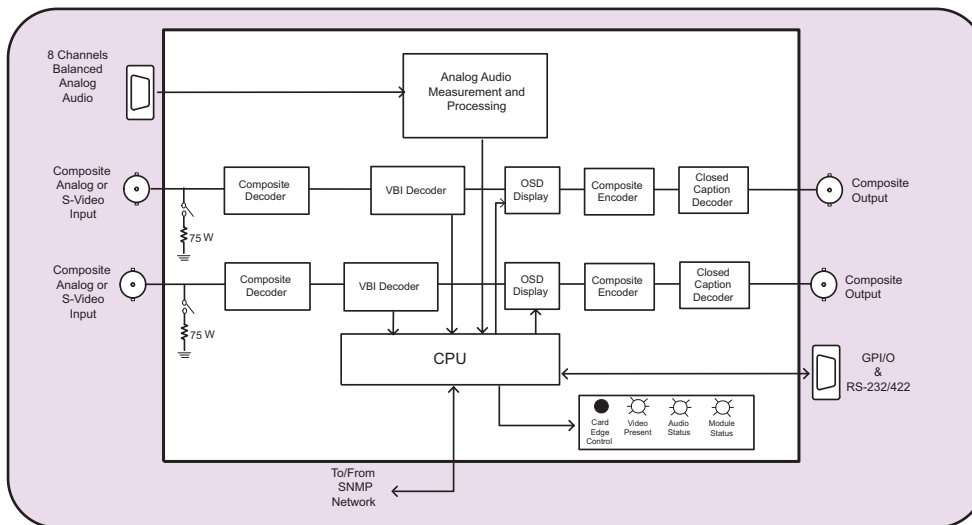
VistaLINK™ offers remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP) giving the flexibility to manage operations, including signal monitoring and module configuration, from SNMP-enabled control systems (Manager or NMS).

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 (Coming Soon)

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:

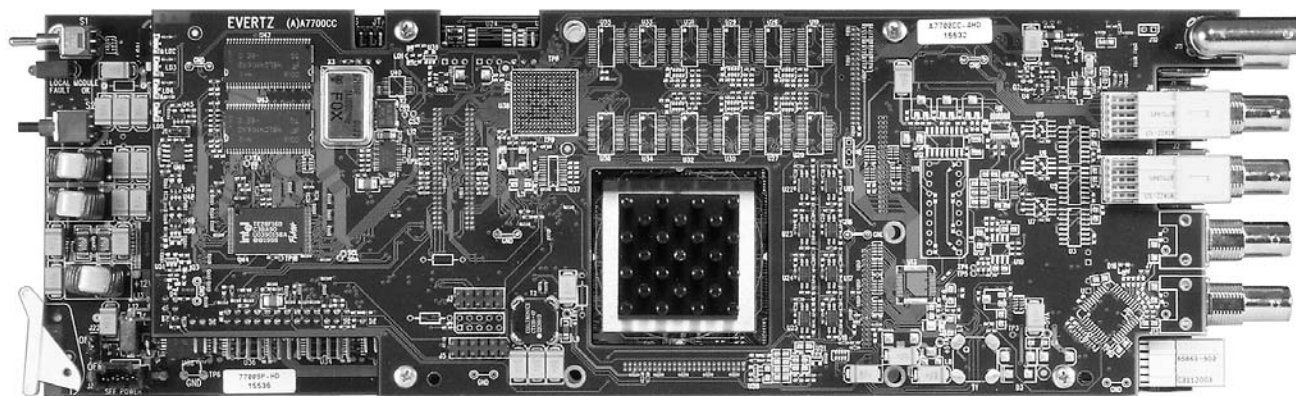
7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

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.

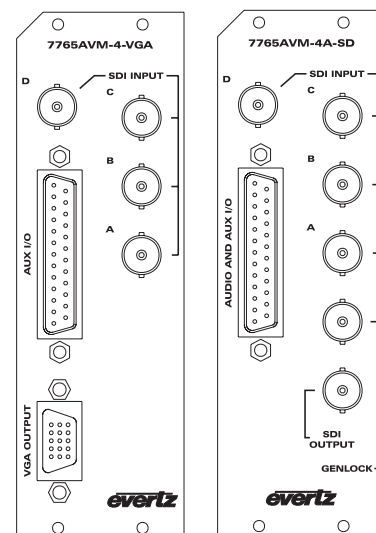
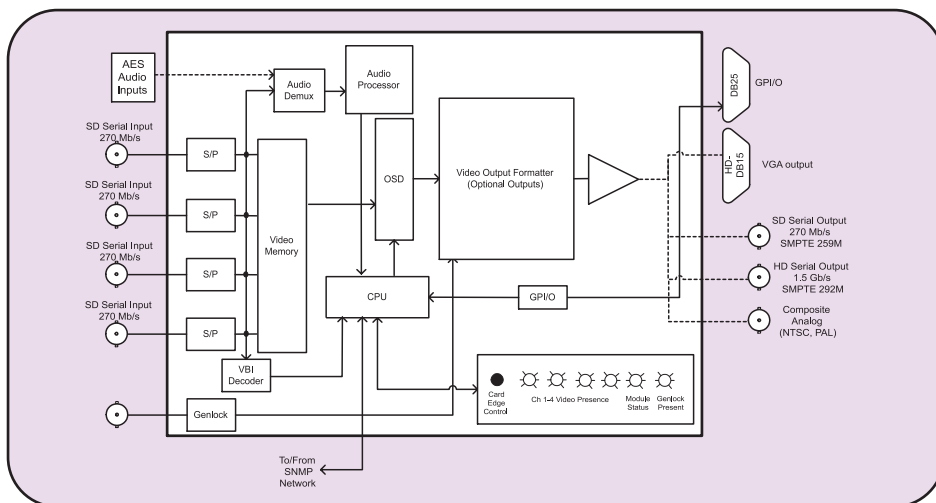
The 7765AVM-4 and -4A cards are also VistaLINK™-enabled, offering remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This product feature offers another solution to manage operations including signal monitoring and module configuration from SNMP-enabled 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-HD):

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-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 (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 (GPIO/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 }
 7765AVM-4-VGA } Quattro™, Four SDI Video Quad Split Display
 7765AVM-4-SD } with Digital Audio Monitoring (Embedded Audio)
 7765AVM-4-CA }
 7765AVM-4A-HD }
 7765AVM-4A-VGA } Quattro™, Four SDI Video Quad Split Display
 7765AVM-4A-SD } with Digital Audio Monitoring (Embedded and/or
 7765AVM-4A-CA } External AES/EBU)

Ordering Options

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

7765AVM-4A-BHP-7 Bulkhead Breakout Panel for 7x 7765AVM-4A
 (includes 7-3ft cables)

Rear Plate Suffix

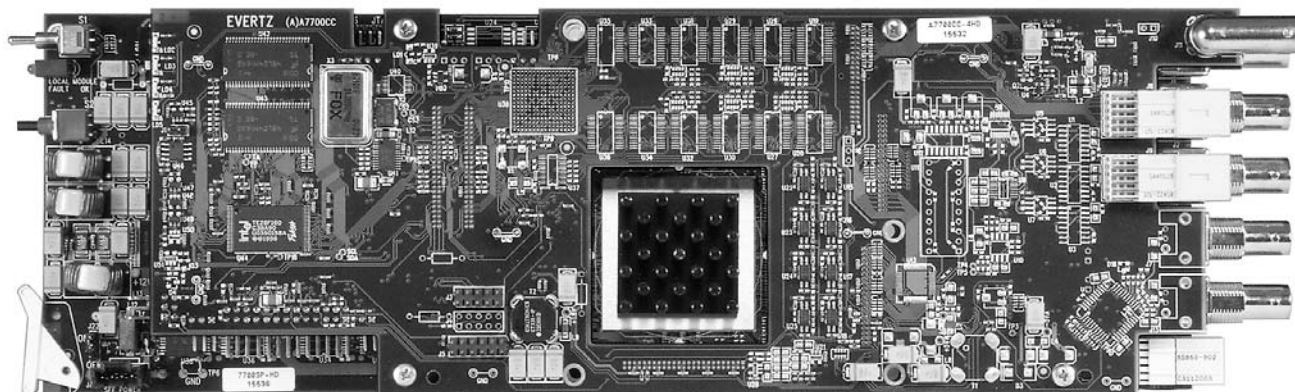
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

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

Analog Quattro™, Four Analog Video & Quad Split with Analog Audio Monitoring

Model 7766AVM-4A / S4A



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.

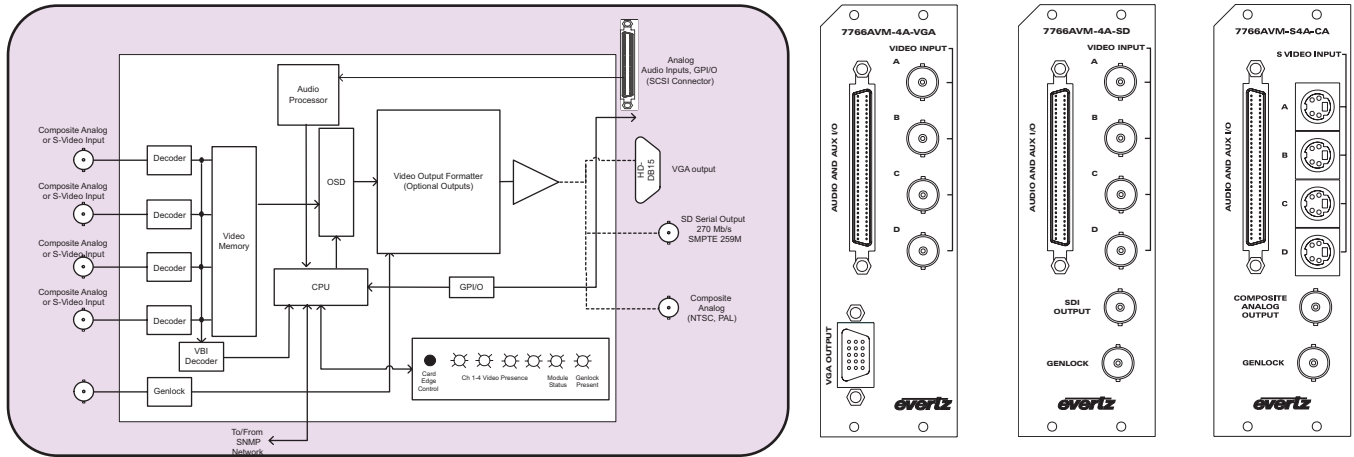
The 7766AVM-4A/-S4A cards are VistaLINK™ enabled offering remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage operations including signal monitoring and card configuration from SNMP-enabled control systems (Manager 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 / S4A 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: 8 (4 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

Enclosures:

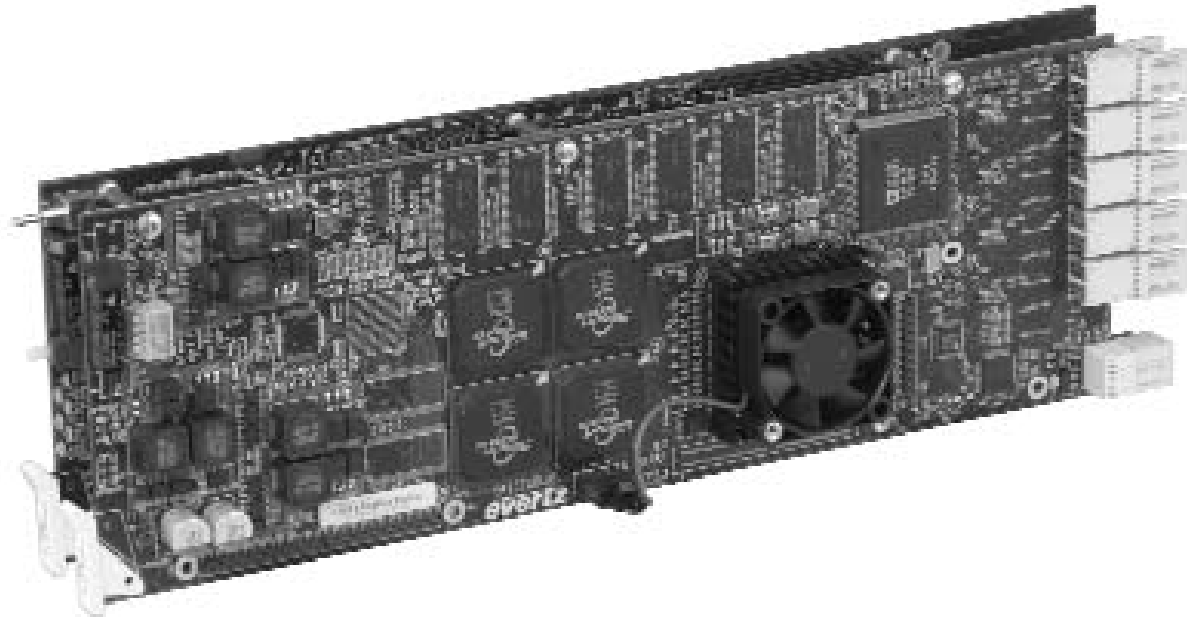
7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

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)

VIP™ Four Input Video Monitoring and Display

Model 7767VIP4



Building on the popularity of the quad-split display series Evertz's new 7767VIP4 signal monitoring module simultaneously accepts, auto-detects, analyzes and displays four 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 UXGA (1600 x 1200) resolution via pre-designed user-selectable presets, the 7767VIP4 module fits conveniently into Evertz universally installed 7700FR-C frame and provides a cost-effective and space-efficient signal monitoring and display solution.

The 7767VIP4 module is 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

Video Inputs:

- Four auto-sensing HD/SD/NTSC/PAL
- Aspect ratio converter on each input - can display 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 modules

Audio Inputs:

- Handles embedded or discrete balanced or unbalanced AES/EBU, or analog audio (up to 16 AES and 4 L/R)
- VU/PPM level indicators, with "AVM-type" display features and ballistics

Video Output:

- One DVI-I output
 - Drive single DVI-D and single RGBHV (VGA-type) display simultaneously with same content up to UXGA (1600x1200 resolution)
- Minimal processing delay (<=2 frames)
- Optional support for "portrait" display via 2430GDAC-WARP

Signal Monitoring:

- An extensive list of error conditions can be monitored
- 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, opacities, thresholds and duration settings
- Decodes and displays closed captioning
- Dolby (AC-3 and E) audio presence and type detection

Auxiliary Inputs:

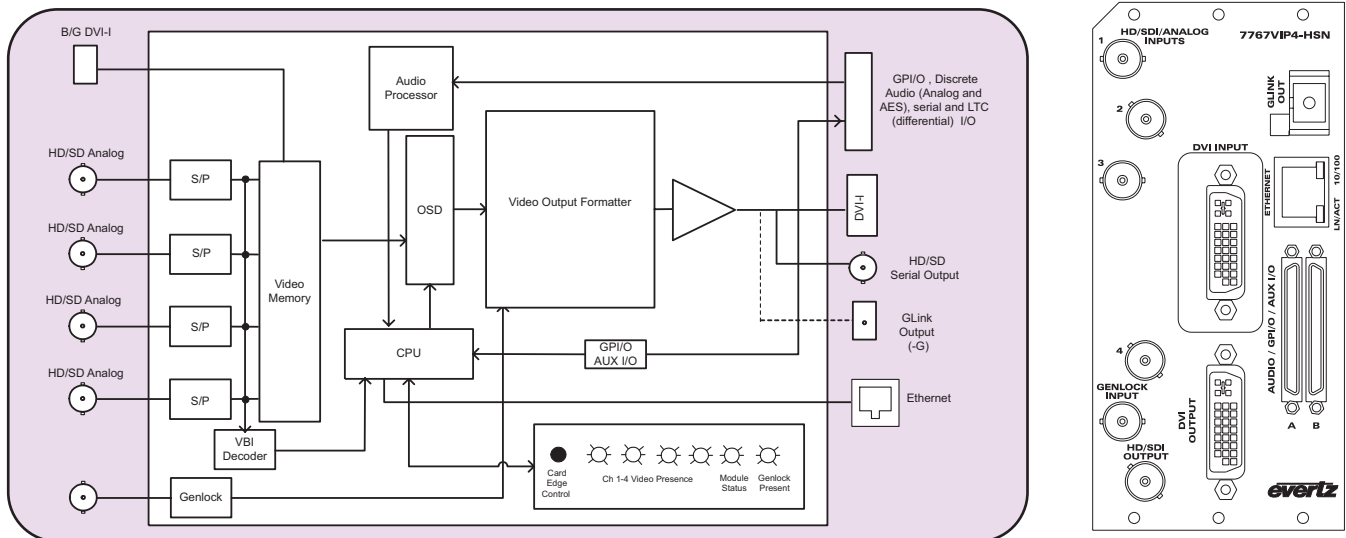
- RS-232/RS-422 communication port
- 20 assignable GP inputs, 8 GP outputs

Physical:

- Number of slots - 3
- Genlock reference loop input for proper timing - 1 NTSC/PAL
- Fast power-cycle time (<3 sec)
- 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

VIP™ Four Input Video Monitoring and Display

7767VIP4 Block Diagram



Specifications

Serial Video Inputs:

Standard: HD-SDI 1080i, 720p, SD-SDI (SMPTE 259M-C), NTSC/PAL
Number of Inputs: 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:

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 \pm 0.1V
Input Impedance: 75 Ω
Return Loss: 40dB up to 5MHz

Discrete Digital AES Audio Inputs (7767VIP-AI-X):

Standard: SMPTE 276M, single ended AES
Number of Inputs: 4 per video input
Connector: Dual SCSI (F) with BHP
Resolution: 24-bit
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced/100 Ω balanced

Discrete Analog Audio Input (7767VIP-AI-X):

Number of Inputs: 8 (4 balanced inputs per video input channel)
Connector: Dual SCSI (F) with BHP
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 UXGA (1600 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/SDI monitoring output
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: Opto-isolated, active low with internal pull-ups to +5V GPI
Relay closure to ground GPO's
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

Four asynchronous HD/SD/NTSC/PAL inputs with embedded audio, one background DVI-I input. One DVI-I and one user-selectable HD/SDI serial monitor output. Includes VistaLINK VLPRO-C software configuration tool and Maestro display layout GUI. (For discrete audio input support, order 7767VIP4-HSN-AI along with AI option type below)

7767VIP4-HSN-G

Four asynchronous HD/SD/NTSC/PAL inputs with embedded audio, one background DVI-I input. One DVI-I and one user-selectable HD/SDI serial monitor output. One built-in fiber output (requires 2430GDAC on Rx end to display). Includes VistaLINK™ VLPRO-C software configuration tool and Maestro display layout GUI. For discrete audio input support, order 7767VIP4-HSN-G-AI along with AI option type below)

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

Accessories:

7767VIP-AI-U

Discrete unbalanced AES/EBU audio input (4 AES per video input) breakout panel (2RU)

7767VIP-AI-BAL

Discrete balanced AES/EBU audio or Analog audio input breakout panel (2RU)

3000MKT-AUX

Dual AUX BHP Rack Mounting Kit

Enclosures:

7700FR-C

3RU Multiframe which holds 15 modules

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:

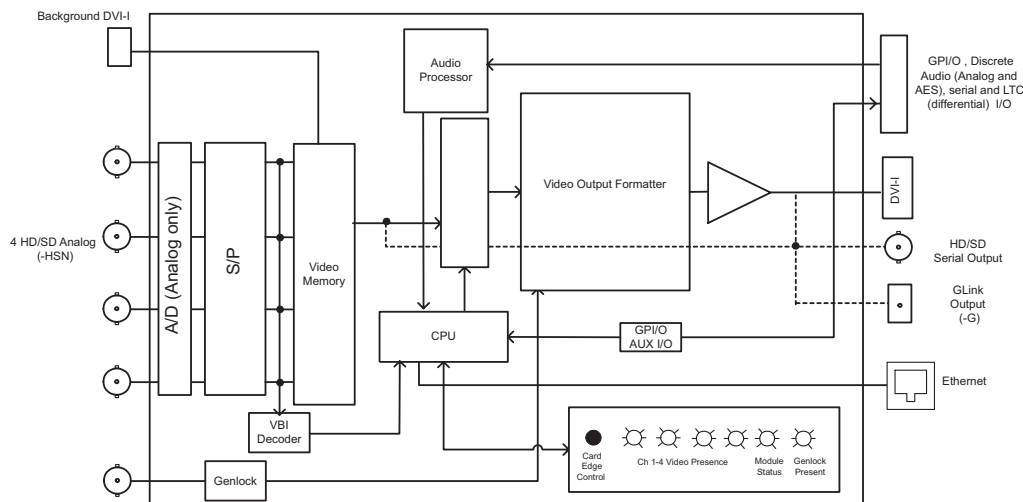
- RS-232/RS-422 communication port interface to common UMD protocols - TSL, Image Video
- 20 assignable GP inputs, 8 GP outputs

Physical:

- Number of slots - 3
- Genlock reference loop input for proper timing - 1 NTSC/PAL
- Fast power-cycle time (<3 seconds)

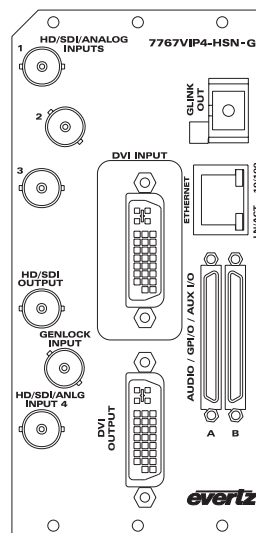
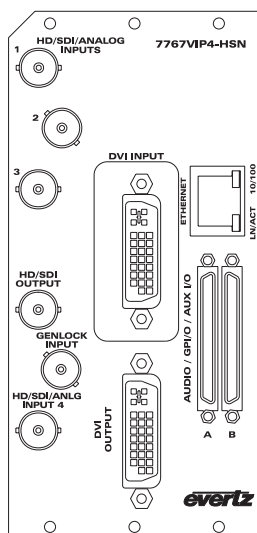
- Built-in VistaLINK™ support for remote monitoring and control via SNMP (using VistaLINK™ PRO)
- The 7767VIP module does not require a 7700FC VistaLINK™ Frame Controller. A direct Ethernet connection to the network for VistaLINK™ operations must be provided by user. Screen configurations via Maestro 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, single ended AES |
| Number of Inputs: | 4 per video input |
| Connector: | Dual SCSI (F) |
| Resolution: | 24-bit |
| Sampling Rate: | 48 kHz |
| Impedance: | 75 Ω unbalanced |

Discrete Analog Audio Input:

| | |
|------------------------------------|---|
| Number of Inputs: | 8 (4 balanced inputs per video input channel) |
| 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 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 TBBlocks 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 TBBlocks 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

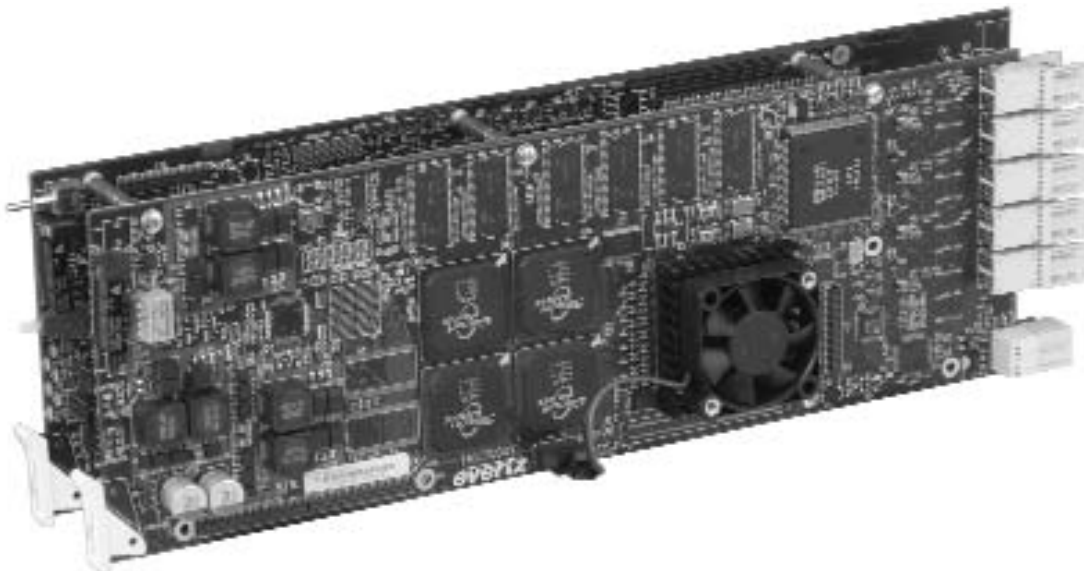
| | |
|----------------|---|
| +3RU | 3RU Rear Plate for use with 7700FR-C Multiframe |
| 2430GDAC | GLink to DVI converter (extender requires -G module) |
| 2430GDAC-WARP | GLink to DVI converter (extender and portrait mode display, requires -G module) |
| 7767VIP-AI-U | Discrete unbalanced AES/EBU 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 |
|----------|---------------------------------------|

VIP™ Twelve Input Video Monitoring and Display

Model 7767VIP12



Building on the popularity of both Quattro™ and MVM product lines, the VIP™ maintains the signal monitoring features common in both and conveniently fits the universally installed 7700FR-C frame.

The VIP12 accepts, analyzes and displays up to 12 HD/SD video inputs, four of which can also auto-detect NTSC/PAL on the same BNC. An additional thirteenth input is a computer graphic input for a dynamically-updated background image. The VIP™ outputs up to UXGA (1600 x 1200) resolution.

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 video inputs; four can also be NTSC/PAL on the same BNC
- Aspect ratio converter on each input - can display 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 modules

Audio Inputs:

- Handles embedded or discrete balanced or unbalanced AES/EBU as well as analog audio (up to 48 AES and 12 L/R)
- VU/PPM level indicators, with "AVM type" display features and ballistics

Video Output:

- One DVI-I output
 - Drive single DVI-D and single RGBHV (VGA-type) display simultaneously with same content up to UXGA (1600x1200 resolution)
- Minimal processing delay (<=2 frames)
- Optional support for "portrait" display via 2430GDAC-WARP

Signal Monitoring:

- An extensive list of user-configurable error conditions can be monitored
- On screen messages triggered by fault conditions
- Fault condition logic menu option
- 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
- Decodes and displays closed captioning
- Dolby (AC-3 and E) audio presence and type detection

Auxiliary Inputs:

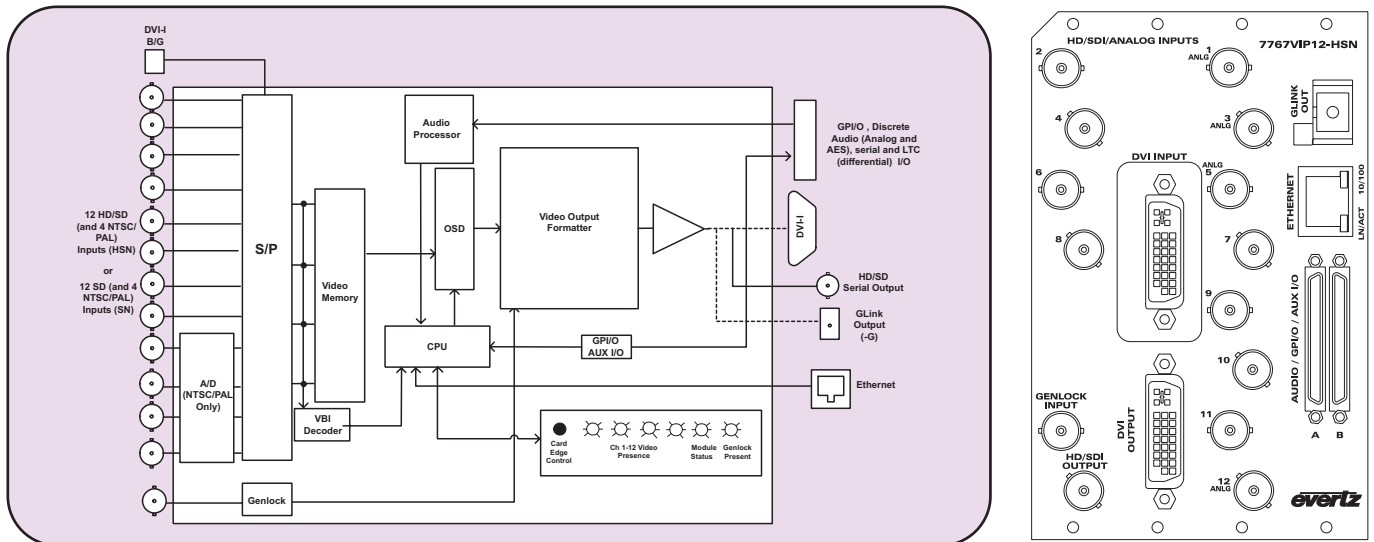
- RS-232/RS-422 communication port
- 20 assignable GP inputs, 8 GP outputs

Physical:

- Number of slots - 4
- Genlock reference loop input for proper timing - 1 NTSC/PAL
- Fast power-cycle time (<3 sec)
- 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 must be provided

VIP™ Twelve Input Video Monitoring and Display

7767VIP12 Block Diagram



Specifications

Serial Video Inputs:

Standard: HD-SDI 1080i, 720p, 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:

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Inputs: 4 (out of 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

Discrete Digital AES Audio Inputs (7767VIP-AI-X):

Standard: SMPTE 276M, single ended AES
Number of Inputs: 4 per video input
Connector: Dual SCSI (F) with BHP
Resolution: 24-bit
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced/100 Ω balanced

Discrete Analog Audio Inputs (7767VIP-AI-X):

Number of Inputs: 1 L/R pair per video input
Connector: Dual SCSI (F) with BHP
Input Impedance: 20k Ω min. (differential)
Sampling Frequency: 48kHz
Peak Signal and Common Mode Level: 30dBu

Display Video Output:

Standard: VESA (DVI-I) up to UXGA (1600 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/SDI monitoring output
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 (GPIO/GPO):

Number of Inputs: 20
Number of Outputs: 8
Type: Opto-isolated, active low with internal pull-ups to +5V GPI Relay closure to ground GPO's Breakout panel TBlocks via SCSI connection to dual SCSI (F)
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 IEEE 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 background DVI-I input. One DVI-I and one user-selectable HD/SDI serial monitor output. Includes VistaLINK™ VLPRO-C software configuration tool and Maestro display layout GUI. For discrete audio input support, order 7767VIP4-HSN-AI along with AI option type below)

7767VIP12-HSN-G

Up to twelve asynchronous HD/SD/NTSC/PAL inputs with embedded audio, one background DVI-I input. One DVI-I and one user-selectable HD/SDI serial monitor output. One built-in fiber output (requires 2430GDAC on Rx end to display/display). Includes VistaLINK™ VLPRO-C software configuration tool and Maestro display layout GUI. For discrete audio input support, order 7767VIP4-HSN-G-AI along with AI option type below)

7767VIP12-SN

Up to twelve asynchronous SD/NTSC/PAL inputs with embedded audio, one background DVI-I input. One DVI-I and one user-selectable HD/SDI serial monitor output. Includes VistaLINK™ VLPRO-C software configuration tool and Maestro display layout GUI. For discrete audio input support, order 7767VIP4-SN-AI along with AI option type below)

7767VIP12-SN-G

Up to twelve asynchronous SD/NTSC/PAL inputs with embedded audio, one background DVI-I input. One DVI-I and one user-selectable HD/SDI serial monitor output. One built-in fiber output (requires 2430GDAC on Rx end to display). Includes VistaLINK™ VLPRO-C software configuration tool and Maestro display layout GUI. For discrete audio input support, order 7767VIP4-SN-G-AI along with AI option type below)

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

Accessories:

7767VIP-AI-U Discrete unbalanced AES/EBU audio input (4 AES per video input) breakout panel (2RU)
7767VIP-AI-BAL Discrete balanced AES/EBU audio or Analog audio input breakout panel (2RU)
3000MKT-AUX Dual AUX BHP Rack Mounting Kit

Enclosures:

7700FR-C 3RU Multiframe which holds 15 modules

VIP™ Twelve Input Video Monitoring and Display



Model 7767VIP I2-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:

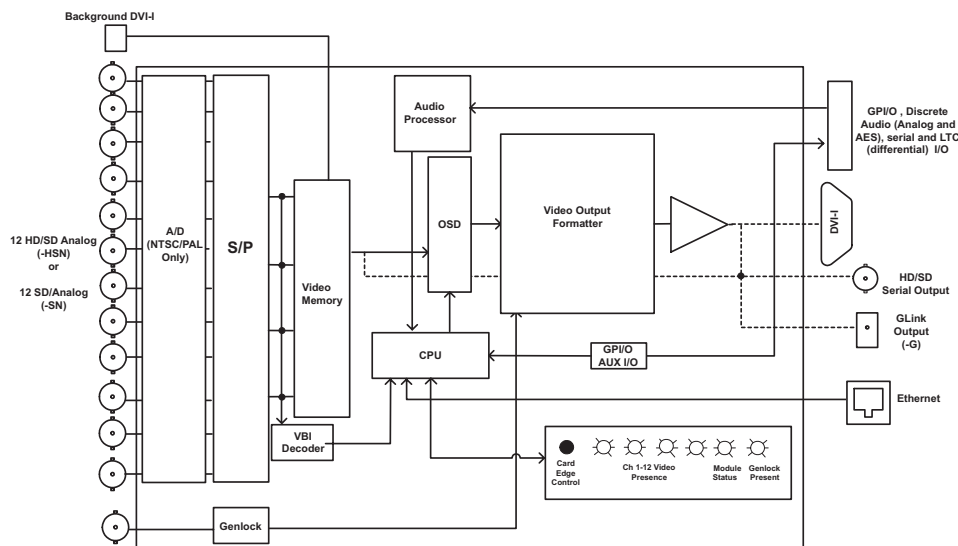
- RS-232/RS-422 communication port Interface to common UMD protocols - TSL, Image Video
- 20 assignable GP inputs, 8 GP outputs

Physical:

- Number of slots - 4
- Genlock reference loop input for proper timing - 1 NTSC/PAL
- Fast power-cycle time (<3 seconds)

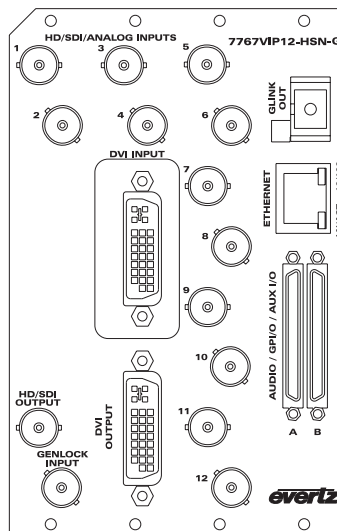
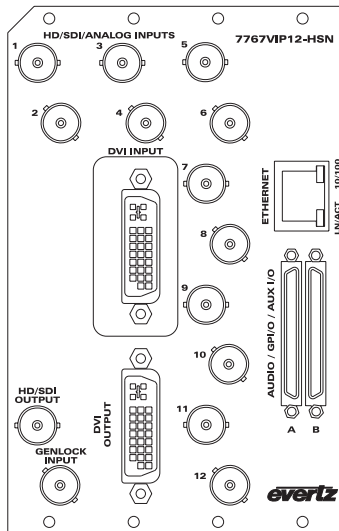
- Built-in VistaLINK™ support for remote monitoring and control via SNMP (using VistaLINK™ PRO)
- The 7767VIP module does not require a 7700FC VistaLINK™ Frame Controller. A direct Ethernet connection to the network for VistaLINK™ operations must be provided by user. Screen configurations via Maestro VIP GUI software (included)

7767VIP I2 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, single ended AES |
| Number of Inputs: | 4 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: | 1 L/R pair per video input |
| Connector: | Dual SCSI (F) with BHP |
| Input Impedance: | 20k Ω min. (differential) |
| Sampling Frequency: | 48kHz |
| Peak Signal and Common Mode 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 (GPIO):

| | |
|--------------------|---|
| Number of Inputs: | 20 (16 on 7767BHP-AUX) |
| Number of Outputs: | 8 |
| Type: | |
| GPIO | 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 IEEE 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 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, GPIO 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 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, GPIO 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 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, GPIO 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 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, GPIO 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

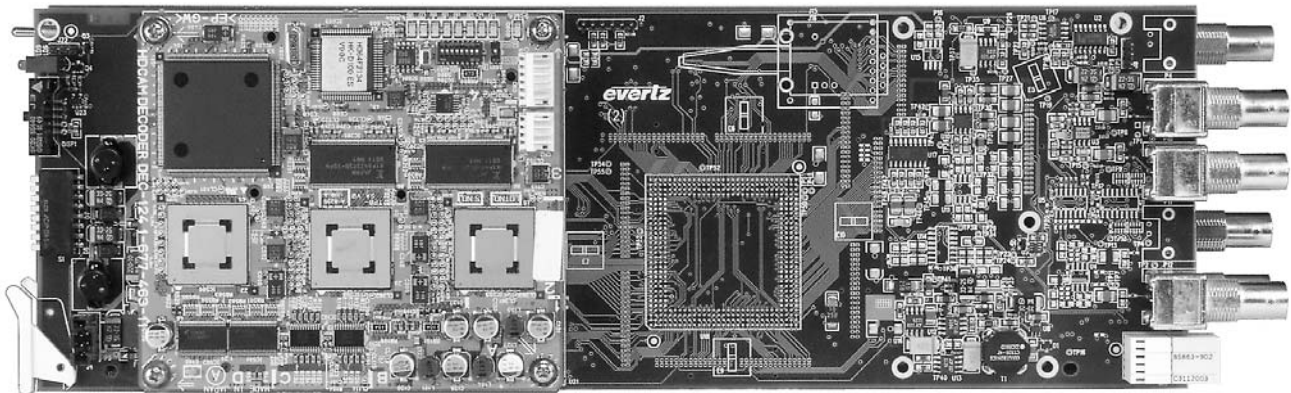
Dual BHP-AUX auxiliary GPIO and serial break-out panel rack mounting kit

Enclosures:

| | |
|----------|---------------------------------------|
| 7700FR-C | 3RU Multiframe which holds 15 modules |
|----------|---------------------------------------|

HD Compression CODEC Package

Model 7770CS-HD



The 7770CS-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 7770CS-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 7770CS-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

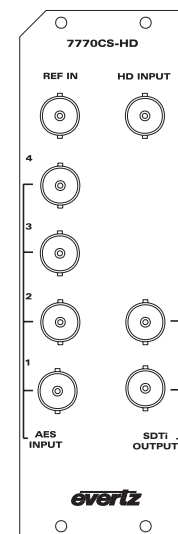
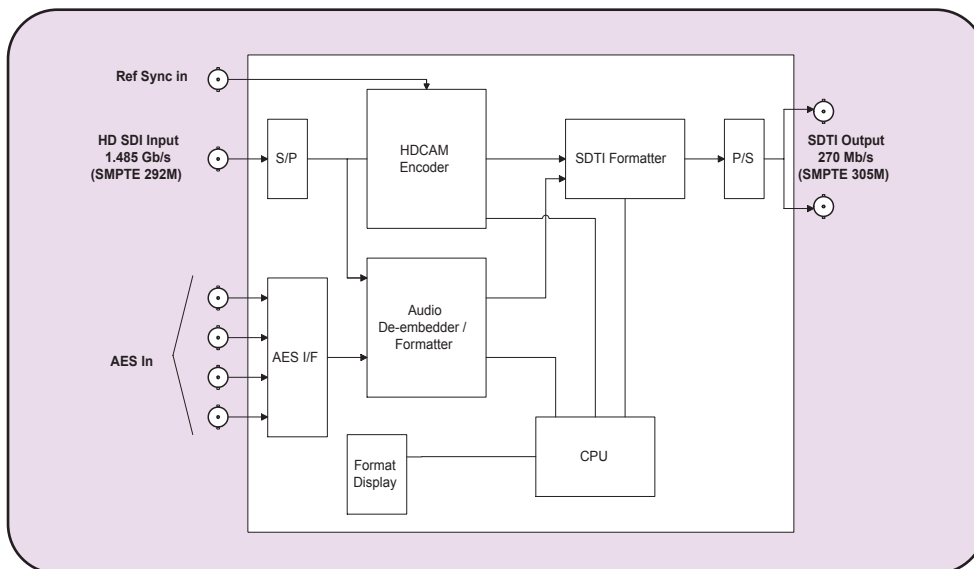
- Industry proven HDCAM video compression for origination quality video
- Supports 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94 field rates
- Automatic detection of 1035i/1080i active lines
- Accepts up to four channels of embedded or separate AES audio
- No compression applied to AES audio streams
- Preserves VANC from input HD-SDI stream
- SMPTE 305M compliant 270Mb/s output stream
- EDH insertion on SDTi output
- Genlock reference input
- Fully hot swappable from front of frame

Status Indication:

- Input signal presence
- 1035i/1080i active lines
- Field rate

HD Compression CODEC Package

7770CS-HD Block Diagram



Specifications

HD Serial Video Input:

Standard: SMPTE 292M, (1080i/59.94, 1080i/50, 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: 1V p-p $\pm 0.1V$
Connector: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48khz
Impedance: 75 Ω balanced
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 msec
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:

7770CS-HD HD Compression CODEC

Ordering Options:

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

Rear Plate Suffix

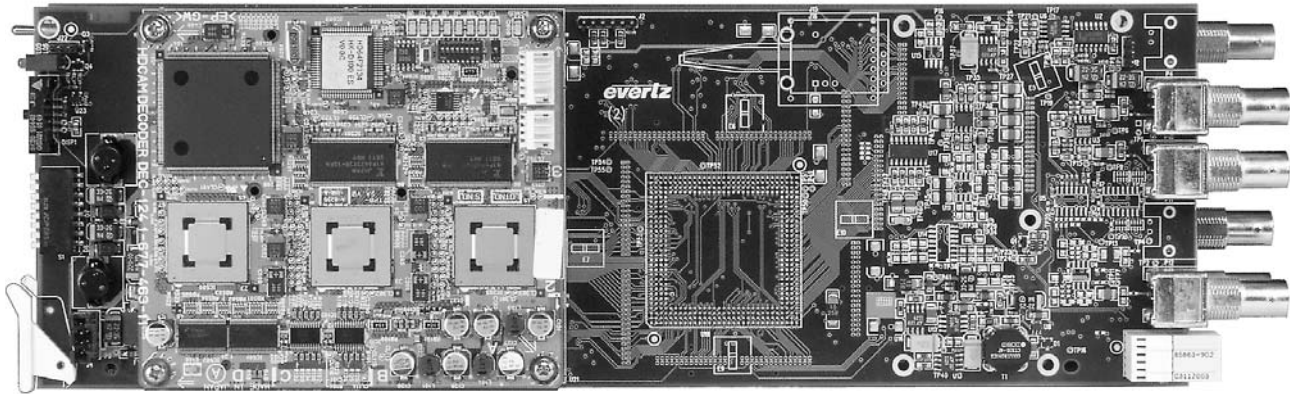
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

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

HD Decompression CODEC

Model 7770DS-HD



The 7770DS-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 7770DS-HD also re-embeds VANC data that existed in the original HD-SDI stream. Two additional stereo analog audio channels are also available for local monitoring. The 7770DS-HD supports 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.97sF, 1035i/59.94 field rates.

The 7770DS-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

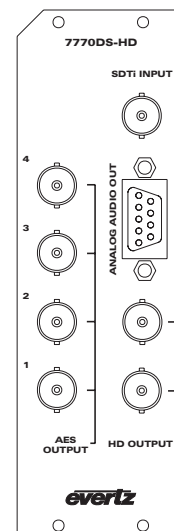
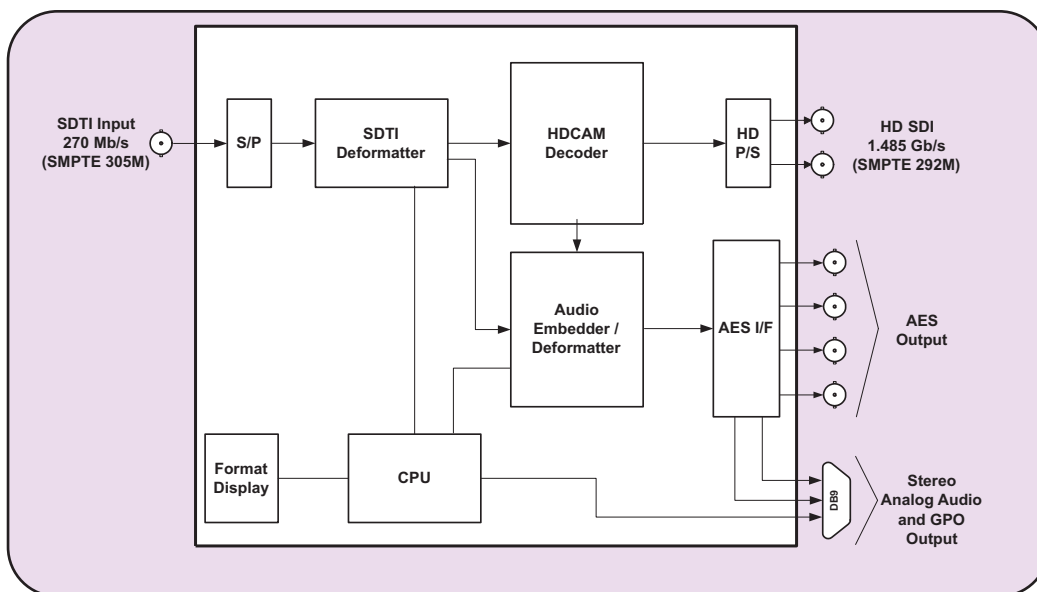
- Industry proven HDCAM video decompression for origination quality video
- Supports 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94 field rates
- Automatic detection of 1035i/1080i active lines
- Detection of uncompressed SD or compressed HD input stream and outputs GPO 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
- One stereo analog audio output
- Fully hot swappable from front of frame

Status Indication:

- Input signal presence
- 1035i/1080i active lines
- Field rate

7770DS-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 |

Analog Audio Outputs:

| | |
|---------------------|--|
| Number of Outputs: | 2 |
| Type: | Balanced analog audio |
| Connector: | Female DB-9 |
| Output impedance: | 66 Ω |
| Signal Level: | 0dB FS >20dB, into high impedance load (>10K Ω) Not good for low impedance loads (i.e. 600 Ω) |
| Frequency Response: | 50Hz to 20kHz: \pm 0.20dB |
| SNR: | >85dB (50Hz to 20kHz) |
| THD+N: | 65dB @ 1kHz, 0dB FS, typical |

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:

| | |
|-----------|------------------------|
| 7770DS-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 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.

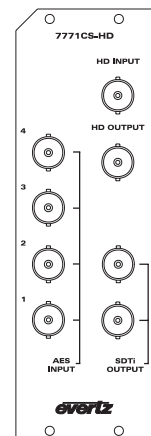
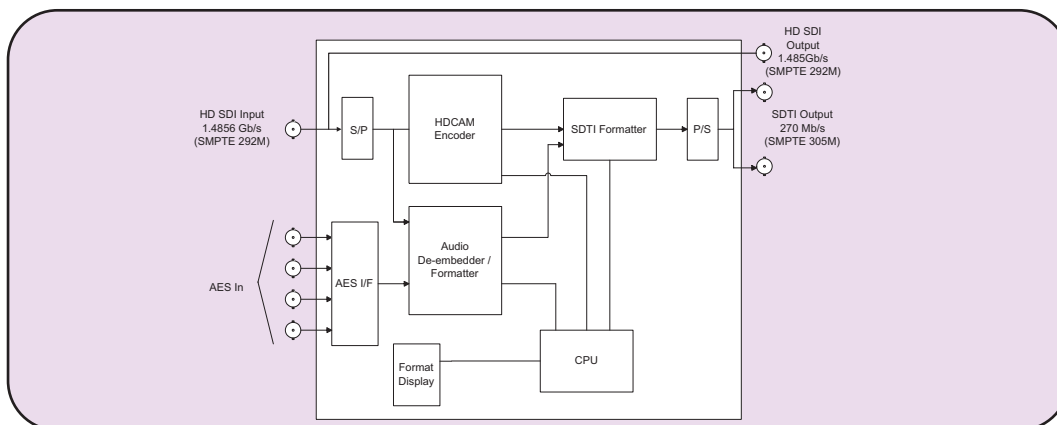
Features

- 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: 1V p-p ±0.1V

Connector: BNC per IEC 60169-8 Amendment 2

Sampling Rate: 48kHz

Impedance: 75Ω balanced

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. Two additional stereo analog audio channels are also available for local monitoring. 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.

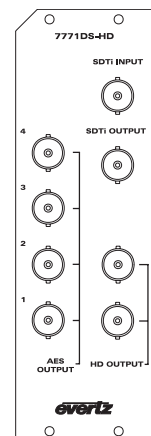
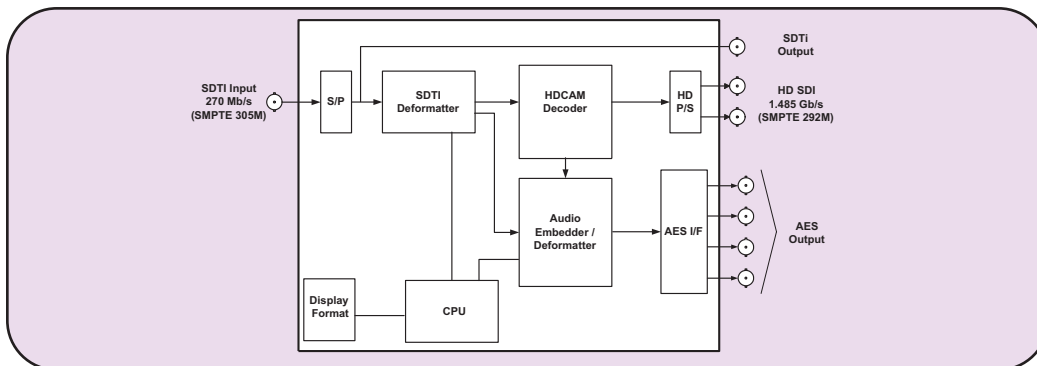
Features

- 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
- One stereo analog audio output
- 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, 1080p/29.98sF, 1080i/25sF, 1080p/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

Analog Audio Outputs:

Number of Outputs: 2
Type: Balanced analog audio
Connector: Female DB-9
Output impedance: 66 Ω
Signal Level: 0db FS >20dB, into high impedance load (>10K Ω)
Not good for low impedance loads (i.e. 600 Ω)
Frequency Response: 50Hz to 20kHz: \pm 0.20dB
SNR: >85dB (50Hz to 20kHz)
THD+N: 65dB @ 1kHz, 0dB FS, typical

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

Multi-Format HDTV (720p/1035i/1080i) to 270Mb/s SDTi Compression CODEC

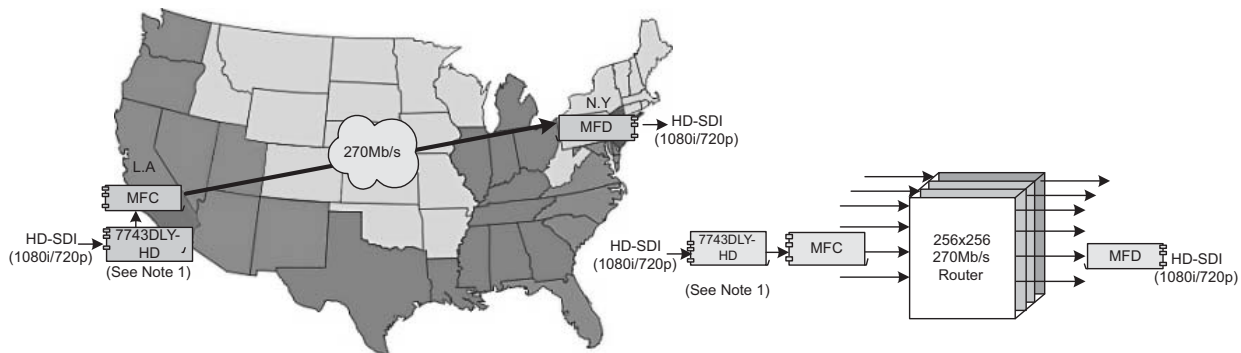


Model 7771MFC-HD

The 7771MFC-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 7771MFC-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 field rates is provided.

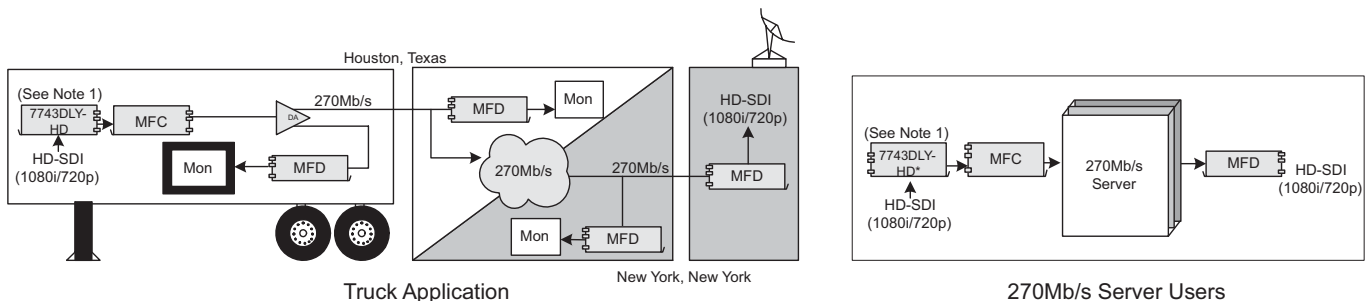
The 7771MFC-HD occupies two card slots and is housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which will hold up to 7 modules or a standalone enclosure which will hold 1 module.

Applications:



Major National Telecom Carriers

Video Circuit Providers in Major Metropolitan Cities



Truck Application

New York, New York

270Mb/s Server Users

Note 1: 7743DLY-HD required if input HD-SDI is being asynchronously switched

Features

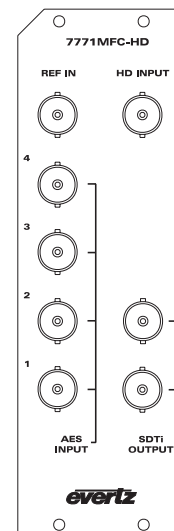
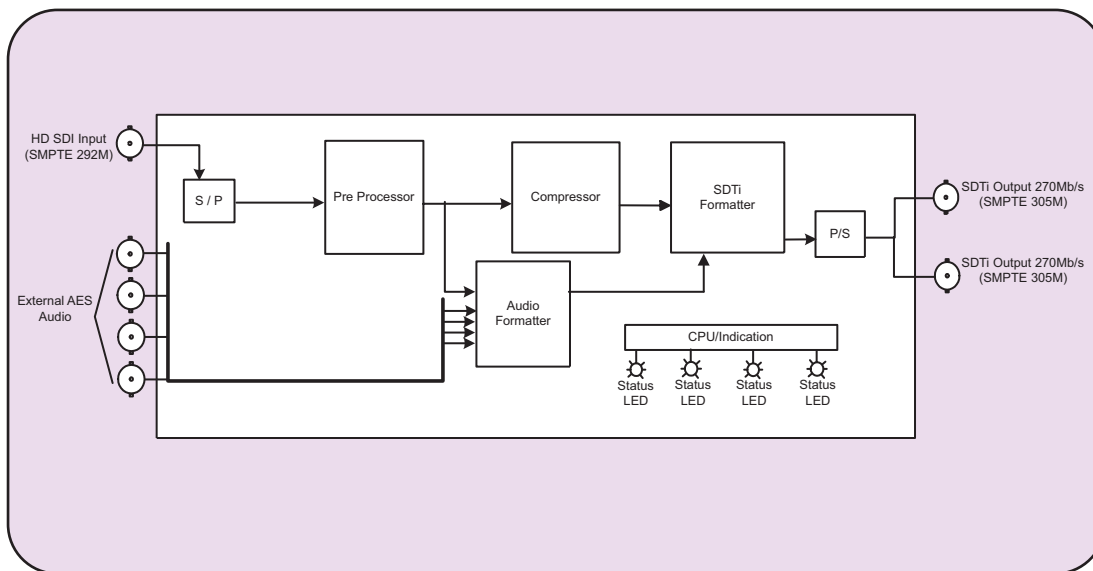
- Automatic detection of 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94, 720p/59.94 field rates
- Transports up to four channels of embedded or external AES audio
- No compression applied to AES audio streams
- Preserves VANC from input HD-SDI stream
- SMPTE 305M compliant 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

Multi-Format HDTV (720p/1035i/1080i) to 270Mb/s SDTi Compression CODEC

7771MFC-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: 1V p-p $\pm 0.1V$
Connector: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48khz
Impedance: 75 Ω 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 $\pm 0.5V$
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 msec

Electrical:

Voltage: +12VDC
Power: 16 Watts

Physical:

7700 frame mounting: 2 slots
7701 frame mounting: 1 slot

Ordering Information:

7771MFC-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
+SA Standalone Enclosure Rear Plate

Enclosures:

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

Multi-Format HDTV (720p/1035i/1080i) to 270Mb/s SDTi De-compression CODEC

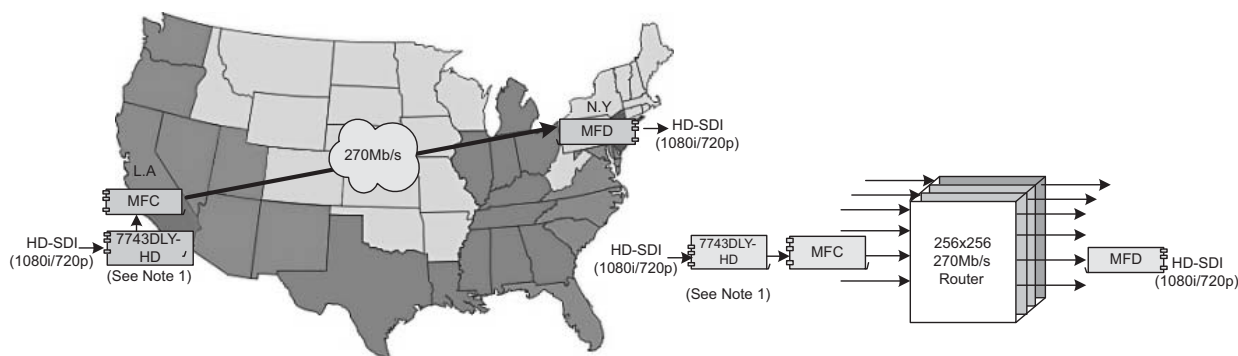


Model 7771MFD-HD

The 7771MFD-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 7771MFD-HD also re-embeds VANC data that existed in the original HD-SDI stream. Two additional stereo analog audio channels are also available for local monitoring. The 7771MFD-HD supports 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94, 720p/59.94 field rates.

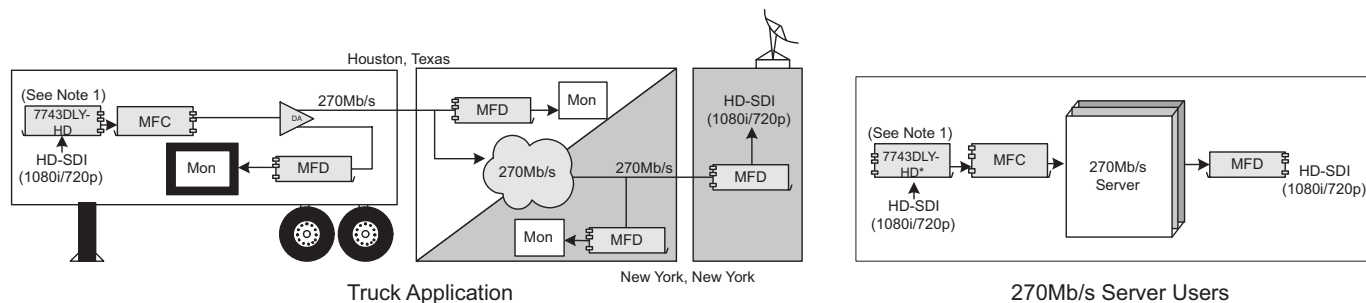
The 7771MFD-HD occupies two card slots and is housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which will hold up to 7 modules or a standalone enclosure which will hold 1 module.

Applications:



Major National Telecom Carriers

Video Circuit Providers in Major Metropolitan Cities



Note 1: 7743DLY-HD required if input HD-SDI is being asynchronously switched

Features

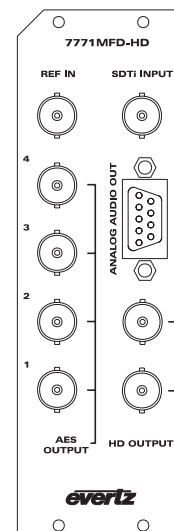
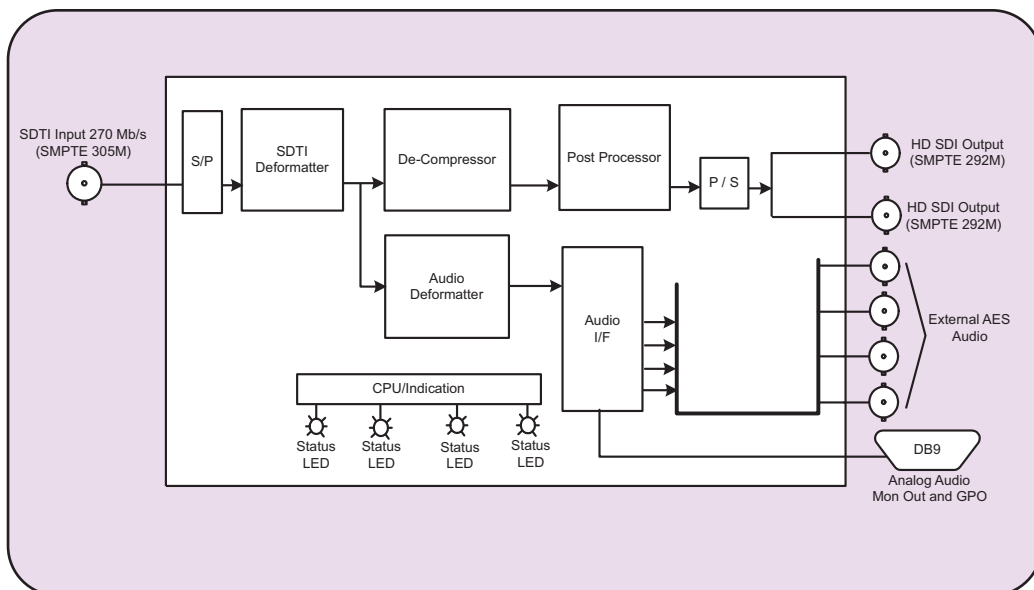
- Automatic detection of 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94, 720p/59.94 field rates
- Up to four AES channels re-embedded in outgoing HD-SDI or available on separate AES outputs
- Re-embeds original VANC data in outgoing HD-SDI stream
- One stereo analog audio output
- Fully hot swappable from front of frame

Status Indication:

- Input signal presence
- 1035i/1080i/720p active lines

Multi-Format HDTV (720p/1035i/1080i) to 270Mb/s SDTi De-compression CODEC

7771MFD-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

Monitoring Analog Audio Outputs:

Number of Outputs: 2
Type: Balanced analog audio
Connector: Female DB-9
Output impedance: 66 Ω
Signal Level: 0db FS >20dB, into high impedance load (>10K Ω)
Not good for low impedance loads (i.e. 600 Ω)
Frequency Response: 50Hz to 20kHz: \pm 0.20dB
SNR: >85dB (50Hz to 20kHz)
THD+N: 65dB @ 1kHz, 0dB FS, typical

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:

7771MFD-HD Multi-Format HDTV (720p/1035i/1080i) to 270Mb/s SDTi De-compression CODEC

Ordering Options:

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

Rear Plate Suffix

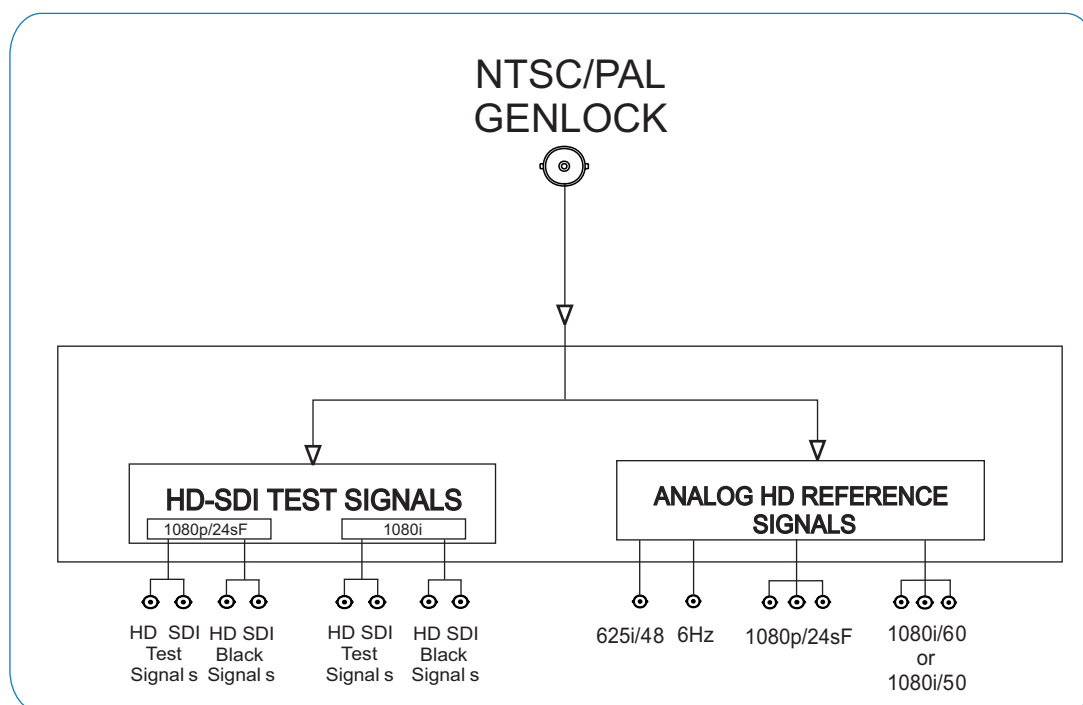
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

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

HD Reference Generator/ Test Set System

Model PKG7752RGTS-HD



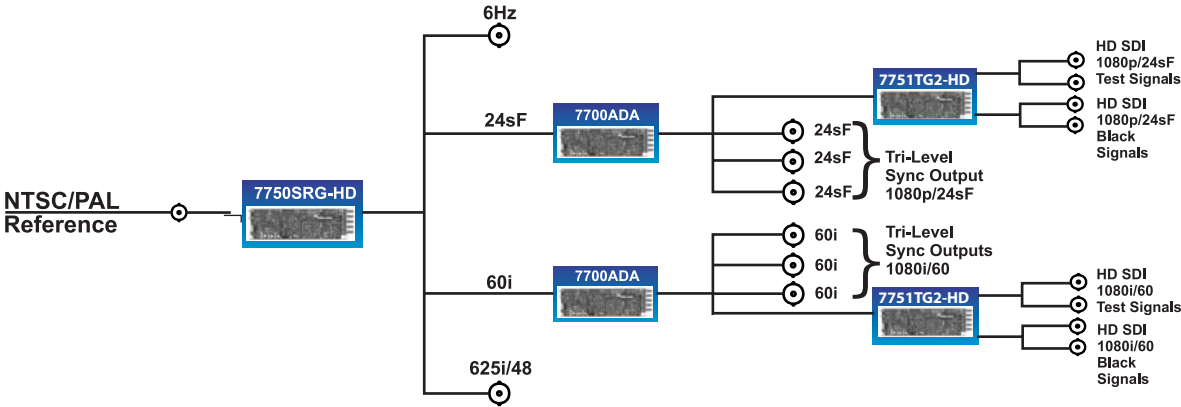
The HDTV Reference Generator Test Set System (PKG7752RGTS-HD) is based on the 7750SRG-HD card. This card locks to either an NTSC or PAL reference signal and generates HD tri-level sync as per SMPTE 274M (1080i, 1080p & 1080p/24sF) or SMPTE 296M (720p). The complete PKG7752RGTS-HD system also generates 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

HD Reference Generator/ Test Set System

Typical Application Diagram



Ordering Information

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.

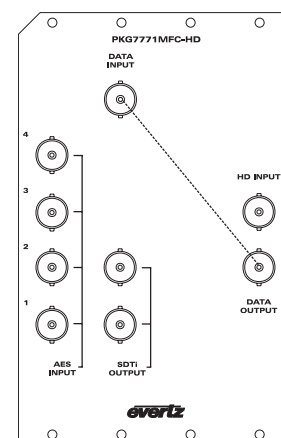
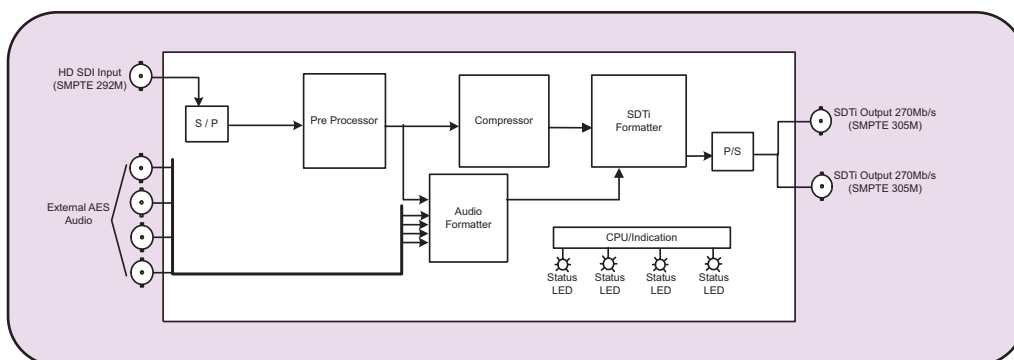
Features

- 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: 1V p-p $\pm 0.1V$
Connector: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48kHz
Impedance: 75 Ω 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 $\pm 0.5V$
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:

7771MFC-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
7701FR 1RU Multiframe which holds 3 module

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. Two additional stereo analog audio channels are also available for local monitoring. 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.

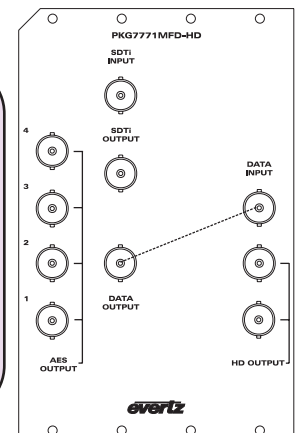
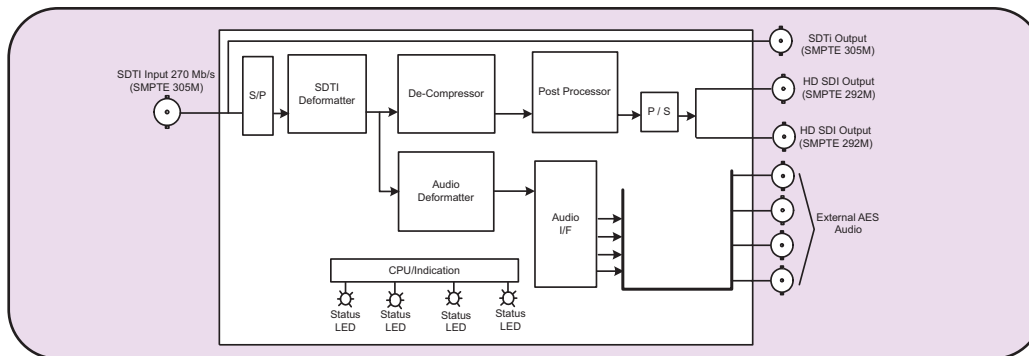
Features

- 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
- One stereo analog audio output
- 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 |

Monitoring Analog Audio Outputs:

| | |
|---------------------|--|
| Number of Outputs: | 2 |
| Type: | Balanced analog audio |
| Connector: | Female DB-9 |
| Output impedance: | 66 Ω |
| Signal Level: | 0dB FS >20dB, into high impedance load (>10K Ω) Not good for low impedance loads (i.e. 600 Ω) |
| Frequency Response: | 50Hz to 20kHz: \pm 0.20dB |
| SNR: | >85dB (50Hz to 20kHz) |
| THD+N: | 65dB @ 1kHz, 0dB FS, typical |

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 |
| 7701FR | 1RU Multiframe which holds 3 modules |

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.

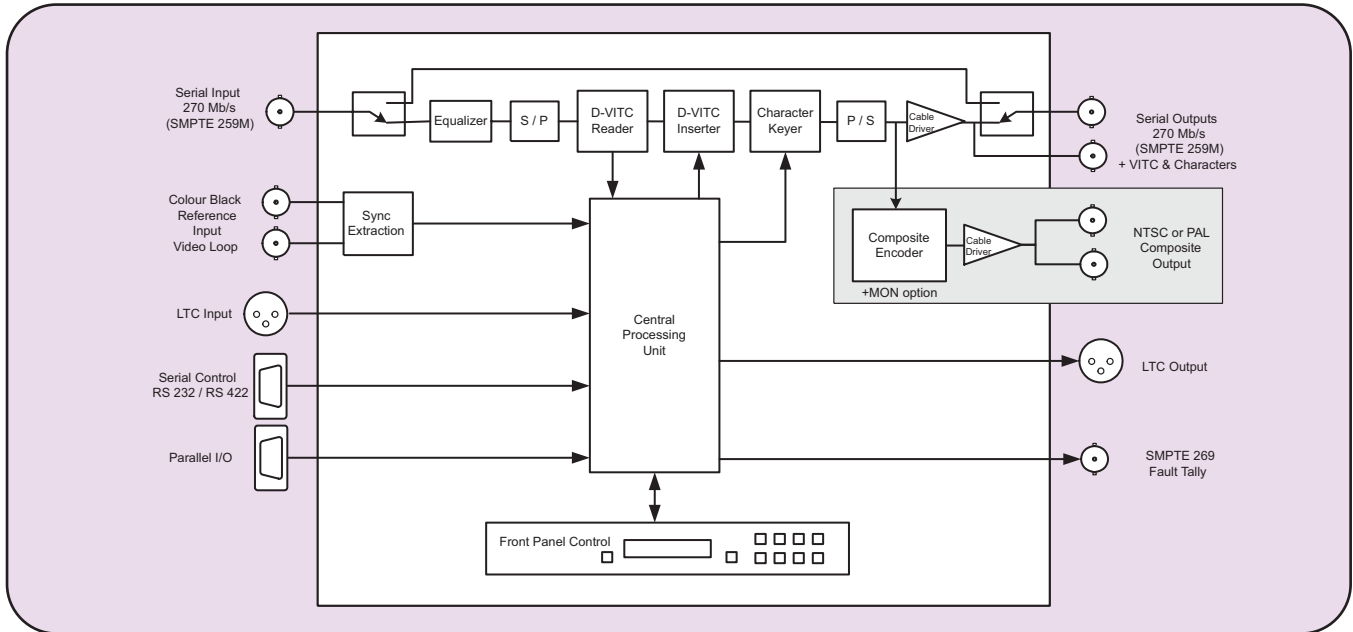
The 8010TM will accept 525 or 625 line component digital video. The 8010TM's time code generator can be preset to lock to the digital program video either by simple frame locking, or where necessary it will colour lock to an analog Colour Reference in accordance with the 4 field NTSC or 8 field PAL colour 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 Complies with FCC Part 15 Class A EU EMC directive |
| EMI/RFI: | |

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

Ordering Options:

| | |
|-------------|--------------------------|
| +2PS | Redundant Power Supply |
| +MON | Analog Monitoring Option |
| +BP | Bypass Relay Option |

1a

2

3

4

5

6

7

8

9

10

11

12

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 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 colour 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.

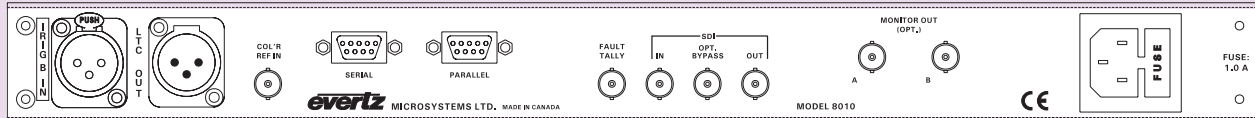
Both the generator and reader are capable of working with the unassigned user bits. Several modes of operation are possible. The generator may be preset to insert hexadecimal values for each group in the generated code, and the reader will read hexadecimal values for each binary group. In addition, the 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

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

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:

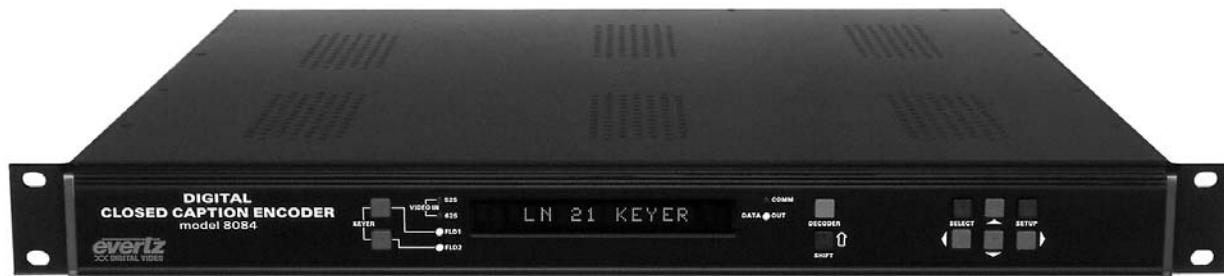
8010TM-IRIG SDI Time Code Master with IRIG Reader

Ordering Options:

+2PS Redundant Power Supply
+MON Analog Monitoring Option
+BP Bypass Relay Option

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), 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".

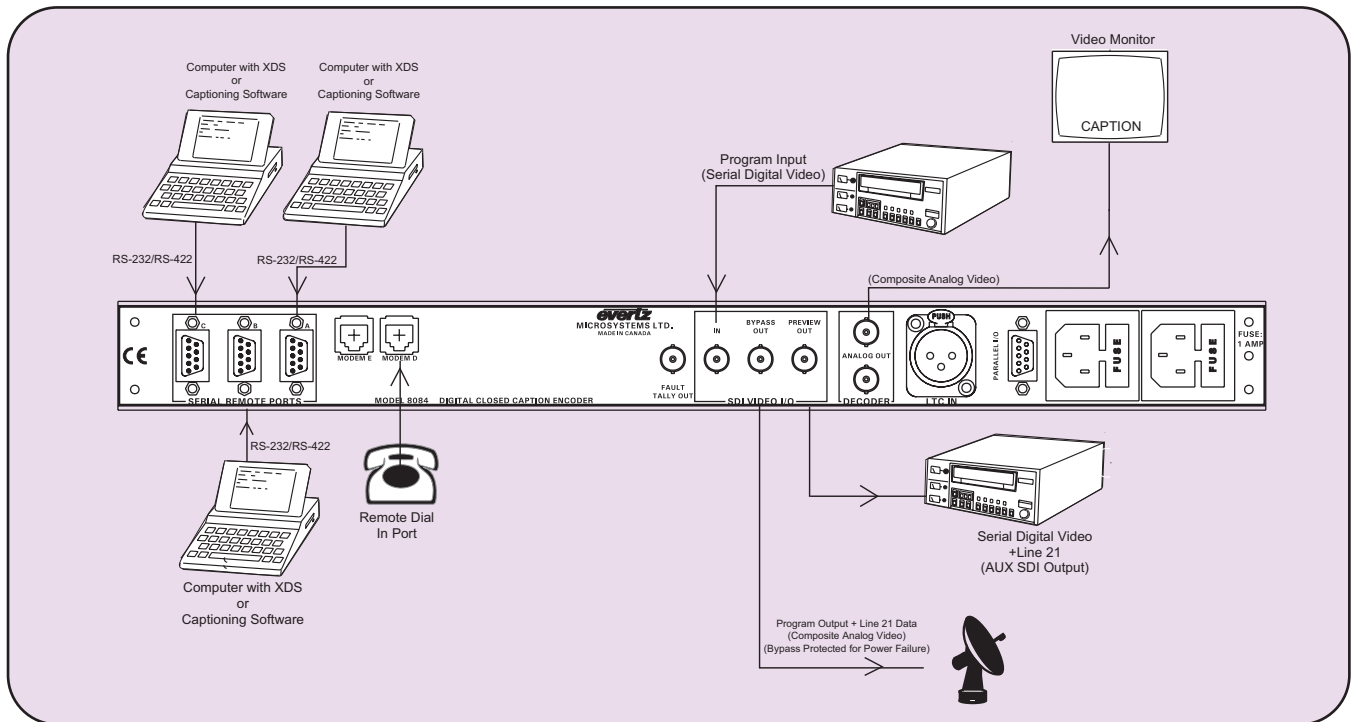
The built-in bypass relay, fault reporting output and optional redundant power supply ensure robust operation. The analog monitor output displays visible captions from any data channel, including many XDS packet types.

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 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:

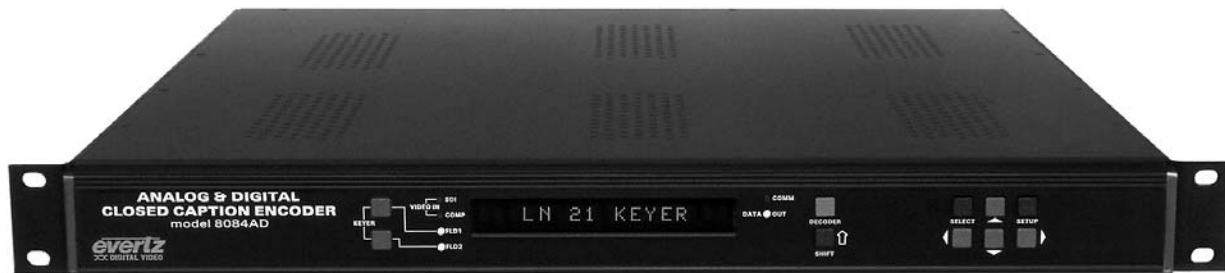
| | |
|-------------|---------------------|
| 8084 | SDI Caption Encoder |
|-------------|---------------------|

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), 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".

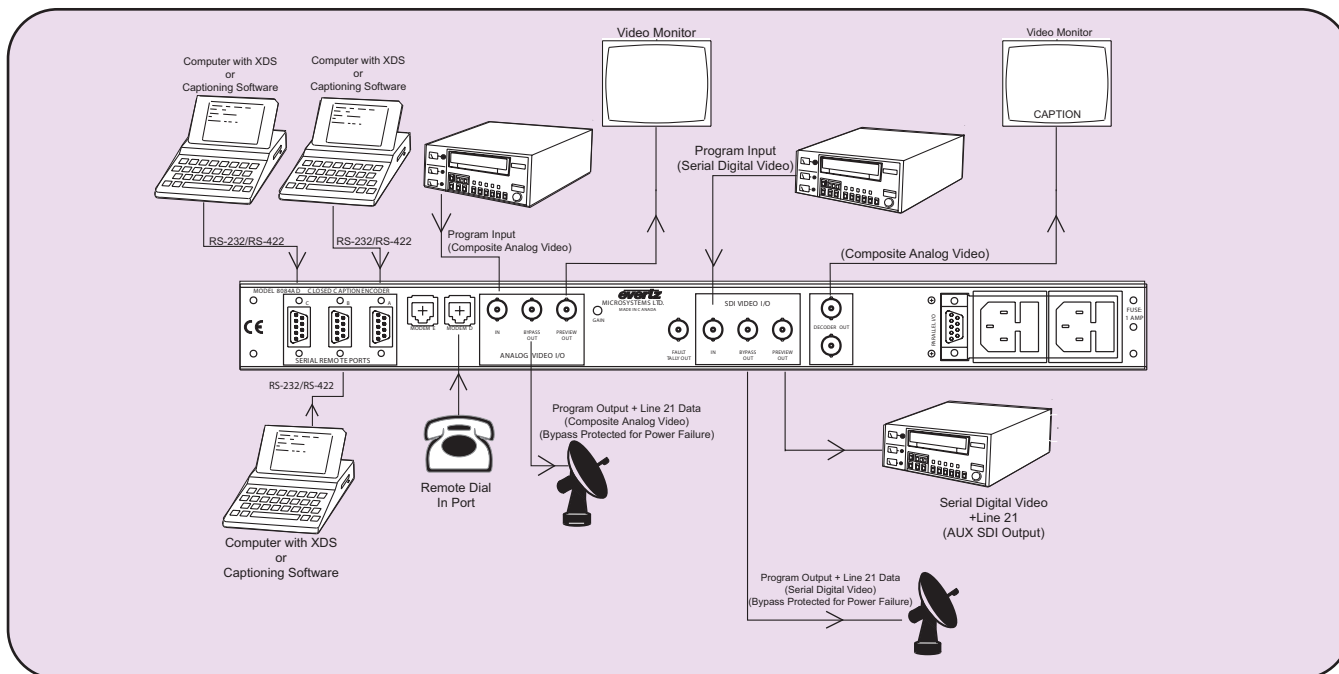
Built-in bypass relays on both video paths, a fault reporting output and an optional redundant power supply ensure robust operation. Two separate analog monitor outputs display visible captions from any data channel, including many XDS packet types.

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 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:

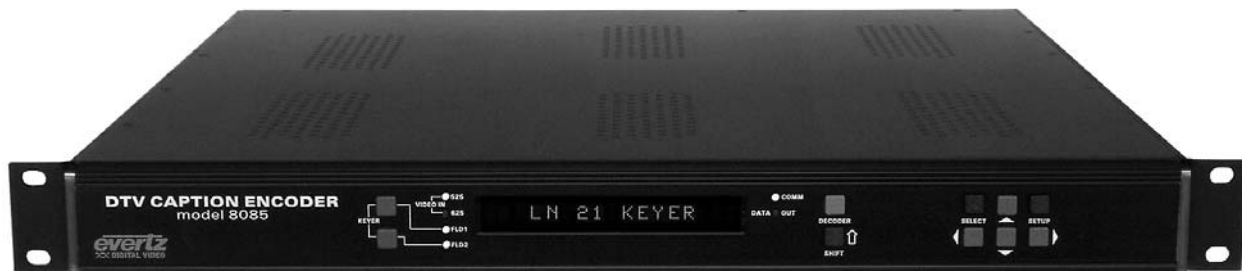
| | |
|---------------|---------------------------------|
| 8084AD | Analog & SDI Captioning Encoder |
|---------------|---------------------------------|

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".

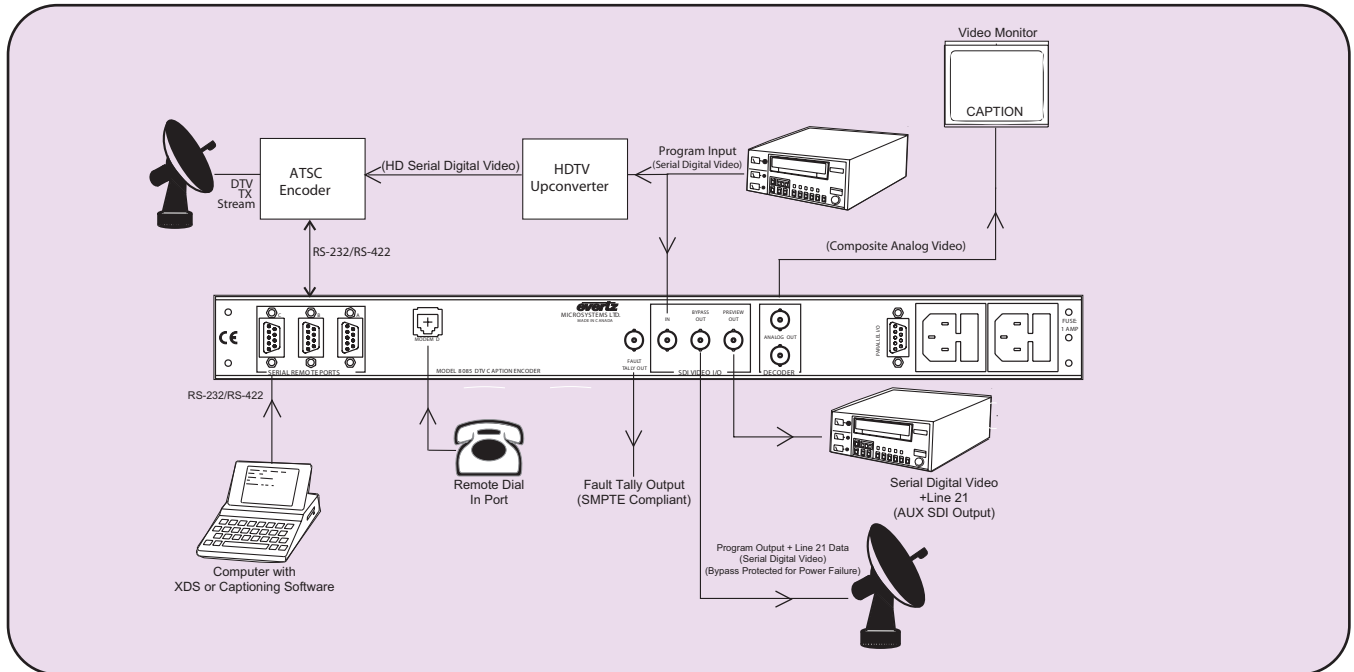
The built-in bypass relay, fault reporting output and optional redundant power supply ensure robust operation. The analog monitor output displays visible captions from any data channel, including many XDS packets.

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 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, 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 |
|-----------------|--|

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

Ordering Information:

| | |
|-------------|---|
| 8085 | Combo SDI Caption Encoder & EIA608 to EIA708 Translator |
|-------------|---|

Ordering Options:

| | |
|-------------|------------------------|
| +2PS | Redundant power supply |
|-------------|------------------------|

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
- EMI/RFI: Complies with FCC Part 15 Class A
EU EMC directive

Ordering Information:

- 8150 SDI Afterburner

Ordering Option:

- +MON Analog Monitoring Option

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

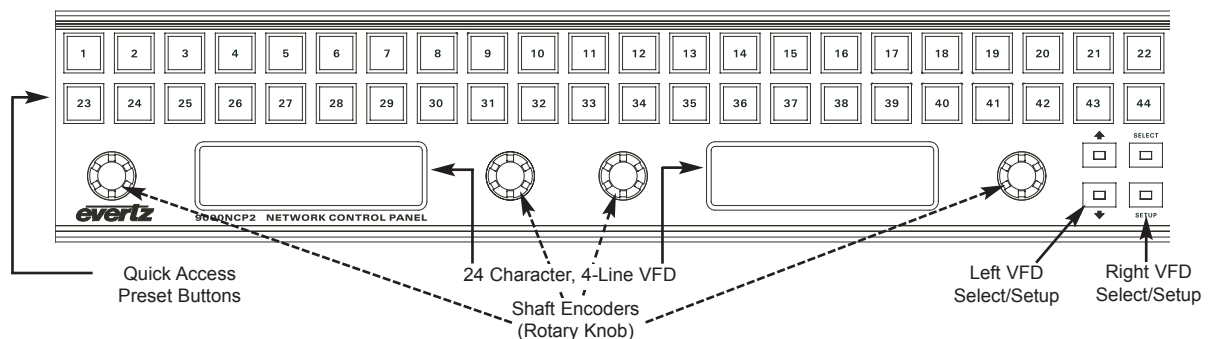


The 2RU 9000NCP2 VistaLINK™ Network Control Panel (NCP) is a low-powered, rack mounted control panel interface to VistaLINK™-enabled frames and modules, allowing for real-time selection and configuration control of enabled parameters.

Both NCP units connect to the network via Ethernet, communicating 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's 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)



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: 11 Watts
EMI/RFI: Complies with FCC Part 15, class A and EU EMC directive

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)

Ordering Information:

9000NCP2 VistaLINK™ Network Control Panel (2RU)

VistaLINK™ Network Control Panel (1RU)



Model 9000NCP



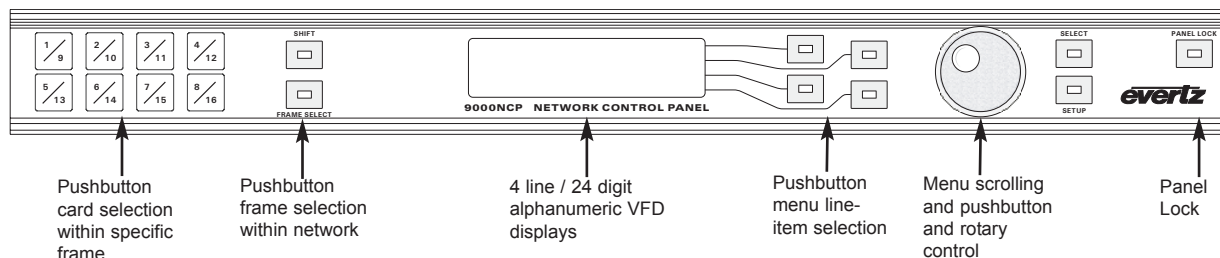
The 9000NCP VistaLINK™ Network Control Panel is a low power rack mounted, 1RU control panel interface to VistaLINK™-enabled frames and modules.

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 controls 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: 9 Watts
EMI/RFI: Complies with FCC Part 15, class A and EU EMC directive

Ordering Information:

9000NCP VistaLINK™ Network Control Panel (1RU)

1a

Model 9542

2

3

4

5

6

7

8

9

10

11

12

1a

2

3

4

5

6

7

8

9

10

11

12



The Evertz 9542 Video Delay Processor is a full function SDI video delay unit 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.

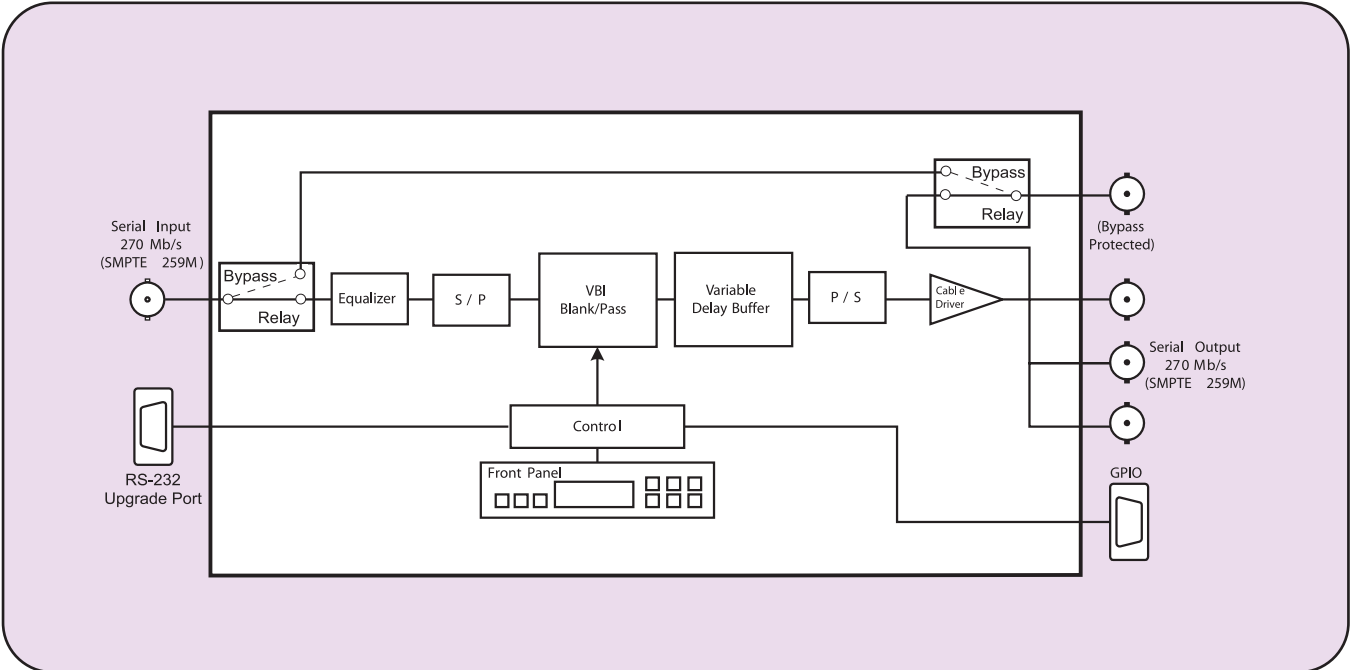
The unit will delay all VBI and Ancillary data including embedded audio along with the video. The Model 9542 is capable of delaying video up to 2.3 seconds. The Video Delay can be set in frames, lines and samples or in seconds.

With the broadcast environment in mind these units feature bypass relay protection for the video signal and can be ordered with an optional redundant power supply.

Features

- Automatic detection of 525 and 625 line SDI video on the input
- Full signal delay capability involving VBI and ANC Data
- Up to 2.3 seconds of programmable video delay
- Delay programmable in video units (frames, lines and samples) or as time units (seconds)
- Bypass relay for program video path - activated on unit failure or from front panel
- User definable presets for commonly used settings
- Easy to operate front panel menu system to program delay settings and VBI line blanking
- Front panel menu system to program delays & VBI blanking
- Front panel lock out control
- Optional redundant power supply

9542 Block Diagram



Specifications

Serial Digital Video Input:

- Standard:** Serial component SMPTE 259M-C
- Equalization:** Automatic up to 200m with Belden 8281 (or equivalent)
- Connector:** BNC per IEC 60169-8 Amendment 2
- Return Loss:** > 15 dB up to 270 Mb/s

Serial Video Output With Embedded Audio

- Number of Outputs:** 4 (1 is bypass relay protected)
- 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 up to 270 Mb/s
- Wide Band Jitter:** < 0.2 UI

Serial Remote:

RS-232 interface, 9 pin "D" connector for upgrading firmware

Functional:

- Minimum Delay:** 815ns (22 samples)
- Maximum Delay:** 525 line: 70 frames, 626 line: 59 frames (approx 2.3 seconds)

GPIO:

- Number of Inputs:** 3
- Number of Outputs:** 1
- 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 9 pin "D"

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
- EMI/RFI:**

Ordering Information:

- 9542** SDI video delay (up to 2.3 sec. delay)

Ordering Options:

- +2PS** Redundant power supply

| |
|----|
| 1a |
| 2 |
| 3 |
| 4 |
| 5 |
| 6 |
| 7 |
| 8 |
| 9 |
| 10 |
| 11 |
| 12 |

Post Production Telecine Keyer

Model 9580



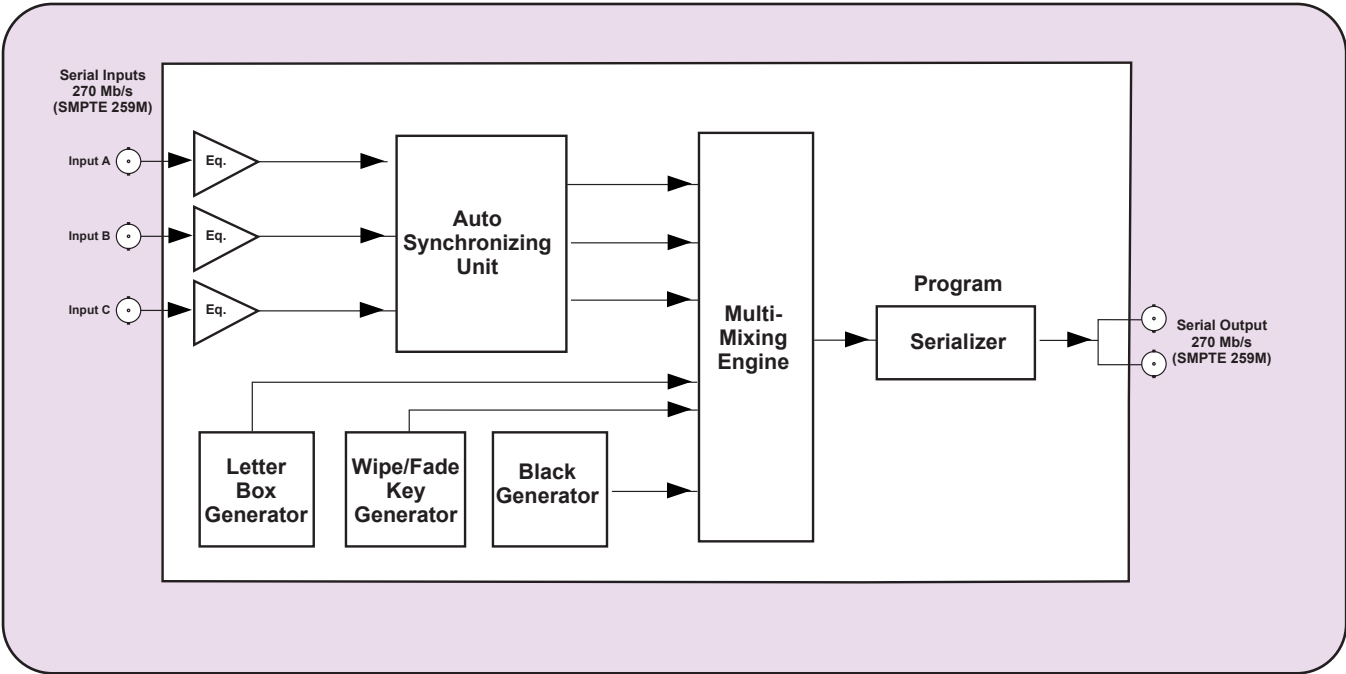
The Evertz 9580 Post Production Telecine Keyer system provides the post production and telecine suite with a multi-function keyer that was designed specifically for post production needs. The 9580 Post Production Telecine Keyer is a fully digital keyer that was designed with a scaleable size kept in mind so it will fit most post production applications that can be presented.

The 9580 Post Production Telecine Keyer system features linear keying, side-by-side comparisons, letter boxing, wipes, fades and more. The 9580 Post Production Telecine Keyer consists of a one RU frame with front panel control or optional remote control. The 9580 Post Production Telecine Keyer is an ideal addition to the Evertz KeyLog Tracker Telecine Logging and Configuration Management Tool.

Features

- Side-by-side comparisons
- Wipes - horizontal, vertical, diagonal left or right
- Auto-timing SDI inputs
- Adjustable fades and wipes
- Automatic precision letter boxing for 4:3 and 16:9 aspect ratios
- On Screen display for setup menu
- Factory and user presets
- 12-bit linear keying
- Safe area / safe title markers
- Operates with 525 or 625 line SMPTE 259M-C video signals
- Optional Rack Mount or Desk Top Remote Control unit

9580 Block Diagram



Specifications

Serial Digital Video Input:

Standard: SMPTE 259M-C 270 Mb/s
525i/59.94, 625i/50

Number of Inputs: 3

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic to 200m with Belden 8281
(or equivalent)

Impedance: 75Ω

Serial 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: 900ps nominal

Overshoot: <10% of amplitude

Wide Band Jitter: < 0.2UI

Impedance: 75Ω

Serial Remote Ctl:

RS-232/422 interface, 9 pin "D" connector

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:

9580 Post Production Telecine Keyer

Ordering Options:

+RCP Rackmount remote control panel

+DCP Desk top remote control unit

Model 9590



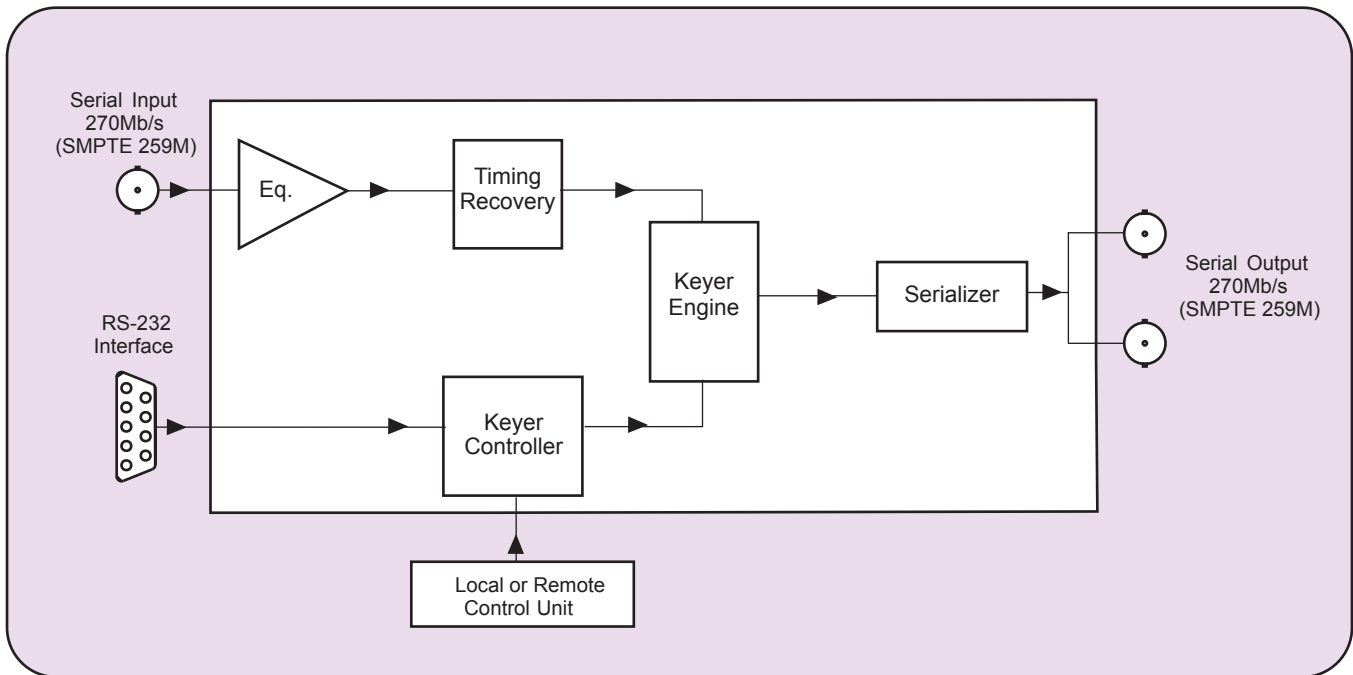
The 9590 is an easy to use, one rack unit, dual standard digital video graticule generator that keys various alignment markers over a standard definition video picture. These alignment markers facilitate film transfer, post production and quality control measurements relating to picture location for 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
EMI/RFI: Complies with FCC Part 15 Class A
 EU EMC Directive

Ordering Information:

9590 SDI Digital Graticule Generator

Ordering Options:

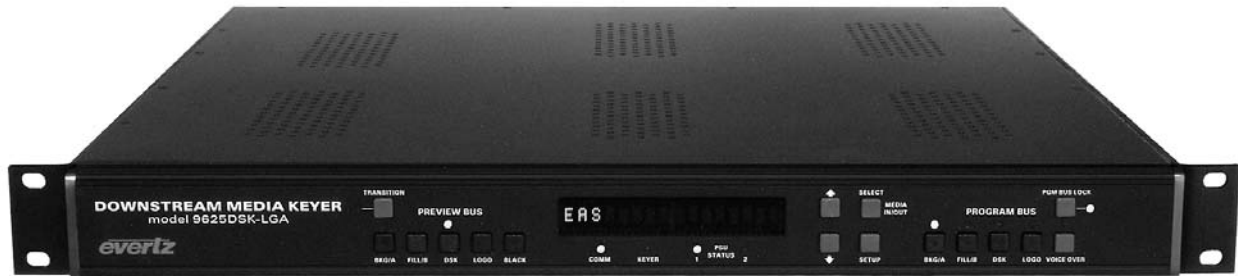
+RCP Rackmount remote control
+DCP Desktop remote control unit

1a
2
3
4
5
6
7
8
9
10
11
12

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.

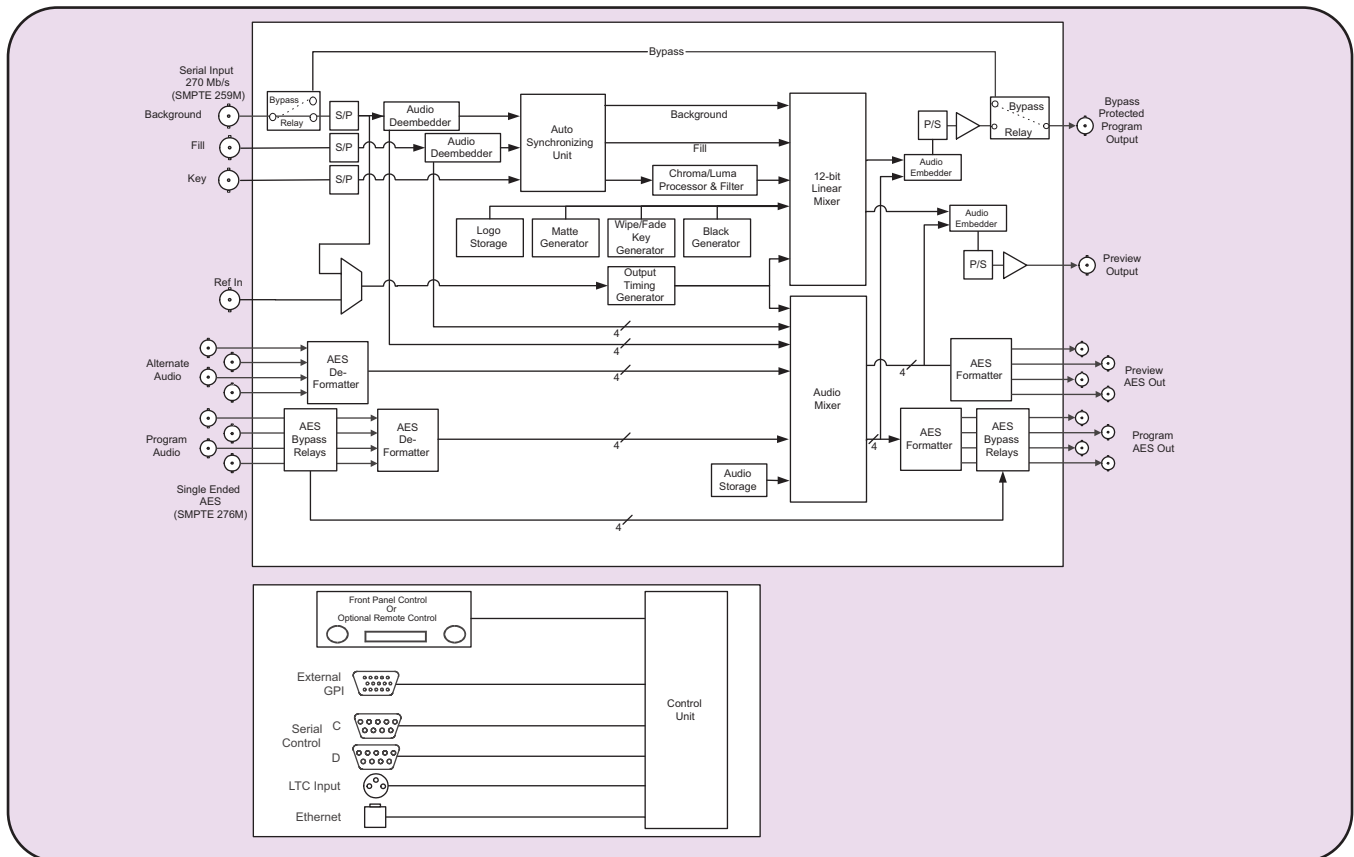
Audio files are loaded over the standard Ethernet interface or from the front panel Compact Flash port in 16-bit, 48KHz .WAV format using Evertz InstaLogo software.

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 colour 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
EMI/RFI: 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)

SDI Logo Inserter

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

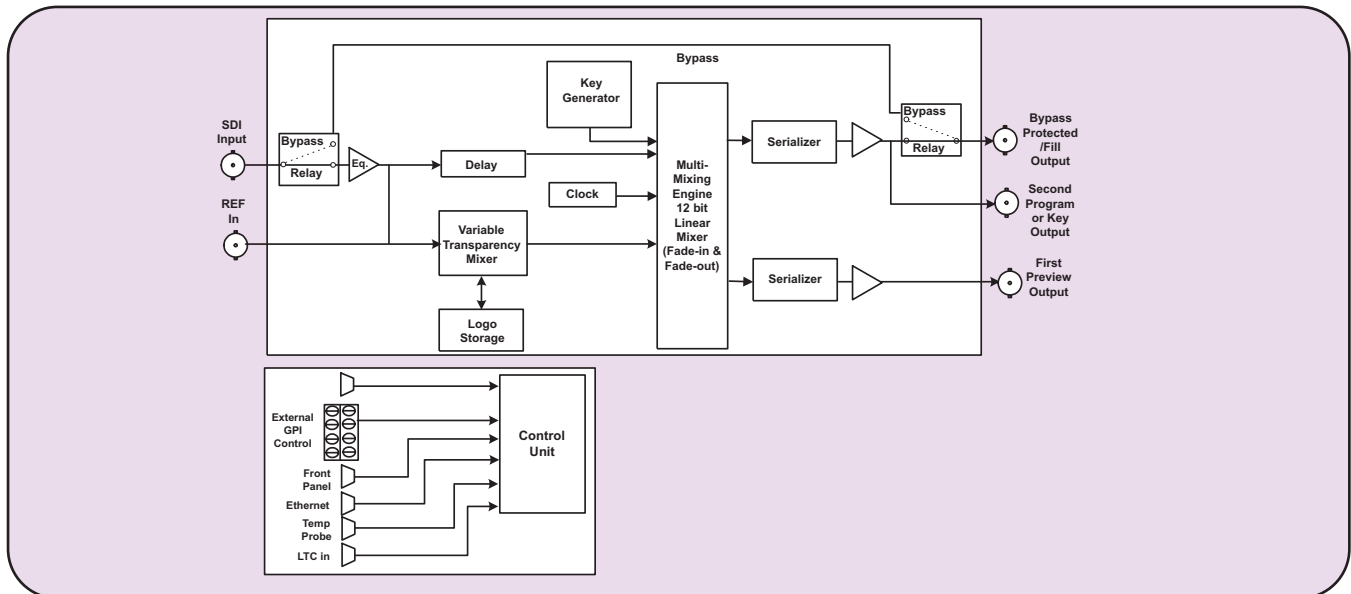
- Stores and inserts static and animated logos
- Multiple simultaneous logos can be keyed with independent fade control
- Incorporates a high quality variable transparency mixer that provides various transparency levels to your logos
- Full 12-bit linear fade-in and fade-out control provided
- Front 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 colour 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.

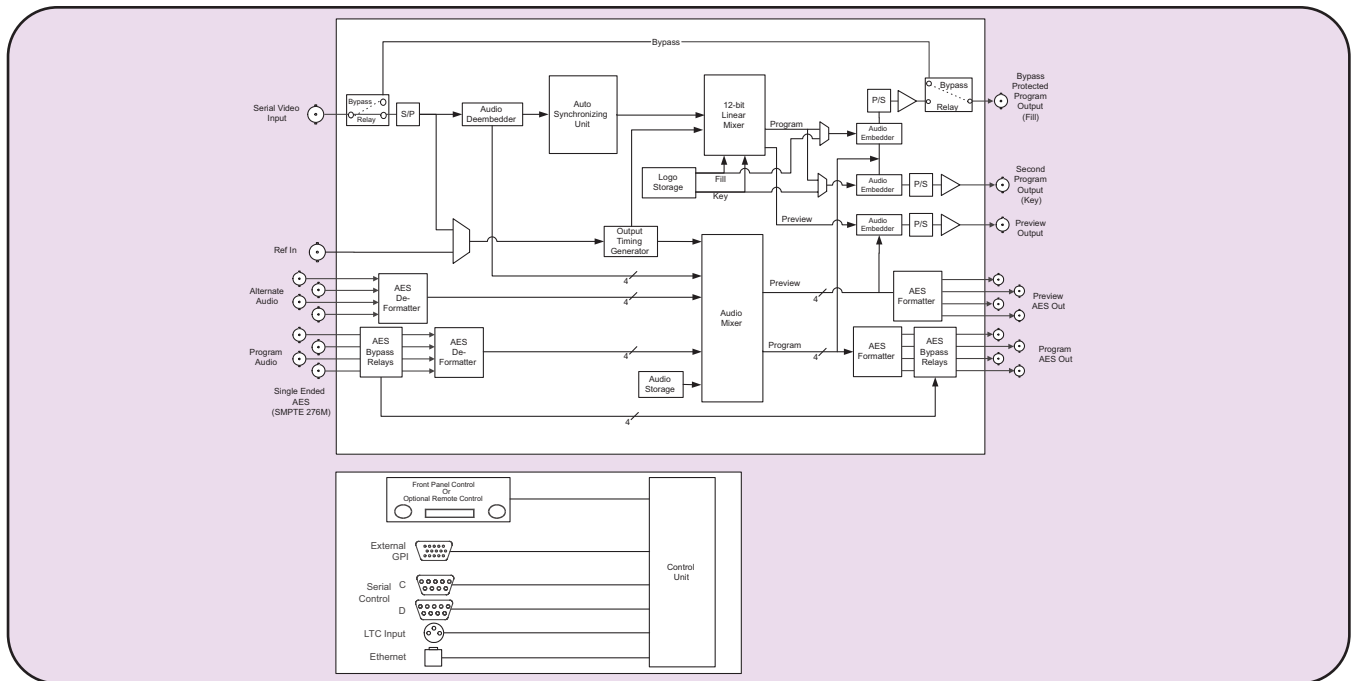
Features

- 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 colour 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)

AES XLR ↔ BNC Bulk Impedance Converters

Model AESIMP-12M (XLR Male to BNC) & AESIMP-12F (XLR Female to BNC)



The AESIMP-12 series translators convert a balanced 110Ω (twisted pair) based digital audio signal to/from an unbalanced 75Ω (coax) based digital audio signal. The conversion is bi-directional regardless of XLR gender. The 1RU units support AES/EBU digital audio signals, with sampling rates ranging from 22kHz to 96kHz.

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. There are two versions of the AESIMP-12 available.

| PART NUMBER | 110Ω CONNECTOR | 75Ω CONNECTOR |
|-------------|------------------|---------------|
| AESIMP-12F | 3 PIN XLR FEMALE | BNC |
| AESIMP-12M | 3 PIN XLR MALE | 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 labelling sources and/or destinations.

Specifications

Number of Channels: 12

Coupling: Transformer

Turns Ratio: 1.22:1

Unbalanced AES:

Standard: SMPTE 276M, single ended AES

Connectors: BNC per IEC 169-8

Signal Level: Approx. balanced level x 0.8,
5 V p-p max

Impedance: 75Ω unbalanced

Balanced AES:

Standard:

Connectors:

Signal Level:

Impedance:

AES3-1992 balanced AES

3 pin Male XLR (AESIMP-12M)
or 3 pin Female XLR (AESIMP12F)

Approx. unbalanced level x 1.22,
5 V p-p max

110Ω balanced

Ordering Information:

AESIMP-12F

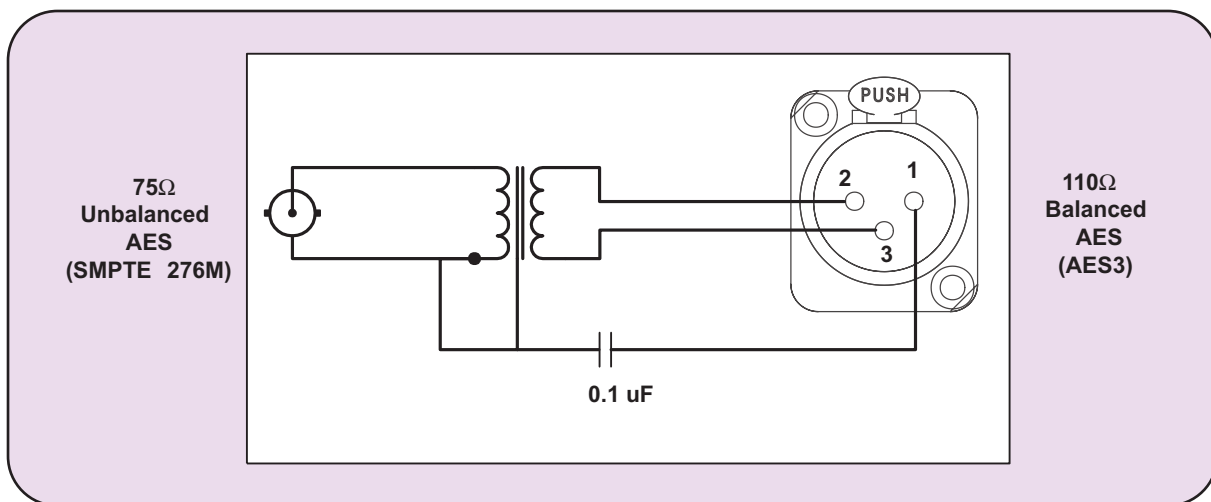
12 Channel female XLR to BNC
AES Impedance Matching Panel

AESIMP-12M

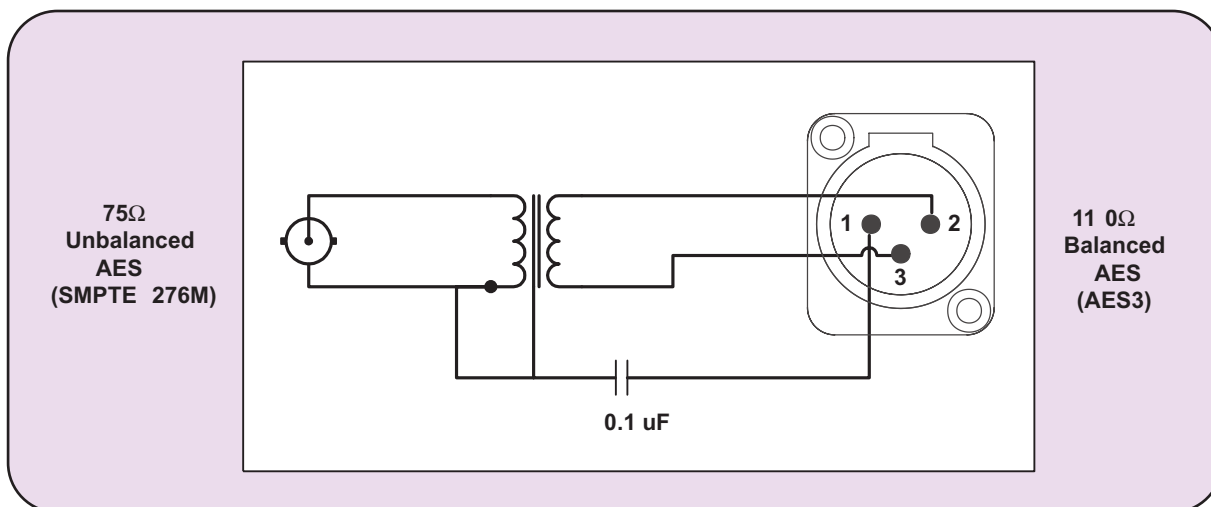
12 Channel male XLR to BNC
Impedance Matching Panel

AES XLR ↔ BNC Bulk Impedance Converters

Model AESIMP Block Diagrams



Model AESIMP-12F



Model AESIMP-12M

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). |
|--------|--|

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

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.

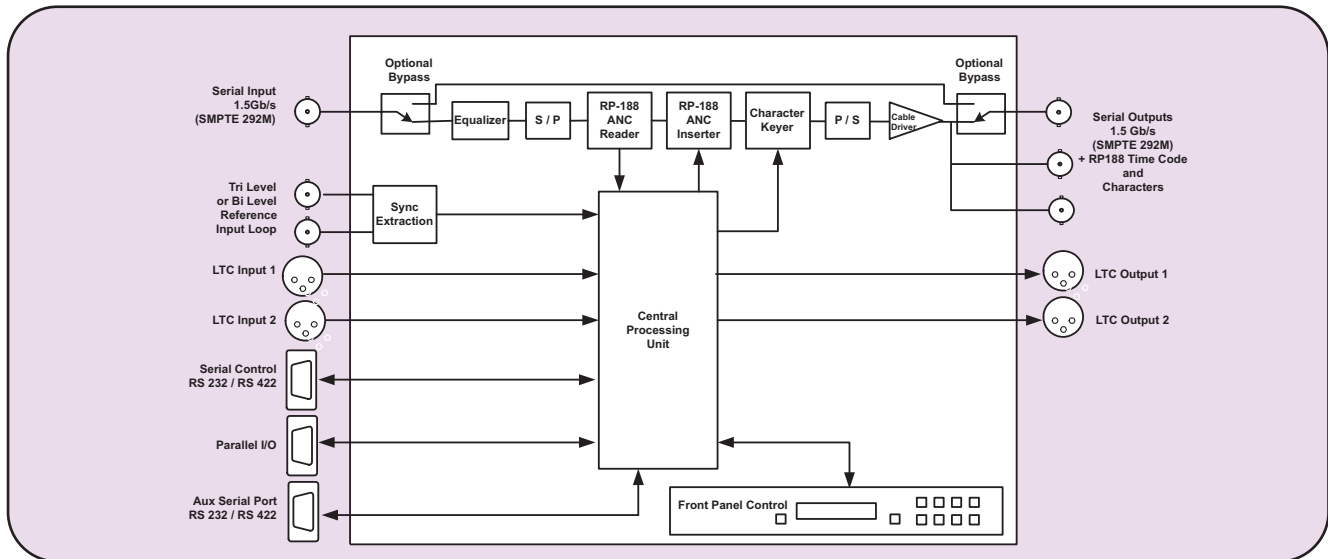
The HD9010TM generators can be slaved to incoming LTC or ATC or can be set to free run. The generators may also be momentarily synchronized to one of the readers, and then continue to increment normally regardless of the reader code. The second LTC output normally follows the primary output, however 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 colour 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

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

Connector: 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

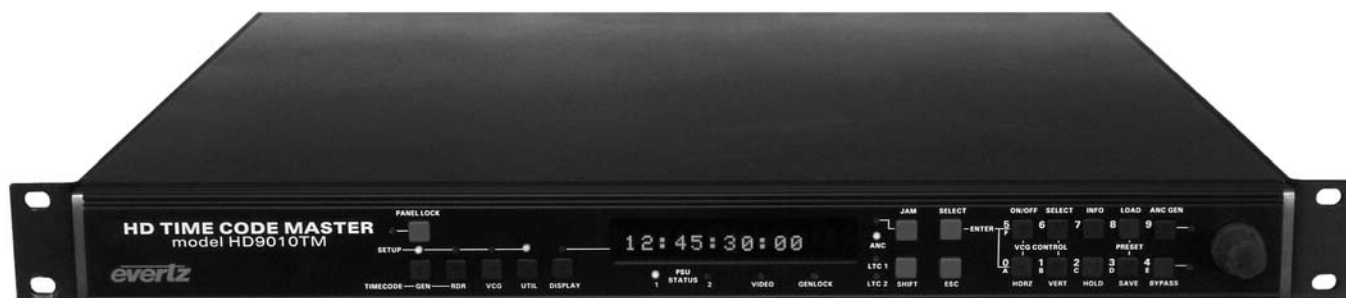
Ordering Options:

+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.

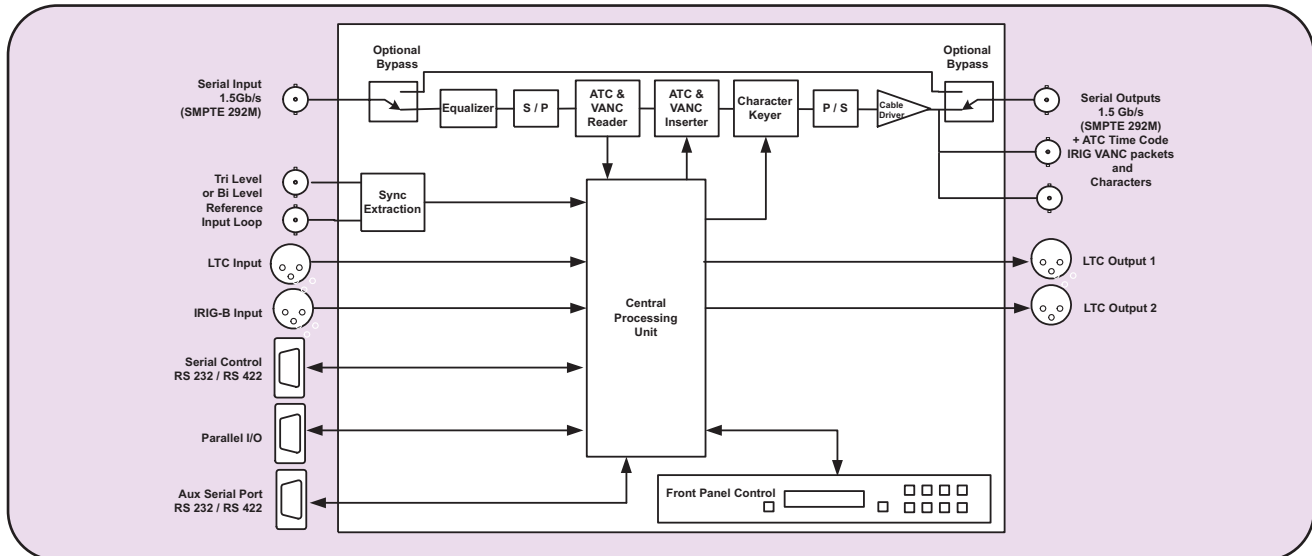
The high-resolution character inserter provides independently positionable windows to show time and user bits for the SMPTE generator and readers simultaneously. When the IRIG or VANC readers are operating in the IRIG DAY mode, there are two independently positionable windows for each reader to show 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 \leftrightarrow LTC translator
- Genlocks to NTSC/PAL colour 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 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

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 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 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 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.

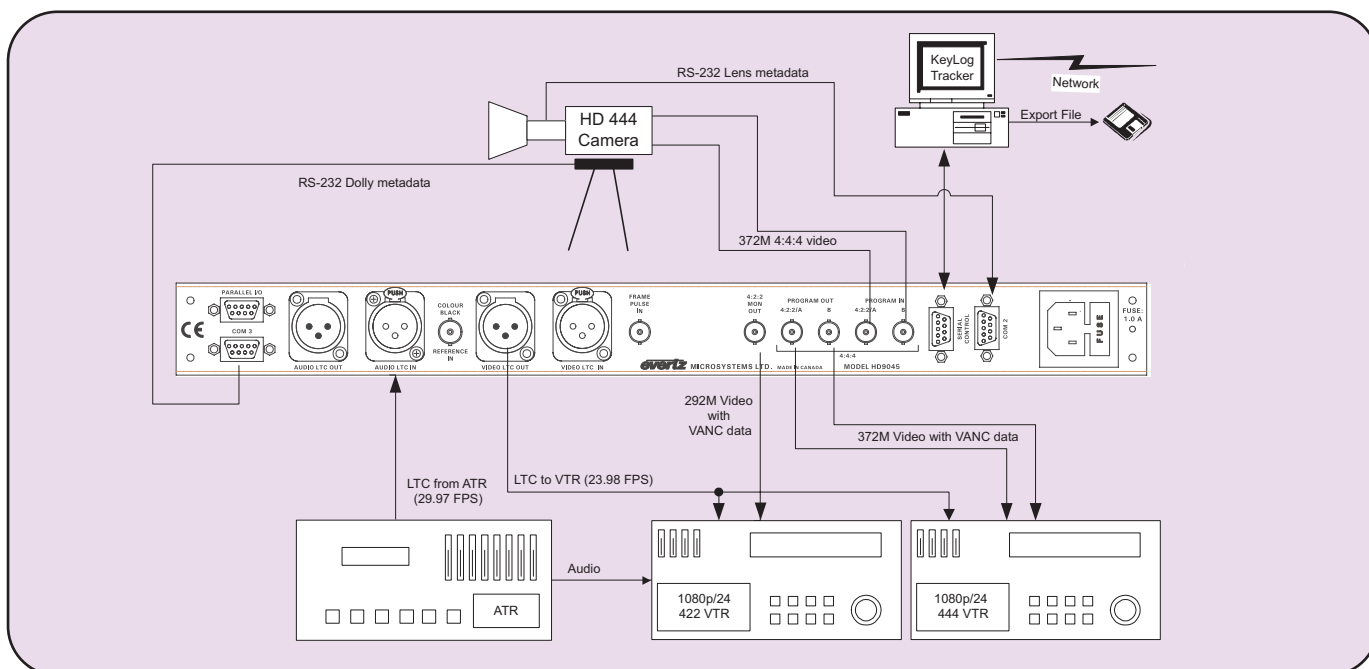
The HD9155Q Afterburner is a powerful device designed to facilitate the creation of off-line tapes from high definition telecine master tapes. The Afterburner downconverts the HDTV input video to SDI and analog standard definition video. When the input video is in the 1080p/24sF format the Afterburner 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
Connector: 2 BNC per IEC 60169-8 Amendment 2.
Equalization: Automatic to 75m @ 1.5Gb/s with Belden
1694 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.

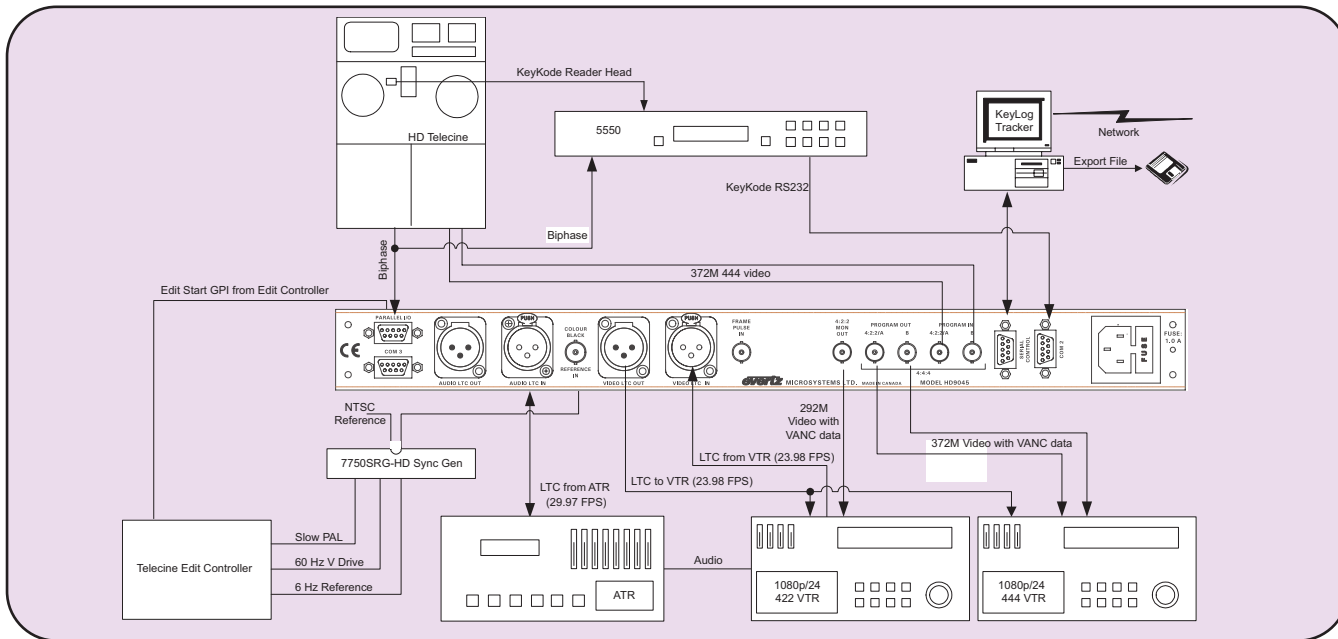
The new multi-resolution version of Evertz popular KeyLog Tracker software allows the user to store multiple configurations for both the 9025TR Film Footage Encoders and the Afterburners. A simple on screen control in the Tracker software performs switching between 4:4:4 and 4:2:2 modes in the HD9045TR. 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 1694 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)

Weight:

Electrical:

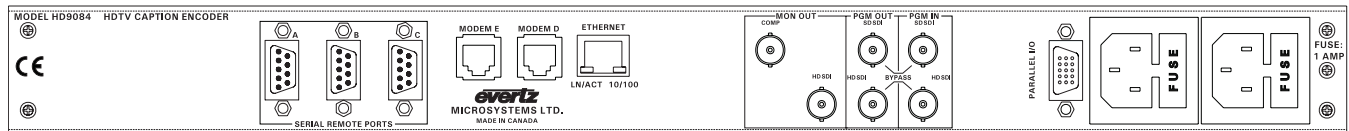
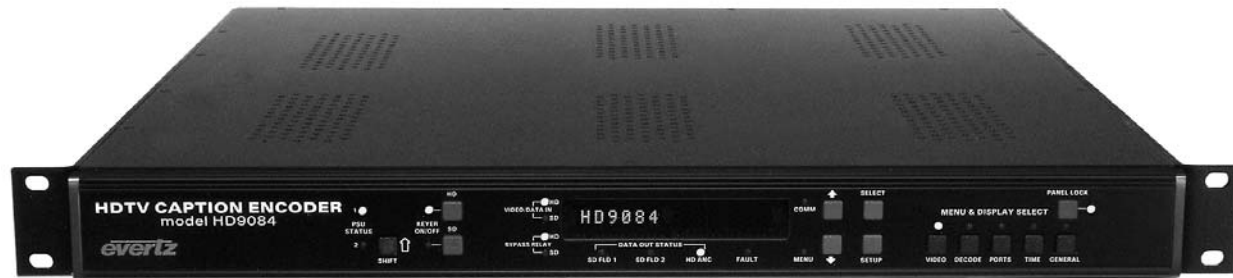
| | |
|-----------------|--|
| Power: | Autoranging 100 to 240 VAC 50/60 Hz, 30 VA. |
| Safety: | ETL listed |
| | Complies with EU safety directive |
| EMI/RFI: | Complies with FCC Part 15 Class A, EU EMC Directive |

Ordering Information:

| | |
|---------------------------|--|
| 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)

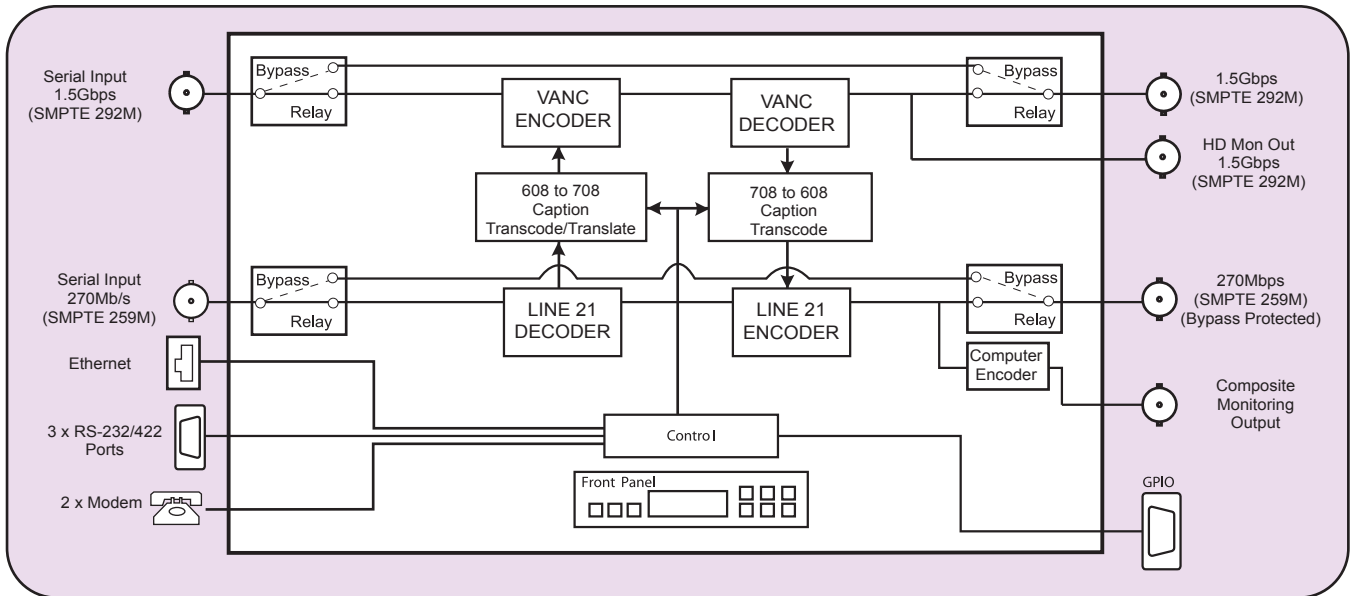
The SMPTE-292M HD-SDI video path supports 720p, 480p, or 1080i video formats. Advanced Captions are stored in the VANC of HD-SDI as per SMPTE-334M. The SMPTE-259M SDI video path supports EIA-608 captions stored on line 21 of component digital video. Both SD and HD video paths include bypass relay protection.

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

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 1694 (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 1694 (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

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 KeyCode 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.

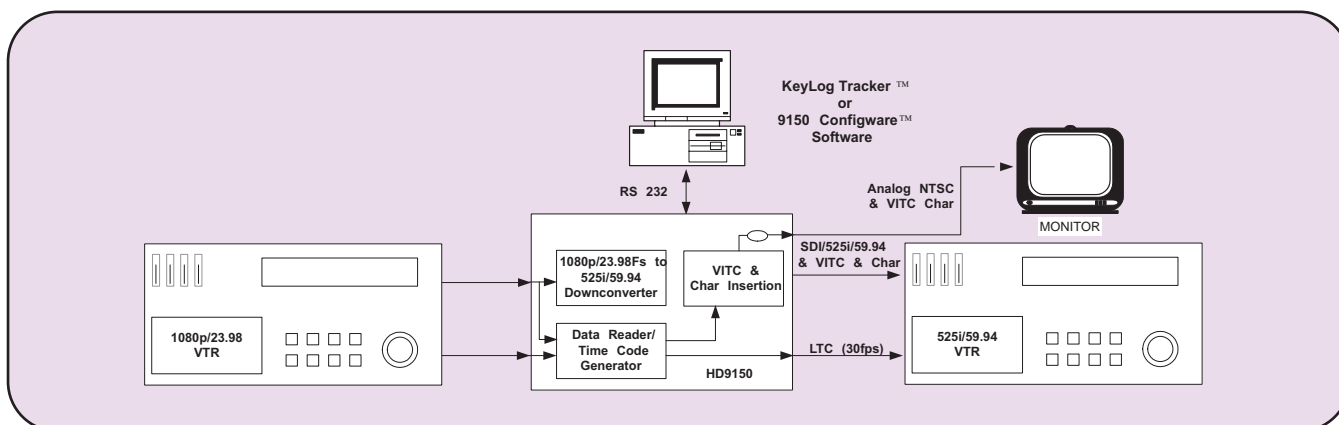
The HD9150Q can be easily configured using the new multi-resolution version of Evertz popular KeyLog Tracker™ software or from the 9150 Configware™ software tool supplied with the unit. These graphical software interfaces allow the user to store multiple configurations for the HD9150 series.

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

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 1694 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 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 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:

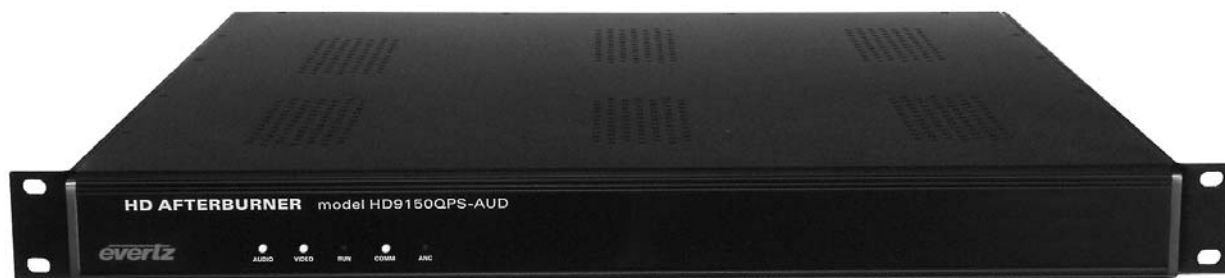
Power: Auto ranging 100-240VAC 50/60 Hz 30 VA
Safety: ETL listed
 Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
 EU EMC Directive

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.

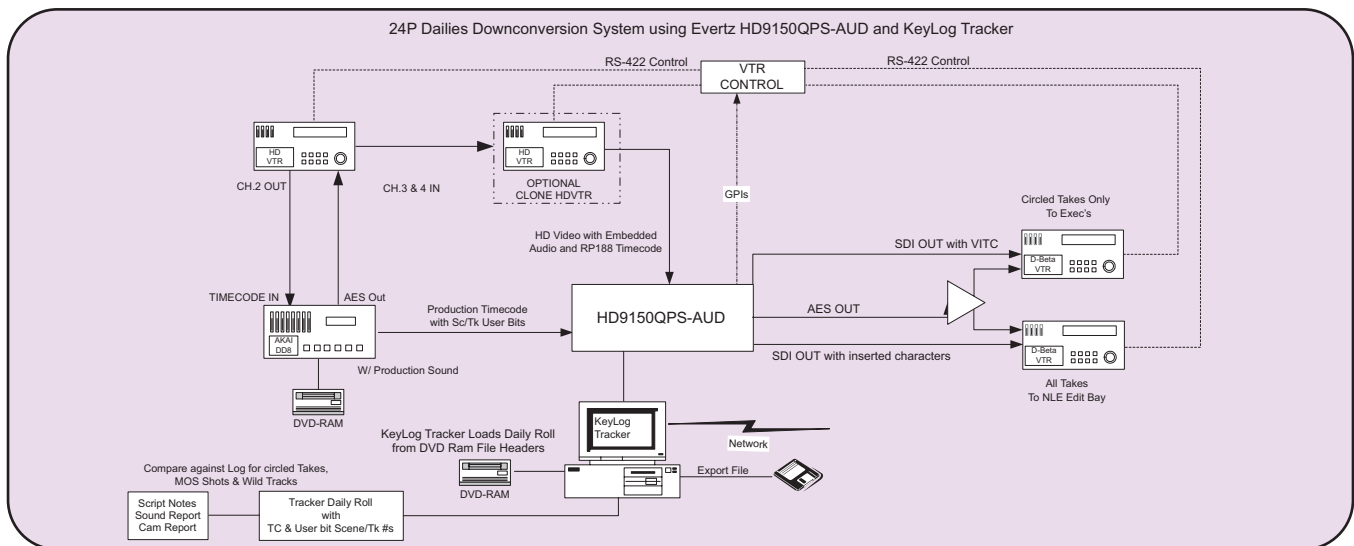
The HD9150QPS-AUD Afterburner can be easily configured using the KeyLog Tracker™ software supplied with the unit. This graphical software interface allows the user to store multiple configurations for the HD9150PS. It is also the central core to the Post Slate logging system. In the field, audio time 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



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 1694 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 800mV nominal

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 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.

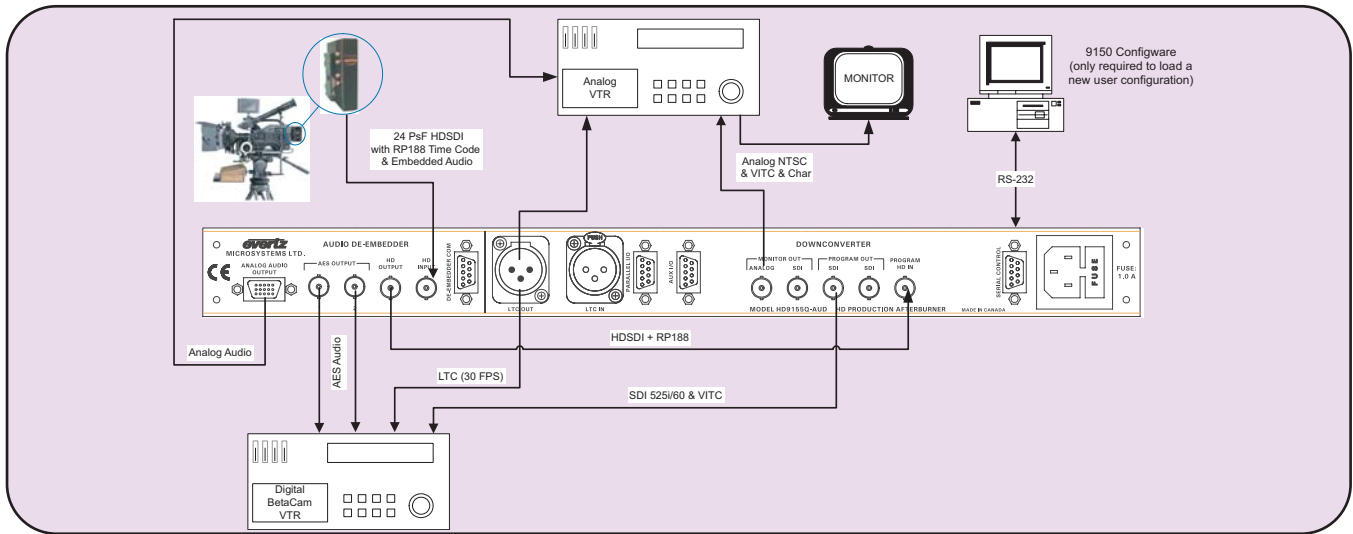
Models HD9155 and HD9155-AUD have been discontinued in favour of the High Quality (Q) versions.

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 1694 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 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 (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

1a

2

3

4

5

6

7

8

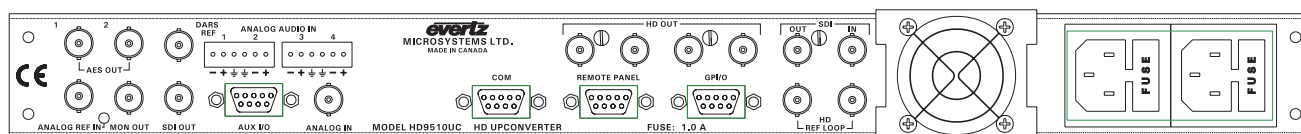
9

10

11

12

Model HD9510UC



HD9510UC Rear Panel

Advanced High Performance Upconverter (1RU Front Panel Control)

The Evertz HD9510UC Upconverter converts a standard definition 525i/59.94 4:2:2 (SMPTE-259M-C) input signal to 1080i/59.94, 1035i/59.94 or 720p/59.94 high definition (SMPTE 292M) video format. Advanced ASIC design results in optimal quality up-conversion with minimum artifacts. The HD9510UC also handles conversion to 480p/59.94 in a SMPTE 292M bit-stream. (SMPTE 349M)

The Evertz Upconverter provides complete support for 4:3 to 16:9 aspect ratio conversion. The system provides access to the common 4:3 to 16:9 choices; 16:9 anamorphic stretch, 4:3 with side panels, 16:9 letterbox zoom to full size and 14:9 letterbox zoom to full size 14:9 with side panels.

The Upconverter unit accepts 1 group of embedded audio on the input and re-embeds 1 group 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.

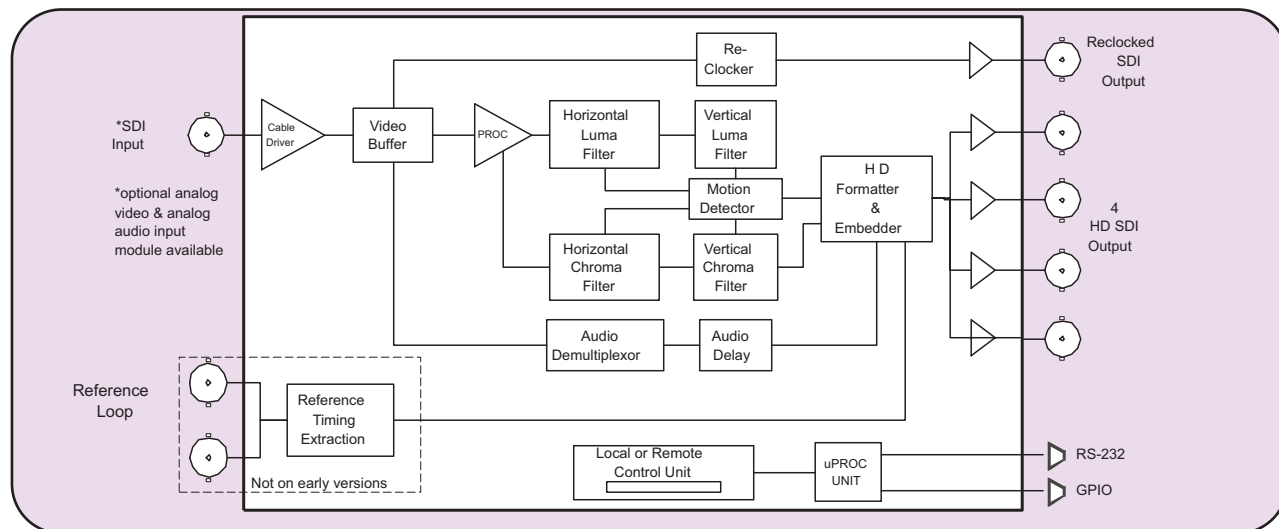
An optional composite video decoder and audio A to D converter module can be ordered for facilities which are currently using analog video and audio signals. For those analog facilities which will be transitioning to SDI in the future, the composite decoder can be bypassed at any time and the SDI input may then be used.

The Upconverter electronics is housed in a 1RU rack mount frame. The standard Upconverter has built-in front panel controls, but can also be purchased with a rack mount remote control panel that replaces the built-in control panel (RCP version).

Features

- SDI 4:2:2 input with reclocked loop thru
- 4 HD serial digital (1.485 Gb/s) outputs
- Outputs 1035i, 1080i, in 29.97Hz frame rate and 720p, 480p in 59.94Hz frame rate
- Passes 1 group of embedded audio to the output, with added audio delay to match the video delay
- 64 filter settings and motion detection algorithm ensure highest performance and video quality
- Selectable aspect ratio conversion
- Front panel control or remote rack mount control (optional)
- Available redundant power supply
- Optional analog video and 4 channel audio interface for analog facilities
- Field upgradeable firmware as new features become available
- Adjustable output timing with respect to NTSC or Tri-level sync genlock reference
- Minimum processing delay (3 msec) or 1 frame delay when referenced to input video

HD9510UC Block Diagram:



Specifications:

Serial Video Input:

Standards: 525 line SMPTE 259M-C (270Mb/s) with Group 1 SMPTE 272M embedded audio

Number of Inputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic up to 200m @ 270 Mb/s with Belden 8281 or equivalent cable

Reclocked Serial Video 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: 740ps nominal

Overshoot: <10% of amplitude

Wide Band Jitter: < 0.2 UI

HD Serial Video Output:

Number of Outputs: 4

Standard: SMPTE 292M (Selectable as follows) 480p/59.94, 720p/59.94, 1080i/59.94, 1035i/59.94

Embedded Audio: One audio group as specified in SMPTE 299M

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: <0.25UI @ 1 KHz when locked to input video
<0.25UI @ 10Hz when locked to external reference

Video Reference:

Type: Menu selectable
NTSC Colour Black (1 V p-p) or Composite Bi-level sync (300 mV)
HD Tri-level Sync

Connectors: BNC per IEC 60169-8 Amendment 2

Termination: High impedance loop through

Analog Video Input (For +CD-A4 option):

Standard: NTSC, SMPTE 170M

Number of Inputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1V nominal

Input Impedance: 75 Ω

Return Loss: >30dB to 10MHz

Analog Audio Input (For +CD-A4 option):

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 => 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) @ 1kHz, -0.5 dB FS

CMRR: >100dB @ 1kHz

COM Port:

Standard: RS-232

Baud Rate: 57,600

Connector: 9 pin female "D"

General Purpose Inputs:

Number of Inputs: 7

Function: Preset select (4), Future use (3)

Type: Opto-isolated, active low with internal pull-ups to externally supplied voltage

Connector: Female DB-9

Signal Level: closure to ground

Upconverter Processing:

Internal paths between functional blocks: 12 bits

Mathematical coefficients: 12 bits

Internal processing: Up to 36 bits

Output modes: 16:9 anamorphic stretch, 4:3 with side panels, 16:9 letterbox zoom to full size and 14:9 letterbox zoom to full size 14:9 with side panels.

Motion detection: field/frame/mixed

Processing delay: 3 msec to 1 Frame, dependent on reference and output phasing

Filtering: Independent H and V filters

Electrical:

Voltage: Auto ranging 100 - 240 Volts AC, 50/60 Hz 30 VA

Safety: ETL Listed, complies with EU safety directives

EMI/RFI: Complies with FCC Part 15 Class A regulations
Complies with EU EMC directive

Physical:

Dimensions: 19"W x 1.75"H x 14.5"D
(483mm W x 45mm H x 368mm D)

Weight: 7lbs. (3.1Kg)

Ordering Information: HD9510UC

HD Upconverter

Ordering Options:

+2PS Redundant power supply

+RCP Rackmount remote control panel

+CD-A4 Analog video and audio interface option

1a

2

3

4

5

6

7

8

9

10

11

12

1a

Model HD9590

2

3

4

5

6

7

8

9

10

11

12



1a

2

3

4

5

6

7

8

9

10

11

12

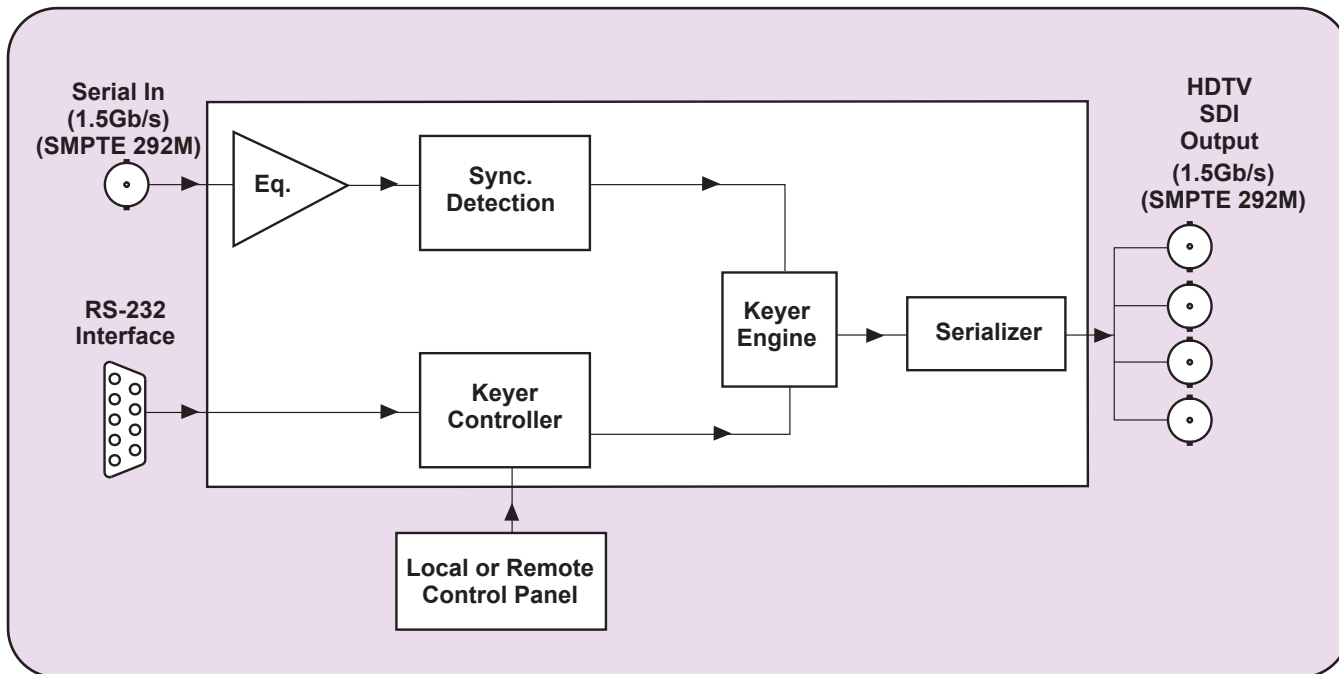
The HD9590 Graticule Generator is an easy to use, one rack unit, multi format digital video graticule generator that keys various alignment markers over a high definition video picture. These alignment markers facilitate film transfer, post production and quality control measurements relating to picture 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 1694 (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
EMI/RFI: Complies with FCC Part 15 Class A
 EU EMC Directive

Ordering Information:

HD9590 HD SDI Graticule Generator

Ordering Options:

+RCP Rackmount remote control
+DCP Desktop remote control unit

High Definition Downstream Keyer

Model HD9625DSK

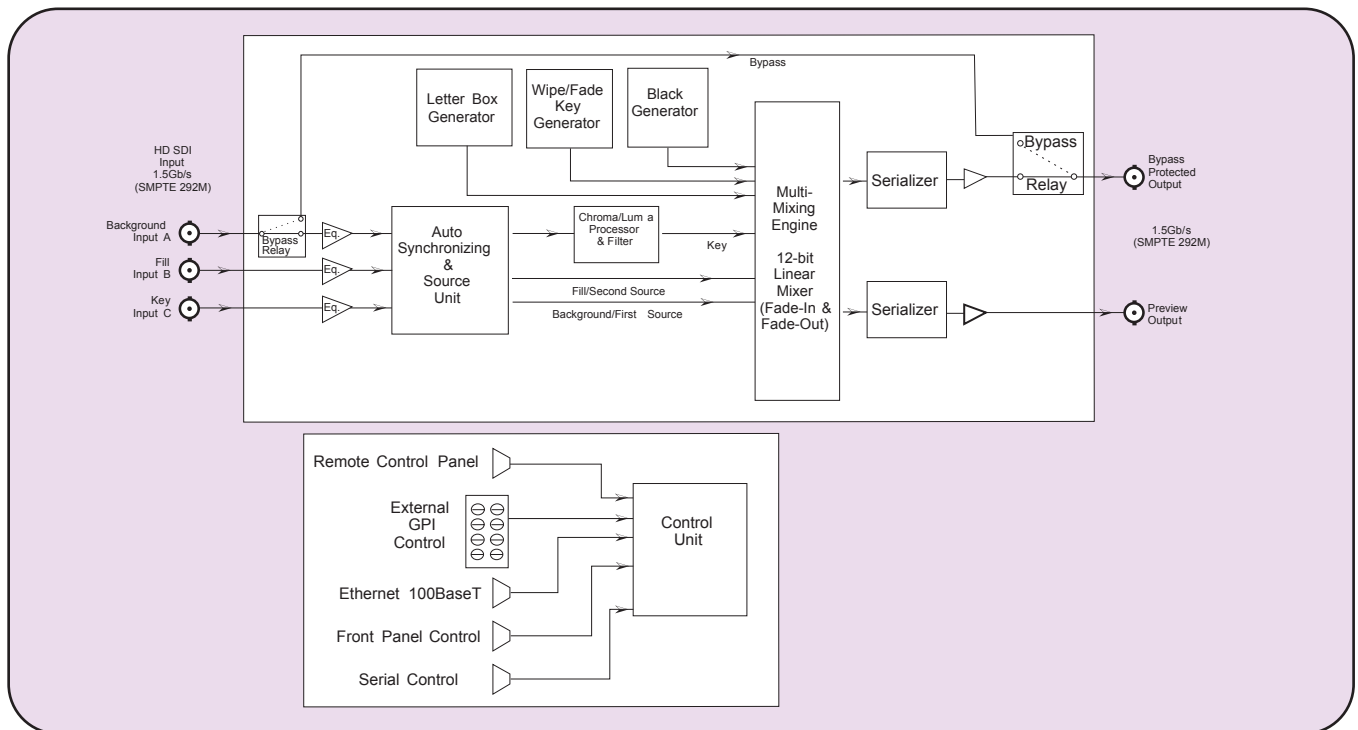


The Evertz HD9625DSK High Definition Downstream Keyer system incorporates the latest technology to provide an advanced fully digital keyer. The Evertz HD9625DSK is ideal for mixing key and fill HDTV signals in the “On-Air” environment. The system also features letter boxing, wipes, fades and more. The 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

- Program output bypass protected for on-air applications (optional)
- 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
1694 (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

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.

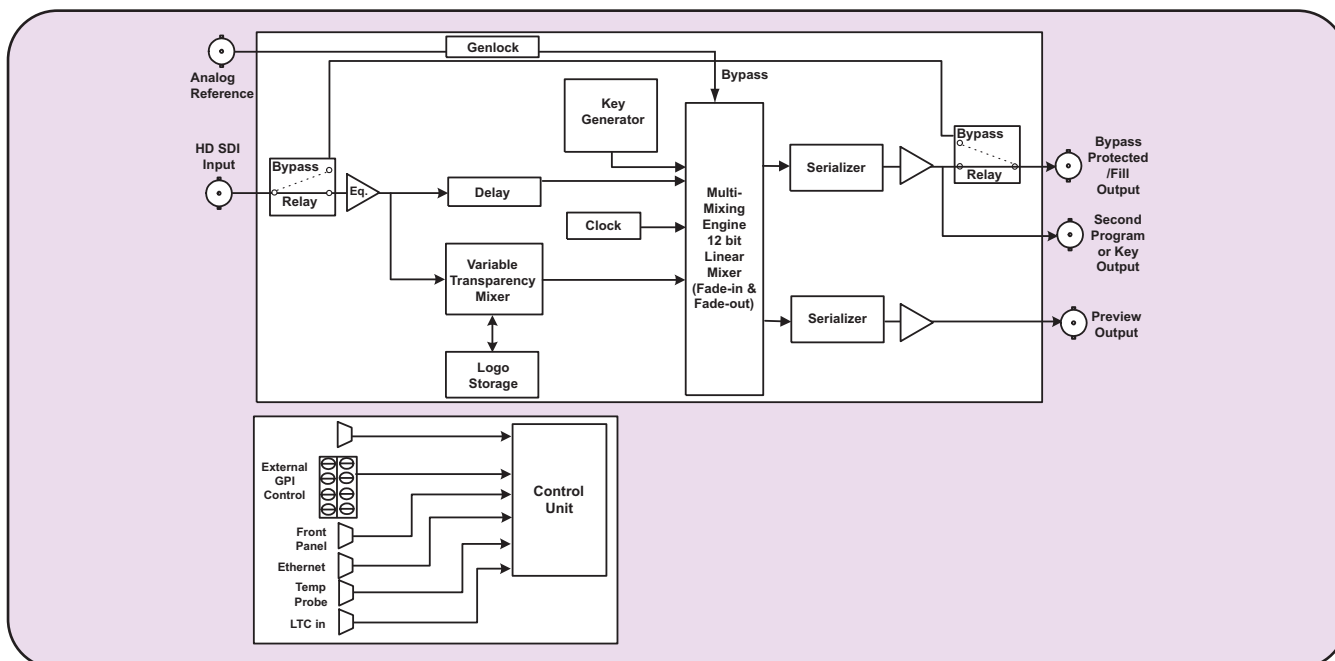
Features

- 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 Mbytes of storage
- Automatic input equalization up to 100m of Belden 1694 (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 1694 (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 colour 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
 XLR Type 3 pin female connector
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

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..

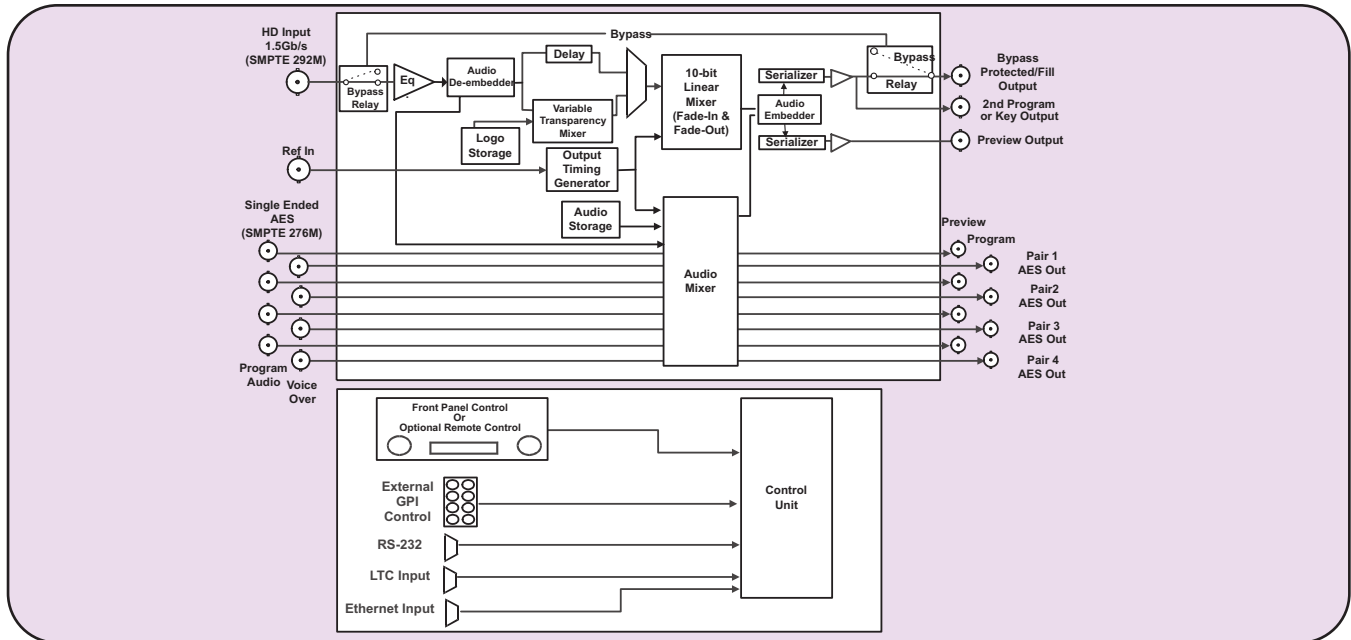
Features

- 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 1694 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 1694 (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)
 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

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 colour 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:

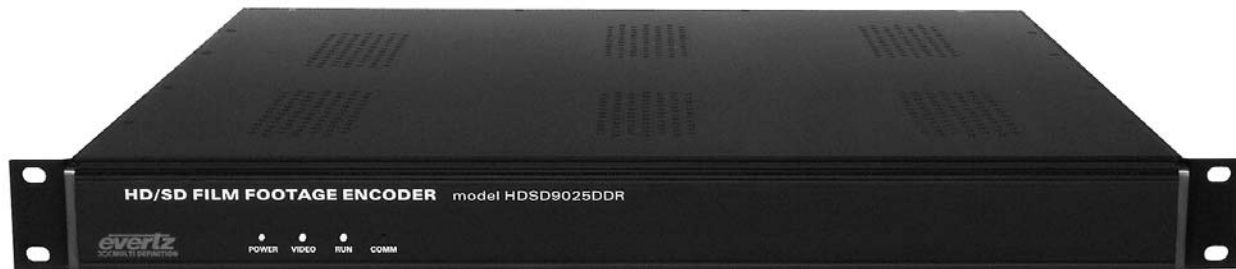
+RCP Optional rackmount remote control panel
+DCP Optional desk top remote control panel
+2PS Redundant power supply
+TP Optional Air Temperature Probe
+CF Compact Flash Optional Hardware (does not include compact flash memory card)
+CLH Optional crawl support for HD9625 products
+E Optional EAS Crawl 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

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.

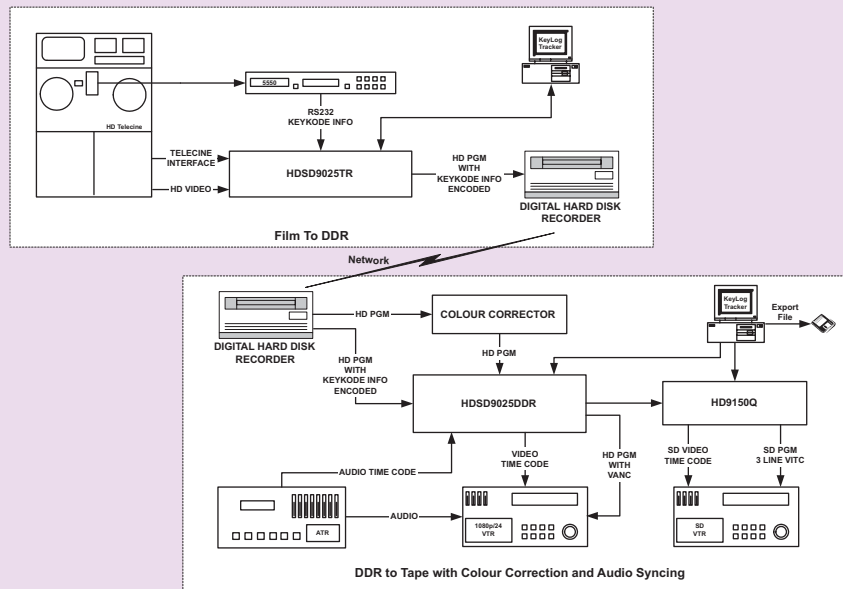
In standard definition mode, the HDSD9025DDR encodes the timecodes and KeyCode into industry standard SMPTE RP201 3-line VITC on one SDI output, and provides separate SDI and analog outputs with burned in characters for offline editing copies. In high definition mode, the HDSD9025DDR encodes the timecodes, 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 @ 1.5Gi/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
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"

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
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.

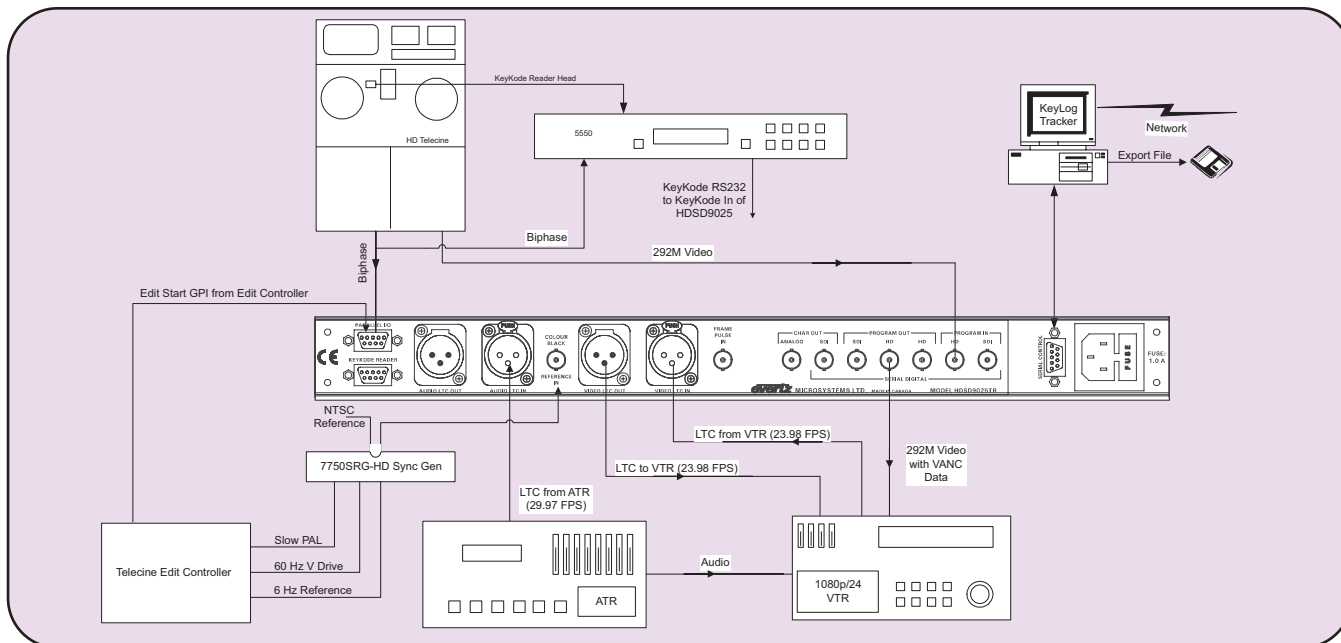
In standard definition mode, the HDSD9025TR encodes the time code and KeyCode into SMPTE RP201 3-line VITC on one SDI output, and provides separate SDI and analog outputs with burned in characters for offline editing copies. In high definition mode, the HDSD9025TR encodes the time code, KeyCode and production 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

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 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 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
EMI/RFI: 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 from a maximum of 24 - 40 seconds for HDTV or SDTV. This max delay can be allocated to primary and secondary paths as allocated by the user. (typically it is set for max 12 sec primary & max 12 sec secondary.

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:

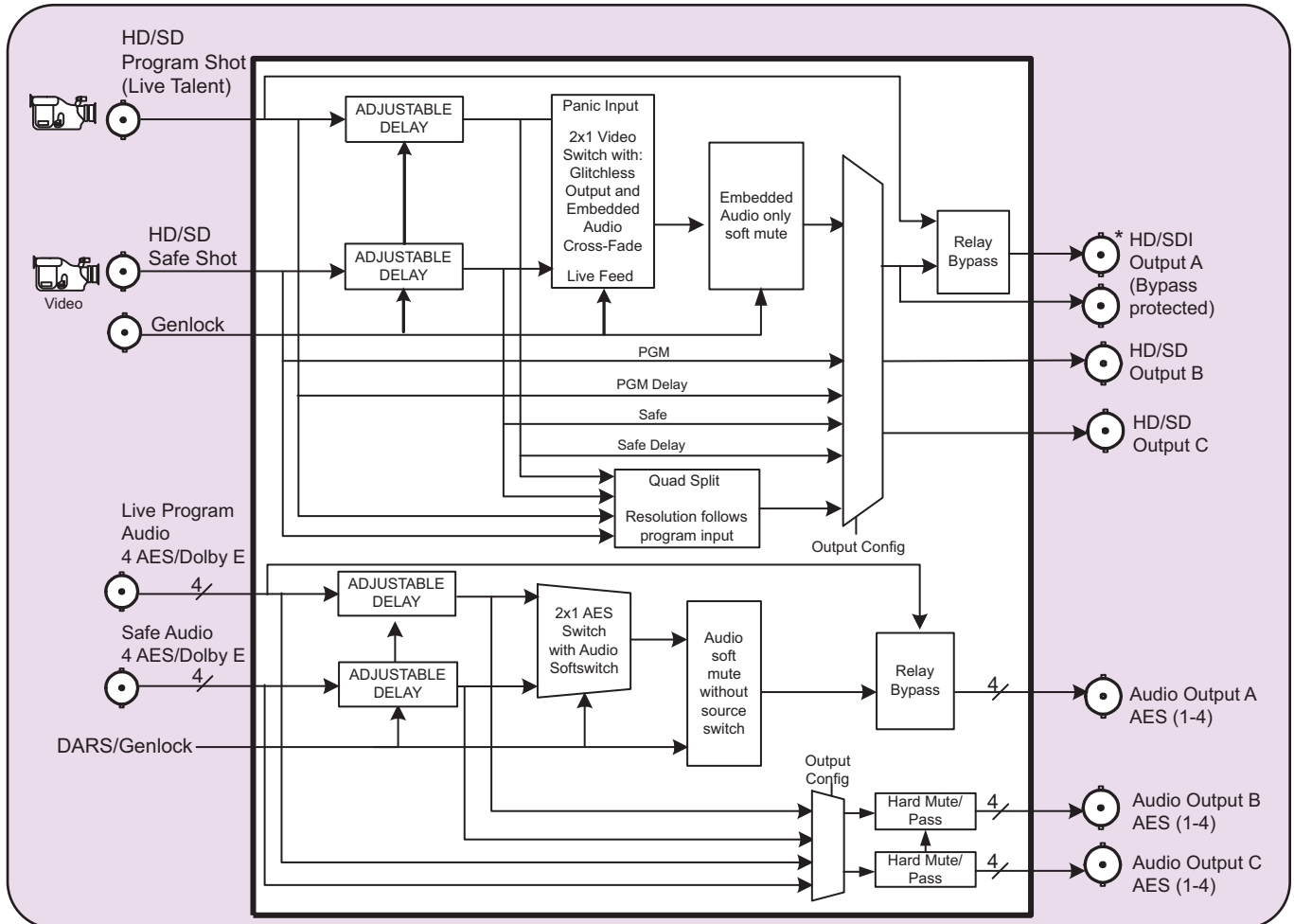
- Main program
- Delayed Main program
- Safe input
- Delayed safe input

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
- 24 - 40 seconds of HD or SD delay
- 24 - 40 seconds of 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
Complies with FCC Part 15, Class A
EU EMC Directive

EMI/RFI:

Physical:

19.00" W x 18.75" D x 3.50" H
(483mm) x (477mm) x (89mm)

Functional:

Basic Unit:

Maximum Delay:

HD/SD delay 24 seconds

Ordering Information:

HDSD9545DLY-PRO

HD/SD Video and Audio Delay/Profanity Protection System with 24 seconds of delay

HDSD9545DLY-PRO-HD40

HD/SD Video and Audio Delay/Profanity Protection System with 40 seconds of delay

SD Film Footage Encoder

Model SD9025TR



The SD9025TR Film Footage Encoder is designed to simplify the management of your film to tape transfers for standard definition video. Under control of the powerful KeyLog Tracker™ software, the SD9025TR 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 30 Fps standard 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.

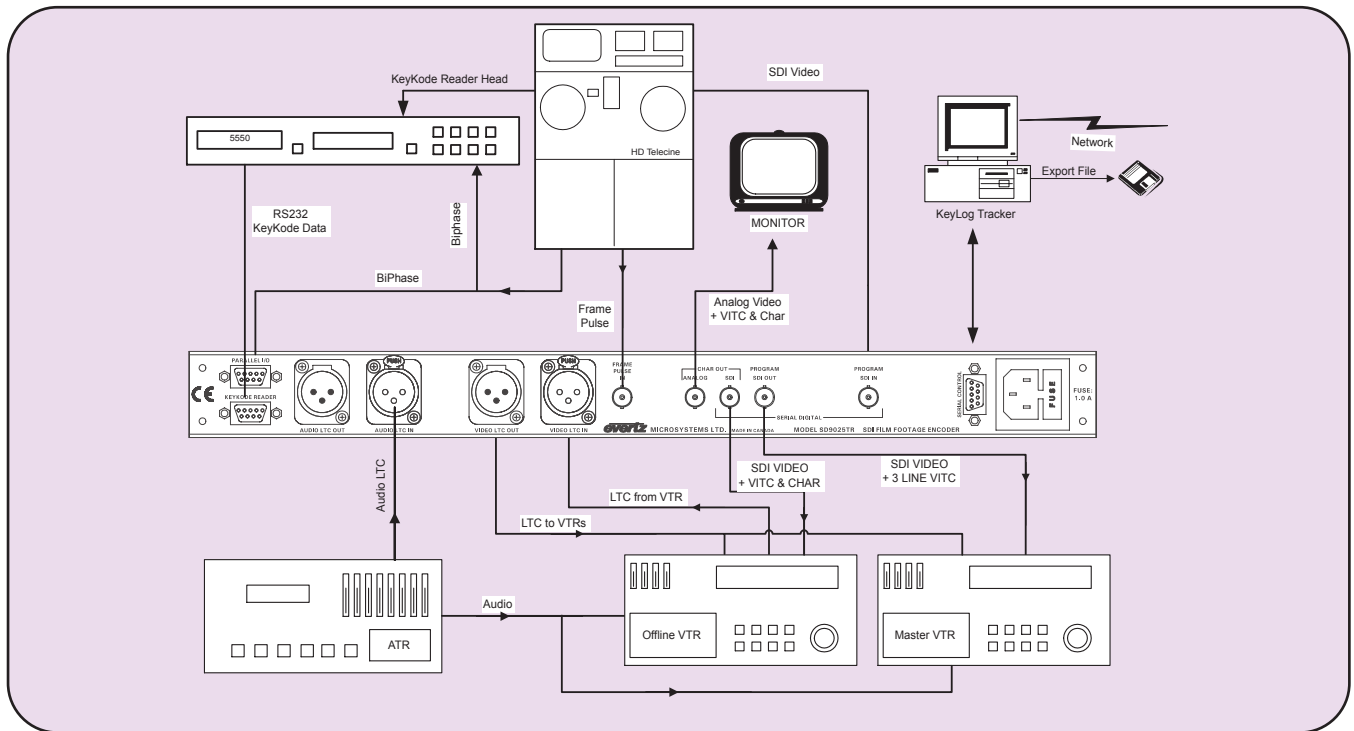
The SD9025TR encodes the time code and KeyCode into SMPTE RP201 3-line VITC on one SDI output, and provides separate SDI and analog outputs with VITC and burned in characters for offline editing copies. Separate LTC inputs and outputs for the audio and video time-codes, allows handling of mixed film rate and video rate time code. The programmable telecine interface allows the encoder to interface to a wide variety of telecine configurations.

The SD9025TR can be easily configured using the KeyLog Tracker™ software supplied with the unit. This graphical user interface allow the user to store multiple configurations for the SD9025TR.

Features:

- Accepts SMPTE 259M (270 Mb/s), 525i/59.94 and 625i/50
- Encodes video and audio time code, KeyCode, pulldown and other film transfer information in SMPTE RP201 3-line VITC on program SDI output
- 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 on offline SDI and analog video outputs
- Interfaces to Evertz 5550 or 5500 KeyCode Readers
- Separate LTC generators for video and audio time code operating at 30 and 25 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 Evertz KeyLog Tracker™ software
- Transfers can be logged using GPI, Frame Grab or preselected log points using the Evertz KeyLog Tracker™ software
- Programmable Telecine interface supports all popular telecines

SD9025TR Typical Configuration



Specifications

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: 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 Vpp 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
Connector: Film Frame Centering, Event Log GPI
 9 pin female "D"

KeyCode Reader Interface:

Standard: RS-232, 9600 or 38400 baud, 7 bit even parity.
Connector: Compatible with Evertz, ARRI, CP and RIM decoders
 9 pin female "D"
Control: Computer control

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:

SD9025TR SD Film Footage Encoder (Including KeyLog Tracker™)
SD9025TR/5500/UV-3 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

1a

2

3

4

5

6

7

8

9

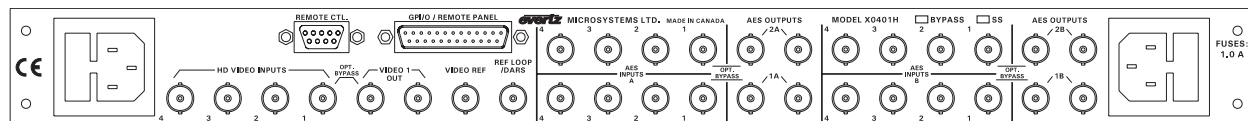
10

11

12

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.

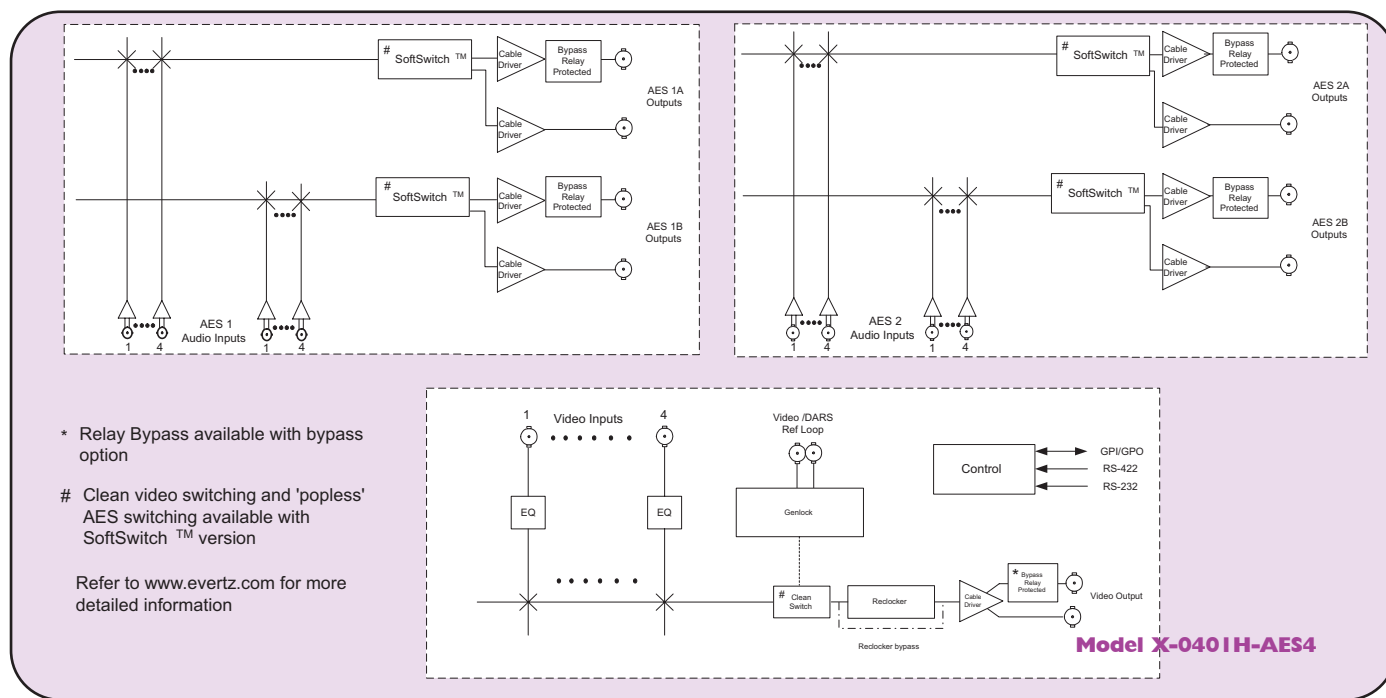
SoftSwitch™ Features (X-0401H-AES4-HSS)

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



Specifications

Video Inputs:

Standard: SMPTE 292M (1.5Gb/s), SMPTE 259M (270Mb/s, 360Mb/s, 540Mb/s) and DVB-ASI
SMPTE 310M with redocker turned off

Number of Inputs: 4

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic up to 100m @1.485Gb/s with Belden 1694 (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 Range: $\pm 1/2$ line when *Coarse phase* = 1, *Fine phase* = 0

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 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)

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
Input 1 bypass protected with +HBP 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 Colour
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:

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
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

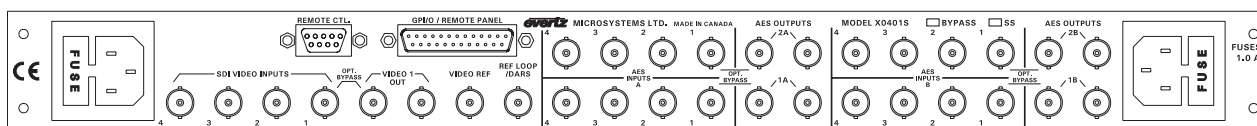
+RCP Rackmount remote control panel (replaces front control panel)

Accessories:

X-0401H-PANEL Additional Remote Control Panel (works in addition to front control panel)

4 X I SDI Router With Quad 4xI AES Audio

Model X-0401S / -AES / -AES4SS / -ATSC



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.

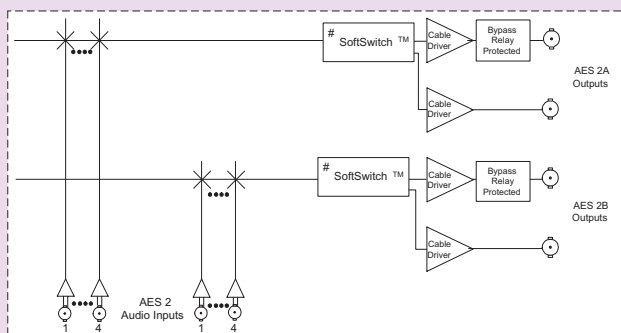
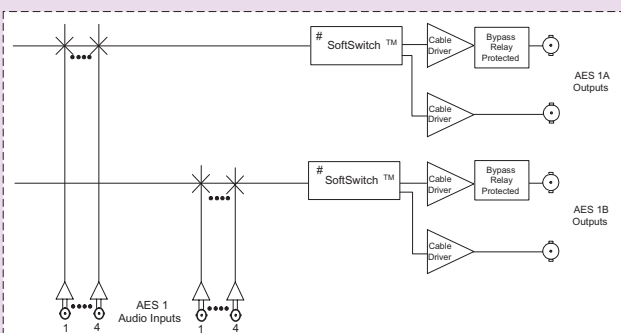
SoftSwitch™ Features (X-0401S-AES4-SS)

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.

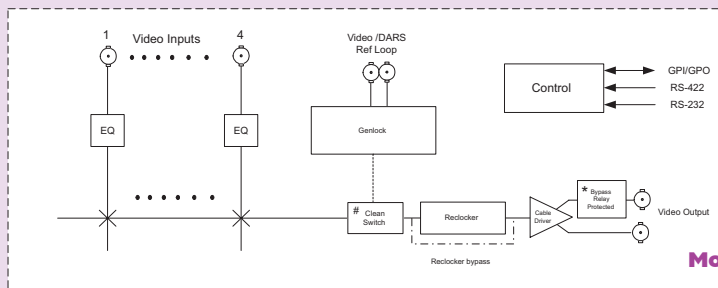
4 X 1 SDI Router With Quad 4x1 AES Audio



* 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
±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 ±0.5V

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 X0401S-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 ± 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 Colour 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 75Ω 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 75Ω 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

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)

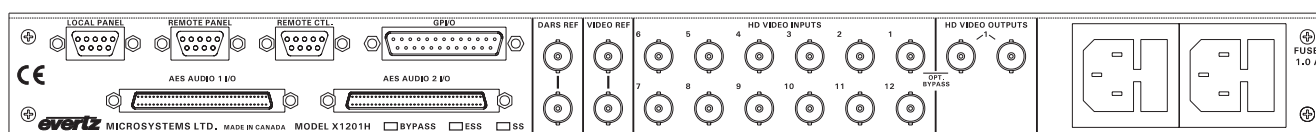
Accessories:

X-0401S-PANEL

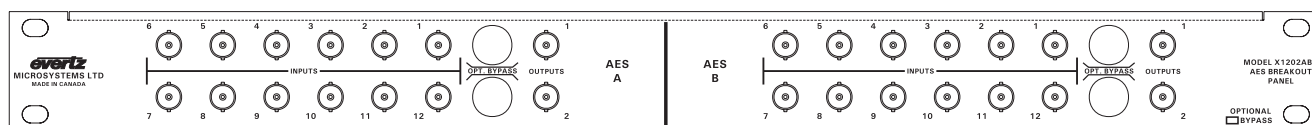
Additional Remote Control Panel (works in addition to front control panel)

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.

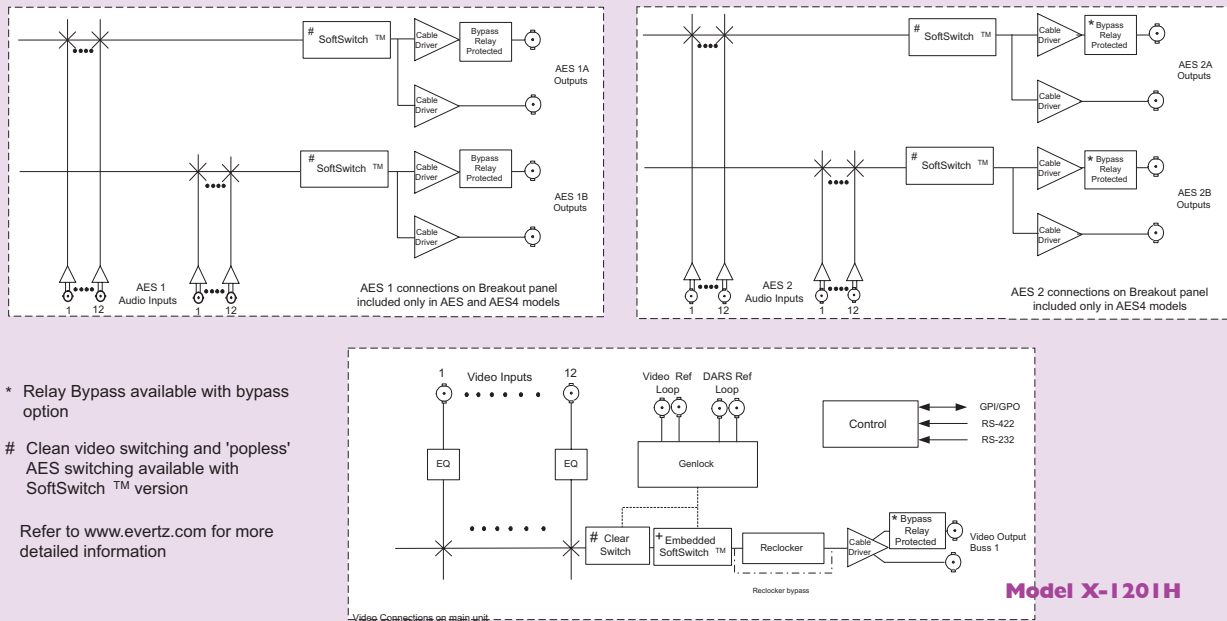
Optional Embedded SoftSwitch™ Features (+HES Option)

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 buss uses Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed (for HD video only).

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
- 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 1694 (or equivalent) (50m on input 1 with +HBP option)
> 15dBV up to 1.5Gb/s

Return Loss:

Input Timing (On +HSS and +HES Optioned Routers)

Input Range: Measured with respect to the Genlock reference
±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 ±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 *Coarse 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 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

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 100-240VAC 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-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)

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 1200 series routers)

X-1201ABOB-BP Balanced AES (with Bypass Relays) Audio Breakout Panels (for all

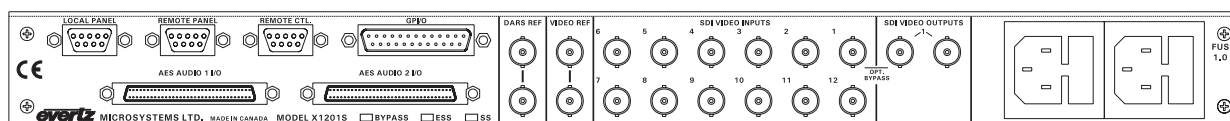
1201 series routers)

X-1201ABO-BP Unbalanced AES (with Bypass Relays) Audio Breakout Panel (For

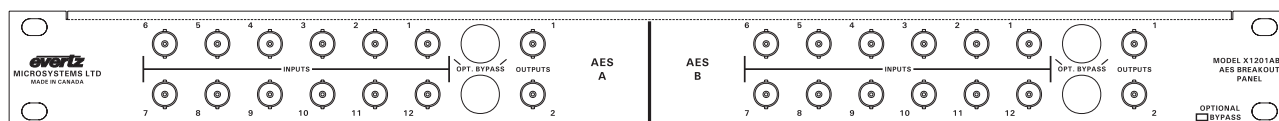
all 1201 series routers)

I2 X I 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.

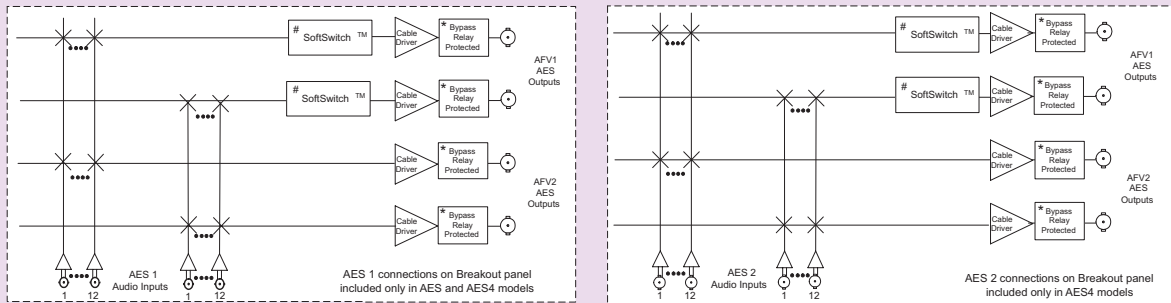
Optional Embedded SoftSwitch™ Features (+ES Option)

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 buss uses Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed.

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
- 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

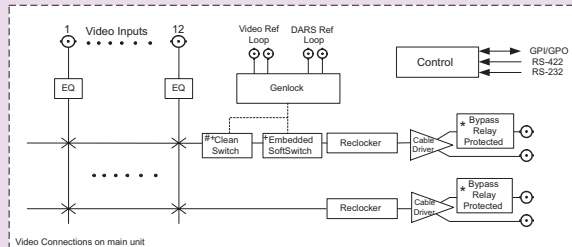
12 X 1 SDI Router With Dual or Quad 12x1 AES Audio



* 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
Connector: Input 1 bypass protected with +BP option
Signal Level: BNC per IEC 60169-8 Amendment 2
DC Offset: 800mV nominal
Rise and Fall Time: 0V $\pm 0.5V$
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
Connector: Input 1 bypass protected with +BP option
Signal Level: BNC per IEC 60169-8 Amendment 2 on breakout panels provided
Reference: 1V p-p
 Video Genlock Reference
 DARS reference available with +SS or +ES options

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

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

EMI/RFI:

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:

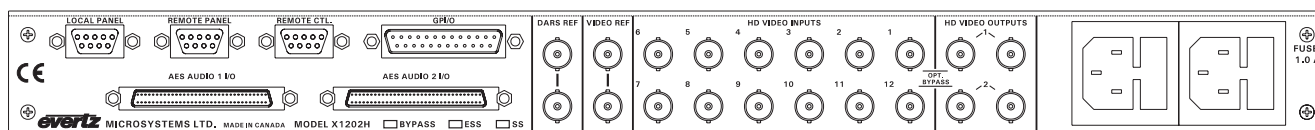
+SS SoftSwitch™ Option
+ES Embedded SoftSwitch™ Option
+BP Bypass Relay Protection
+RPS Redundant Power Supply
+RCP Rack Mount Remote Control Panel (replaces front control panel)
+B Balanced AES Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)
 Unbalanced AES (with Bypass Relays) Audio Breakout Panels (for all 1201 series routers)
+U Unbalanced AES (with Bypass Relays) Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)

Accessories:

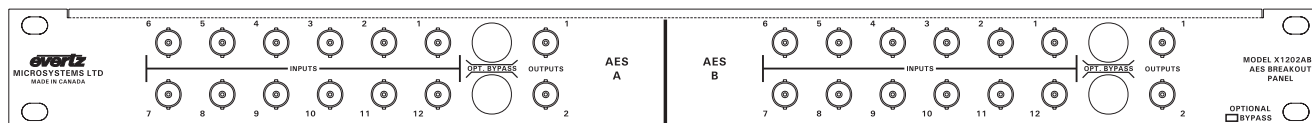
X-1201S-PANEL Additional remote control panel (works in addition to front control panel)
X-1201ABO Unbalanced AES Audio Breakout Panel (for all 1201 series routers)
X-1201ABOB Balanced AES Audio Breakout Panel (For all 1200 series routers)
X-1201ABOB-BP Balanced AES (with Bypass Relays) Audio Breakout Panels (for all 1201 series routers)
X-1201ABO-BP Unbalanced AES (with Bypass Relays) Audio Breakout Panel (For all 1201 series routers)

I2 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.

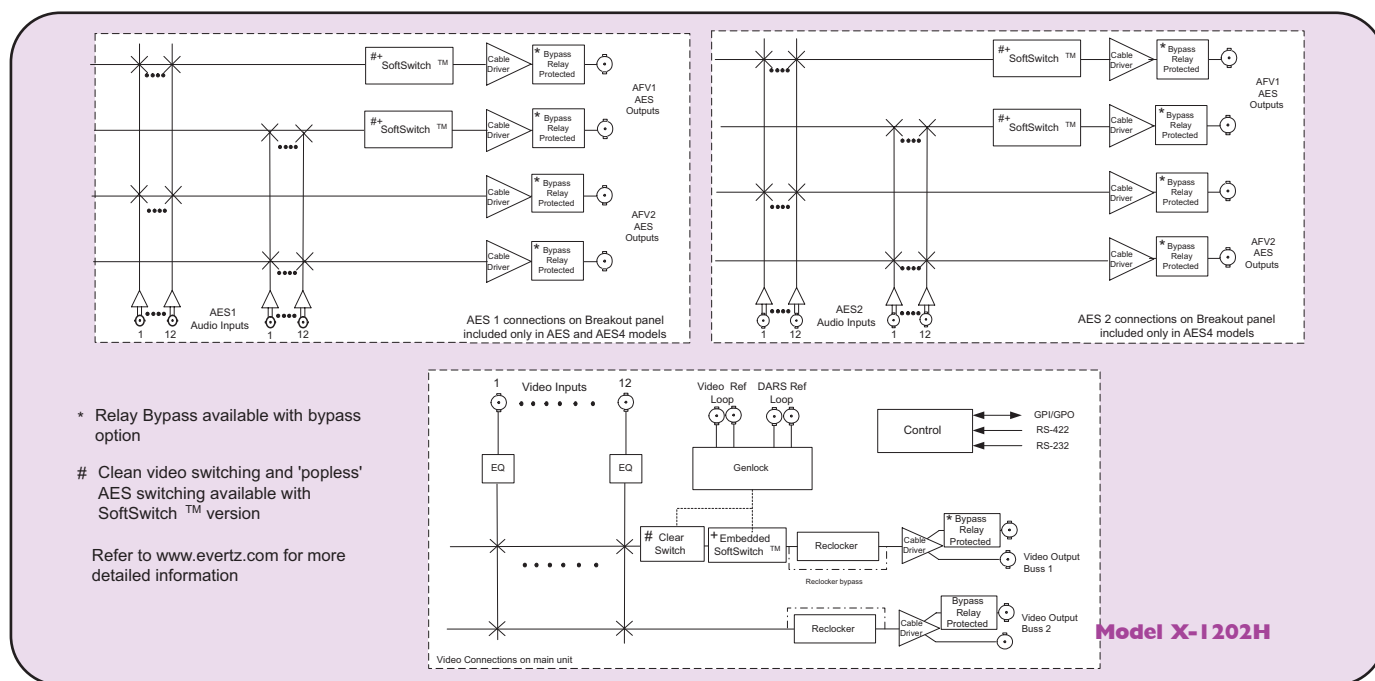
Optional Embedded SoftSwitch™ Features (+HES Option)

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 (for HD Video only).

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
- 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



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 1694 (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 Optional Routers)

Input Range: Measured with respect to the Genlock reference
±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

Inputs 1 & 12 bypass protected with +HPB 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

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
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 & 12 bypass protected with +HPB relay 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 Colour 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: +/- 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

EMI/RFI: 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 1200 series routers)

X-1202ABOB-BP

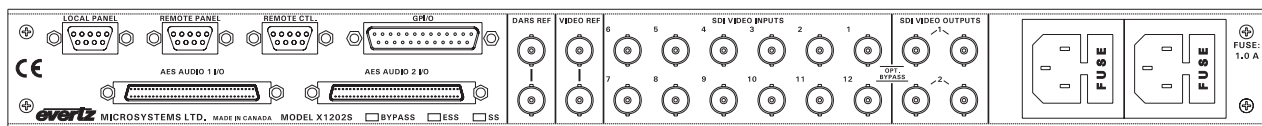
Balanced AES (with Bypass Relays) Audio Breakout Panels (for all 1202 series routers)

X-1202ABO-BP

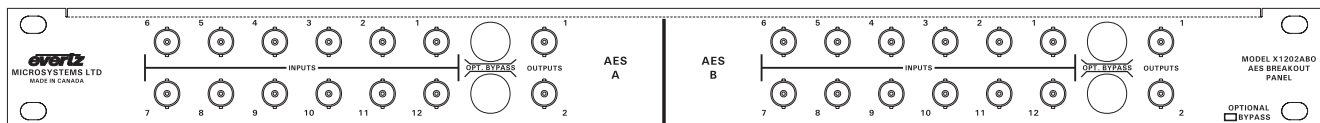
Unbalanced AES (with Bypass Relays) Audio Breakout Panel (For all 1202 series routers)

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.

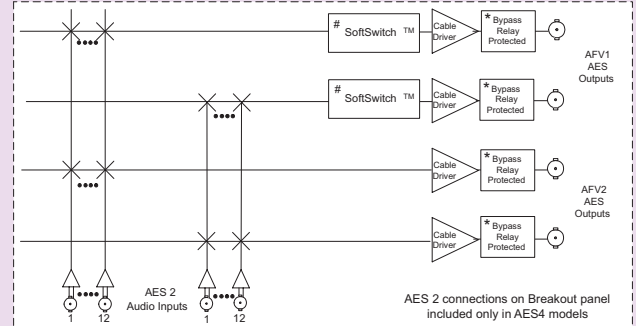
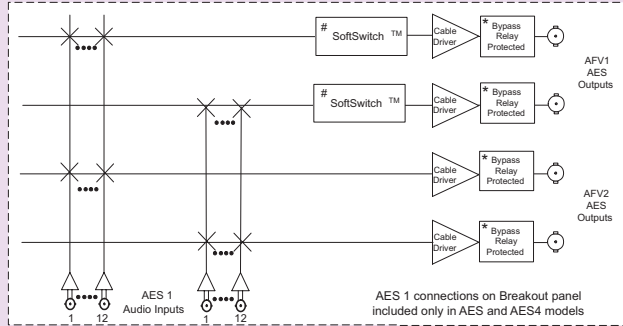
Optional Embedded SoftSwitch™ Features (+ES Option)

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.

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
- 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

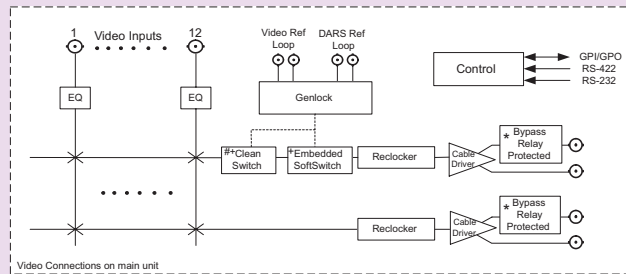
12 X 2 SDI Router With Dual or Quad 12x2 AES Audio



* 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-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): Measured with respect to the Genlock reference
Input Range: ±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 ±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): 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

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 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

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
 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

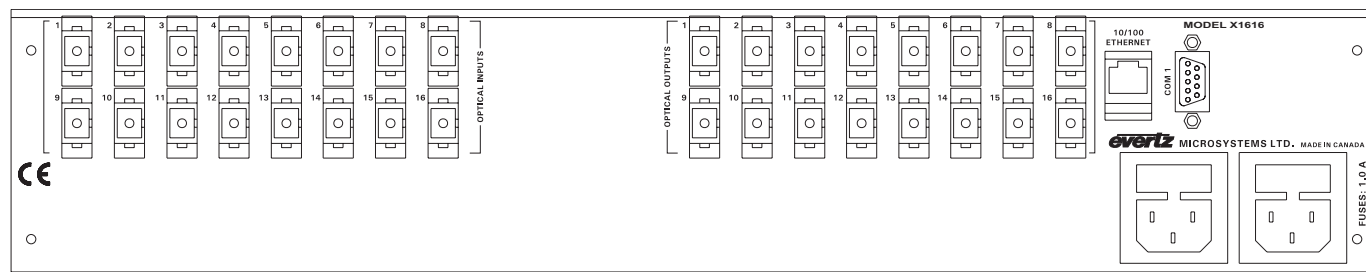
X-1202ABO
X-1202ABOB
X-1202ABOB-BP

X-1202ABO-BP

Additional Remote Control Panel (works in addition to front control panel)
 Unbalanced AES Audio Breakout Panel (for all 1202 series routers)
 Balanced AES Audio Breakout Panel (For all 1200 series routers)
 Balanced AES (with Bypass Relays) Audio Breakout Panels (for all 1202 series routers)
 Unbalanced AES (with Bypass Relays) Audio Breakout Panel (For all 1202 series routers)

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 routing, amplifying, regenerating and wavelength management in your optical system.

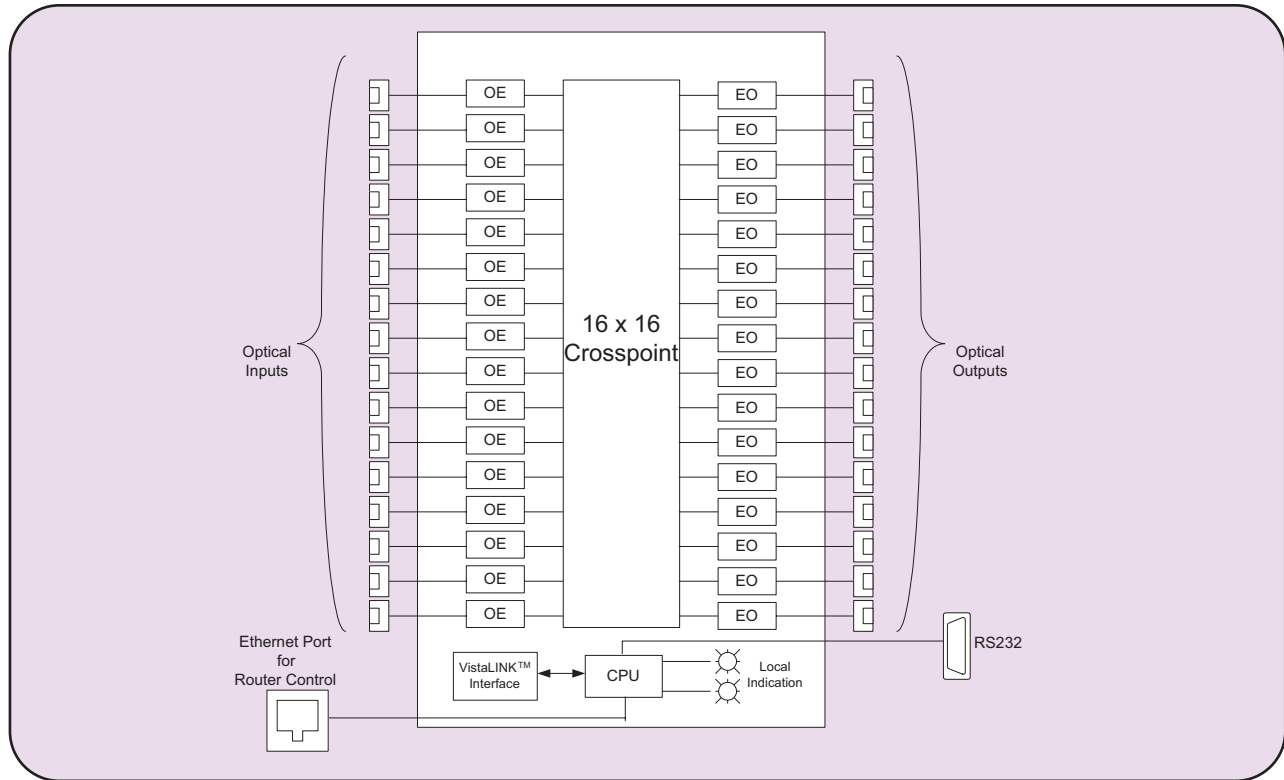
The optical outputs are available in 1310nm, CWDM or DWDM wavelengths. The X-1616-00 occupies a 2RU frame.

Features

- 16 fiber optic inputs and outputs
- Provides optical routing, regeneration (amplification, reshaping) and wavelength management
- Data rate independent to 3Gb/s
- Handles Video, Audio, Datacom and Telecom signals
- Fully non-blocking architecture
- 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 panels
- 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-1616-0013 | 1310nm |
| X-1616-OOCWDM | 1270nm - 1610nm (16 wavelengths, 20nm spacing) |
| X-1616-ODDWDM | 1545.32-1557.36nm (ITU C40-C25, 16 wavelengths, 0.8nm spacing) |

Output Power:

| | |
|---------------|-------|
| X-1616-0013 | -7dBm |
| X-1616-OOCWDM | 0dBm |
| X-1616-ODDWDM | 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-1616-0013 | 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-ODDWDM | 16 x 16 Optical Router with 16 DWDM (ITU C40-C25) optical outputs |

Ordering Options

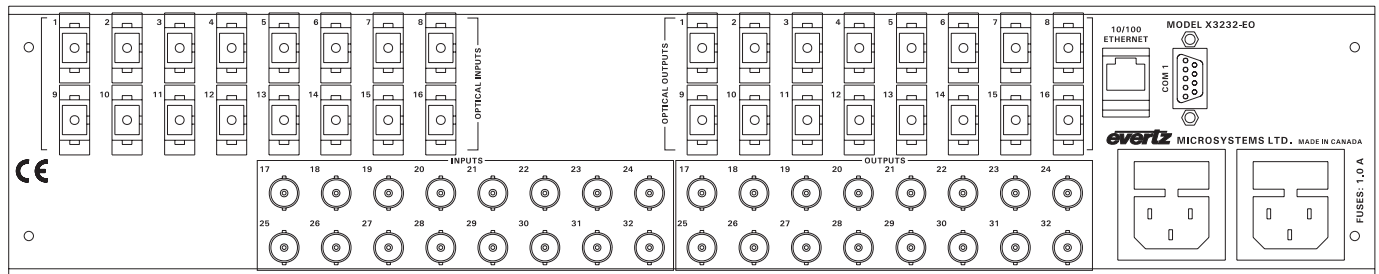
Fiber Connector must be specified at time of order
Eg: Model +SC

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 routing, amplifying, regenerating and wavelength management in your optical system.

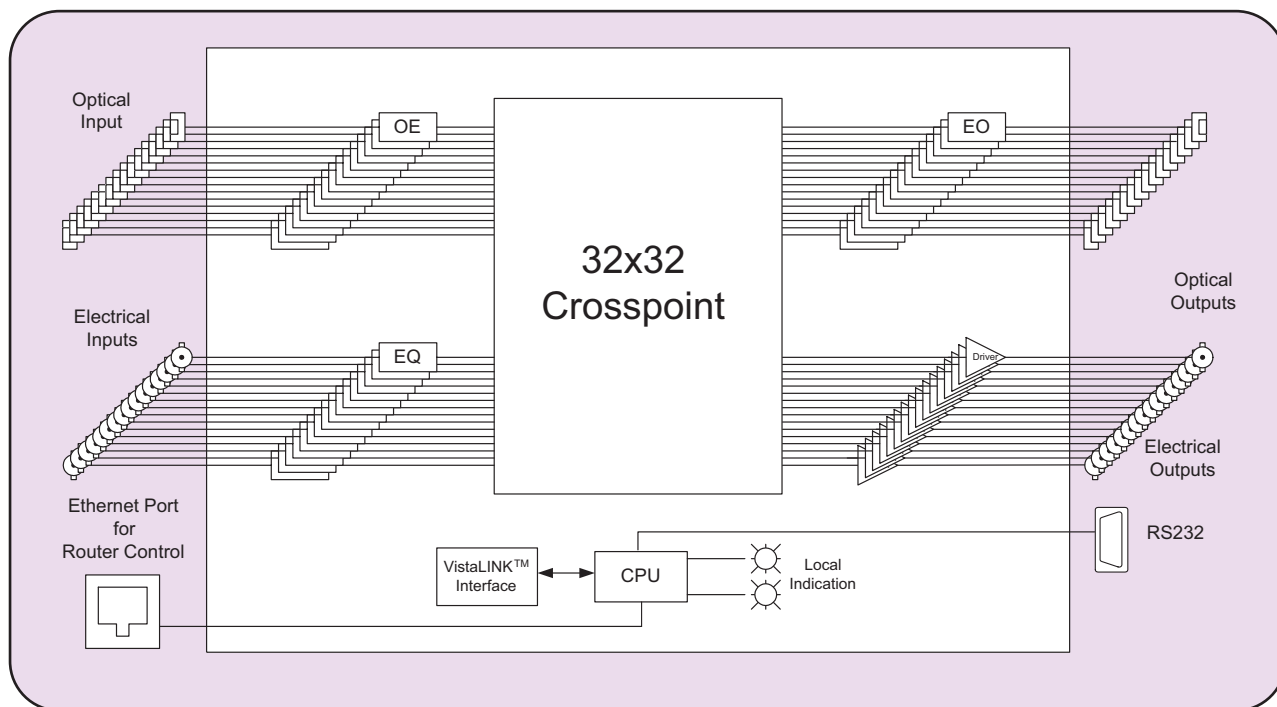
The optical outputs are available in 1310nm, CWDM or DWDM wavelengths. The X-3232-EO occupies a 2RU frame.

Features

- 16 fiber optic inputs and outputs
- 16 coaxial inputs and outputs
- Provides optical routing, regeneration (amplification, reshaping) and wavelength management
- Data rate independent to 3Gb/s
- Handles Video, Audio, Datacom and Telecom signals
- Fully non-blocking architecture
- 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 panels
- 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

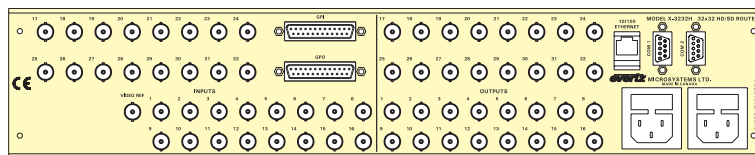
Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Connector Suffix

| | |
|-----|-------|
| +SC | SC/PC |
| +ST | ST/PC |
| +FC | FC/PC |

X-3232 HD/SD Router

Model X-3232H



X-3232H Rear Panel

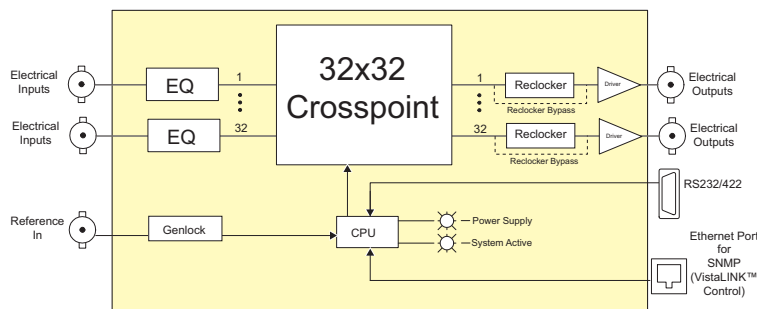
The X-3232H digital video routing switcher is ideal for routing SDI, HDSDI, and other compatible digital signals. A non-blocking router architecture allows any input to be routed to any combination of outputs. The router system may be controlled through the VistaLINK™ graphical user interface, an NCP-2 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:

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

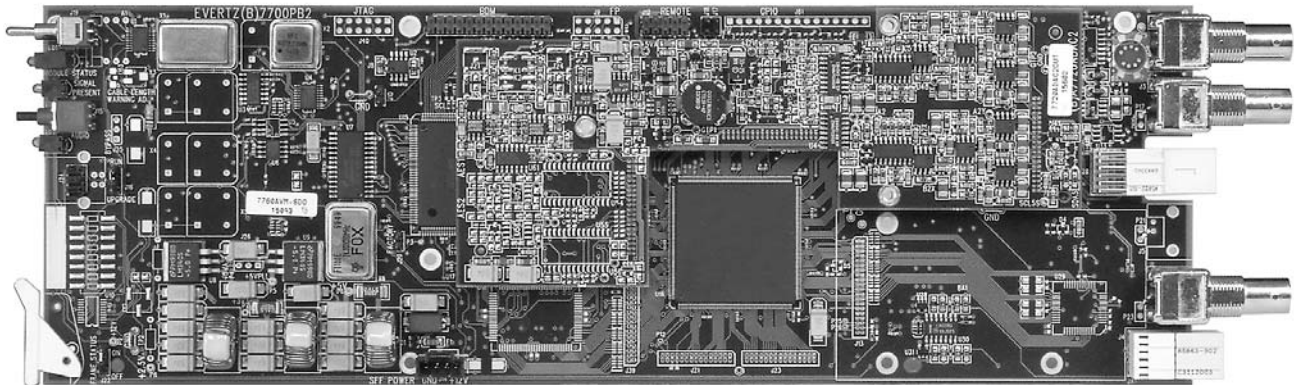
Ordering Options

+2PS

Redundant power supply

SDI Closed Caption & XDS Decoder & EIA608 Analyzer

Model 7760CCM



The 7760CCM closed captioning monitoring card extends the signal monitoring capabilities of Evertz's 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).

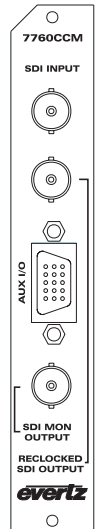
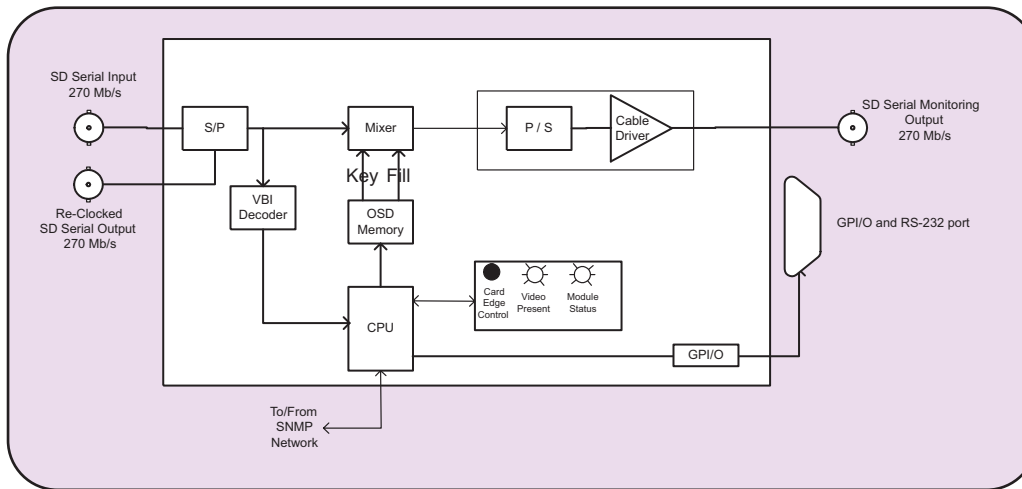
The single-slot, 7760CCM module fits conveniently into Evertz's 7700FR-C, 7701FR frames or standalone enclosure.

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) containing 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's 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

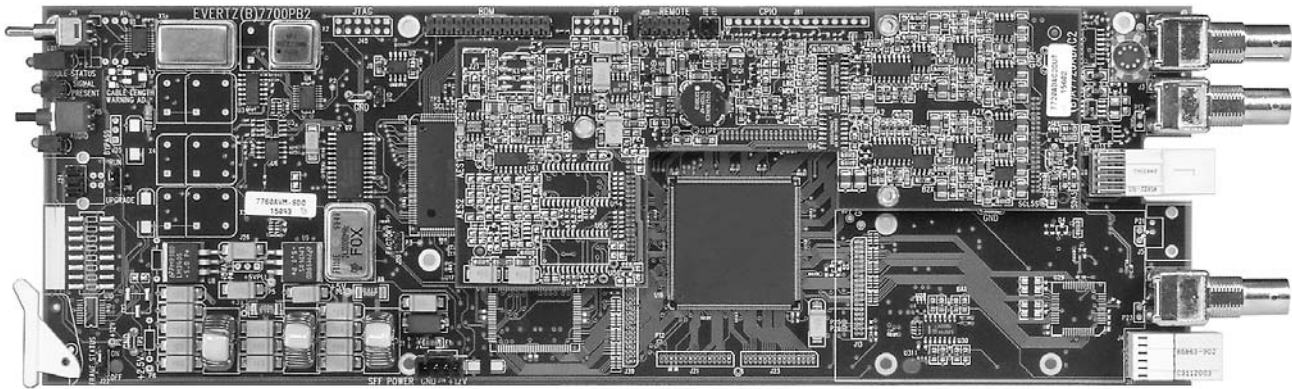
+3RU 3RU Rear Plate for use with 7700FR-C
Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

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

Model 7760CCM-HD

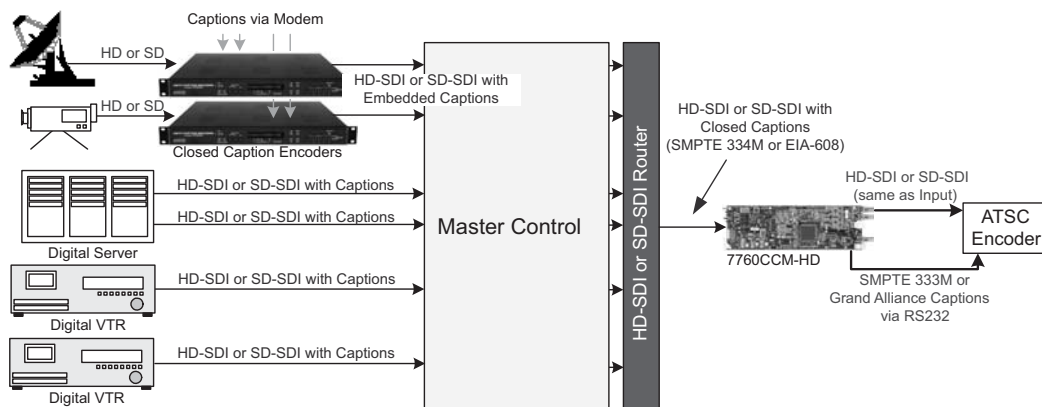


The 7760CCM-HD Closed Caption card is a EIA608 / EIA708 translator and extends the signal monitoring capabilities of the Evertz monitoring product line by focusing on closed captioning (EIA-608 & EIA-708) and Extended Data Service (XDS). The 7760CCM-HD has the capability to translate EIA608 captions 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

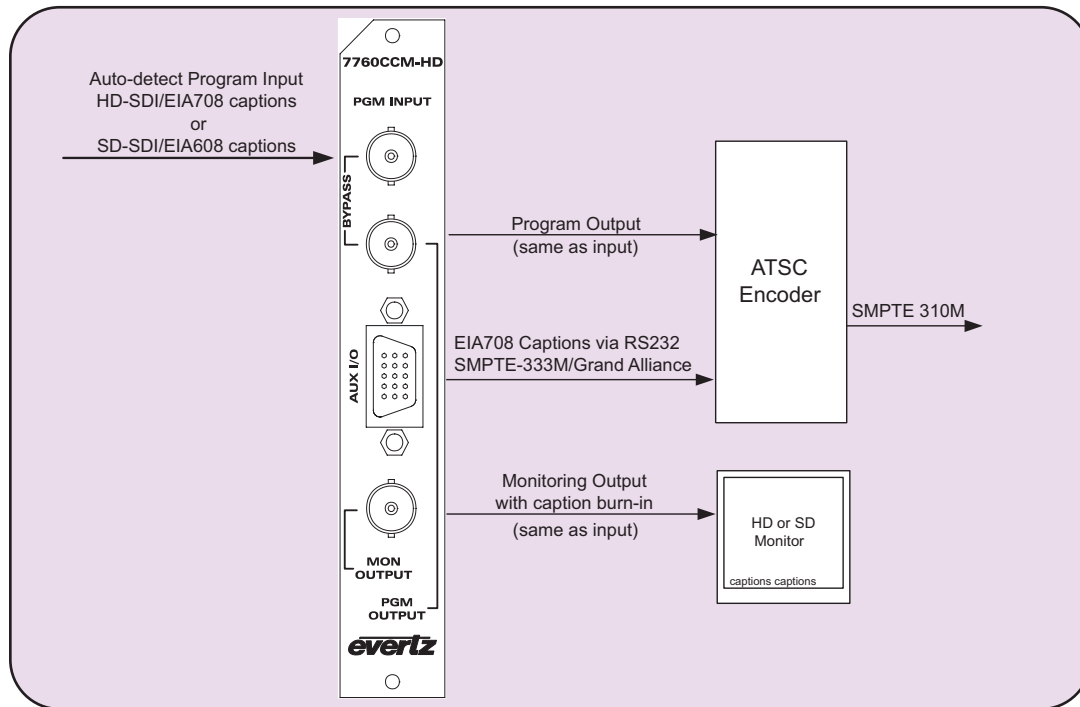


Features

- 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

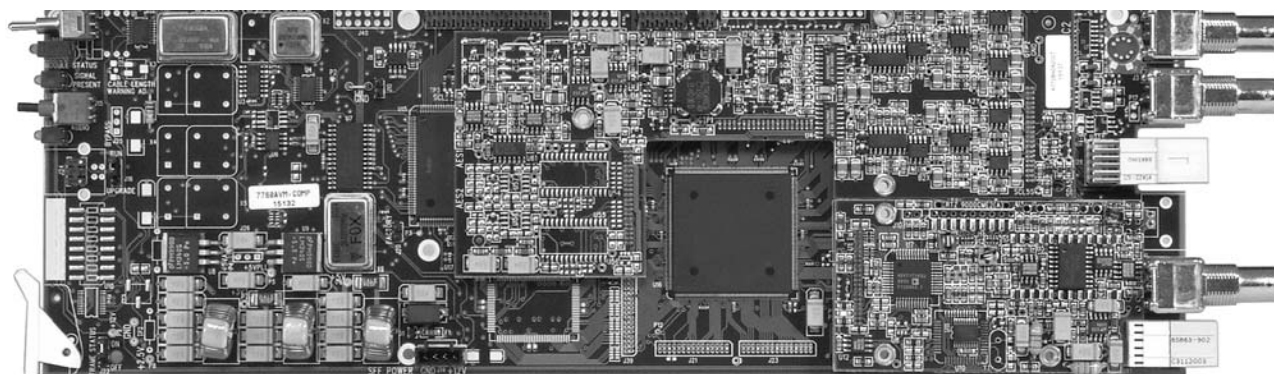
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

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.

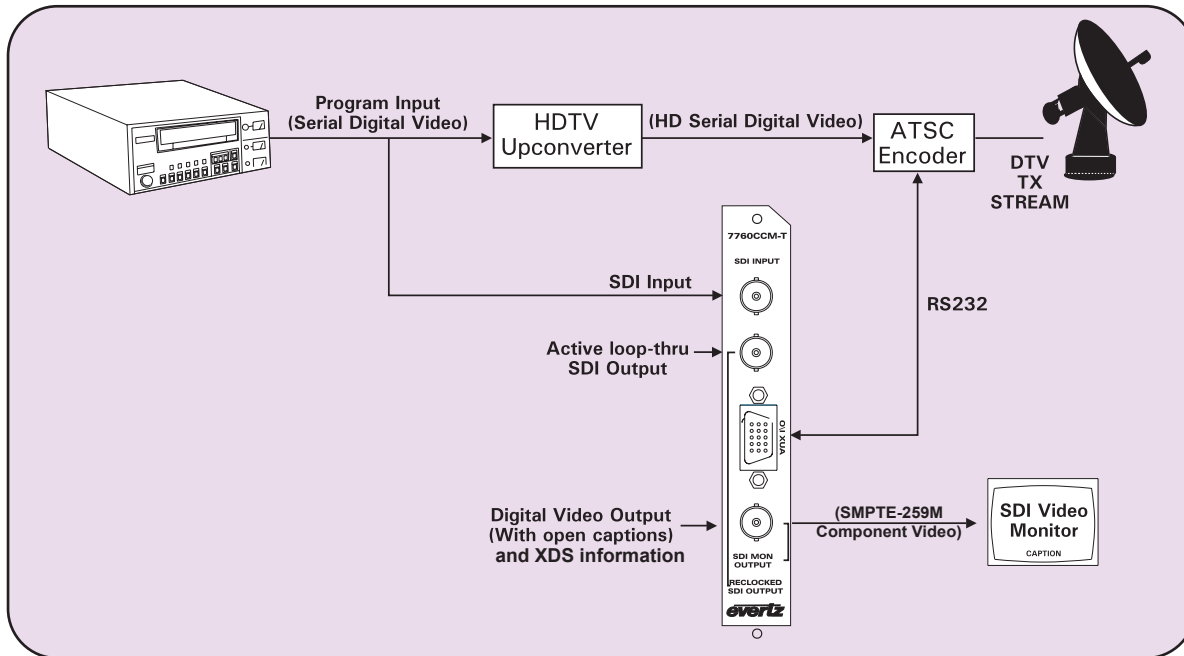
The 7760CCM-T incorporates the fault reporting capabilities inherent in the AVM product line. There are four user-configurable fault alerts that are triggered upon loss of video, loss of CC waveform, parity errors, field inversions, control codes and invalid XDS parameters. The 7760CCM-T is also VistaLINK™-enabled, offering remote monitoring, control and configuration capabilities.

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
Connector: 1 BNC per IEC 60169-8 Amendment 2
Termination: 75Ω
Equalization: Automatic >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:
 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

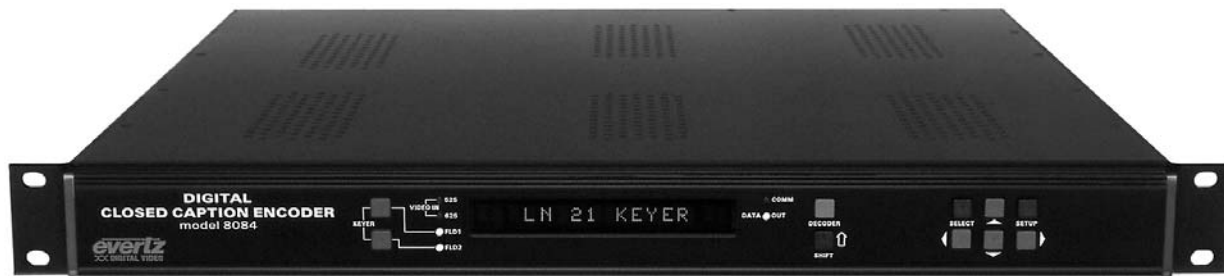
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

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

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), 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".

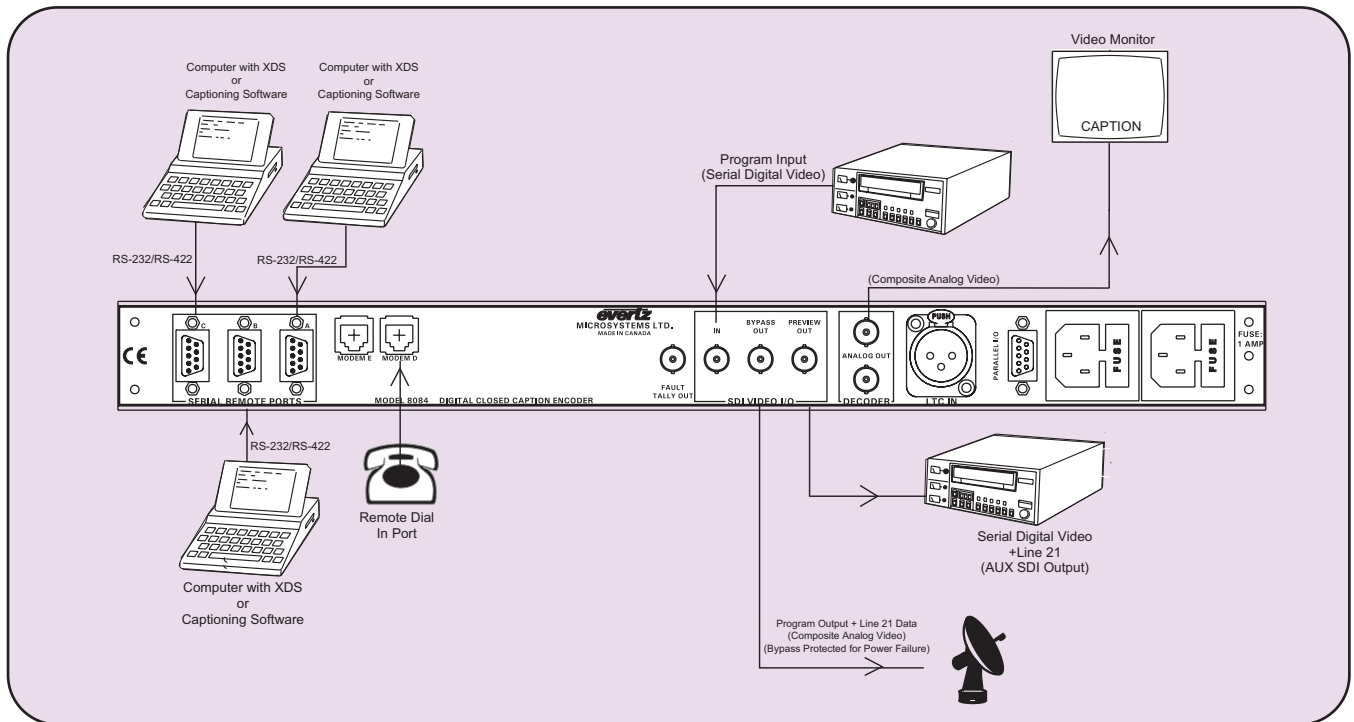
The built-in bypass relay, fault reporting output and optional redundant power supply ensure robust operation. The analog monitor output displays visible captions from any data channel, including many XDS packet types.

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 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:

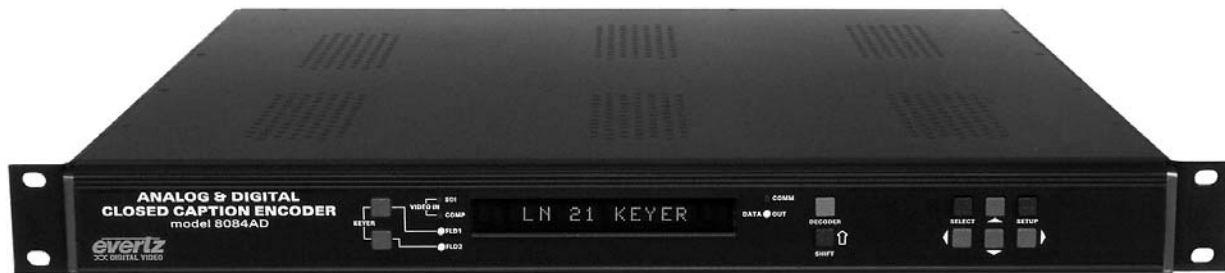
| | |
|-------------|---------------------|
| 8084 | SDI Caption Encoder |
|-------------|---------------------|

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), 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".

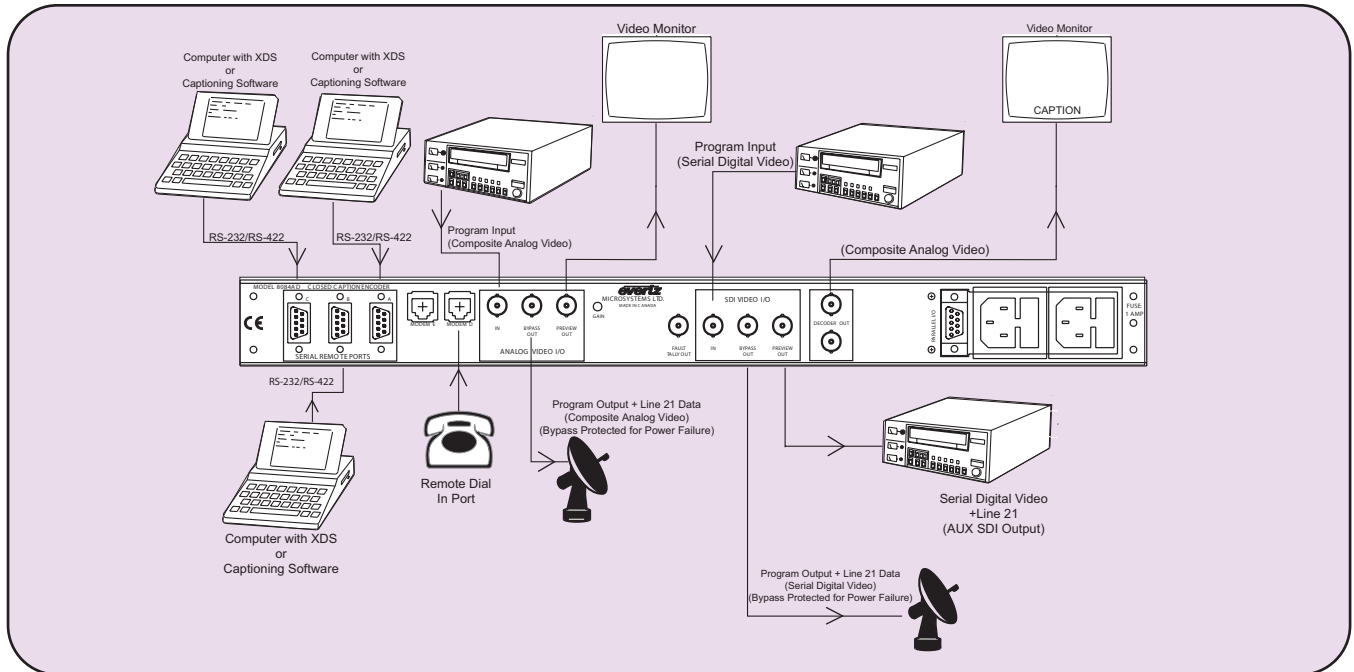
Built-in bypass relays on both video paths, a fault reporting output and an optional redundant power supply ensure robust operation. Two separate analog monitor outputs display visible captions from any data channel, including many XDS packet types.

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 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:

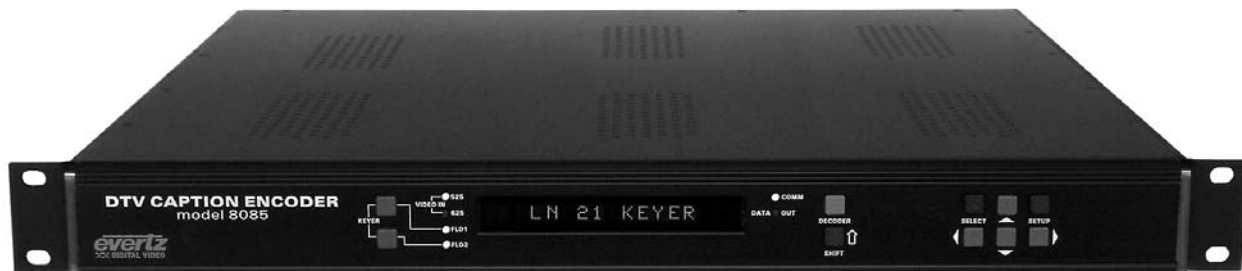
| | |
|---------------|---------------------------------|
| 8084AD | Analog & SDI Captioning Encoder |
|---------------|---------------------------------|

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".

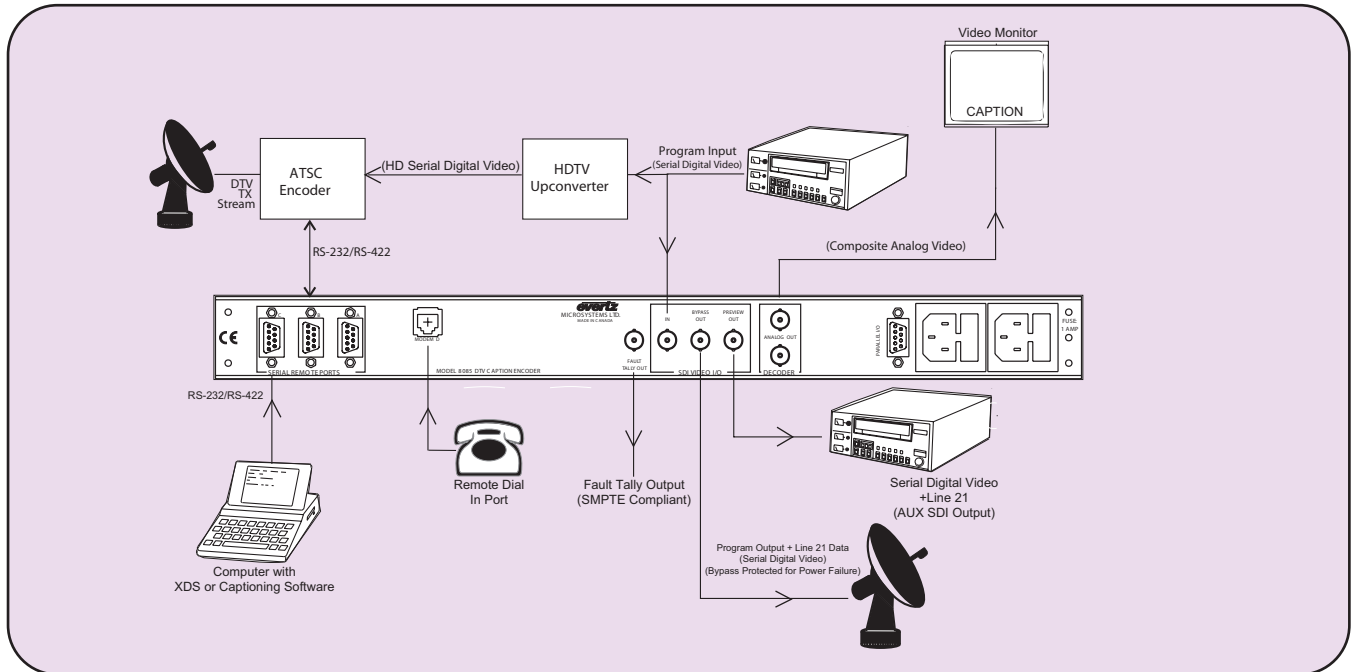
The built-in bypass relay, fault reporting output and optional redundant power supply ensure robust operation. The analog monitor output displays visible captions from any data channel, including many XDS packets.

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 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, 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 |
|-----------------|--|

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

Ordering Information:

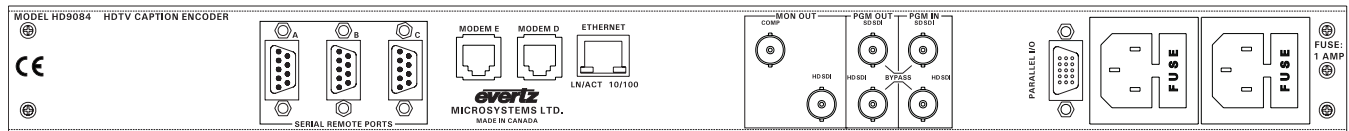
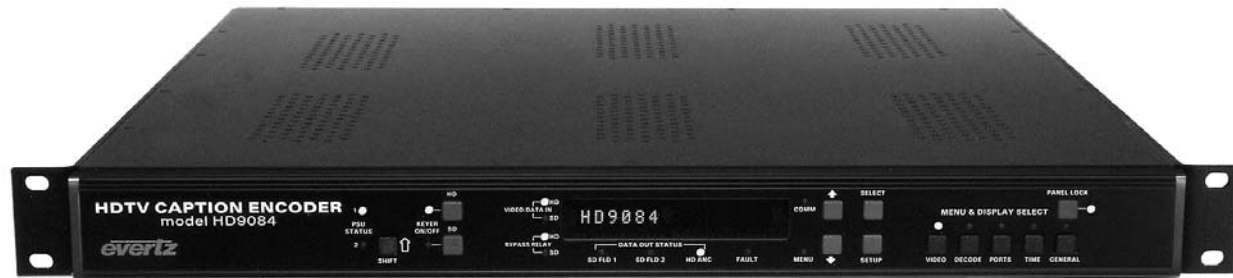
| | |
|-------------|---|
| 8085 | Combo SDI Caption Encoder & EIA608 to EIA708 Translator |
|-------------|---|

Ordering Options:

| | |
|-------------|------------------------|
| +2PS | Redundant power supply |
|-------------|------------------------|

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:

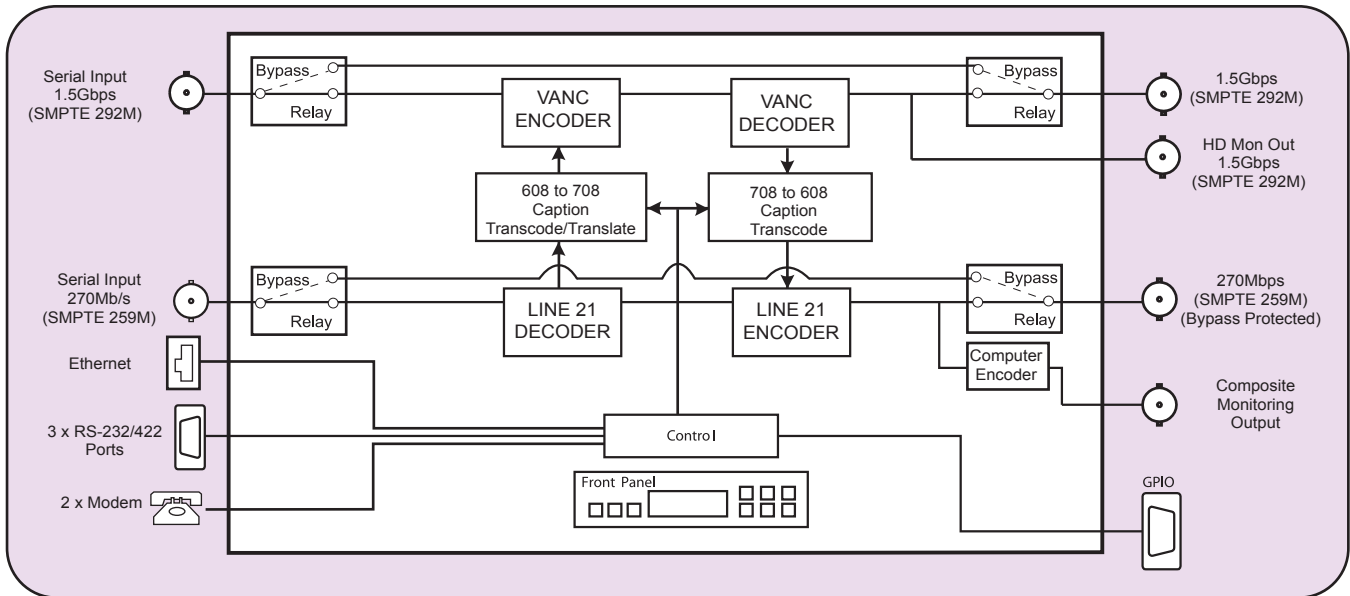
- * Simultaneous encoding of new EIA608/EIA708 captions onto SD and HD video
- * Encoding of Extended Data Service Packets into field 2 of the SD-SDI signal including Transmission Signal Identifier (TSID), Copy Generation Management System (CGMS-A), V-Chip, Station Name, etc.
- * Transcoding and translation 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 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 1694 (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 1694 (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:

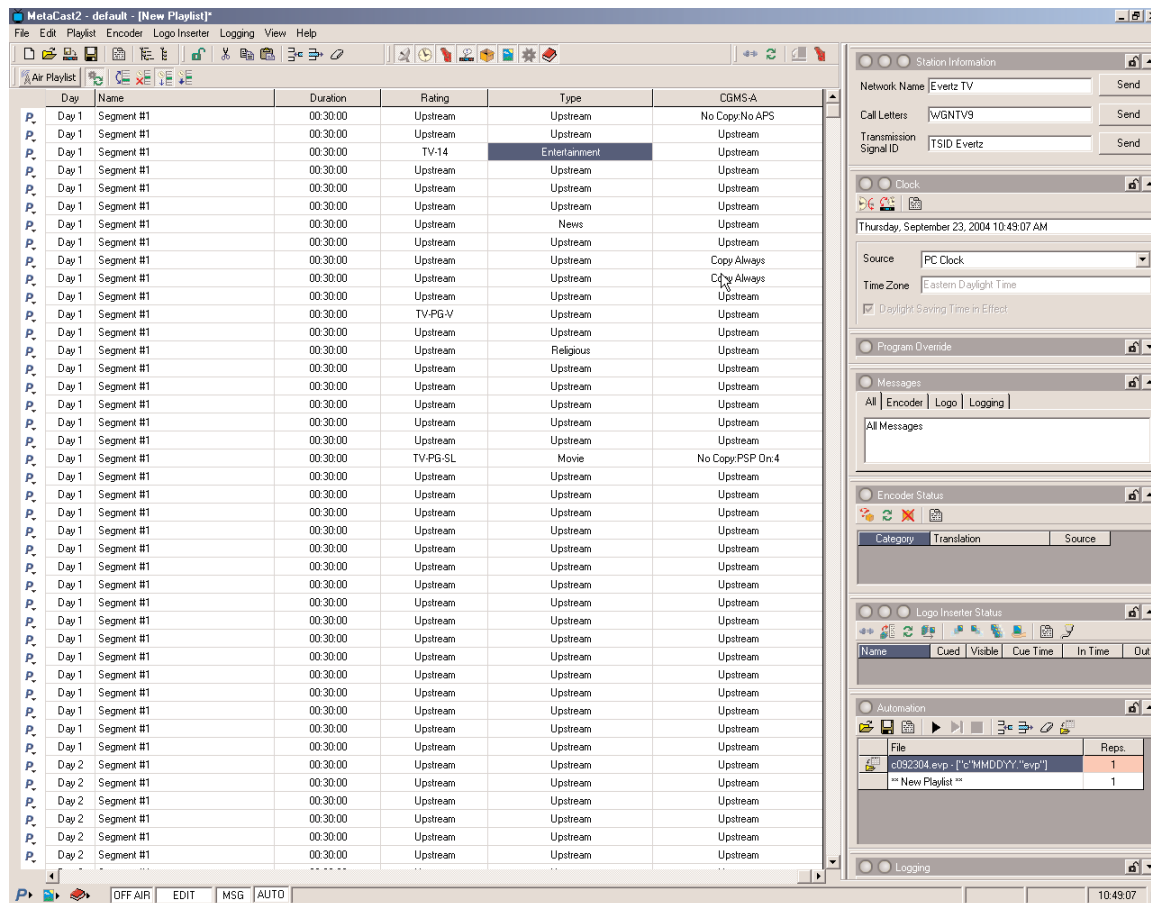
HD9084

HD DTV Caption Encoder

Ordering Options:

+2PS Optional redundant power supply
+MDM2 Second internal modem option

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.

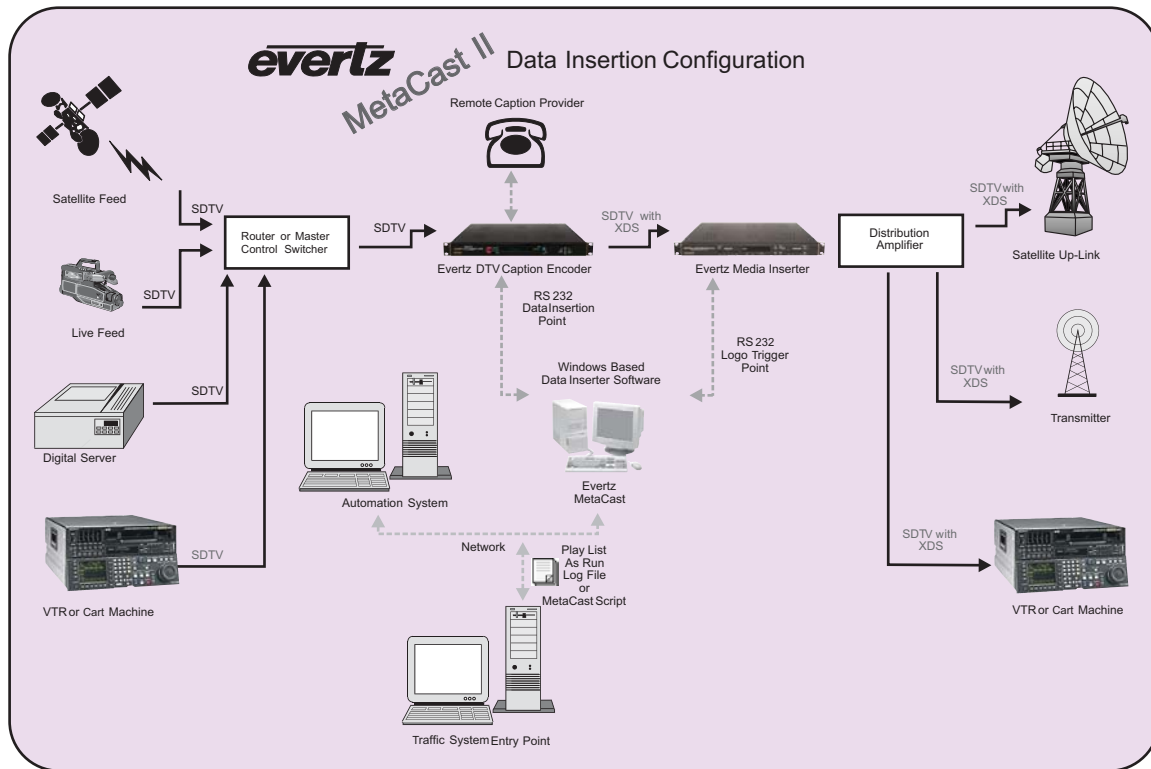
Setup

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

ProCAP Offline Captioning

The ProCAP Authoring System is a complete offline non-linear caption preparation system offering a cost-effective and flexible solution.

Player

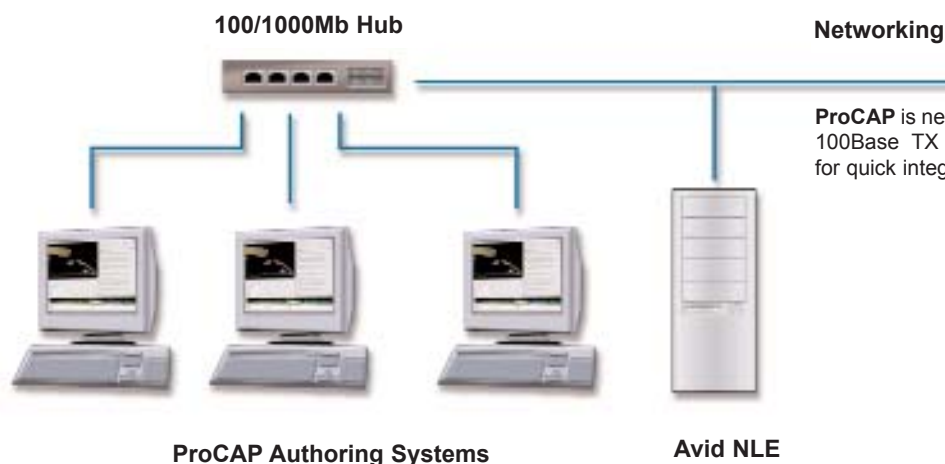
Using Windows® XP multimedia subsystem for playback, ProCAP adds caption and subtitle preview over video for WYSIWYG display, timing and positioning. Also supports Avid Quicktime reference clips.



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 is network ready supporting 100Base TX and Gigabit Ethernet for quick integration and setup.

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

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.

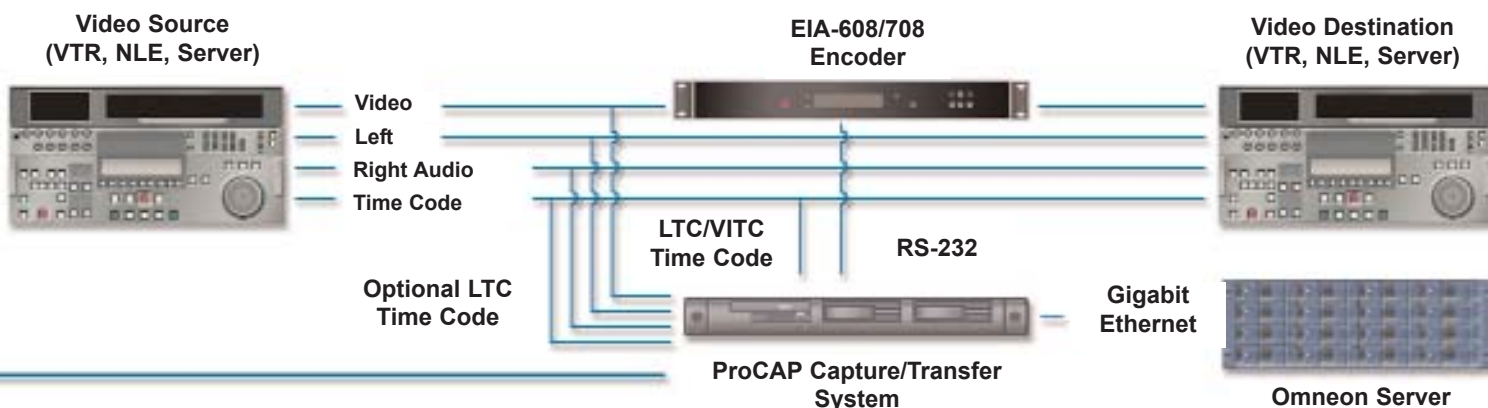
ProCAP Offline Captioning

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

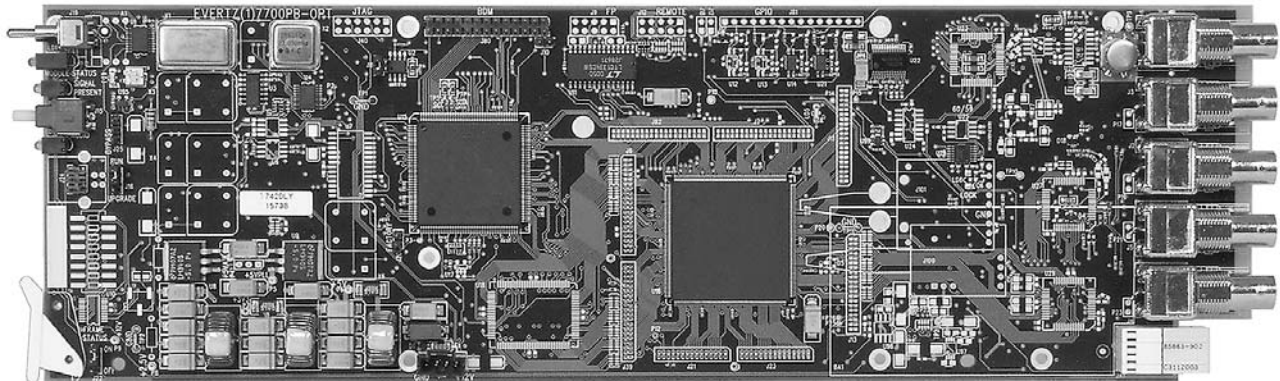
- Full customization of keyboard shortcuts and macros to suit the user
- WYSIWYG control over caption placement through drag-and-drop and shortcuts
- Resizeable player window. Windows® XP allows for multi-monitor display
- Timeline provides a pictorial view of caption reading rates, and any conflicts 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 |

SDI Video Delay

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.

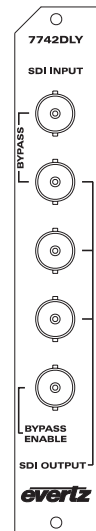
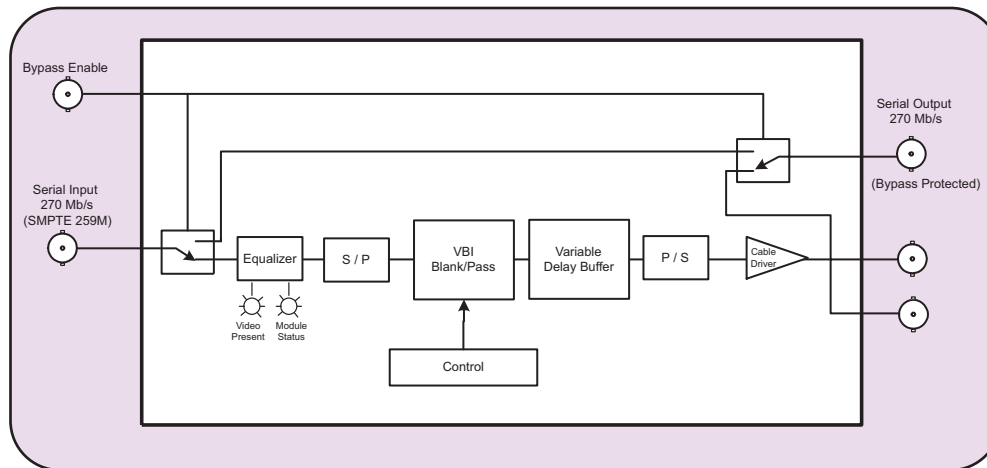
With the broadcast environment in mind, the module features bypass relay protection on one output.

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 nsec (22 samples) |
| Maximum Delay: | 525 line: 70 frames, 625 line: 59 frames (approx 2.3 seconds) |

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

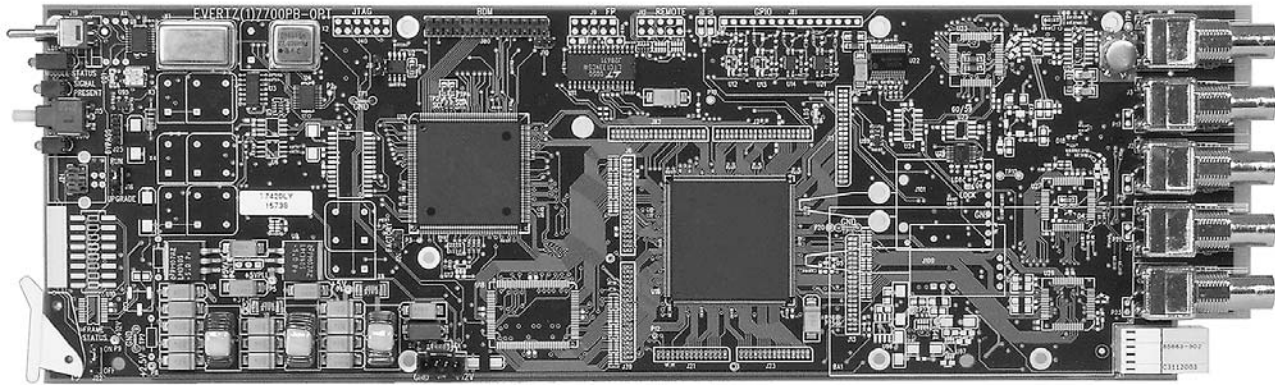
| | |
|-------------|---|
| +3RU | 3RU Rear Plate for use with 7700FR-C Multiframe |
| +1RU | 1RU Rear Plate for use with 7701FR Multiframe |
| +SA | Standalone Enclosure Rear Plate |

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.

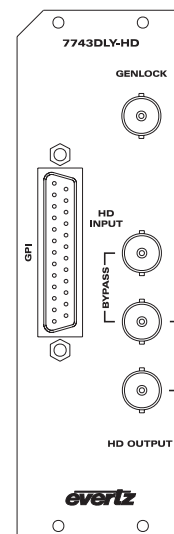
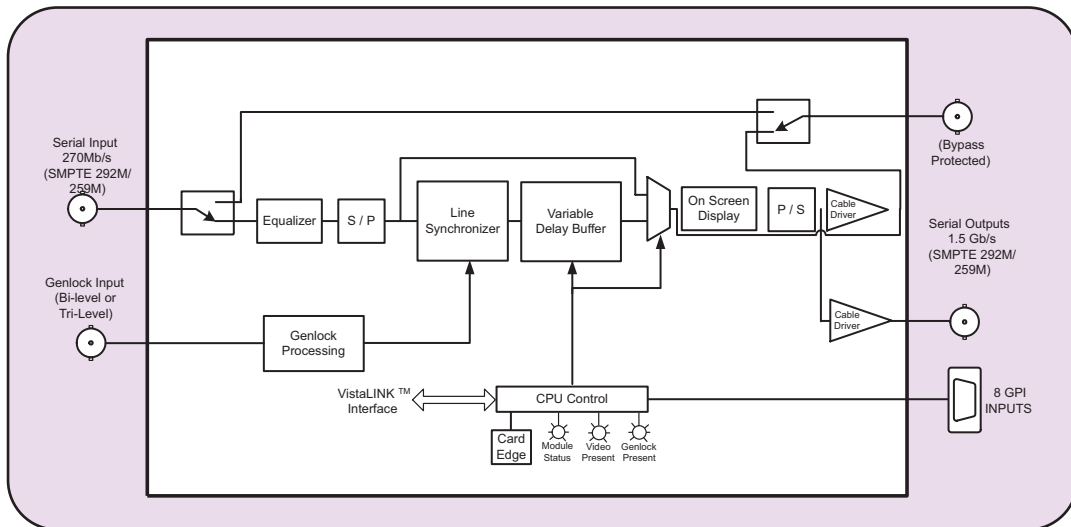
The 7743DLY-HD is capable of up to 3.2 seconds of delay for HD and up to 16.5 seconds of delay for SD.

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 or 9000NCP 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 or equivalent cable
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 \pm 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 \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

Genlock Input:

Type: HD Tri-level Sync, (See Table 3 in manual)
 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)

Functional:

Minimum Delay: 65.5 msec (1770 samples) for standard definition,
 37.7 msec (2800 samples) for high definition
Maximum Delay: approx. 16.5 sec for standard definition, approx.
 3.2 sec 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

Accessories:

7700FC VistaLINK™ Frame Controller
9000NCP VistaLINK™ General Purpose Network Control Panel

Ordering Options

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

Rear Plate Suffix

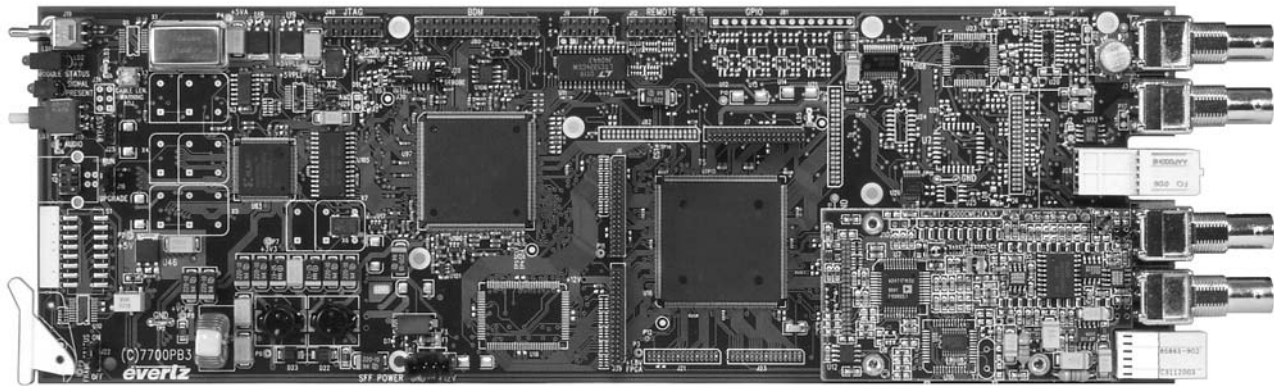
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

Enclosures:

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

SDI 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

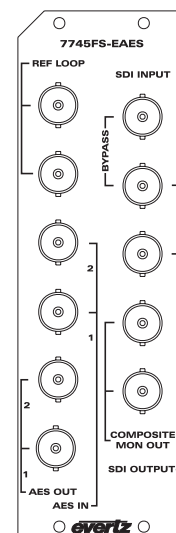
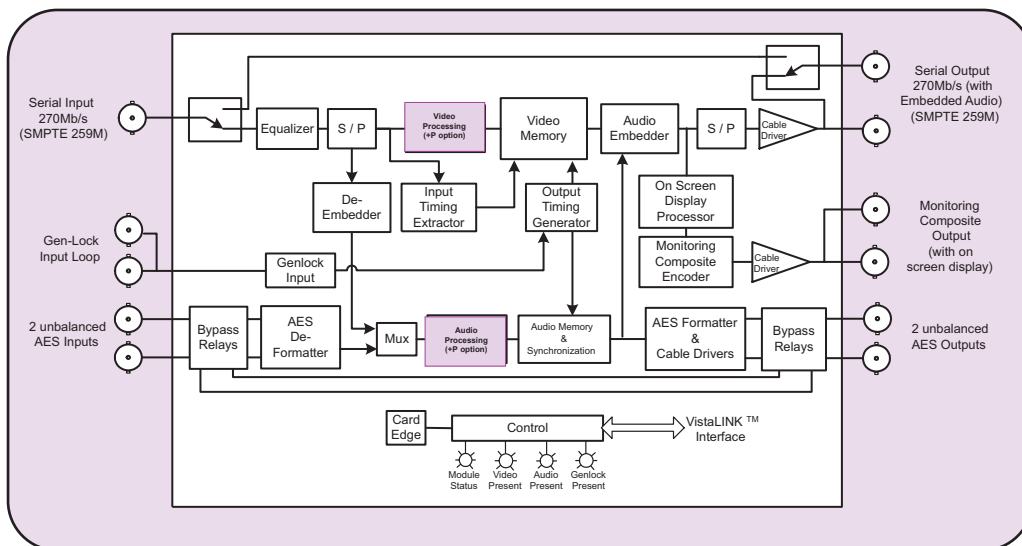
- Synchronized audio is output as 2 AES signals and embedded onto the SDI video output
- AES outputs bypass relay protected on power loss
- Selected audio source is delayed equivalent to the video delay through the synchronizer
- Additional, user selected, audio delay may be added to, or removed from 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 or 9000NCP 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
Equalization: Automatic 300m @ 270Mb/s Belden 8281(or equivalent)
Return Loss: >15dB to 270MHz

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 ± 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: 75Ω
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 μs to 1 frame 3 μs
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
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

9000NCP

VistaLINK™ General Purpose Network Control Panel

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

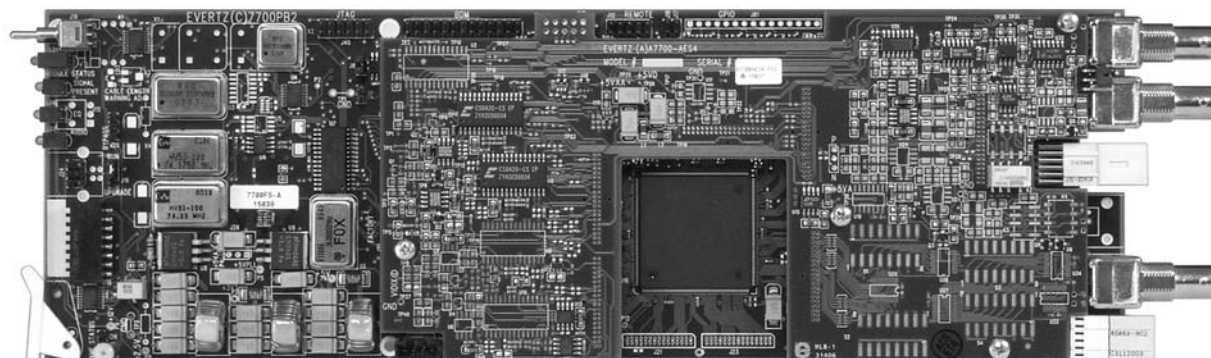
Enclosures:

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

Note: This module not available in a standalone enclosure

HD Frame Synchronizer

Model 7746FS-HD



The 7746FS-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 7746FS-HD is currently available in two versions to suit various application requirements.

| Model | Synchronizes | | | AES Audio | |
|-----------------|--------------|------------------------|-----------|-----------|---------|
| | Video | Embedded Audio | AES Audio | Inputs | Outputs |
| 7746FS-HD | Yes | Demux and mux 2 Groups | No | - | -- |
| 7746FS-EAES4-HD | Yes | Demux and mux 2 Groups | 4 | 4 | 4 |

On the 7746FS-HD version the video and any embedded audio present is synchronized. (There are no audio sample rate converters on the 7746FS-HD) 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. The 7746FS-EAES4-HD version can also adjust audio parameters such as gain, mixing stereo pairs into monaural and reassignment of audio channels within the groups.

The card functions can be controlled from the card edge or through the VistaLINK™ interface.

Features

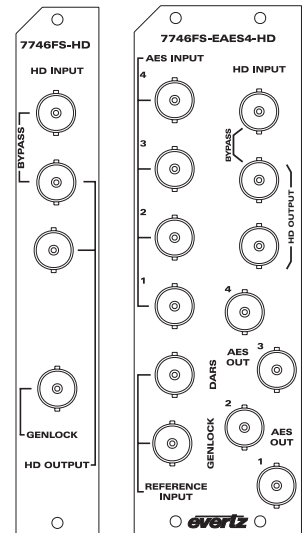
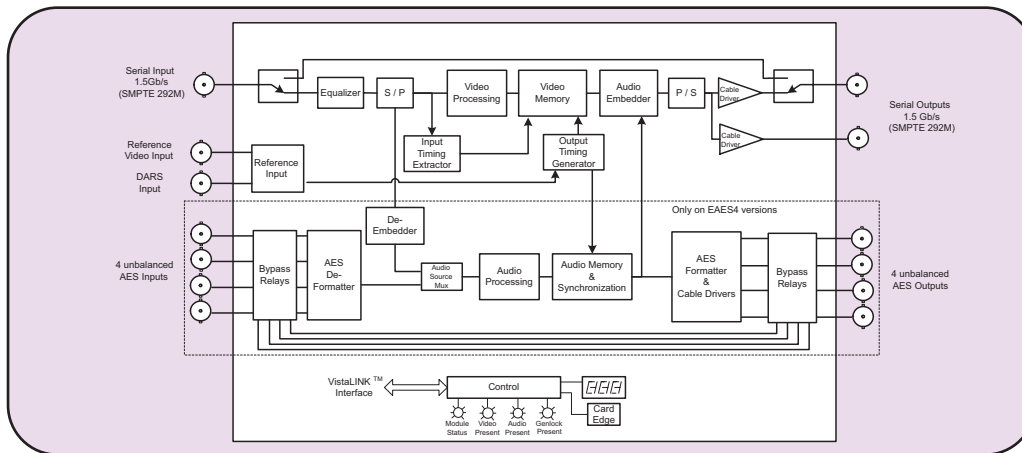
- Synchronizes 1080i/60, 1080i/59.94, 1080i/50, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94, 480p/59.94, 525i/59.94 or 625i/50
- Minimum video input to output delay - 3 lines
- Maximum video input to output delay - 1 frame plus 3 lines
- 12 additional frames of delay can be added for interlaced video 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) - available only for HD video standards at the time of writing.
- 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
- VistaLINK™ - enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO or 9000NCP 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
- 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 within the embedded groups

HD Frame Synchronizer

7746FS-HD Block Diagram



Specifications

Serial Video Input:

Standard: DIP switch selectable
1.485 Gb/sec 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: BNC per IEC 60169-8 Amendment 2.
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

Audio (7746FS-EAES4-HD only)

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:
7746FS-HD 12 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 7746FS-HD
2 for 7746FS-EAES4-HD

7701 frame mounting:

Number of slots: 1 for 7746FS-HD
1 for 7746FS-EAES4-HD

Ordering Information:

7746FS-HD HD Frame Synchronizer
7746FS-EAES4-HD HD Frame Synchronizer with 4 AES audio pairs and embedded audio processing & AES Support

Ordering Options and Accessories:

7700FC VistaLINK™ Frame Controller
9000NCP VistaLINK™ General Purpose Network Control Panel

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

Model 9542



The Evertz 9542 Video Delay Processor is a full function SDI video delay unit 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.

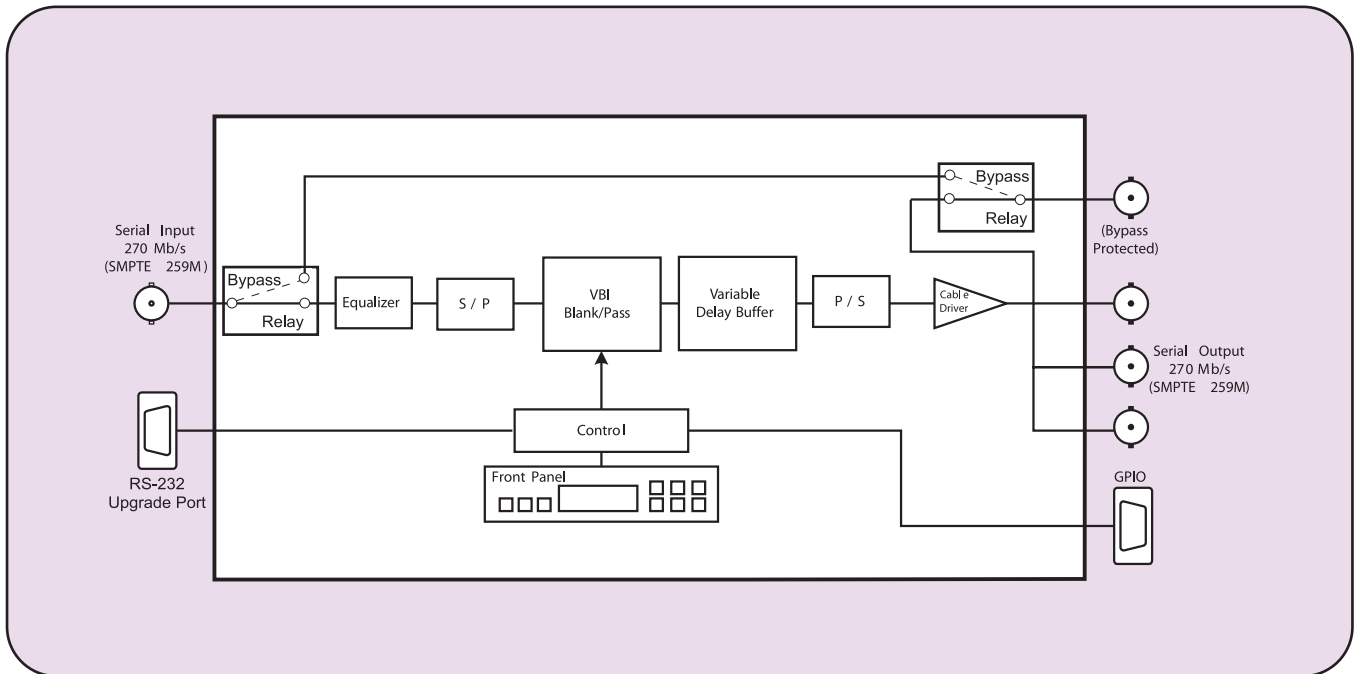
The unit will delay all VBI and Ancillary data including embedded audio along with the video. The Model 9542 is capable of delaying video up to 2.3 seconds. The Video Delay can be set in frames, lines and samples or in seconds.

With the broadcast environment in mind these units feature bypass relay protection for the video signal and can be ordered with an optional redundant power supply.

Features

- Automatic detection of 525 and 625 line SDI video on the input
- Full signal delay capability involving VBI and ANC Data
- Up to 2.3 seconds of programmable video delay
- Delay programmable in video units (frames, lines and samples) or as time units (seconds)
- Bypass relay for program video path - activated on unit failure or from front panel
- User definable presets for commonly used settings
- Easy to operate front panel menu system to program delay settings and VBI line blanking
- Front panel menu system to program delays & VBI blanking
- Front panel lock out control
- Optional redundant power supply

9542 Block Diagram



Specifications

Serial Digital Video Input:

Standard: Serial component SMPTE 259M-C
Equalization: Automatic up to 200m with Belden 8281 (or equivalent)
Connector: BNC per IEC 60169-8 Amendment 2
Return Loss: > 15 dB up to 270 Mb/s

Serial Video Output With Embedded Audio

Number of Outputs: 4 (1 is bypass relay protected)
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

Serial Remote:

RS-232 interface, 9 pin "D" connector for upgrading firmware

Functional:

Minimum Delay: 815ns (22 samples)
Maximum Delay: 525 line: 70 frames, 626 line: 59 frames (approx 2.3 seconds)

GPIO:

Number of Inputs: 3
Number of Outputs: 1
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 9 pin "D"

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:

9542 SDI video delay (up to 2.3 sec. delay)

Ordering Options:

+2PS Redundant power supply

1a

2

3

4

5

6

7

8

9

10

11

12

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 from a maximum of 24 - 40 seconds for HDTV or SDTV. This max delay can be allocated to primary and secondary paths as allocated by the user. (typically it is set for max 12 sec primary & max 12 sec secondary.

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:

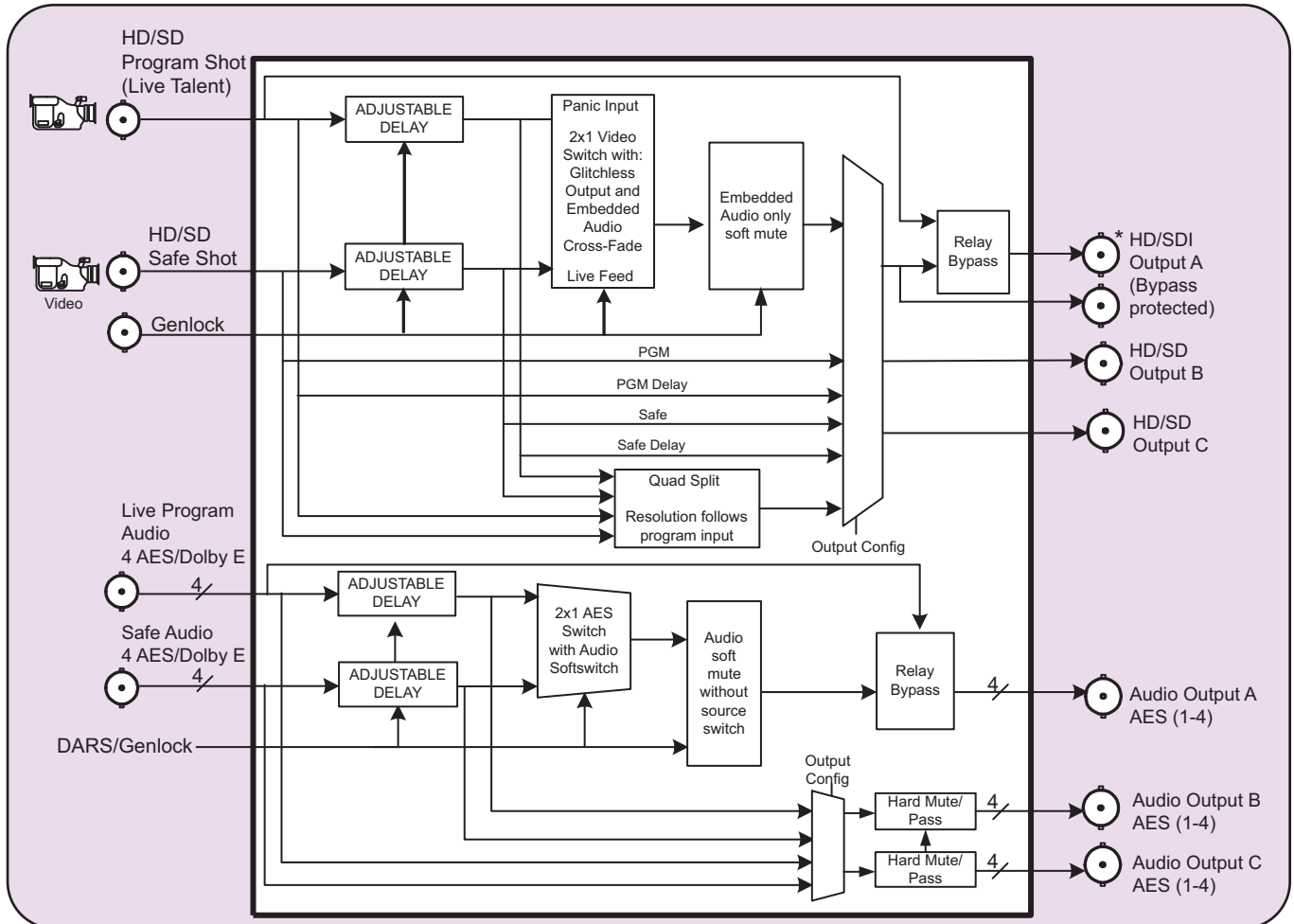
- Main program
- Delayed Main program
- Safe input
- Delayed safe input

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
- 24 - 40 seconds of HD or SD delay
- 24 - 40 seconds of 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 Complies with FCC Part 15, Class A EU EMC Directive |

EMI/RFI:

Physical:

19.00" W x 18.75" D x 3.50" H
(483mm) x (477mm) x (89mm)

Functional:

Basic Unit:

Maximum Delay:

HD/SD delay 24 seconds

Ordering Information:

HDSD9545DLY-PRO

HD/SD Video and Audio Delay/Profanity Protection System with 24 seconds of delay

HDSD9545DLY-PRO-HD40

HD/SD Video and Audio Delay/Profanity Protection System with 40 seconds of delay

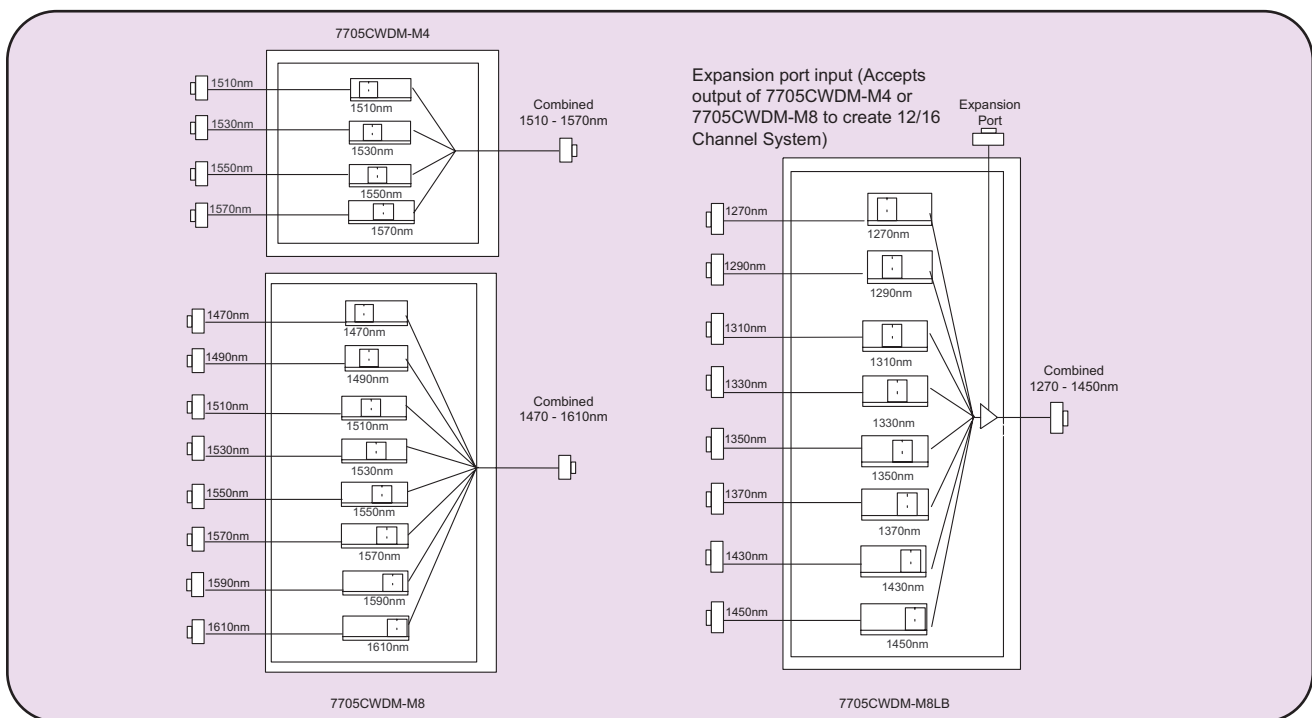
Coarse WDM Optical Modules

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's standard 3RU or 1RU Multiframe

7705CWDM Block Diagrams



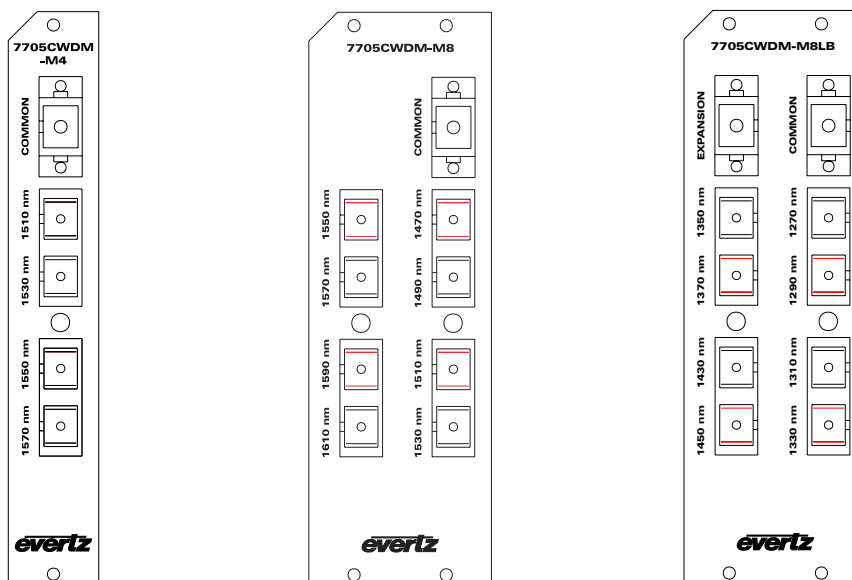
Applications

- 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 μ m core / 125 μ m 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

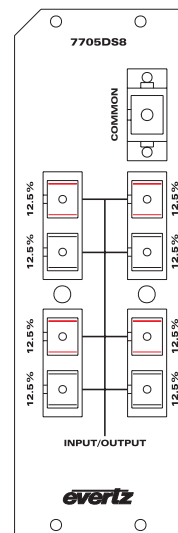
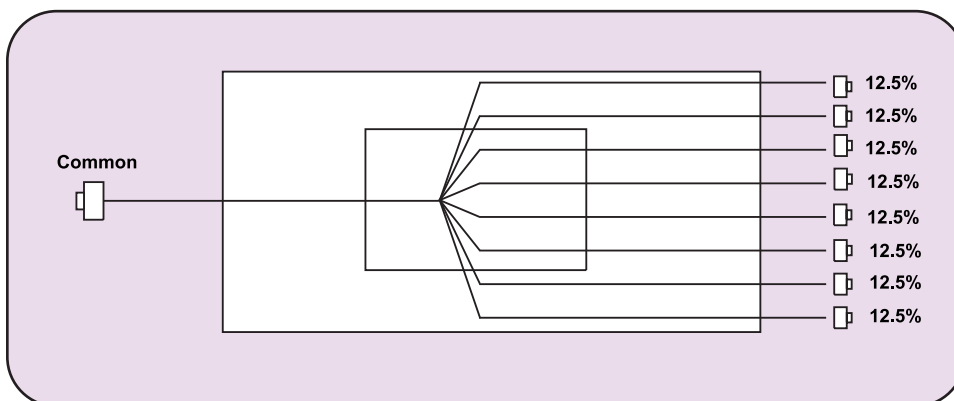
Eight Channel Optical Splitter

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-CMultiframe |
| +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

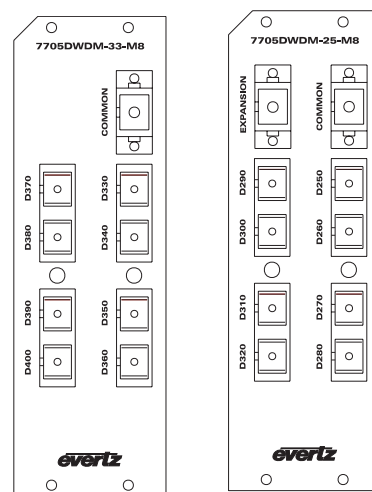
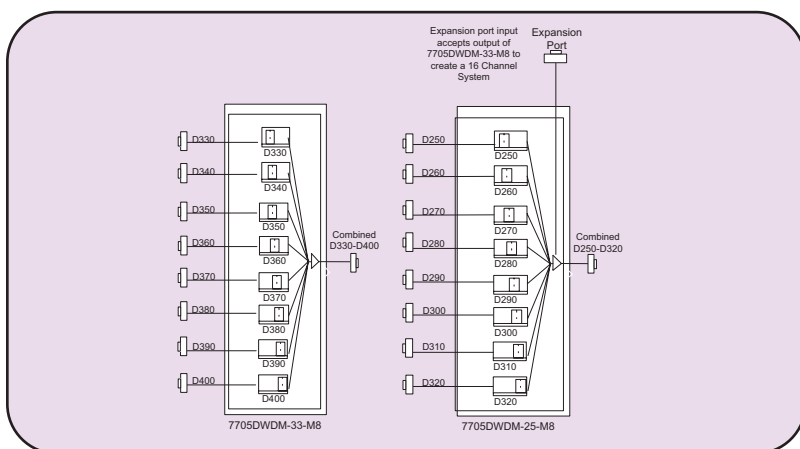
Model 7705DWDM

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: | 0.8nm (100 Ghz) |
| Passband @ 0.5dB: | ± 0.11nm |
| Channel Uniformity: | < 1.5dB |
| Isolation Adjacent Channel: | > 30dB |
| Directivity: | > 50dB |
| Fiber Size: | 9 µm core / 125 µm 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)

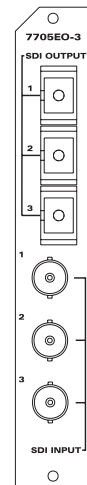
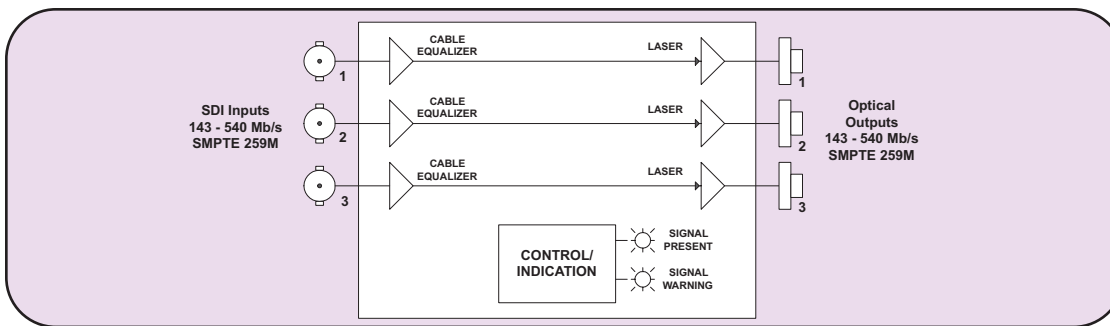
Outputs:

- 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 \pm 1dBm

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:

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

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

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 or a 3RU frame which will hold up to 15 modules

Input:

- Automatic input cable equalization to >300m @270Mb/s (Belden 8281)

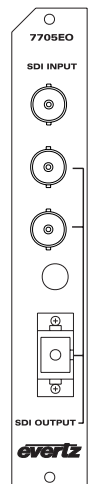
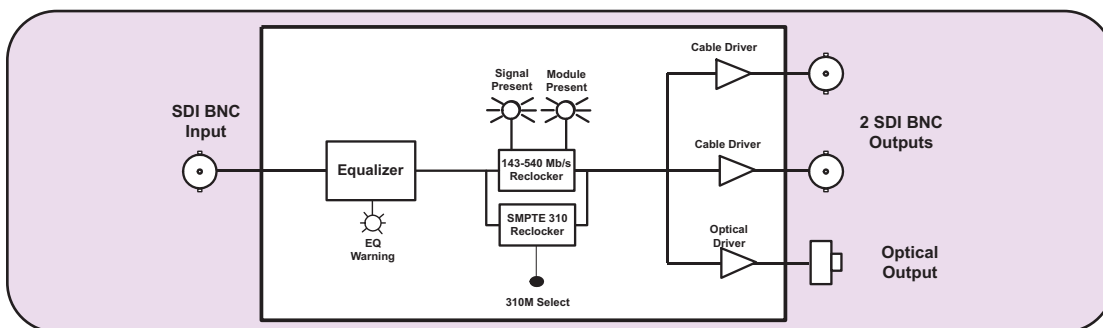
Outputs:

- 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
1550nmDFB: 0 dBm ± 1dBm

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:

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

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

For standalone applications see 2400 series fiber modules

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 or a 3RU frame that will hold up to 15 modules

Input:

- Automatic input cable equalization to 130m (Belden 1694A)

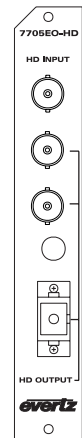
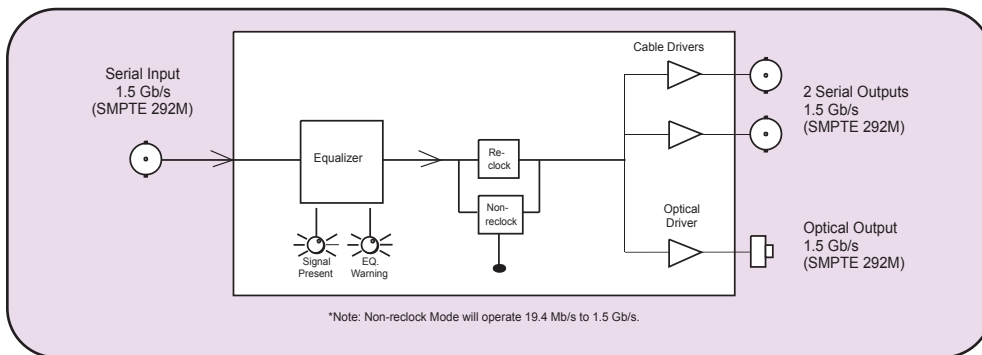
Outputs:

- 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



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 ± 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 ± 1dBm
1310nm/1550nm DFB 0 dBm ± 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

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

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

For standalone applications see 2405 series fiber modules

70/140MHz IF Fiber Receiver

Model 7705IFR

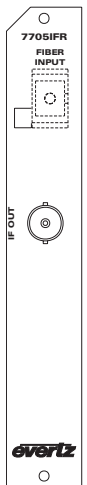
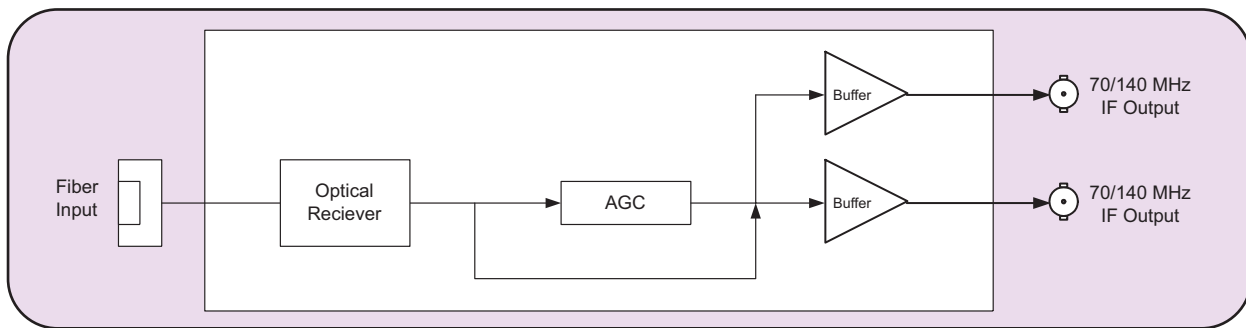
The 7705IFR is a fiber optic receiver for 70/140 MHz IF signals. The 7705IFR accepts a fiber optic input from the companion 7705IFT and provides two 70/140 MHz IF output signals via BNCs.

The 7705IFR 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

- 10-200MHz bandwidth
- Protocol transparent - receives all video, audio and data modulation formats
- Two IF outputs for extra signal distribution or monitoring functions
- User selectable IF output power
- 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 connector options
- Fully hot swappable from front of frame

7705IFR Block Diagram



Specifications

RF Output:

Connector: BNC
I/O Impedance: 75 or 50 Ω
Return Loss: 15dB (min)
Carrier to Noise: 40dB @ 1MHz BW / 5dB Optical Loss (min)
Output Signal Range: AGC:
-20dBm RF output power with -5dBm to -10dBm optical input power

7705IFT Condition Manual:

AGC mode with -20 to -35dBm input RF power
-20dBm RF output power with -10dBm optical input power

7705IFT Condition

AGC mode with -20 to -35dBm input RF power

Intermodulation Products: -40dBc (max)

Optical Input:

Number of inputs: 1
Connector: Female SC/PC, ST/PC, FC/PC
Maximum Input Power: 0dBm
Maximum Optical System Attenuation: 5dB

Electrical:

Voltage: +12VDC
Power: 5 Watts
EMI/RFI: Complies with FCC regulations for class A devices
EU EMC directive

Physical:

Number of slots: 1

Ordering Information:

Note: 75 Ω I/O impedance ships standard

7705IFR

70/140 MHz 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

Impedance Suffix

+50

50 Ω I/O Impedance

Connector Suffix

+SC

SC/PC

+SCA

SC/APC (Angle Polished)

+ST

ST/PC

+FC

FC/PC

+FCA

FC/APC (Angle Polished)

+F75

75 Ω , 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 Receiver

Model 7705IFRA

(Replaces the 7705IFR & offers improved performance and wider operating range)

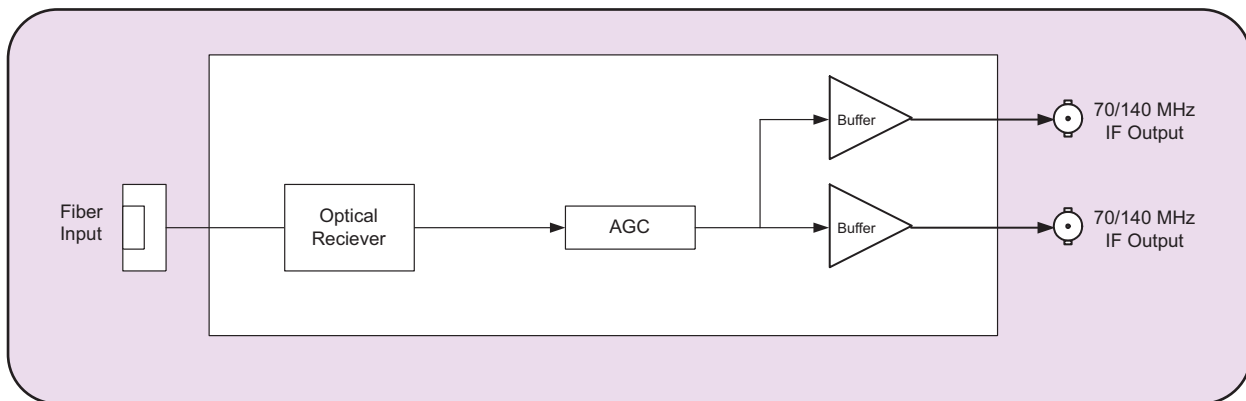
The 7705IFRA is a fiber optic receiver for 70/140 MHz IF signals. The 7705IFRA accepts a fiber optic input from the companion 7705IFTA and provides two 70/140 MHz IF output signals via BNCs.

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 -40dB @ 1MHz |
| Carrier to Noise: | |
| Output Signal Level: | -10dBm constant (within AGC range) |
| AGC: | -5 to -65 (depends on RF input level & optical loss) |
| Manual: | |
| 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**

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 |
| +SCA | SC/APC (Angle Polished) |
| +ST | ST/PC |
| +FC | FC/PC |
| +FCA | 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 7705IFT

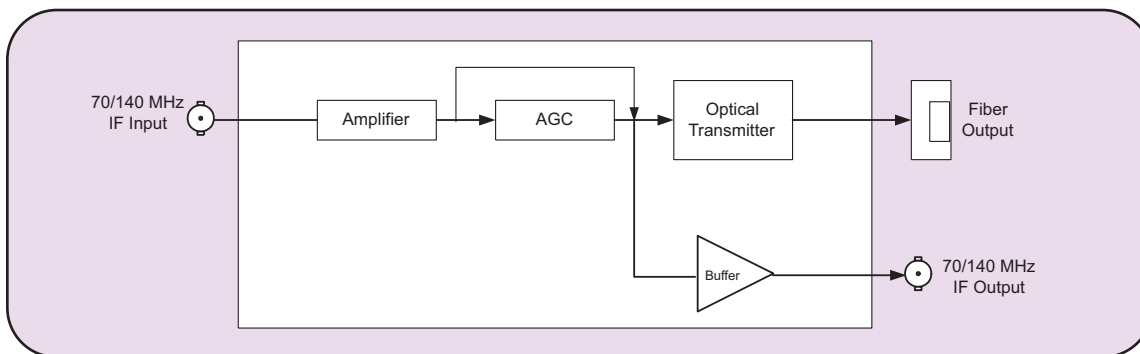
The 7705IFT is a fiber optic transmitter for 70/140 MHz IF signals. The 7705IFT accepts one 70/140 MHz coaxial input and provides a fiber optic output signal at 1310nm. An IF BNC output is provided for monitoring or further signal distribution.

The 7705IFT 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

- Operation up to 10km
- 10-200 MHz bandwidth
- Protocol transparent - transmits all video, audio and data modulation formats
- Automatic gain control on IF input
- Additional IF BNC output
- Supports single-mode and multi-mode fiber optic cable
- Available in SC/PC, ST/PC, FC/PC connector options
- Fully hot swappable from front of frame

7705IFT Block Diagram



Specifications

IF Input:

| | |
|---------------------|--------------------------------------|
| Connector: | 1 BNC per IEC 60169-8 Amendment 2 |
| I/O Impedance: | 75 or 50Ω (See Ordering Information) |
| Return Loss: | 15dB |
| Input Signal Range: | |
| AGC | AGC hold range -20 to -35dBm |
| Manual | Max input -15dBm |

IF Output:

| | |
|----------------|---|
| Connector: | 1 BNC per IEC 60169-8 Amendment 2 |
| I/O Impedance: | 75 or 50Ω (See Ordering Information) |
| Return Loss: | 15dB |
| Output Level: | -25dBm |
| AGC | When input is in AGC range (20 to -35dBm); -20dBm constant |
| Manual | Input level +15dB |

Optical Output:

| | |
|-----------------------|----------------------------|
| Number of outputs: | 1 |
| Connector: | Female SC/PC, ST/PC, FC/PC |
| Operating Wavelength: | 1310nm |
| Optical Power: | |
| 1310nm FP: | 5dBm ± 1dBm |

Electrical:

| | |
|----------|---|
| Voltage: | +12VDC |
| Power: | 4 Watts |
| EMI/RFI: | Complies with FCC Part 15 Class A EU EMC Directive |

Physical:

| | |
|------------------|---|
| Number of slots: | 1 |
|------------------|---|

Ordering Information:

Note: 75Ω I/O impedance ships standard

| | |
|-----------|---|
| 7705IFT13 | 70/140 Mhz IF Fiber Transmitter, 1310 nm, up to 30 Km |
|-----------|---|

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 |
| +SCA | SC/APC (Angle Polished) |
| +ST | ST/PC |
| +FC | FC/PC |
| +FCA | 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

Model 7705IFTA

(Replaces the 7705IFT & offers improved performance and wider operating range)

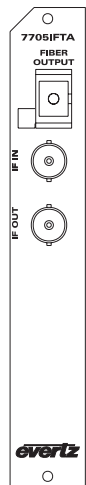
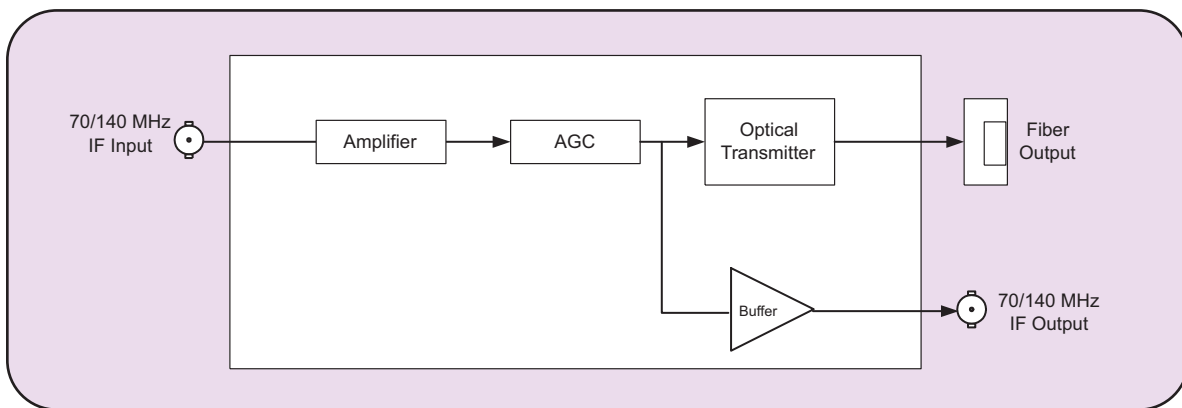
The 7705IFTA is a fiber optic transmitter for 70/140 MHz IF signals. The 7705IFTA accepts one 70/140 MHz coaxial input and provides a fiber optic output signal at 1310nm. An IF BNC output is also provided for monitoring or further signal distribution.

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)
(Input signal) + 15dB

Manual mode:
Intermodulation Products: -50dBc (-10dBm RF in, AGC 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

Ordering Information: 70/140MHz IF Fiber Transmitter
Note: 75Ω I/O impedance ships standard

7705IFTA13 1310nm FP Laser, Medium Haul (<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
+SCA SC/APC (Angle Polished)
+ST ST/PC
+FC FC/PC
+FCA 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

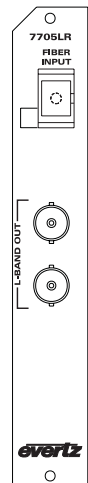
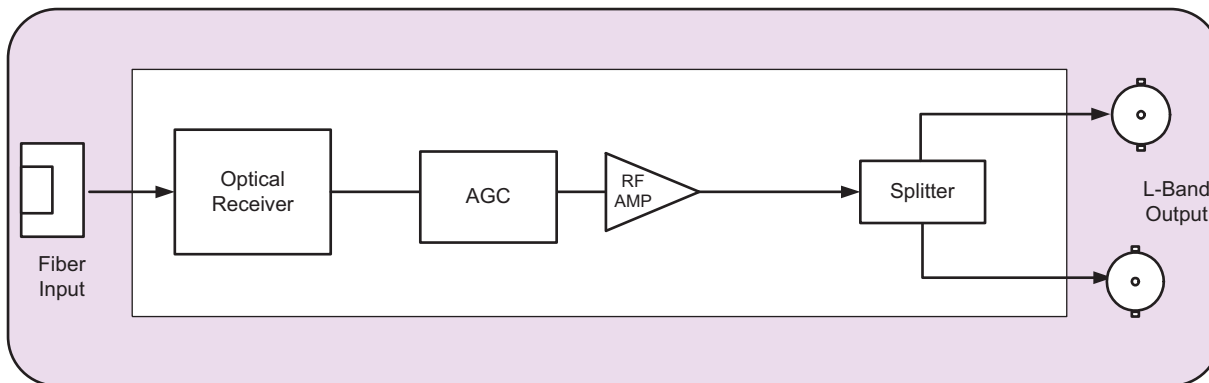
The 7705LR is a fiber optic receiver for L-Band satellite signals. The 7705LR accepts a fiber optic input from the 7705LTA and provides two L-Band RF output signals via BNCs.

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**

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 |
| +SCA | SC/APC (Angle Polished) |
| +ST | ST/PC |
| +FC | FC/PC |
| +FCA | 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)

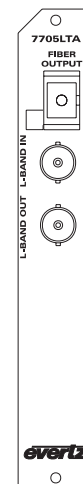
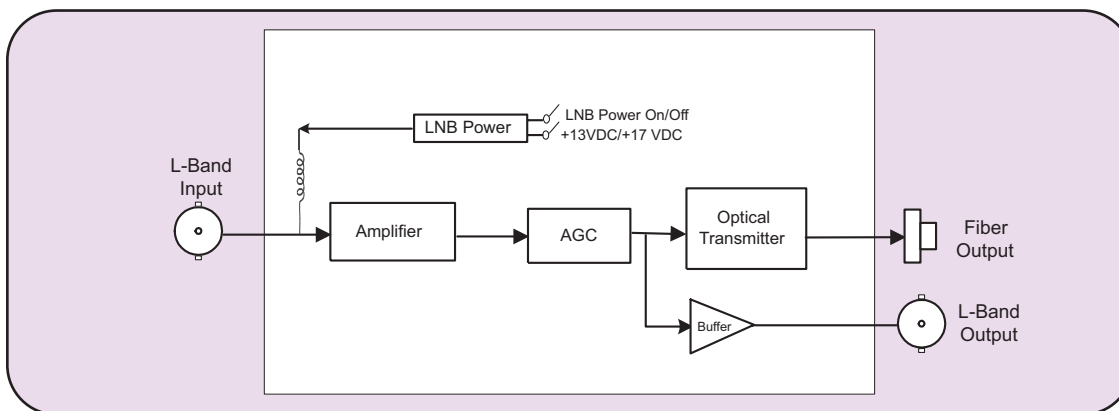
The 7705LTA is a fiber optic transmitter for L-Band satellite signals. The 7705LTA accepts one L-Band coaxial input and provides a fiber optic output signal at 1310nm. An L-Band BNC RF output is also provided for monitoring or further signal distribution.

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 |
| +SCA | SC/APC (Angle Polished) |
| +ST | ST/PC |
| +FC | FC/PC |
| +FCA | 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.

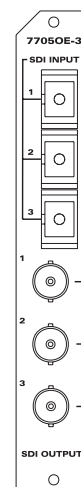
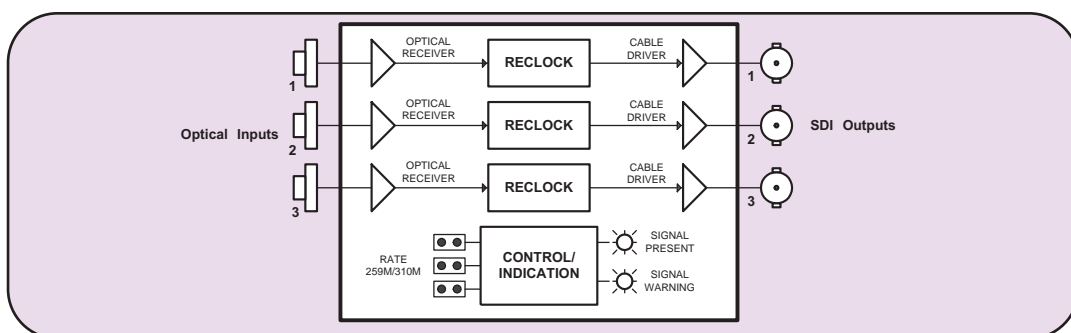
Outputs:

- 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

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

Input:

- Optical input range from 1270nm to 1610nm
- Input sensitivity to -32dBm
- SC/PC, ST/PC, FC/PC connector options

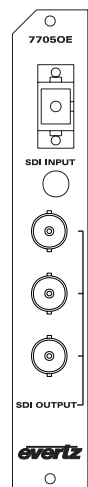
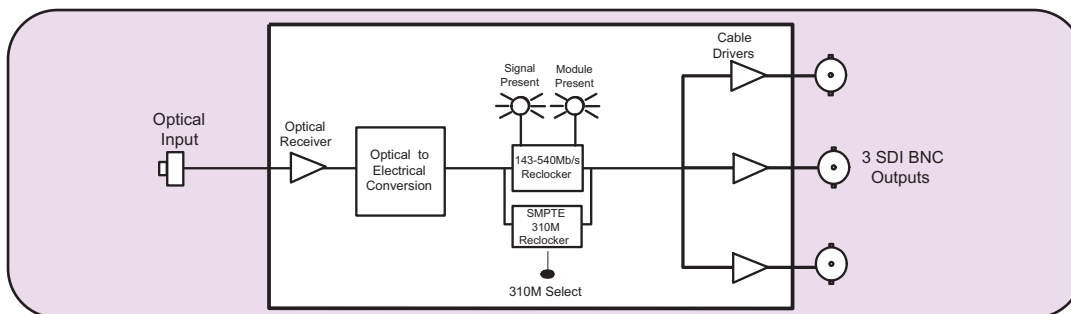
Outputs:

- 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

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

For standalone applications see 2400 series fiber modules

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 or a 3RU frame that will hold up to 15 modules

Input:

- Optical input range from 1270nm to 1610nm
- Input sensitivity up to -23dBm
- SC/PC, ST/PC, FC/PC connector options

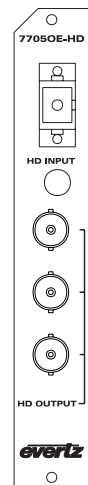
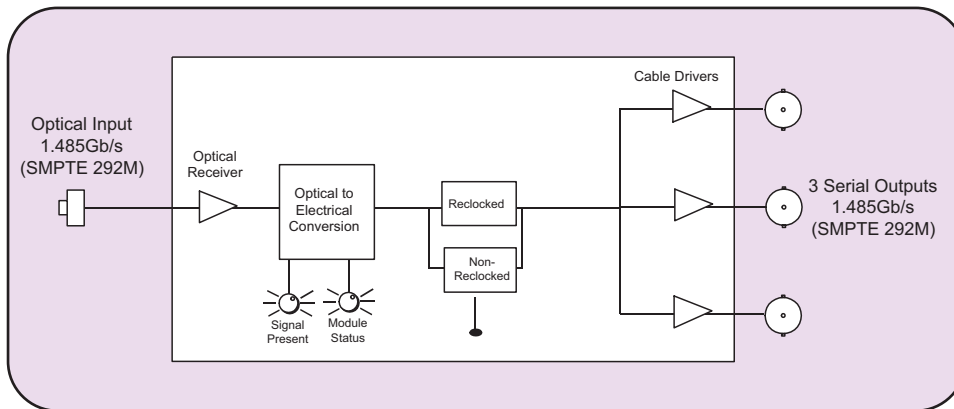
Outputs:

- 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 Information: 7705OE-HD

HDTV Optical to Electrical Converter, 19.4Mb/s to 1.5 Gb/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

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

For standalone applications see 2405 series fiber modules

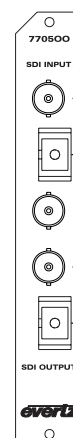
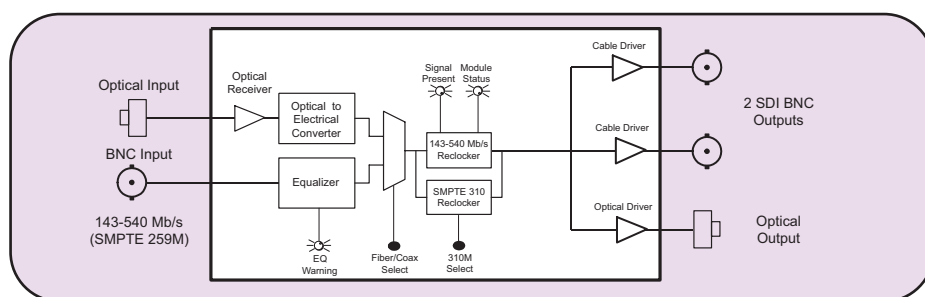
Optical Regenerator/Wavelength Converter, 19.4Mb/s to 540Mb/s

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

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:
770500I3 Optical to Optical Wavelength Converter for rates to 540 Mb/s, 1270-1610nm input, 1310nm FP laser output
770500I5 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

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 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

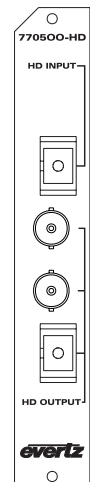
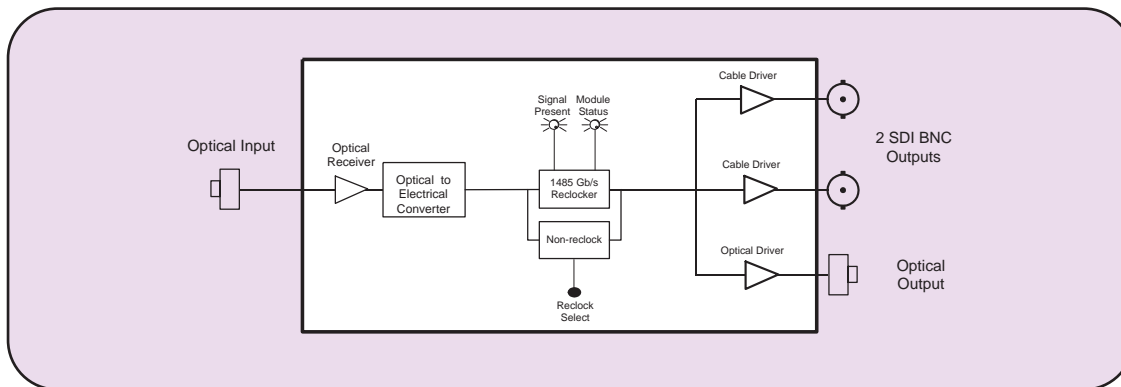
Input:

- 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 |
| Non-Reclock Mode: | SMPTE 310M (19.4Mb/s) or 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 |
| EMI/RFI: | Complies with FCC Part 15 Class A EU EMC Directive |

Physical:

| | |
|------------------|---|
| Number of Slots: | 1 |
|------------------|---|

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, 7705WDM I 3/I 5, 7705DS & 7705MS

Features

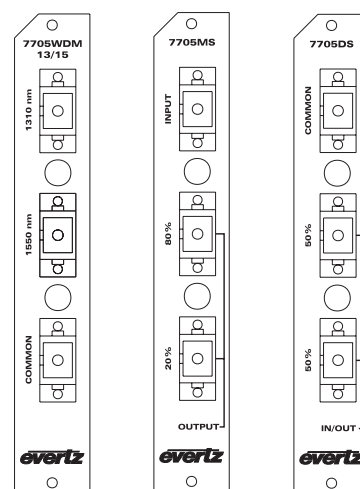
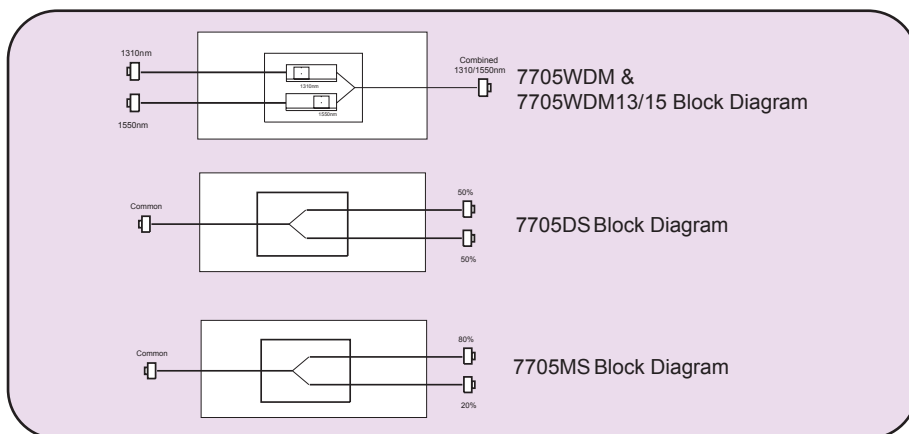
7705WDM (Wideband Wavelength Division Multiplexor)
7705WDM13/15 (Standard Wavelength Division Multiplexor)
7705DS (Fiber Distribution Splitter) &
7705MS (Fiber Monitoring Splitter)

- 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, 7705WDM I 3/I 5, 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 ± 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

I 310/I 550nm WDM & Optical Splitters

Model 7705WDM, 7705WDM I 3/I 5, 7705DS & 7705MS

Features

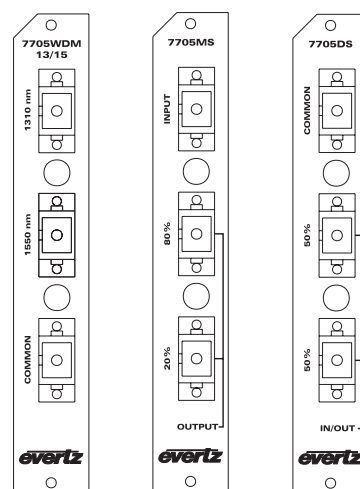
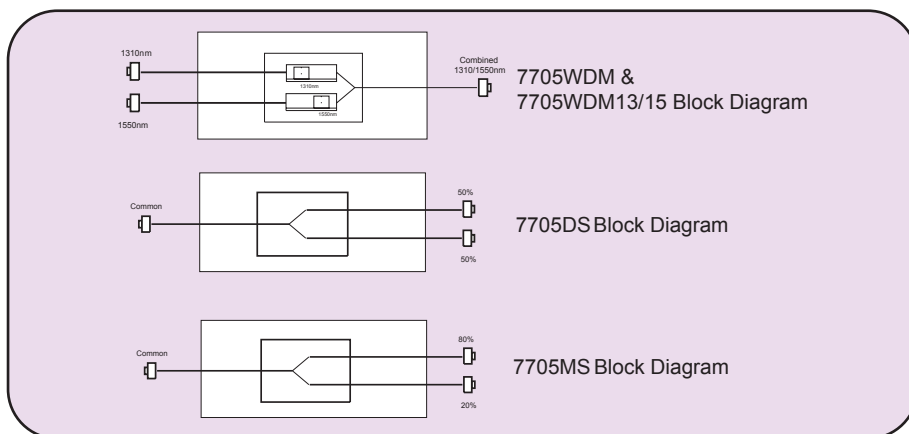
7705WDM (Wideband Wavelength Division Multiplexor)
7705WDM13/15 (Standard Wavelength Division Multiplexor)
7705DS (Fiber Distribution Splitter) &
7705MS (Fiber Monitoring Splitter)

- 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, 7705WDM I 3/I 5, 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

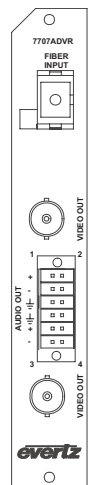
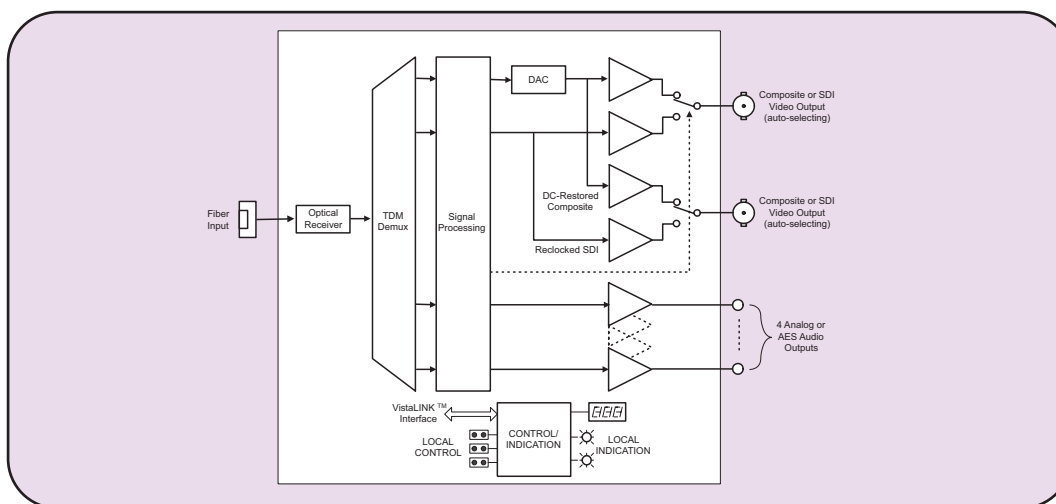
Model 7707ADVR



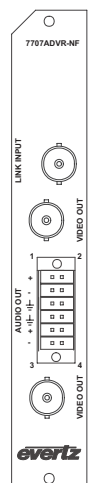
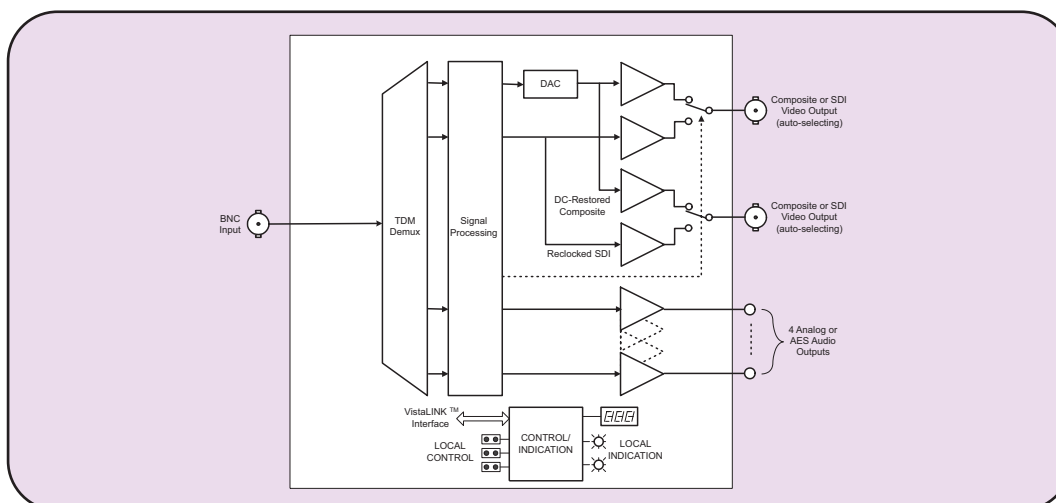
Features

- Single card fiber optic receiver for one analog or SDI video signal and four analog or four 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
- 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-R6244 (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: 98% - 103%

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: | < 0.15UI |

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 |
| EMI/RFI: | Complies with FCC Part 15 Class A EU EMC directive. |

Physical:

| | |
|------------------|---|
| Number of slots: | 1 |
|------------------|---|

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

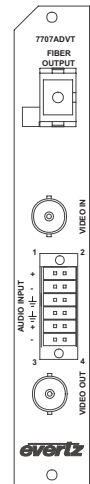
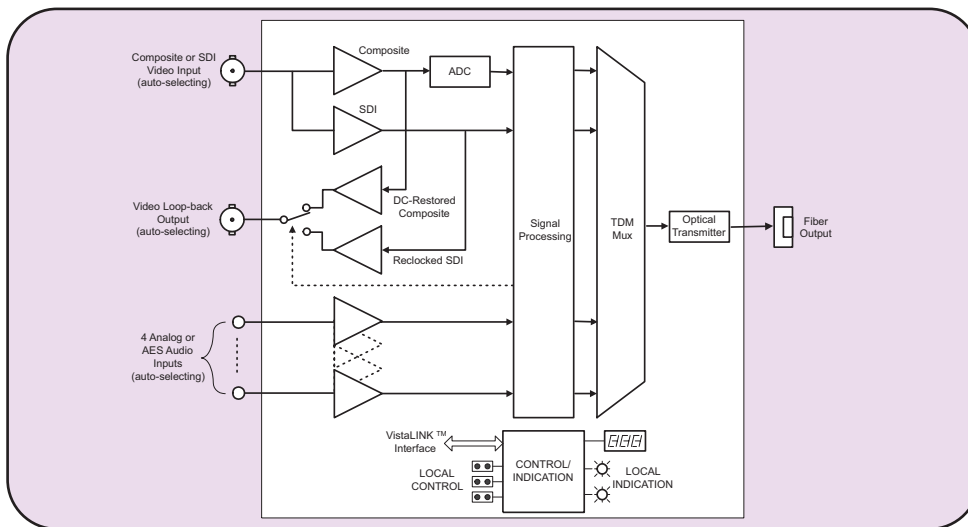
Model 7707ADVT



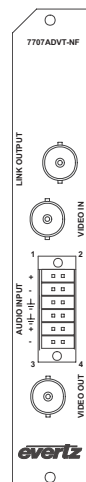
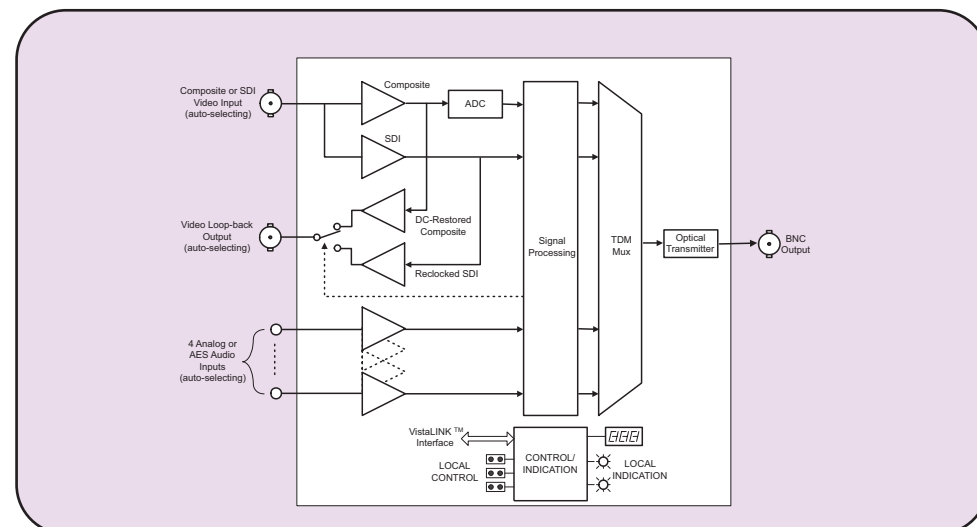
Features

- Single card fiber optic transmitter for one analog or SDI video signal 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
- 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)

7707ADVT Block Diagram



7707ADVT-NF Block Diagram



Analog or SDI Video with 4-Channel Analog or AES Audio Fiber Transmitter

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 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 |
| Number of Outputs: | |
| Fiber Version | 1 BNC per IEC 60169-8 Amendment 2 |
| NF Version | 2 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: | NTSC, SMPTE 170M, PAL, ITU-R 624-4 |
| Number of Outputs: | |
| Fiber Version | 1 BNC per IEC 60169-8 Amendment 2. |
| NF Version | 2 BNC per IEC 60169-8 Amendment 2. |
| 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 BNC per IEC 60169-8 Amendment 2. |
| NF Version | 2 BNC per IEC 60169-8 Amendment 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) |
| EMI/RFI: | Complies with FCC Part 15 Class A EU EMC directive. |

Physical:

| | |
|------------------|---|
| Number of slots: | 1 |
|------------------|---|

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™ |
|------------|---|

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™ |
|--------------|---|

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-CMultiframe |
| +1RU | 1RU Rear Plate for use with 7701FR Multiframe |
| +SA | Standalone Enclosure Rear Plate |

Connector Suffix

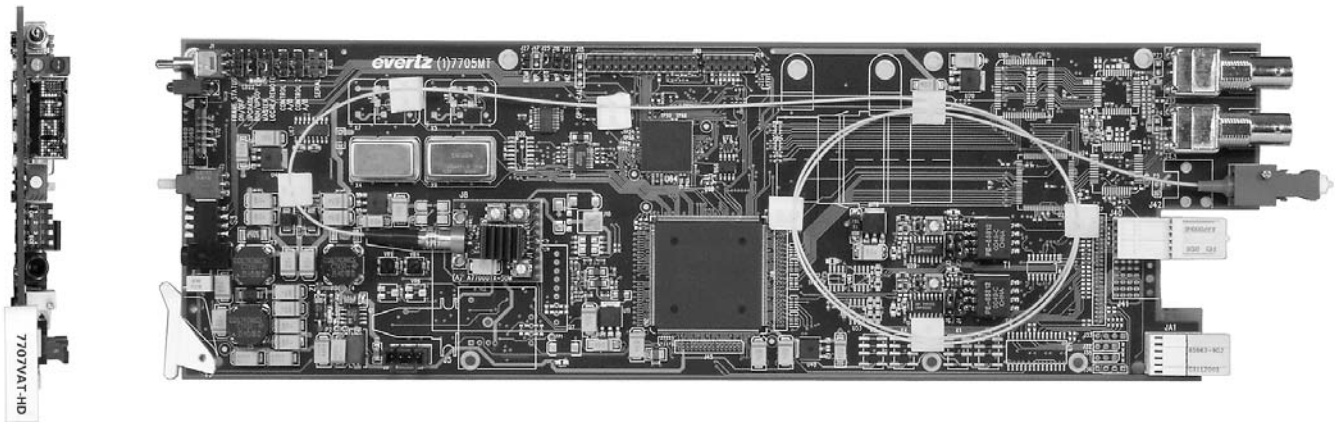
| | |
|-----|-------|
| +SC | SC/PC |
| +ST | ST/PC |
| +FC | FC/PC |

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 7707AE-EO-HD



The 7707AE-EO-HD is a VistaLINK™ -enabled fiber transmitter for HDTV or SDTV video and AES audio. This single card module accepts one HD-SDI or SDI video plus four AES audio and transmits them on a single fiber. The companion 7707AD-OE-HD, HD-SDI video and AES audio receiver converts the HD-SDI and AES back to separate video and audio.

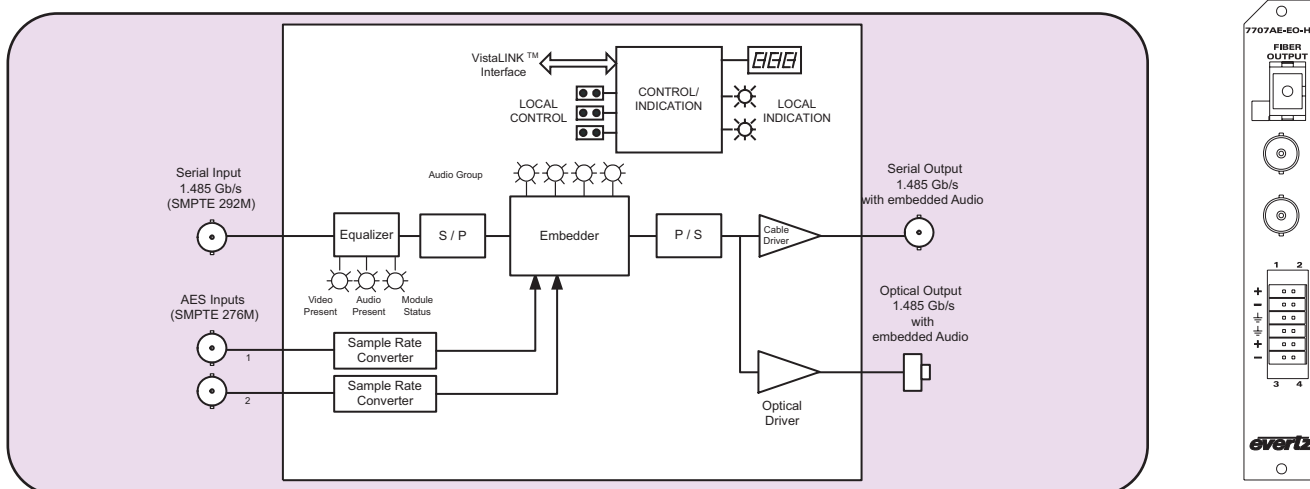
The fiber output is available in an assortment of optical wavelengths accomodating 1310/1550nm, CWDM and DWDM transmission schemes. The 7707AE-EO-HD occupies one card slot and can be housed in a 1RU frame that will hold up to 3 modules, a 3RU frame that will hold up to 15 modules or a standalone enclosure holding 1 module.

Features

- Supports HDTV or SDTV video and four AES audio fiber optic transmitter
- 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
- 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 input coaxial cable length equalization
- Automatic coaxial input equalization to 130m at 1.485Gb/s and 300m at 270Mb/s (Belden 1694)
- 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

HD-SDI with 4 AES Audio Fiber Transmitter

7707AE-EO-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M, SMPTE 259M-C, DVB-ASI
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 130m @ 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 Inputs: 4 (Jumper selectable for balanced or unbalanced)
Standard:
Unbalanced AES: SMPTE 276M
Balanced AES: AES3-1992
Other: Dolby E compliant
Connector: 12 pin removable terminal block
Signal Level:
Unbalanced: 1V p-p ±0.1V
Balanced: 0.2 to 7Vp-p
Equalization: Up to 500m @ 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

System Performance: (7707AE-EO--HD +7707AD-OE-HD)

Video Input To Output Delay: < 1.5 μs
Audio to Video delay: < 1μs

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

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:

7707AE-EO13-HD 1310nm, FP Laser
7707AE-EO15-HD 1550nm, DFB Laser

For CWDM applications please refer to the end of the fiber section for details
7707AE-EOxx-HD HD-SDI with 4 AES Audio Fiber Transmitter, CWDM Laser

For DWDM application please refer to end of fiber section for details
7707AE-EODyyy-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

Eight/Sixteen Channel AES Audio Fiber Receiver Demux

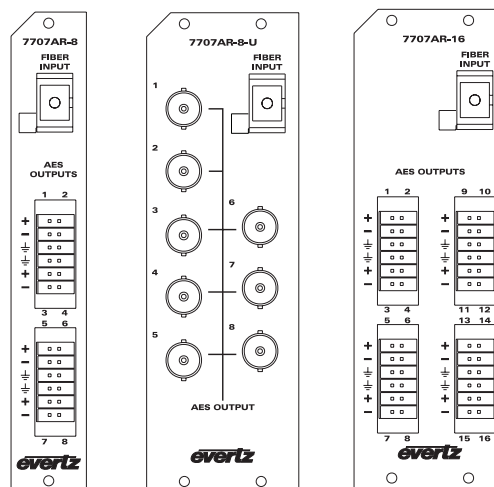
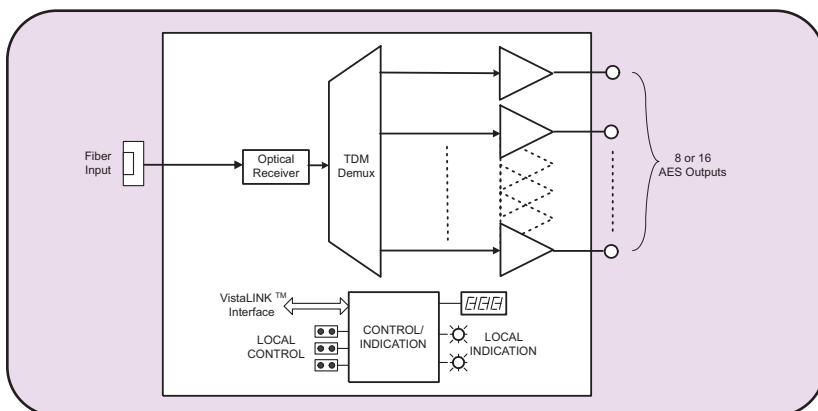
Models 7707AR-8/7707AR-8U 7707AR-16



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™

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

Ordering Options

Rear Plate and Fiber Connector must be specified at time of order

Eg: Model +SC +3RU

Rear Plate Suffix

+3RU

+1RU

+SA

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

3RU Rear Plate for use with 7700FR-C Multiframe

1RU Rear Plate for use with 7701FR Multiframe

Standalone Enclosure Rear Plate

Connector Suffix

+SC

+ST

+FC

SC/PC

ST/PC

FC/PC

Fiber Optic Patch Cable:

CB-FP1M-SCPC

CB-FP1M-STPC

CB-FP5M-SCPC

CB-FP5M-STPC

CB-FP10M-SCPC

CB-FP10M-STPC

Single mode fiber cable, 1m, SC/PC male termination

Single mode fiber cable, 1m, ST/PC male termination

Single mode fiber cable, 5m, SC/PC male termination

Single mode fiber cable, 5m, ST/PC male termination

Single mode fiber cable, 10m, SC/PC male termination

Single mode fiber cable, 10m, ST/PC male termination

Enclosures:

7700FR-C

7701FR

S7701FR

3RU Multiframe which holds 15 modules

1RU Multiframe which holds 3 modules

Standalone enclosure

Eight/Twelve Channel Analog Audio Fiber Receiver Demux

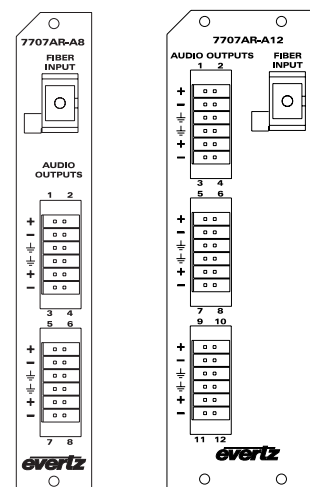
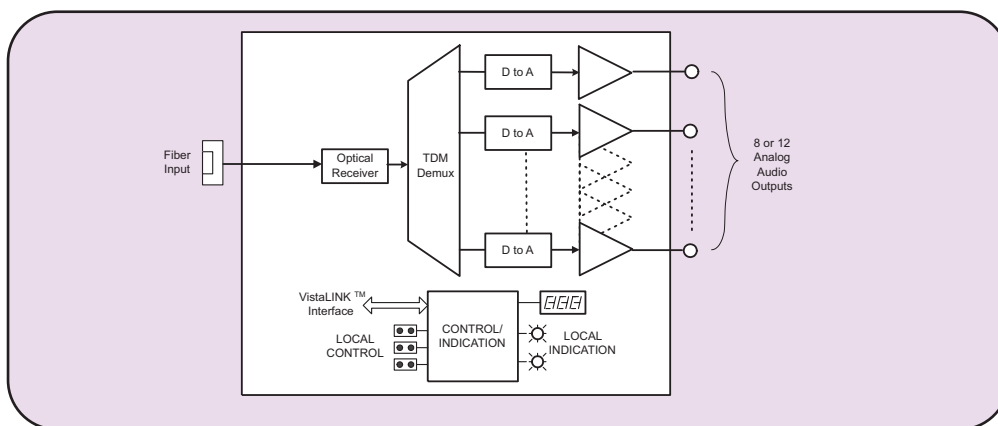
Models 7707AR-A8/7707AR-A12



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 card-edge display or remotely through SNMP and VistaLINK™

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

7707AR-A12

Eight Channel Analog Audio Fiber Receiver, Demux VistaLINK™ Monitoring
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

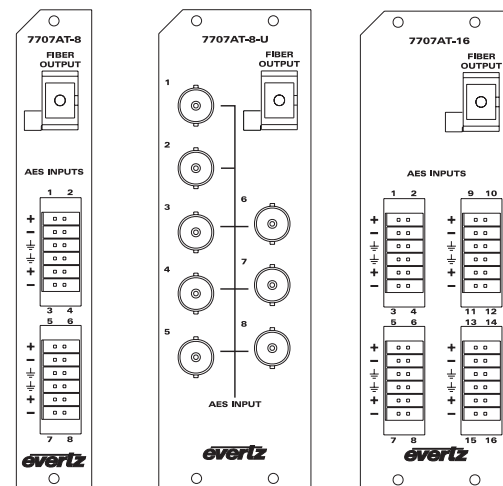
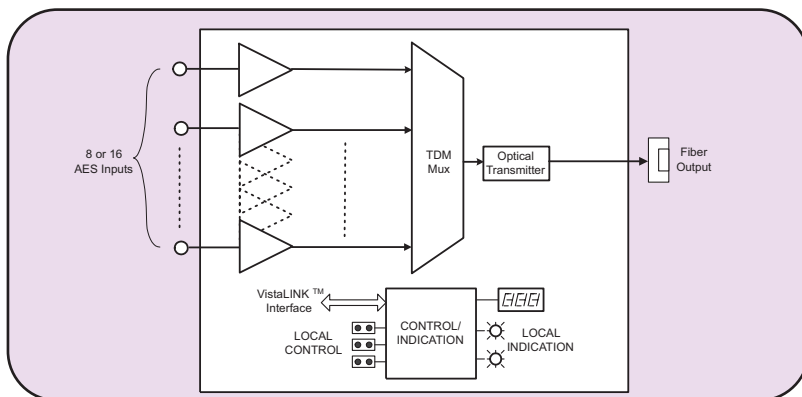
Models 7707AT-8/7707AT-8U 7707AT-16



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

32 to 48KHz

Input Sample Rate:

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)

EMI/RFI: Complies with FCC Part 15 Class A

EU EMC Directive

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

Ordering Information:

7707AT13-8

7707AT13-8U

7707AT13-16

7707AT15-8

7707AT15-8U

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

7707AT15-16

Eight channel AES Audio Fiber Transmitter Mux , 1310nm FP, VistaLINK™
Eight channel AES Unbalanced Audio Fiber Transmitter Mux , 1310nm FP, VistaLINK™, AES on BNC's
Sixteen channel AES Audio Fiber Transmitter Mux , 1310nm FP, VistaLINK™
Eight channel AES Audio Fiber Transmitter Mux , 1550nm DFB, VistaLINK™
Eight channel AES Unbalanced Audio Fiber Transmitter Mux , 1550nm DFB, VistaLINK™
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™

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™

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

+1RU

+SA

3RU Rear Plate for use with 7700FR-C Multiframe

1RU Rear Plate for use with 7701FR Multiframe

Standalone Enclosure Rear Plate

Connector Suffix

+SC

+ST

+FC

SC/PC

ST/PC

FC/PC

Enclosures:

7700FR-C

7701FR

S7701FR

3RU Multiframe which holds 15 modules

1RU Multiframe which holds 3 modules

Standalone enclosure

Eight/Twelve Channel Analog Audio Fiber Transmitter Mux

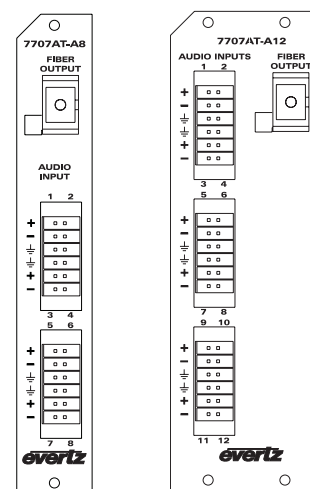
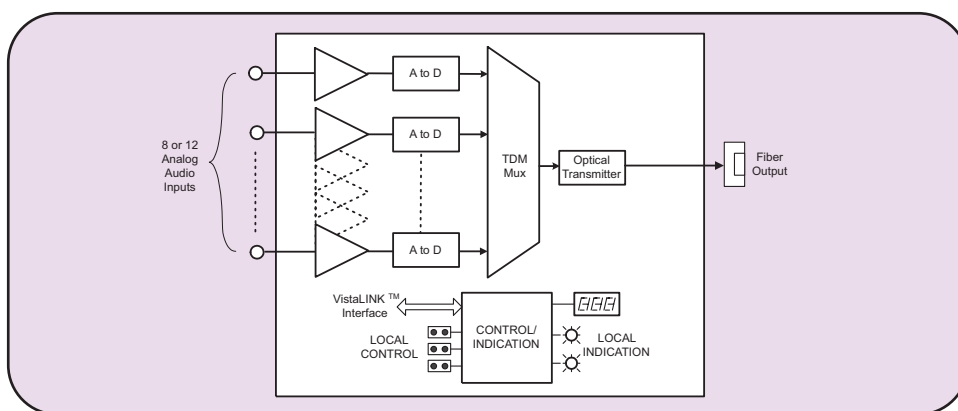
Models 7707AT-A8/7707AT-A12



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™

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

Physical:

| | |
|----------------------|---------|
| 7700 frame mounting: | |
| Number of Slots: | |
| 7707AT-A8: | 1 slot |
| 7707AT-A12: | 2 slots |
| 7701 frame mounting: | |
| Number of Slots: | 1 slot |

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.

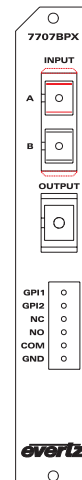
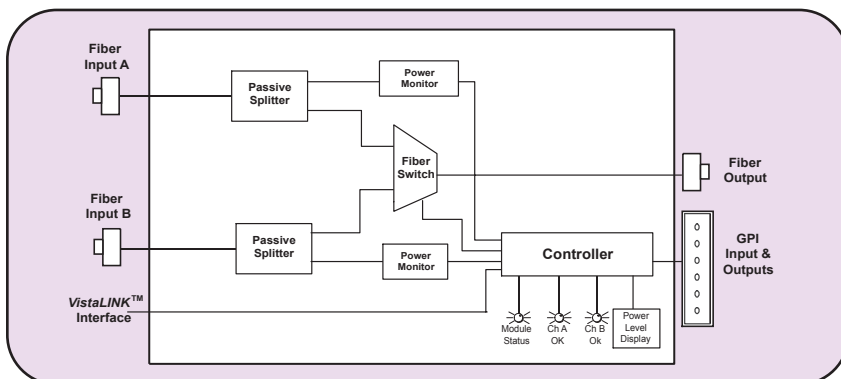
In the application of auto-changeover, the 7707BPX can be configured to have a MAIN input and a STANDBY input. In this configuration, it will automatically switch to the Standby input when the Main input power is weak or lost. It can also be configured to have auto or manual switch back to the Main input 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 msec |
| 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 |
|------------------|---|

Ordering Information:

| | |
|----------|--|
| 7707BPX: | 2 x 1 Optical Bypass Protection Switch |
|----------|--|

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 |

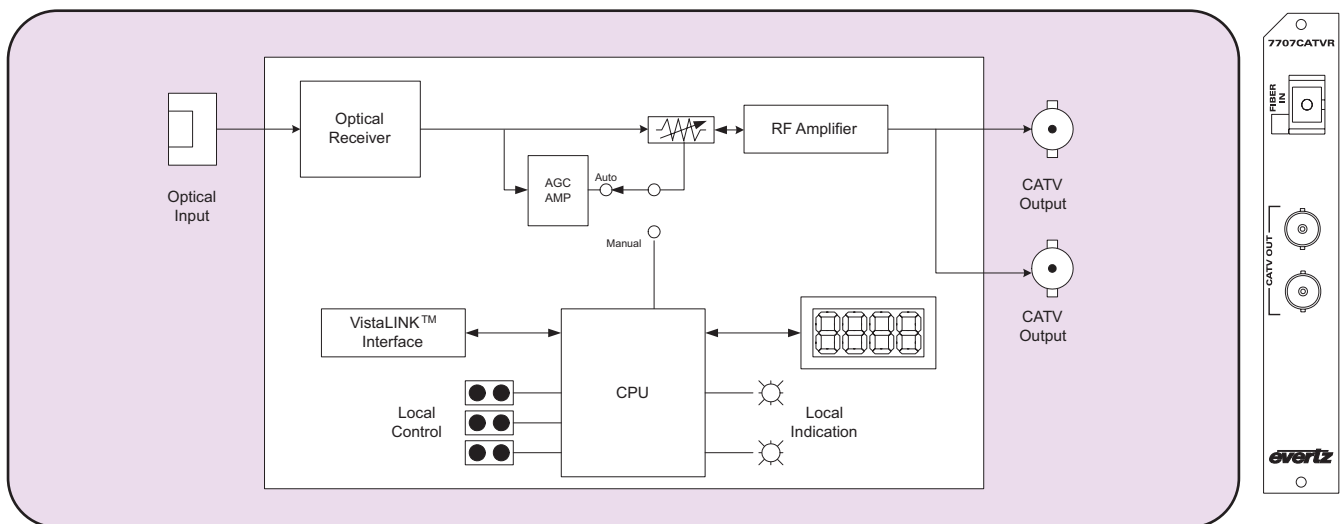
Model 7707CATVR



Features

- 80/110 Channel PAL/NTSC CATV fiber optic receiver
- 40-860 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

7707CATVR Block Diagram



Specifications

CATV Outputs:

| | |
|------------------|-------------------------|
| Connector: | 2 F-Type (BNC optional) |
| I/O Impedance: | 75Ω |
| Return Loss: | 16dB |
| SMSR: | 30dB min |
| Back Reflection: | -50dB |
| CSO: | -64dB |
| CTB: | -67dB |
| CNR: | 50dB |
| RF Flatness: | ± 1dB |

Optical Input:

| | |
|-----------------------|----------|
| Connector: | 1 SC/APC |
| Operating Wavelength: | 1310nm |
| Optical Link Budget: | 14dB |

Electrical:

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

Physical:

| | |
|------------------|---|
| Number of slots: | 1 |
|------------------|---|

Ordering Information:

| | |
|------------------|--|
| 7707CATVR | 80/110 Channel PAL/NTSC CATV Fiber Receiver, SC/APC connector, 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

| | |
|-------------|-------------------------|
| +SCA | SC/APC (Angle Polished) |
| +FCA | FC/APC (Angle Polished) |

Enclosures:

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

CATV Fiber Transmitter

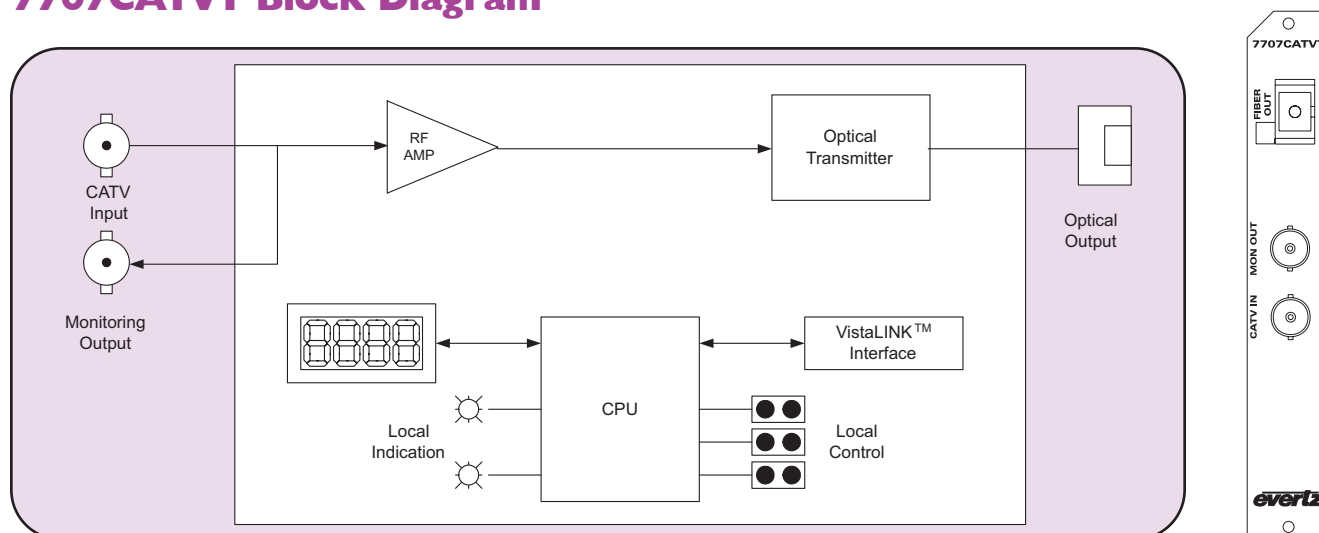
Model 7707CATVT

Features

- 80/110 Channel PAL/NTSC CATV fiber optic transmitter
- 40-860 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



7707CATVT Block Diagram



Specifications

CATV Input:

Number of Inputs: 1, 80/110 channel, PAL/NTSC CATV signal
Bandwidth: 40-860 MHz
Connector: 1 F-Type (BNC optional)
I/O Impedance: 75Ω
Return Loss: 12dB

Monitoring Output:

Number of Outputs: 1
Connector: F-Type (BNC optional)
I/O Impedance: 75Ω
Signal Level: (Input) -20dB
RF Flatness: ± 2dB

Optical Output:

Connector: 1 SC/APC
Operating Wavelength 1310nm
Output Power
110-11: +11dBm ± 1dBm
110-6: +6dBm ± 1dBm
Fiber Size: 9µm core / 125µm overall

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:

7707CATVT13-110-6 1310nm, DFB Laser, +6dBm 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

Connector Suffix

+SCA SC/APC (Angle Polished)
+FCA FC/APC (Angle Polished)

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

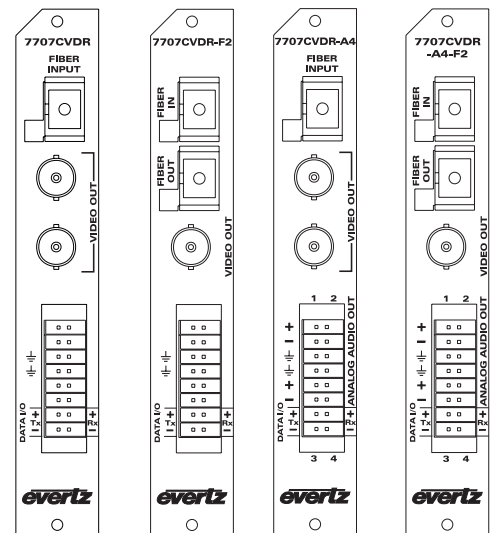
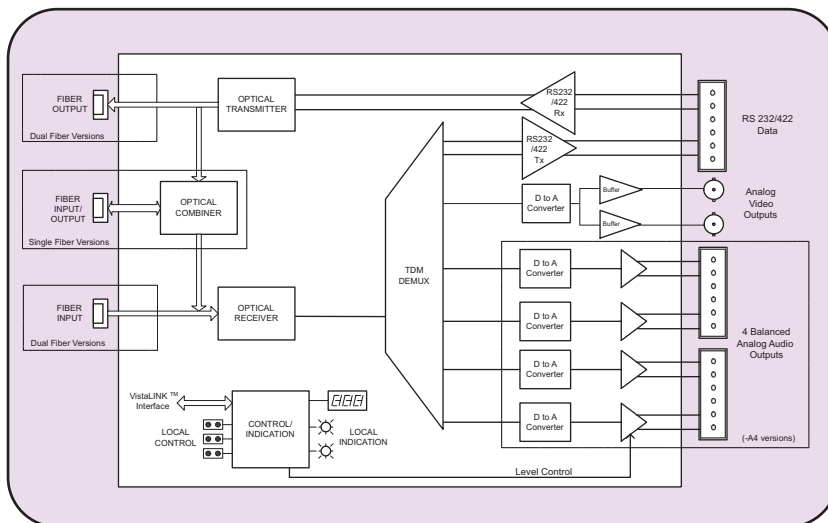
- Single card fiber optic receiver for analog video, four analog audio (-A4 version) and bi-directional RS232/422 signals
- Supports both NTSC and PAL video signals
- Broadcast quality analog video and audio performance
- 2 bi-directional RS232 or 1 bi-directional RS422
- Superior digital data transmission
- 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

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

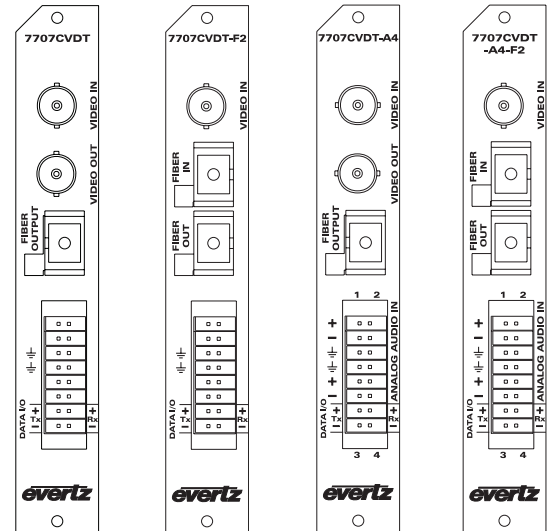
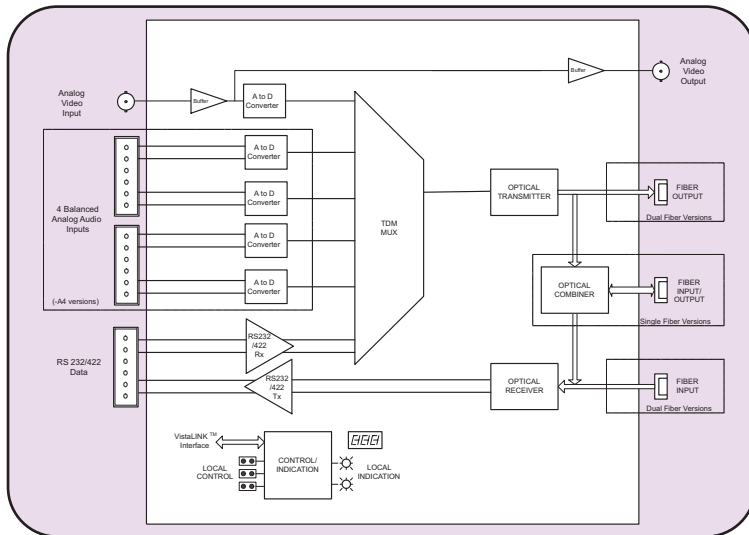
- Single card fiber optic transmitter for analog video, four analog audio (-A4 version) and bi-directional RS232/422
- Supports both NTSC and PAL video signals
- Broadcast quality analog video and audio performance
- 2 bi-directional RS232 or 1 bi-directional RS422
- Superior digital data transmission
- 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 |
|------------------|---|

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.

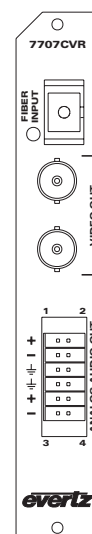
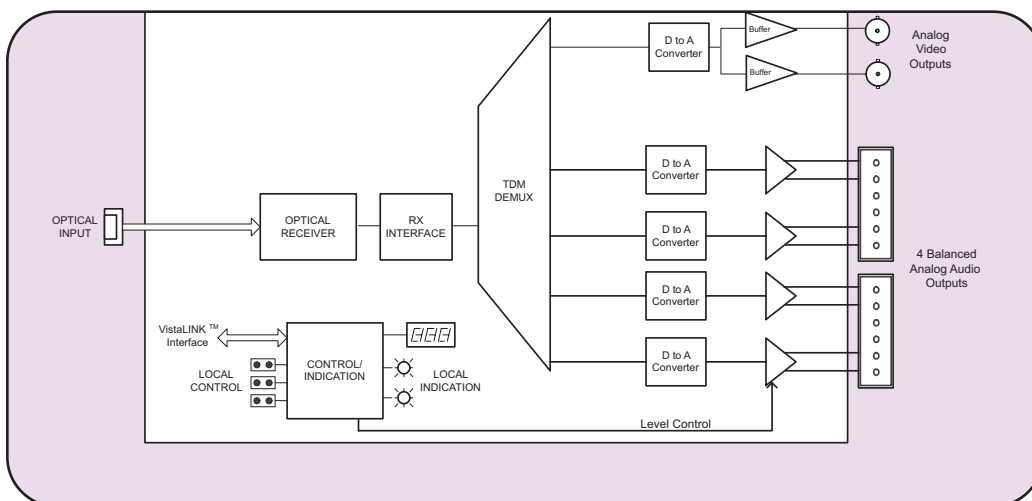
The 7707CVR-2 Dual Composite Video and Analog Audio Fiber Receiver is a dual channel version that accepts a fiber optic input, from the companion 7707CVT-2 transmitter, demultiplexes the signals, performs D to A conversion and outputs 2 NTSC or PAL analog video signals and up to four balanced analog 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

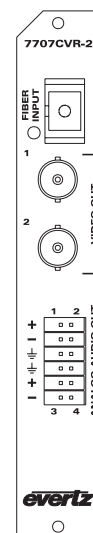
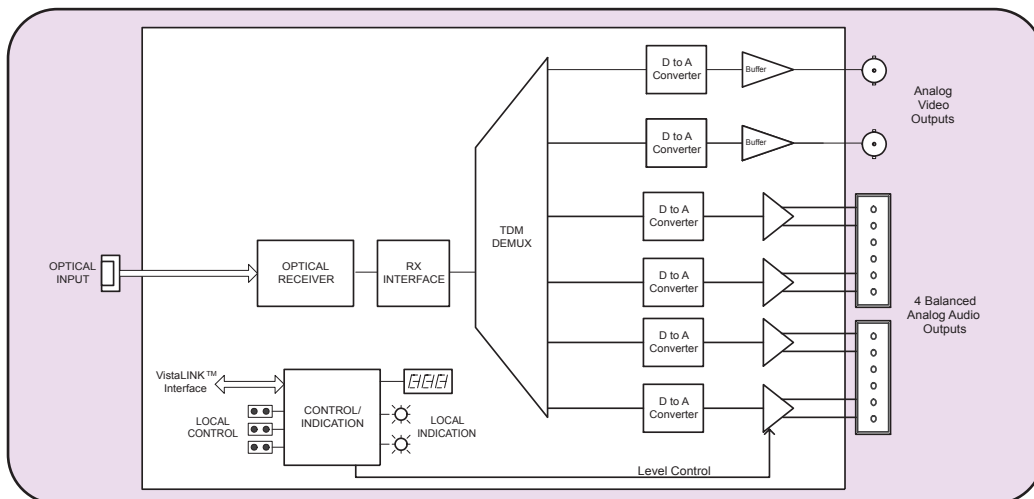
- Single card fiber optic receiver for one or two analog video and four analog audio signals
- Supports both NTSC and PAL video signals
- Broadcast quality analog video and audio performance
- Meets or exceeds EIA/TIA RS250-C short haul specifications for analog video and audio transport
- Adjustable 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.

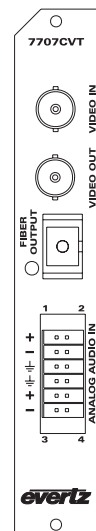
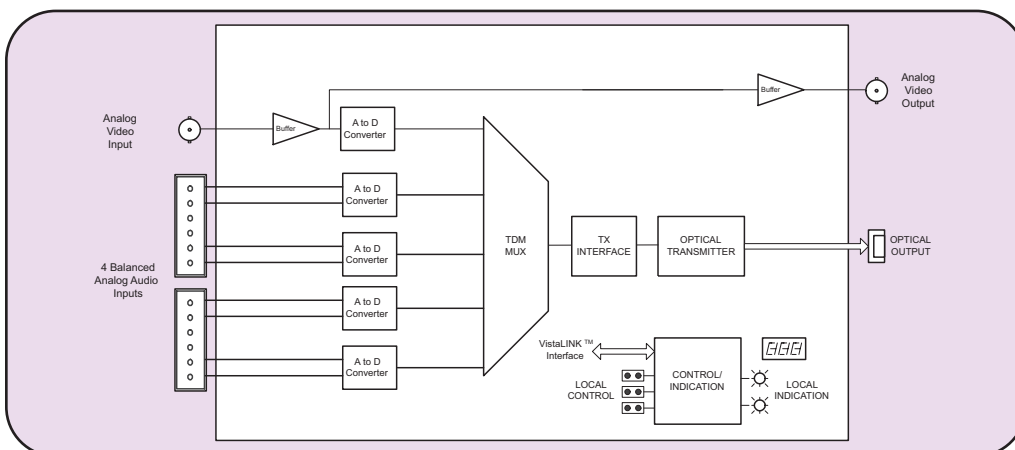
The fiber optic output of the 7707CVT and 7707CVT-2 is available in an assortment of optical wavelengths, accommodating 1310nm/1550nm, CWDM and DWDM transmission schemes.

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

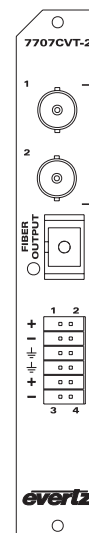
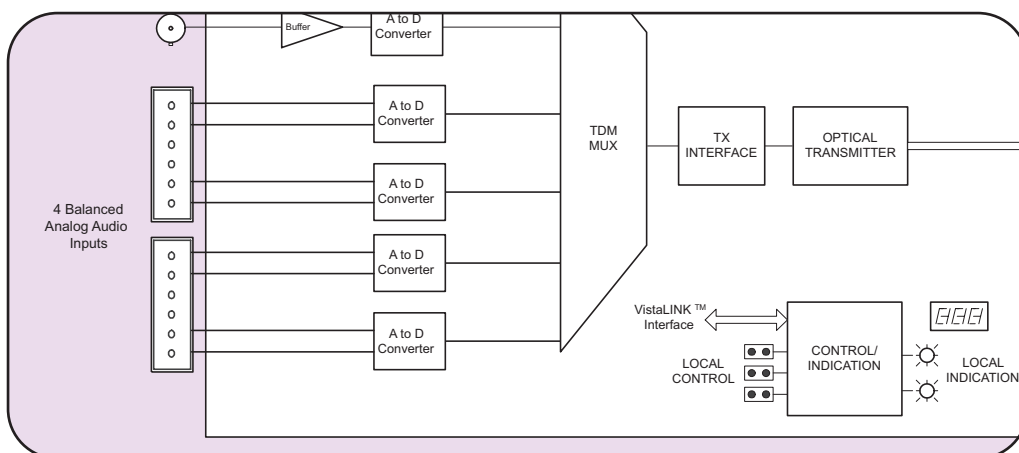
- Single card fiber optic transmitter for one or two analog video and four analog audio signals
- Supports both NTSC and PAL video signals
- Broadcast quality analog video and audio performance
- Meets or exceeds EIA/TIA RS250-C short haul specifications for analog video and audio transport
- Superior 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) |
| EMI/RFI: | Complies with FCC Part 15, Class A EU EMC directive. |

Physical:

| | |
|------------------------------|---|
| 7700 or 7701 frame mounting: | |
| Number of slots: | 1 |

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

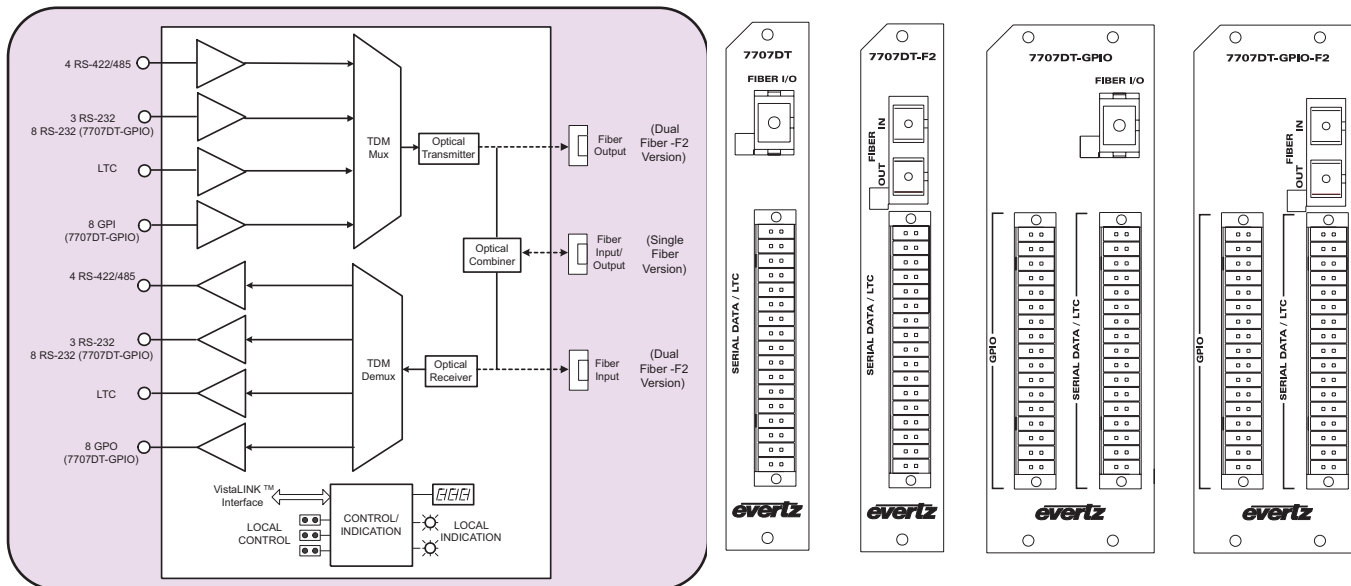
- 7707DT transports four RS-422 or RS-485, three RS-232, and one LTC
- 7707DT-GPIO version provides five additional RS-232 and eight General Purpose Input/Outputs (GPIO)
- Selectable termination and failsafe bias settings for RS-422/485 data inputs
- Selectable network timeouts for RS-485 accommodates 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*** | 7707DTDxx-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 |
| Bit Rate (max): | |

LTC Data:

| | |
|--------------------|--|
| Number of Signals: | 1 Input/Output |
| Connector: | Multi-pin Removable Terminal Block |
| Signal Type: | SMPT 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: | |
| Safe Voltage Range: | -20V to +10V |
| Off Condition (min): | +3.5V |
| On Condition (max): | +2.5V (active low) |
| Input Current (min): | 1mA |
| 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) |
| EMI/RFI: | 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 |

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

| | |
|--------------------|--|
| 7707DTDyyy-F2 | Multi RS232/422 Fiber Data Transceiver, dual fiber, DWDM TX |
| 7707DTDyyy-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)

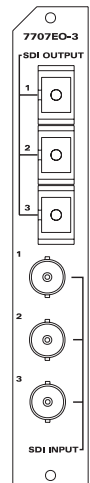
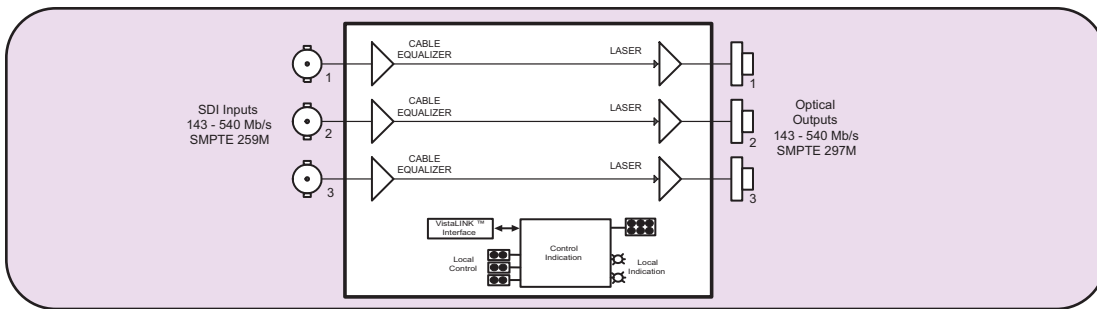
Outputs:

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

Physical:

Number of Slots: 1

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

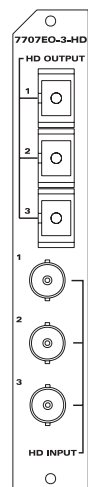
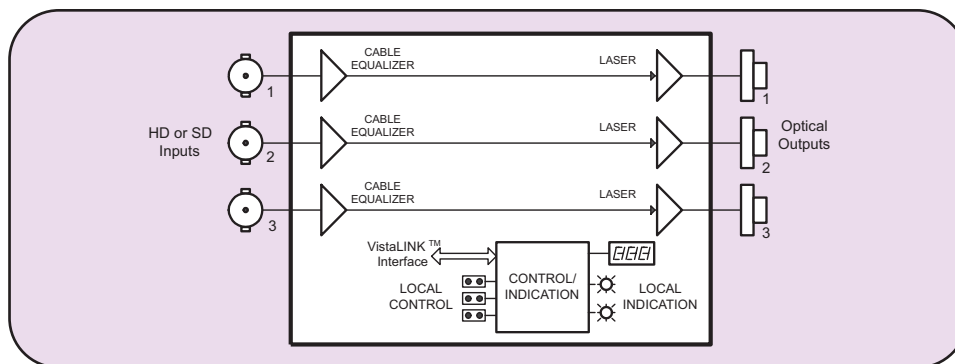


Model 7707EO-3-HD

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

Physical:
Number of Slots: 1

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

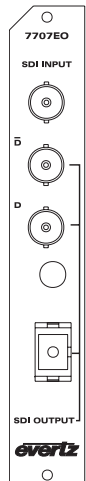
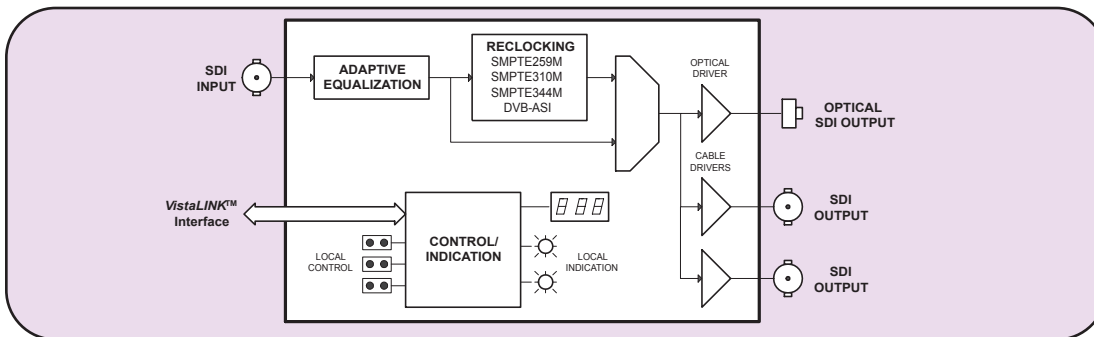
SDI Electrical to Optical Converter, 19.4Mb/s or 143-540Mb/s, VistaLINK™ Monitoring

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 to up 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 ±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 ± 1dBm
- 1550nm & CWDM: 0dBm ± 1dBm
- DWDM DFB: 7dBm ± 1dBm

Electrical:

Voltage: +12V DC

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

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

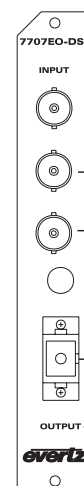
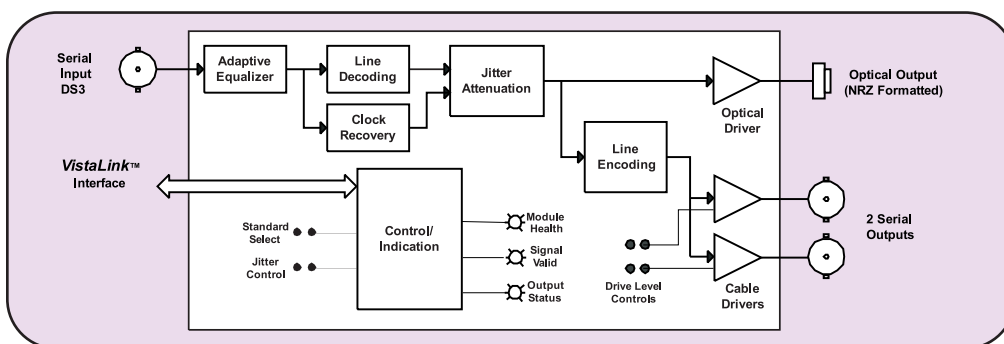


Model 7707EO-DS3

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 |
|------------------|---|

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

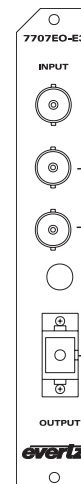
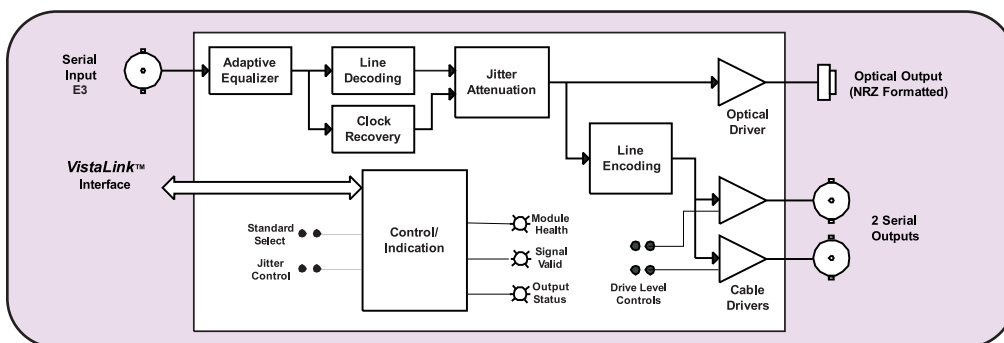


Model 7707EO-E3

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 DS3 @ 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

Ordering Information:

7707EO13-E3 E3 Electrical to Optical Converter, VistaLINK™, 1310nm, FP Laser

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

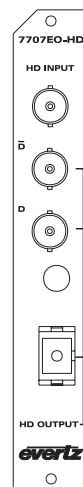
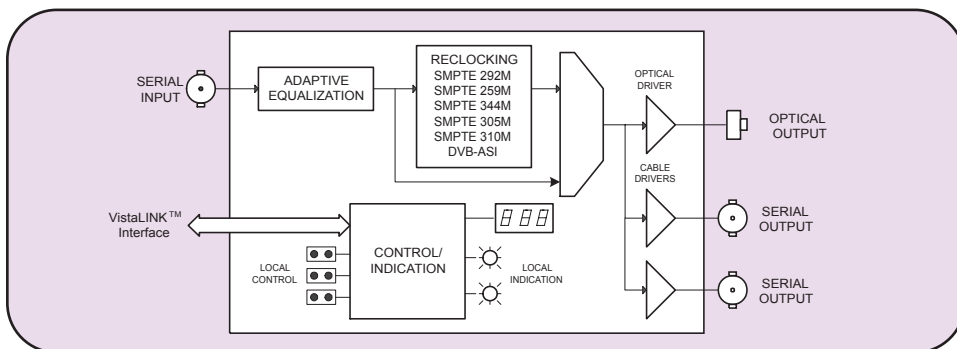
19.4Mb/s to 1.5Gb/s

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

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

Ex: 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

For standalone applications also see 2405 series fiber module

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:

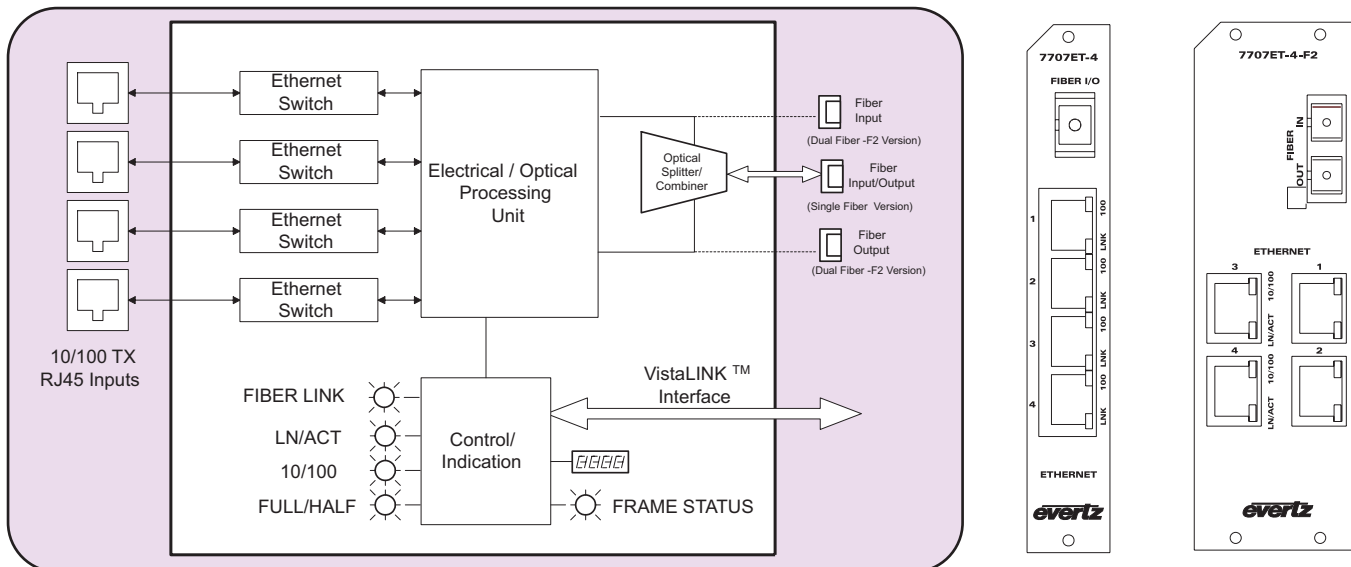
- Frame status
- 10/100 Speed indication on copper ports
- Full Duplex/Collision indication on copper ports
- Link activity on copper ports
- Received optical power level

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 | | | | | | | |

Quad Ethernet Fiber Transceiver

Model 7707ET-4-Block Diagram



Specifications

Ethernet Input/Output:

Standard: IEEE 802.3 10BASE-T
802.3u 100BASE-TX
4 RJ45 ports

Connectors:

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

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

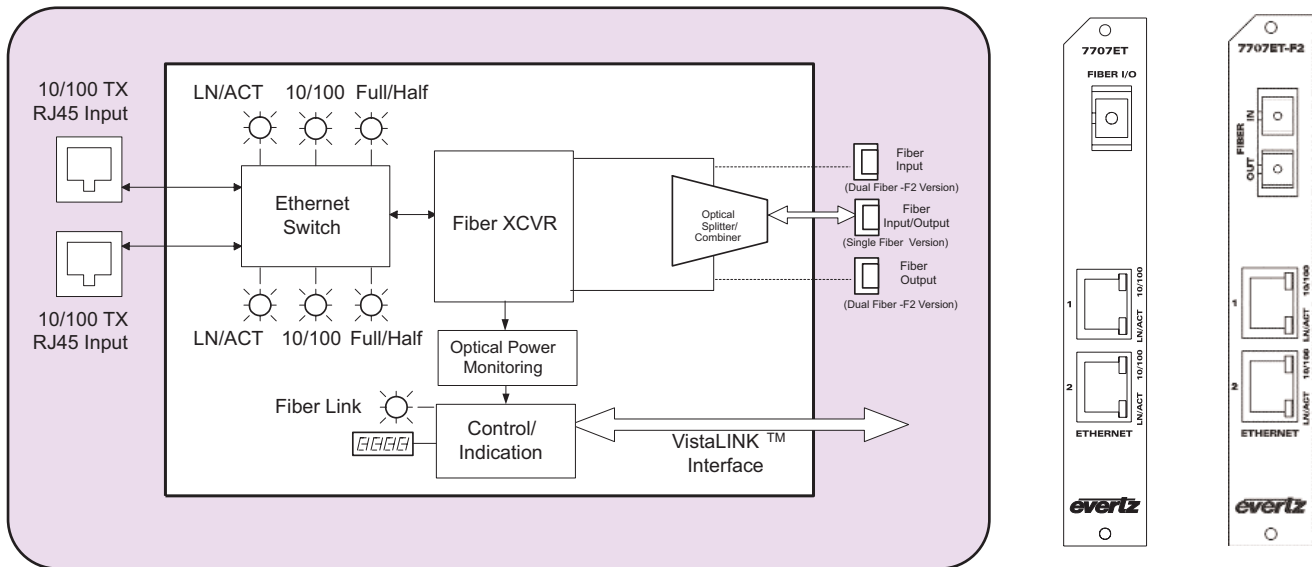
Status Indicators:

- 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 |
|-------------------------|---|

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 |
|--------------------|---|

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™ 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:

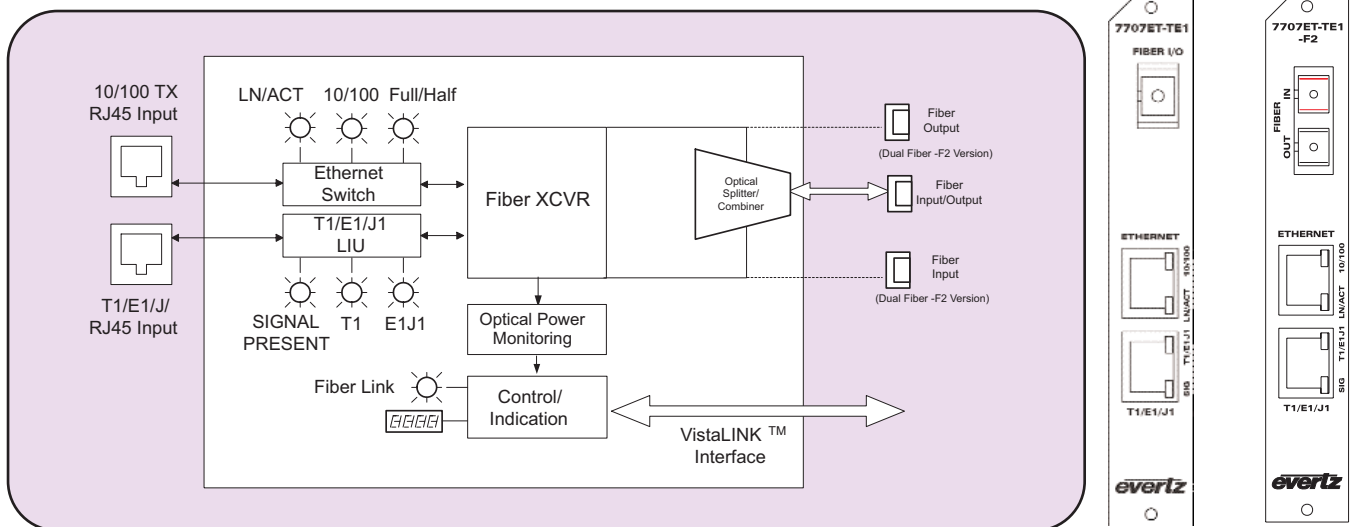
- Frame status
- Fiber link indication
- 10/100 Speed indication
- Ethernet Full Duplex/Collision indication
- Ethernet Link activity
- T1/E1/J1 Signal Presence

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- | +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) |
| EMI/RFI: | Complies with FCC Part 15 Class A EU EMC directive |

Physical:

| | |
|------------------|---|
| Number of slots: | 1 |
|------------------|---|

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™ |
|-----------------|--|

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™ |
|-------------------|--|

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 GPS Data Fiber Receiver

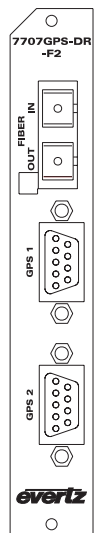
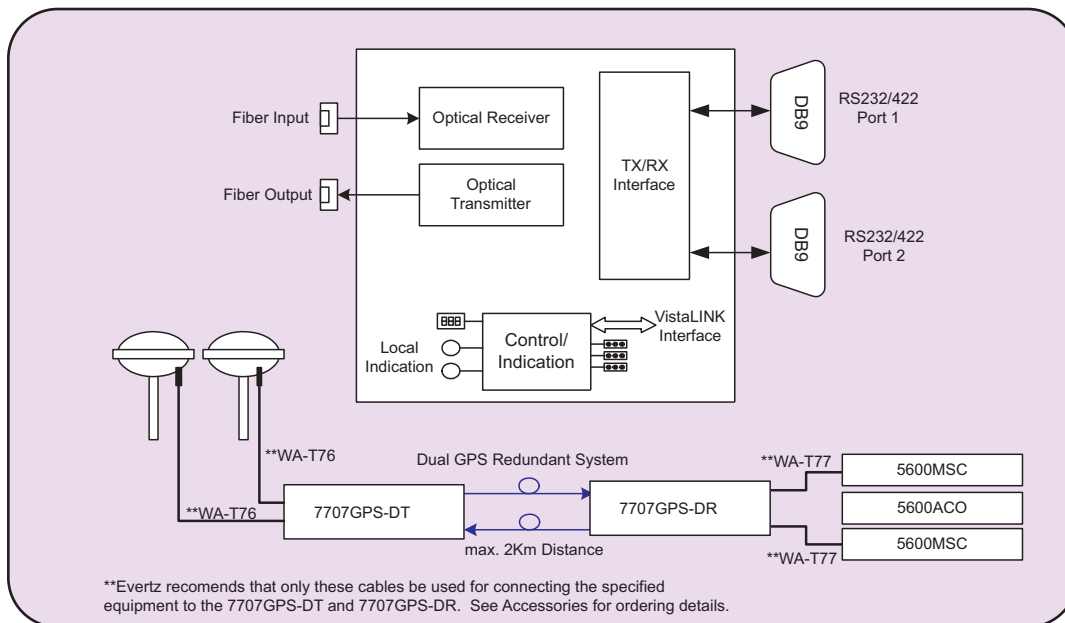
Model 7707GPS-DR



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



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 Standard: 1310nm, 1550nm (nominal)

Output Power:

Dual Fiber (F2)
1310nm FP (Standard): -7dBm ±1dBm
1550nm DFB: 0dBm ±1dBm

Electrical:

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

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

Ordering Information:

7707GPS13-DR-F2 Dual GPS Data Fiber Receiver, 1310nm FP Tx and Rx
7707GPS15-DR-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

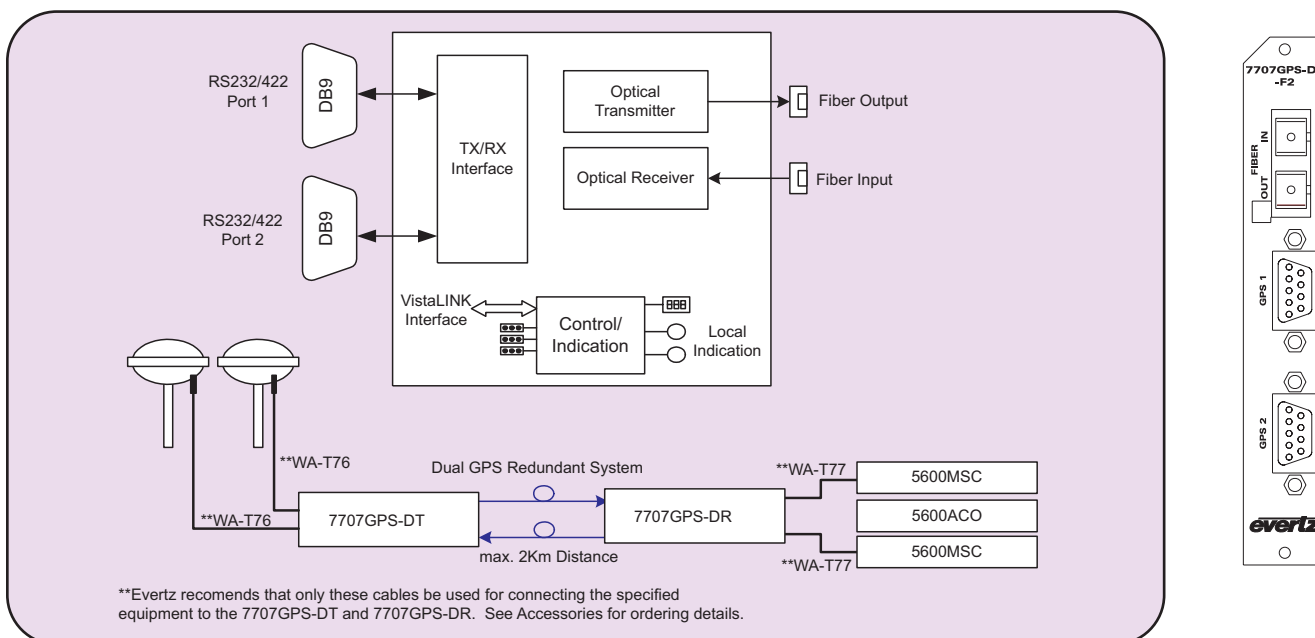
Model 7707GPS-DT



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 | |
| Standard: | 1310nm, 1550nm (nominal) |

Output Power:

| | |
|-----------------------|-------------|
| Dual Fiber (F2) | |
| 1310nm FP (Standard): | -7dBm ±1dBm |
| 1550nm DFB: | 0dBm ±1dBm |

Electrical:

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

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 |

Ordering Information:

| | |
|-----------------|---|
| 7707GPS13-DT-F2 | Dual GPS Data Fiber Transmitter, 1310nm FP Tx and Rx |
| 7707GPS15-DT-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)

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

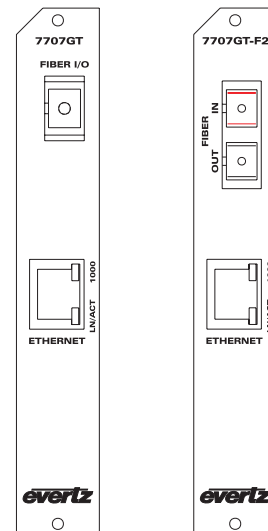
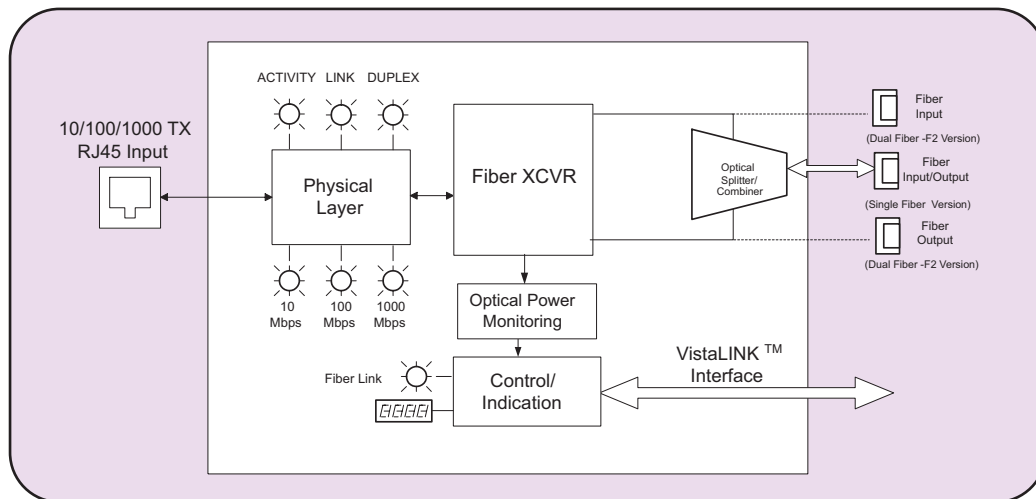
Status Indication:

- 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 | |

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)

EMI/RFI:

Complies with FCC Part 15 Class A
EU EMC directive

Physical:

Number of slots:

1

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

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

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

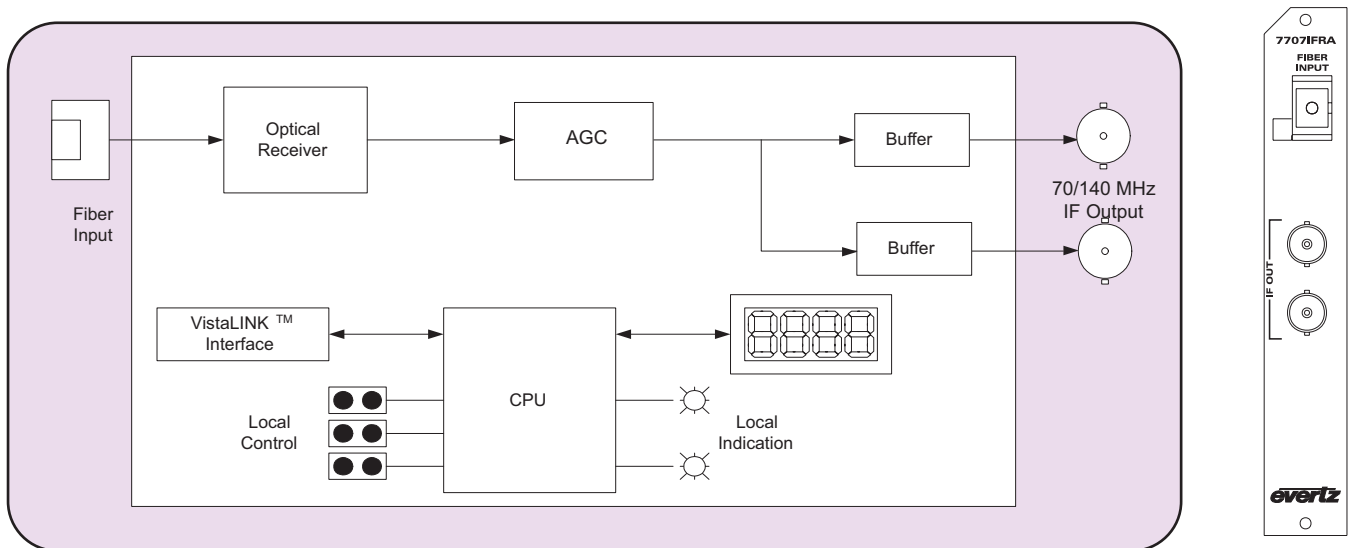
- 30-200 MHz bandwidth
- Protocol transparent - receives all video, audio and data modulation formats
- Supports manual and automatic gain control (AGC)
- Wide AGC hold range (45dB) using 7707IFTA + 7707IFRA
- Two IF outputs for extra signal distribution or monitoring functions
- IF output power independent 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: | 1 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 |
| Carrier to Noise: | -40dB @ 1MHz |
| 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) |
| 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 |
| 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 |
| +SCA | SC/APC (Angle Polished) |
| +ST | ST/PC |
| +FC | FC/PC |
| +FCA | 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

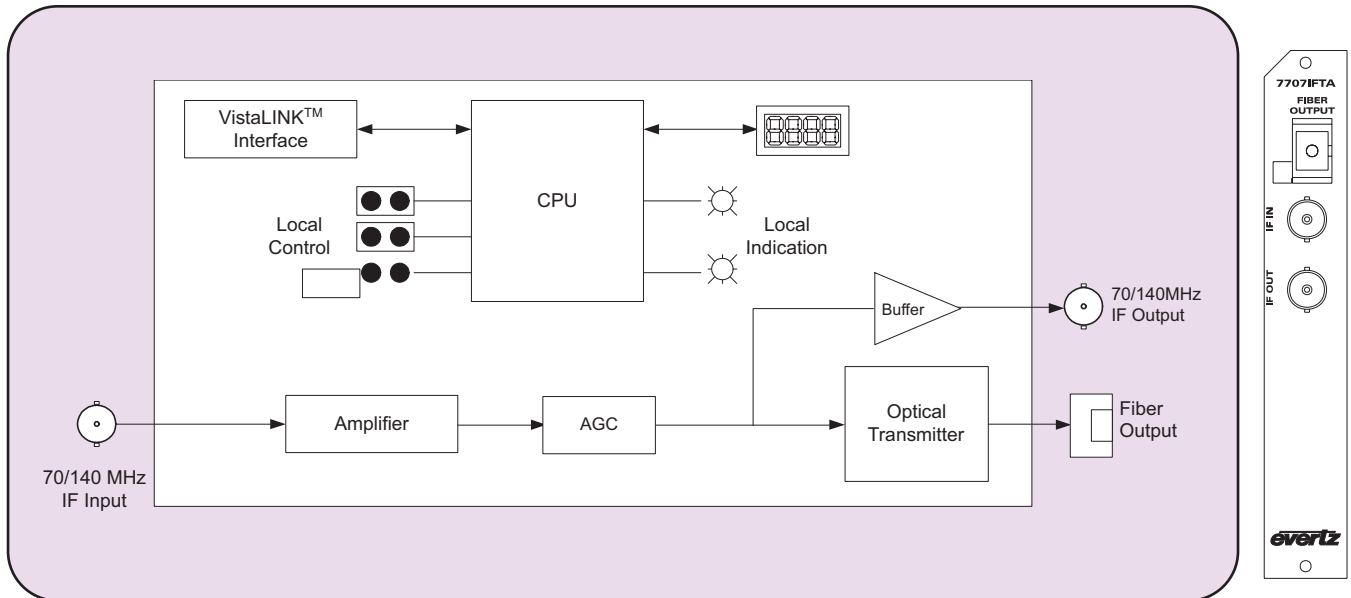
- 30-200 MHz bandwidth
- Wide dynamic range RF input (-5 to -65dBm)
- Protocol transparent - transmits all video, audio and data modulation formats
- Supports manual and automatic gain control on IF input
- Wide AGC hold range (45dB) using 7707IFTA + 7707IFRA
- Additional IF BNC output for monitoring 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) (Input signal) + (manual Gain setting) |
| Manual mode: | (Input signal) + (manual Gain setting) |
| Intermodulation Products: | -50dBc (-10dBm RF in, AGC 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 |
|------------------|---|

Ordering Information:

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™ |
|------------|---|

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™ |
|--------------|---|

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 |
| +SCA | SC/APC (Angle Polished, available with 7707IFTA13 only) |
| +ST | ST/PC |
| +FC | FC/PC |
| +FCA | 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 |

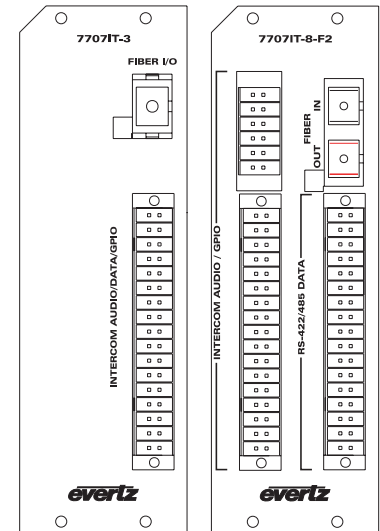
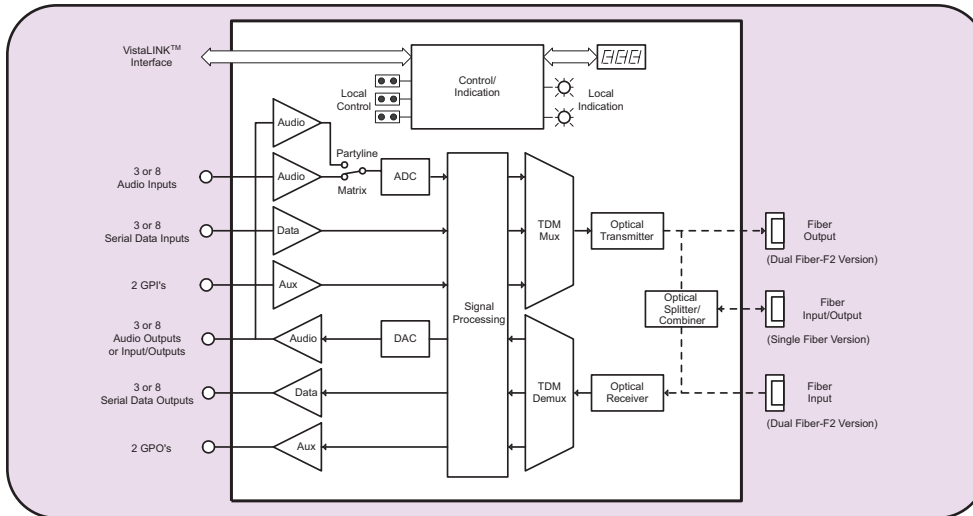
Multi-Channel Intercom Fiber Transceivers



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™
- 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 $\pm 1\text{dBm}$
Fiber loss= 0.35/0.25dB per km @1310nm/1550nm

Multi-Channel Intercom Fiber Transceivers

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: > 10k Ω

Output Impedance: 66 Ω

Signal Resolution: 24-Bits

Sampling Rate: 52.7kHz

Frequency Response: 20Hz to 20kHz

Gain Flatness: \pm 2dB

Input Level(max): +20dBu

Output Level(max):

Into 10K Ω +20dBu

Into 600 Ω +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: >10k Ω

Signal Resolution: 24-Bit

Sampling Rate: 52.7kHz

Sidetone Null: > 25dB

Sidetone Null Range: 100 Ω to 300 Ω load

Frequency Response: 120Hz to 20kHz

Gain Flatness: \pm 2dB

Input Level(max): +5dBu

Output Level(max): +5dBu (into 200 Ω load)

Signal/Noise Ratio: > 75dB

THD: < 0.1%

Crosstalk: < -60dB

Controllable Gain: -5dB to +5dB (into 200 Ω load)

Receive Signaling: 4VDCmin (ClearCom), 20KHz \pm 500Hz (RTS)

Send Signaling: 11VDCmin (ClearCom), 20KHz \pm 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: 120 Ω or Open (selectable)

Input Failsafe Bias: 200mV (3.3mA into 60 Ω) 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(typ): 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

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:

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

The 7707LR is a VistaLINK™ -enabled fiber optic receiver for L-Band Satellite signals. The 7707LR accepts a fiber optic input from the companion 7707LTA and provides two 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 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

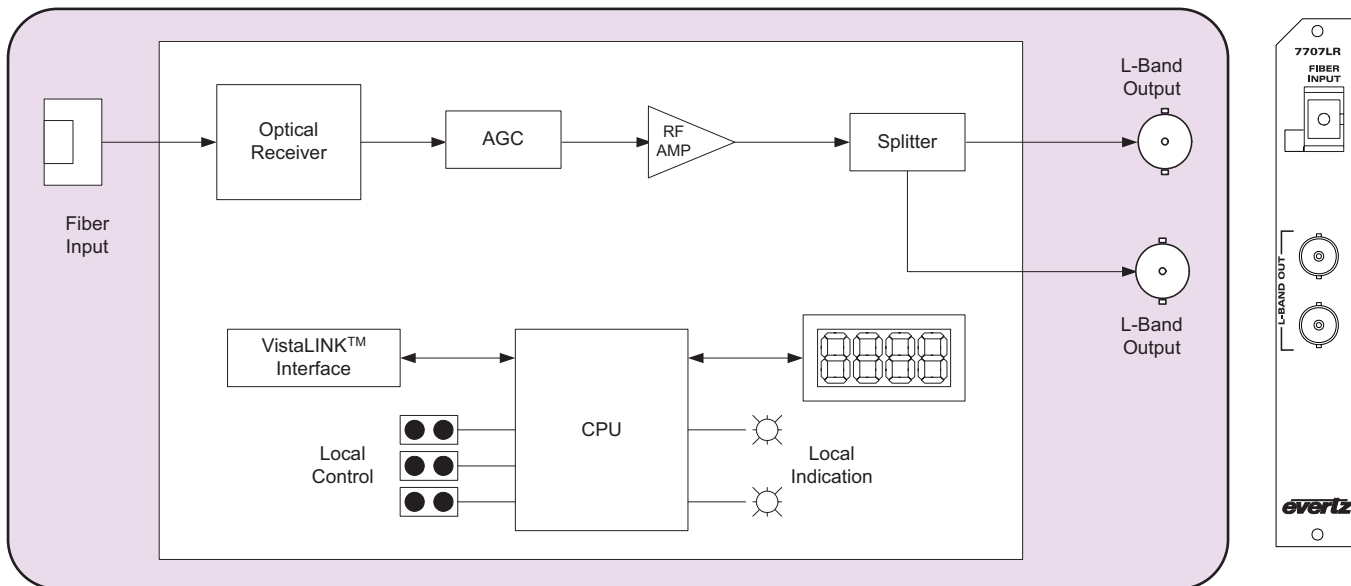
- Broadband operation - 950 to 2250MHz
- Protocol transparent - receives all video, audio and data modulation formats
- Supports manual and automatic gain control (AGC)
- Wide AGC hold range (50dB) using 7707LTA + 7707LR
- Two L-Band RF outputs for extra signal distribution or monitoring functions
- RF output independent of optical loss (within AGC range)
- Available with BNC or F-Type connector options
- 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 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 | 0dBm | 7707LR | -14dBm | 1310nm FP laser on Tx |
| Medium Haul | 16dB/45km | 7707LTA13L | +2dBm | 7707LR | -14dBm | 1310nm DFB laser on Tx |
| Long Haul | 16dB/64km | 7707LTA15 | +2dBm | 7707LR | -14dBm | 1550nm DFB laser on Tx |
| Long Haul | 25dB/71km | 7707LTA13L | +2dBm | 7707LR-H | -23dBm | 1310nm DFB laser on Tx, High Sensitivity RX |
| Long Haul | 25dB/100km | 7707LTA15 | +2dBm | 7707LR-H | -23dBm | 1550nm DFB laser on Tx, High Sensitivity RX |
| MULTI-SIGNAL PER FIBER (WAVELENGTH MUX/DEMUX) | | | | | | |
| Medium Haul | 12.5dB/50km | 7707LTAxx | +2dBm | 7707LR | -14dBm | 1470nm-1610nm CWDM DFB laser on Tx, with 8 Ch CWDM Mux/Demux* |
| Long Haul | 21.5dB/86km* | 7707LTAxx | +2dBm | 7707LR-H | -23dBm | 1470nm-1610nm CWDM DFB laser on Tx, High Sensitivity RX, 8 Ch CWDM Mux/Demux* |
| Long Haul | 16dB/64km** | 7707LTADyyy | +7dBm | 7707LR | -14dBm | DWDM DFB laser on Tx, with 8 Ch DWDM Mux/Demux** |
| Long Haul | 25dB/100km** | 7707LTADyyy | +7dBm | 7707LR-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 | | | | | | |

L-Band Satellite Fiber Receiver with VistaLINK™ Monitoring

7707LR Block Diagram



Specifications

RF Outputs:

Connector: 2 BNC's (F-type optional)
I/O Impedance: 75 Ω (50 Ω optional) (See Ordering Information)
Return Loss: >10dB
Frequency Range: 950MHz - 2250MHz
Flatness: ± 1.5 dB (max) @950MHz-2250MHz
 ± 0.25 dB @ 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 in on TX, 1m fiber, AGC mode on TX & RX)

Carrier to Noise: 37dB @ any 36MHz BW
Noise Figure: (AGC mode on 7707LTA and 7707LR)
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

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: 75 Ω I/O impedance ships standard

7707LR

L-Band Satellite Fiber Receiver, VistaLINK™ Monitoring

7707LR-H

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 50 Ω I/O impedance

Connector Suffix

+SC SC/PC
+SCA SC/APC (Angle Polished)
+ST ST/PC
+FC FC/PC
+FCA FC/APC (Angle Polished)
+F75 75 Ω , 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

(Replaces the 7707LT & offers improved performance and wider operating range)

The 7707LTA is a VistaLINK™ -enabled fiber optic transmitter for L-Band satellite signals. The 7707LTA accepts one L-Band coaxial input and provides 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 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

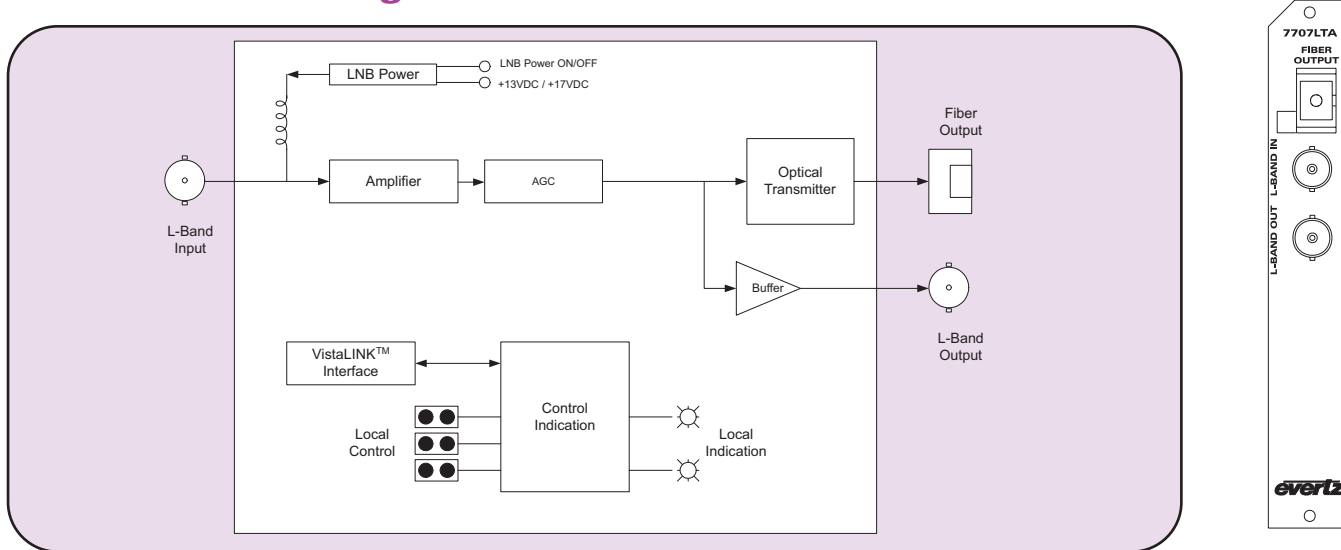
- Broadband operation - 950 to 2250 MHz
- Wide dynamic range RF input (-20 to -65dBm)
- Protocol transparent - transmits all video, audio and data modulation formats
- Supports manual and automatic gain control (AGC)
- Wide AGC hold range (50dB) using 7707LTA + 7707LR
- Additional L-Band BNC output for 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 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 | 0dBm | 7707LR | -14dBm | 1310nm FP laser on Tx |
| Medium Haul | 16dB/45km | 7707LTA13L | +2dBm | 7707LR | -14dBm | 1310nm DFB laser on Tx |
| Long Haul | 16dB/64km | 7707LTA15 | +2dBm | 7707LR | -14dBm | 1550nm DFB laser on Tx |
| Long Haul | 25dB/71km | 7707LTA13L | +2dBm | 7707LR-H | -23dBm | 1310nm DFB laser on Tx, High Sensitivity RX |
| Long Haul | 25dB/100km | 7707LTA15 | +2dBm | 7707LR-H | -23dBm | 1550nm DFB laser on Tx, High Sensitivity RX |
| MULTI-SIGNAL PER FIBER (WAVELENGTH MUX/DEMUX) | | | | | | |
| Medium Haul | 12.5dB/50km | 7707LTAxx | +2dBm | 7707LR | -14dBm | 1470nm-1610nm CWDM DFB laser on Tx, with 8 Ch CWDM Mux/Demux* |
| Long Haul | 21.5dB/86km* | 7707LTAxx | +2dBm | 7707LR-H | -23dBm | 1470nm-1610nm CWDM DFB laser on Tx, High Sensitivity RX, 8 Ch CWDM Mux/Demux* |
| Long Haul | 16dB/64km** | 7707LTADyyy | +7dBm | 7707LR | -14dBm | DWDM DFB laser on Tx, with 8 Ch DWDM Mux/Demux** |
| Long Haul | 25dB/100km** | 7707LTADyyy | +7dBm | 7707LR-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 | | | | | | |

L-Band Satellite Fiber Transmitter with VistaLINK™ Monitoring

7707LTA 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:

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
Flatness: ± 1.5dB @ 1000MHz - 2250MHz
 ± 0.25dB @ any 36MHz BW

Output Signal Level

AGC mode: -20dBm constant (within AGC range)
Manual mode: (Input signal) + (manual Gain setting) -5dB
Intermodulation Products: -55dBc (-20dBm RF in, AGC 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 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:

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

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

7707LTAx

L-Band Satellite Fiber Transmitter, CWDM wavelength, with VistaLINK™

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

7707LTADy

L-Band Satellite Fiber Transmitter, DWDM wavelength, with 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

Impedance Suffix

+50 50Ω I/O impedance

Connector Suffix

+SC SC/PC
+SCA SC/APC (Angle Polished available with 7707LTA13 only)
+ST ST/PC
+FC FC/PC
+FCA 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

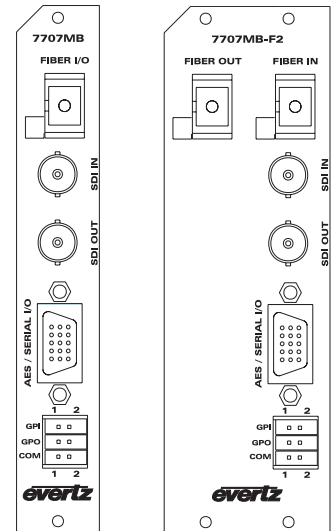
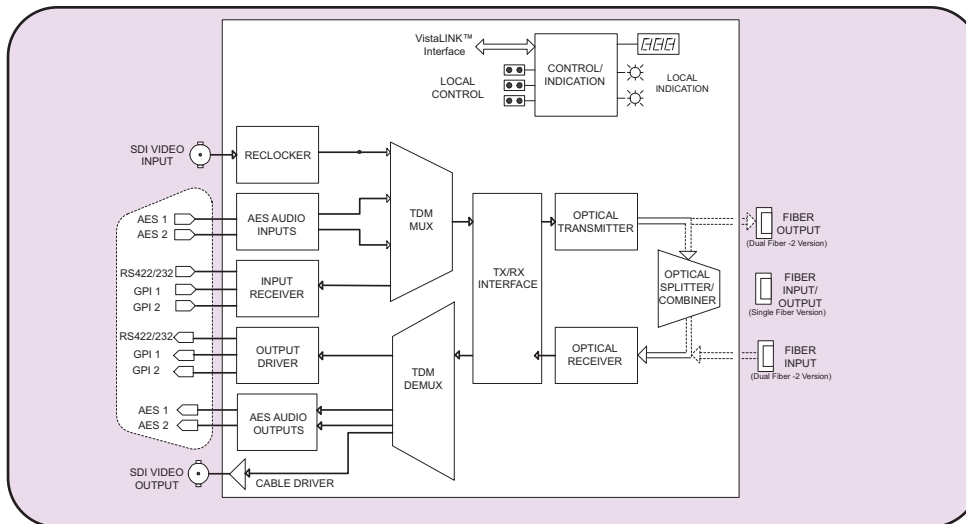
- Bi-directional fiber optic transceiver for 1 SDI Video, 2 AES Audio, 1 RS-232/422 and 2 GPI/O
- Supports 525 or 625 line 4:2:2 component SDI signals
- Supports 32, 44.1, 48 kHz AES audio
- Dolby E compatible
- Supports bi-directional RS422 rates up to 3 Mb/s
- Low Audio to Video latency
- Signal transport 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
Unbalanced AES: AES3-1992
Balanced: Dolby E compatible
Other: 2 (Jumper selectable for balanced or unbalanced)
Connector: 4 pins on female high density DB-15
Signal Level: 1Vp-p \pm 0.1V
Unbalanced: 2 to 7Vp-p with Level Jumper set to HI, 1 to 2Vp-p with level jumper set to LO
Balanced: 300m @ 48kHz with Belden 1800B or equivalent cable
Equalization: Up to 24 bits
Resolution: 32, 44.1, 48 kHz
Sampling Rate: Unbalanced - 75 Ω , Balanced - 110 Ω
Impedance:

AES Audio Outputs:

Standard: SMPTE 276M
Unbalanced: AES3-1992
Balanced: Dolby E compatible
Other: 2 regenerated (Jumper selectable for balanced or unbalanced)
Number of Outputs: 4 pins on female high density DB-15
Connector: 4 pins on female high density DB-15
Signal Level: 1Vp-p
Unbalanced: 5Vp-p
Balanced: Up to 24 bits
Resolution: 32, 44.1, 48 kHz
Sampling Rate: < 20ns
Intrinsic Jitter: Unbalanced - 75 Ω , Balanced - 110 Ω
Impedance:

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)
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC directive

Physical:

Number of slots: 1

Ordering Information:

7707MB13

Bi-directional SDI, 2 AES, RS232/422, GPI/O Fiber Transceiver, single fiber, 1310nm FP TX & RX, VistaLINK™
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
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
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 & Accessories:

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 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, 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 GPI/O 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's 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 GPI/O 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 ** 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 |

HD-SDI, 4 AES Audio Bi-Directional RS232/422, 1 GPIO/GPO, Fiber Receiver

Model 7707MR-HD



Features

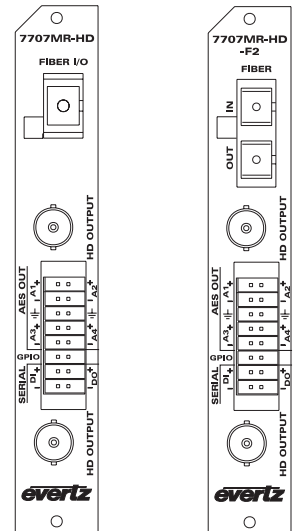
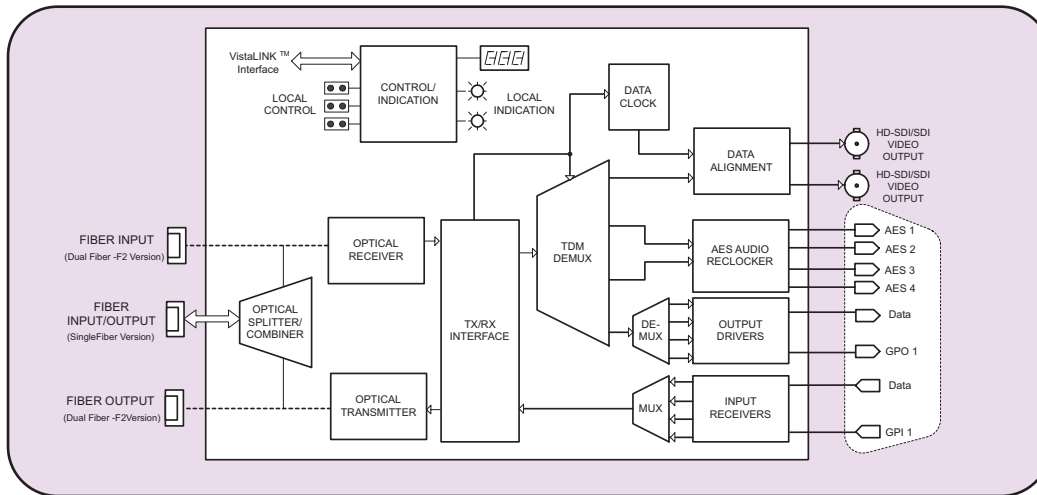
- Supports HD-SDI, SDI and DVB-ASI video
- Demultiplexes up to 4 AES audio, bi-directional RS-232/422 and 1 GPIO with HD-SDI or SDI
- Supports all SMPTE 292M (1.485Gb/s) rates/standards
- Supports 525/625 line component 4:2:2 SDI @ 270 Mb/s
- Supports 32, 44.1, 48 kHz AES audio
- Handles bi-directional RS-422 rates up to 3 Mb/s
- Low Audio to Video latency
- Dolby E compatible
- Signal transport over fiber uninterrupted by loss of input Video, AES, Serial Data or GPIO 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
- 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 with no fiber disconnect/reconnect required
- 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* | 7707MT13-HD | -10dBm | 7707MR13-HD | -19dBm | 1310nm, bi-directional, one fiber |
| Single-Mode | 1(WDM) | 20dB/57km | 7707MT15-HD-W | -1dBm | 7707MR13L-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-H | 0dBm | 7707MRxx-HD-F2-H | -28dBm | Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**, high sensitivity receiver |
| 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-H | +7dBm | 7707MRDxxx-HD-F2-H | -28dBm | Different DWDM wavelengths for 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 | | | | | | | |

HD-SDI, 4 AES Audio Bi-Directional RS232/422, 1 GPI/GPO, Fiber Receiver

7707MR-HD Block Diagram



Specifications

Optical Input/Output:

Connector:

Single Fiber:

1 Female SC/PC, ST/PC or FC/PC

Dual Fiber (F2):

2 Female SC/PC, ST/PC or FC/PC

Return Loss:

> 14dB

Input Wavelengths:

1270nm to 1610nm

Maximum Input Power:

-1dBm(standard), -8dBm (-F2-H versions)

Input Optical Sensitivity:

See Application Configuration Chart

Output Wavelengths:

See Ordering Information

Output Power:

See Application Configuration Chart

Serial Video Outputs:

Number of Outputs:

2 regenerated

Standard:

SMPT 292M, SMPT 259M-C, DVB-ASI

Connector:

BNC per IEC 60169-8 Amendment 2

Signal Level:

800mV nominal

DC Offset:

0V $\pm 0.5V$

Rise and Fall Time:

< 270ps for HD-SDI, < 900ps for SDI or DVB-ASI

Overshoot:

< 10% of amplitude

Return Loss:

> 15dB up to 1.485Gb/s

Wide Band Jitter:

< 0.2 UI

AES Audio Outputs:

Number of Outputs:

4 regenerated (user selectable for balanced or unbalanced)

Standard:

SMPT 276M

Unbalanced AES:

AES3-1992

Balanced AES:

Dolby E compatible

Other:

8 pins on female high density DB-15

Connector:

8 pins on female high density DB-15

Signal Level:

1 Vp-p $\pm 0.1V$

Unbalanced:

5 Vp-p $\pm 0.1V$

Balanced:

Up to 24-bits

Resolution:

32, 44.1, 48 kHz

Sampling Rate:

< 20ns

Intrinsic Jitter:

< 20ns

Impedance:

75 Ω

Unbalanced:

110 Ω

Balanced:

110 Ω

Serial Data Ports:

Number of Ports:

1 RS-422 or 2 RS-232 (user 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:

1

Type:

Opto-isolated, active low

Connector:

1 pin on female high density DB-15

Signal Drive Level:

Open or closure to ground

General Purpose Outputs:

Number of Outputs:

1

Type:

"Dry Contact" relay closure

Connector:

1 pin on female high density DB-15

Signal Level:

Normally open

System Performance (7707MT-HD + 7707MR-HD):

Video Input To Output Delay:

<2 μs

Audio to Video delay:

<1 μs

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:

1

Ordering Information:

7707MR13-HD

HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, single fiber, 1310nm FP Tx & Rx, VistaLINK™

7707MR13L-HD-W

HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, single fiber, WDM, 1310nm DFB Tx, Rx on 1550nm, VistaLINK™. Use with 7707MT15-HD-W

7707MR13-HD-F2

HD-SDI, 4 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-HD-F2

HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, dual fiber, CWDM TX, VistaLINK™

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

7707MRxx-HD-F2-H

HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, dual fiber, CWDM Tx, High sensitivity Rx, VistaLINK™

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

7707MRDyyy-HD-F2

HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, dual fiber, DWDM Tx, VistaLINK™

For Long Distance DWDM, please refer to the end of the fiber section for ordering information

7707MRDyyy-HD-F2-H

HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Receiver, dual fiber, DWDM TX, High sensitivity RX, VistaLINK™

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, 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

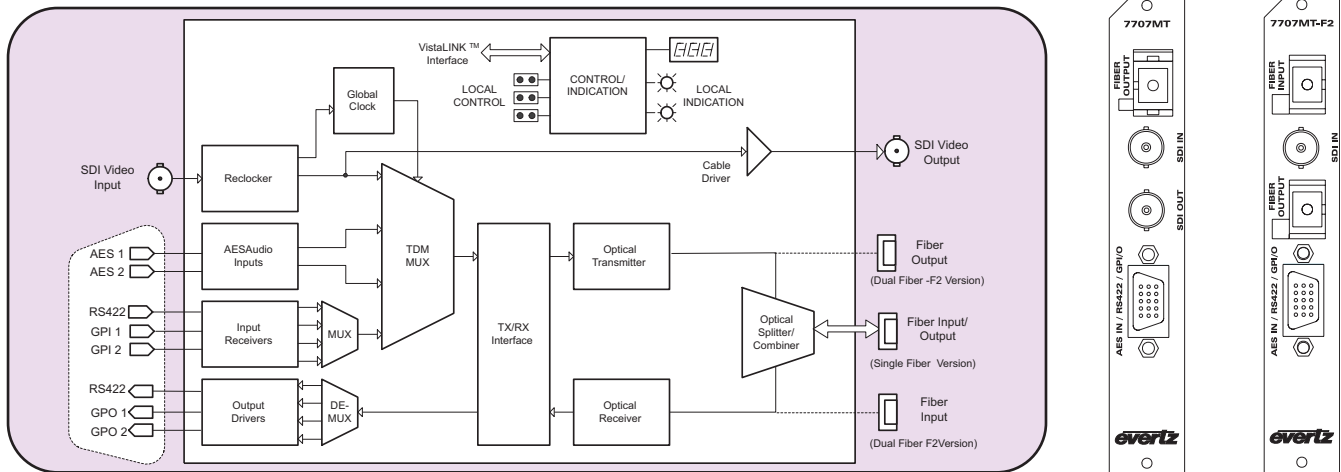
- SDI Video, 2 AES Audio, 1 bi-directional RS-232/422 and 2 GPI/O fiber optic transmitter
- Supports 525 or 625 line 4:2:2 component SDI signals
- Supports SDTi signals
- Supports 32, 44.1, 48 KHz AES audio inputs
- Dolby E compatible
- Supports bi-directional RS422 signals at baud rates up to 3 Mb/s
- 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:
Unbalanced: SMPTE 276M
Balanced: AES3-1992
Other: Dolby E compatible
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 7Vp-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)
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC directive

Physical:

Number of slots: 1

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

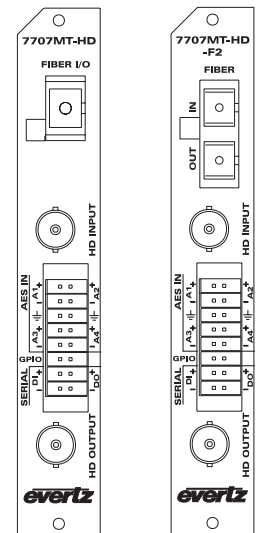
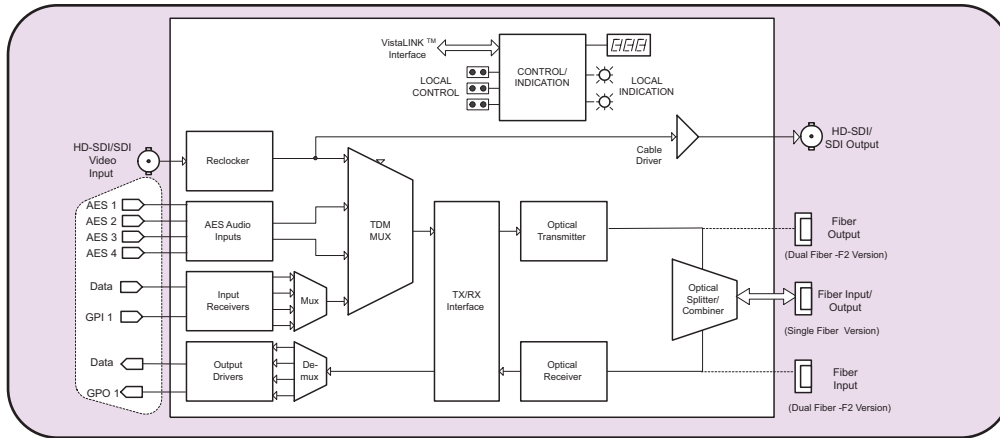
- Supports HD-SDI, SDI and DVB-ASI video
- Multiplexes up to 4 AES audio, bi-directional RS-232/422 and 1 GPIO with HD-SDI or SDI
- Supports all SMPTE 292M (1.485Gb/s) rates/standards
- Supports 525/625 line component 4:2:2 SDI @ 270 Mb/s
- Supports 32, 44.1, 48kHz AES audio inputs
- Handles bi-directional RS422 rates up to 3Mb/s
- 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
- Signal transport over fiber uninterrupted by loss of Video, AES, Serial Data or GPI/O input 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
- 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-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 disconnect/reconnect required
- 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* | 7707MT13-HD | -10dBm | 7707MR13-HD | -19dBm | 1310nm, bi-directional, one fiber |
| Single-Mode | 1(WDM) | 20dB/57km | 7707MT15-HD-W | -1dBm | 7707MR13L-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-H | 0dBm | 7707MRxx-HD-F2-H | -28dBm | Different CWDM wavelengths for Tx & Rx, with 8 channel CWDM Mux/Demux**, high sensitivity receiver |
| 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-H | +7dBm | 7707MRDxxx-HD-F2-H | -28dBm | Different DWDM wavelengths for 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 | |

HD-SDI, 4 AES Audio Bi-Directional RS-232/422, 1 GPI/GPO, Fiber Transmitter

7707MT-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M, SMPTE 259M-C, DVB-ASI
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 100m @ 1.485 Gb/s and 300m @ 270 Mb/s with Belden 1694A or equivalent cable
Return Loss: > 15 dB up to 1.485 Gb/s

Serial Video Output:

Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: < 270ps for HD-SDI, < 900ps for SDI or DVB-ASI
Overshoot: < 10% of amplitude
Return Loss: > 15dB up to 1.485 Gb/s
Wide Band Jitter: < 0.2 UI

AES Audio Inputs:

Number of Inputs: 4 (user selectable for balanced or unbalanced input)
Standard:
Unbalanced AES: SMPTE 276M
Balanced AES: AES3-1992
Other: Dolby E compatible
Connector: 8 pins on female high density DB-15
Signal Level:
Unbalanced: 1V p-p \pm 0.1V
Balanced: 5Vp-p \pm 0.1V
Equalization: Up to 500m @ 48kHz with Belden 1800B or equivalent cable
Resolution: Up to 24 bits
Sampling Rate: 32, 44.1, 48 kHz
Impedance: 75 Ω (unbalanced), 110 Ω (balanced)

Serial Data Ports:

Number of Ports: 1 RS-422 or 2 RS-232 (user selectable)
Connector: 4 pins (plus ground) on female high density DB-15
Baud Rate: Up to 3 Mb/s for RS-422 (Determined by incoming data)

General Purpose Inputs:

Number of Inputs: 1
Type: Opto-isolated, active low
Connector: 1 pin on female high density DB-15
Signal Drive Level: Open or closure to ground

General Purpose Outputs:

Number of Outputs: 1
Type: "Dry Contact" relay closure to ground
Connector: 1 pin on female high density DB-15
Signal Level: Normally open

Optical Input/Output:

Connector:
Single Fiber: 1 Female SC/PC, ST/PC or FC/PC
Dual Fiber (F2): 2 Female SC/PC, ST/PC or FC/PC
Return Loss: > 14dB
Input Wavelengths: 1270nm to 1610nm
Maximum Input Power: -1dBm(standard), -8dBm (-F2-H)
Input Optical Sensitivity: See Application Configuration Chart
Output Wavelengths: See Ordering Information
Output Power: See Application Configuration Chart

System Performance (7707MT-HD + 7707MR-HD):

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)

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

Physical:

Number of slots: 1

Ordering Information:

7707MT13-HD HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter, single fiber, 1310nm FP Tx & Rx, VistaLINK™
7707MT15-HD-W HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter, single fiber, WDM, 1550nm DFB Tx, Rx on 1310nm, VistaLINK™. Use with 7707MR13L-HD-W
7707MT13-HD-F2 HD-SDI, 4 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-HD-F2 HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter, dual fiber, CWDM Tx, VistaLINK™

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

7707MTxx-HD-F2-H HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter, dual fiber, CWDM Tx, High sensitivity Rx, VistaLINK™

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

7707MTDyyy-HD-F2 HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter, dual fiber, DWDM Tx, VistaLINK™

For Long Distance DWDM, please refer to the end of the fiber section for ordering information

7707MTDyyy-HD-F2-H HD-SDI, 4 AES, Bi-directional RS232/422, GPI/O Fiber Transmitter, dual fiber, DWDM Tx, High sensitivity Rx, VistaLINK™

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 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 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

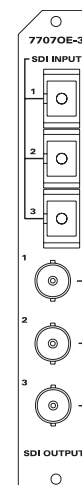
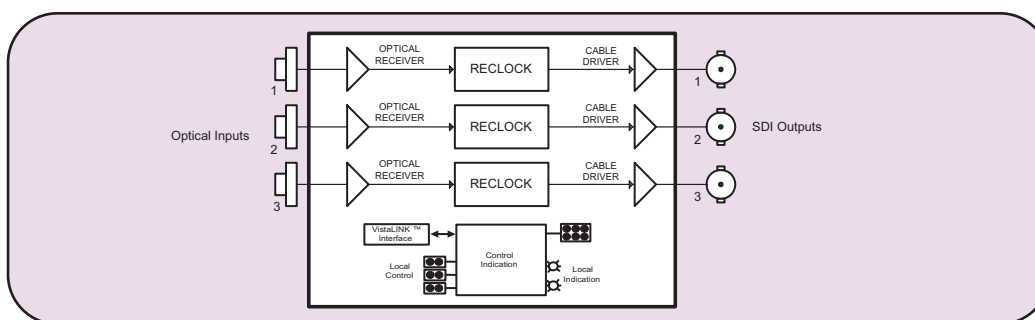
Outputs:

- 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

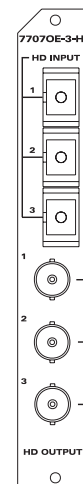
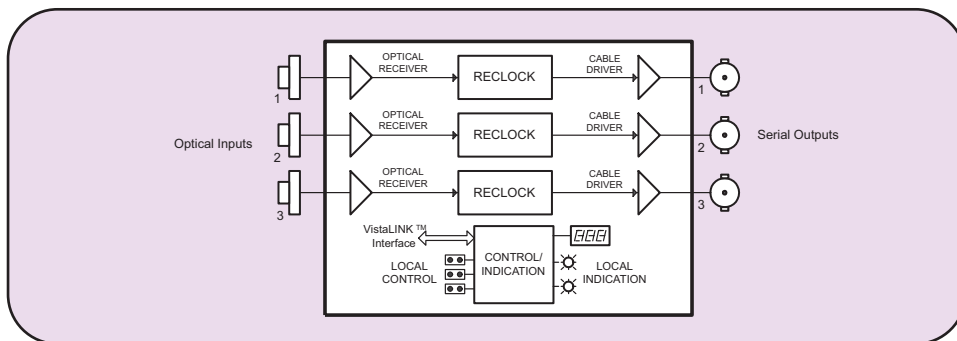
19.4Mb/s to 1.485Gb/s

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

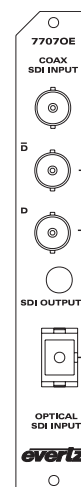
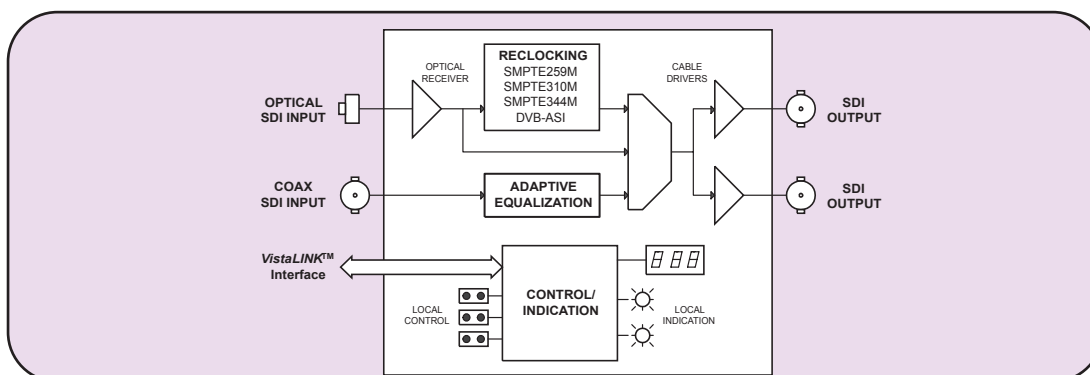
SDI Optical to Electrical Converter, 19.4Mb/s or 143-540Mb/s, VistaLINK™ Monitoring

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-relocked 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

Ex: 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

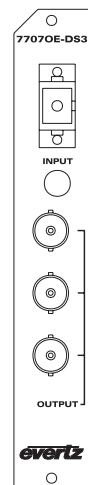
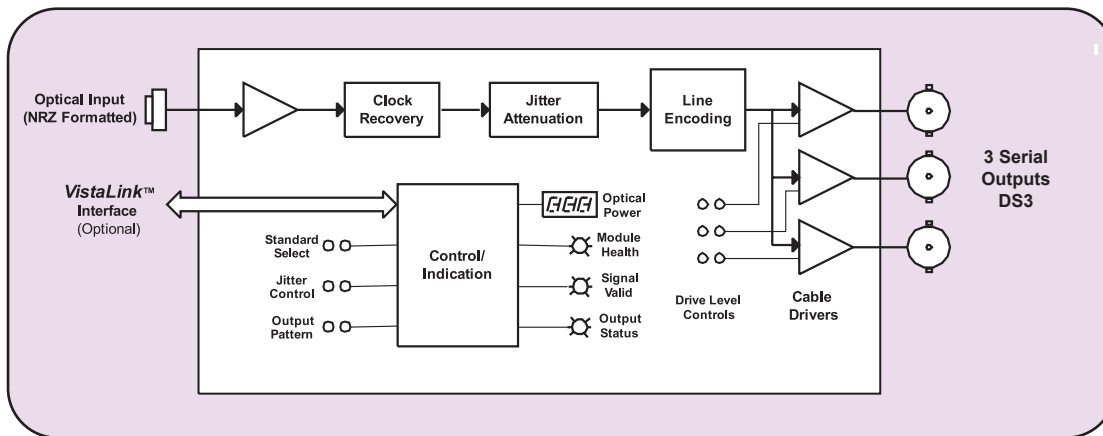


Model 7707OE-DS3

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 inputs/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

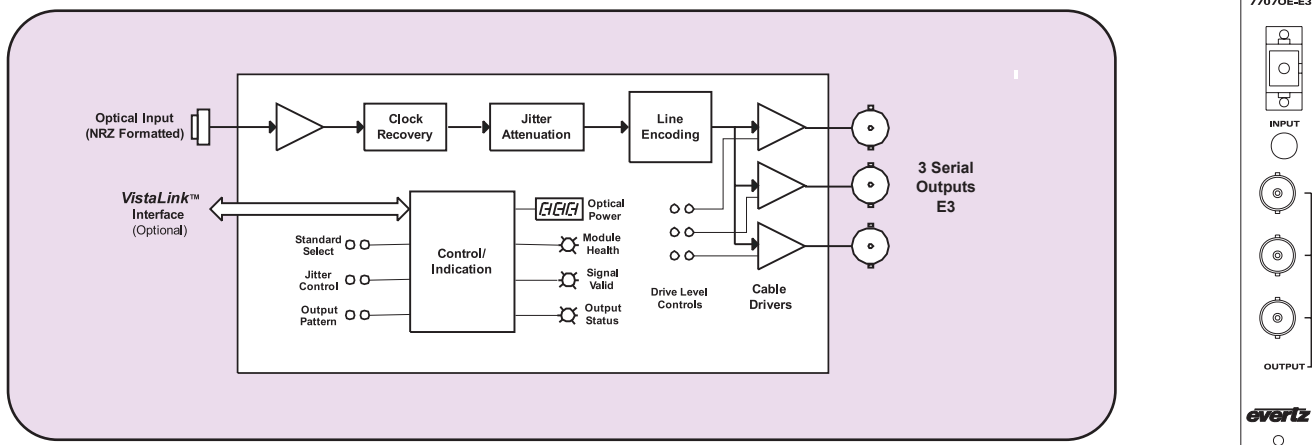


Model 7707OE-E3

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 inputs/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 Information:

7707OE-E3 E3 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

HDTV Optical to Electrical Converter

19.4Mb/s to 1.5Gb/s

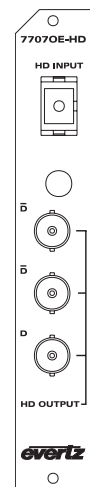
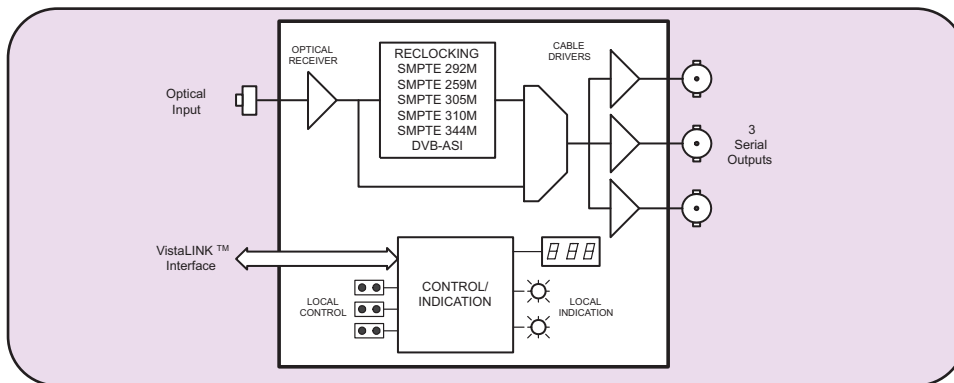


Model 7707OE-HD

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

For standalone applications also see 2405 series fiber modules

Optical Regenerator/Wavelength Converter, 19.4Mb/s to 540Mb/s, VistaLINK™

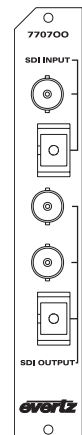
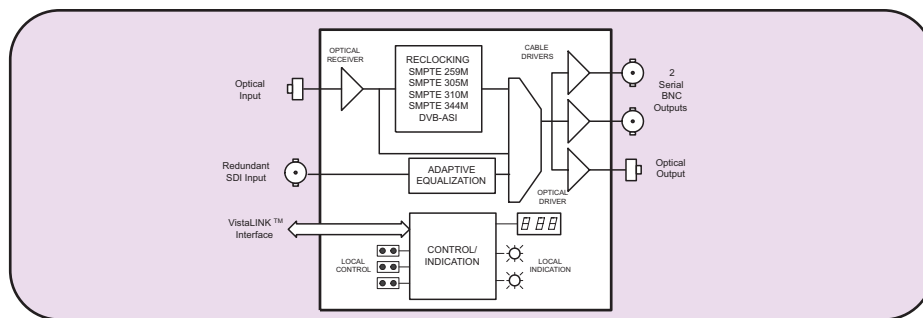
Model 770700

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)

Physical:
Number of Slots 1

Electrical:

Voltage: +12V DC
Power: 6 Watts (Non DWDM), 9 Watts (DWDM)

Ordering Information:

77070013 Optical Regenerator / Wavelength Converter for rates to 540Mb/s, 1270nm to 1610nm input, 1310nm FP output
77070015 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

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 1.485Gb/s, VistaLINK™

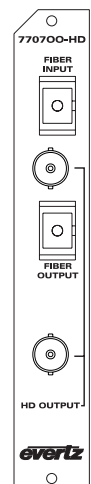
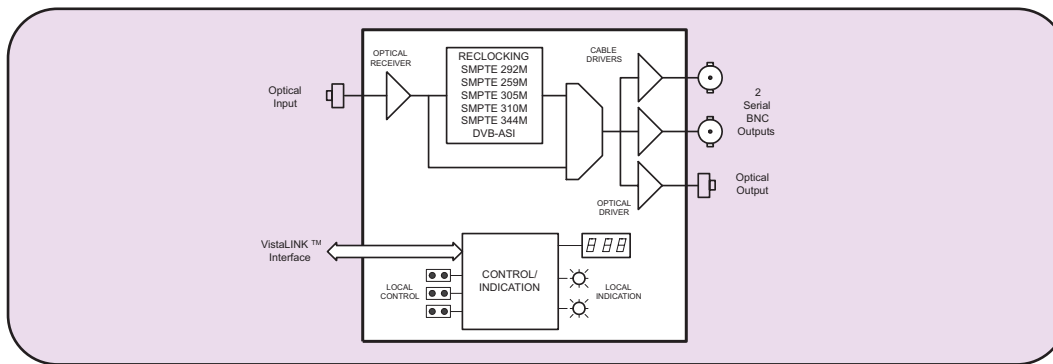


Model 770700-HD

Features

- Optical wavelength converter and/or optical repeater
- 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), DVB-ASI (270Mb/s), SMPTE 344M (540Mb/s), and SMPTE 305M (SDTi) rates
- Auto rate selection and indication for all SDI and HD-SDI data rates from 143Mb/s to 1.485Gb/s
- Wide range optical input (1270nm-1610nm)
- Supports single-mode and multi-mode fiber optic cable
- Reclocked optical input, with selectable non-reclock mode
- BNC outputs 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 (SDI only)
- Fully hot swappable from front of frame

770700-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 |
| Operating Wavelength: | 1270nm - 1610nm |
| Max. Input Power: | |
| Standard: | -1dBm |
| High Sensitivity (-H): | -8dBm |
| Optical Sensitivity Standard: | -23dBm @ 1.485Gb/s |
| High Sensitivity (-H): | -28dBm @ 1.485Gb/s |

Optical Output:

| | |
|---------------------|--------------------------------------|
| Number of Outputs: | 1 reclocked |
| 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 |

Optical 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) |
| EMI/RFI: | Complies with FCC Part 15 Class A EU EMC directive |

Physical:

| | |
|------------------------------|---|
| 7700 or 7701 frame mounting: | 1 |
| Number of slots: | |

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 |

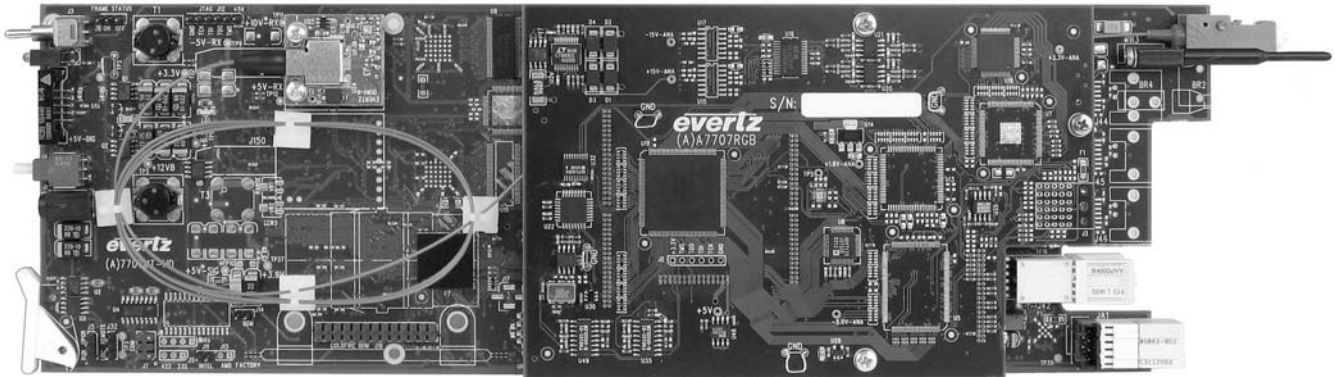
Enclosures:

| | |
|----------|---------------------------------------|
| 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 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

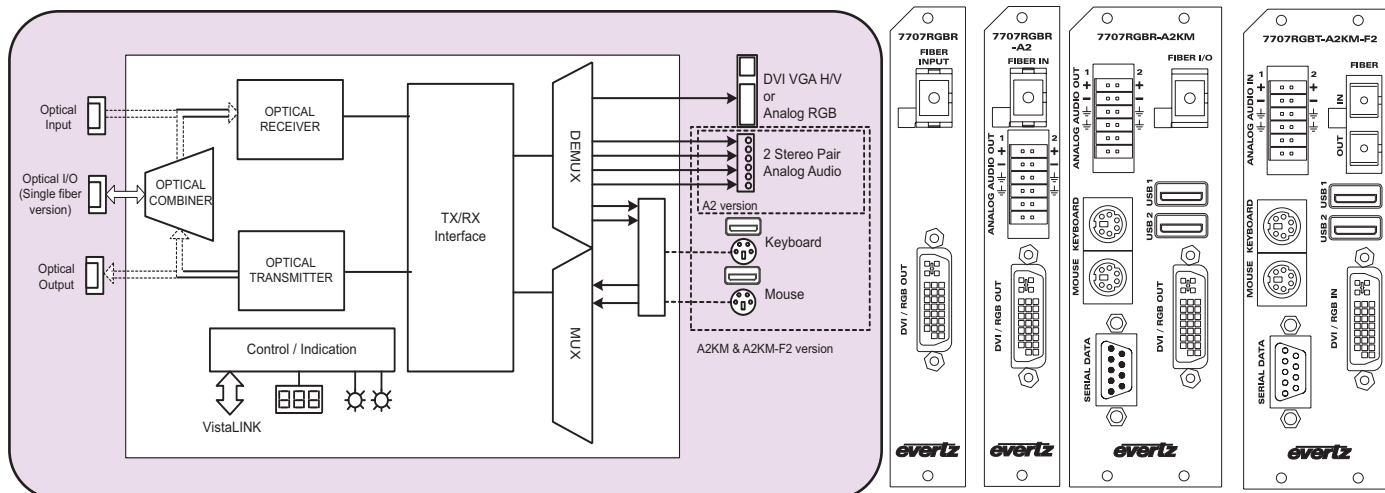
** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB

*** Assumes 8 Ch DWDM Mux/Demux loss of 5dB

Tx Power/Rx Sensitivity are nominal values ± 1 dBm
Fiber loss= 0.35/0.25dB per km @1310nm/1550nm

RGBHV/DVI/KVM Fiber Receiver VistaLINK™ Monitoring

7707RGR 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)

Ordering Information:

7707RGR RGBHV/DVI Fiber Receiver
7707RGR-A2 RGBHV/DVI +2 Analog Audio Fiber Receiver
7707RGR13-A2KM-F2 RGBHV/DVI/KVM +2 Analog Audio + Bi-di Keyboard and Mouse Fiber Receiver, dual fiber, 1310nm TX & RX

7707RGR13-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

7707RGRxx-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

7707RGRDyyy-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:

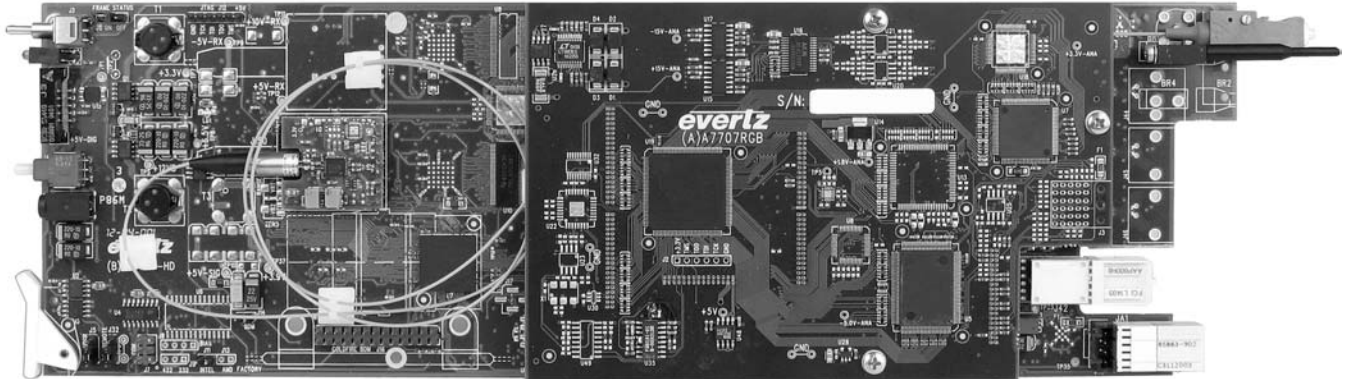
7700FR-C: 3RU Multiframe which holds 15 modules
7701FR: 1RU Multiframe which holds 3 modules
S7701FR: Standalone enclosure

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 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-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

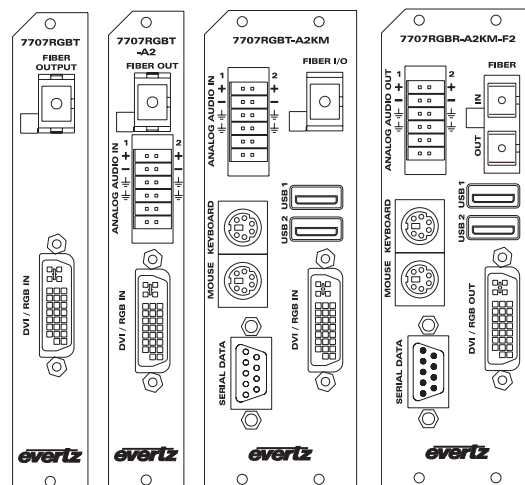
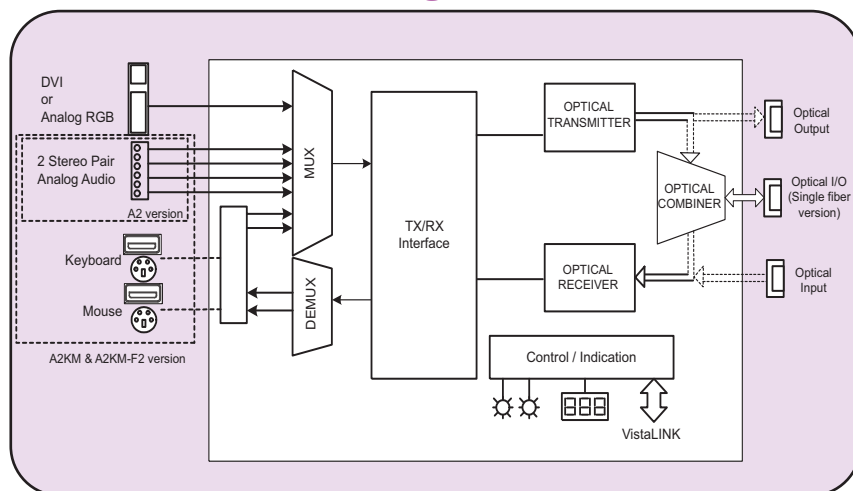
** Assumes 8 Ch CWDM Mux/Demux loss of 3.5dB

*** Assumes 8 Ch DWDM Mux/Demux loss of 5dB

Tx Power/Rx Sensitivity are nominal values ± 1 dBm
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-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-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-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)

Ordering Information:

7707RGBT13 RGBHV/DVI Fiber Transmitter, 1310nm FP
7707RGBT13-A2 RGBHV/DVI + 2 Analog Audio Fiber Transmitter, 1310nm FP
7707RGBT13-A2KM-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-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-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

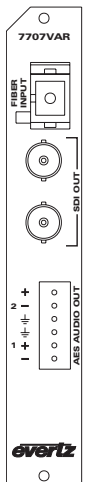
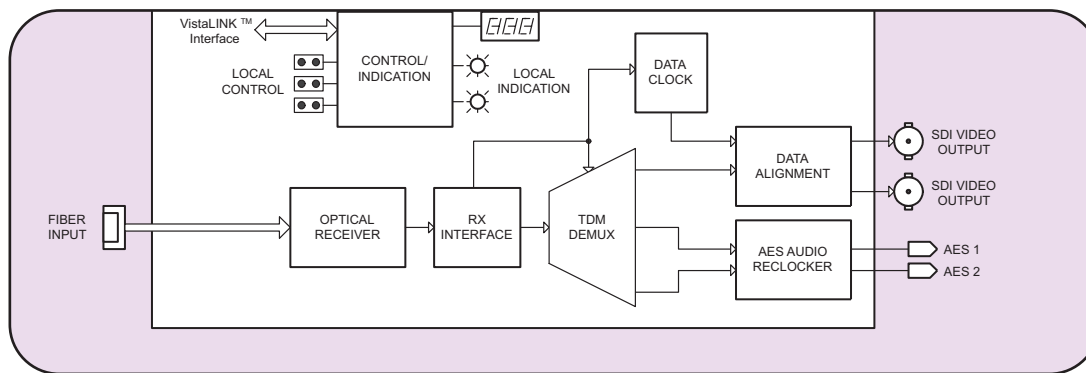
Models 7707VAR

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 + 7707VAR)

| | |
|------------------------------|---|
| 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 |
|---------|--|

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

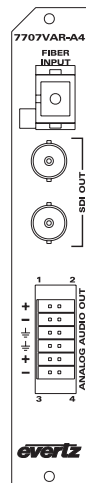
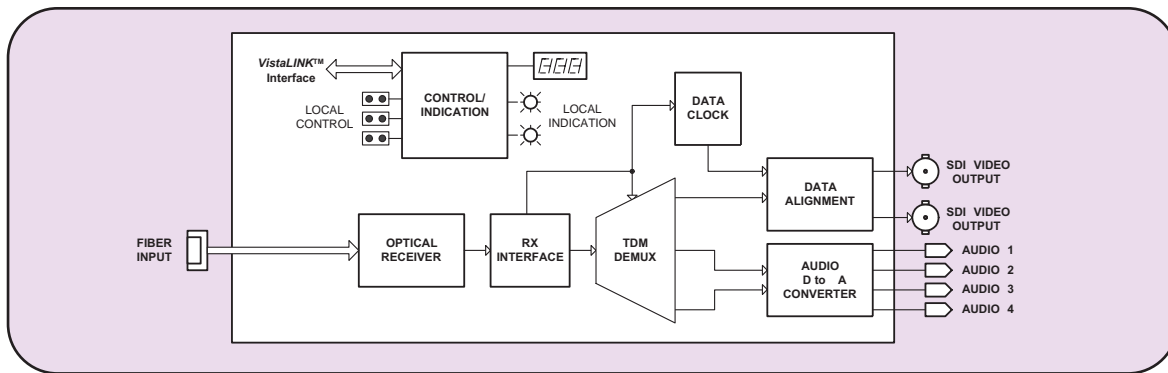
Model 7707VAR-A4

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 \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 |

Analog Audio Outputs:

| | |
|---------------------|-------------------------------|
| Number of Outputs: | 4 |
| Type: | Balanced analog audio |
| Connector: | 12 pin removal 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: (7707VAR-A4 + 7707VAR-A4)

| | |
|------------------------------|-------------|
| Video Input To Output Delay: | < 2 μ s |
| 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 |
|------------------|---|

Ordering Information:

| | |
|------------|--|
| 7707VAR-A4 | SDI with 4 Analog Audio 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

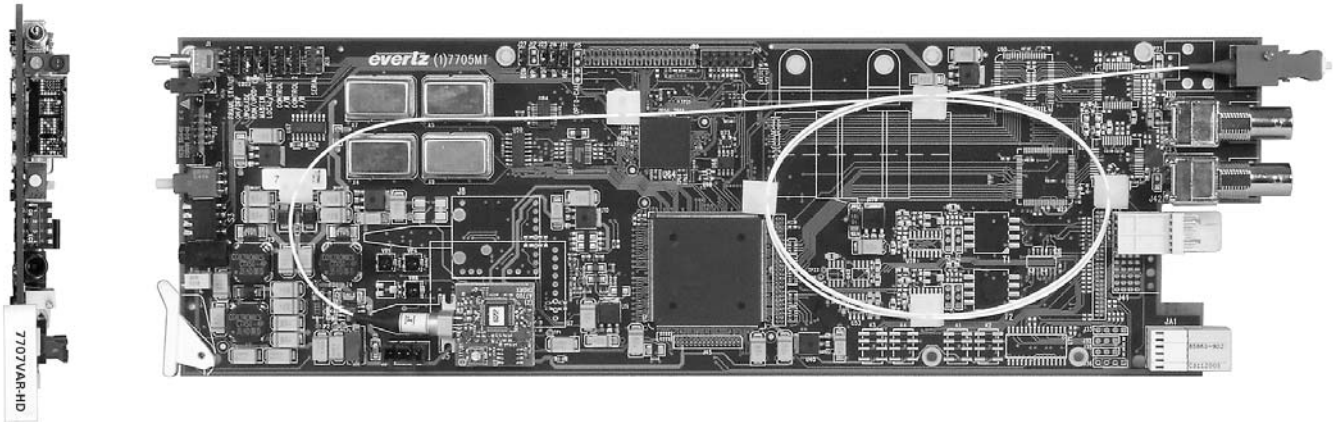
| | |
|-----|-------|
| +SC | SC/PC |
| +ST | ST/PC |
| +FC | FC/PC |

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 demultiplexes one HD-SDI, SDI or DVB-ASI video plus four AES Audio signals that have been combined by the companion 7707VAT-HD, HD-SDI and AES Audio Fiber Optic Transmitter module.

The 7707VAR-HD with 7707VAT-HD will transparently pass incoming HDTV or SDTV 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.

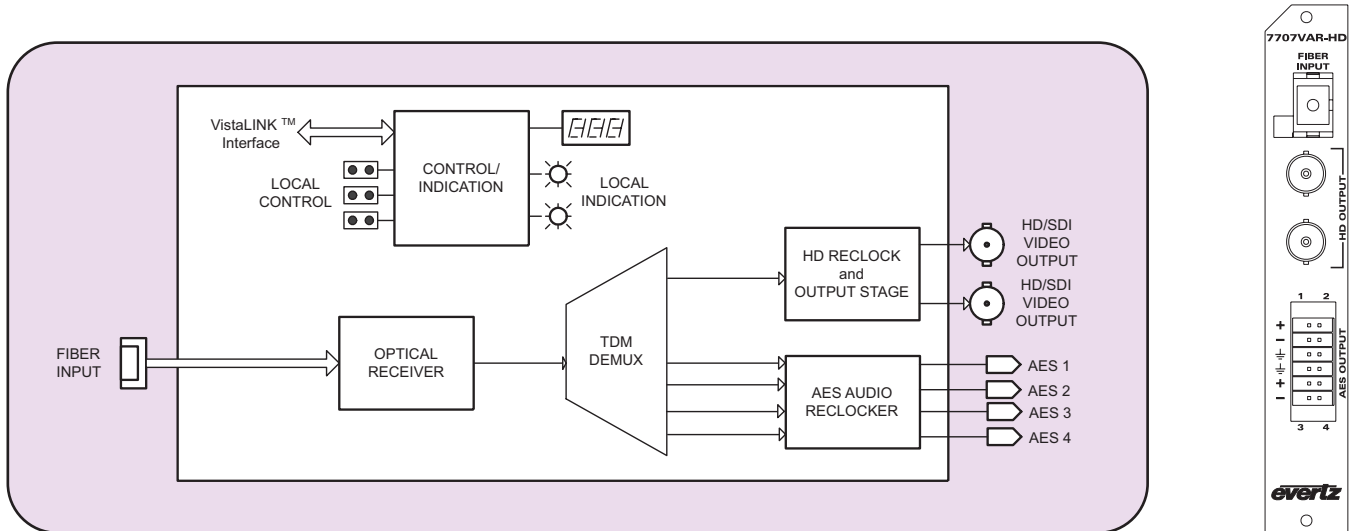
The 7707VAR-HD occupies one card slot and can be housed in either a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- Supports HD-SDI, SDI and DVB-ASI video
- Demultiplexes up to 4 AES audio with HD-SDI or SDI
- 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
- Dolby E compatible
- Low Audio to Video latency
- HD/SDI Video regeneration for low jitter serial outputs
- 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
- Supports single-mode and multi-mode fiber optic cable
- Accepts any wavelength in the 1270nm to 1610nm range
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required

HD-SDI with 4 AES Audio Fiber Receiver

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: -8dBm

Optical Sensitivity:

Standard: -23dBm
High Sensitivity
-H version: -28dBm

Serial Video Outputs:

Number of Outputs: 2 regenerated
Standard: SMPTE 292M, SMPTE 259M-C, DVB-ASI
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V $\pm 0.5V$
Rise and Fall Time: < 270ps for HDSDI, < 900ps for SDI or DVB-ASI
Overshoot: <10% of amplitude
Return Loss: > 15dB up to 1.485Gb/s
Wide Band Jitter: < 0.2 UI

AES Audio Outputs:

Standards

Unbalanced AES: SMPTE 276M
Balanced AES: AES3-1992
Other: Dolby E compliant

Number of Outputs: 4 regenerated (user selectable for balanced or unbalanced)

Connector: 12 pin removable terminal block

Signal Level:

Unbalanced: 1 Vp-p $\pm 0.1V$
Balanced: 5 Vp-p $\pm 0.1V$

Resolution:

Up to 24-bits

Sampling Rate:

32, 44.1, 48 kHz

Intrinsic Jitter:

< 20ns

Impedance:

Unbalanced: 75 Ω
Balanced: 110 Ω

System Performance (7707VAT-HD + 7707VAR-HD):

Video Input To Output

Delay: < 2 μs

Audio to Video delay: < 1 μs

Electrical:

Voltage: +12VDC
Power: 11 Watts
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC directive

Physical:

Number of slots: 1

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

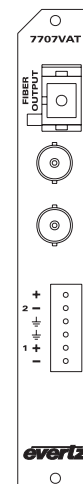
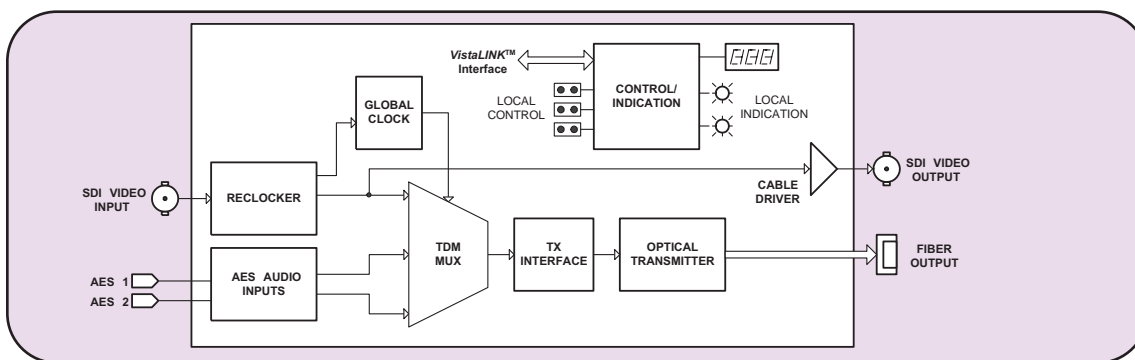
Models 7707VAT



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 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

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: 900ps nominal
Overshoot: <10% of amplitude
Return Loss: >15 dB at 270 Mb/s
Wide Band Jitter: <0.2 UI

AES Audio Inputs:

Number of Inputs: 2 (Jumper selectable for balanced or unbalanced input)
Standard: SMPTE 276M
Unbalanced AES: AES3-1992
Balanced AES: AES3-1992
Other: Dolby E compatible
Connector: 6 pin removable terminal block
Signal Level: 1V p-p ±0.1V
Unbalanced: 2 to 7Vp-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
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)
Complies with FCC Part 15, Class A
EMI/RFI: 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™

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 4 Analog Audio Fiber Transmitter

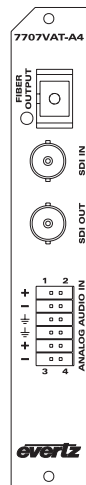
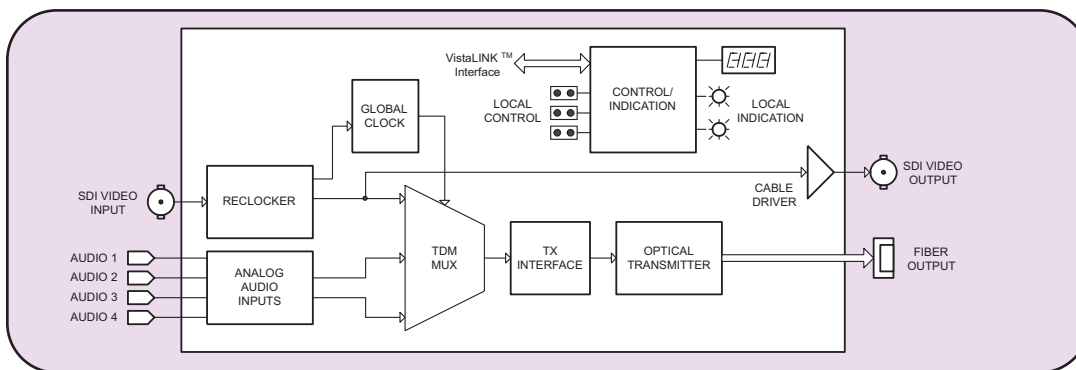
Models 7707VAT-A4

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 reclocked |
| 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 removal 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 |
|--------------|--|

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

| | |
|----------------|--|
| 7707VATDyxx-A4 | SDI with 4 Analog Audio Fiber Transmitter, DWDM DFB Laser, 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

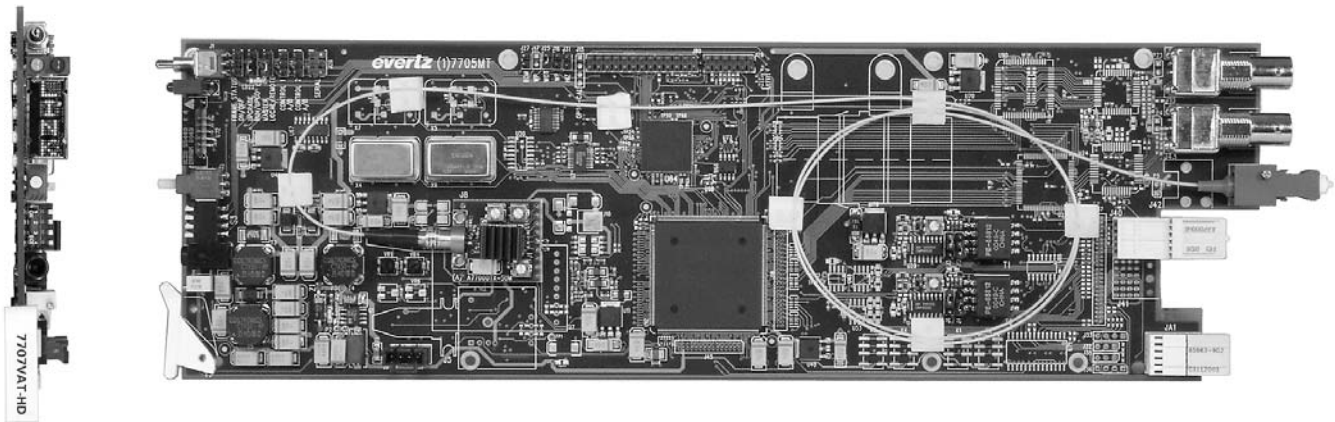
| | |
|-----|-------|
| +SC | SC/PC |
| +ST | ST/PC |
| +FC | FC/PC |

Enclosures:

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

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, SDI or DVB-ASI video plus four AES audio signals, combines them and transmits them over a single fiber. The companion 7707VAR-HD, HD-SDI and AES Audio Fiber Optic Receiver, demultiplexes the signals and converts them back to separate HDTV or SDTV video and AES audio feeds.

The 7707VAT-HD with 7707VAR-HD will transparently pass incoming HDTV or SDTV 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 provided.

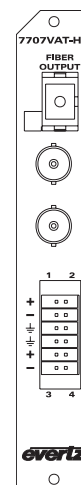
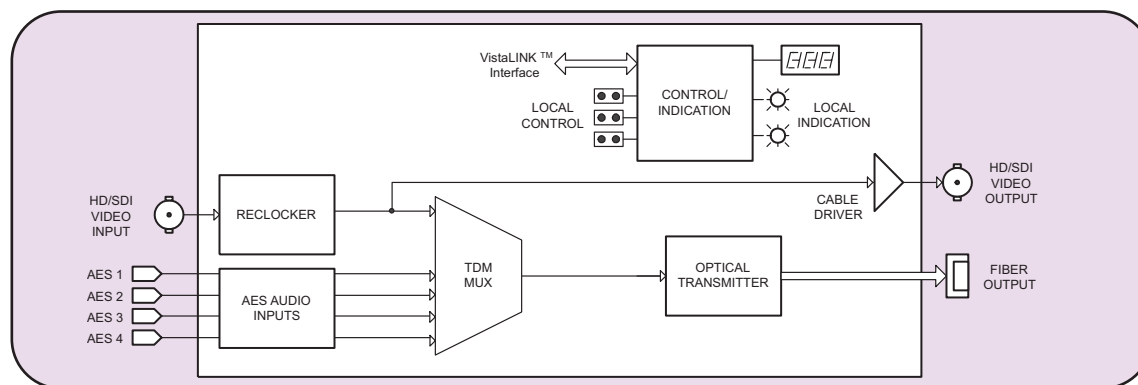
The fiber output is available in an assortment of optical wavelengths, accommodating 1310/1550nm, CWDM and DWDM transmission schemes. The 7707VAT-HD occupies one card slot and can be housed in the 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules or a standalone enclosure which will hold 1 module.

Features

- Supports HD-SDI, SDI and DVB-ASI video
- Multiplexes up to 4 AES audio with HD-SDI or SDI
- 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
- 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
- Automatic coaxial input equalization to 130m at 1.485Gb/s and 300m at 270Mb/s (Belden 1694)
- 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
- Fully Hot-swappable from front of frame with no fiber disconnect/reconnect required

HD-SDI with 4 AES Audio Fiber Transmitter

7707VAT-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M, SMPTE 259M-C, DVB-ASI
Connector: 1 BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 130m @ 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 reclocked
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V \pm 0.5V
Rise and Fall Time: < 270ps for HD-SDI, < 900ps for SDI or DVB-ASI
Overshoot: <10% of amplitude
Return Loss: >15 dB up to 1.485Gb/s
Wide Band Jitter: <0.2 UI

AES Audio Inputs:

Number of Inputs: 4 (user selectable for balanced or unbalanced)
Standard:
Unbalanced AES: SMPTE 276M
Balanced AES: AES3-1992
Other: Dolby E compliant
Connector: 12 pin removable terminal block
Signal Level:
Unbalanced: 1V p-p \pm 0.1V
Balanced: 0.2 to 7Vp-p
Equalization: Up to 500m @ 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

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 \pm 1dBm
1550nm & CWDM DFB 0dBm \pm 1dBm
DWDM DFB 7dBm \pm 1dBm

System Performance: (7707VAT-HD +7707VAR-HD)

Video Input To Output Delay: < 2 μ s
Audio to Video delay: < 1 μ s

Electrical:

Voltage: +12VDC
Power: 11 Watts (Non-DWDM)
13 Watts (DWDM)
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 CWDM Laser

For DWDM application please refer to end of fiber section for details
7707VATDyyy-HD 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

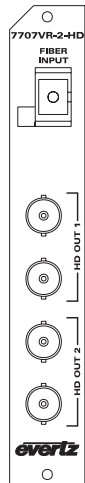
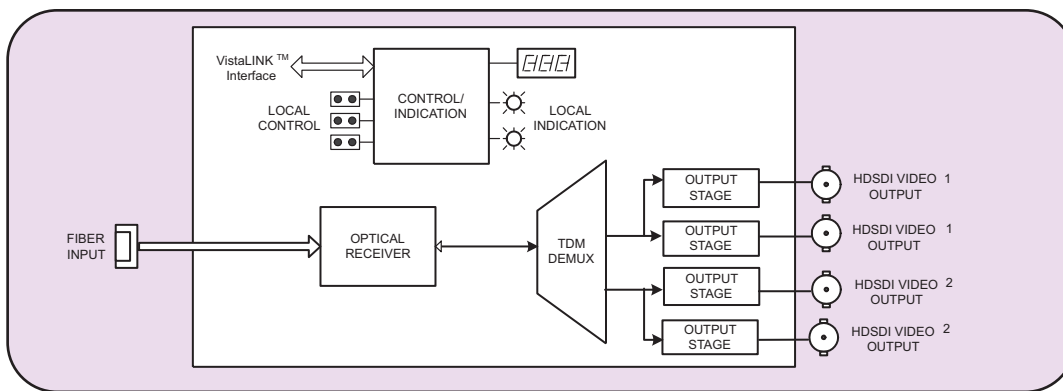


Model 7707VR-2-HD

Features

- Single card demultiplexer for two 1.485Gb/s HDSDI video signals
- HDSDI video regeneration on outputs
- 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 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-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: | -8dBm |
| Optical Sensitivity | |
| Standard Version: | -21dBm |
| -H Version: | -28dBm |

Serial Video Outputs:

| | |
|---------------------|---------------------------------|
| Standards: | SMPTE 292M |
| Number of Outputs: | 2 SETS OF 2 HDSDI signals |
| 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 at 1.485Gb/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 |
|------------------|---|

Ordering Information:

| | |
|---------------|--|
| 7707VR-2-HD | Dual HDSDI Fiber Receiver, VistaLINK™ Monitoring |
| 7707VR-2-HD-H | Dual HDSDI 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 |

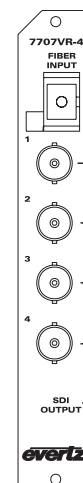
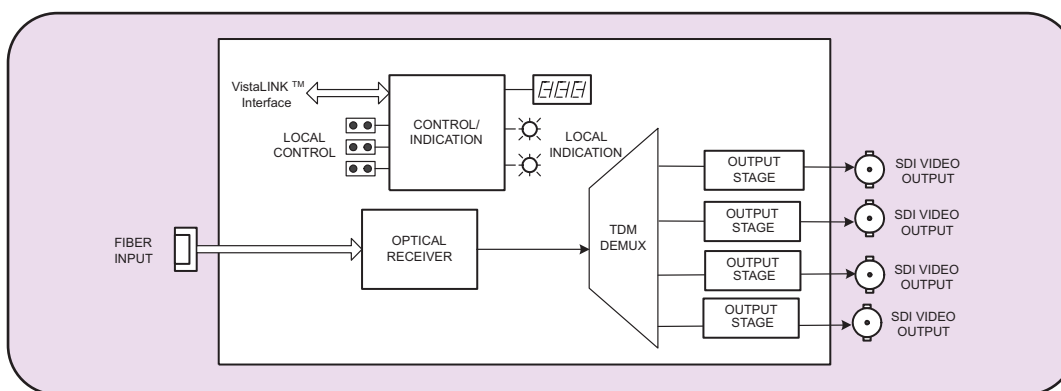
Model 7707VR-4

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 ±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 |
|------------------|---|

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 |

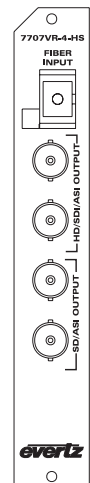
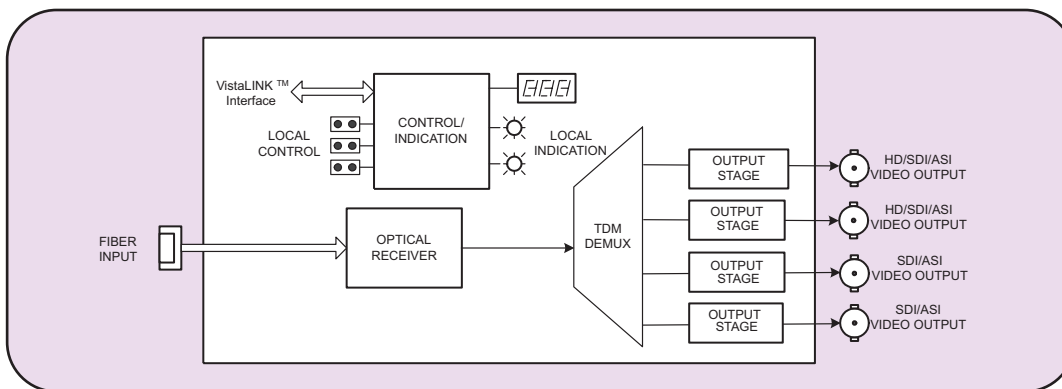
Quad SD/Dual HD Fiber Receiver

Model 7707VR-4-HS

Features

- Single card TDM 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 299M-C, DVB-ASI |
| Outputs 3&4 | SMPTE 299M-C, DVB-ASI |
| Connector: | BNC per IEC 60169-8 Amendment 2 |
| Signal Level: | 800mV nominal |
| DC Offset: | 0V \pm 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

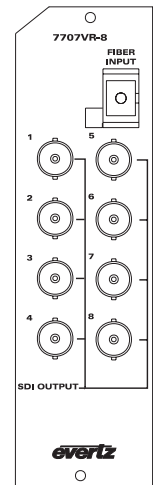
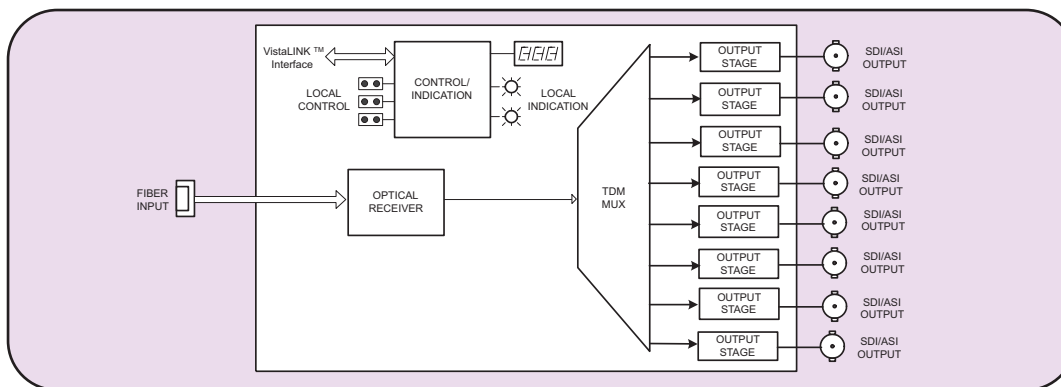
Model 7707VR-8

Features

- Single card demultiplexer for eight 270Mb/s SDI, SDTi or DVB-ASI video signals
- Low jitter SDI/ASI 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
- 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
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Occupies two card slots & can be housed in a standalone frame, a 1RU frame holding up to 3 modules or a 3RU frame holding up to 7 dual slot modules



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: | -20dBm |
| -H Version: | -28dBm |

Serial Video Outputs:

| | |
|---------------------|--|
| Standards: | SMPTE 259M-C, 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 \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: | 14 Watts |

Physical:

| | |
|------------------|---|
| Number of slots: | 2 |
|------------------|---|

Ordering Information:

7707VR-8

7707VR-8-H

Eight SDI/ASI Demux Fiber Receiver, VistaLINK™ Monitoring
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 HDSDI Fiber Transmitter

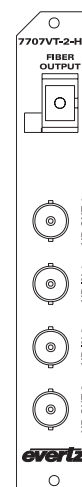
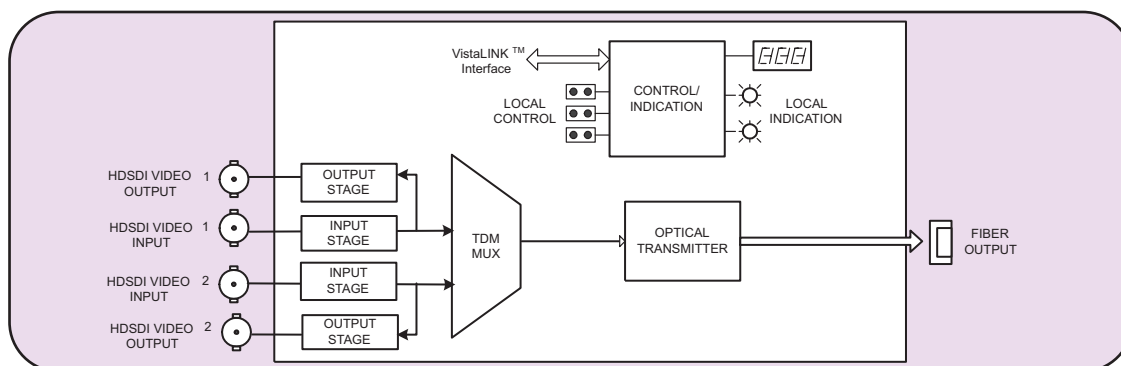


Model 7707VT-2-HD

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 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-2-HD Block Diagram



Specifications

Serial Video Input:

| | |
|-------------------|---|
| Standard: | SMPTE 292M |
| Number of Inputs: | 2 independent HDSDI 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 HDSDI 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 at 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 |
| Rise and Fall Time: | 200ps nominal |
| 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) |
| 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

| | |
|-----------------|---|
| 7707VTDyxy-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

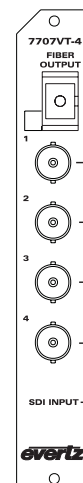
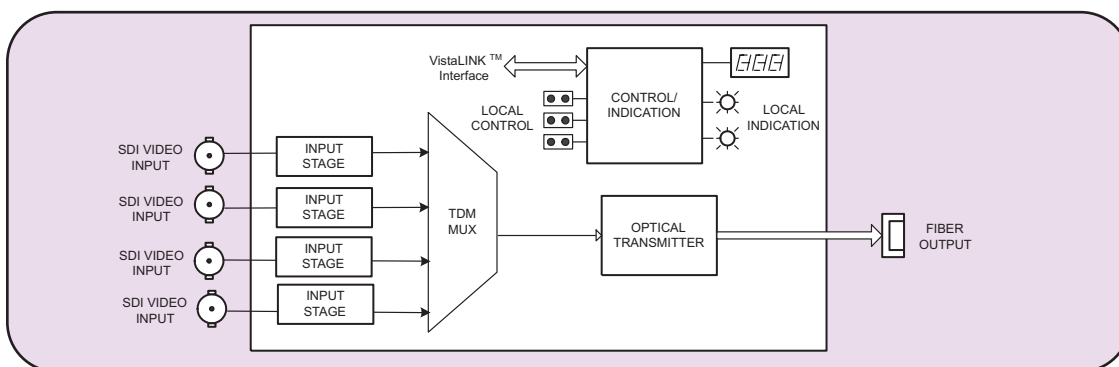


Model 7707VT-4

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)
EMI/RFI: Complies with FCC Part 15 Class A
EU EMC directive

Physical:

Number of slots: 1

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

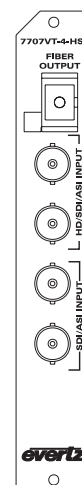
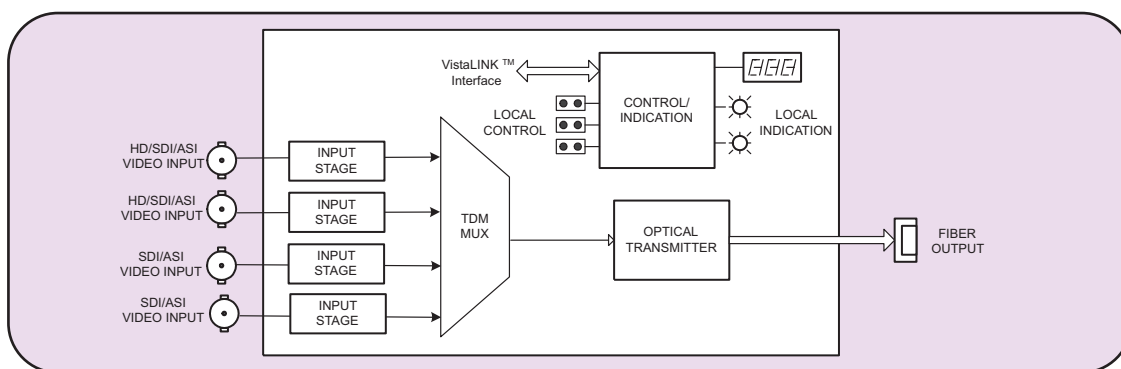


Model 7707VT-4-HS

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 | SMPT E 292M, SMPT E 259M-C, DVB-ASI |
| Inputs 3&4 | SMPT E 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 |

| | |
|------------------------------|---|
| 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™ |

| | |
|--|---|
| 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™ |

| | |
|---|--|
| 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

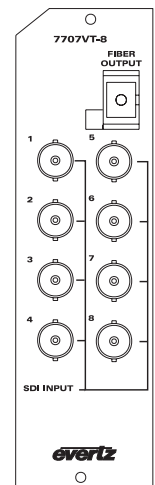
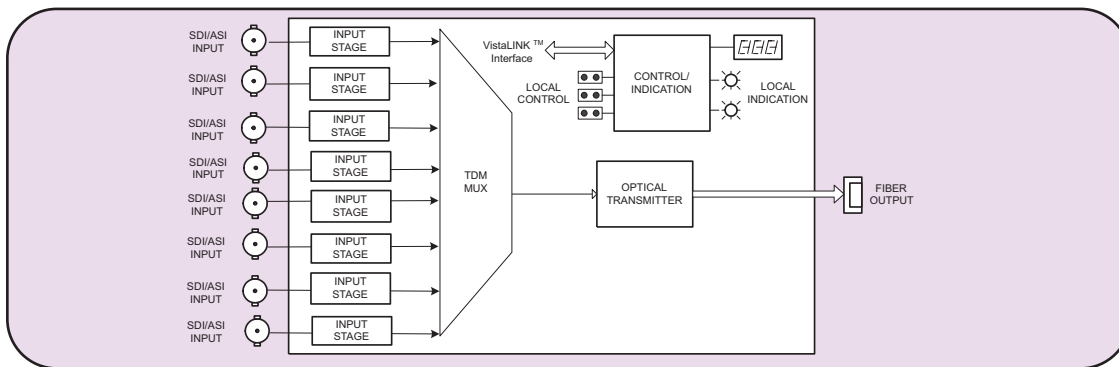


Model 7707VT-8

Features

- Single card multiplexer for eight 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
- Comprehensive signal and card status monitoring via four digit card edge display or remotely through SNMP and VistaLINK™ -enabled capability
- Automatic coaxial input equalization up to 250m at 270Mb/s (Belden 8281)
- 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 two card slots & can be housed in a standalone frame, a 1RU frame holding up to 3 modules or a 3RU frame holding up to 7 dual slot modules

7707VT-8 Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 259M-C, 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

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: 12 Watts (Non DWDM), 15 Watts (DWDM)

Physical:

Number of slots: 2

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 Embedder & Fiber Receiver



Model 7720AD-OE

The 7720AD-EO Audio De-embedder extracts embedded audio as specified in SMPTE 272M from a 270Mb/s fiber optic input signal.

SMPTE 272M allocates four 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. 7720AD series De-embedders are Dolby E compliant.

Features

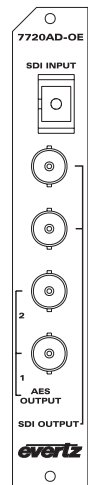
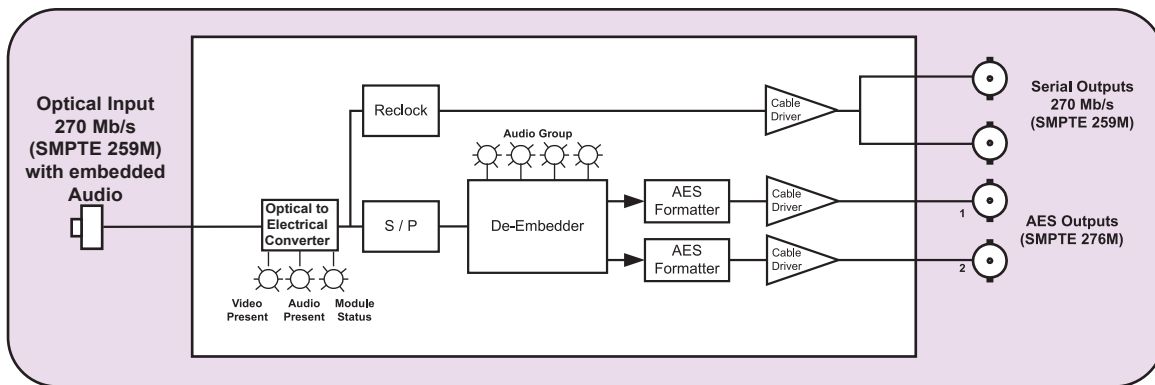
Controls:

- Audio group selection via card edge DIP switches
- Audio channel swapping selection via card edge DIP switches

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

HD AES Audio De-embedder & Fiber Receiver



Model 7720AD-OE-HD

Features

Card Edge LED's:

- Video Signal presence
- Module Status
- Audio Presence - Audio Group Indicator

Controls:

- Audio group selection via card edge DIP switches
- Audio channel swapping selection via card edge DIP switches

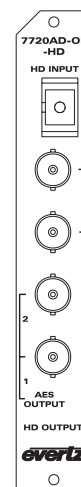
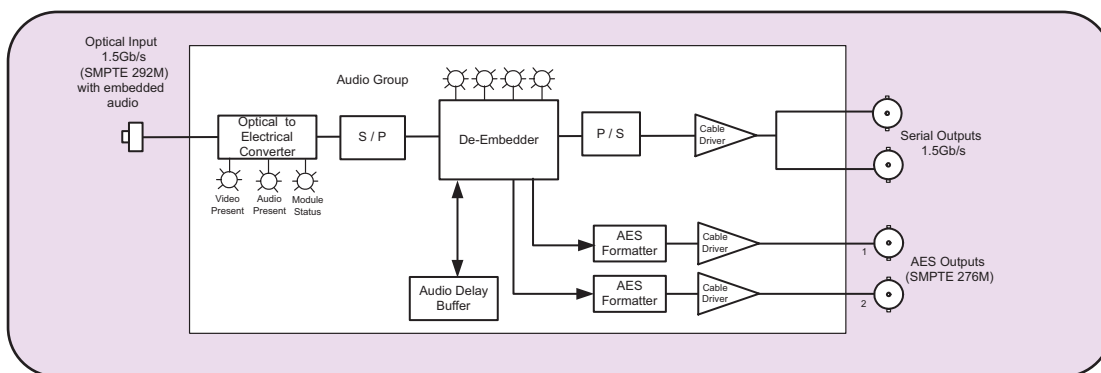
Inputs:

- SMPTE 292M - 1.5Gb/s serial digital on fiber optic input

Outputs:

- 2 serial HD-SDI outputs
- 2 single ended AES outputs

7720AD-OE-HD 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: | -23dBm |

Reclocked Serial Video Output:

| | |
|---------------------|---------------------------------|
| Standard: | SMPTE 292M |
| 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: | 270ps nominal |
| Overshoot: | <10% of amplitude |
| Wide Band Jitter: | <0.2 UI |

AES Audio Output:

| | |
|--------------------|--|
| Standard: | SMPTE 276M, single ended AES |
| Number of Outputs: | 2 |
| 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 |

System Performance:

| | |
|----------------------|---|
| Deembedding Latency: | |
| HD SDI to AES: | 1.35 mSec (7720AD-A4-HD) 600 mSec all other versions |
| HD SDI to Analog: | 2.25 mSec |

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-HD | HD 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 |

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 |

Note: This module not available in a 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.

SMPTE 272M allocates four groups of four audio channels that can be embedded into the SMPTE 259M bistream. The 7720AE-EO has the ability to select the audio channel group where the audio will be inserted. The 7720AE series Embedders are Dolby E compliant.

Features

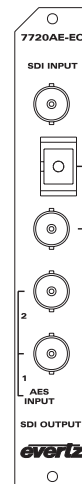
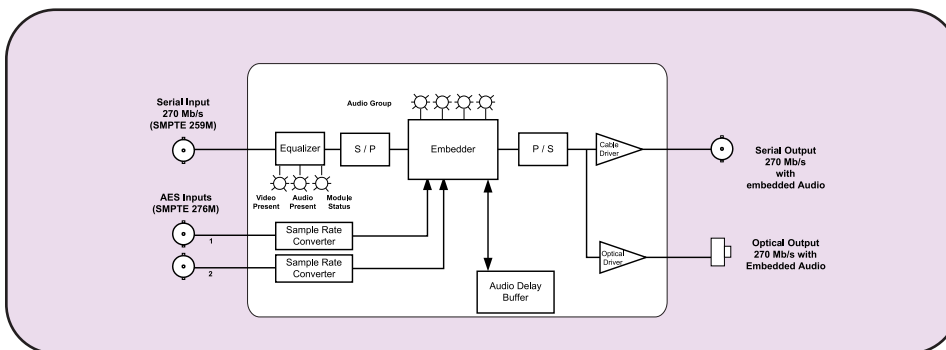
Controls:

- 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, IEC 169-8 |
| Equalization: | Automatic to 300m @ 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 FB: | 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 |

HD AES Audio Embedder & Fiber Transmitter



Model 7720AE-EO-HD

The 7720AE-EO-HD Audio Embedder inserts two AES audio signals into a SMPTE 292M compliant, 1.485Gb/s HDSDI video signal as specified in SMPTE 299M. In addition to an HDSDI output the 7720AE-EO-HD provides a fiber optic output with embedded audio. The 7720AE-EO-HD will do a seamless audio embed when the input video is switched properly in the vertical interval.

SMPTE 299M allocates four groups of four audio channels that can be embedded into the SMPTE 292M bitstream. The 7720AE-EO-HD has the ability to select the audio channel group where the audio will be inserted. The 7720AE-EO-HD is Dolby E compliant.

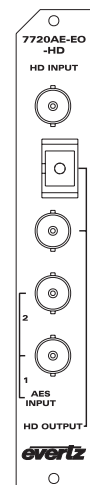
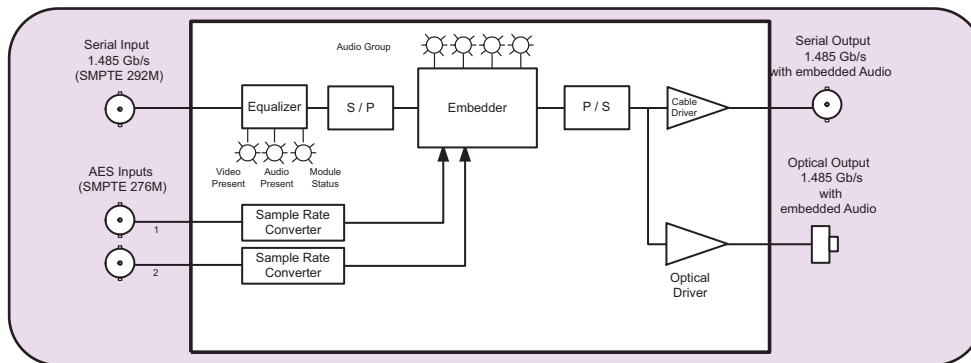
Features

- Audio group selection via card edge DIP switches
- Selectable clean or pass through embedding mechanism
- Sample rate conversion disable to permit Dolby E embedding

Card Edge LEDs:

- Video Signal Presence
- Module Status
- Audio Presence - Upstream Audio Group Indicators

7720AE-EO-HD Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M, (1080i/50, 1080i/60, 1080i/59.94, 1080p23.98sF, 1080p24sF, 1080p25sF, 720p/60, 720p/59.94)
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 125m @ 1.485Gb/s with Belden 1694(or equivalent)

AES Audio Inputs:

Number of Inputs: 2
Standard: SMPTE 276M, single ended AES, Dolby E compatible
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 1V p-p $\pm 0.1V$
Resolution: 24-bit
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced

Serial Video Output With Embedded Audio:

Number of Outputs: 1
Standard: SMPTE 292M Video, SMPTE 299M Audio
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
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 Information)
Output Power:
1310nm FP: -7dBm ± 1 dBm
1310nm/1550nm DFB: 0 dBm ± 1 dBm
CWDM DFB: 0 dBm ± 1 dBm

System Performance:

Embedding Latency: 1.3 to 3 mSec

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:

7720AE-EO13-HD HD AES Audio Embedder & Fiber Transmitter, 1310nm, FP, Laser
7720AE-EO13-HD-L HD AES Audio Embedder & Fiber Transmitter, 1310nm, DFB, Laser
7720AE-EO15-HD HD AES Audio Embedder & Fiber Transmitter, 1550nm, DFB, Laser

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

7720AE-EOxx-HD HD AES Audio Embedder & Fiber Transmitter, CWDM 1270nm to 1610nm DFB, 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

Multi-Format HDTV (720p/1035i/1080i) to 270Mb/s SDTi Compression CODEC

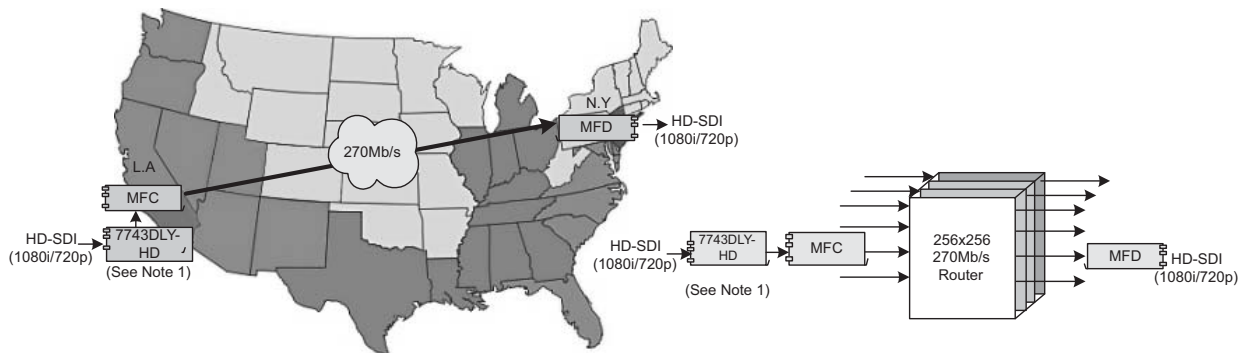


Model 7771MFC-HD

The 7771MFC-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 7771MFC-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 field rates is provided.

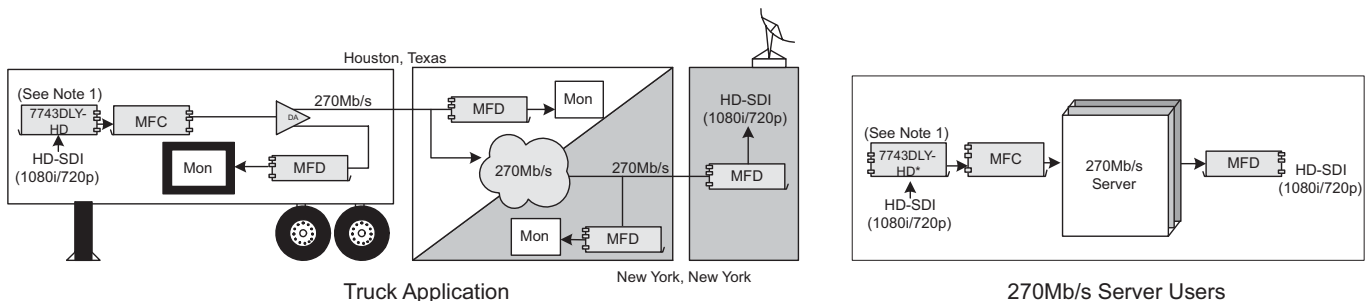
The 7771MFC-HD occupies two card slots and is housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which will hold up to 7 modules or a standalone enclosure which will hold 1 module.

Applications:



Major National Telecom Carriers

Video Circuit Providers in Major Metropolitan Cities



Note 1: 7743DLY-HD required if input HD-SDI is being asynchronously switched

Features

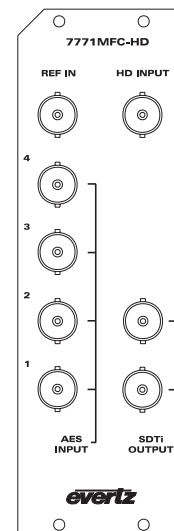
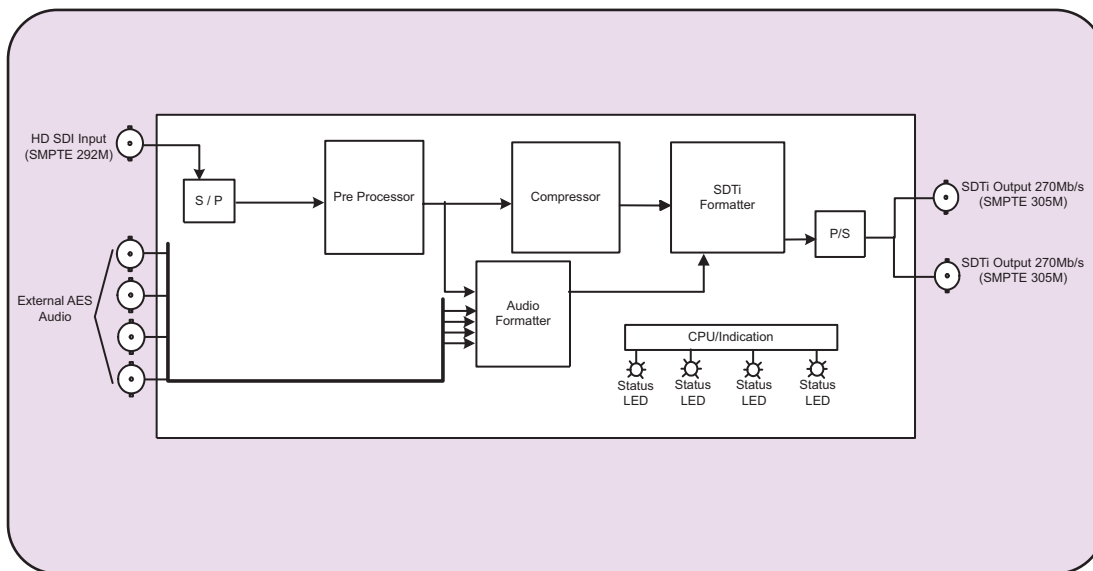
- Automatic detection of 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94, 720p/59.94 field rates
- Transports up to four channels of embedded or external AES audio
- No compression applied to AES audio streams
- Preserves VANC from input HD-SDI stream
- SMPTE 305M compliant 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

Multi-Format HDTV (720p/1035i/1080i) to 270Mb/s SDTi Compression CODEC

7771MFC-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: 1V p-p $\pm 0.1V$
Connector: BNC per IEC 60169-8 Amendment 2
Sampling Rate: 48kHz
Impedance: 75 Ω 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 $\pm 0.5V$
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 msec

Electrical:

Voltage: +12VDC
Power: 16 Watts

Physical:

7700 frame mounting: 2 slots
7701 frame mounting: 1 slot

Ordering Information:

7771MFC-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
+SA Standalone Enclosure Rear Plate

Enclosures:

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

Multi-Format HDTV (720p/1035i/1080i) to 270Mb/s SDTi De-compression CODEC

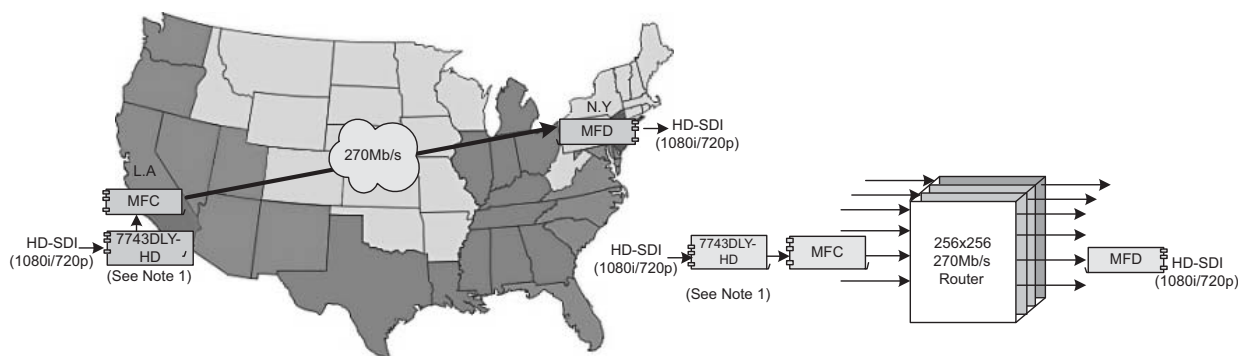


Model 7771MFD-HD

The 7771MFD-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 7771MFD-HD also re-embeds VANC data that existed in the original HD-SDI stream. Two additional stereo analog audio channels are also available for local monitoring. The 7771MFD-HD supports 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94, 720p/59.94 field rates.

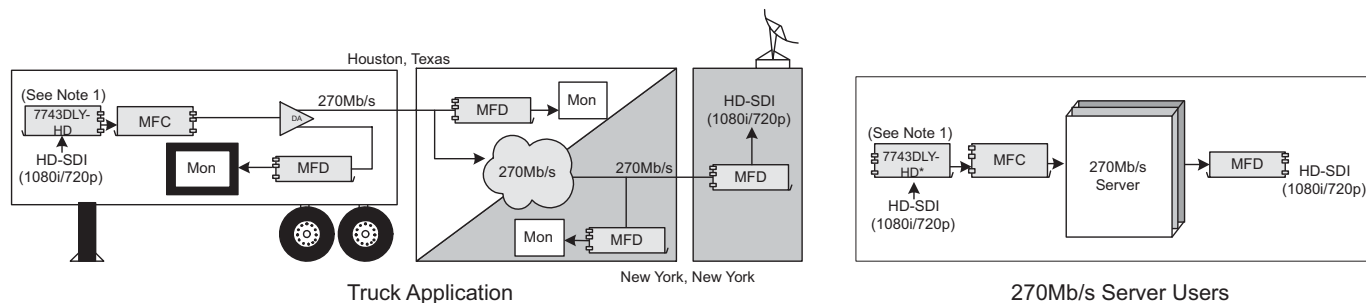
The 7771MFD-HD occupies two card slots and is housed in either a 1RU frame which holds up to 3 modules, a 3RU frame which will hold up to 7 modules or a standalone enclosure which will hold 1 module.

Applications:



Major National Telecom Carriers

Video Circuit Providers in Major Metropolitan Cities



Truck Application

270Mb/s Server Users

Note 1: 7743DLY-HD required if input HD-SDI is being asynchronously switched

Features

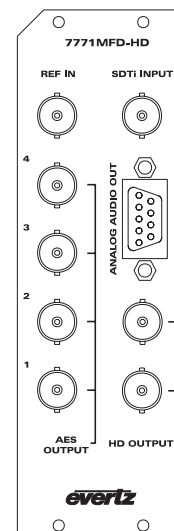
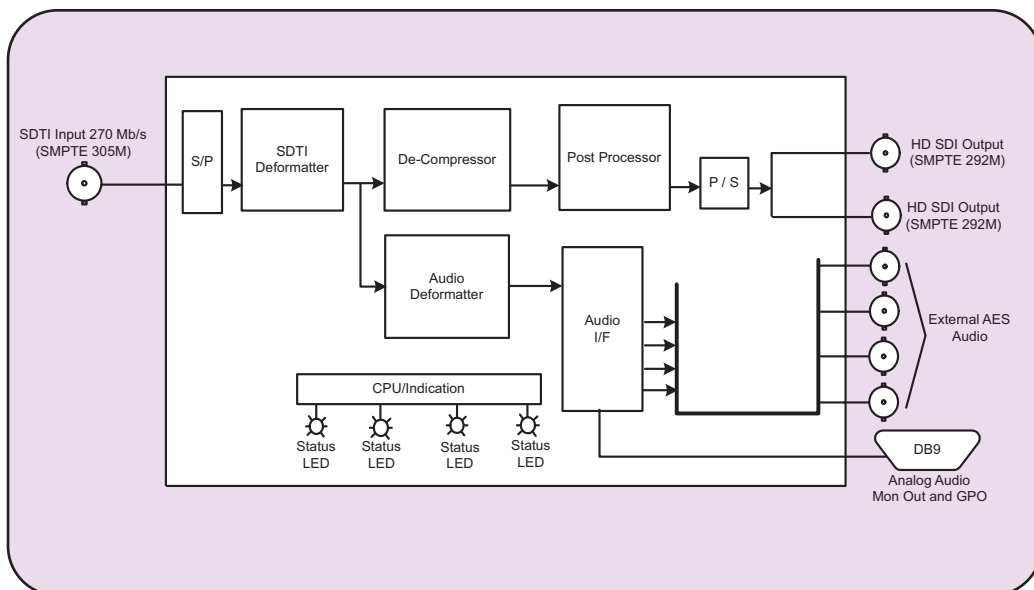
- Automatic detection of 1080i/59.94, 1080i/50, 1080p/29.97sF, 1080p/25sF, 1080p/23.98sF, 1035i/59.94, 720p/59.94 field rates
- Up to four AES channels re-embedded in outgoing HD-SDI or available on separate AES outputs
- Re-embeds original VANC data in outgoing HD-SDI stream
- One stereo analog audio output
- Fully hot swappable from front of frame

Status Indication:

- Input signal presence
- 1035i/1080i/720p active lines

Multi-Format HDTV (720p/1035i/1080i) to 270Mb/s SDTi De-compression CODEC

7771MFD-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

Monitoring Analog Audio Outputs:

Number of Outputs: 2
Type: Balanced analog audio
Connector: Female DB-9
Output impedance: 66 Ω
Signal Level: 0db FS >20dB, into high impedance load (>10K Ω)
Not good for low impedance loads (i.e. 600 Ω)
Frequency Response: 50Hz to 20kHz: \pm 0.20dB
SNR: >85dB (50Hz to 20kHz)
THD+N: 65dB @ 1kHz, 0dB FS, typical

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:

7771MFD-HD Multi-Format HDTV (720p/1035i/1080i) to 270Mb/s SDTi De-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

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 |

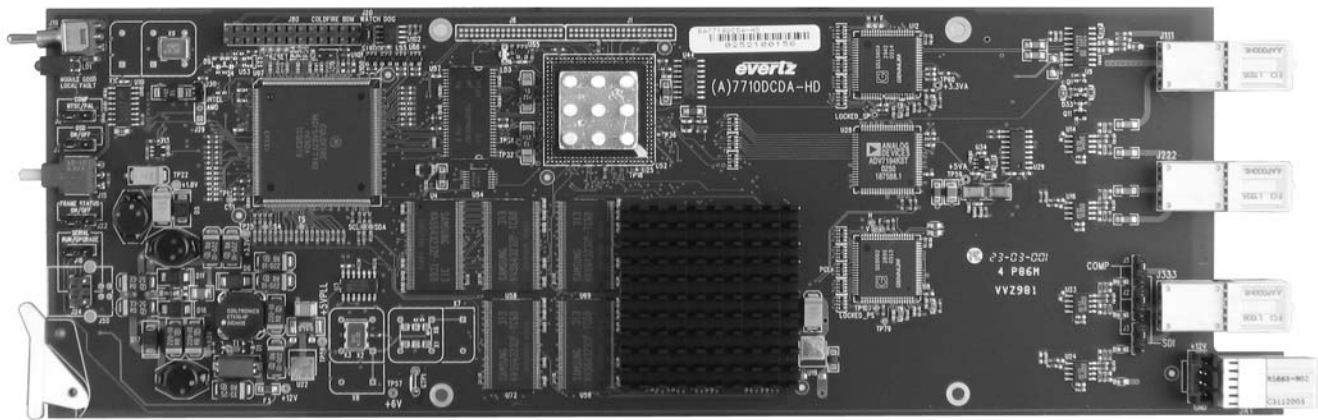
DWDM Transmitter Ordering Options - 100GHz/0.8nm Channel Grid - Based on ITU G.694.1

| Laser Ordering Number (Dyyy) | ITU Channel Number | Frequency (GHz) | Wavelength (nm) | Transmitter Module (Example) |
|------------------------------|--------------------|-----------------|-----------------|------------------------------|
| D200 | 20 | 192,000 | 1561.42 | 7707EOD200 |
| D210 | 21 | 192,100 | 1560.61 | 7707EOD210 |
| D220 | 22 | 192,200 | 1559.79 | 7707EOD220 |
| D230 | 23 | 192,300 | 1558.98 | 7707EOD230 |
| D240 | 24 | 192,400 | 1558.17 | 7707EOD240 |
| 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 | 7707EOD410 |
| D420 | 42 | 194,200 | 1543.73 | 7707EOD420 |
| D430 | 43 | 194,300 | 1542.94 | 7707EOD430 |
| D440 | 44 | 194,400 | 1542.14 | 7707EOD440 |
| D450 | 45 | 194,500 | 1541.35 | 7707EOD450 |
| D460 | 46 | 194,600 | 1540.56 | 7707EOD460 |
| D470 | 47 | 194,700 | 1539.77 | 7707EOD470 |
| D480 | 48 | 194,800 | 1538.98 | 7707EOD480 |
| D490 | 49 | 194,900 | 1538.19 | 7707EOD490 |
| D500 | 50 | 195,000 | 1537.40 | 7707EOD500 |
| D510 | 51 | 195,100 | 1536.61 | 7707EOD510 |
| D520 | 52 | 195,200 | 1535.82 | 7707EOD520 |
| D530 | 53 | 195,300 | 1535.04 | 7707EOD530 |
| D540 | 54 | 195,400 | 1534.24 | 7707EOD540 |
| D550 | 55 | 195,500 | 1533.47 | 7707EOD550 |
| D560 | 56 | 195,600 | 1532.68 | 7707EOD560 |
| D570 | 57 | 195,700 | 1531.90 | 7707EOD570 |
| D580 | 58 | 195,800 | 1531.12 | 7707EOD580 |
| D590 | 59 | 195,900 | 1530.33 | 7707EOD590 |
| D600 | 60 | 196,000 | 1529.55 | 7707EOD600 |

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 provides card edge LEDs to indicate signal present and audio groups present.

When the +CCM option is fitted, 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.

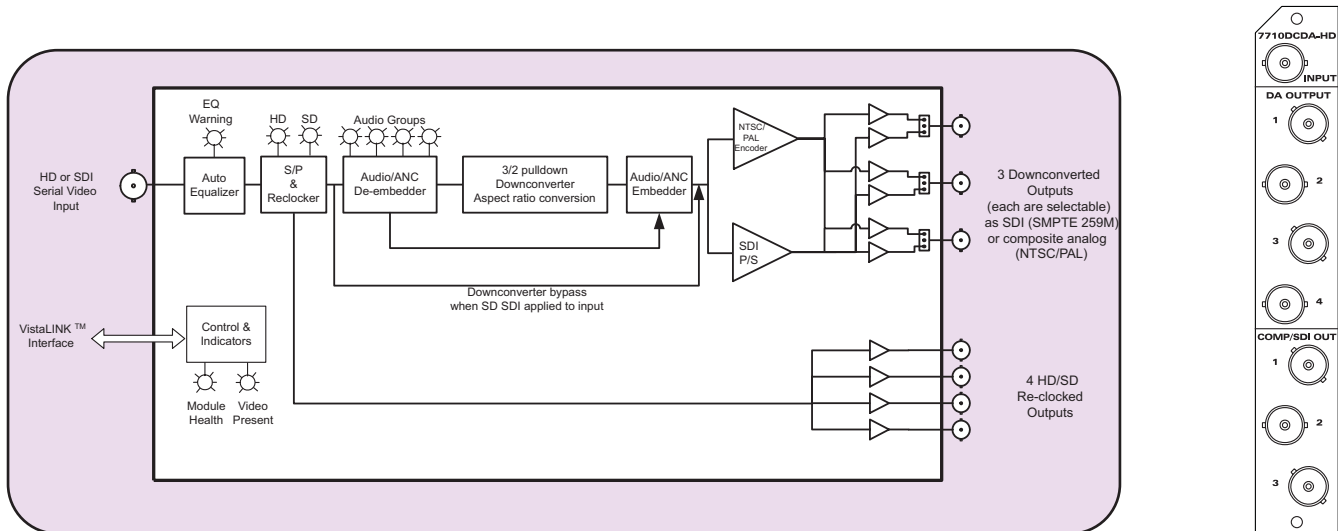
The 7710DCDA-HD occupies one card slot in the 3RU frame, which will hold up to 15 modules or the 1RU frame, which will hold up to three modules.

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
- Card Edge LEDs for signal presence, equalization warning, audio groups present, module status
- VistaLINK™ enabled for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 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 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 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 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 |
|-------------------------|---|

Ordering Information:

| | |
|--------------------|--|
| 7710DCDA-HD | HD Down Converter and Distribution Amplifier (4 HD reclocked 1.5Gb/s, selectable 3 SD SDI outputs or 3 composite analog outputs) |
|--------------------|--|

Ordering Options

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

+CCM

Closed Captioning Monitoring

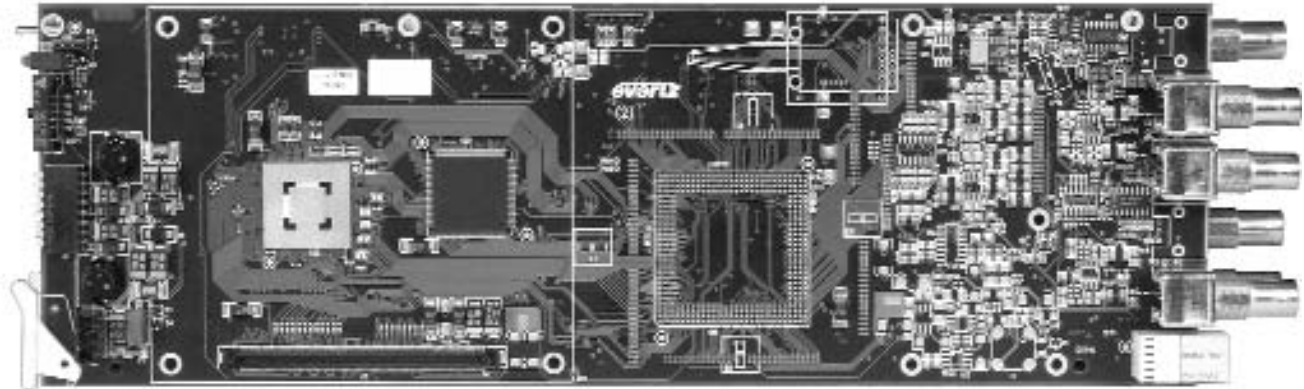
Rear Plate Suffix

| | |
|-------------|---|
| +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 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.

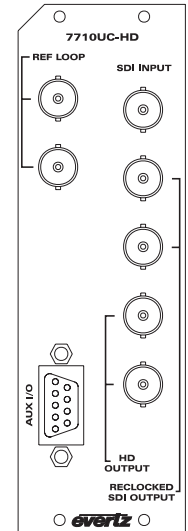
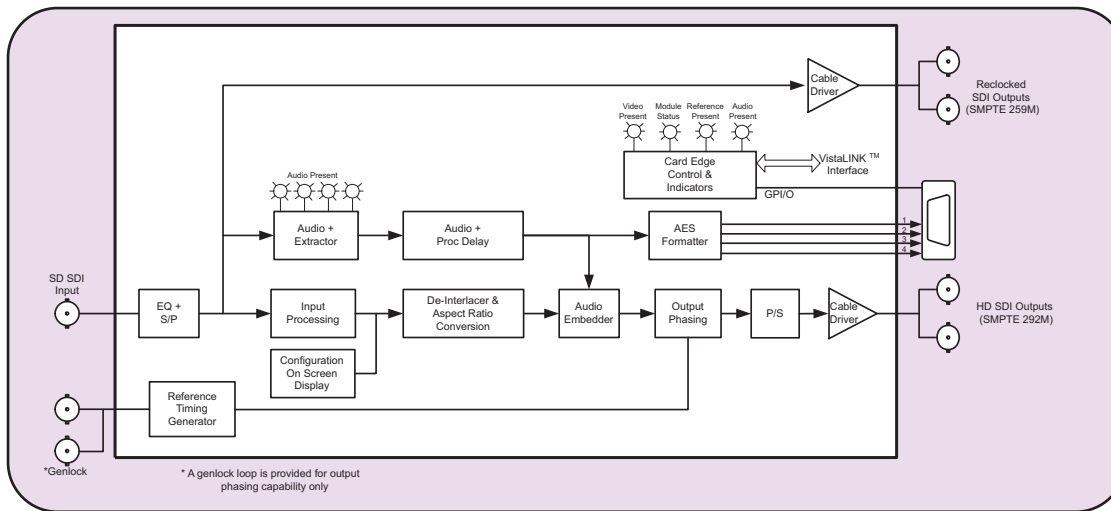
Features

- 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:

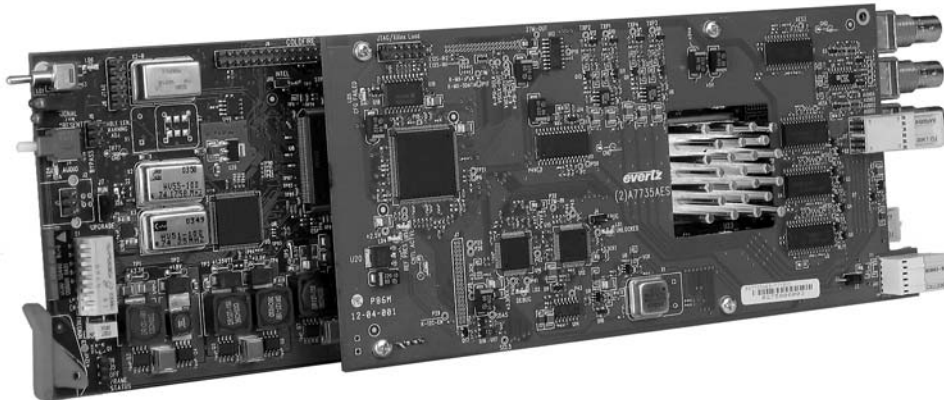
7700FR-C 3RU Multiframe, which holds 15 modules

7701FR 1RU Multiframe, which holds 3 modules

S7701FR Standalone Enclosure

HD 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:

| | |
|------------------|---|
| 7710XC-HD | Provides HD <-> HD cross-conversion with video proc, closed caption and timecode support (VANC support) |
| 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) |
| 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 BNCs and embedded audio, video proc, closed caption and timecode support |
| 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 |

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.

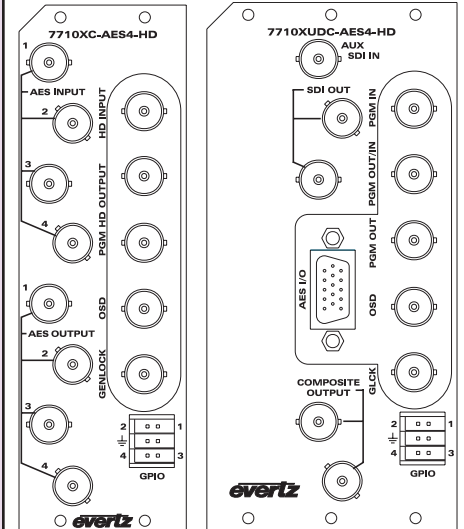
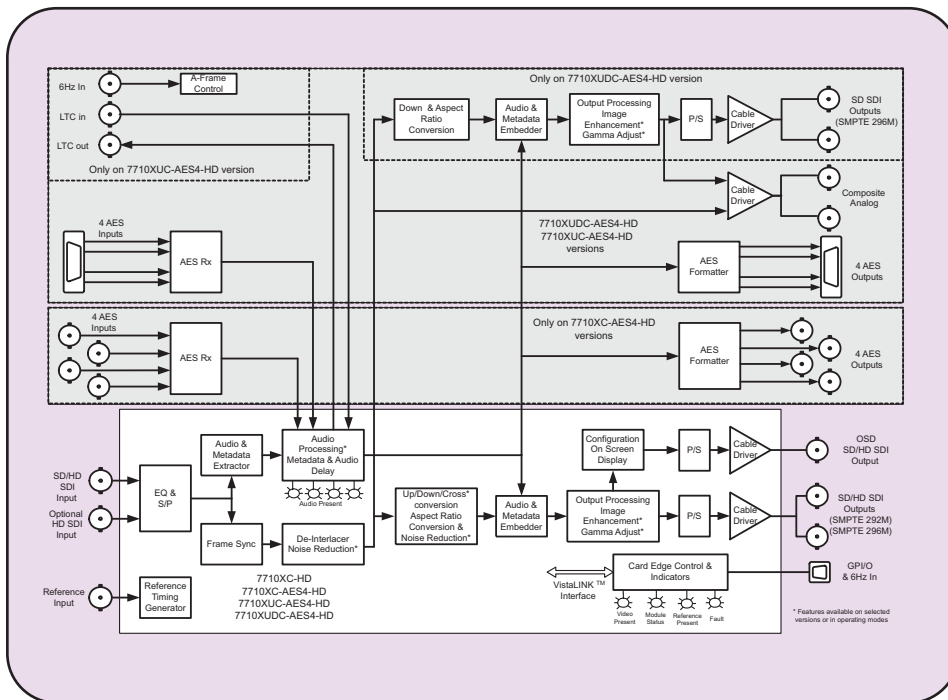
All 7710XC-HD series modules occupy two card slots in the 3RU frame which will hold up to 15 modules, except for the 7710XUDC-AES4-HD which occupies three slots. All modules, except the 7710XUDC-AES4-HD are also available for the 1RU frame which will hold up to three modules. The units also provide card 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 ±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: 75Ω

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:

Inputs: User Preset select, fade or cut for keyer, fade to black

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: 75Ω (jumper selectable)

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

7710XC-HD

7710XC-AES4-HD

7710XUC-AES4-HD

7710XUDC-AES4-HD

HD Up/Cross Converter with HD-SDI Outputs with VANC, support

HD Up/Cross Converter with HD-SDI Outputs with VANC, Embedded Audio and discrete AES support

HD Up/Cross Converter with VANC, Embedded Audio and discrete AES support

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 7710XUDC-AES4-HD)
1RU rear plate for use with 7701FR Multiframe

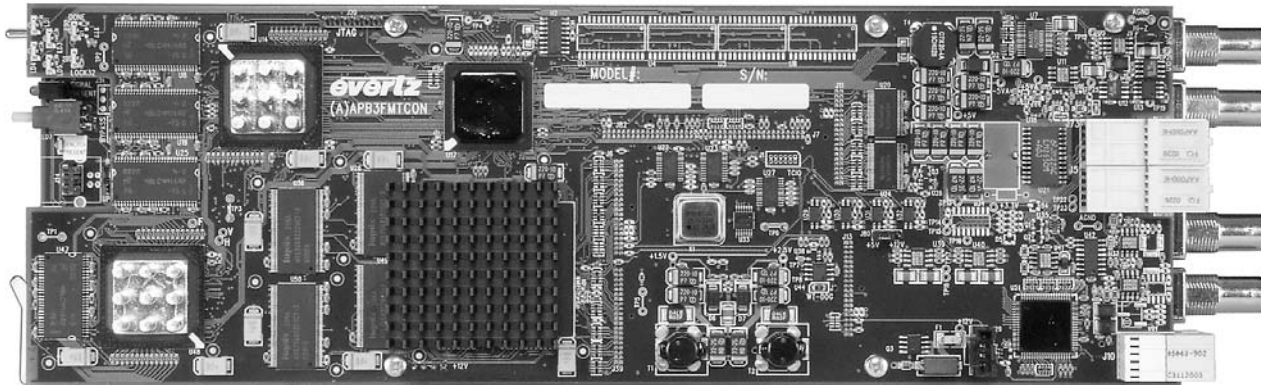
Enclosures:

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.

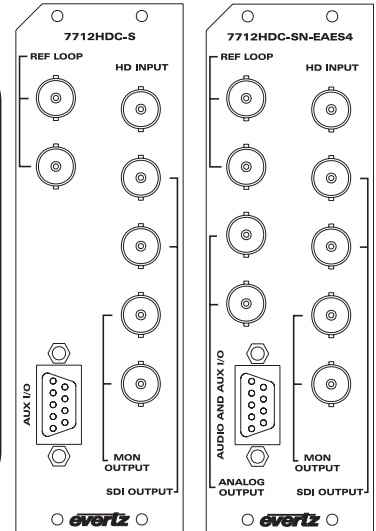
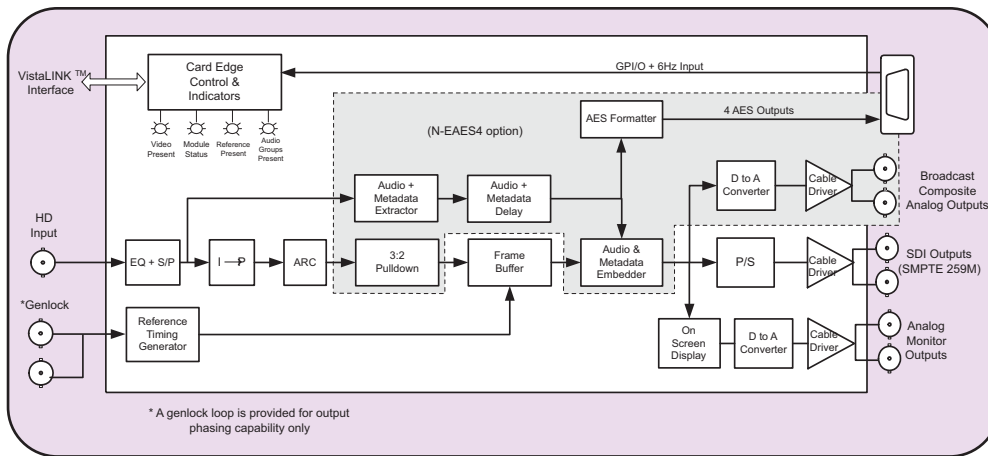
The 7712HDC occupies two card slots in the 3 RU frame which will hold up to 15 modules or one slot in the 1RU frame which will hold up to three modules or a standalone enclosure which will hold 1 module.

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™ or 9000NCP Network Control Panel) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

HD Broadcast Quality Down Converter

7712HDC Block Diagram



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

Accessories:

WP-7711HDC-SN-EAES4 7712HDC-SN-EAES4/7710UC-HD AES/GPIO Breakout Cable

| | |
|----------------|--|
| 9000NCP | VistaLINK™ General Purpose Network Control Panel |
|----------------|--|

Ordering Options:

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

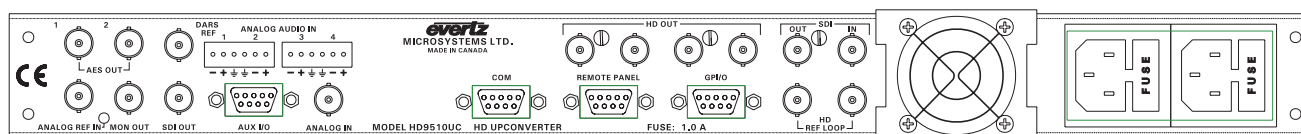
Rear Plate Suffix

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

Enclosures:

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

Model HD9510UC



HD9510UC Rear Panel

Advanced High Performance Upconverter (1RU Front Panel Control)

The Evertz HD9510UC Upconverter converts a standard definition 525i/59.94 4:2:2 (SMPTE-259M-C) input signal to 1080i/59.94, 1035i/59.94 or 720p/59.94 high definition (SMPTE 292M) video format. Advanced ASIC design results in optimal quality up-conversion with minimum artifacts. The HD9510UC also handles conversion to 480p/59.94 in a SMPTE 292M bit-stream. (SMPTE 349M)

The Evertz Upconverter provides complete support for 4:3 to 16:9 aspect ratio conversion. The system provides access to the common 4:3 to 16:9 choices; 16:9 anamorphic stretch, 4:3 with side panels, 16:9 letterbox zoom to full size and 14:9 letterbox zoom to full size 14:9 with side panels.

The Upconverter unit accepts 1 group of embedded audio on the input and re-embeds 1 group 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.

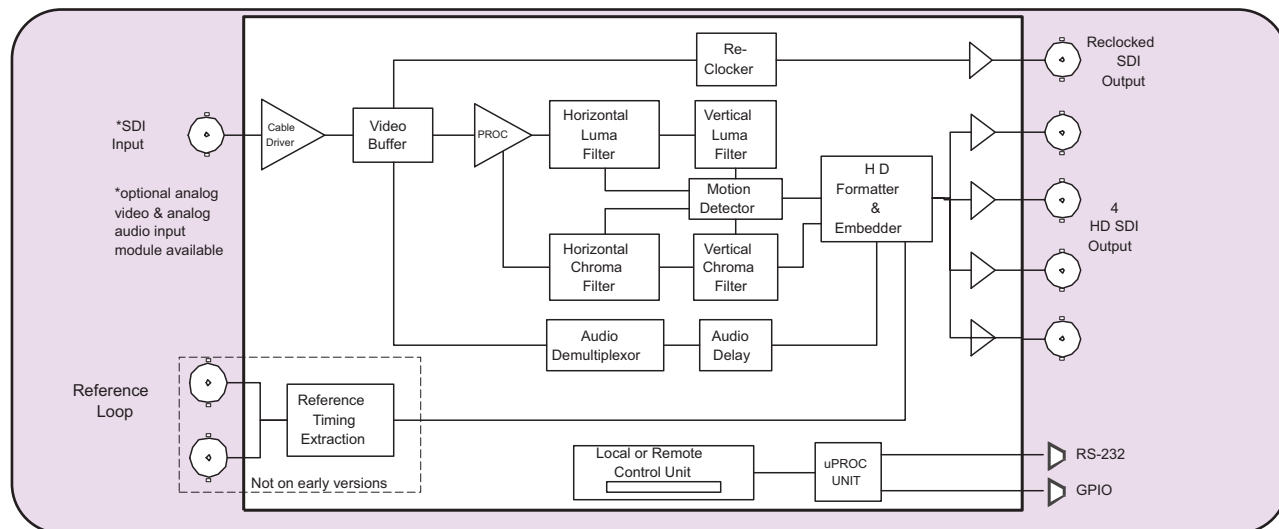
An optional composite video decoder and audio A to D converter module can be ordered for facilities which are currently using analog video and audio signals. For those analog facilities which will be transitioning to SDI in the future, the composite decoder can be bypassed at any time and the SDI input may then be used.

The Upconverter electronics is housed in a 1RU rack mount frame. The standard Upconverter has built-in front panel controls, but can also be purchased with a rack mount remote control panel that replaces the built-in control panel (RCP version).

Features

- SDI 4:2:2 input with reclocked loop thru
- 4 HD serial digital (1.485 Gb/s) outputs
- Outputs 1035i, 1080i, in 29.97Hz frame rate and 720p, 480p in 59.94Hz frame rate
- Passes 1 group of embedded audio to the output, with added audio delay to match the video delay
- 64 filter settings and motion detection algorithm ensure highest performance and video quality
- Selectable aspect ratio conversion
- Front panel control or remote rack mount control (optional)
- Available redundant power supply
- Optional analog video and 4 channel audio interface for analog facilities
- Field upgradeable firmware as new features become available
- Adjustable output timing with respect to NTSC or Tri-level sync genlock reference
- Minimum processing delay (3 msec) or 1 frame delay when referenced to input video

HD9510UC Block Diagram:



Specifications:

Serial Video Input:

Standards: 525 line SMPTE 259M-C (270Mb/s) with Group 1 SMPTE 272M embedded audio

Number of Inputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic up to 200m @ 270 Mb/s with Belden 8281 or equivalent cable

Reclocked Serial Video 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: 740ps nominal

Overshoot: <10% of amplitude

Wide Band Jitter: < 0.2 UI

HD Serial Video Output:

Number of Outputs: 4

Standard: SMPTE 292M (Selectable as follows) 480p/59.94, 720p/59.94, 1080i/59.94, 1035i/59.94

Embedded Audio: One audio group as specified in SMPTE 299M

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: <0.25UI @ 1 KHz when locked to input video
<0.25UI @ 10Hz when locked to external reference

Video Reference:

Type: Menu selectable
NTSC Colour Black (1 V p-p) or Composite Bi-level sync (300 mV)
HD Tri-level Sync

Connectors: BNC per IEC 60169-8 Amendment 2

Termination: High impedance loop through

Analog Video Input (For +CD-A4 option):

Standard: NTSC, SMPTE 170M

Number of Inputs: 1

Connector: BNC per IEC 60169-8 Amendment 2

Signal Level: 1V nominal

Input Impedance: 75 Ω

Return Loss: >30dB to 10MHz

Analog Audio Input (For +CD-A4 option):

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 => 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) @ 1kHz, -0.5 dB FS

CMRR: >100dB @ 1kHz

COM Port:

Standard: RS-232

Baud Rate: 57,600

Connector: 9 pin female "D"

General Purpose Inputs:

Number of Inputs: 7

Function: Preset select (4), Future use (3)

Type: Opto-isolated, active low with internal pull-ups to externally supplied voltage

Connector: Female DB-9

Signal Level: closure to ground

Upconverter Processing:

Internal paths between functional blocks: 12 bits

Mathematical coefficients: 12 bits

Internal processing: Up to 36 bits

Output modes: 16:9 anamorphic stretch, 4:3 with side panels, 16:9 letterbox zoom to full size and 14:9 letterbox zoom to full size 14:9 with side panels.

Motion detection: field/frame/mixed

Processing delay: 3 msec to 1 Frame, dependent on reference and output phasing

Filtering: Independent H and V filters

Electrical:

Voltage: Auto ranging 100 - 240 Volts AC, 50/60 Hz 30 VA

Safety: ETL Listed, complies with EU safety directives

EMI/RFI: Complies with FCC Part 15 Class A regulations
Complies with EU EMC directive

Physical:

Dimensions: 19"W x 1.75"H x 14.5"D
(483mm W x 45mm H x 368mm D)

Weight: 7lbs. (3.1Kg)

Ordering Information:

HD9510UC

HD Upconverter

Ordering Options:

+2PS Redundant power supply

+RCP Rackmount remote control panel

+CD-A4 Analog video and audio interface option

1a

2

3

4

5

6

7

8

9

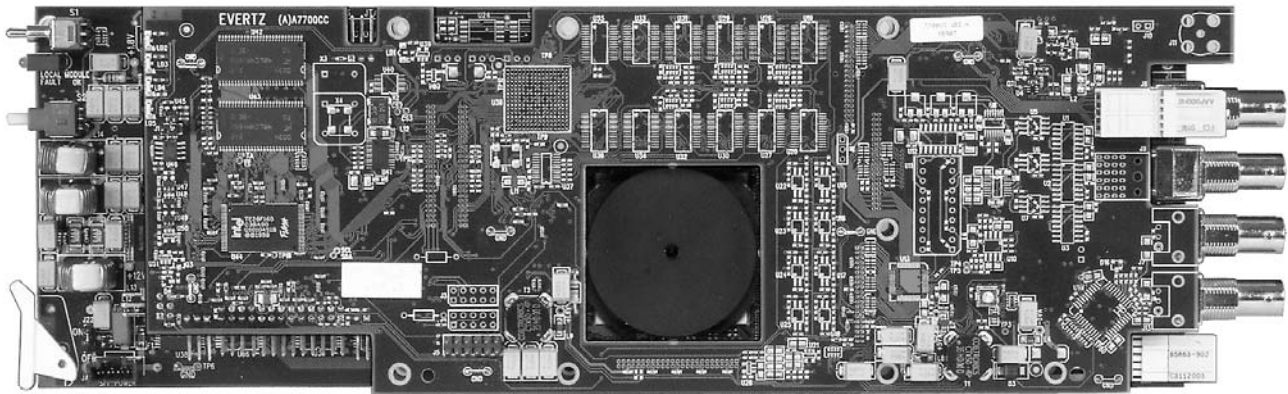
10

11

12

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.

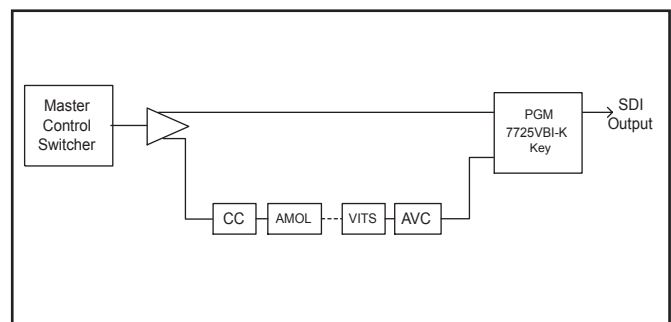
Features:

- 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:

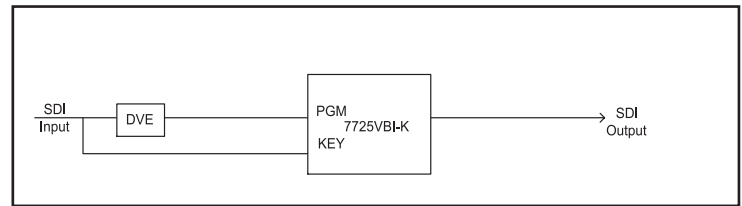
Master control output chain protection

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.



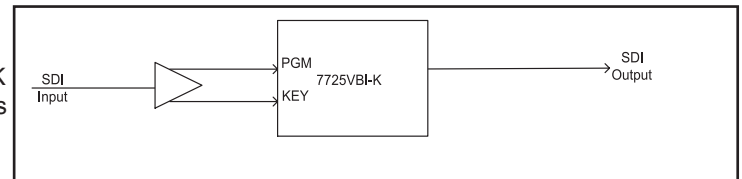
Line 21 caption squeeze back bypass (VBI bridging)

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

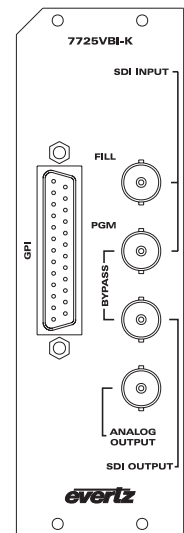
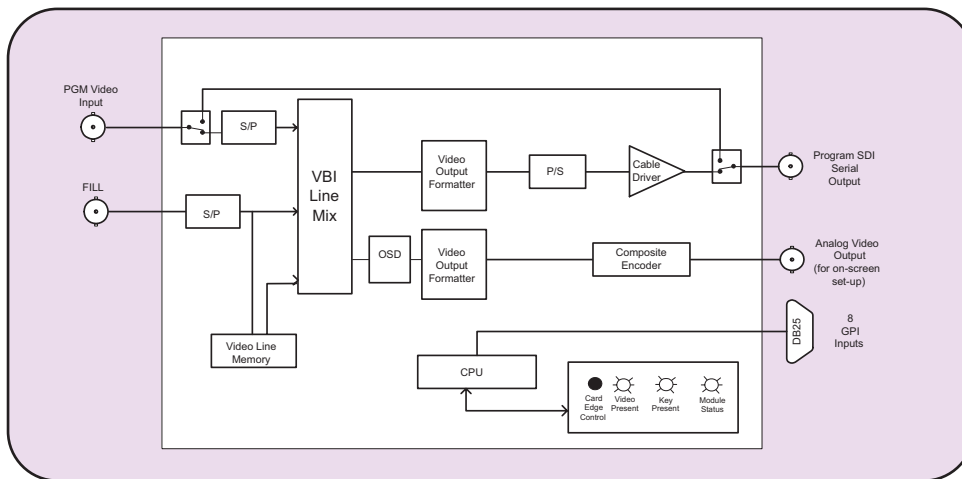


VBI Line Shuffler

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: <0.9deg. (<0.6deg. 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

Model 9580



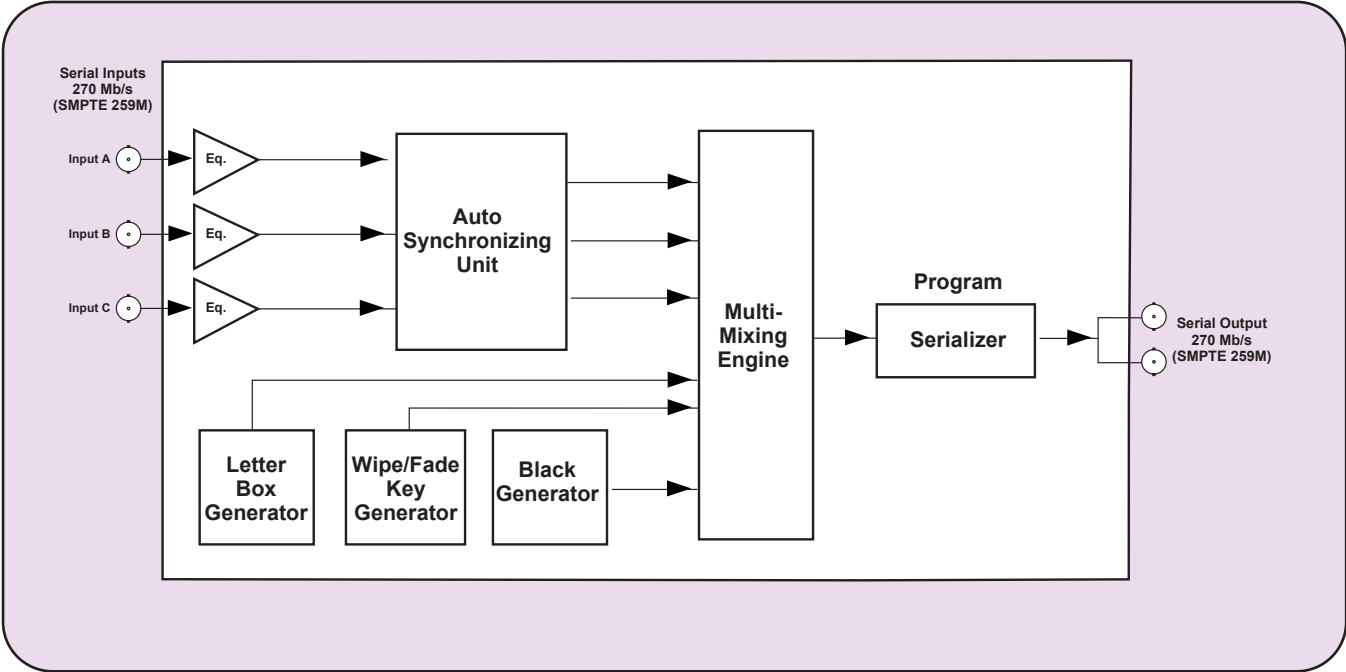
The Evertz 9580 Post Production Telecine Keyer system provides the post production and telecine suite with a multi-function keyer that was designed specifically for post production needs. The 9580 Post Production Telecine Keyer is a fully digital keyer that was designed with a scaleable size kept in mind so it will fit most post production applications that can be presented.

The 9580 Post Production Telecine Keyer system features linear keying, side-by-side comparisons, letter boxing, wipes, fades and more. The 9580 Post Production Telecine Keyer consists of a one RU frame with front panel control or optional remote control. The 9580 Post Production Telecine Keyer is an ideal addition to the Evertz KeyLog Tracker Telecine Logging and Configuration Management Tool.

Features

- Side-by-side comparisons
- Wipes - horizontal, vertical, diagonal left or right
- Auto-timing SDI inputs
- Adjustable fades and wipes
- Automatic precision letter boxing for 4:3 and 16:9 aspect ratios
- On Screen display for setup menu
- Factory and user presets
- 12-bit linear keying
- Safe area / safe title markers
- Operates with 525 or 625 line SMPTE 259M-C video signals
- Optional Rack Mount or Desk Top Remote Control unit

9580 Block Diagram



Specifications

Serial Digital Video Input:

Standard: SMPTE 259M-C 270 Mb/s
525i/59.94, 625i/50

Number of Inputs: 3

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic to 200m with Belden 8281 (or equivalent)

Impedance: 75Ω

Serial 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: 900ps nominal

Overshoot: <10% of amplitude

Wide Band Jitter: < 0.2UI

Impedance: 75Ω

Serial Remote Ctl:

RS-232/422 interface, 9 pin "D" connector

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:

9580 Post Production Telecine Keyer

Ordering Options:

+RCP Rackmount remote control panel

+DCP Desk top remote control unit

Model 9590



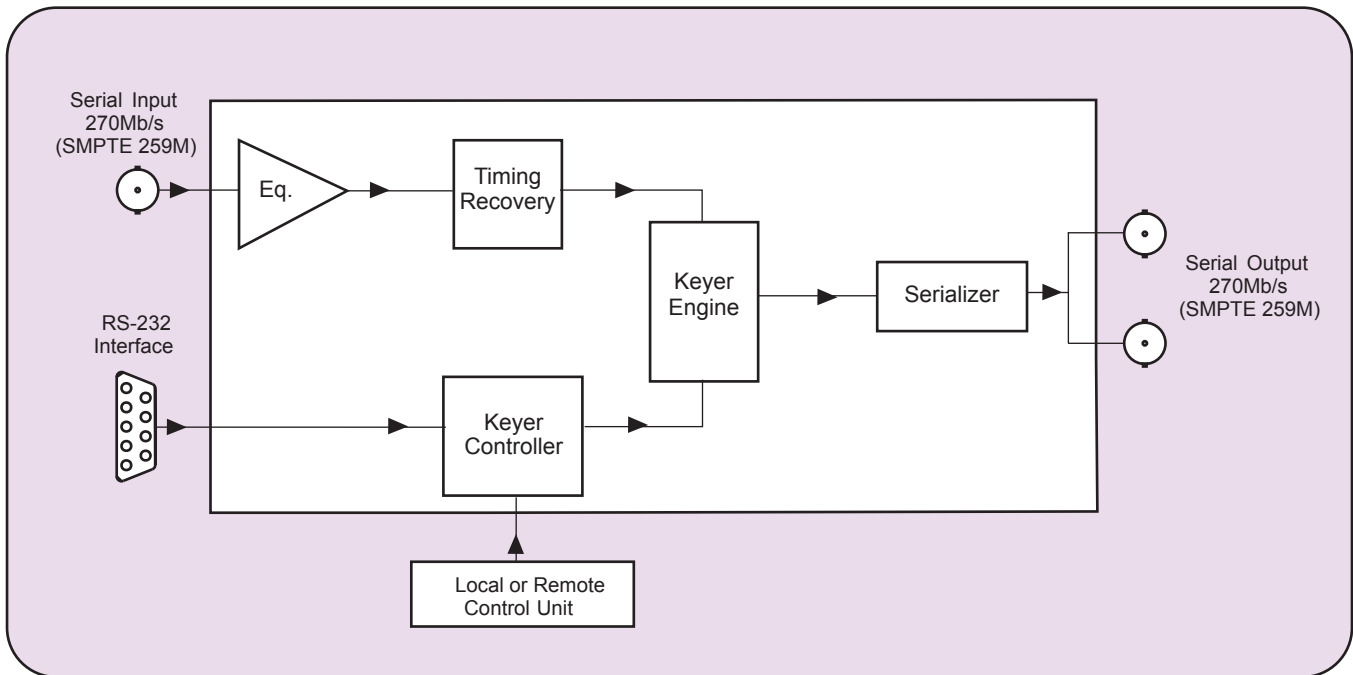
The 9590 is an easy to use, one rack unit, dual standard digital video graticule generator that keys various alignment markers over a standard definition video picture. These alignment markers facilitate film transfer, post production and quality control measurements relating to picture location for 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
EMI/RFI: 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

1a

2

3

4

5

6

7

8

9

10

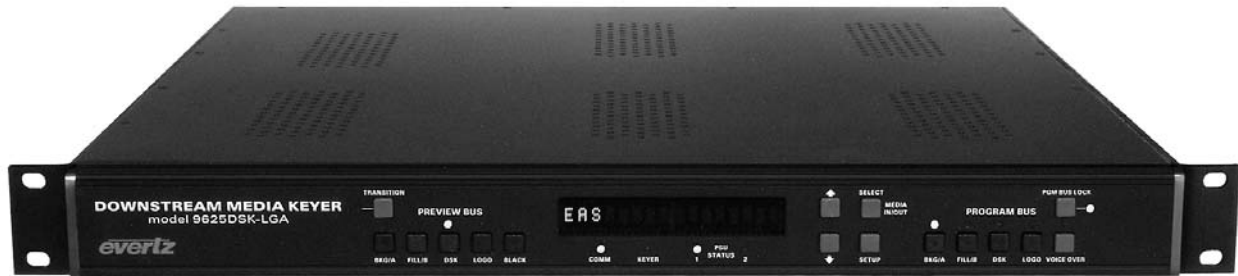
11

12

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.

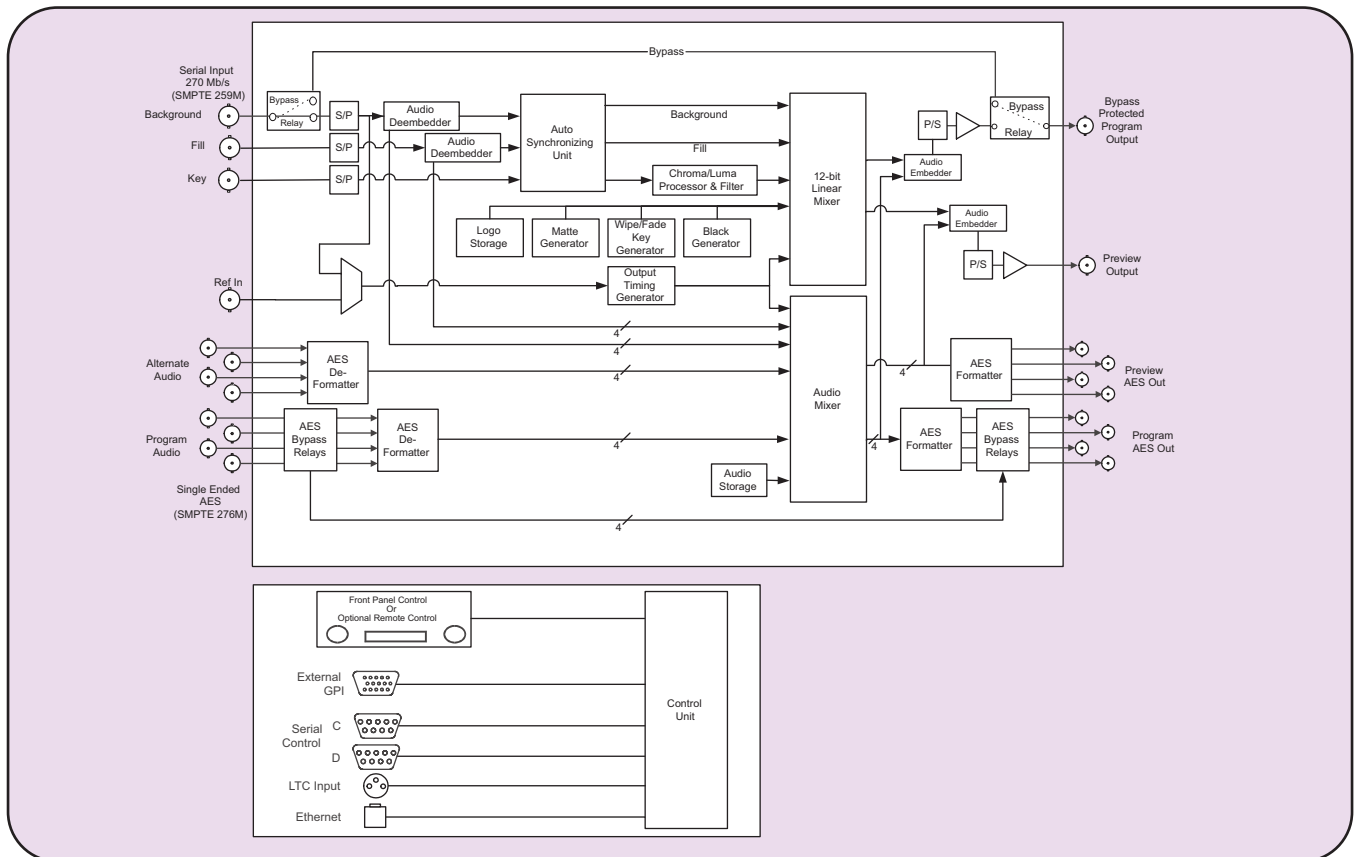
Audio files are loaded over the standard Ethernet interface or from the front panel Compact Flash port in 16-bit, 48KHz .WAV format using Evertz InstaLogo software.

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 colour 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
EMI/RFI: 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)

SDI Logo Inserter

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

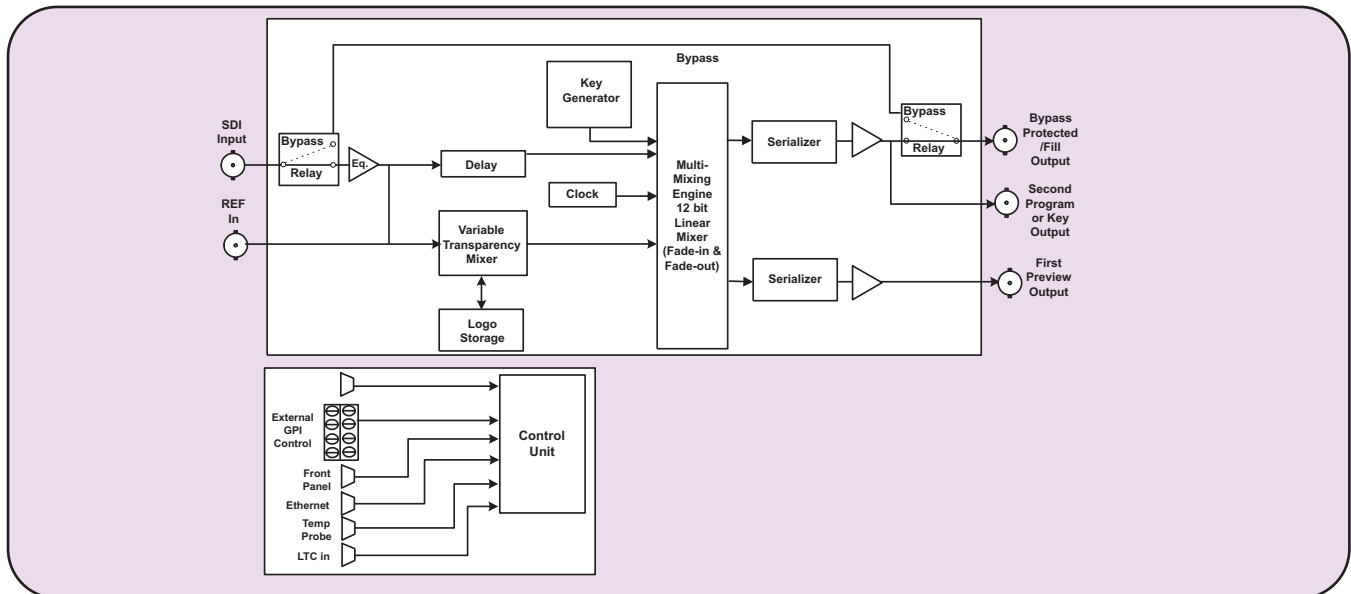
- Stores and inserts static and animated logos
- Multiple simultaneous logos can be keyed with independent fade control
- Incorporates a high quality variable transparency mixer that provides various transparency levels to your logos
- Full 12-bit linear fade-in and fade-out control provided
- Front 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 colour 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
 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.

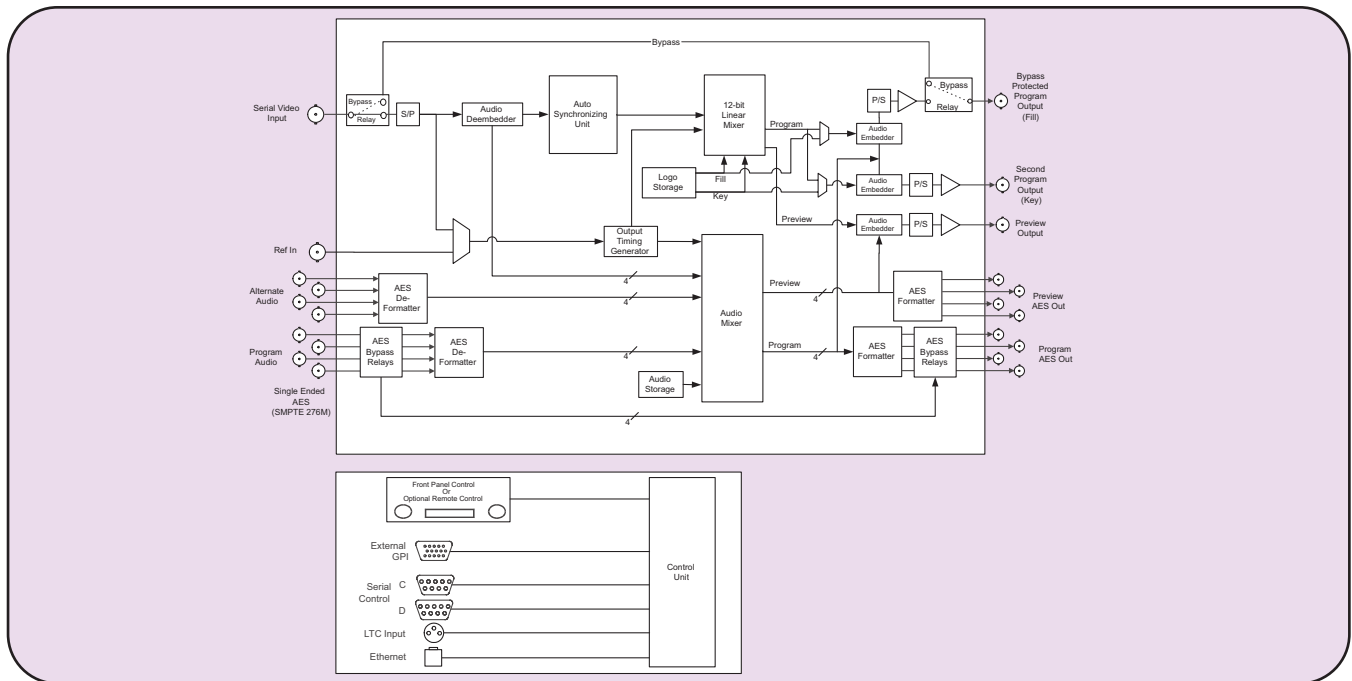
Features

- 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 colour 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:

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

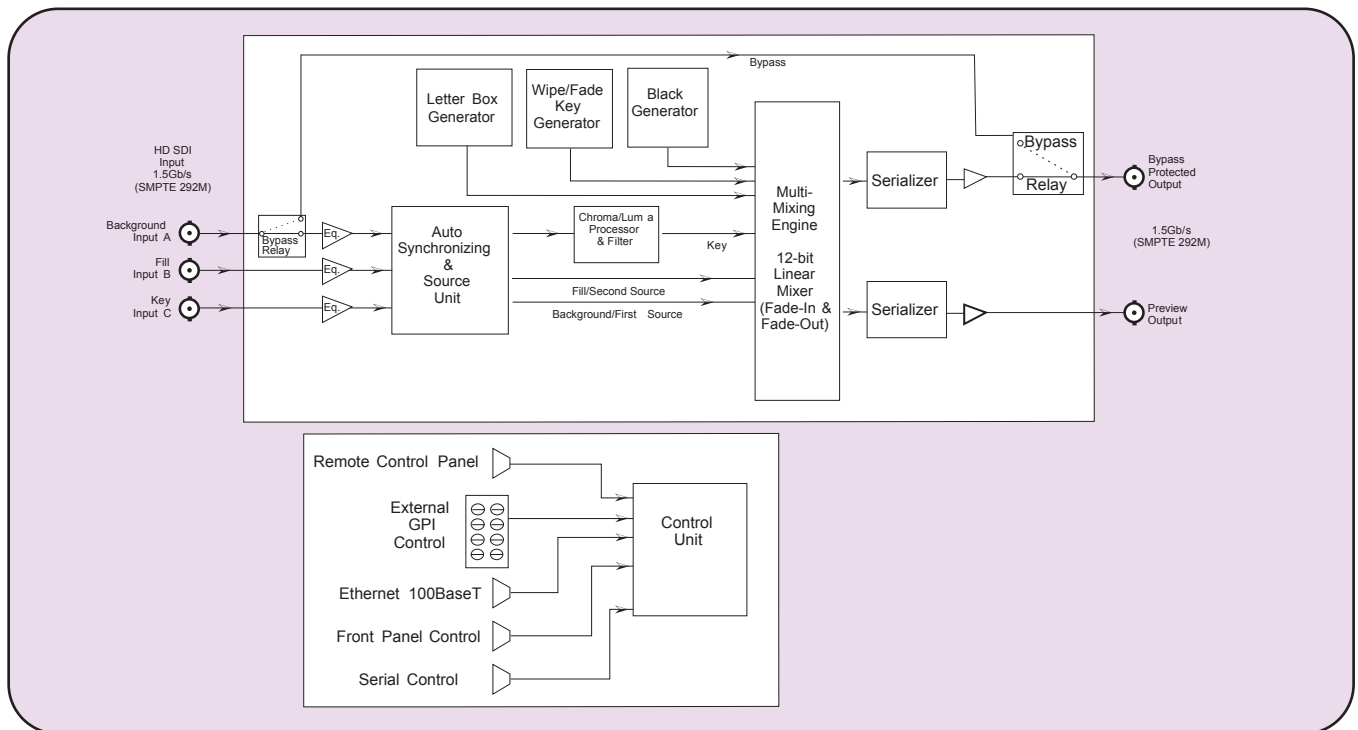


The Evertz HD9625DSK High Definition Downstream Keyer system incorporates the latest technology to provide an advanced fully digital keyer. The Evertz HD9625DSK is ideal for mixing key and fill HDTV signals in the “On-Air” environment. The system also features letter boxing, wipes, fades and more. The 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

- Program output bypass protected for on-air applications (optional)
- 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
1694 (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

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.

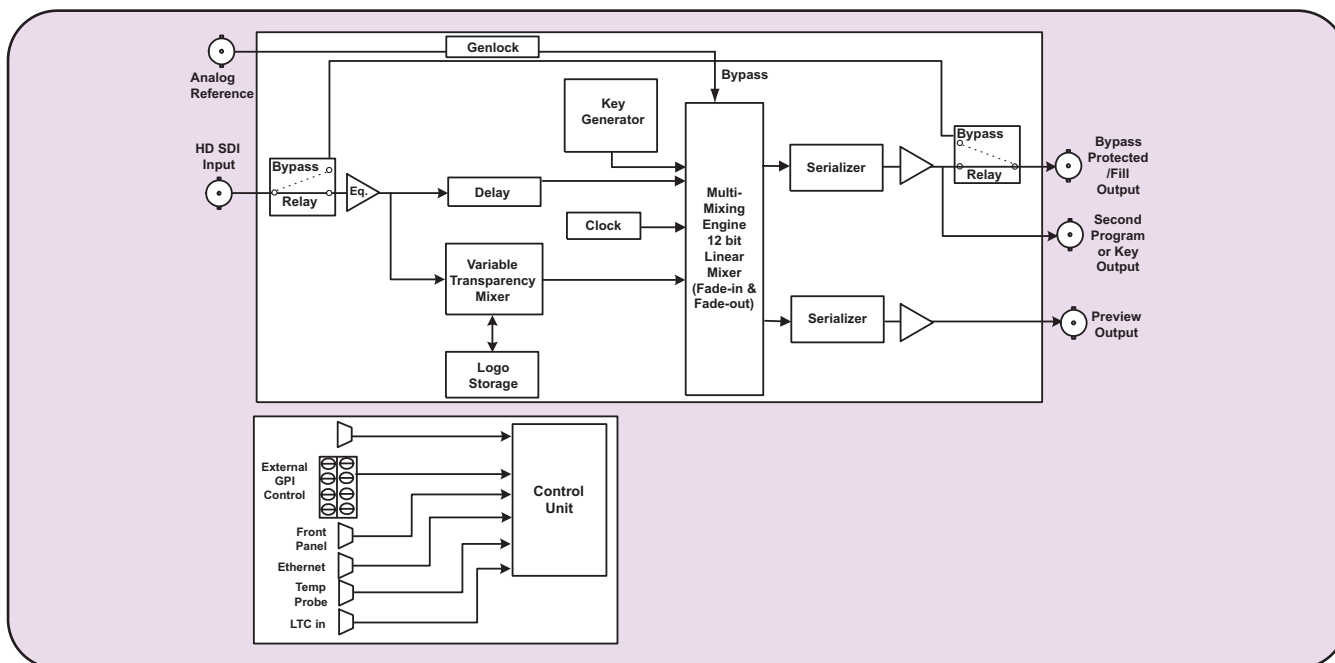
Features

- 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 Mbytes of storage
- Automatic input equalization up to 100m of Belden 1694 (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 1694 (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 colour 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
 XLR Type 3 pin female connector
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

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..

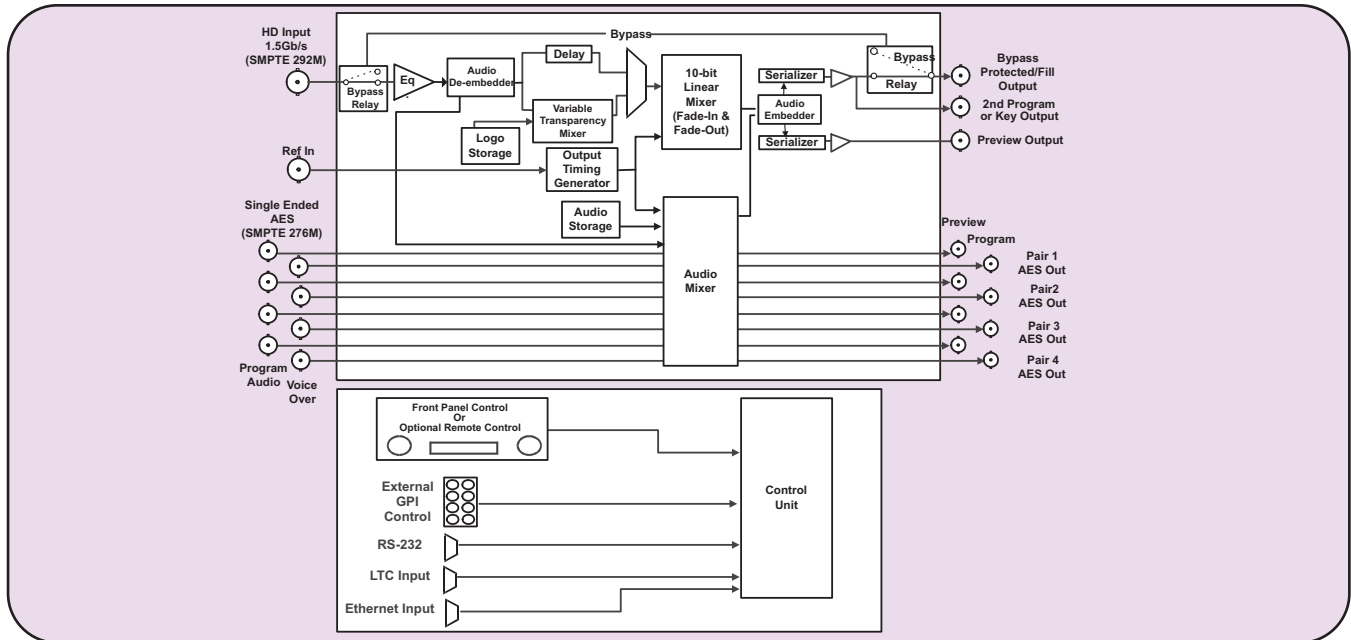
Features

- 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 1694 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 1694 (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)
 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

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 colour 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

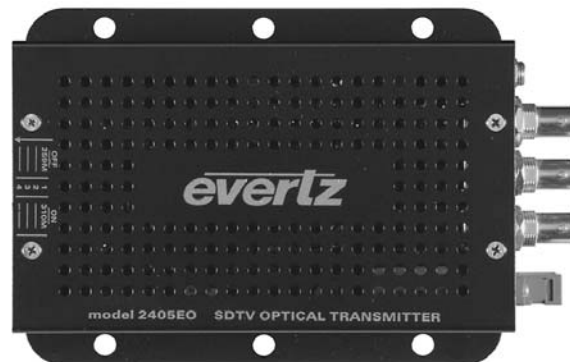
SDI Miniature Optical Transmitter

19.4Mb/s or 143-540Mb/s

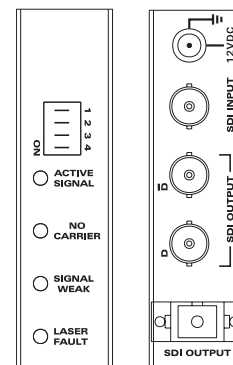
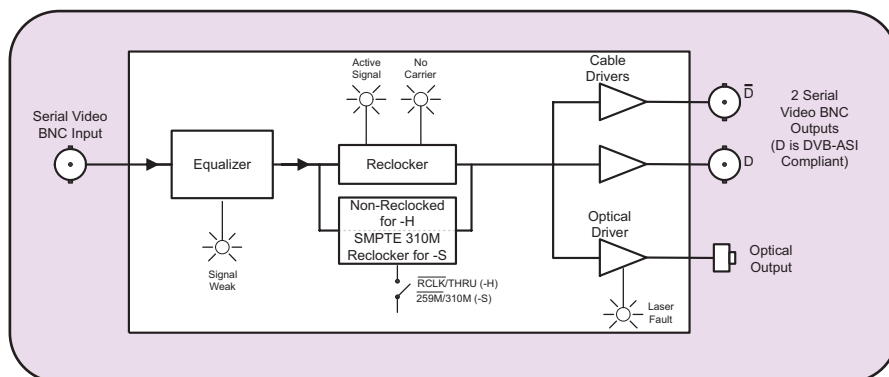
Model 2405EO

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:

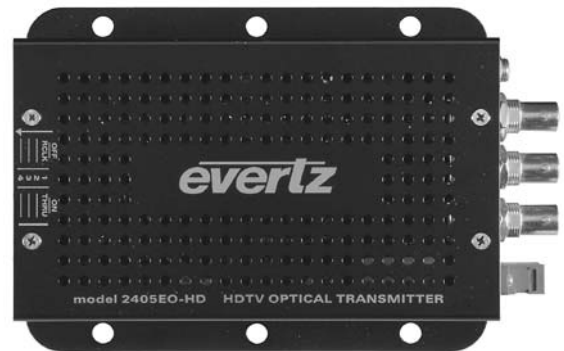
CB-FP1M-SCPC Single mode fiber cable, 1m, SC/PC male termination
CB-FP1M-STPC Single mode fiber cable, 1m, ST/PC male termination
CB-FP5M-SCPC Single mode fiber cable, 5m, SC/PC male termination
CB-FP5M-STPC Single mode fiber cable, 5m, ST/PC male termination
CB-FP10M-SCPC Single mode fiber cable, 10m,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

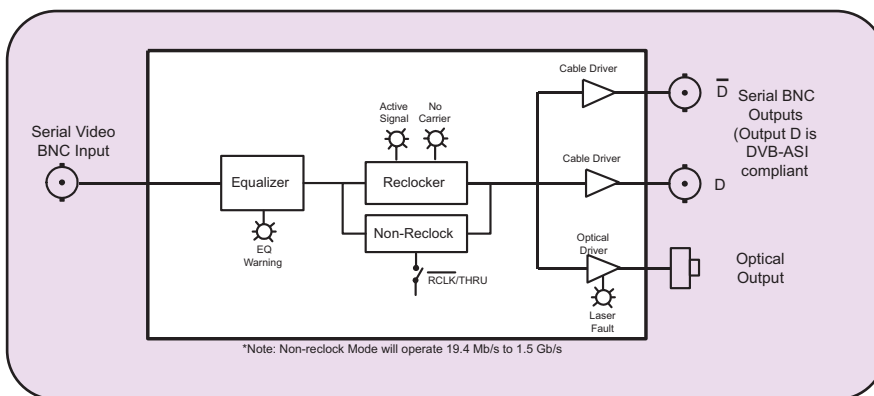
Model 2405EO-HD

Features

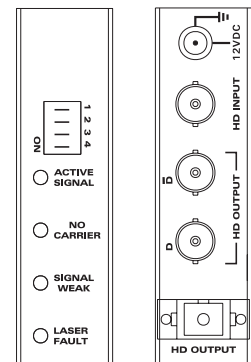
- Operation from 19.4Mb/s to 1.5Gb/s
 - Reclocking for SMPTE 292M (1.485Gb/s)
 - Non-reclocking for all other rates from 19.4 Mb/s to 1.5Gb/s including SMPTE 259M, SMPTE 305M, SMPTE 310M, M2S, DVB-ASI
- Available in 1310nm, 1550nm and up to sixteen different CWDM wavelengths (ITU-T G.694.2 compliant)
- 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



2405EO-HD Block Diagram



*Note: Non-reclock Mode will operate 19.4 Mb/s to 1.5 Gb/s



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 1694 (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

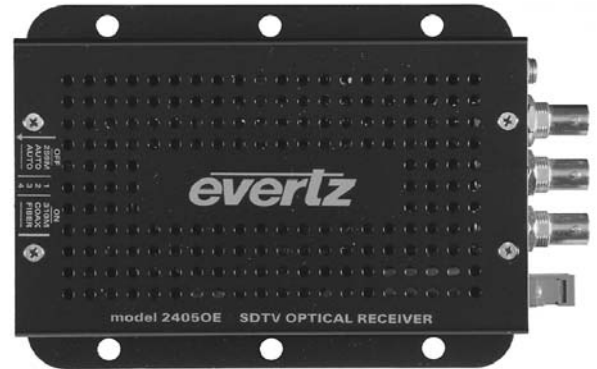
SDI Miniature Optical Receiver

19.4Mb/s or 143-540Mb/s

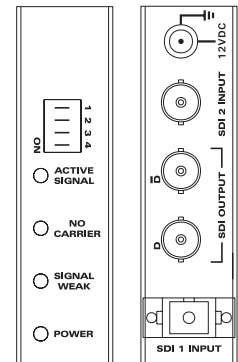
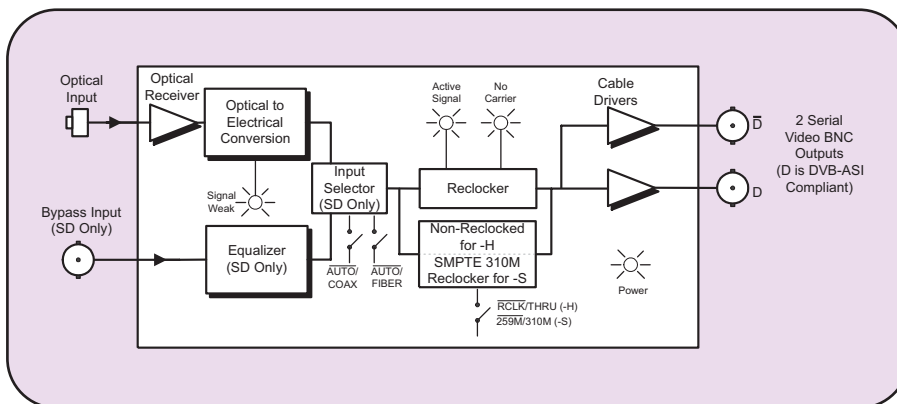
Model 2405OE

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 single-mode and multi-mode fiber optic cable
- 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 |

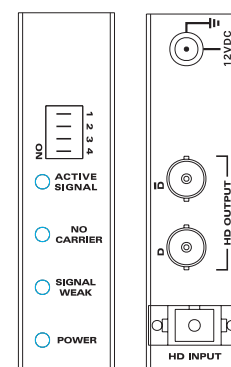
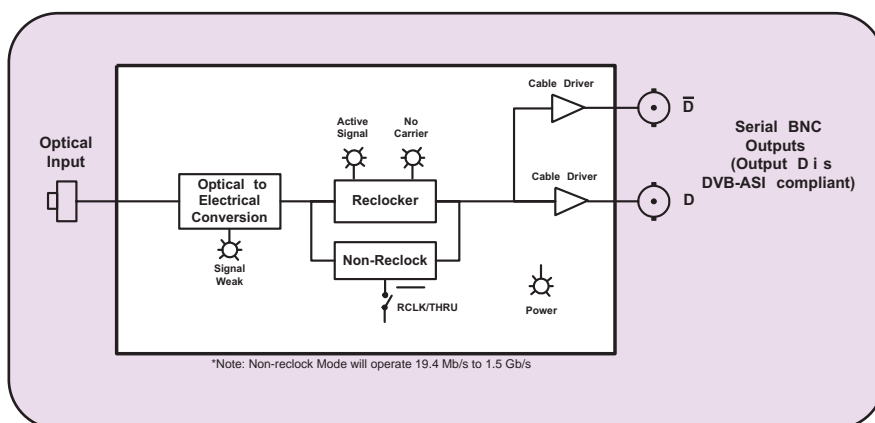
HDTV Miniature Optical Receiver, 19.4Mb/s to 1.5Gb/s

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:

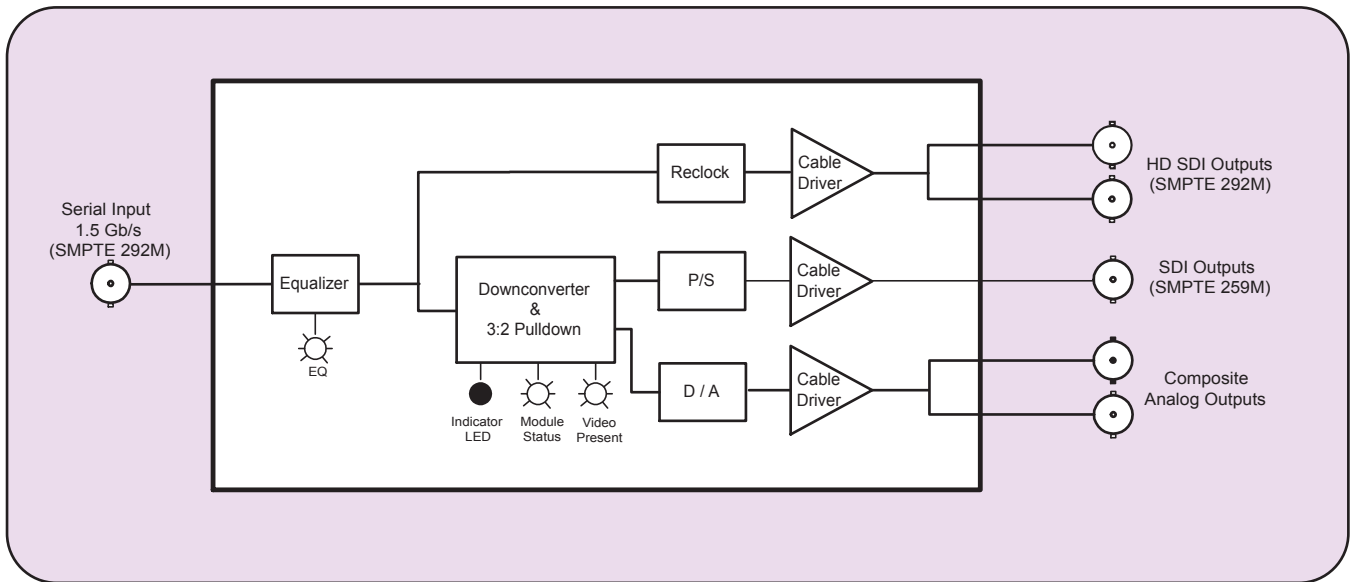
- Serial digital 1.5 Gb/s HD
- SMPTE 292M Standards: 1080i/60, 1080i/59.94, 1080i/50, 720p60 & 720p/59.94, 1080p/24sF, 1080i/23.98sF & 1080p/25sF

Output:

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

HD Miniature Monitoring Downconverter

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, 1 BNC per IEC 60169-8 Amendment 2

Connector: 75Ω

Impedance: Automatic 75m @ 1.5Gb/s with Belden 1694 (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

1a

2

3

4

5

6

7

8

9

10

11

12

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.

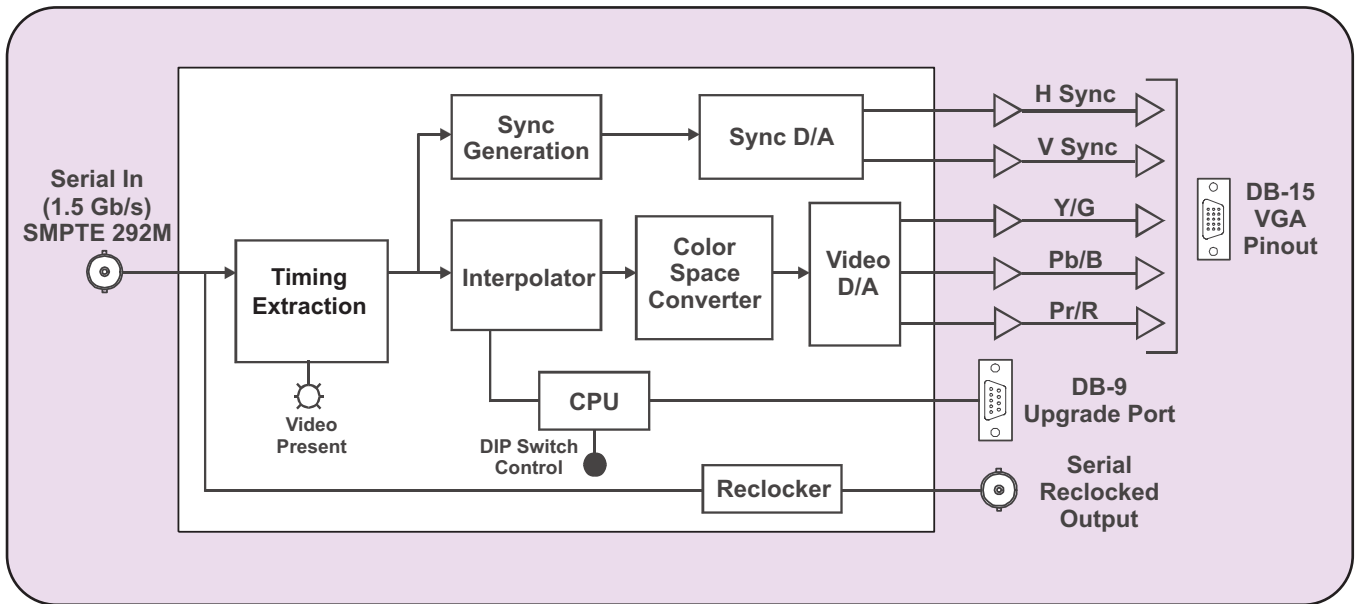
DIP switch control allows the user to select between YPrPb, RGB or VGA style analog outputs with a variety of sync output options. User controlled 4:3 alignment markers also allow for convenient framing of the video signal. With the optionally supplied VGA to BNC breakout cable the 2430DAC-HD can easily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

HD Miniature Digital to Analog Converter

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 1694 (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:

| | |
|-----------------|---------------------------------------|
| WPGABNC5 | VGA to BNC - 6' Monitor Adapter Cable |
|-----------------|---------------------------------------|

1a

2

3

4

5

6

7

8

9

10

11

12

GLink™ to DVI-I Converter

Model 2430GDAC



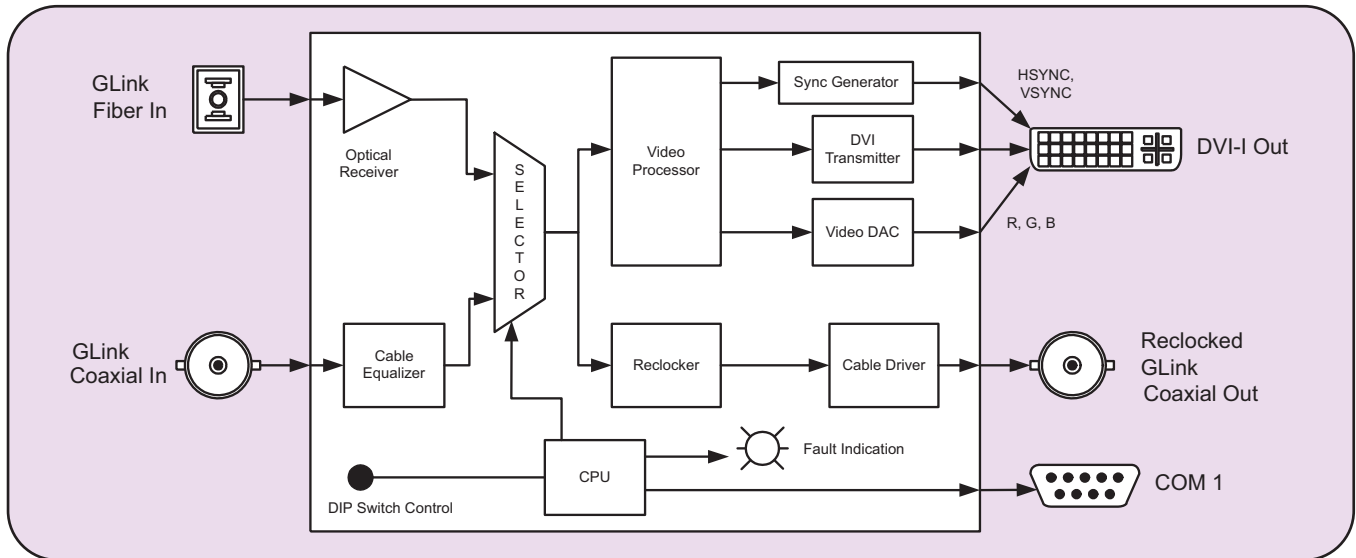
The 2430GDAC GLink D to A Converter provides a simple extension to Evertz multi-display systems by converting a GLink video signal over coaxial or fiber optic cable into a digital DVI signal and analog RGB signal that can be displayed on a computer monitor or flat panel screen, thereby eliminating the 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
2430GDAC-WARP

GLink to DVI converter
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 dangle 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.

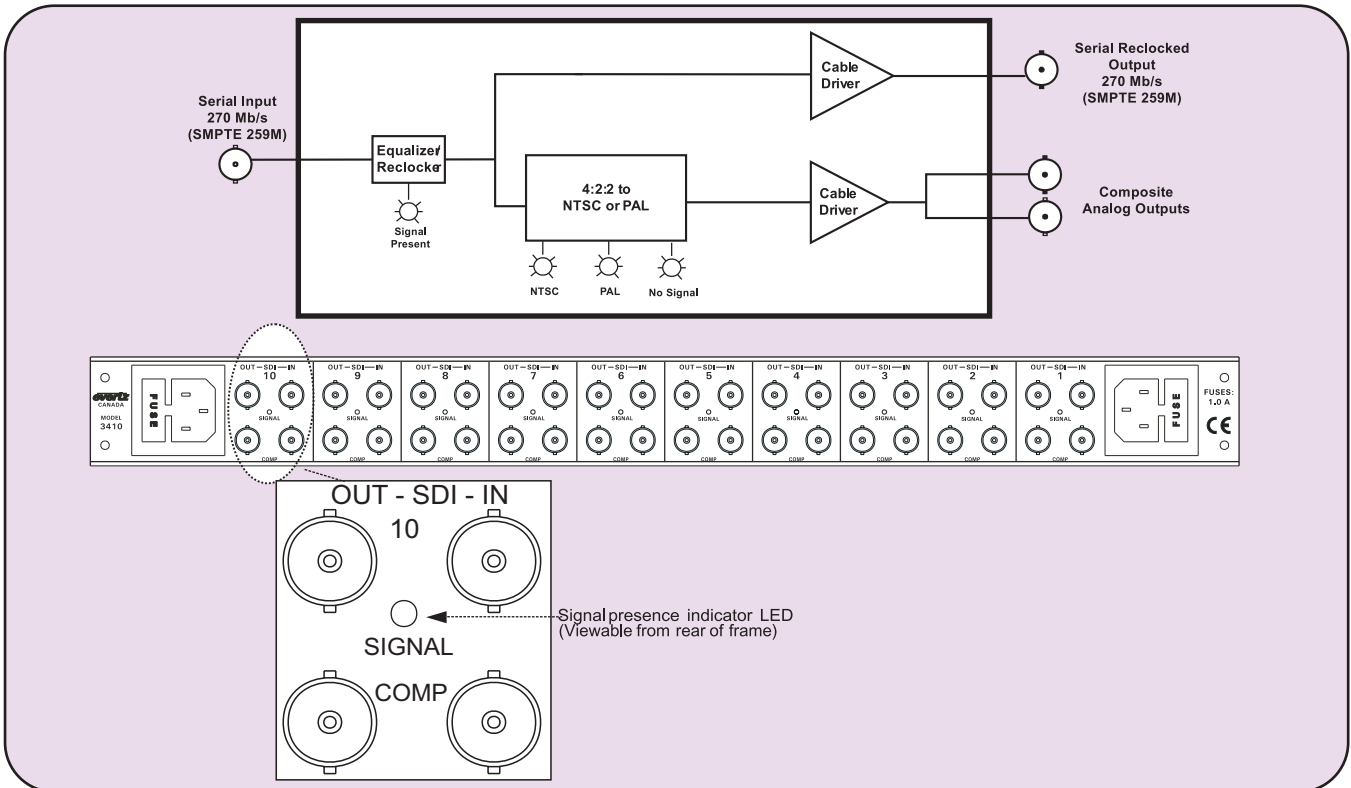
Having the Multivert mounted in the rear of the monitor racks eliminates the need for long analog cable runs from modular converters in the equipment rack room to the monitors, thus eliminating the need for analog equalizing DA's.

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 |
|-------------|------------------------|

1a

2

3

4

5

6

7

8

9

10

11

12

Model 9580



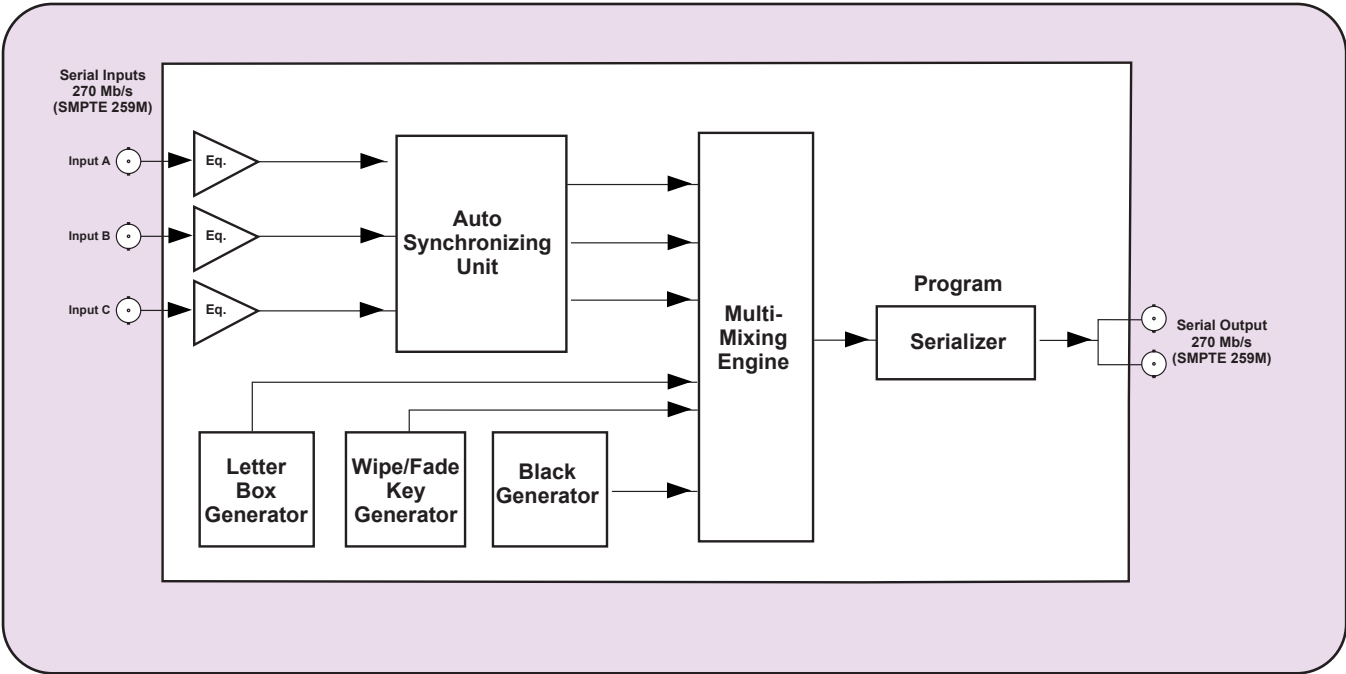
The Evertz 9580 Post Production Telecine Keyer system provides the post production and telecine suite with a multi-function keyer that was designed specifically for post production needs. The 9580 Post Production Telecine Keyer is a fully digital keyer that was designed with a scaleable size kept in mind so it will fit most post production applications that can be presented.

The 9580 Post Production Telecine Keyer system features linear keying, side-by-side comparisons, letter boxing, wipes, fades and more. The 9580 Post Production Telecine Keyer consists of a one RU frame with front panel control or optional remote control. The 9580 Post Production Telecine Keyer is an ideal addition to the Evertz KeyLog Tracker Telecine Logging and Configuration Management Tool.

Features

- Side-by-side comparisons
- Wipes - horizontal, vertical, diagonal left or right
- Auto-timing SDI inputs
- Adjustable fades and wipes
- Automatic precision letter boxing for 4:3 and 16:9 aspect ratios
- On Screen display for setup menu
- Factory and user presets
- 12-bit linear keying
- Safe area / safe title markers
- Operates with 525 or 625 line SMPTE 259M-C video signals
- Optional Rack Mount or Desk Top Remote Control unit

9580 Block Diagram



Specifications

Serial Digital Video Input:

Standard: SMPTE 259M-C 270 Mb/s
525i/59.94, 625i/50
Number of Inputs: 3
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic to 200m with Belden 8281
(or equivalent)
Impedance: 75Ω

Serial 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: 900ps nominal
Overshoot: <10% of amplitude
Wide Band Jitter: < 0.2UI
Impedance: 75Ω

Serial Remote Ctl:

RS-232/422 interface, 9 pin "D" connector

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:

9580 Post Production Telecine Keyer

Ordering Options:

+RCP Rackmount remote control panel
+DCP Desk top remote control unit

- 1a
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

Model 9590



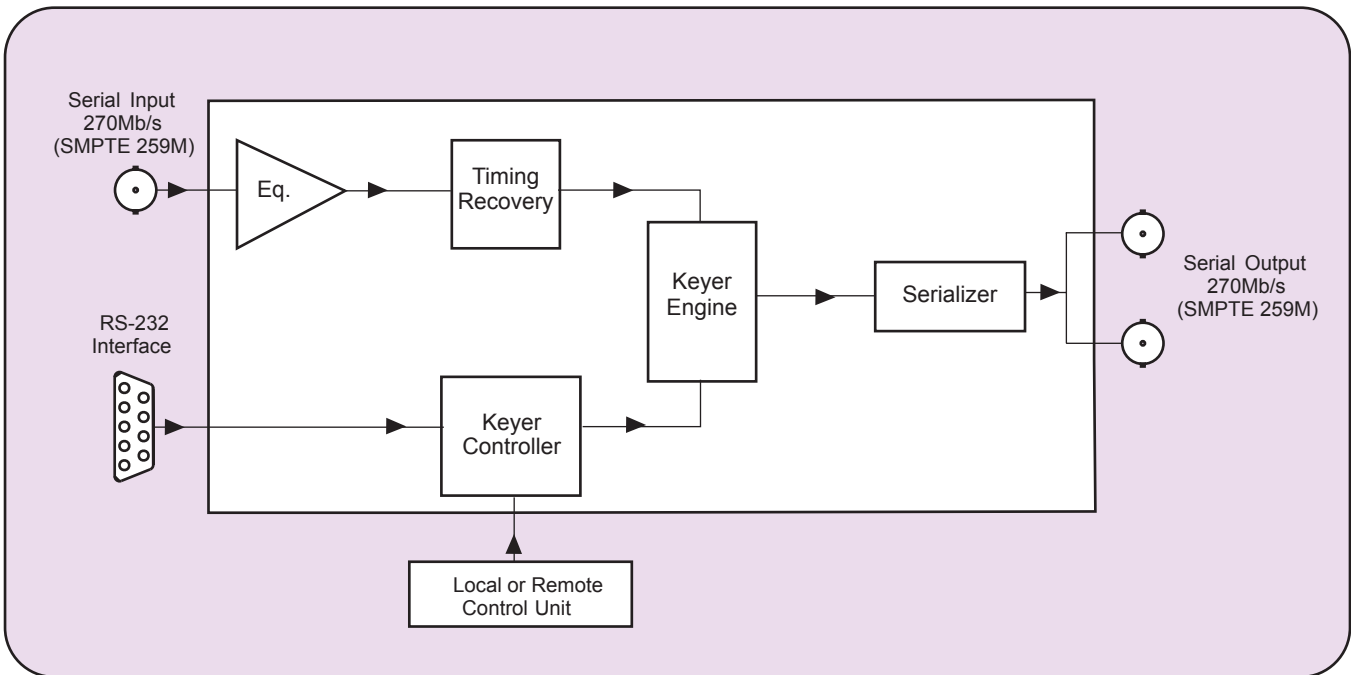
The 9590 is an easy to use, one rack unit, dual standard digital video graticule generator that keys various alignment markers over a standard definition video picture. These alignment markers facilitate film transfer, post production and quality control measurements relating to picture location for 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
EMI/RFI: 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

1a

2

3

4

5

6

7

8

9

10

11

12

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.

| 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, DNW series, IMX series | ECAS | ECB |

Operating as a stand-alone unit, the high definition camera-back adapters provide HDSDI with embedded audio and timecode, 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 timecode, NTSC/PAL and IEEE1394A video and 2 analog audio inputs for channels 3 and 4.

When the HD camera adapter is 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 timecode, 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, timecode 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 Features:

- Sony models connect directly to camera multipin 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 2 amp 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 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 series fiber-optic connector - contact factory for other connector options

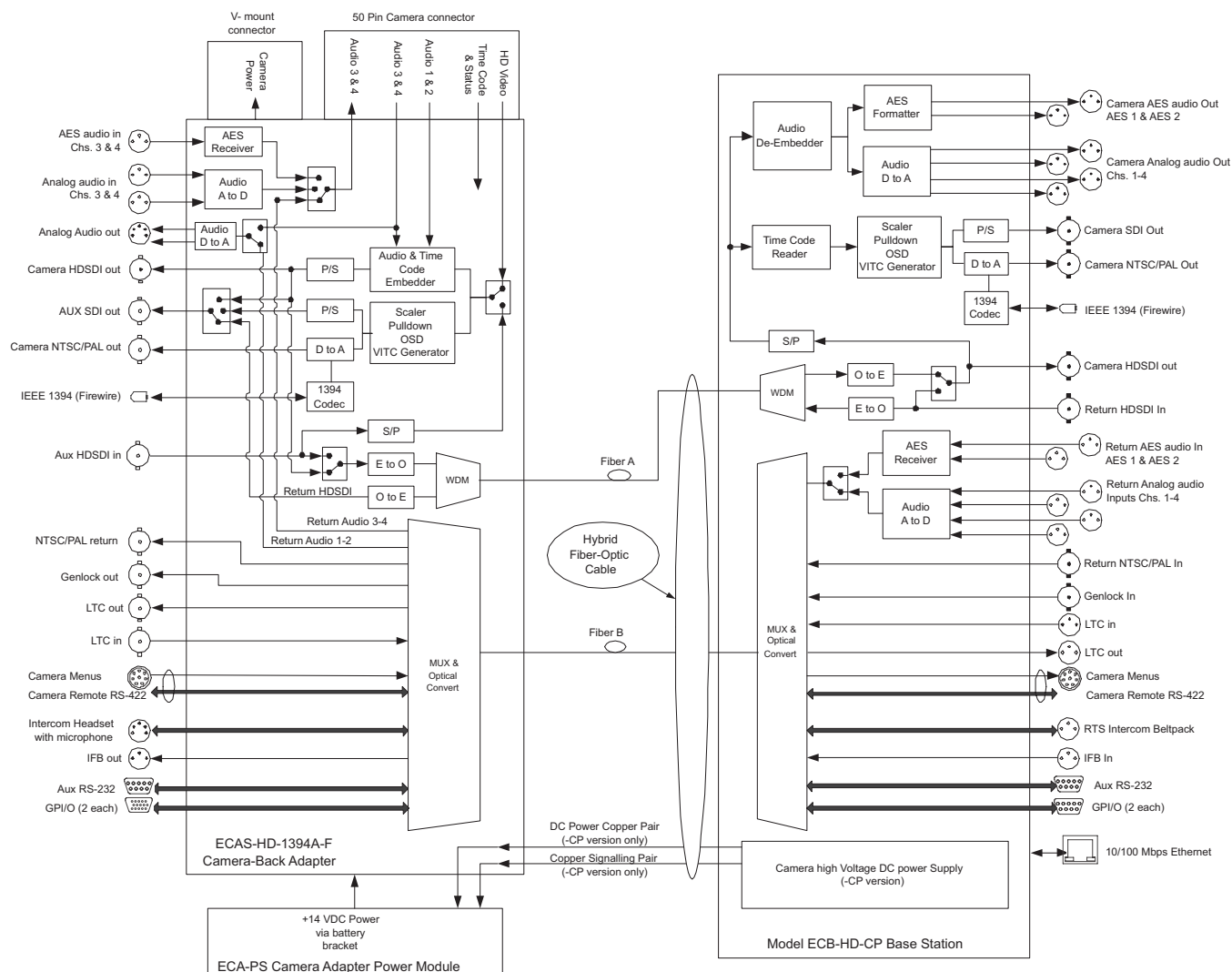
Fiber-optic Enabled Camera Adapter System

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)
- 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 blackburst or Tri-level)
- 4 channels of analog audio or AES in (return audio to camera adapter)
- Support for 2 Wire RTS intercom - 3 pin XLR party line
- 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 Return In from external Time code generator
- LTC Out from camera Time code
- Front panel control via pushbuttons and LED display.
- Status LEDs for SDI video, NTSC/PAL video, Return Video, Gen Lock and Fiber Link OK
- 1 RU main frame with 1 RU 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 series fiber-optic connector - contact factory for other connector options

ECAS-HD Block Diagram



* Available with -1394A Version only

Fiber-optic Enabled Camera Adapter System

Specifications

CAMERA ADAPTER:

Digital Video Input:

| | |
|---------------------------|--|
| Sony HD Version: | All standards supported in HDW-750 and HDW-F900 cameras - 50 pin parallel camera connector Aux HDSI SMPTE 292M 1.5 Gb/s BNC |
| Sony SD Version: | 525i/59.94 and 625i/50. - 40 pin parallel camera connector Aux SDI SMPTE 259M 270 Mb/s BNC |
| Panasonic Version: | All standards supported in AJ-HDC27V and AJ-HDC20 cameras SMPTE 292M 1.5 Gb/s BNC |

Digital Video Output:

| | |
|----------------------------|--|
| Standard: | BNC connector SMPTE 259M (SD) or SMPTE 292M (HD) Same format as input video |
| Embedded Audio: | Camera audio embedded in Group 1 SMPTE 272M (SD) or SMPTE 299M (HD) |
| Number of Outputs: | 2 |
| Non-Fiber Versions: | 1 from input video, 1 selectable from input video, or SD from downconverter on HD models |
| Fiber Versions: | 1 from Input video, 1 selectable from Input video, Base Station Return or SD from downconverter (on HD models) |
| Signal Level: | 800 mV nominal |
| DC Offset: | 0V +/- 0.5V |
| Rise/Fall Time: | 740 ps nom. (SD), 200 ps nom. (HD) |

Analog Video Output:

| | |
|----------------------------|---|
| Standard: | SMPTE 170M (NTSC), ITU-R BT470-6 (PAL) - BNC |
| Number of Outputs: | 1 from camera video |
| Non-Fiber Versions: | 1 from camera video, 1 from Base return video |
| Fiber Versions: | 1 from camera video, 1 from Base return video |
| Output Level: | 1V p-p (nominal), adj. 0.5V to 1.5V |

Analog Audio Input:

| | |
|-----------------------|--|
| Level: | 2 balanced analog audio - 3 pin female XLR -60 or -40 dBu, +4dBu, user selectable |
| Impedance: | 10K Ω (min, balanced) |
| Phantom Power: | Off, 12 or 48 VDC when set to mic levels |

AES Audio Input:

| | |
|---------------------|--|
| Level: | 1 balanced AES - 3 pins on 15 pin D 2 to 7V p-p |
| Impedance: | 110 Ω balanced |
| Sample Freq: | 48kHz |

Analog Audio Output:

| | |
|-------------------|--|
| | 2 channels balanced analog audio on 5 pin male XLR. Selectable from camera ch 3-4 base station return ch 1-2 |
| Impedance: | 66 Ω (nom, differential) |
| Level: | 0 dBm nominal |

Power Requirements:

| | |
|-------------------------|--|
| Connector: | + 12VDC nom. (11 to 17 volts), 20 watts max 4 pin male XLR or battery bracket |
| Safety: | ETL Listed, complies with EU safety directives |
| Accessory Power: | 2 pin Fischer 103 series female connector nominal 12 VDC, 2 A max |

Physical:

| | |
|--|--|
| | 6 " H x 6 " W x 2.25 " D (150 mm H x 150 mm W x 60 mm D) 1.5 lbs. (0.7 Kg) |
|--|--|

BASE STATION:

Return Digital Video Input:

| | |
|------------------|---|
| Standard: | SMPTE 259M (SD) or SMPTE 292M (HD) BNC connector. All standards supported by camera adapter |
|------------------|---|

Digital Video Output:

| | |
|---------------------------|--|
| Standard: | SMPTE 259M (SD) or SMPTE 292M (HD) Same format as input video |
| Connector: | BNC per IEC 60169-8 Amendment 2 |
| Embedded Audio: | Camera audio embedded in Group 1 SMPTE 272M (SD) or SMPTE 299M (HD) |
| Number of Outputs: | |
| SD versions: | 2 SD |
| HD Versions: | 1 HD, 1 SD from downconverter |
| Signal Level: | 800 mV nominal |
| DC Offset: | 0V +/- 0.5V |
| Rise/Fall Time: | 740 ps nom. (SD), 200 ps nom. (HD) |

Analog Video Output:

| | |
|---------------------------|--|
| Standard: | SMPTE 170M (NTSC), ITU-R BT470-6 (PAL) - |
| Connector: | BNC per IEC 60169-8 Amendment 2 |
| Number of Outputs: | 1 |
| Output Level: | 1.0V p-p (nominal), adj. 0.5V to 1.5V |

Return Analog Video Input:

| | |
|--------------------------|--|
| Standard: | SMPTE 170M (NTSC), ITU-R BT470-6 (PAL) - |
| Connector: | BNC per IEC 60169-8 Amendment 2 |
| Number of Inputs: | 1 return video to Camera adapter |
| Input Level: | 1.0V p-p (nominal) |
| Impedance: | 75 Ω |

Return Analog Audio Input:

| | |
|-------------------------|-------------------------------------|
| Type: | 4 balanced analog audio |
| Connector: | 3 pin female XLRs on breakout panel |
| Input Level: | +4dBu |
| Input Impedance: | 10K Ω (min, balanced) |

Return AES Audio Input:

| | |
|---------------------|-------------------------------------|
| Standard: | 2 balanced AES-1992 |
| Connector: | 3 pin female XLRs on breakout panel |
| Level: | 2 to 7V p-p |
| Impedance: | 110 Ω balanced |
| Sample Freq: | 48kHz |

Analog Audio Output:

| | |
|-------------------|-----------------------------------|
| Type: | 4 balanced analog audio |
| Connector: | 3 pin male XLRs on breakout panel |
| Impedance: | 66 Ω (nom, differential) |
| Level: | 0 dBm nominal |

AES Audio Output:

| | |
|---------------------|-----------------------------------|
| Standard: | 2 balanced AES-1992 |
| Connector: | 3 pin male XLRs on breakout panel |
| Level: | 2 V p-p |
| Impedance: | 110 Ω balanced |
| Sample Freq: | 48kHz |

FIBER ENABLED CAMERA ADAPTERS AND BASE STATION:

Fiber Optic I/O:

| | |
|------------------------|--|
| Lemo Option: | Lemo 3K series |
| FSCH Option: | Fischer 1053 series |
| Rx Sensitivity: | -28 dBm |
| Tx Wavelength: | 1310 nm on Camera adapter, 1550 nm on Base Station |
| Power Output: | 0 dBm |
| Cable Type: | SMPTE 311M compliant Hybrid single mode fiber cable |

Fiber-optic Enabled Camera Adapter System

DV Input/Output (-1394 versions, std on Base Station):

Standard: IEEE 1394A, SMPTE 314M 25 Mb/s
Connector: 6 pin IEEE 1394A
Timecode: Camera timecode embedded

LTC Input and Output:

Standard: SMPTE 12M Linear Time Code to and from Base Station
Number: 1 input and 1 output at each end
Connector:
Camera Adapter: Unbalanced - 2 BNC's
Base Station: Balanced - 3 Pin male and female XLR

General Purpose Input and Output:

Number: 2 Inputs, 2 outputs at each end
Type: Opto-isolated inputs, active low with pull ups to +5V, selectable functions
Dry relay outputs - selectable functions, N.C. and N.O.

Connector:
Camera Adapter: Female high density DB-15
Base Station: Female DB-9

Camera Remote Control:

Connector: 8 pin female Hirose MXR series
Signal: RS-232/422 (menu selectable) data
Camera luminance (Y) 1 v p-p (when connected to Sony Cameras only)

Metadata Serial Port:

Connector: Female DB-9
Signal: RS-232/422, Up to 3M baud

Upgrade Serial Port:

Connector: Female DB-9
Signal: RS-232, 115,200 baud, 8 data bits, no parity, 2 stop bits

IFB:

Number of Inputs: 1 IFB return audio
Connector:
Camera Adapter: 3 pin male XLR
Base Station: 3 pin female XLR type on breakout panel
Input Level: +4dBu
Input Impedance: >20K Ω

Intercom:

Standard: RTS 2 wire partyline
Connector:
Camera Adapter: 5 pin female XLR headset connector
Base Station: 3 pin female XLR type beltpack connector

Power Supply:

Standard version: Autoranging 100 - 240 V AC, 50/60 Hz
Input Power: Power for base station only
30 VA
Fuse Rating: 250 V, 1 amp, time delay
Camera Power Version: High voltage camera power
Input Power: 300 VA max - depends on camera power consumption
Fuse Rating: 250 V, 3 amp, time delay
Camera Power: 125 watts at battery voltage at output of ECA-PS Power Supply converter
Max Distance: 2 Km
Shutdown: Front panel switch, Auto shutdown when ECA-PS not connected at camera end, Ground Fault Interruption

Safety: ETL Listed, complies with EU safety directives
EMI/RFI: Complies with FCC Part 15 Class A regulations
EU EMC Directive

Ordering Information:

CAMERA ADAPTER (Must Specify Battery Bracket Option)

ECAS-1394-LEMO Camera adapter with 1394A I/O and fiber optic I/O for SD Sony cameras with 40 pin connector (DNW7, DVW700, MSW900, etc.) - LEMO fiber connector
ECAS-HD Camera adapter for HD Sony cameras with 50 pin connector (HDW-750, HDW-F900, etc.)
ECAS-1394-HD Camera adapter with 1394A I/O for HD Sony cameras with 50 pin connector (HDW-750, HDW-F900, etc.)
ECAS-1394-LEMO-HD Camera adapter with 1394A I/O and fiber optic I/O for HD Sony cameras with 50 pin connector (HDW-750, HDW-F900, etc.) - LEMO fiber connector
ECAP-1394-LEMO-HD Camera adapter with 1394A I/O and fiber optic I/O for HD Panasonic cameras with HDSDI output (AJ-HDC20A, AJ-HDC27V, etc.) - LEMO fiber connector

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

CAMERA ADAPTER POWER CONVERTER (Must Specify Same Battery Bracket Option as Camera Adapter)

ECA-PS DC-DC Camera adapter power converter - (requires -CP version of Base station)

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 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"

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 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.

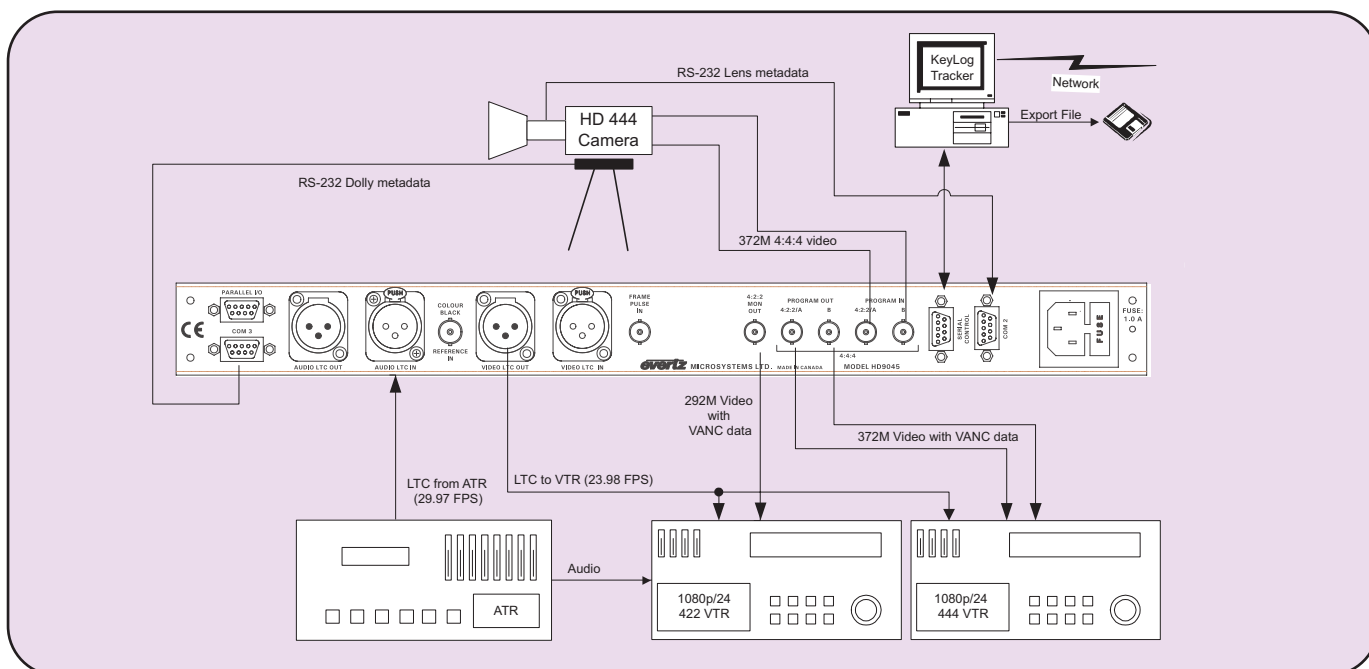
The HD9155Q Afterburner is a powerful device designed to facilitate the creation of off-line tapes from high definition telecine master tapes. The Afterburner downconverts the HDTV input video to SDI and analog standard definition video. When the input video is in the 1080p/24sF format the Afterburner 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
Connector: 2 BNC per IEC 60169-8 Amendment 2.
Equalization: Automatic to 75m @ 1.5Gb/s with Belden
1694 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:

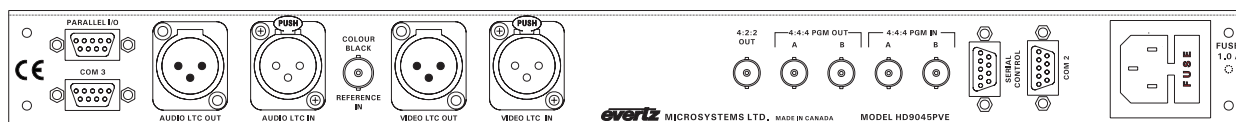
Power: Autoranging 100 to 240 VAC 50/60 Hz, 30 VA
Safety: ETL listed
Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A,
EU EMC Directive

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.

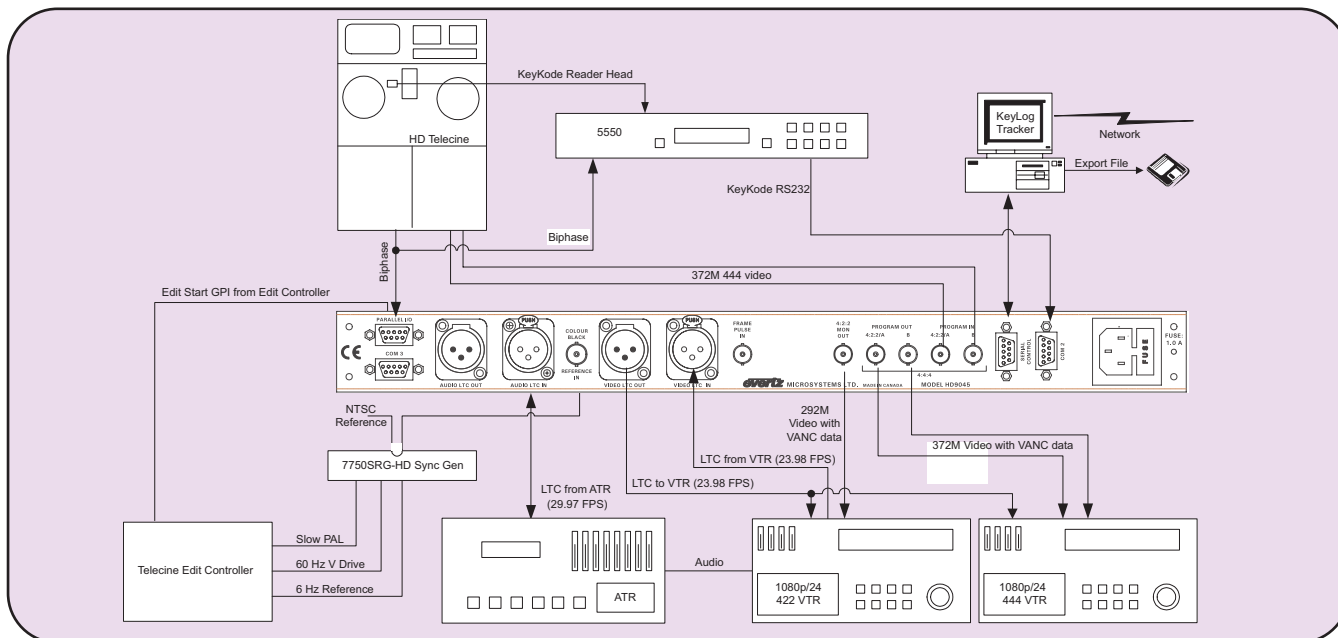
The new multi-resolution version of Evertz popular KeyLog Tracker software allows the user to store multiple configurations for both the 9025TR Film Footage Encoders and the Afterburners. A simple on screen control in the Tracker software performs switching between 4:4:4 and 4:2:2 modes in the HD9045TR. 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 1694 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

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

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

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 KeyCode 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.

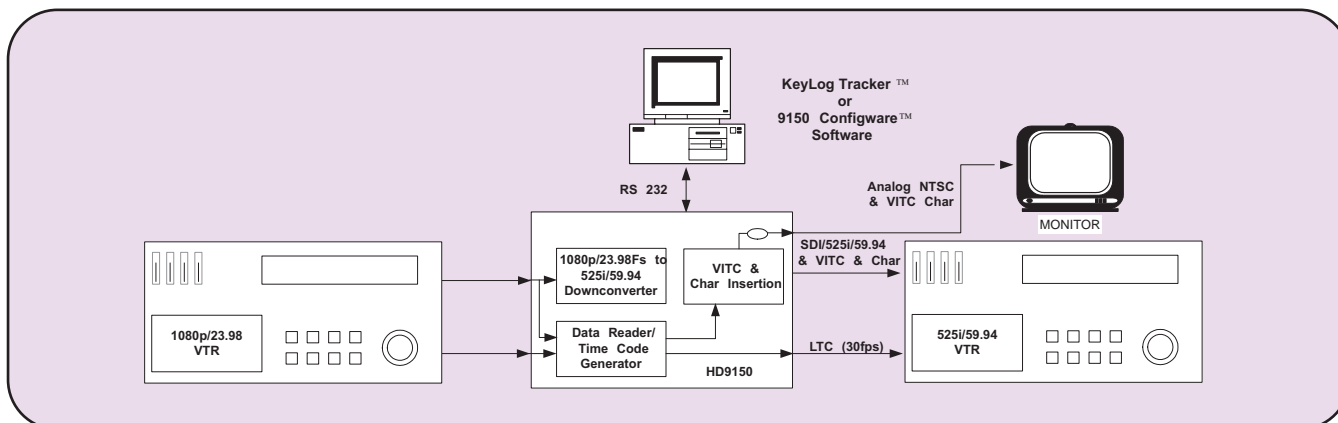
The HD9150Q can be easily configured using the new multi-resolution version of Evertz popular KeyLog Tracker™ software or from the 9150 Configware™ software tool supplied with the unit. These graphical software interfaces allow the user to store multiple configurations for the HD9150 series.

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

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 1694 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:

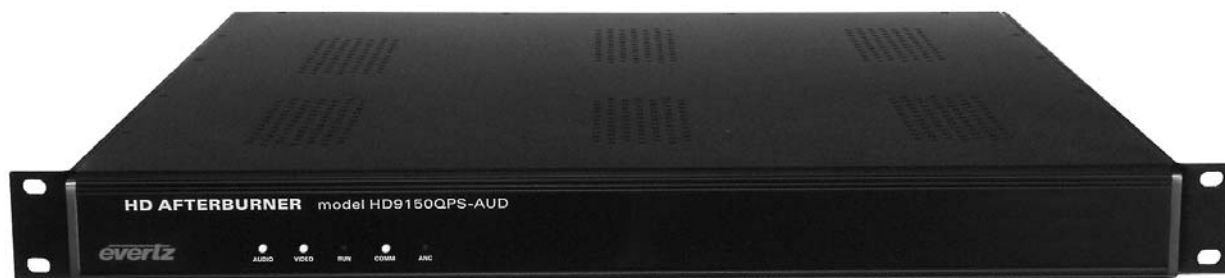
Power: Auto ranging 100-240VAC 50/60 Hz 30 VA
Safety: ETL listed
 Complies with EU safety directive
EMI/RFI: Complies with FCC Part 15 Class A
 EU EMC Directive

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.

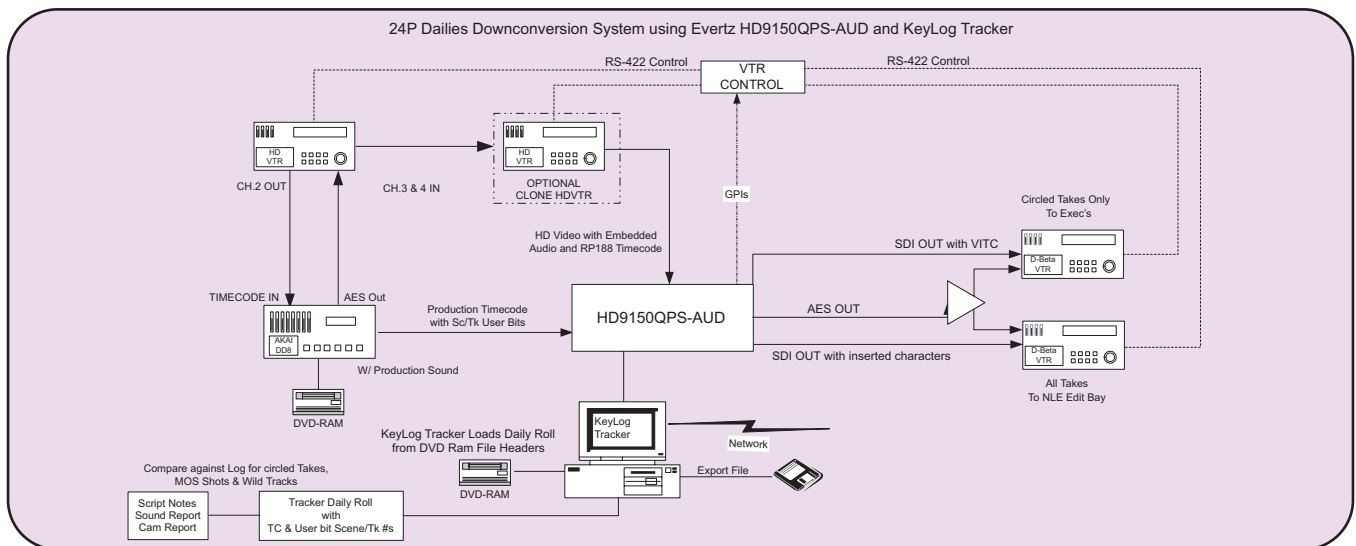
The HD9150QPS-AUD Afterburner can be easily configured using the KeyLog Tracker™ software supplied with the unit. This graphical software interface allows the user to store multiple configurations for the HD9150PS. It is also the central core to the Post Slate logging system. In the field, audio time 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



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 1694 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 800mV nominal

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 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.

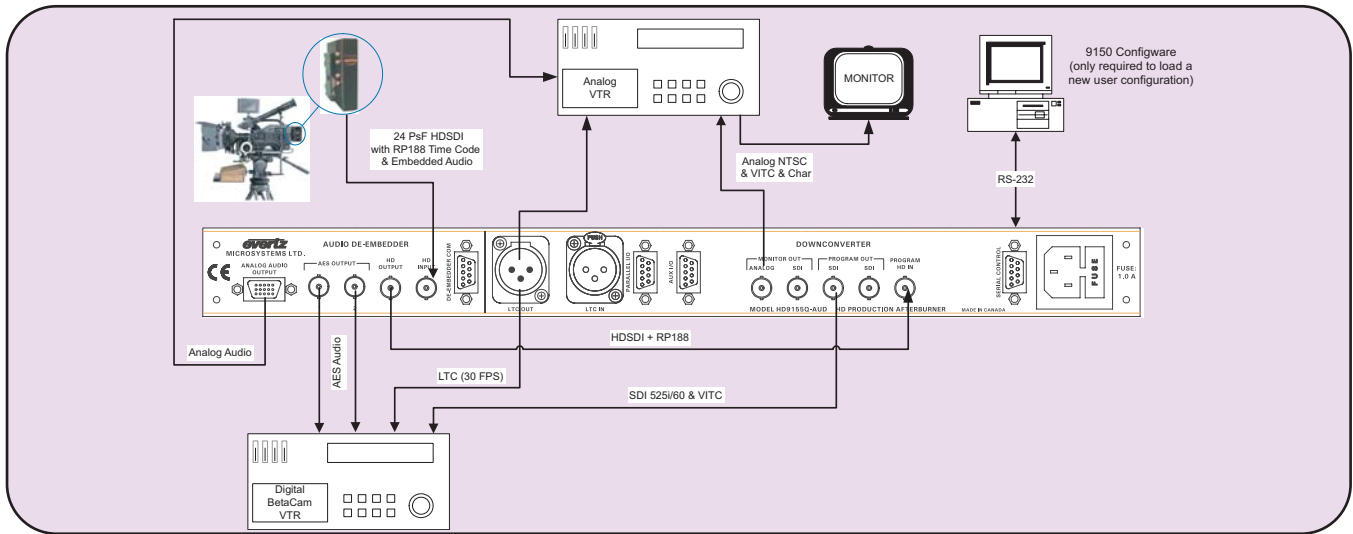
Models HD9155 and HD9155-AUD have been discontinued in favour of the High Quality (Q) versions.

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 1694 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 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 (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

1a

2

3

4

5

6

7

8

9

10

11

12

1a

Model HD9590

2

3

4

5

6

7

8

9

10

11

12



1a

2

3

4

5

6

7

8

9

10

11

12

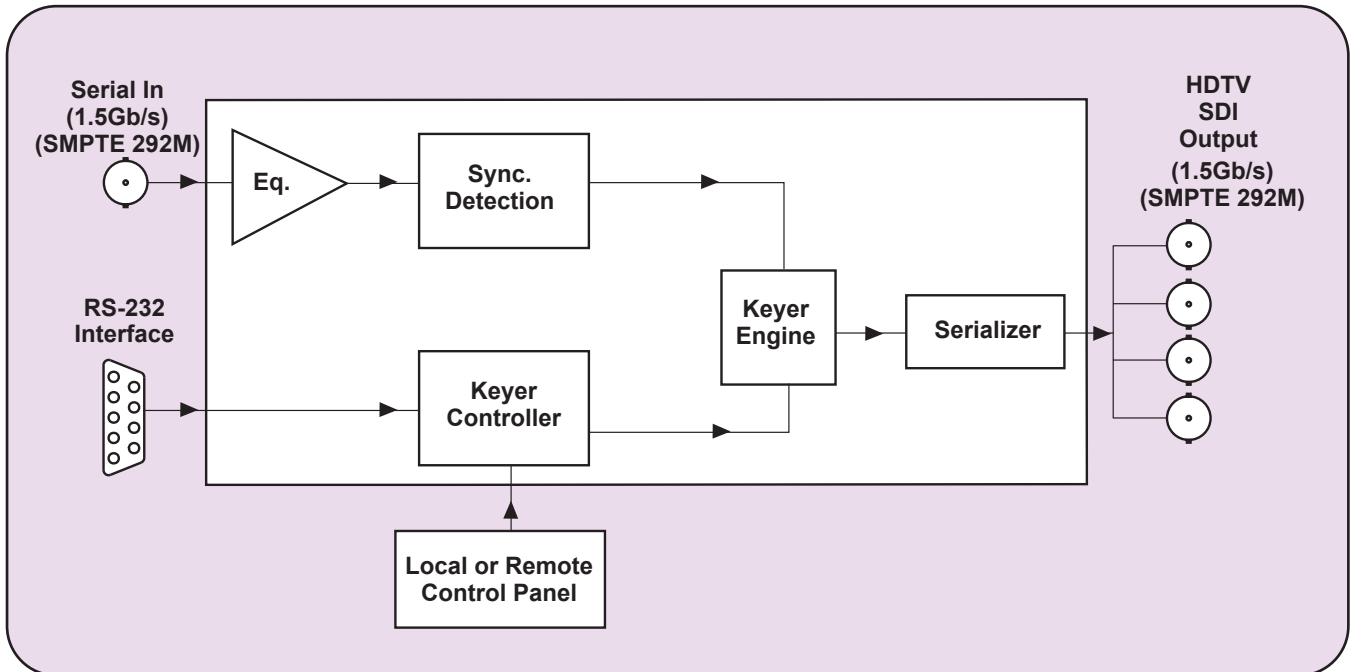
The HD9590 Graticule Generator is an easy to use, one rack unit, multi format digital video graticule generator that keys various alignment markers over a high definition video picture. These alignment markers facilitate film transfer, post production and quality control measurements relating to picture 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 1694 (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
EMI/RFI: Complies with FCC Part 15 Class A
 EU EMC Directive

Ordering Information:

HD9590 HD SDI Graticule Generator

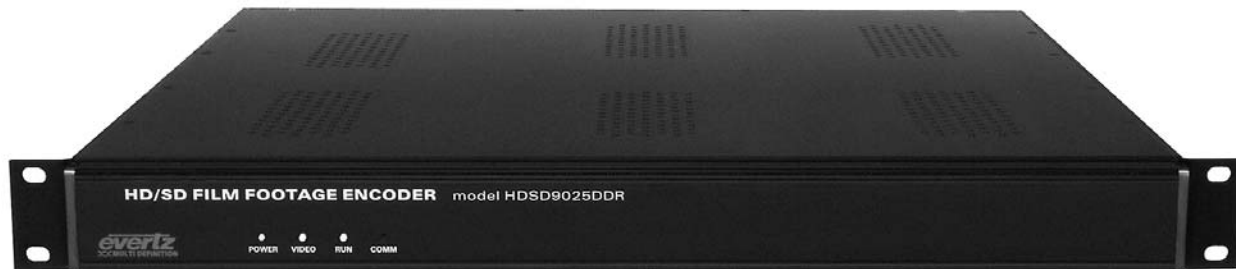
Ordering Options:

+RCP Rackmount remote control
+DCP Desktop remote control unit

1a
2
3
4
5
6
7
8
9
10
11
12

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.

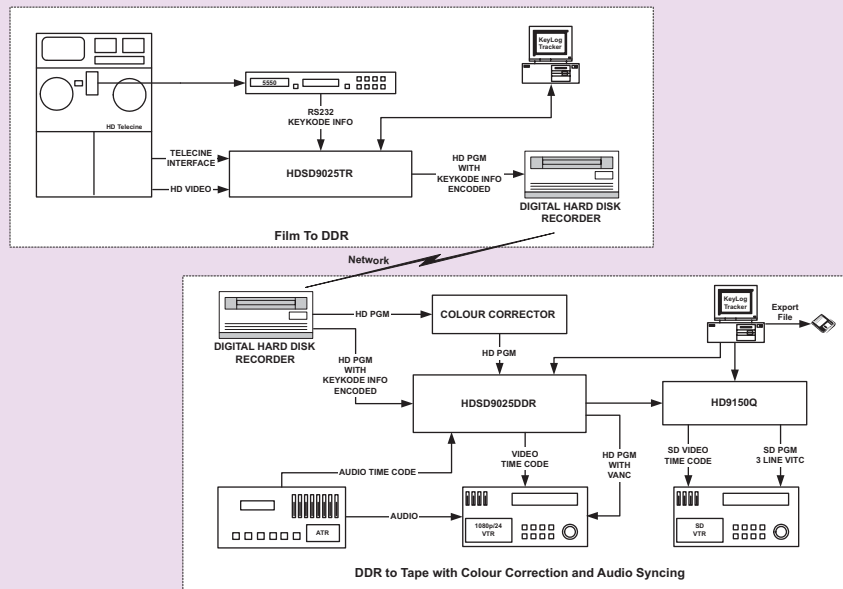
In standard definition mode, the HDSD9025DDR encodes the timecodes and KeyCode into industry standard SMPTE RP201 3-line VITC on one SDI output, and provides separate SDI and analog outputs with burned in characters for offline editing copies. In high definition mode, the HDSD9025DDR encodes the timecodes, 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 @ 1.5Gi/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
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"

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
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.

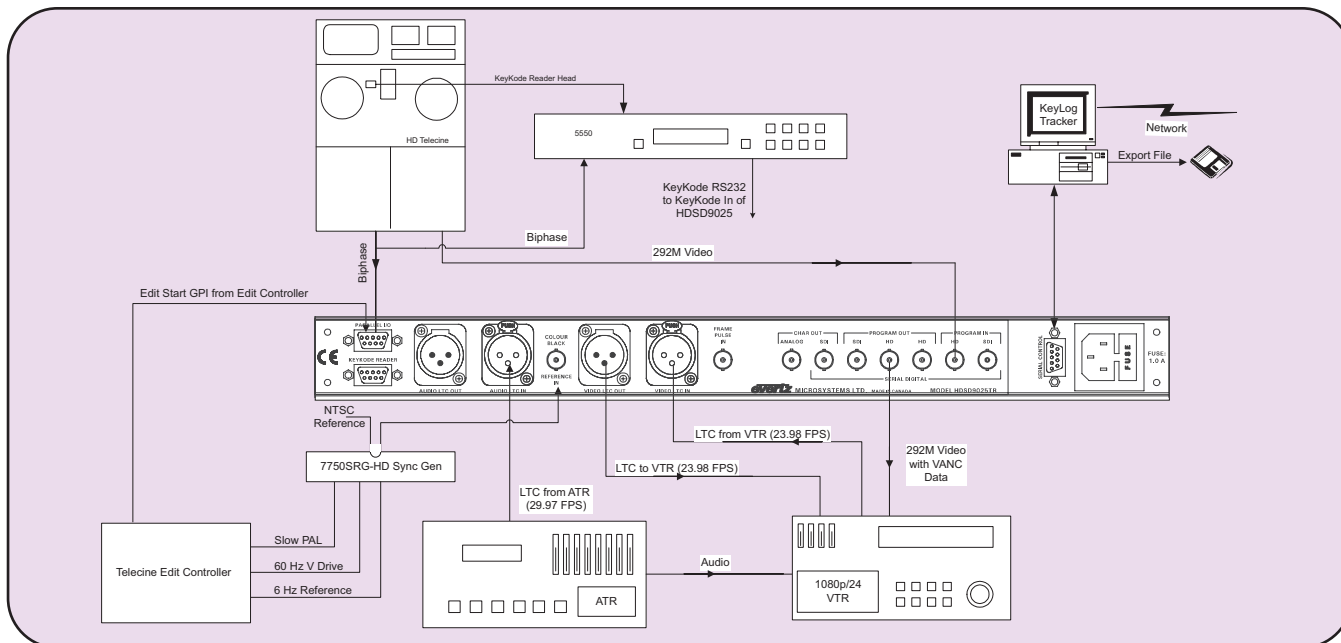
In standard definition mode, the HDSD9025TR encodes the time code and KeyCode into SMPTE RP201 3-line VITC on one SDI output, and provides separate SDI and analog outputs with burned in characters for offline editing copies. In high definition mode, the HDSD9025TR encodes the time code, KeyCode and production 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

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 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 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
EMI/RFI: 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

1a

2

3

4

5

6

7

8

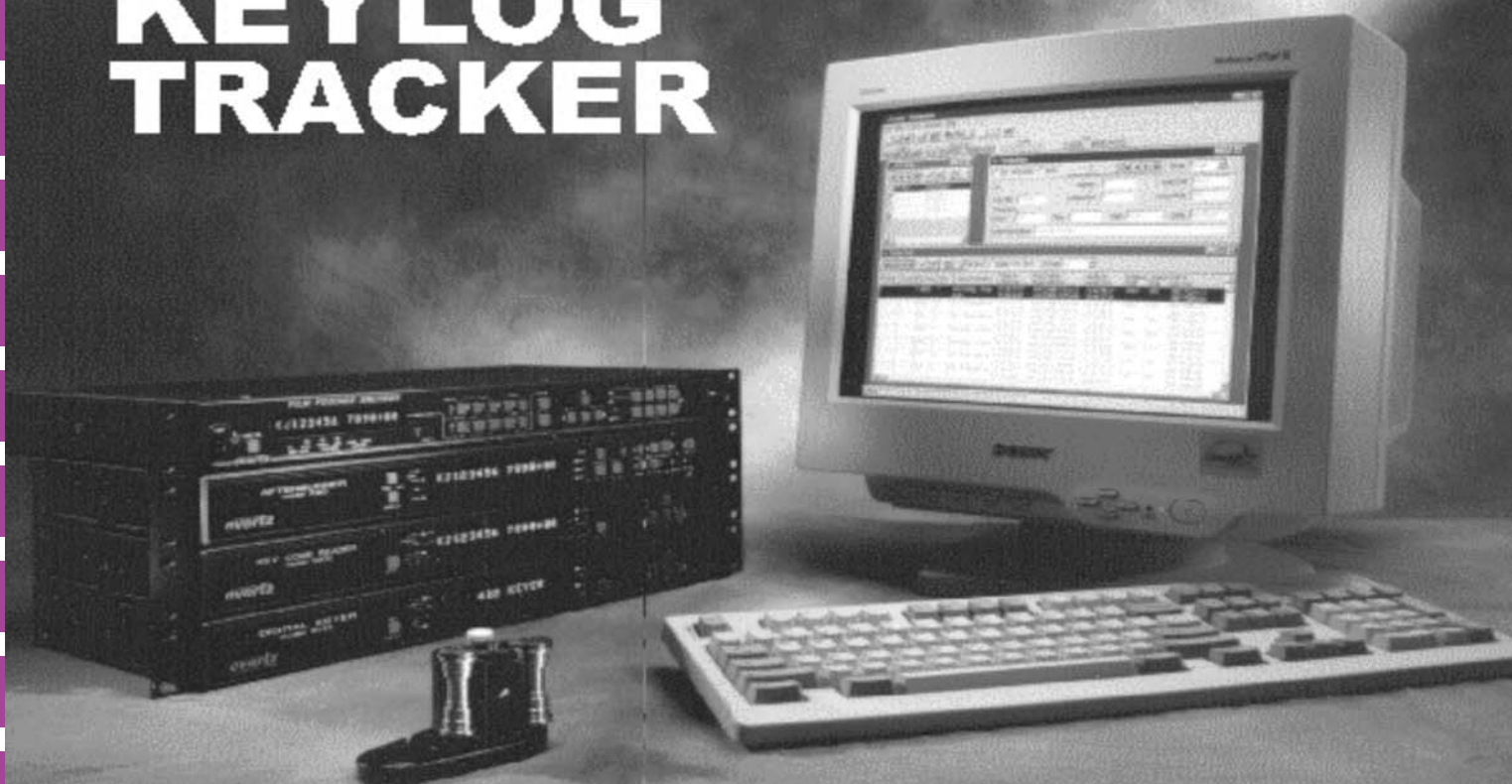
9

10

11

12

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 (which runs on standard Windows 9X 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.

KEYLOG TRACKER centralizes the control of your current hardware, performs frame accurate logging of Video and Audio Time codes, KeyCode, Ink numbers, 3/2

pulldown, and related production data, and provides extensive database management capabilities for the resulting project data. The Evertz Film Post Production System uses function specific hardware units to perform the bulk of the real time processing. This dedicated hardware reads and generates Video Time code, reads KeyCode and 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 under the control of **KEYLOG TRACKER**.

evertz

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

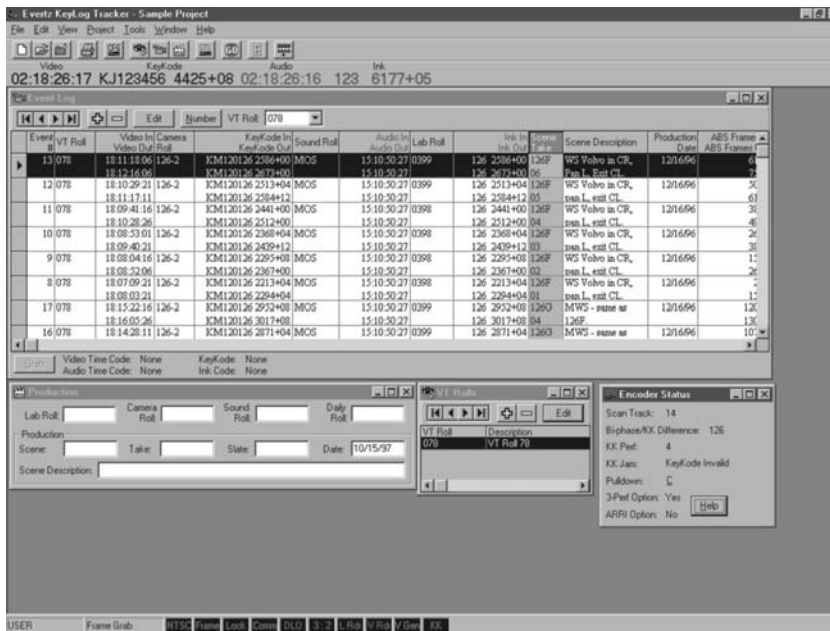
The KEYLOG TRACKER desktop groups relevant information into separate windows, which can be positioned and sized to suit the colorist's preferences. A spreadsheet style display of logged events is fully configurable to view only the information that is needed for a client. Each user can save their favorite 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.



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.

1a

2

3

4

5

6

7

8

9

10

11

12

SD Film Footage Encoder

Model SD9025TR



The SD9025TR Film Footage Encoder is designed to simplify the management of your film to tape transfers for standard definition video. Under control of the powerful KeyLog Tracker™ software, the SD9025TR 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 30 Fps standard 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.

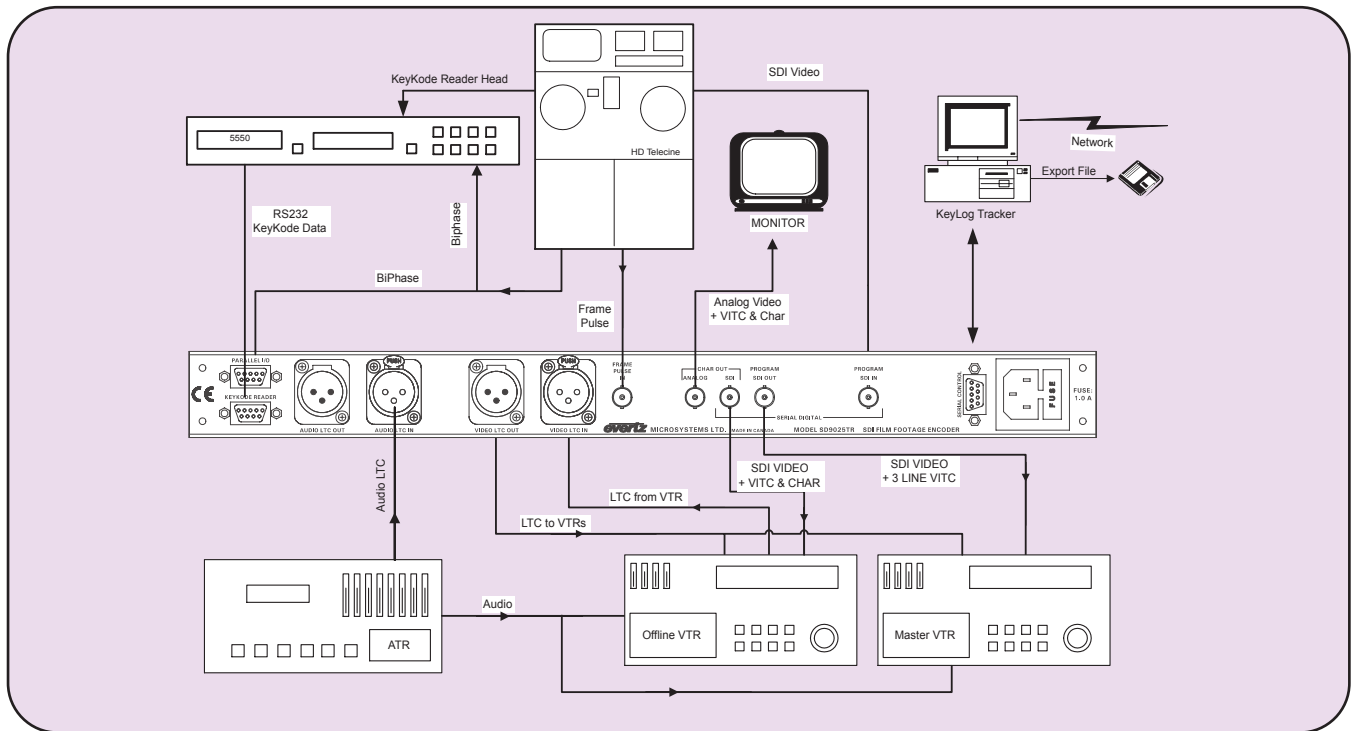
The SD9025TR encodes the time code and KeyCode into SMPTE RP201 3-line VITC on one SDI output, and provides separate SDI and analog outputs with VITC and burned in characters for offline editing copies. Separate LTC inputs and outputs for the audio and video time-codes, allows handling of mixed film rate and video rate time code. The programmable telecine interface allows the encoder to interface to a wide variety of telecine configurations.

The SD9025TR can be easily configured using the KeyLog Tracker™ software supplied with the unit. This graphical user interface allow the user to store multiple configurations for the SD9025TR.

Features:

- Accepts SMPTE 259M (270 Mb/s), 525i/59.94 and 625i/50
- Encodes video and audio time code, KeyCode, pulldown and other film transfer information in SMPTE RP201 3-line VITC on program SDI output
- 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 on offline SDI and analog video outputs
- Interfaces to Evertz 5550 or 5500 KeyCode Readers
- Separate LTC generators for video and audio time code operating at 30 and 25 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 Evertz KeyLog Tracker™ software
- Transfers can be logged using GPI, Frame Grab or preselected log points using the Evertz KeyLog Tracker™ software
- Programmable Telecine interface supports all popular telecines

SD9025TR Typical Configuration



Specifications

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: 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 Vpp 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
Connector: Film Frame Centering, Event Log GPI
 9 pin female "D"

KeyCode Reader Interface:

Standard: RS-232, 9600 or 38400 baud, 7 bit even parity.
Connector: Compatible with Evertz, ARRI, CP and RIM decoders
 9 pin female "D"
Control: Computer control

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:

SD9025TR SD Film Footage Encoder (Including KeyLog Tracker™)
SD9025TR/5500/UV-3 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

1a

2

3

4

5

6

7

8

9

10

11

12

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

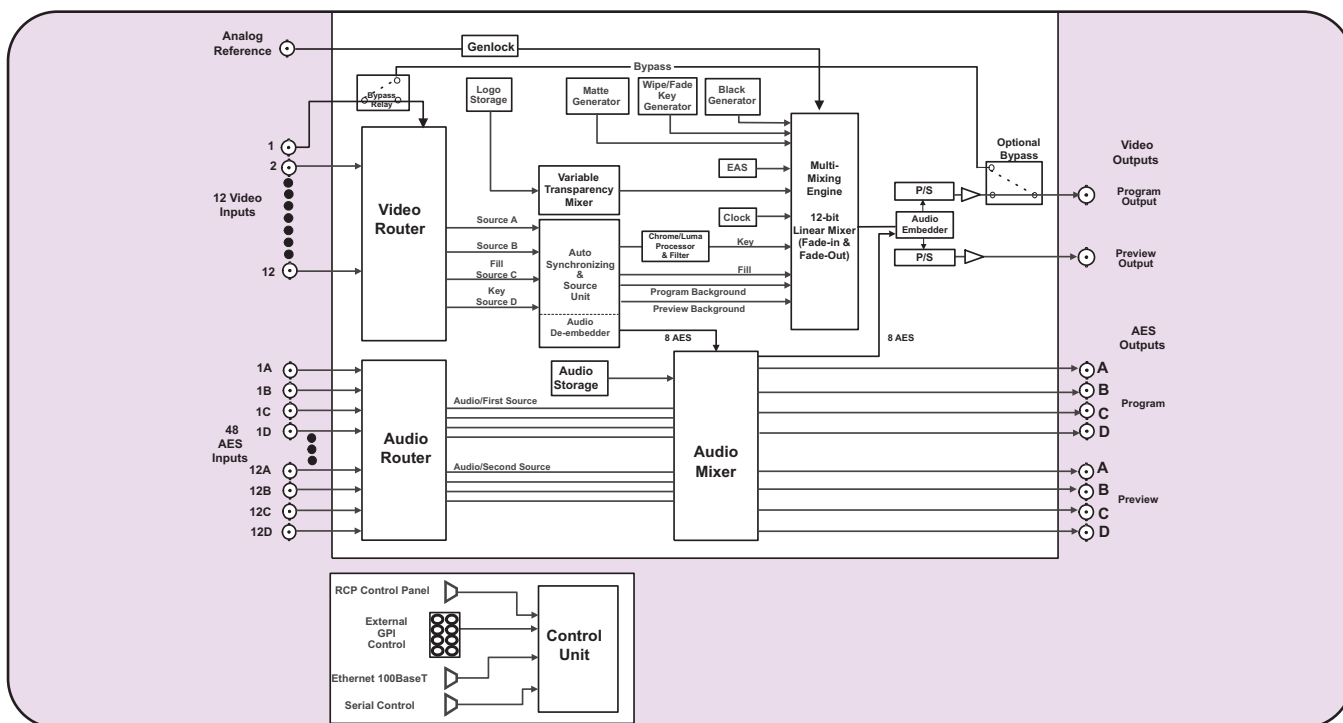
- 12 Input SD Video Switcher with Quad 12 input AES switcher for discrete 5.1 Dolby
- Program/Preview Transition Mixer for SD video and up to 4 audio pairs
- Downstream keyer with mix and additive modes
- Variety of smooth Transitions including Cut, Fade, Fade to/from Black and 8 angles of Wipes
- Optional 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 1694 (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 Colour 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
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
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

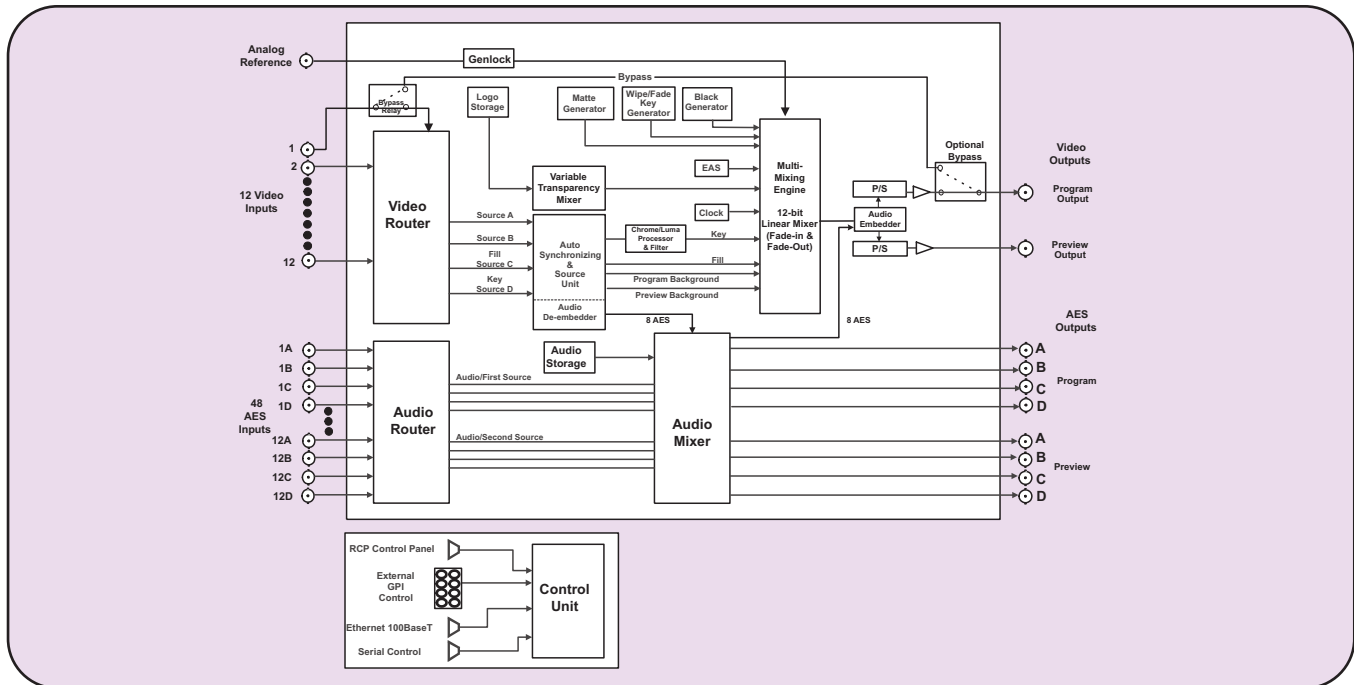
- 12 Input HD Video Switcher with 12 input AES switcher for discrete 5.1 Dolby
- Program/Preview Transition Mixer for HD video and up to 4 audio pairs
- Downstream keyer with mix and additive modes
- Variety of smooth Transitions including Cut, Fade, Fade to-from Black and 8 angles of Wipes
- Optional 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.

HD Mini Master Control Switcher Package

PKGHD9625SW Block Diagram



Specifications

Serial Video Input:

Standard: SMPTE 292M 1.485 Gb/s, 1080i/59.94, 1080i/50, 720p/59.94
Number of Inputs: 12
Connector: BNC per IEC 60169-8 Amendment 2
Equalization: Automatic up to 100m @1.5 Gb/s with Belden 1694 (or equivalent) 25m with bypass relay installed
Return Loss: > 15 dB up to 1.5 Gb/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 ± 0.5V
Rise and Fall Time: 200ps 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
Signal Level: 1Vp-p ± 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
Signal Level: 1Vp-p
Reference: From Video General Reference

Video Reference:

Type: Menu selectable - depends on video format
HD Tri-level Sync
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

Control:

Serial Control: RS-232/422, 8 bits, no parity, 9600, 19200, 38400, 57600 baud computer control of all functions
RS-232, 57600 baud, 8 bits, no parity for firmware upgrades
Upgrade: RS-422, 9600 baud, 8 bits, no parity
Remote Panel Port: RJ-45 TCP/IP, 100Base T
Logo Transfer:

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:

PKGHD9625SW HD Mini Master Switcher

Ordering Options:

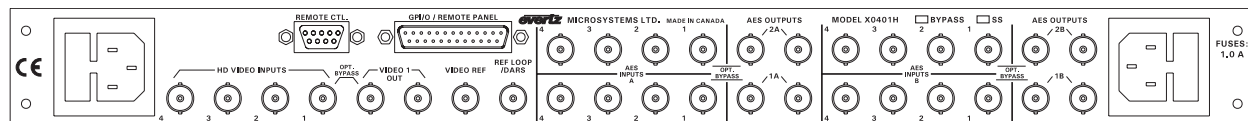
+HBP Optional Bypass Relay
+2PS Redundant power supply
+CF Compact Flash Optional Hardware (does not include compact flash memory card)
+CLH Optional crawl support for HD9625 products
+1G Internal memory expansion to 1 Gigabyte
+TP Optional Air Temperature Probe
+E Optional EAS Crawl Insertion

Accessories:

CF128 Card Flash memory expansion with 128 Meg card
CF1G Card Flash memory expansion with 1 Gigabyte card
9600LG-TP Optional air temperature probe for all 9625 & HD9625 products (for existing hardware)

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.

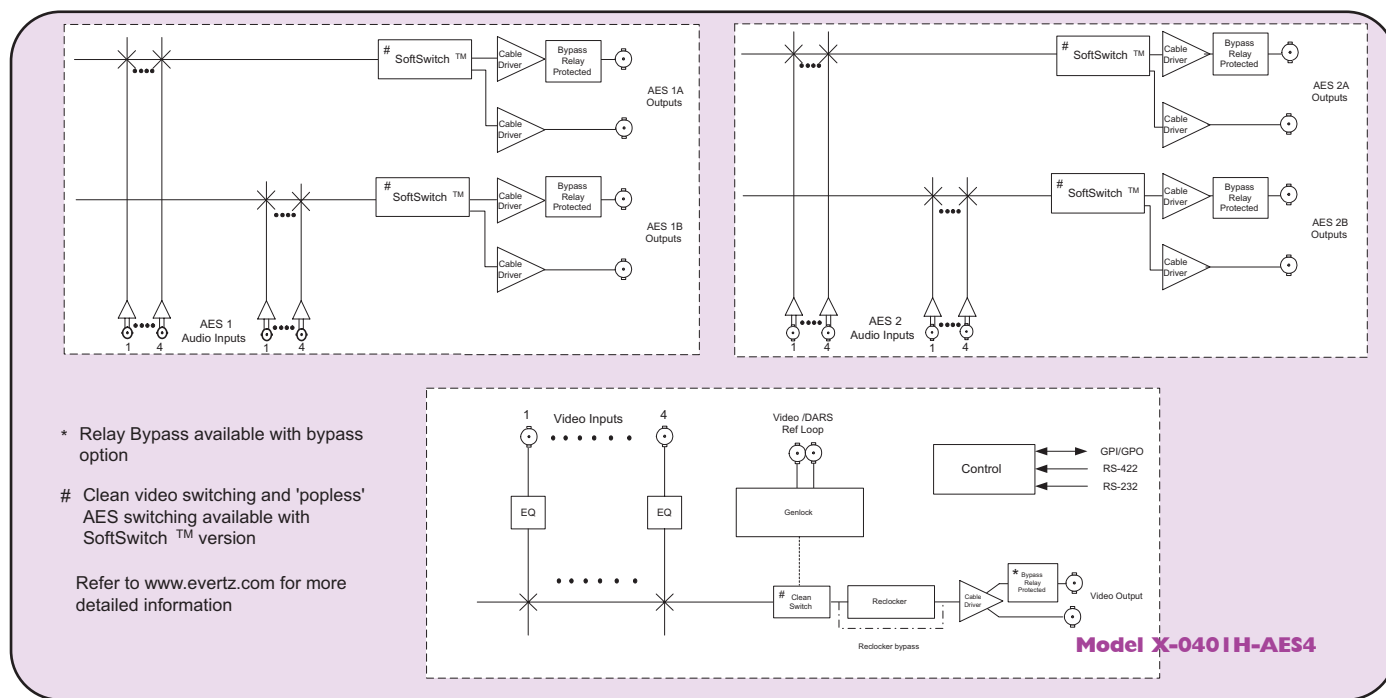
SoftSwitch™ Features (X-0401H-AES4-HSS)

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



Specifications

Video Inputs:

Standard: SMPTE 292M (1.5Gb/s), SMPTE 259M (270Mb/s, 360Mb/s, 540Mb/s) and DVB-ASI
SMPTE 310M with redocker turned off

Number of Inputs: 4

Connector: BNC per IEC 60169-8 Amendment 2

Equalization: Automatic up to 100m @ 1.485Gb/s with Belden 1694 (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
±1/2 line when *Coarse phase* = 1, *Fine phase* = 0

Input Timing (On X-0401H-AES4-HSS Routers)

Input Range: Measured with respect to the Genlock reference
±1/2 line when *Coarse phase* = 1, *Fine phase* = 0

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 ±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)

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 ± 10%

AES Audio Outputs (AES4 versions only):

Standards: SMPTE 276M single ended AES

Number of Outputs: 2 per bus, 4 busses
Input 1 bypass protected with +HBP 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 Colour
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 75Ω non-looping (jumper selectable)

SoftSwitch™ model: High impedance loop through or non-looping or 75Ω 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 75Ω 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 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
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

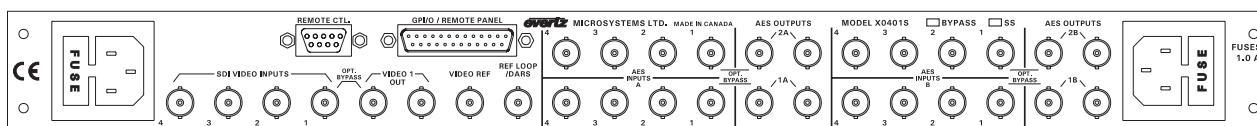
+RCP Rackmount remote control panel (replaces front control panel)

Accessories:

X-0401H-PANEL Additional Remote Control Panel (works in addition to front control panel)

4 X I SDI Router With Quad 4xI 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.

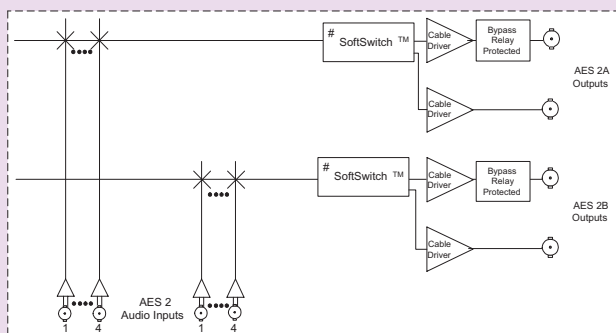
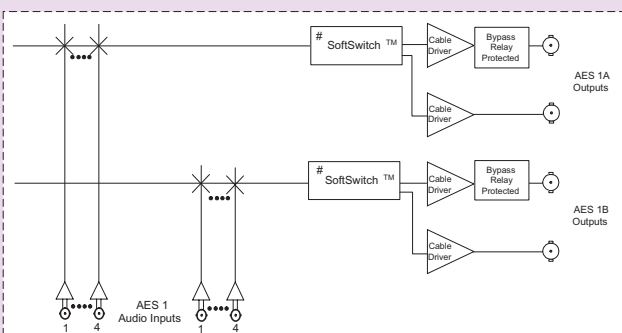
SoftSwitch™ Features (X-0401S-AES4-SS)

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.

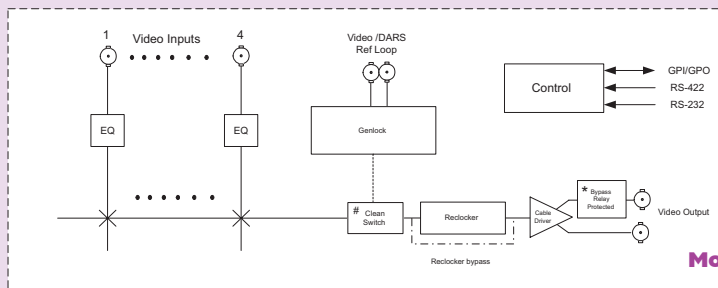
4 X 1 SDI Router With Quad 4x1 AES Audio



* 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
±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 ±0.5V

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 X0401S-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 ± 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 Colour 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 or non-looping

SoftSwitch™ model: High impedance loop through or non-looping or 75Ω 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 75Ω 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)

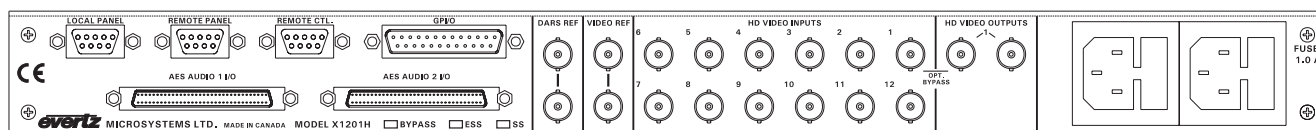
Accessories:

X-0401S-PANEL

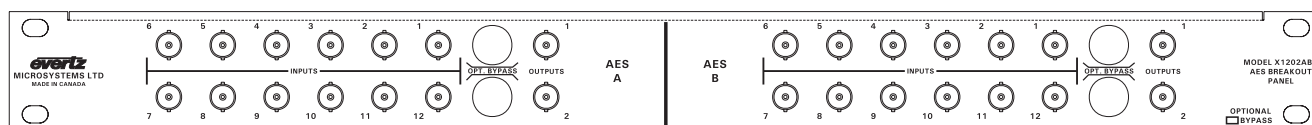
Additional Remote Control Panel (works in addition to front control panel)

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.

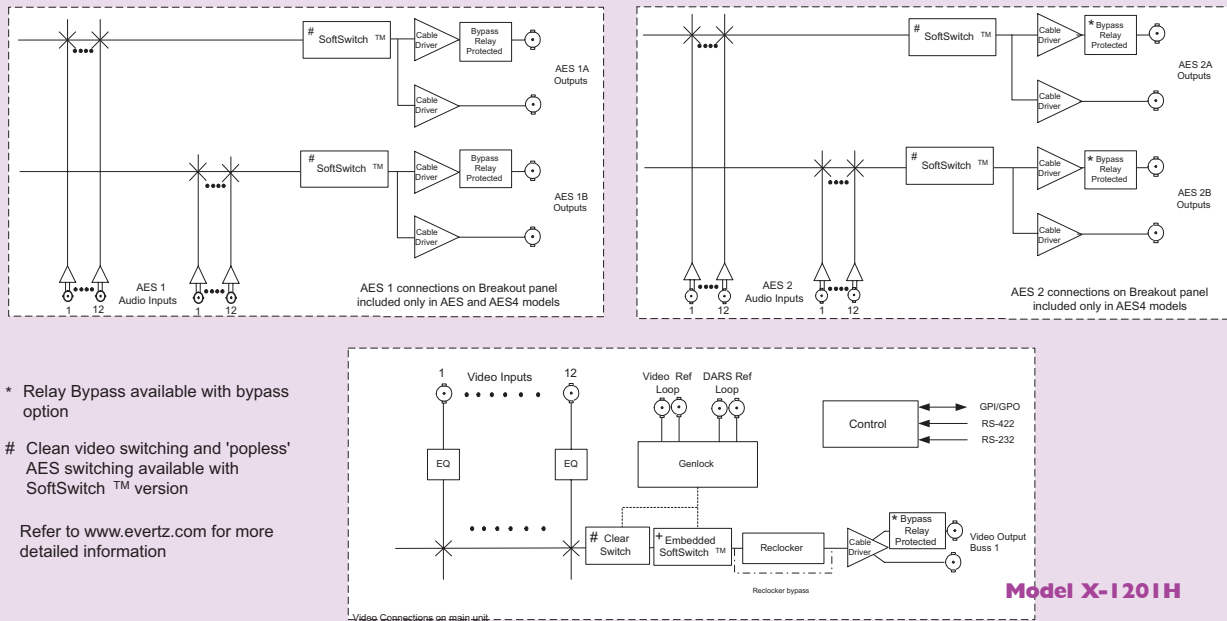
Optional Embedded SoftSwitch™ Features (+HES Option)

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 buss uses Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed (for HD video only).

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
- 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 1694 (or equivalent) (50m on input 1 with +HBP option)
> 15dBV up to 1.5Gb/s

Return Loss:

Input Timing (On +HSS and +HES Optioned Routers)

Input Range: Measured with respect to the Genlock reference
±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

Connector: Input 1 bypass protected with +HBP option
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 *Coarse 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 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

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 100-240VAC 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-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)

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 1200 series routers)

X-1201ABOB-BP

Balanced AES (with Bypass Relays) Audio Breakout Panels (for all

1201 series routers)

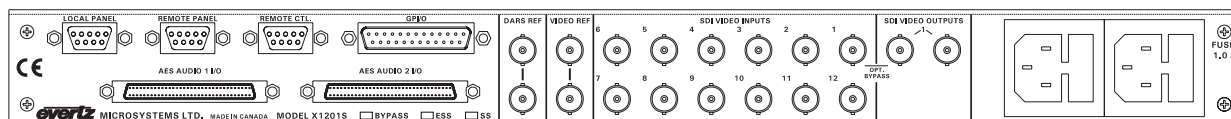
X-1201ABO-BP

Unbalanced AES (with Bypass Relays) Audio Breakout Panel (For

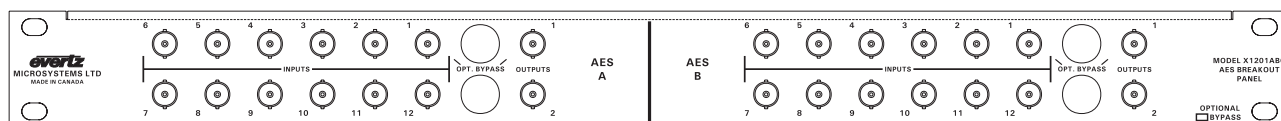
all 1201 series routers)

I2 X I 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.

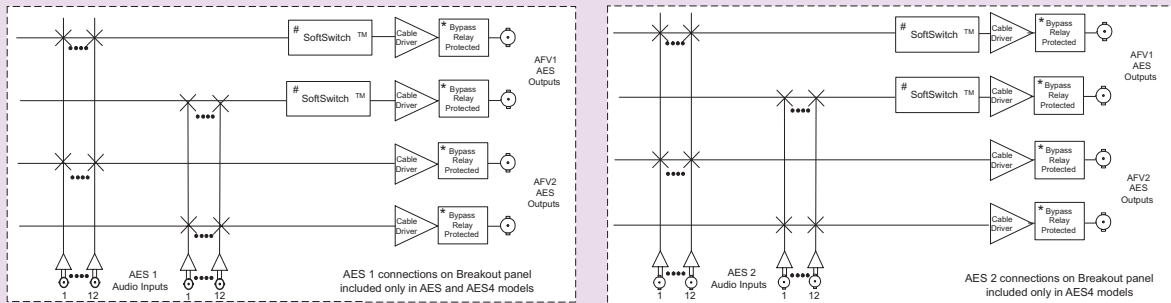
Optional Embedded SoftSwitch™ Features (+ES Option)

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 buss uses Evertz patent pending SoftSwitch™ technology to eliminate audible pops when switches are performed.

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
- 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

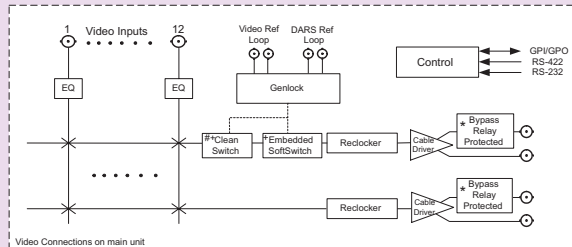
12 X 1 SDI Router With Dual or Quad 12x1 AES Audio



* 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 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

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

EMI/RFI:

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:

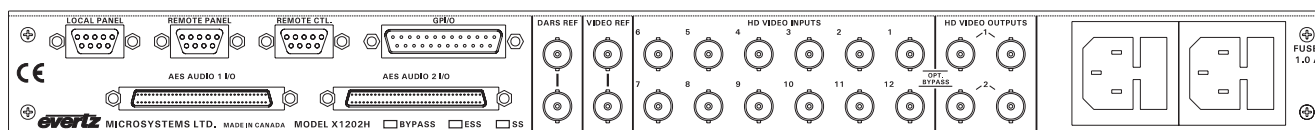
+SS SoftSwitch™ Option
+ES Embedded SoftSwitch™ Option
+BP Bypass Relay Protection
+RPS Redundant Power Supply
+RCP Rack Mount Remote Control Panel (replaces front control panel)
+B Balanced AES Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)
 Unbalanced AES (with Bypass Relays) Audio Breakout Panels (for all 1201 series routers)
+U Unbalanced AES (with Bypass Relays) Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)

Accessories:

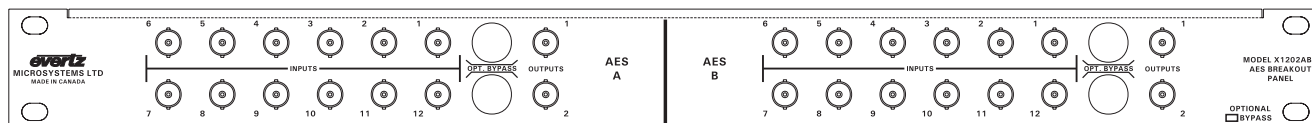
X-1201S-PANEL Additional remote control panel (works in addition to front control panel)
X-1201ABO Unbalanced AES Audio Breakout Panel (for all 1201 series routers)
X-1201ABOB Balanced AES Audio Breakout Panel (For all 1200 series routers)
X-1201ABOB-BP Balanced AES (with Bypass Relays) Audio Breakout Panels (for all 1201 series routers)
X-1201ABO-BP Unbalanced AES (with Bypass Relays) Audio Breakout Panel (For all 1201 series routers)

I2 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.

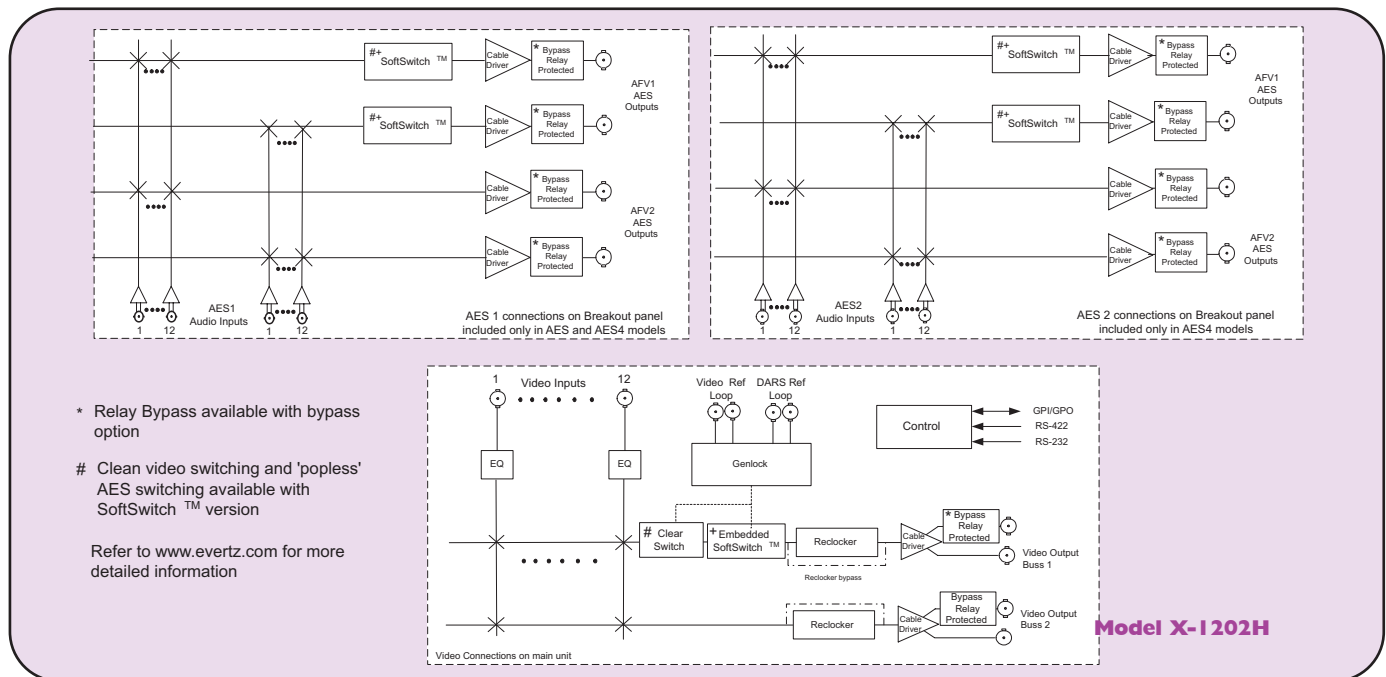
Optional Embedded SoftSwitch™ Features (+HES Option)

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 (for HD Video only).

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
- 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



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 1694 (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 Optional 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
Inputs 1 & 12 bypass protected with +HPB 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

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
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 & 12 bypass protected with +HPB relay 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 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

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: +/- 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:

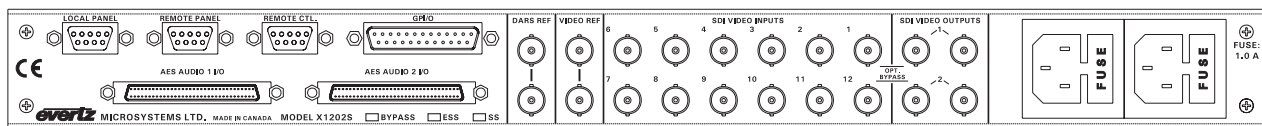
+HSS SoftSwitch™ Option
+HES Embedded SoftSwitch™ Option
+HPB Bypass Relay Protection
+2PS Redundant Power Supply
+RCP Rack Mount Remote Control Panel (replaces front control panel)
+B Balanced AES Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)
+U Unbalanced AES Audio Breakout Panel (must choose when ordering a 1200 series AES or AES4 version)

Accessories:

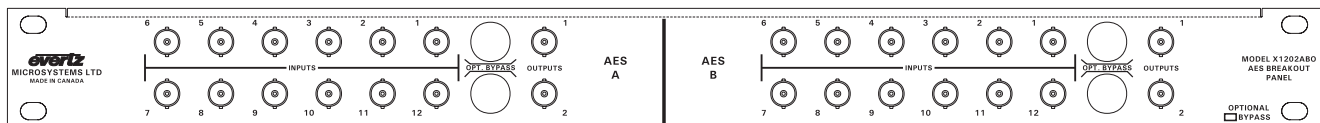
X-1202H-PANEL Additional Remote Control Panel(works in addition to front control panel)
X-1202ABO Unbalanced AES Audio Breakout Panel (for all 1202 series routers)
X-1202ABOB Balanced AES Audio Breakout Panel (For all 1200 series routers)
X-1202ABOB-BP Balanced AES (with Bypass Relays) Audio Breakout 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.

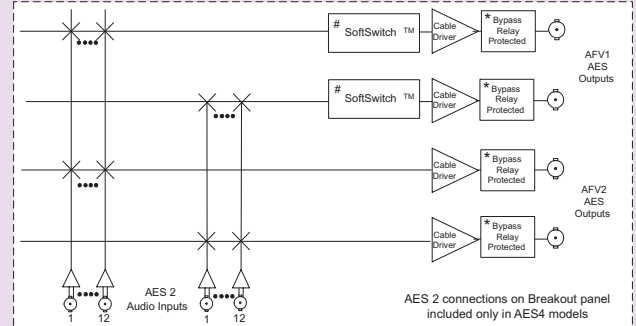
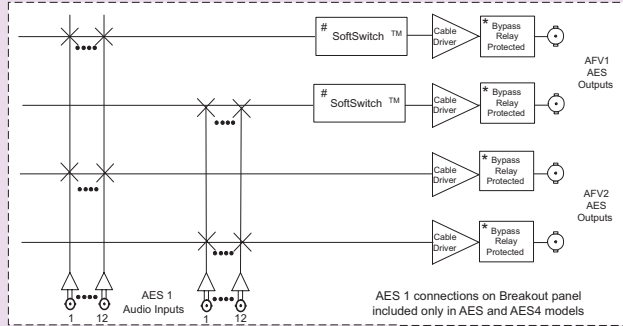
Optional Embedded SoftSwitch™ Features (+ES Option)

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.

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
- 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

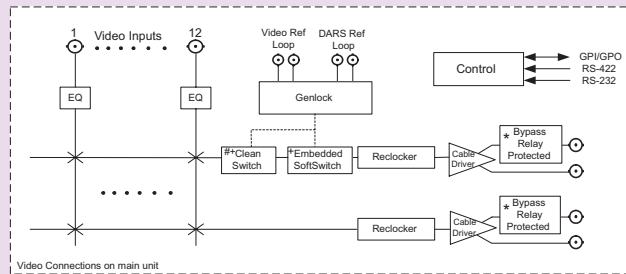
12 X 2 SDI Router With Dual or Quad 12x2 AES Audio



* 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-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): Measured with respect to the Genlock reference
Input Range: ±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 ±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): 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

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 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

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
 EU EMC Directive

EMI/RFI:

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

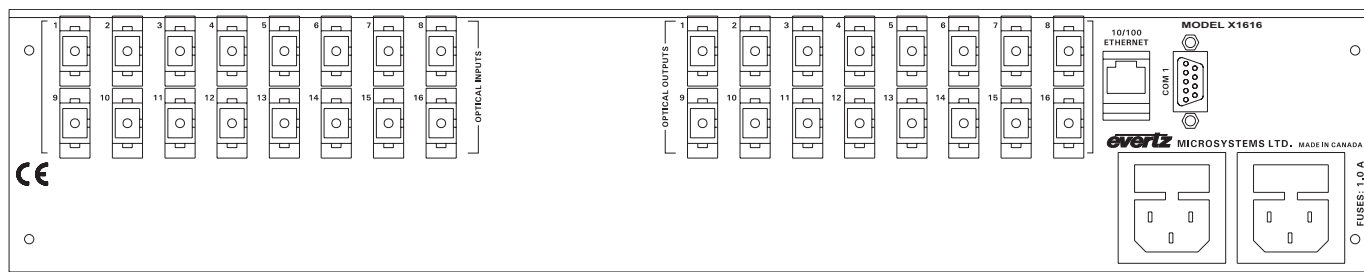
X-1202ABO
X-1202ABOB
X-1202ABOB-BP

X-1202ABO-BP

Additional Remote Control Panel (works in addition to front control panel)
 Unbalanced AES Audio Breakout Panel (for all 1202 series routers)
 Balanced AES Audio Breakout Panel (For all 1200 series routers)
 Balanced AES (with Bypass Relays) Audio Breakout Panels (for all 1202 series routers)
 Unbalanced AES (with Bypass Relays) Audio Breakout Panel (For all 1202 series routers)

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 routing, amplifying, regenerating and wavelength management in your optical system.

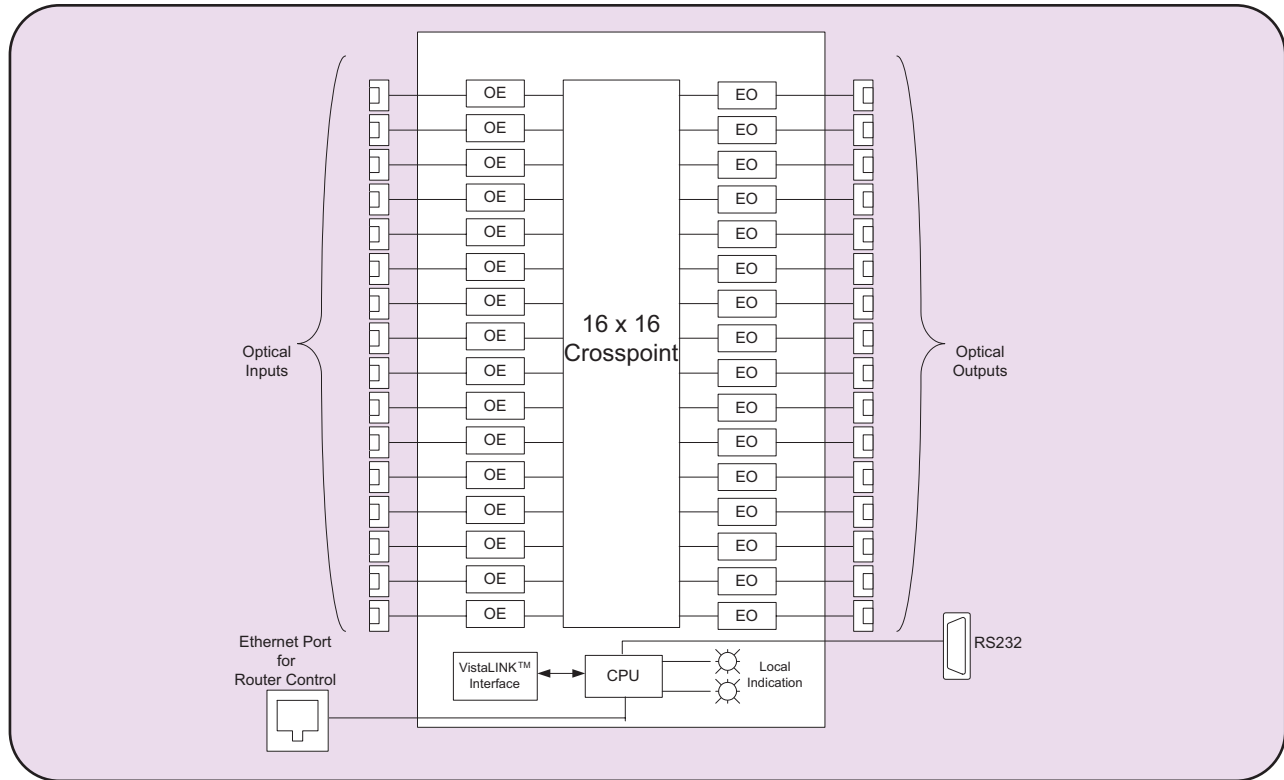
The optical outputs are available in 1310nm, CWDM or DWDM wavelengths. The X-1616-00 occupies a 2RU frame.

Features

- 16 fiber optic inputs and outputs
- Provides optical routing, regeneration (amplification, reshaping) and wavelength management
- Data rate independent to 3Gb/s
- Handles Video, Audio, Datacom and Telecom signals
- Fully non-blocking architecture
- 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 panels
- 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-1616-0013 | 1310nm |
| X-1616-OOCWDM | 1270nm - 1610nm (16 wavelengths, 20nm spacing) |
| X-1616-ODDWDM | 1545.32-1557.36nm (ITU C40-C25, 16 wavelengths, 0.8nm spacing) |

Output Power:

| | |
|---------------|-------|
| X-1616-0013 | -7dBm |
| X-1616-OOCWDM | 0dBm |
| X-1616-ODDWDM | 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-1616-0013 | 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-ODDWDM | 16 x 16 Optical Router with 16 DWDM (ITU C40-C25) optical outputs |

Ordering Options

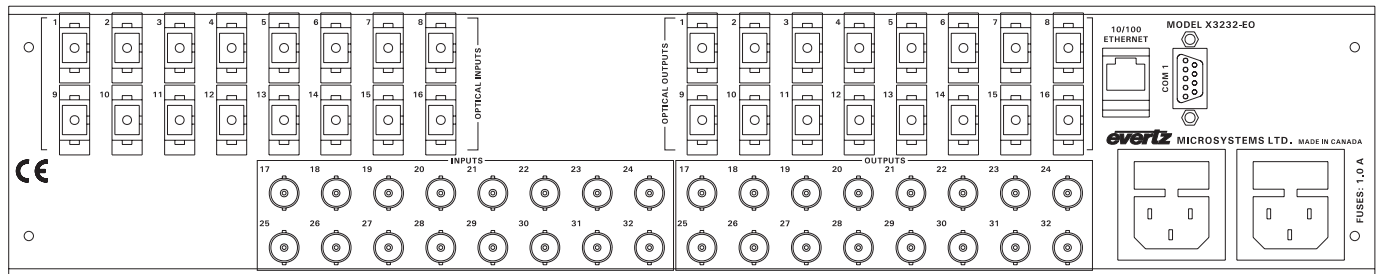
Fiber Connector must be specified at time of order
Eg: Model +SC

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 routing, amplifying, regenerating and wavelength management in your optical system.

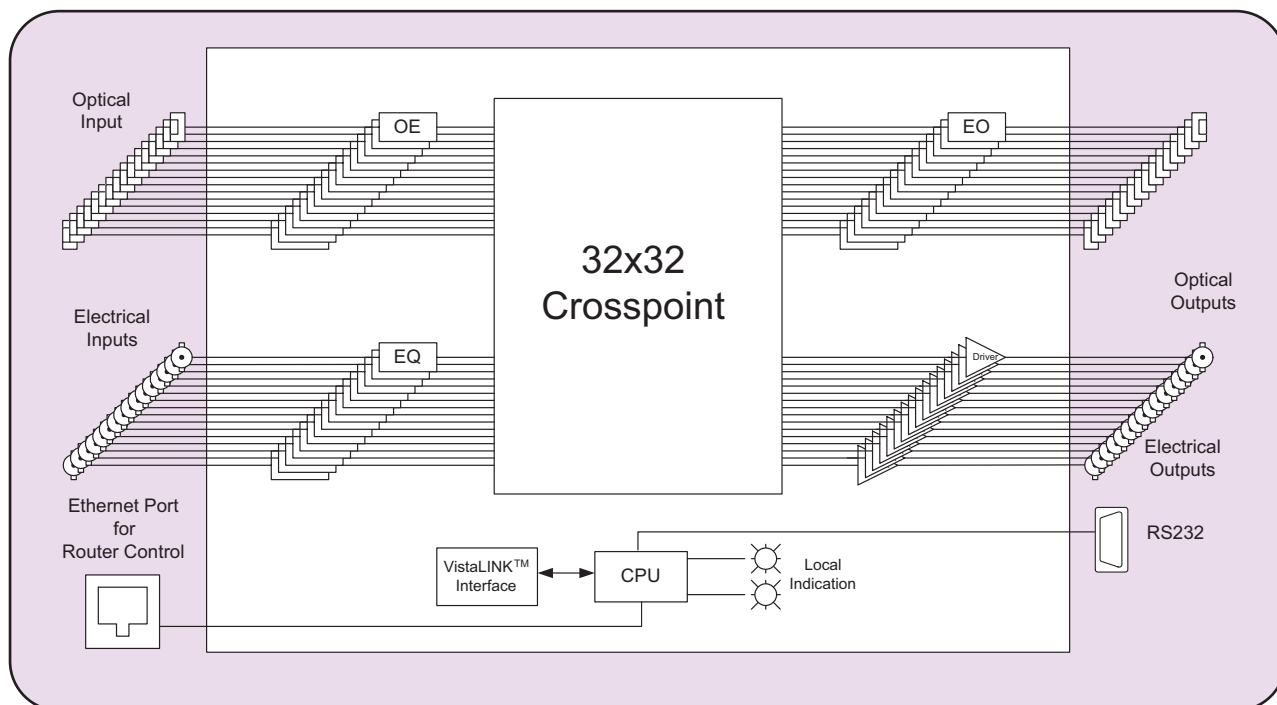
The optical outputs are available in 1310nm, CWDM or DWDM wavelengths. The X-3232-EO occupies a 2RU frame.

Features

- 16 fiber optic inputs and outputs
- 16 coaxial inputs and outputs
- Provides optical routing, regeneration (amplification, reshaping) and wavelength management
- Data rate independent to 3Gb/s
- Handles Video, Audio, Datacom and Telecom signals
- Fully non-blocking architecture
- 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 panels
- 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

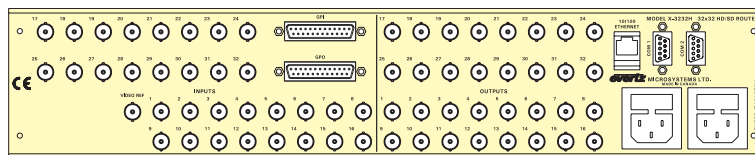
Fiber Connector must be specified at time of order
Eg: Model +SC +3RU

Connector Suffix

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

X-3232 HD/SD Router

Model X-3232H



X-3232H Rear Panel

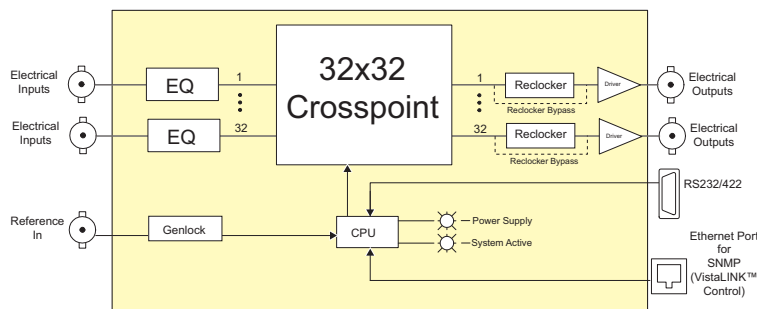
The X-3232H digital video routing switcher is ideal for routing SDI, HDSDI, and other compatible digital signals. A non-blocking router architecture allows any input to be routed to any combination of outputs. The router system may be controlled through the VistaLINK™ graphical user interface, an NCP-2 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:

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

MVP - Multi-image Display and Monitoring System

Model 3000MVP



- Broadcast and computer video inputs
- Auto-detecting HD, SD and analog video inputs
- 4:3, 16:9 and 9:16 output display modes
 - On screen display (OSD):
 - Audio level bar and phase graphs
 - Decode up to 2 groups of audio
 - Map analog or AES audio to video input
- Real time video, audio and data signal status
- Decoded closed captioning
- Decoded time code
- Fault alert messages
- Tally, border, under monitor and side-monitor displays
- User configurable clocks and timers
- Independent window size adjustment



Features

Modular:

- Fully hot-swappable, front-loading input and output modules and dual redundant power supplies

Expandable:

- 15-slot frame with octal auto-detecting video input modules
- Daisy-chain frames for a multitude of videos displayed on a single or multiple screen

Redundant

- Optional second power supply unit
- Optional second display processor card

Configuration, Control and Monitoring

- Layout and system configuration through "MVP Express" Layout Editor
- Quick access configuration control through 9000NCP Control Panel
- Monitoring through VistaLINK™ PRO Network Management Software. VistaLINK™ offers remote monitoring 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)
- Border/Tally and UMD interface to common switchers through published protocols

Signal Monitoring/Fault Alarming

- User definable fault conditions, thresholds and durations through configuration software tool
- Additional Monitoring Features:
 - Regionalized freeze and black detection
 - Input Expandable view to quarter and full screen
 - On-screen active picture display resizing
 - Closed caption and Teletext detection, display and XDS monitoring option

- Configurable on-screen audio bar graph (with ballistics) and signal status display
- Monitored Conditions: Loss of video, Picture freeze, Picture black, Loss of Active Picture, Peak Video Level, Black Level, Input Standard detection, AP/FF EDH Errors, Loss of Audio, Audio Silence, Audio Format, Audio Phase Reversal, Audio too loud, Audio Mono Detection, Loss of VITC, Loss of Source ID, Loss of Program Rating (V-Chip), Loss of Closed Captioning, GPI, Active Format (Region) Description (AFD) detection, Teletext (subtitle) detection, source input change-over, logo presence, WINK detection.

Applications

Broadcast Applications:

- Broadcast Facility/Master Control
- Satellite Uplink and Downlink Facilities
- Production and Post Production
- Control Room
- OB Vans

Enterprise (Non-broadcast) Applications:

- Surveillance and Security
- Traffic and Transportation Control
- Defense
- Video Conferencing
- Gaming and Entertainment
- Information Displays

The MVP™ revolutionizes the multi-display marketplace with a highly flexible, intuitive, simple yet comprehensive approach to virtual wall monitor applications. The possibility of displaying any input signal to any output monitor can now be realized without the need for a preview switcher or patch panel.

With HD/SD/Composite Analog (NTSC/PAL) auto-sensing video inputs on the same BNC, the MVP™ proves its versatility, especially in applications transitioning to DTV and especially HDTV. Future proofing your multi-image display needs is possible today

Features:

- Auto-sensing, asynchronous HD/SD/Analog video (with embedded audio support) inputs on the same BNC connector, with minimal processor delay to output display
- Configurable aspect ratios
- Up to 72 unique inputs per display or hundreds across several displays
- Multiple scaling of the same video input - display the same video input at different resolutions at the same time
- Dual, independent interconnect between a single video input module and two output modules
- On-screen display signal monitoring/fault detection
- Integrated signal monitoring with VistaLINK™ PRO (true SNMP interface)
- Simple, real-time on screen display configuration through drag-drop routines using multi-platform MVP Maestro™ software
- Support for external balanced analog and balanced or unbalanced AES/EBU audio
- Configurable support for high resolution up to UXGA (1600x1200) for CRT, flat panel, LCD, plasma and projection displays
- Front-loading, hot-swappable signal input/output modules in a 6RU, 15 slot frame
- Dual, fully redundant, front loading and hot-swappable power supplies
- Multiple, user-configurable static/dynamic UMD and on-screen text, tallies, fault messages, audio bar graph ballistics & other graphics
- VBI data (i.e. Closed Captioning, Program Rating, etc.) monitoring and display
- Multiple, user-configurable analog and digital clocks
- Importable bitmap or overlay images for a customized display
- Up to 64 GPI inputs and 44 GPI outputs
- Standard LTC, Genlock (both NTSC and PAL), serial communication (RS-232/422) inputs
- Selectable audio monitoring output
- Touchscreen or desktop control panel configuration options

To order, start with a standard display package and add modules as required

Video and Audio Input Modules:

3000MVP-OV-SN

Octal (8) auto-sensing SD-SDI/Composite Analog (NTSC, PAL-x) video, with embedded audio input module

3000MVP-OV-HSN

Octal (8) auto-sensing HD-SDI/Composite Analog (NTSC, PAL-x) video, with embedded audio input module

3000MVP-GI-2

Dual (2) computer video auto-sensing input module (up to UXGA resolution)

3000MVP-GI-4

Quad (4) computer video auto-sensing input module (up to UXGA resolution)

3000MVP-AI+BHPU

32 AES/EBU (4 AES/video) audio input module (one unbalanced 75W, 32 BNC breakout panel provided)

3000MVP-AI+BHPBAL

64 analog (8ch /video) or 32 AES/EBU (4 AES/video) audio input module - configurable for balanced analog or balanced AES digital inputs (one balanced 110W terminal block breakout panel is provided)

Output Modules:

3000MVP-PPV-5

Single output display processor module. Output up to 40 unique video inputs to drive a single display

3000MVP-PPV-5+D

Dual output display processor module. Output up to 40 unique video inputs across two displays

3000MVP-PPV-9

Single output display processor module. Output up to 72 unique video inputs to drive a single display

3000MVP-PPV-9+D

Dual output display processor module. Output up to 72 unique video inputs across two displays

Frame and Accessories

3000FR

3000 Series 6RU Frame (ships with 1 3000PS Power Supply Unit)

3000FC

3000 Series Frame Controller

3000PS

3000 Series Power Supply Unit (PSU)

3000DCP

Desktop Control Panel. Make quick-select screen configuration changes from the convenience of a pushbutton console

3000BHP-AUX

Breakout bulkhead panel for AUX I/O interfacing including GPI.O, LTC input and serial communications. One panel with cable is included with every PPV module

3000BHP-DVIO

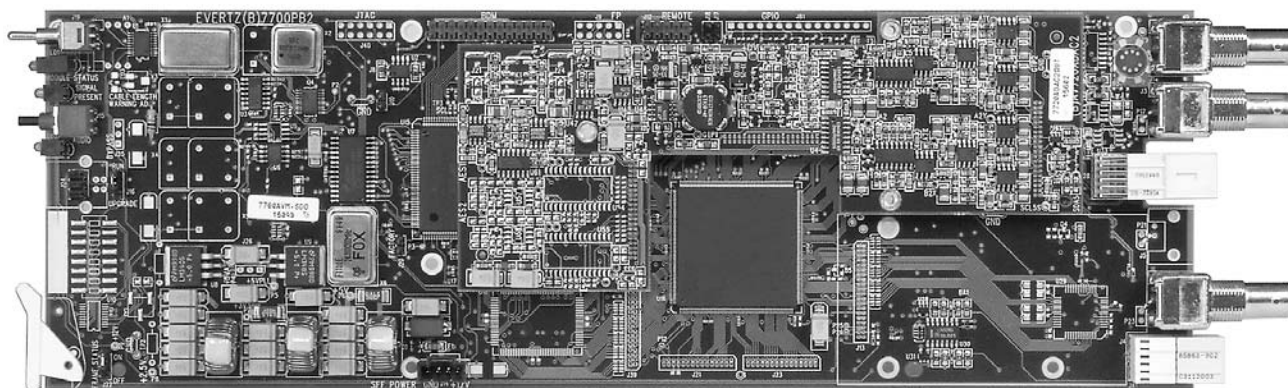
Breakout bulkhead panel used in conjunction with the PPV-x+D option to break out dual DVI support. Once panel (and cable) is included with every PPV-x+D module

Maestro™

MVP™ software layout configuration editor and operator's control mode. A copy of the latest MVP Maestro™ version is included with every MVP™ system shipment

SDI Video and Audio Monitoring/Conversion

Model 7760AVM



The 7760AVM 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 7760AVM 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.

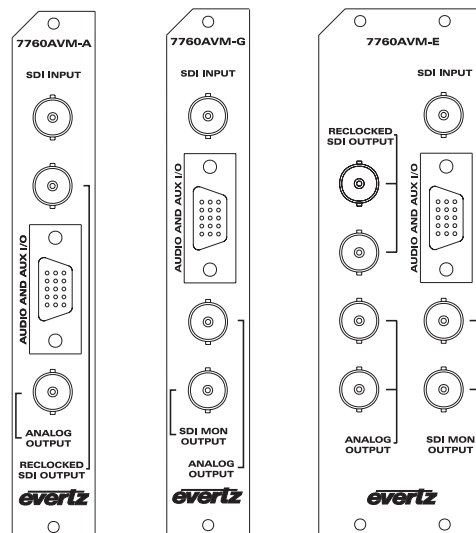
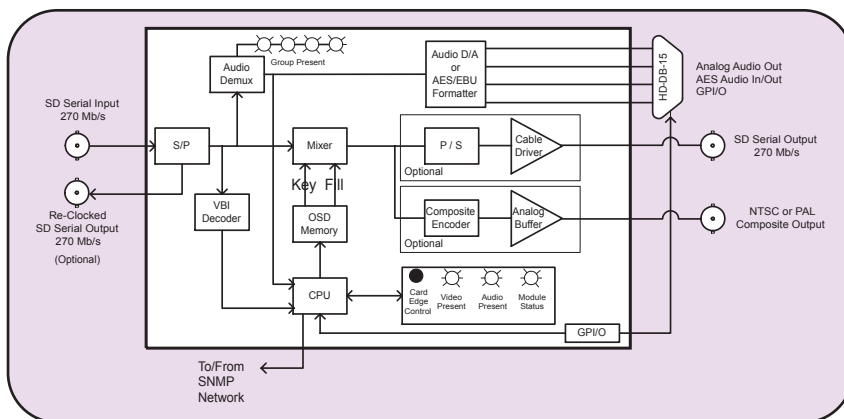
| 7760AVM-X | | | | | | | | |
|--|-----|----|----|----|----|---|---|----|
| Feature | x = | A | B | C | D | E | F | G |
| Reclocked SDI Output | | 1 | 1 | 1 | 1 | 2 | 2 | 0 |
| SDI Outputs with Superimposed Information | | 0 | 1 | 0 | 1 | 2 | 2 | 1 |
| Composite analog outputs with superimposed information | | 1 | 0 | 1 | 0 | 2 | 2 | 1 |
| Closed Caption Decoding (analog outputs only, not on SDI outputs) | | Y | N | Y | N | Y | Y | Y |
| AES/EBU Digital Audio Inputs | | 0 | 0 | 2 | 2 | 0 | 2 | 0 |
| AES/EBU Digital Audio Outputs | | 2 | 2 | 0 | 0 | 2 | 0 | 2 |
| Analog Audio Outputs | | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| Max. Number of cards in a 7700FR-C | | 15 | 15 | 15 | 15 | 7 | 7 | 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 analog audio outputs available for content monitoring
- Analog audio output levels are adjustable
- Analog audio outputs can be set so both are a mono mix of the selected channel pair
- 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
- Program rating (V-Chip) display
- Large font display of VITC, SID, Program rating and fault messages
- A comprehensive on screen display is available to configure the various features of the module
- AVM configware software allows you to quickly copy configurations to multiple modules
- 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 or black video (patent pending)
- 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 for remote monitoring and control via SNMP (using VistaLINK™ PRO) when installed in 7700FR-C frame with 7700FC VistaLINK™ Frame Controller

SDI Video and Audio Monitoring/Conversion

7760AVM 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 >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
2 on versions E and F

Monitor Outputs:

1 on versions B, D and G
2 on versions E and F
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, C and G
2 on versions E and F
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 and F
Number of Outputs: 2 on versions A, B, E and G
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 option (A, B, C, D or G)
2 (E or F)

Electrical:

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

Ordering Information:

7760AVM-X: SDI Video and Audio Monitoring/Conversion with VistaLINK™ support (See Chart for product designations)

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

Ordering Options

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

Rear Plate Suffix

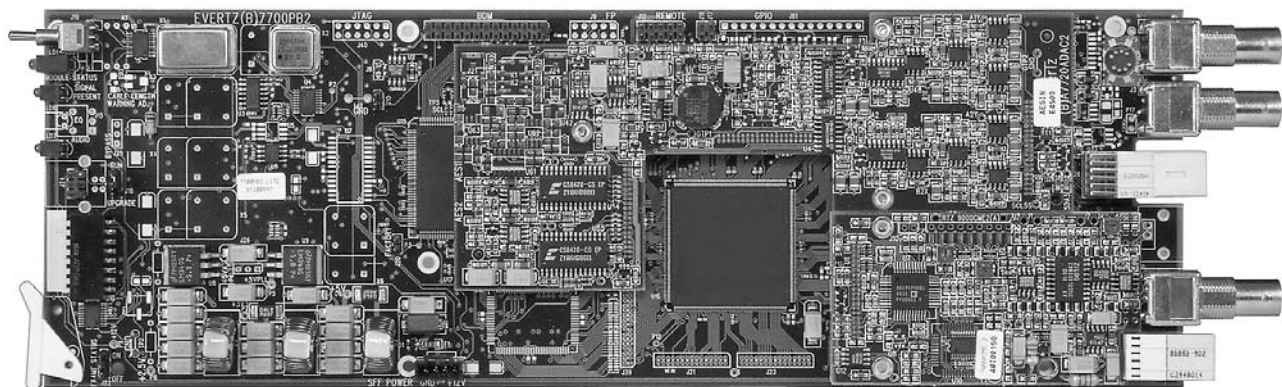
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

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 (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

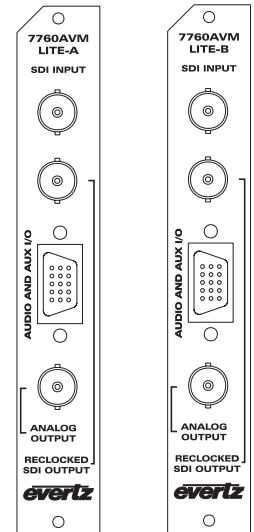
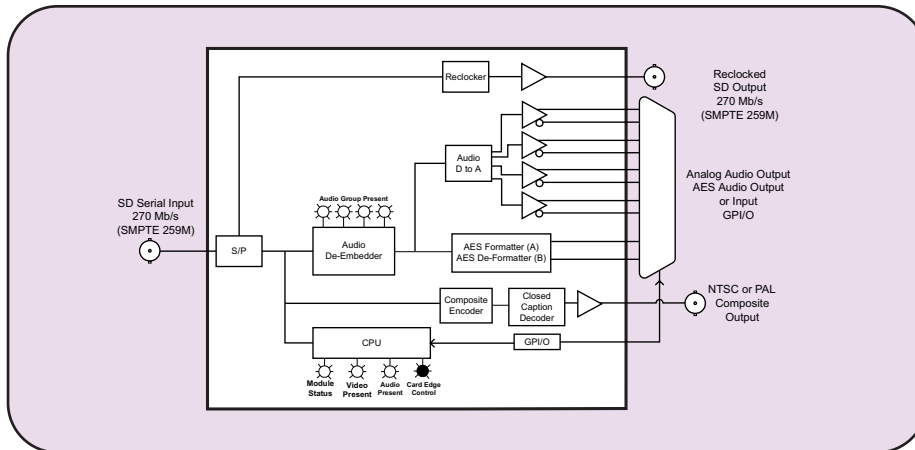
- 1 Reclocked SDI output
- Composite analog (NTSC/PAL-B) output
- 4 Balanced analog audio outputs
- 2 AES digital audio outputs or inputs
- 1 General purpose output to indicate the loss of video and/or audio
- Built in closed caption decoder with on/off control via dip switch and GPI
- Audio group selection 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

SDI Video and Audio Monitoring/Conversion (without on screen display)

7760AVM-LITE 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 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

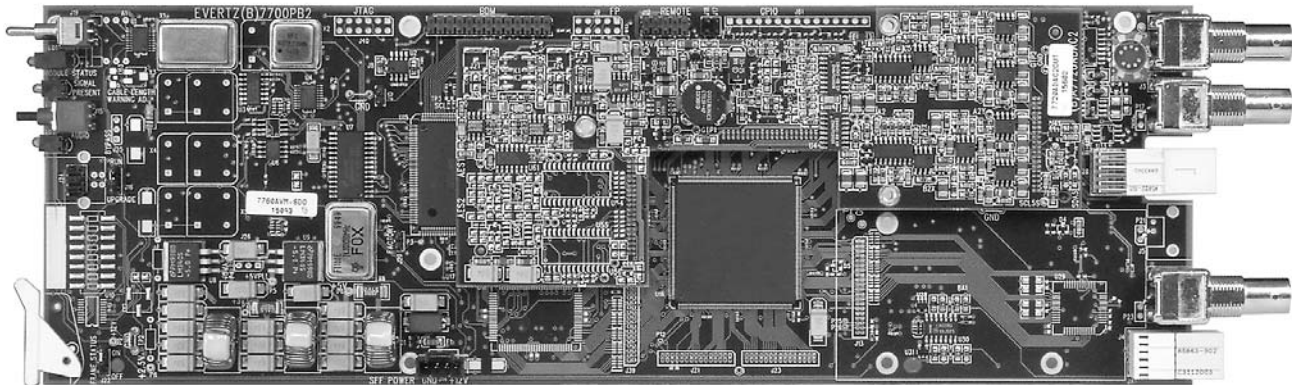
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

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's 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).

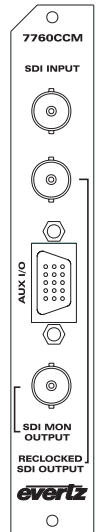
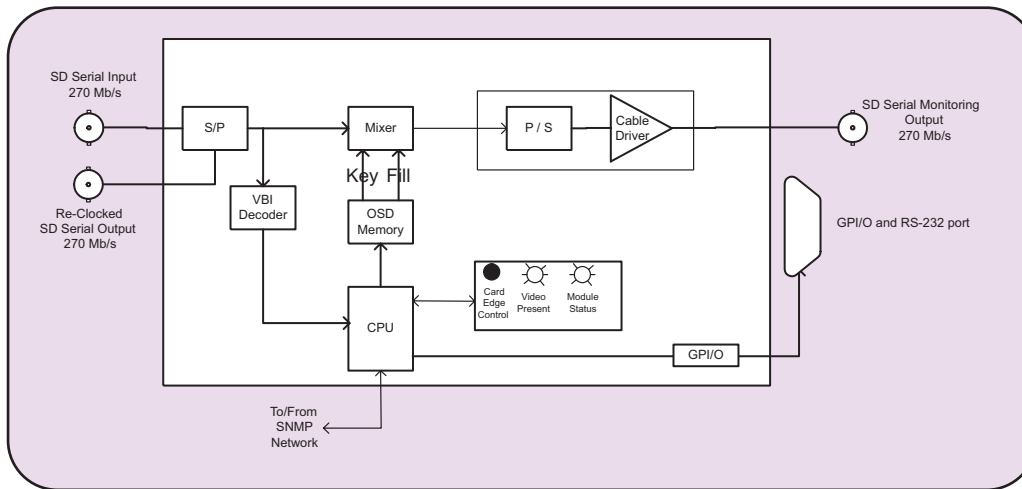
The single-slot, 7760CCM module fits conveniently into Evertz's 7700FR-C, 7701FR frames or standalone enclosure.

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) containing 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's 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

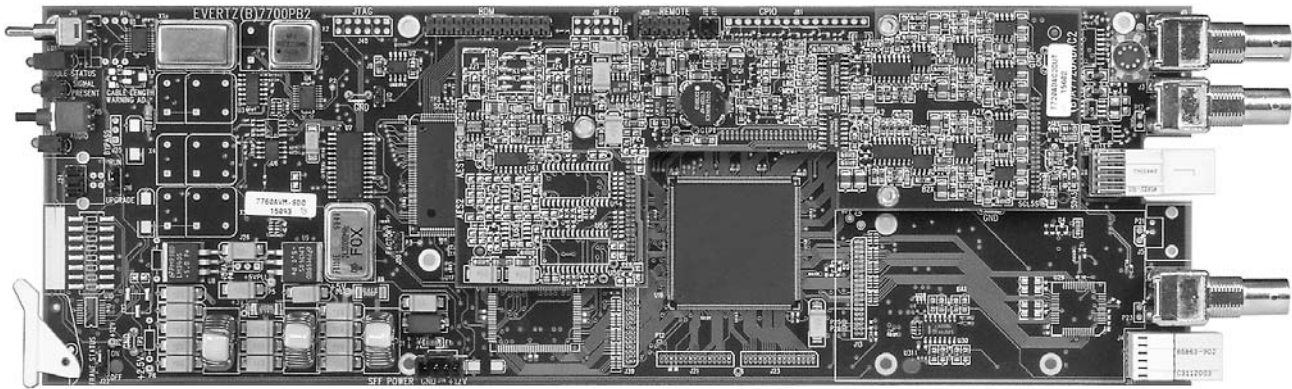
+3RU 3RU Rear Plate for use with 7700FR-C
Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

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

Model 7760CCM-HD

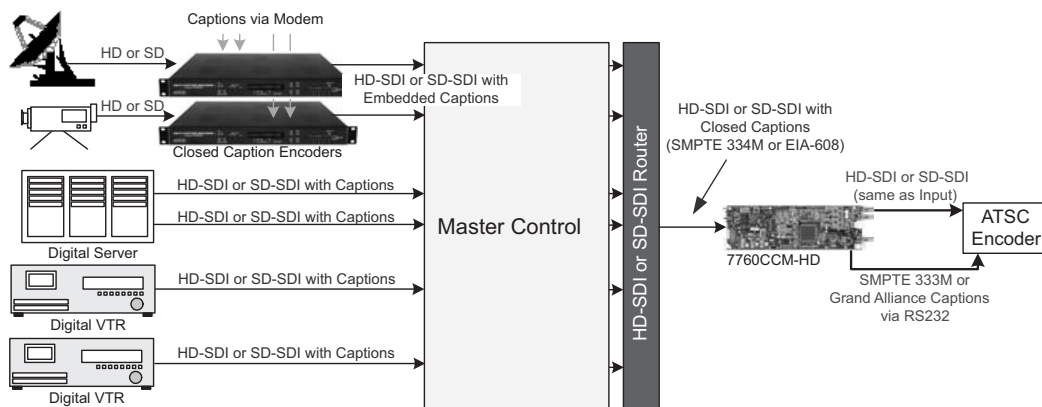


The 7760CCM-HD Closed Caption card is a EIA608 / EIA708 translator and extends the signal monitoring capabilities of the Evertz monitoring product line by focusing on closed captioning (EIA-608 & EIA-708) and Extended Data Service (XDS). The 7760CCM-HD has the capability to translate EIA608 captions 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

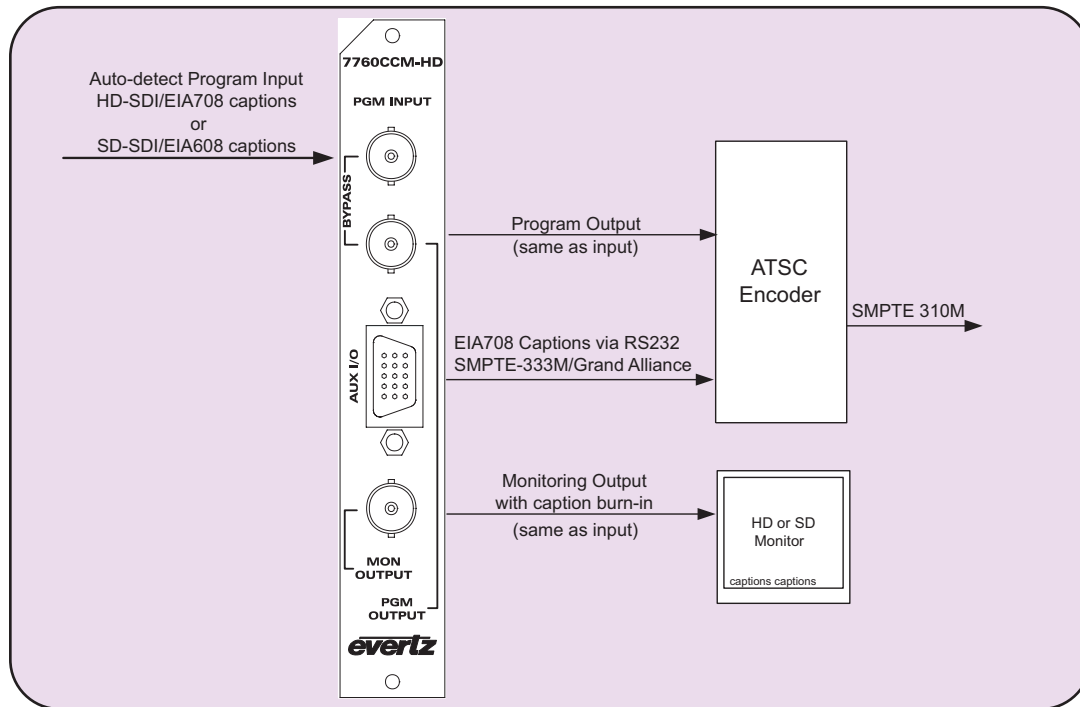


Features

- 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

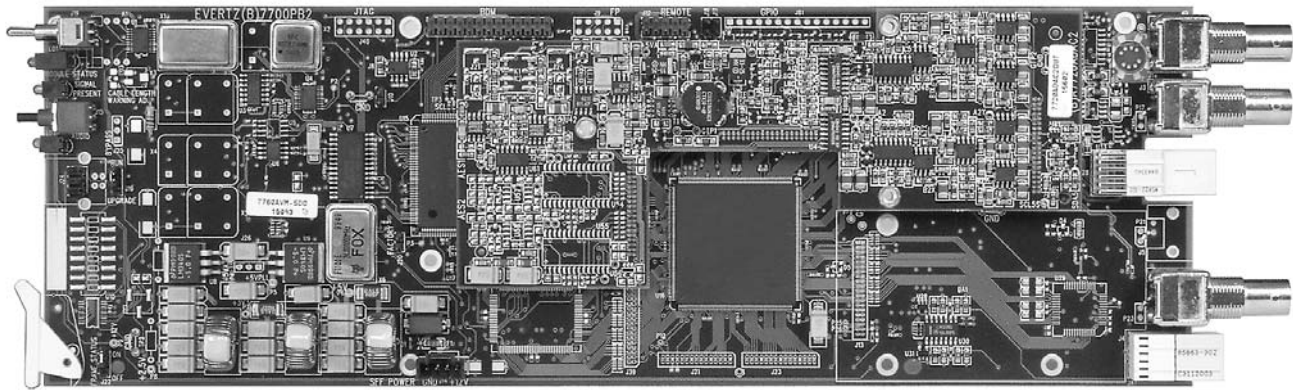
+3RU 3RU Rear Plate for use with 7700FR-C Multiframe
+1RU 1RU Rear Plate for use with 7701FR Multiframe
+SA Standalone Enclosure Rear Plate

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's 7700FR-C, 7701FR frames or standalone enclosures.

The 7760CCM-T closed captioning monitoring card extends the signal monitoring capabilities of Evertz's 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.

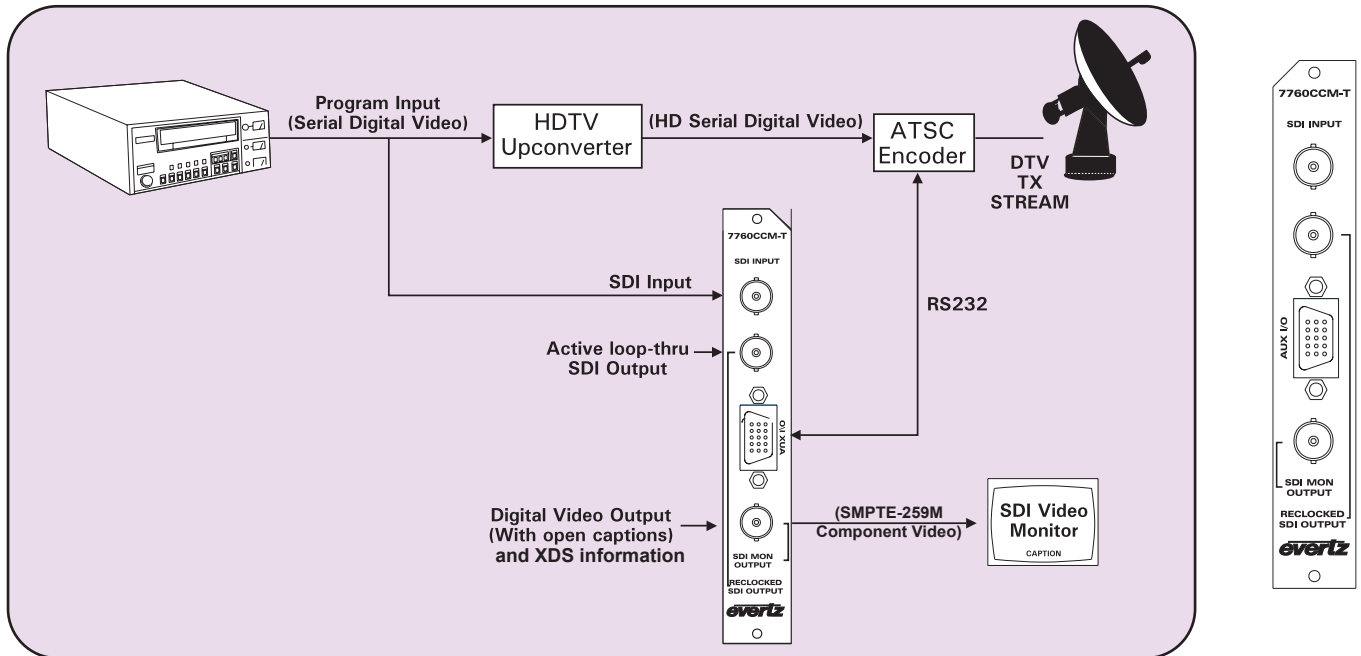
The 7760CCM-T incorporates the fault reporting capabilities inherent in the AVM product line. There are four user-configurable fault alerts that are triggered upon loss of video, loss of CC waveform, parity errors, field inversions, control codes and invalid XDS parameters. The 7760CCM-T is also VistaLINK™-enabled, offering remote monitoring, control and configuration capabilities.

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) containing 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's 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
Connector: 1 BNC per IEC 60169-8 Amendment 2
Termination: 75Ω
Equalization: Automatic >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:
 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

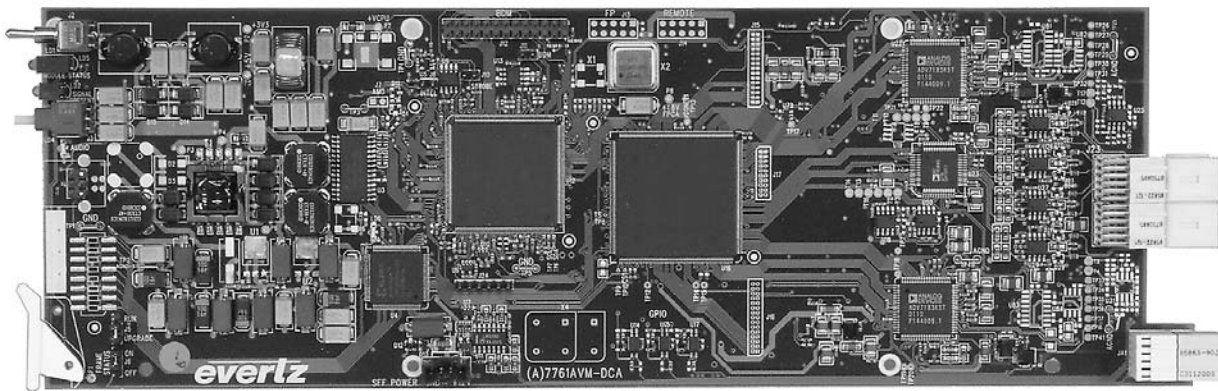
Enclosures:

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

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™.

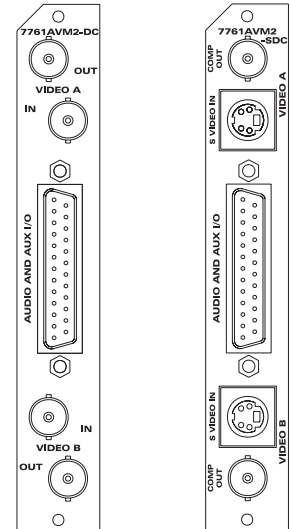
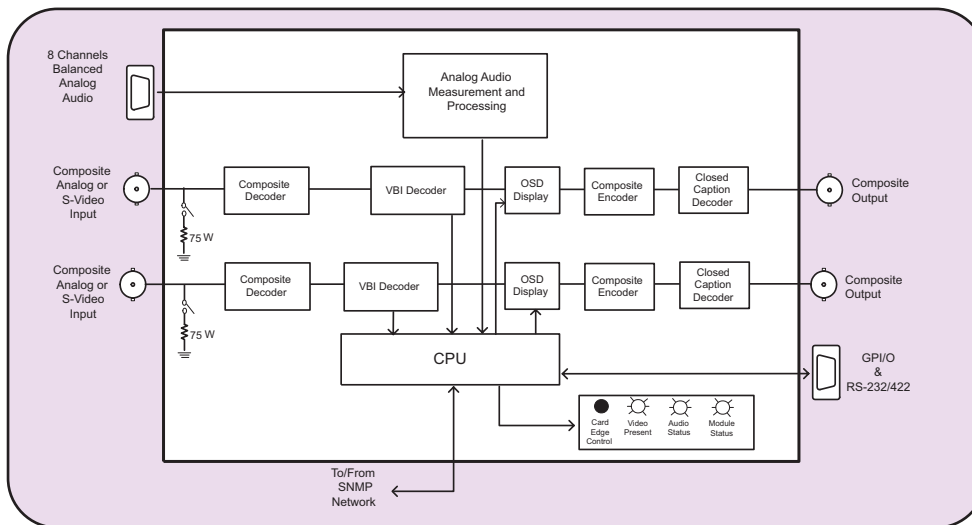
VistaLINK™ offers remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP) giving the flexibility to manage operations, including signal monitoring and module configuration, from SNMP-enabled control systems (Manager or NMS).

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 (Coming Soon)

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:

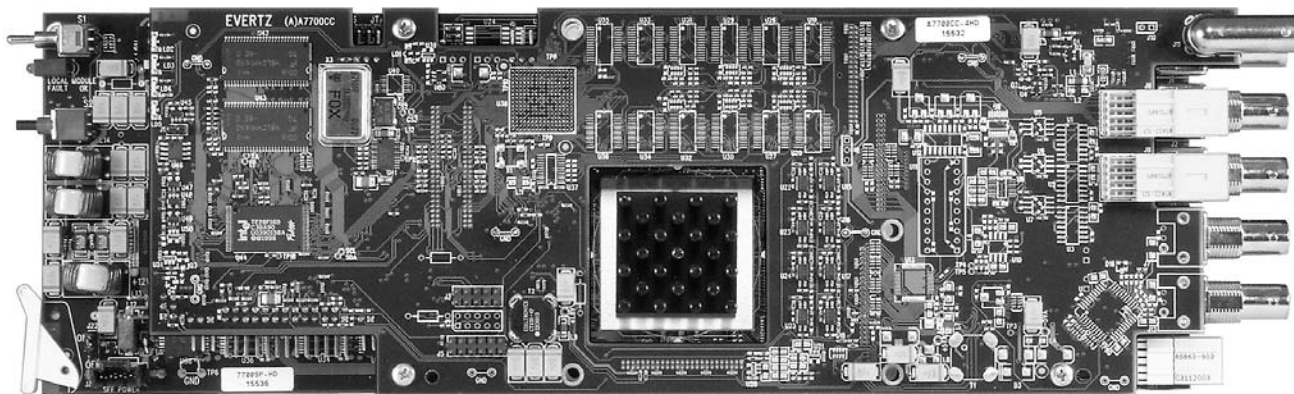
7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

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.

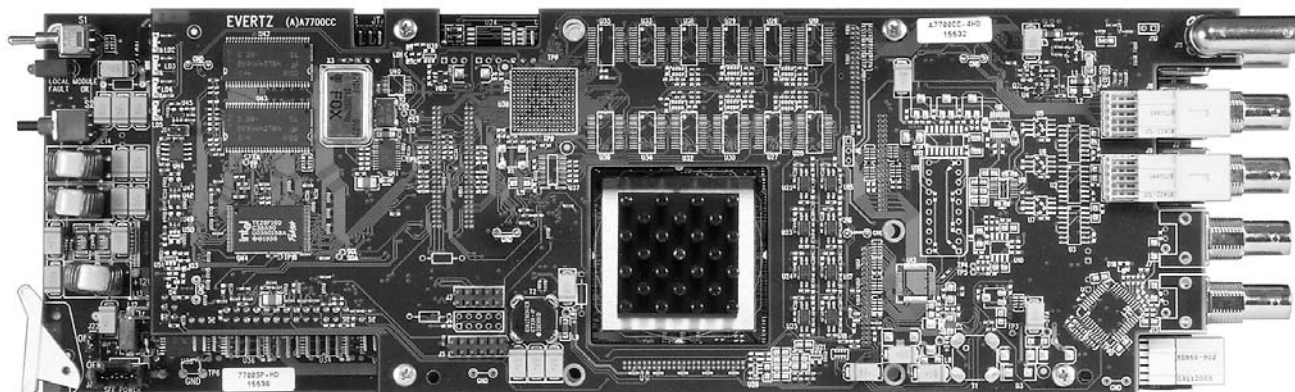
The 7765AVM-4 and -4A cards are also VistaLINK™-enabled, offering remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This product feature offers another solution to manage operations including signal monitoring and module configuration from SNMP-enabled 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

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.

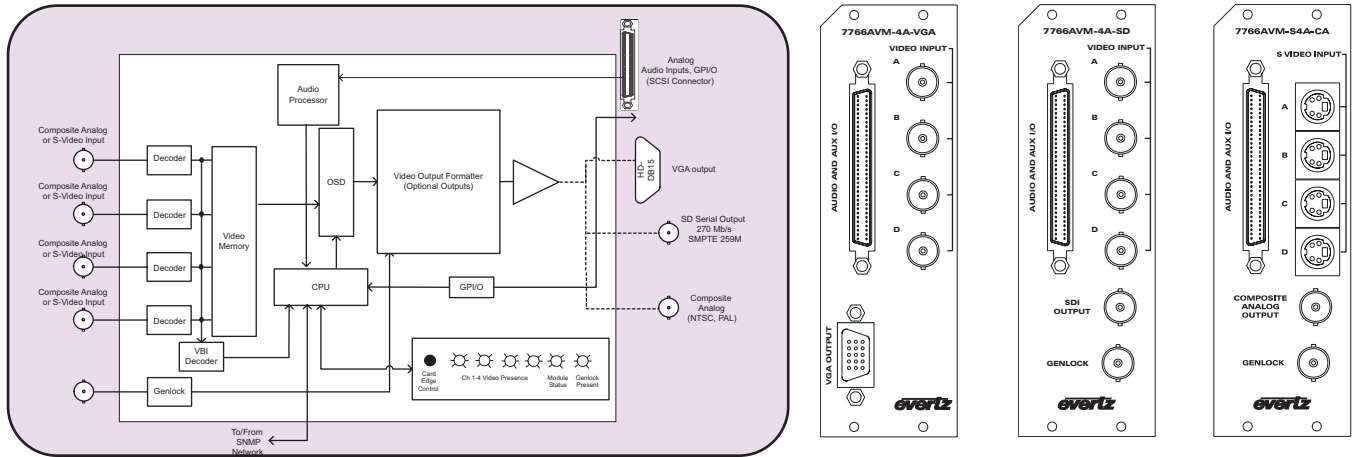
The 7766AVM-4A/-S4A cards are VistaLINK™ enabled offering remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This offers the flexibility to manage operations including signal monitoring and card configuration from SNMP-enabled control systems (Manager 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: 8 (4 balanced pair per video input)
Connector: 68-pin SCS1
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 SCS1
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 SCS1
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

Enclosures:

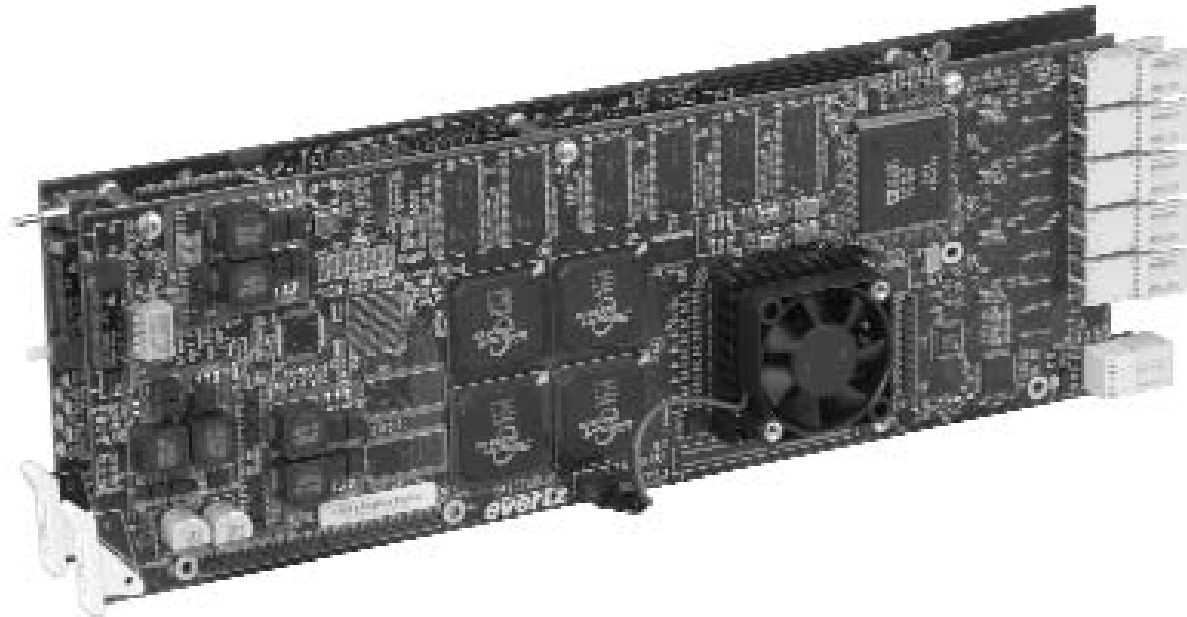
7700FR-C 3RU Multiframe which holds 15 modules
7701FR 1RU Multiframe which holds 3 modules
S7701FR Standalone enclosure

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)

VIP™ Four Input Video Monitoring and Display

Model 7767VIP4



Building on the popularity of the quad-split display series Evertz's new 7767VIP4 signal monitoring module simultaneously accepts, auto-detects, analyzes and displays four 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 UXGA (1600 x 1200) resolution via pre-designed user-selectable presets, the 7767VIP4 module fits conveniently into Evertz universally installed 7700FR-C frame and provides a cost-effective and space-efficient signal monitoring and display solution.

The 7767VIP4 module is 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

Video Inputs:

- Four auto-sensing HD/SD/NTSC/PAL
- Aspect ratio converter on each input - can display 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 modules

Audio Inputs:

- Handles embedded or discrete balanced or unbalanced AES/EBU, or analog audio (up to 16 AES and 4 L/R)
- VU/PPM level indicators, with "AVM-type" display features and ballistics

Video Output:

- One DVI-I output
 - Drive single DVI-D and single RGBHV (VGA-type) display simultaneously with same content up to UXGA (1600x1200 resolution)
- Minimal processing delay (<=2 frames)
- Optional support for "portrait" display via 2430GDAC-WARP

Signal Monitoring:

- An extensive list of error conditions can be monitored
- 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, opacities, thresholds and duration settings
- Decodes and displays closed captioning
- Dolby (AC-3 and E) audio presence and type detection

Auxiliary Inputs:

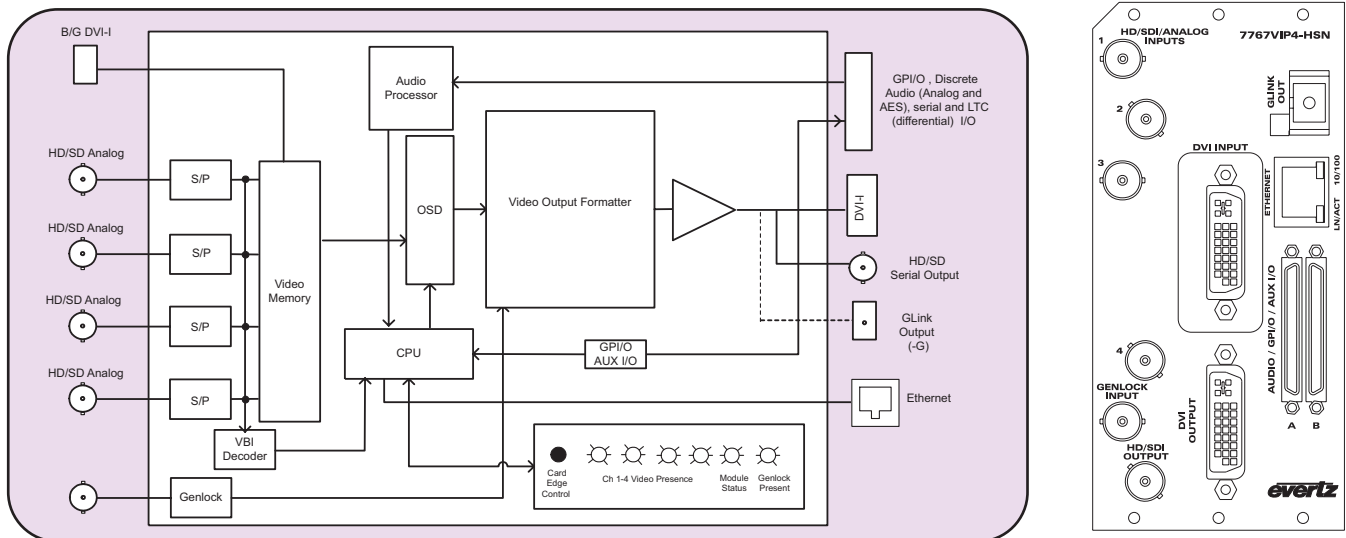
- RS-232/RS-422 communication port
- 20 assignable GP inputs, 8 GP outputs

Physical:

- Number of slots - 3
- Genlock reference loop input for proper timing - 1 NTSC/PAL
- Fast power-cycle time (<3 sec)
- 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

VIP™ Four Input Video Monitoring and Display

7767VIP4 Block Diagram



Specifications

Serial Video Inputs:

Standard: HD-SDI 1080i, 720p, SD-SDI (SMPTE 259M-C), NTSC/PAL
Number of Inputs: 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:

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 \pm 0.1V
Input Impedance: 75 Ω
Return Loss: 40dB up to 5MHz

Discrete Digital AES Audio Inputs (7767VIP-AI-X):

Standard: SMPTE 276M, single ended AES
Number of Inputs: 4 per video input
Connector: Dual SCSI (F) with BHP
Resolution: 24-bit
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced/100 Ω balanced

Discrete Analog Audio Input (7767VIP-AI-X):

Number of Inputs: 8 (4 balanced inputs per video input channel)
Connector: Dual SCSI (F) with BHP
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 UXGA (1600 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/SDI monitoring output
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: Opto-isolated, active low with internal pull-ups to +5V GPI
Relay closure to ground GPO's
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

Four asynchronous HD/SD/NTSC/PAL inputs with embedded audio, one background DVI-I input. One DVI-I and one user-selectable HD/SDI serial monitor output. Includes VistaLINK VLPRO-C software configuration tool and Maestro display layout GUI. (For discrete audio input support, order 7767VIP4-HSN-AI along with AI option type below)

7767VIP4-HSN-G

Four asynchronous HD/SD/NTSC/PAL inputs with embedded audio, one background DVI-I input. One DVI-I and one user-selectable HD/SDI serial monitor output. One built-in fiber output (requires 2430GDAC on Rx end to display). Includes VistaLINK™ VLPRO-C software configuration tool and Maestro display layout GUI. For discrete audio input support, order 7767VIP4-HSN-G-AI along with AI option type below)

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

Accessories:

7767VIP-AI-U

Discrete unbalanced AES/EBU audio input (4 AES per video input) breakout panel (2RU)

7767VIP-AI-BAL

Discrete balanced AES/EBU audio or Analog audio input breakout panel (2RU)

3000MKT-AUX

Dual AUX BHP Rack Mounting Kit

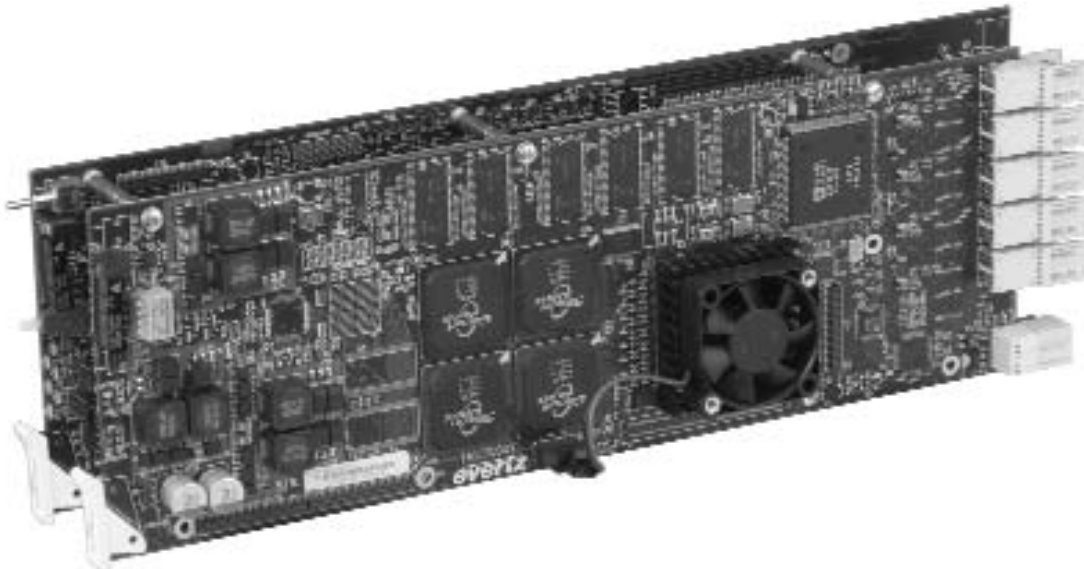
Enclosures:

7700FR-C

3RU Multiframe which holds 15 modules

VIP™ Twelve Input Video Monitoring and Display

Model 7767VIP12



Building on the popularity of both Quattro™ and MVM product lines, the VIP™ maintains the signal monitoring features common in both and conveniently fits the universally installed 7700FR-C frame.

The VIP12 accepts, analyzes and displays up to 12 HD/SD video inputs, four of which can also auto-detect NTSC/PAL on the same BNC. An additional thirteenth input is a computer graphic input for a dynamically-updated background image. The VIP™ outputs up to UXGA (1600 x 1200) resolution.

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 video inputs; four can also be NTSC/PAL on the same BNC
- Aspect ratio converter on each input - can display 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 modules

Audio Inputs:

- Handles embedded or discrete balanced or unbalanced AES/EBU as well as analog audio (up to 48 AES and 12 L/R)
- VU/PPM level indicators, with "AVM type" display features and ballistics

Video Output:

- One DVI-I output
 - Drive single DVI-D and single RGBHV (VGA-type) display simultaneously with same content up to UXGA (1600x1200 resolution)
- Minimal processing delay (<=2 frames)
- Optional support for "portrait" display via 2430GDAC-WARP

Signal Monitoring:

- An extensive list of user-configurable error conditions can be monitored
- On screen messages triggered by fault conditions
- Fault condition logic menu option
- 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
- Decodes and displays closed captioning
- Dolby (AC-3 and E) audio presence and type detection

Auxiliary Inputs:

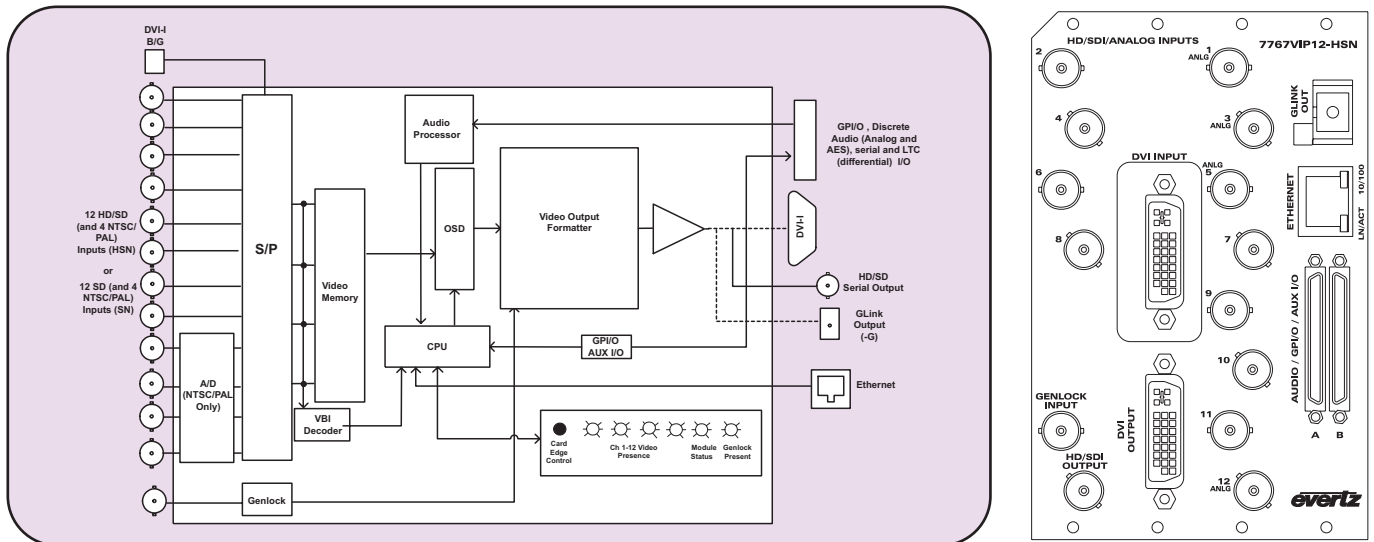
- RS-232/RS-422 communication port
- 20 assignable GP inputs, 8 GP outputs

Physical:

- Number of slots - 4
- Genlock reference loop input for proper timing - 1 NTSC/PAL
- Fast power-cycle time (<3 sec)
- 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

VIP™ Twelve Input Video Monitoring and Display

7767VIP12 Block Diagram



Specifications

Serial Video Inputs:

Standard: HD-SDI 1080i, 720p, 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:

Standard: NTSC (SMPTE 170M), PAL (ITU624-4)
Number of Inputs: 4 (out of 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

Discrete Digital AES Audio Inputs (7767VIP-AI-X):

Standard: SMPTE 276M, single ended AES
Number of Inputs: 4 per video input
Connector: Dual SCSI (F) with BHP
Resolution: 24-bit
Sampling Rate: 48 kHz
Impedance: 75 Ω unbalanced/100 Ω balanced

Discrete Analog Audio Inputs (7767VIP-AI-X):

Number of Inputs: 1 L/R pair per video input
Connector: Dual SCSI (F) with BHP
Input Impedance: 20k Ω min. (differential)
Sampling Frequency: 48kHz
Peak Signal and Common Mode Level: 30dBu

Display Video Output:

Standard: VESA (DVI-I) up to UXGA (1600 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/SDI monitoring output
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: Opto-isolated, active low with internal pull-ups to +5V GPI Relay closure to ground GPO's Breakout panel TBlocks via SCSI connection to dual SCSI (F)
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 IEEE 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 background DVI-I input. One DVI-I and one user-selectable HD/SDI serial monitor output. Includes VistaLINK™ VLPRO-C software configuration tool and Maestro display layout GUI. For discrete audio input support, order 7767VIP4-HSN-AI along with AI option type below)

7767VIP12-HSN-G

Up to twelve asynchronous HD/SD/NTSC/PAL inputs with embedded audio, one background DVI-I input. One DVI-I and one user-selectable HD/SDI serial monitor output. One built-in fiber output (requires 2430GDAC on Rx end to display/display). Includes VistaLINK™ VLPRO-C software configuration tool and Maestro display layout GUI. For discrete audio input support, order 7767VIP4-HSN-G-AI along with AI option type below)

7767VIP12-SN

Up to twelve asynchronous SD/NTSC/PAL inputs with embedded audio, one background DVI-I input. One DVI-I and one user-selectable HD/SDI serial monitor output. Includes VistaLINK™ VLPRO-C software configuration tool and Maestro display layout GUI. For discrete audio input support, order 7767VIP4-SN-AI along with AI option type below)

7767VIP12-SN-G

Up to twelve asynchronous SD/NTSC/PAL inputs with embedded audio, one background DVI-I input. One DVI-I and one user-selectable HD/SDI serial monitor output. One built-in fiber output (requires 2430GDAC on Rx end to display). Includes VistaLINK™ VLPRO-C software configuration tool and Maestro display layout GUI. For discrete audio input support, order 7767VIP4-SN-G-AI along with AI option type below)

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

Accessories:

7767VIP-AI-U

Discrete unbalanced AES/EBU audio input (4 AES per video input) breakout panel (2RU)

7767VIP-AI-BAL

Discrete balanced AES/EBU audio or Analog audio input breakout panel (2RU)

3000MKT-AUX

Dual AUX BHP Rack Mounting Kit

Enclosures:

7700FR-C

3RU Multiframe which holds 15 modules

VistaLINK™ Network Control Panel (2RU)

Model 9000NCP2

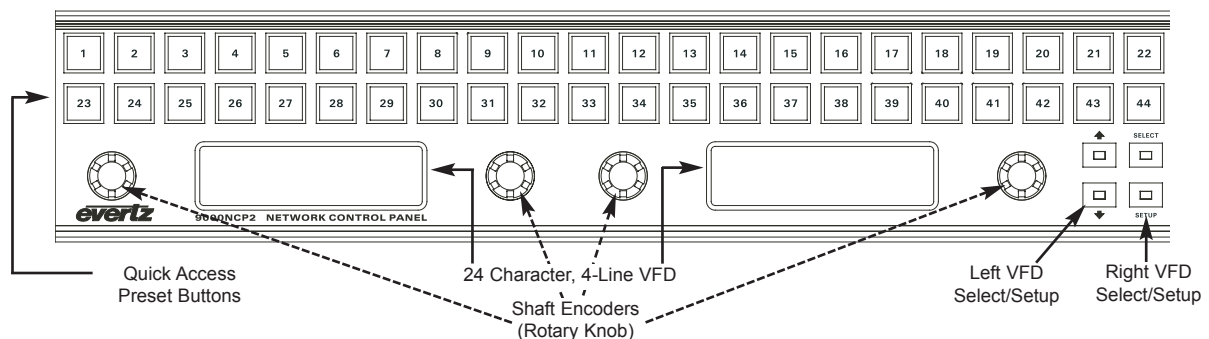


The 2RU 9000NCP2 VistaLINK™ Network Control Panel (NCP) is a low-powered, rack mounted control panel interface to VistaLINK™-enabled frames and modules, allowing for real-time selection and configuration control of enabled parameters.

Both NCP units connect to the network via Ethernet, communicating 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's 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)



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: 11 Watts
EMI/RFI: Complies with FCC Part 15, class A and EU EMC directive

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)

Ordering Information:

9000NCP2 VistaLINK™ Network Control Panel (2RU)

VistaLINK™ Network Control Panel (1RU)



Model 9000NCP



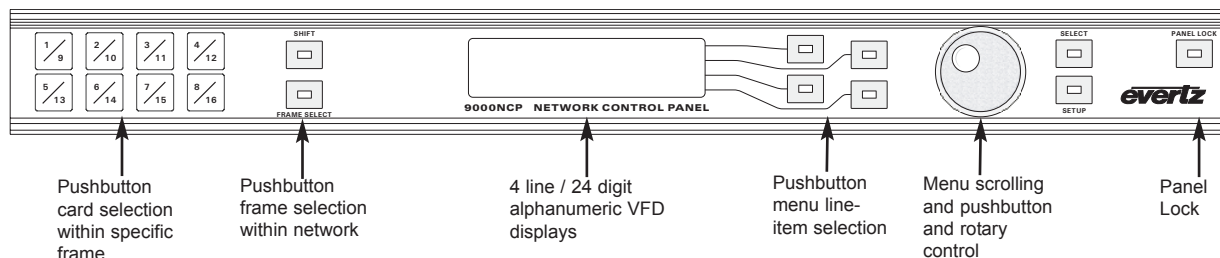
The 9000NCP VistaLINK™ Network Control Panel is a low power rack mounted, 1RU control panel interface to VistaLINK™-enabled frames and modules.

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 controls 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: 9 Watts
EMI/RFI: Complies with FCC Part 15, class A and 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 translators convert balanced 110Ω (twisted pair) digital audio signals to/from unbalanced 75Ω (coax) digital audio signals. The conversion is bi-directional regardless of XLR gender. The 1RU units support AES/EBU digital audio signals, with sampling rates ranging from 22kHz to 96kHz.

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. There are two versions of the AESIMP-12 available.

| PART NUMBER | 110Ω CONNECTOR | 75Ω CONNECTOR |
|-------------|------------------|---------------|
| AESIMP-12F | 3 PIN XLR FEMALE | BNC |
| AESIMP-12M | 3 PIN XLR MALE | 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.

Specifications

Number of Channels: 12
Coupling: Transformer
Turns Ratio: 1.22:1

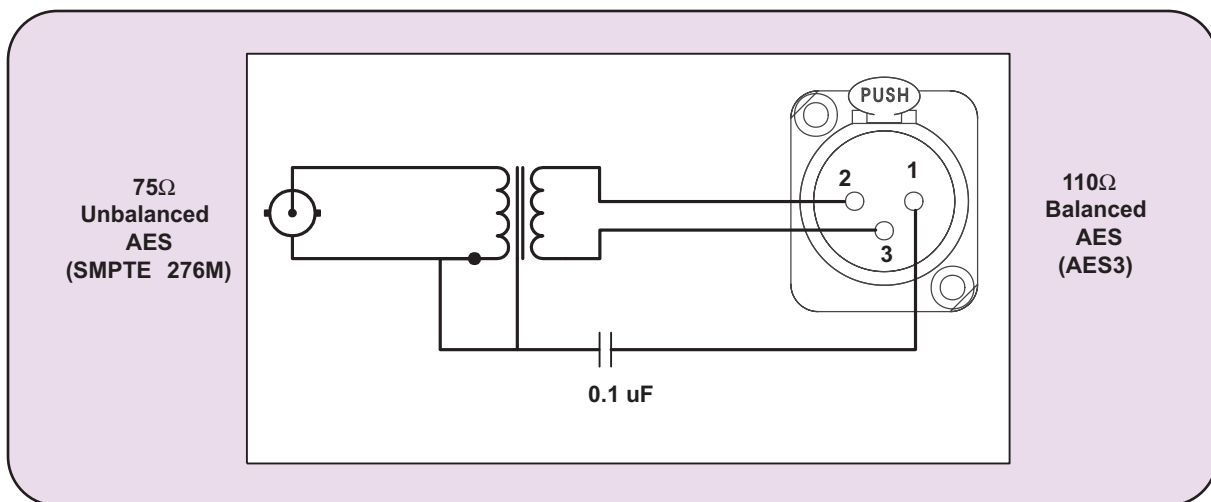
Unbalanced AES:
Standard: SMPTE 276M, single ended AES
Connectors: BNC per IEC 60169-8 Amendment 2
Signal Level: Approx. balanced level x 0.8, 5 V p-p max
Impedance: 75Ω unbalanced

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 max
Impedance: 110Ω balanced

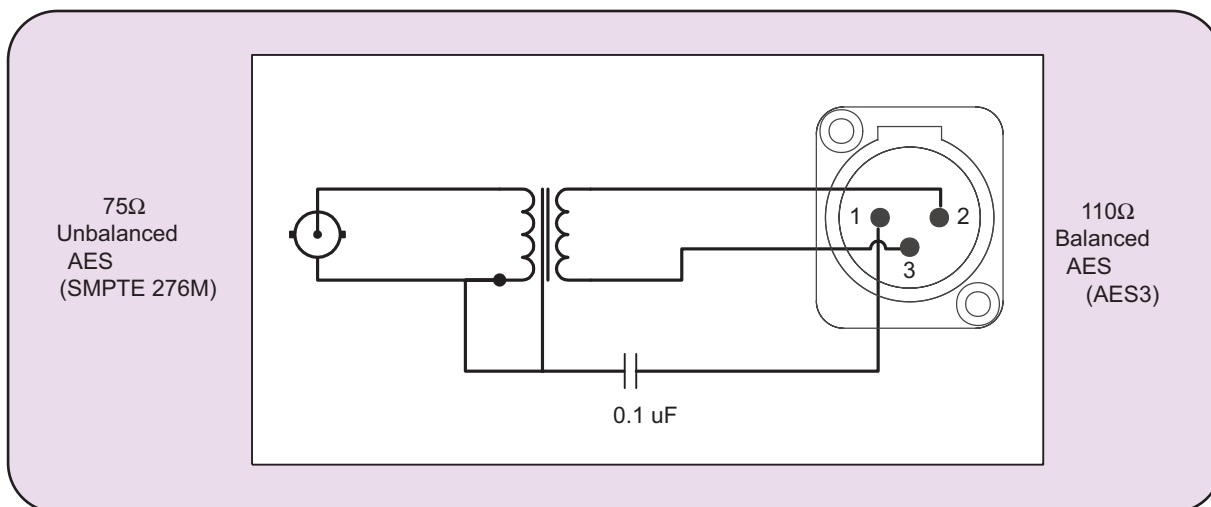
Ordering Information:
AESIMP-12F 12 Channel female XLR to BNC AES Impedance Matching Panel
AESIMP-12M 12 Channel male XLR to BNC AES Impedance Matching Panel

AES XLR ↔ BNC Bulk Impedance Converters

Model AESIMP Block Diagrams



Model AESIMP-12F



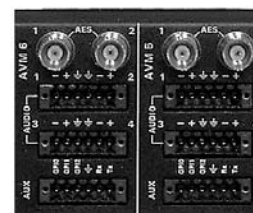
Model AESIMP-12M

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

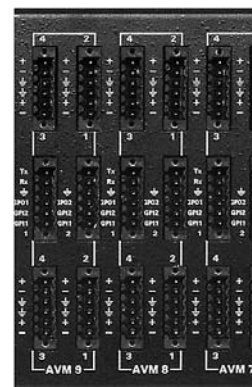
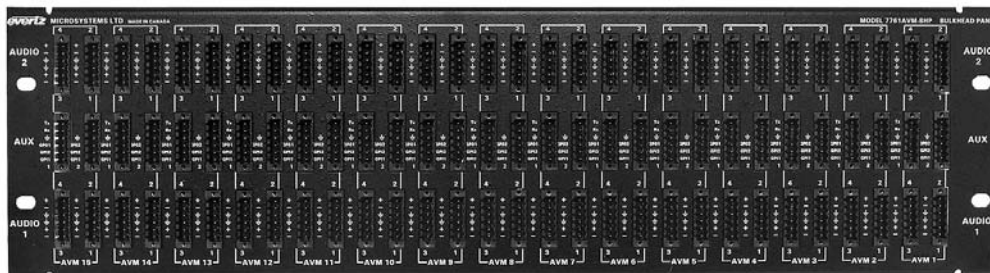
Bulkhead Breakout Panels (BHP) provide a convenient way of connecting audio and auxiliary input and output signals into module rear plate D-connectors. Each BHP may be outfitted with BNCs and/or terminal strips, extending AES, GPI/O, Tx/Rx and GND connections. BHPs occupy 1RU, 2RU or 3RU of rack space 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 & up to seven 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 15 7761AVM-DC modules.

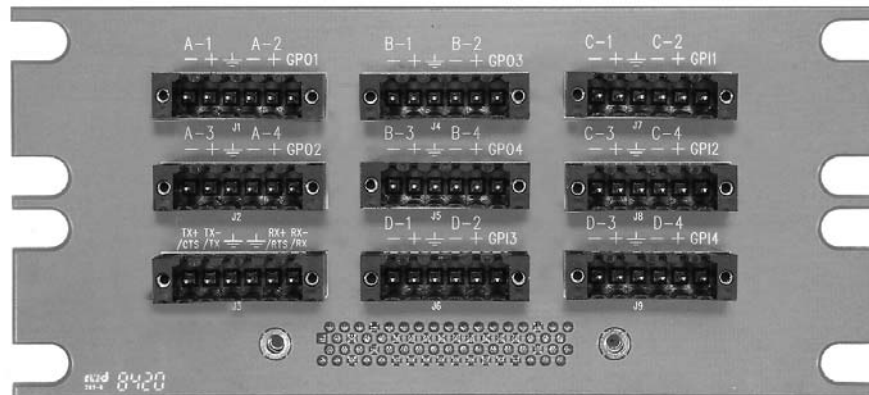
AVM Bulkhead Breakout Panels

7765AVM-4A-BHP-7



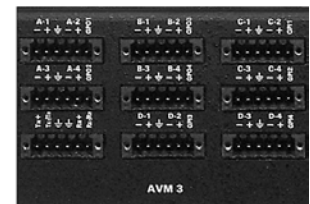
The 7765AVM-4A-BHP Bulkhead Breakout Panel provides a convenient way of connecting AES/EBU audio and GPI I/O signals into the DB-25 on 7765AVM-4A modules.

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

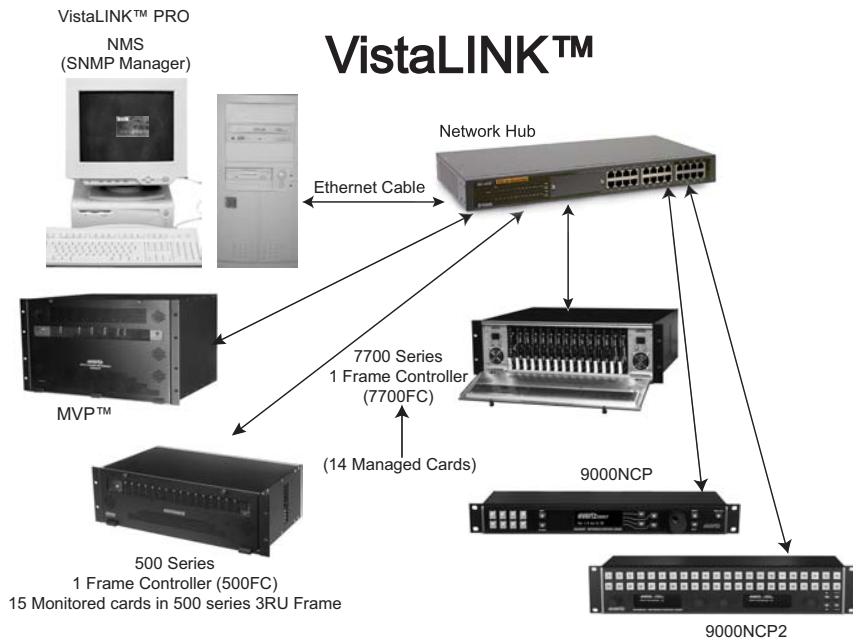


Ordering Information

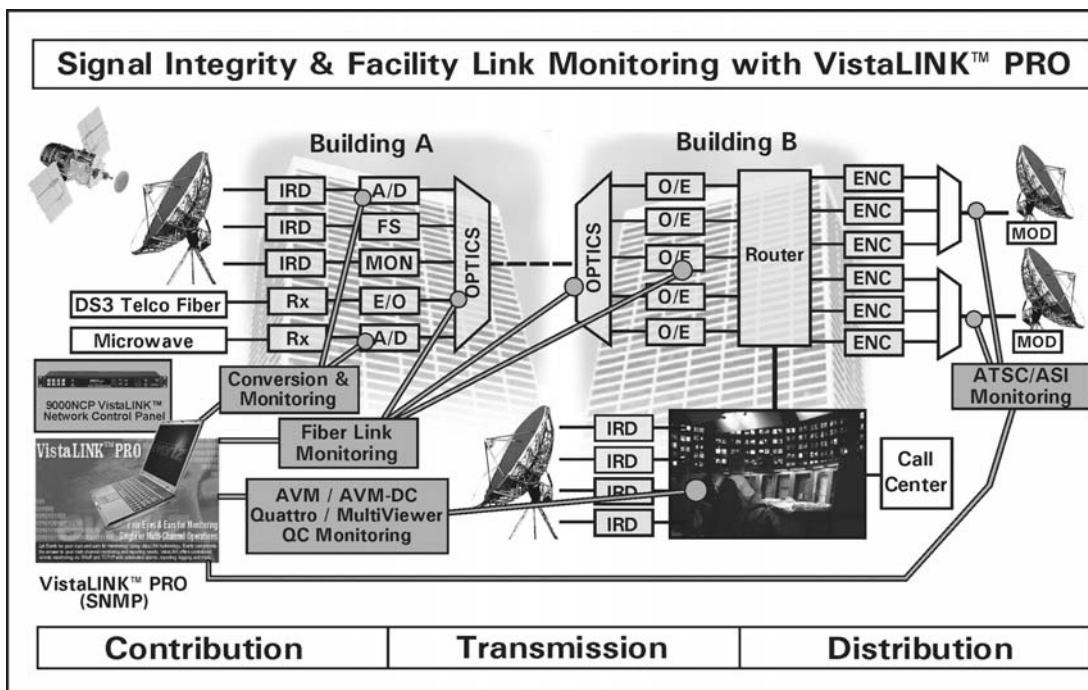
| | |
|-------------------|---|
| 7760AVM-BHP-5 | Bulkhead Breakout Panel for 5 x 7760AVMs (includes 5-3ft cables) |
| 7760AVM-BHP-10 | Bulkhead Breakout Panel for 10 x 7760AVMs (includes 10-3ft cables) |
| | (Optional Cables - WPAVMIO-1-0-1F (1' Adapter Cable) |
| | WPAVMIO-1-0-3F (3' Adapter Cable) |
| | 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) |

VistaLINK™ PRO

Control & Monitoring Application Software



VistaLINK™ is Evertz's true Simple Network Management Protocol (SNMP) configuration and monitoring platform. VistaLINK™ -enabled products span selected 7700FR-C, 500 series and MVP™ frames and modules and communicate with Evertz's own VistaLINK™ PRO Manager (NMS) application software. Furthermore, since we use the open-SNMP protocol, third party or custom manager software may also be used to monitor and configure Evertz's VistaLINK™ enabled products. The VistaLINK™ PRO graphic denotes all Evertz SNMP-enabled products.



VistaLINK™ PRO unites Evertz's VistaLINK™ enabled Fiber, Conversion, NCP, MVP™, 500-series DA and AVM product lines. This customized, Java-based monitoring and configuration tool is ready-to-use within network monitoring facilities and provides a complete, uncomplicated and cost-effective network solution. It is an effective tool for monitoring both incoming and departing signals at strategic locations (demarcation points, as shown in the figure) throughout the Video Enterprise Network, even extending worldwide.

VistaLINK™ PRO

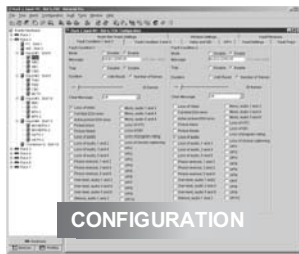
Control & Monitoring Application Software

The VistaLINK™ Partnership Program, originated in 2001, continues to grow with the addition of new partners. The objective of this partnership is to show potential NMS customers that Evertz has established a working relationship with the key software (control system) developers/partners and will work with these partners to support interface development and assist in consolidating software platforms.

General features of VistaLINK™ PRO include:

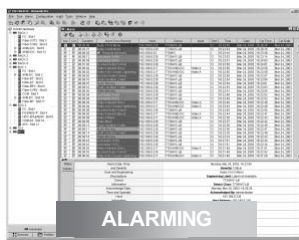
Configuration Management

- Customized parameter configuration displays via network tree views or operator-friendly service views
- Individual or multi-card parameter configuration changes, dynamic or off-line, with complete audit trails
- VistaLINK™ PRO Configuration-only (VLPRO-C) software tool is provided free with every 7700FC module, allowing the user unlimited configuration of all Evertz VistaLINK™ -enabled products



Alarm/Event management

- Centralized alarm management and event acknowledgement for all Evertz VistaLINK™ -enabled products
- Customizable alarm/event severities, user notes and definitions
- Alarm/event logging with human-readable file formats for record-keeping and future trend-analysis
- Alarm inhibiting, filtering and sorting, acknowledgement with built-in alarm duration reports and acknowledgement tracking features
- Audible alarm alerts (if PC enabled with sound card) with configurable audible alarm settings



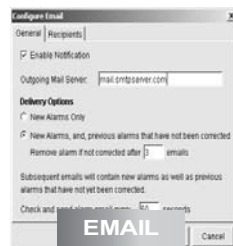
Password privilege controls

- Operator-level privileges offering many different levels of system access
- Password-protected access to parameter changes
- Secured access to Alarm/Event database
- The junior operator, for example, can acknowledge alarms but can not change alarm views or re-configure card parameters



Interoperability

- Integrates with other third-party SNMP System-wide Managers (NMS) eliminating development time and costs incurred through software duplication
- External Notification (+EN) module support - web-enabled cell phones, pagers, etc.

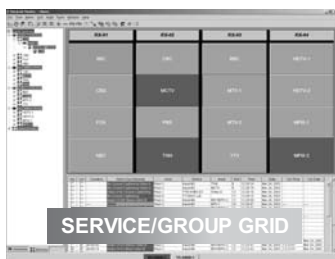


Administrative and Network Management

- "Server Down" messages, audit logs and VistaLINK™ PRO client notification messaging along with client start-up component search messages

Monitoring Hardware and Service Grid Views

- Allows users to set-up a "quick reference" display similar to a virtual monitor wall
- Configurable grid parameters (such as grid color, font size and service captions) for fast and convenient alarm status viewing of one or multiple services, as generated through the Service View client
- Groups hardware/products from different frames into one or more service portfolios



- Complementary display of service chain in addition to standard Frame/Hardware view
- Identify and label which network monitored elements belong to a specific broadcast feed or chain

Frame/Environment Monitoring

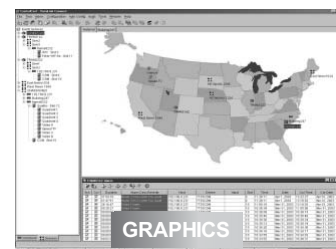
- Frame-related "environmental" parameters such as product location, insertion and removal, hardware status such as frame status, power supply status and 7700FC temperature, software status identifies the version of firmware

VistaLINK™ PRO Scheduler/Auto-Configuration Software Module (+SCH)

- VistaLINK™ PRO optional module providing automated configuration of VistaLINK™ -enabled modules through built-in calendar features and/or monitored signal alarms and SNMP traps
- Provides an automated configuration control solution via SNMP, spanning all Evertz's VistaLINK™ -enabled equipment
- Create automated configuration profiles for selected channels, cards and frames, for hourly, daily, monthly and yearly updates. If "Video Frozen" alarming is not required between 1:00am and 4:00am, the automated scheduler can automatically disable this alarm on a specific input for this period

VistaLINK™ PRO PLUS - VistaLINK™ PRO Configuration and Monitoring plus Graphic Client View

- VistaLINK™ PRO PLUS provides a pictorial representation of the monitored broadcast network, from a global or regional map view down to frame layouts
- Import, create and display simple pictures, customized for the end-user's monitored network enterprise, all on a single desktop display



Third-Party Monitoring with VistaLINK™ PRO

Further, VistaLINK™ PRO can be extended to monitor non-Evertz, third-party equipment, whether SNMP enabled or not. This is possible through the 7700GPI card, which conveniently fits into a 7700FR-C 3RU frame, and provides for an interface between the equipment's GPI outputs and VistaLINK™ PRO. The user can configure the 7700GPI for alarm severities and label each GPI independently through the VistaLINK™ PRO GUI.

Ordering Information:

VLPRO (VistaLINK™ PRO)

VistaLINK™ PRO SNMP Alarm Monitoring, Email Notification and Module Configuration Application Software (1-year license included for 1 client workstation)

VLPRO PLUS(VistaLINK™ PRO PLUS)

VistaLINK™ PRO PLUS SNMP Alarm Monitoring with Graphics Mapping Support, Email Notification and Module Configuration Application Software (1-year license included for 1 client workstation)

Ordering Options:

- +C** VistaLINK™ PRO Module Configuration provided FREE with every 7700FC VistaLINK™ Frame Controller
- +SCH** Optional VistaLINK™ PRO Automated Configuration and Scheduler Application Module to use with VLPRO Software

Upgrade Options:

Additional Client License

For either VLPRO or VLPRO PLUS (1 client workstation for 1 year)

VLPRO PLUS Upgrade

Upgrade existing VLPRO installation to VLPRO PLUS option

VLPRO Set-up and/or Training/day

VistaLINK™ Configuration and Training Session (\$750/day includes expenses)

VLPRO-Ser/Sup/Lic. 1yr

Additional 1 year VLPRO/PLUS license, service and support per client

VLPRO-Ser/Sup/Lic. 2yr

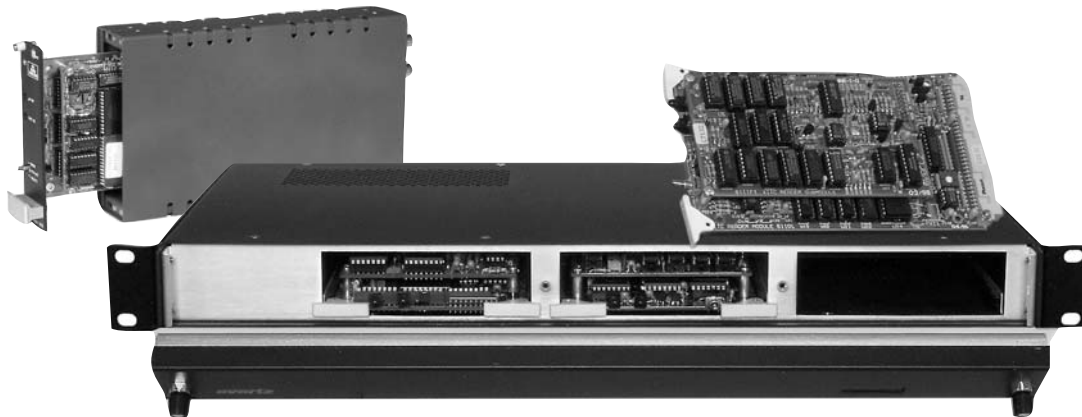
Additional 2 year VLPRO/PLUS license, service and support per client

VLPRO-Ser/Sup/Lic. 3yr

Additional 3 year VLPRO/PLUS license, service and support per client

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 colour framing, Source ID or GPIs)

Specifications:

Video:

Input: 1V p-p High 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 degree
Frequency Response: ± 0.5 dB 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 are for mounting in the 1RU frame)

EJ621x: VITC Generator & Source ID Encoder
EJ621x-LTR: 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 degree |
| 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 are for mounting in the 1RU frame)

| | |
|--------------------|---|
| EJ622x: | VITC to LTC Translator |
| EJ622x-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 |
|--------------|--|

Enclosure:

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

1a

1a

2

2

3

3

4

4

5

5

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.

6

6

7

7

8

8

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

9

9

Specifications:

10

10

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) |

11

11

12

12

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

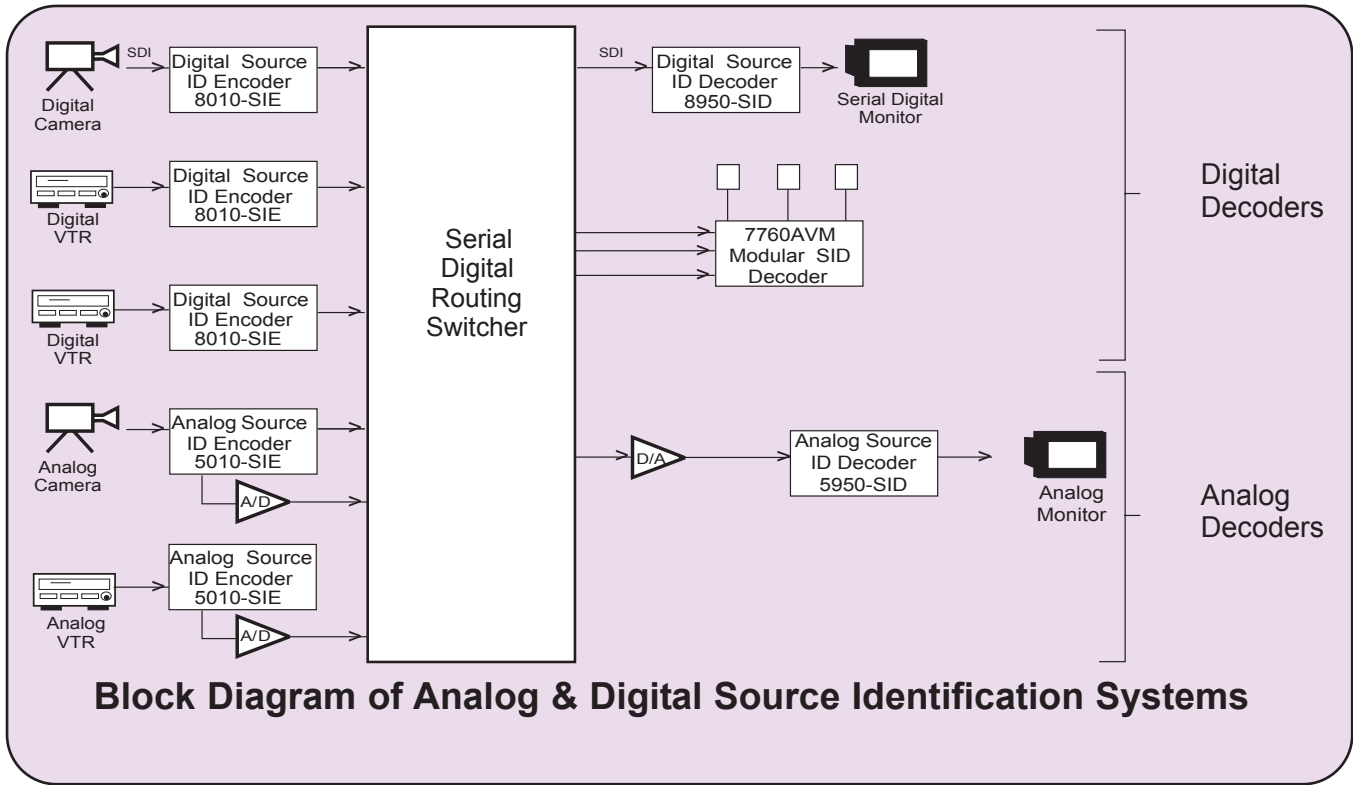
X = N for NTSC or P for PAL (Please specify when ordering)
(Modules are for mounting in the 1RU frame)

| | |
|-------------|--|
| EJ623x: | LTC/VITC Reader Translator |
| EJ623x-VIR: | LTC/VITC Reader Translator with VITC Submodule |

Enclosure:

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

Vertical Interval Source ID Block Diagram



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)

- 1a
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12

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.

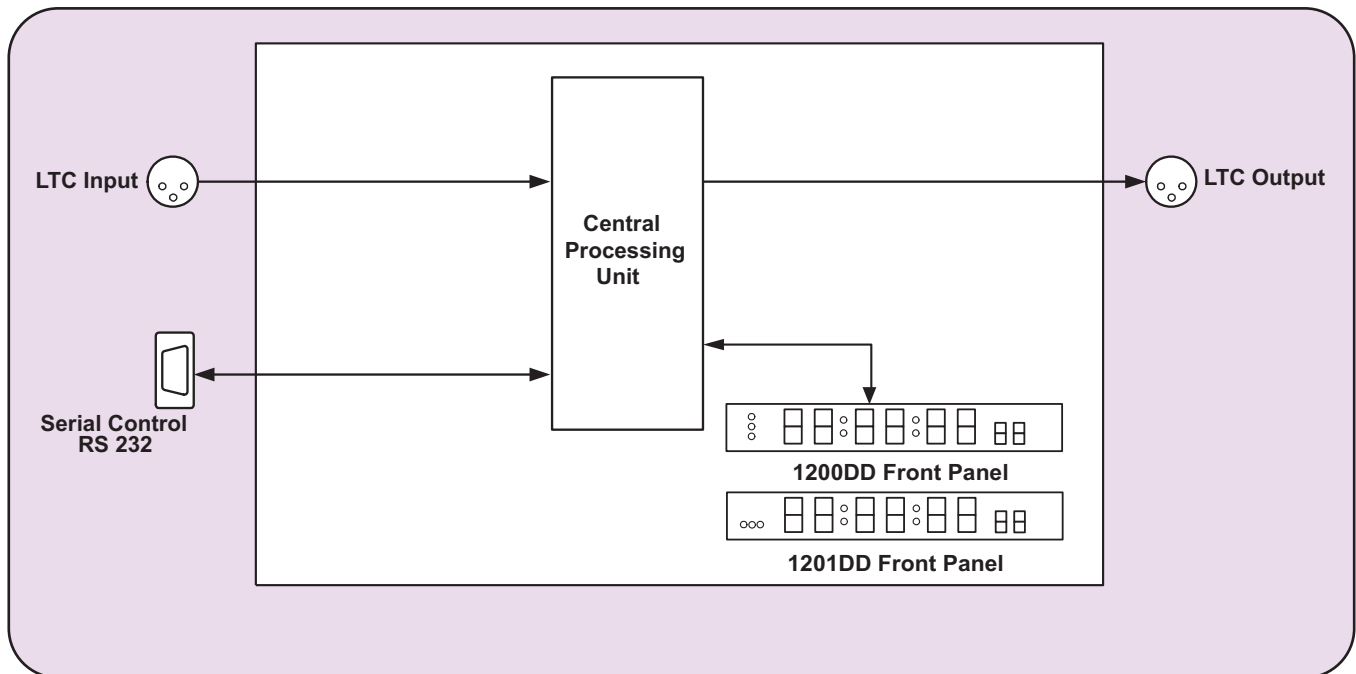
The rear panel input connectors for timecode and output are XLR connectors.

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 sec/month
Battery Backup: Crystal, ± 50 sec/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

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

1a

2

3

4

5

6

7

8

9

10

11

12

1a

1a

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.

2

2

3

3

4

4

5

5

6

6

7

7

8

8

9

9

10

10

11

11

12

12

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
20kΩ 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

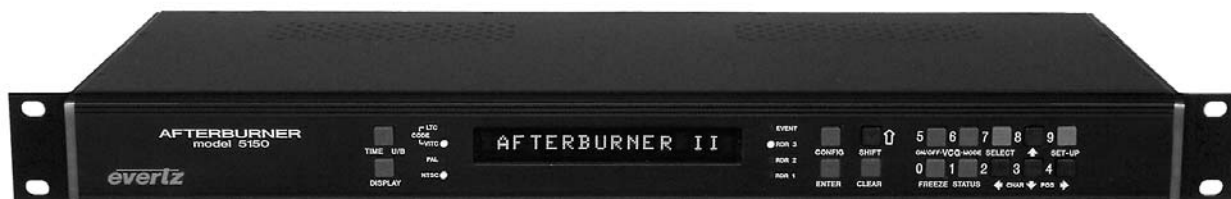
Physical:

- 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

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 reshapener/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
Impedance: High 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

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

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, High 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

1a

2

3

4

5

6

7

8

9

10

11

12

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

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

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 sec

Jitter: < 2 μ sec

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: Comp. Video 1V p-p, 75 Ω terminated

Outputs: 2 Comp. 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: Comp. video 1V p-p, High 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

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

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

Ordering Information:

Comes with standard GPS Receiver and 50 ft. weather-proof 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

1a

2

3

4

5

6

7

8

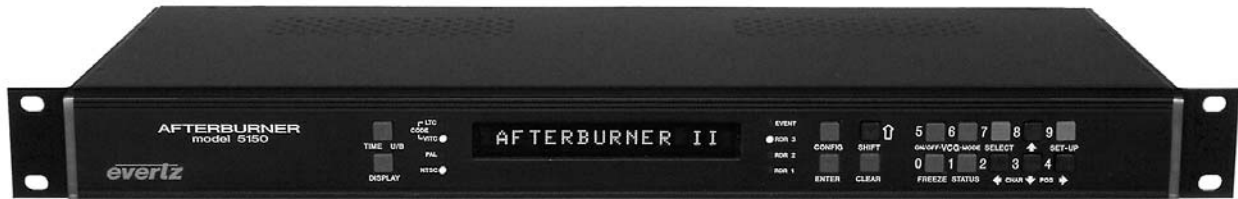
9

10

11

12

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 speed 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 timecode 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 60169-8 Amendment 2
Speed: Still frame to <40x play, VTR dependant
Impedance: High Z

LTC Translator:

Connector: XLR Type 3 pin male
Signal Level: Adjustable 0.5V to 4.5V p-p
Rise Time: 40 ± 10µs
Jitter: <2µs
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 60169-8 Amendment 2

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

Time Code Analyzer

Model 5300

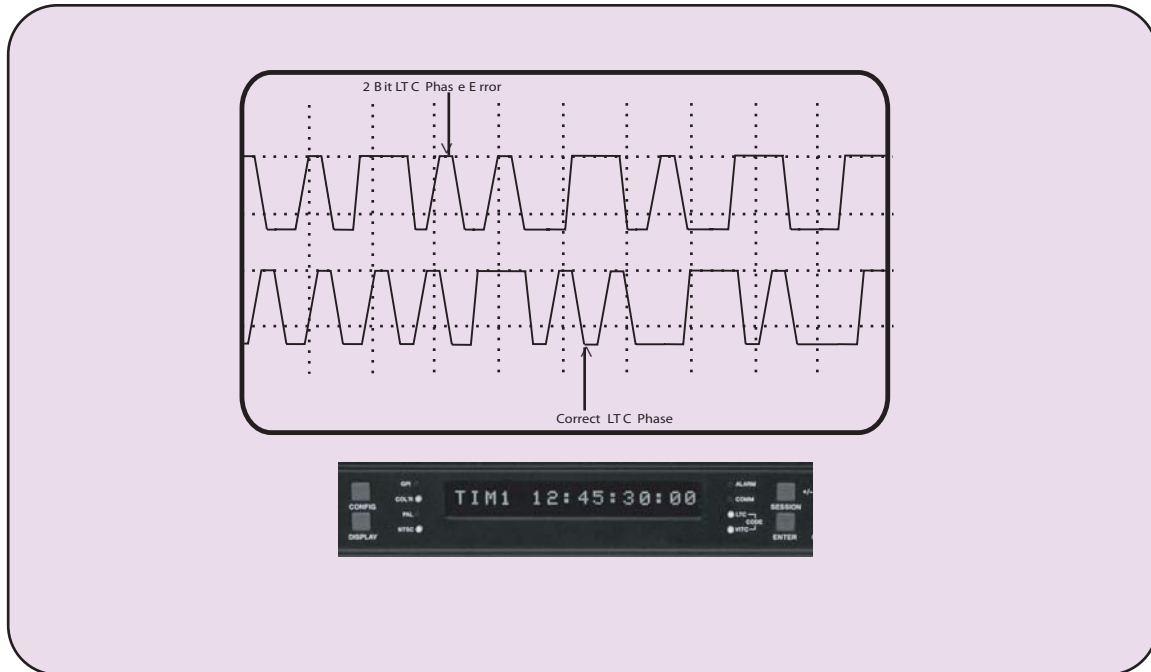


The Model 5300 LTC/VITC Time Code Analyzer combines the latest LSI technology with sophisticated microcontroller firmware to provide a powerful, flexible time code analyzer system. The model 5300, a LTC/VITC reader / analyzer and multi-function character inserter is an invaluable verification and troubleshooting 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 1V p-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 ± 10µsec

Jitter: <2 µsec

Gen Lock: Reader input video 1 V p-p, High 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

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

Ordering Information:

5300 Time Code Analyzer

1a

2

3

4

5

6

7

8

9

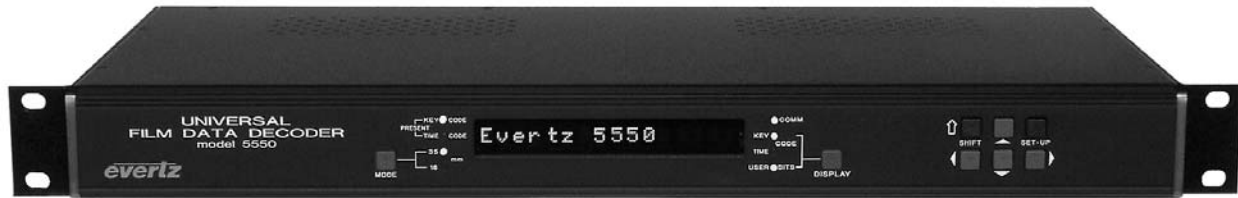
10

11

12

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

5550/KR-16/35

5550/UV-3

5550/UVT-3

5550/UVS-3

Universal Decoder

5550 Decoder with KR16/35 Head & 10ft.cable

5550 Decoder with UV-3 Head & 20 ft. cable

5550 Decoder with UVT-3 (Touchless) Head & 20 ft. cable

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

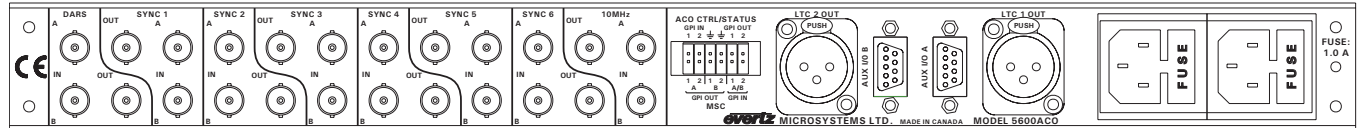
5600ACO Protected Outputs

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

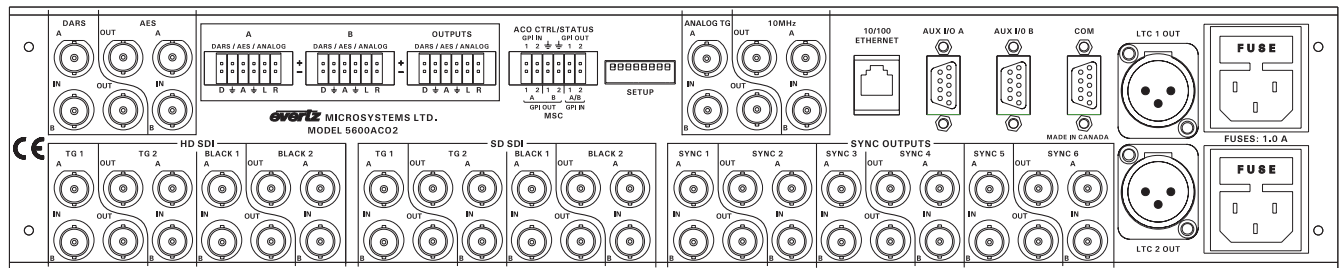
5600ACO2 Protected Outputs

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

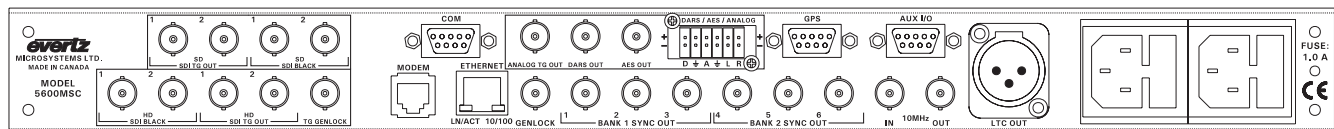
5600ACO:
Dimensions: 19" W x 1.75" H x 18.75" D.
(483mm W x 45mm H x 477mm D)
Weight: 8 lbs. (3.5Kg)
5600ACO2:
Dimensions: 19" W x 3.5" H x 18.75" D.
(483mm W x 90mm H x 477mm D)
Weight: 16 lbs. (3.5Kg)

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

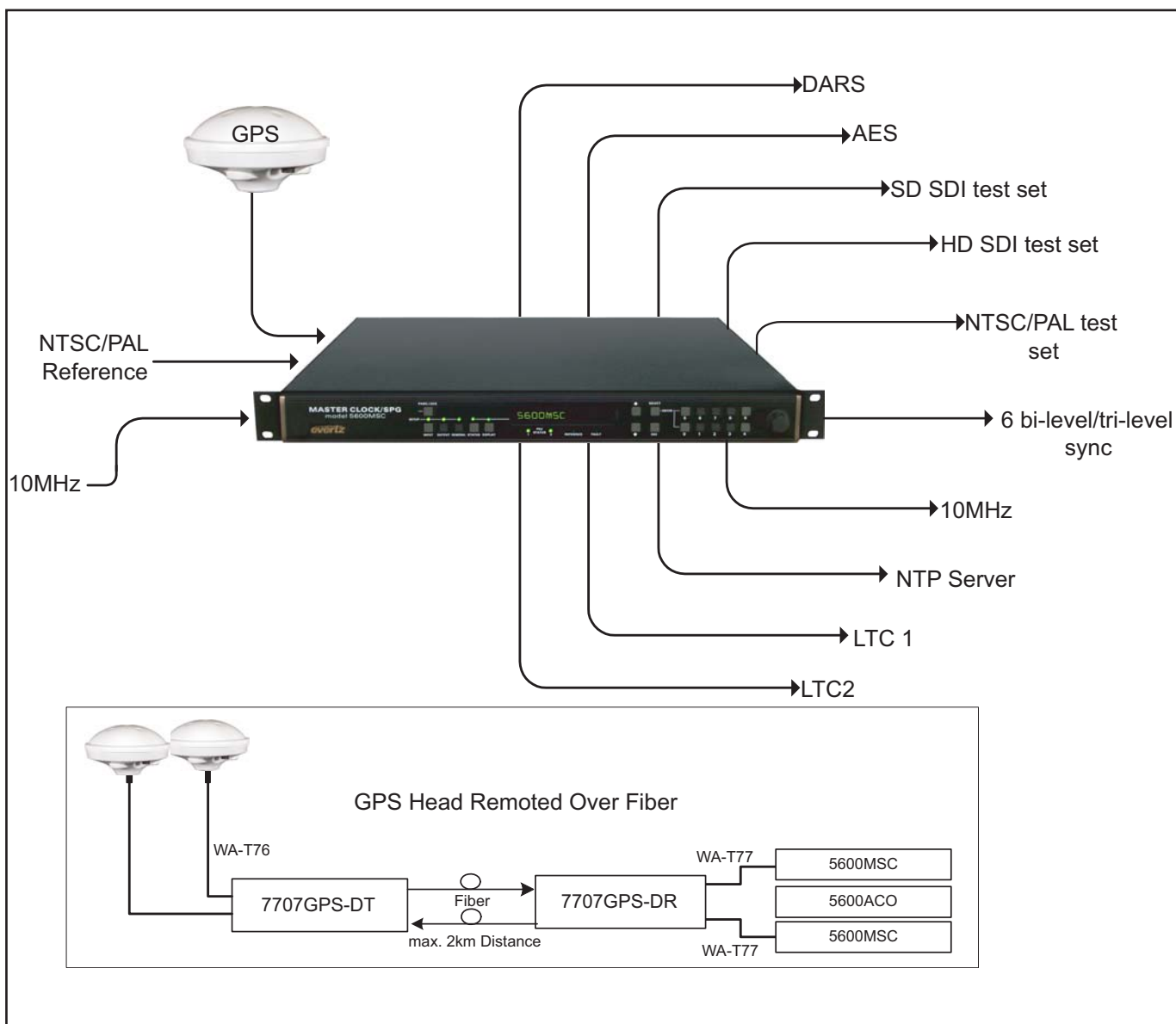
Features:

- 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 B Any combination of 24/50/60Hz based Tri-Level Syncs | Group C 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 - 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:

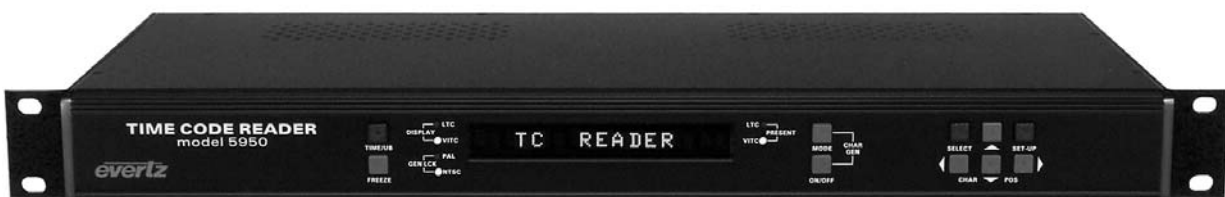
WA-T76: 100' weatherproof cable for 5600MSC, GPSII & 7707GPS-DT
WA-T77: 100' weatherproof cable for 7707GPS-DR to 5600MSC
WA-T11: 400' weatherproof cable for GPS receiver

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.

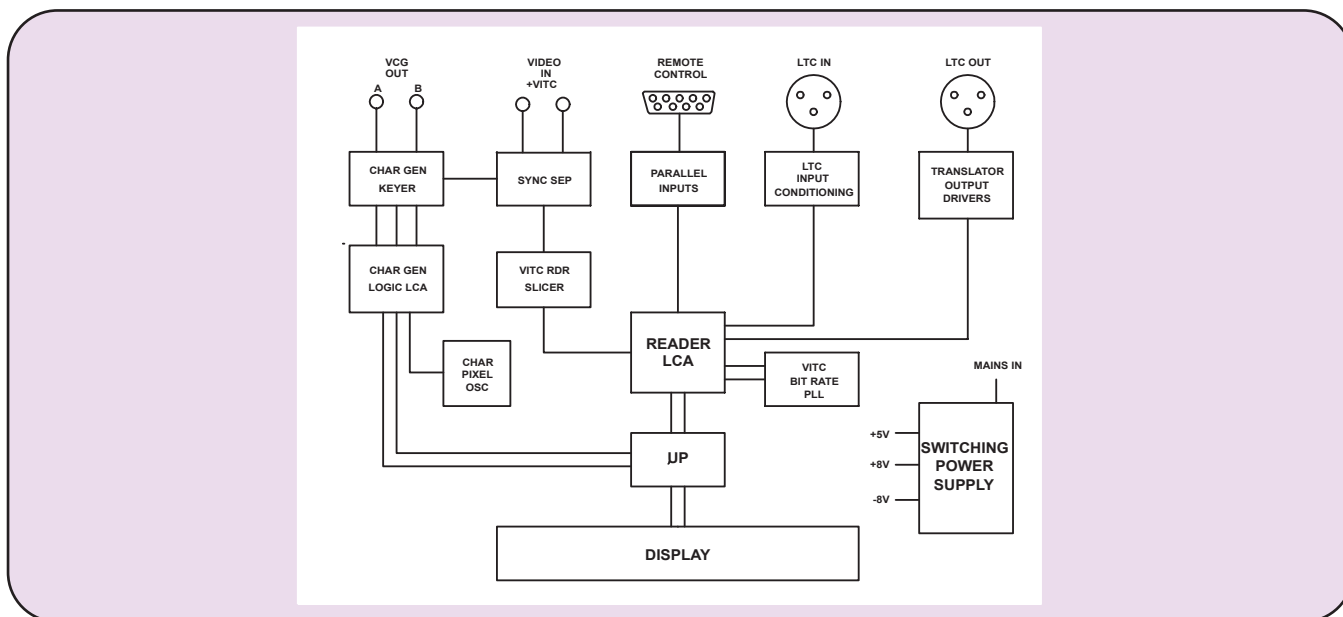
The high resolution Character Inserter can display Time code, User bits, or both. 3 Character sizes: 8, 16, and 32 lines are available. The Characters can be white with or without a black background, or black with or without a white background. The windows are separately positionable on the raster and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

VITC/LTC Time Code Reader Character Inserter

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: High Z

LTC Translator:

Connector: XLR Type 3 pin male
Signal Level: Adjustable 0.5V to 4.5V p-p
Rise Time: $40 \pm 10\mu\text{s}$
Jitter: $<2\mu\text{s}$
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
Complies with FCC Part 15 Class A
EU EMC Directive

Ordering Information:

5950 VITC/LTC Time Code Reader/Character Inserter

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.

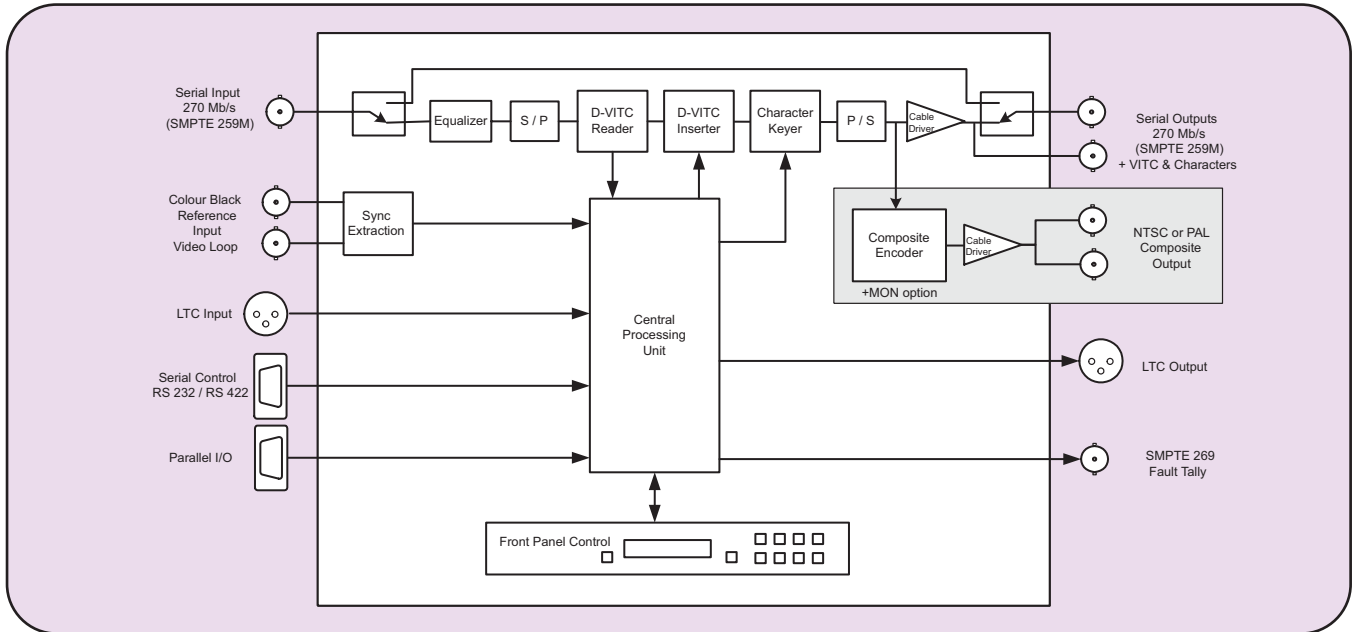
The 8010TM will accept 525 or 625 line component digital video. The 8010TM's time code generator can be preset to lock to the digital program video either by simple frame locking, or where necessary it will colour lock to an analog Colour Reference in accordance with the 4 field NTSC or 8 field PAL colour 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 Complies with FCC Part 15 Class A EU EMC directive |
| EMI/RFI: | |

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

Ordering Options:

| | |
|-------------|--------------------------|
| +2PS | Redundant Power Supply |
| +MON | Analog Monitoring Option |
| +BP | Bypass Relay Option |

1a

2

3

4

5

6

7

8

9

10

11

12

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 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 colour 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.

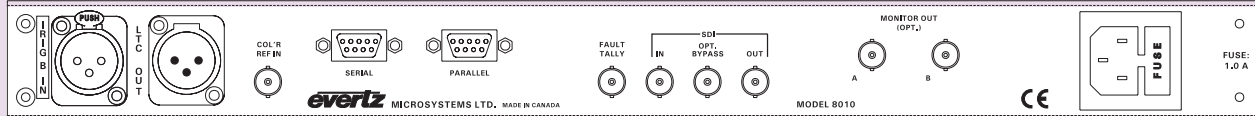
Both the generator and reader are capable of working with the unassigned user bits. Several modes of operation are possible. The generator may be preset to insert hexadecimal values for each group in the generated code, and the reader will read hexadecimal values for each binary group. In addition, the 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

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

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 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
- EMI/RFI: Complies with FCC Part 15 Class A
EU EMC directive

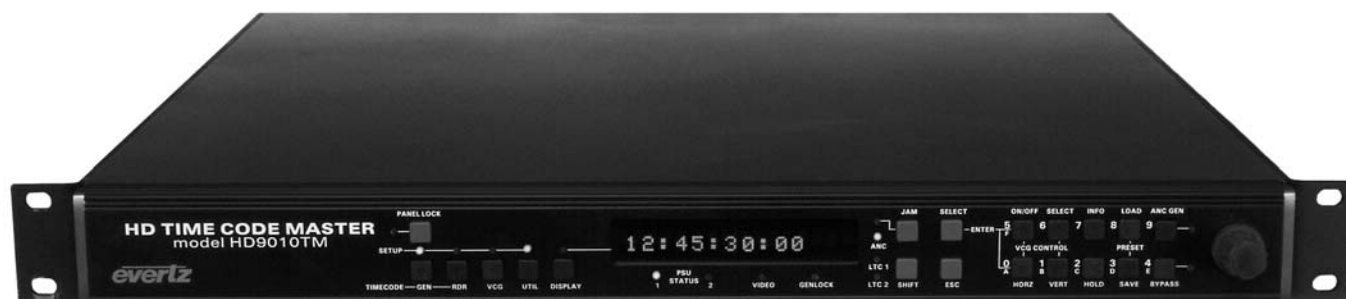
Ordering Information:

- 8150 SDI Afterburner

Ordering Option:

- +MON Analog Monitoring Option

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.

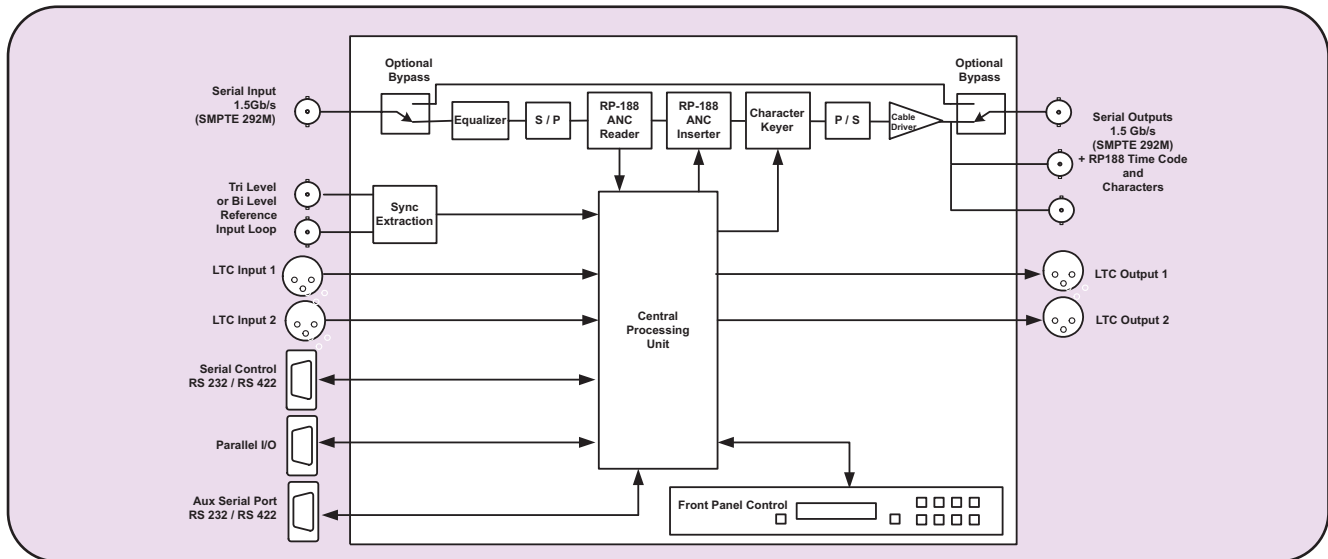
The HD9010TM generators can be slaved to incoming LTC or ATC or can be set to free run. The generators may also be momentarily synchronized to one of the readers, and then continue to increment normally regardless of the reader code. The second LTC output normally follows the primary output, however 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 colour 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

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

Connector: 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

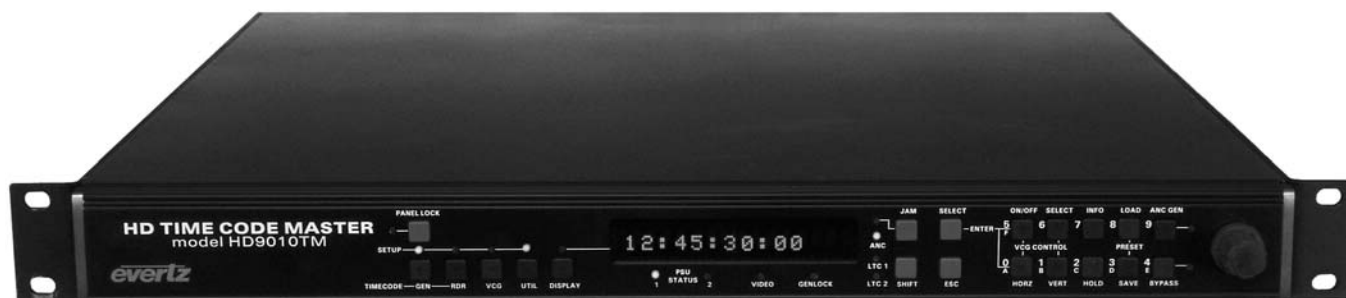
Ordering Options:

+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.

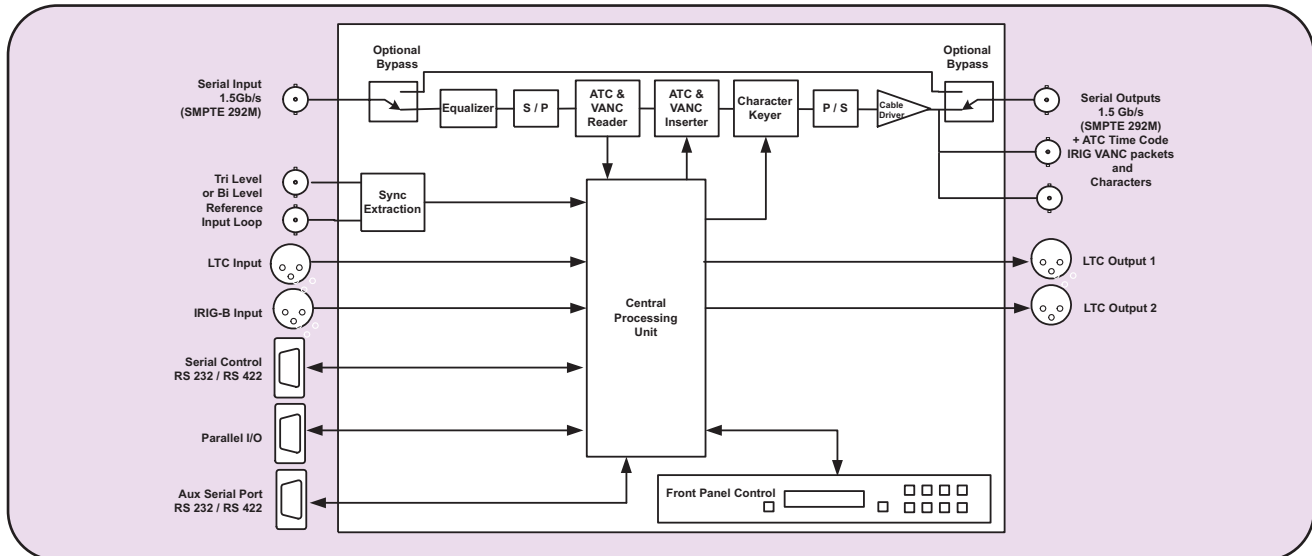
The high-resolution character inserter provides independently positionable windows to show time and user bits for the SMPTE generator and readers simultaneously. When the IRIG or VANC readers are operating in the IRIG DAY mode, there are two independently positionable windows for each reader to show 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 \leftrightarrow LTC translator
- Genlocks to NTSC/PAL colour 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 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

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 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 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

evertz

PROFESSIONAL

SHOW

ASSCON

Professional Show s.p.a.

Sede Centrale : Via Praimbole 15 - 35010 Limena (PD)

Sede di Roma : Via Monte Pertica 32 - 00100 Roma

Sede di Milano : Via Santa Maria 83 - 20093 Cologno Monzese (MI)

Sede di Trento : Via Brennero 165/13 - 38100 Trento)

Tel: +390498657111

Tel: +390637513188

Tel: +390225397214

Tel: +390461422133