The 7700R2x2-HD series modules are bypass routers for 1.5 Gb/s HDTV or standard definition 270 Mb/s serial digital video signals. There are three distinct models in the series offering a cost effective solution for your specific requirements. The 7700R2x2-HD series modules accept all the popular international SMPTE 292M video formats as well as 525 and 625 line SMPTE 259M-C video formats.

These 7700 series modules provide 3 reclocked primary outputs and 1 reclocked backup output. The program output is bypass relay protected and provides protection on the program path. If module is removed from enclosure the program path is maintained. The 7700RD2x2-HD model also provides monitoring downconverted outputs for HD signals and pass-through reclocked outputs for SDI signals.

The 7700R2x2-HES-HD has all the features of the 7700R2x2-HD and is also equipped with SoftSwitchÔ, which provides clean video and "popless" embedded audio switching. The video output has adjustable vertical timing with respect to the genlock input. The line synchronizers on the video inputs can accommodate differences in timing of up to +/- ½ line providing clean video switches on the video outputs. The embedded audio uses Evertz' patent pending SoftSwitchÔ technology to eliminate audio pops when switches are performed on synchronous audio sources.

The two inputs are being monitored at all times for a variety of error conditions and status
- Video loss or invalid at input (proper EAV/SAV structure and timing)
- Status of embedded audio
- Status of router selection

Status is provided using a number of methods.
- Card edge 4 character alphanumeric display
- Card edge LED status for router state, signal presence, etc.
- Tally output on GPI's for router state
- SNMP reporting and monitoring via VistaLINK® PRO or any SNMP compliant manager

Output selection and control of the selector can be achieved a number of methods.
- Contact closures (GPI control),
- Card edge control
- Via network control panels (9000NCP, 9000NCP2),
- VistaLINK® provides a software GUI interface for control and monitoring of the device. VistaLINK® can be used to manual control the switch or be configured to trigger a change based on specific errors and thresholds.

VistaLINK® enables remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This
offers the flexibility to manage operations including signal monitoring and module configuration from SNMP enabled control systems (Manager or NMS) locally or remotely.

An advanced monitoring and status option is available. This option allows for thumbnail viewing of the inputs remotely. Thumbnails are streamed over TCP/IP and viewed with the VistaLINK® suite of software. This option also provides advanced monitoring for several video and audio error conditions. Provisions for durations and thresholds are provided for all the monitored parameters.

The 7700R2x2-HD and 7700R2x2-HES-HD occupies one card slot and can be housed in the 3 RU frame, which will hold up to 15 single slot modules, or one the 1RU frame, which will hold up to three modules. The 7700RD2x2-HD occupies two card slots in the 3 RU frame or 1 slot in the 1RU frame.

Features:
- Serial digital 1.5 Gb/s HD input per SMPTE 292M (1080i/59.94, 1080i/50, 720p/59.94, 720p/50) or 270 Mb/s SDI input per SMPTE 259M-C (525i/59.94 or 625i/50) - auto senses HD or SD inputs
- 3 Reclocked program outputs, 1 reclocked preview on primary (HD if HD inputs applied, SD if SD inputs applied)
- Bypass relay protection on program output
- Switch point is controllable when a genlock reference is provided.
- GPI control inputs
- GPI selector status outputs
- Card edge menu used to configure the operating modes
- Card Edge LEDs for signal presence, router state, module status
- VistaLINK® capablie offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK® is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame using the model 9000NCP Network Control Panel or Evertz VistaLINK® PRO or other third party SNMP manager software.

Additional features on 7700RD2x2-HD model only
- 1 program and one preview monitor SDI output (downconverted from HD if HD input applied), (reclocked SD if SD input applied)
- Supports 16:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze aspect ratio conversions.
- HD to SD colour space conversion (ITU rec. 709 to ITU rec. 601)

Additional features on 7700R2x2-HES-HD model only
- Supports up to 16 channels of embedded audio
- SoftSwitchÔ technology provides clean video and "popless" embedded audio switching
- Configurable group selection for SoftSwitchÔ
- Dolby E compliant.
- VistaLINK® provides a software GUI interface for control and monitoring of the device. VistaLINK® can be used to manual control the switch or be configured to trigger a change based on specific errors and thresholds.

VistaLINK® enables remote monitoring, control and configuration capabilities via Simple Network Management Protocol (SNMP). This
offers the flexibility to manage operations including signal monitoring and module configuration from SNMP enabled control systems (Manager or NMS) locally or remotely.

An advanced monitoring and status option is available. This option allows for thumbnail viewing of the inputs remotely. Thumbnails are streamed over TCP/IP and viewed with the VistaLINK® suite of software. This option also provides advanced monitoring for several video and audio error conditions. Provisions for durations and thresholds are provided for all the monitored parameters.

The 7700R2x2-HD and 7700R2x2-HES-HD occupies one card slot and can be housed in the 3 RU frame, which will hold up to 15 single slot modules, or one the 1RU frame, which will hold up to three modules. The 7700RD2x2-HD occupies two card slots in the 3 RU frame or 1 slot in the 1RU frame.

Features:
- Serial digital 1.5 Gb/s HD input per SMPTE 292M (1080i/59.94, 1080i/50, 720p/59.94, 720p/50) or 270 Mb/s SDI input per SMPTE 259M-C (525i/59.94 or 625i/50) - auto senses HD or SD inputs
- 3 Reclocked program outputs, 1 reclocked preview on primary (HD if HD inputs applied, SD if SD inputs applied)
- Bypass relay protection on program output
- Switch point is controllable when a genlock reference is provided.
- GPI control inputs
- GPI selector status outputs
- Card edge menu used to configure the operating modes
- Card Edge LEDs for signal presence, router state, module status
- VistaLINK® capablie offering remote monitoring, control and configuration capabilities via SNMP. VistaLINK® is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame using the model 9000NCP Network Control Panel or Evertz VistaLINK® PRO or other third party SNMP manager software.

Additional features on 7700RD2x2-HD model only
- 1 program and one preview monitor SDI output (downconverted from HD if HD input applied), (reclocked SD if SD input applied)
- Supports 16:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze aspect ratio conversions.
- HD to SD colour space conversion (ITU rec. 709 to ITU rec. 601)

Additional features on 7700R2x2-HES-HD model only
- Supports up to 16 channels of embedded audio
- SoftSwitchÔ technology provides clean video and "popless" embedded audio switching
- Configurable group selection for SoftSwitchÔ
- Dolby E compliant.

7700R2x2-HD, 7700R2x2-HES-HD & 7700RD2x2-HD Router Block Diagram
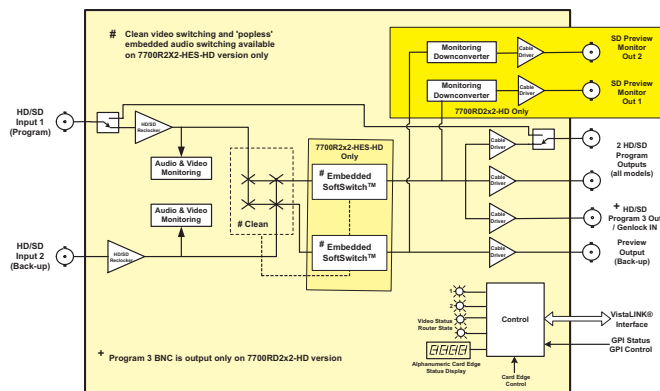
Specifications

Serial Video Input:
Standard: Auto-detects standard
1.485 Gb/sec SMPTE 292M (1080i/59.94, 1080i/50, 720p/59.94, 720p/50) SMPTE 260M, SMPTE 274M, SMPTE 296M, SMPTE 349M (HD or SD carrier)
270 Mb/s SMPTE 259M-C (525i/59.94 or 625i/50)
Connector: 2 BNC per IEC 60169-8 Amendment 2.
Input Equalization: Automatic to 100m @ 1.5Gb/s with Belden 1694 or equivalent cable.
Return Loss: >20 dB up to 270 MHz
>12 dB up to 1.5GHz

Reclocked Serial Video Router Outputs:
Standard: Same as input
Number of Outputs: 3 Program outputs reclocked, (1 output is bypass relay protected)
1 preview output
Connector: BNC per IEC 60169-8 Amendment 2
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 200ps nominal for HD
900ps nominal for SD
Overshoot:: <10% of amplitude
Return Loss: >20 dB up to 270 MHz
> 15 dB at 1.5 Gb/s
Jitter: < 0.16UI (HD) or < 0.10UI (SD)

Downconverted Serial Video Outputs (7700RD2x2-HD-only):
Standard: SMPTE 259M-C (270 Mb/s)
Number of Outputs: 1 Program 1 preview
Connector: BNC per IEC 60169-8 Amendment 2.
Signal Level: 800mV nominal
DC Offset: 0V ±0.5V
Rise and Fall Time: 750ps nominal
Overshoot: <10% of amplitude
Return Loss: > 15 dB at 270 Mb/s
Jitter: < 0.2 UI

Genlock Input:
Type: NTSC or PAL Colour Black 1 V p-p
HD Tri-level Sync
Connector: BNC per IEC 60169-8 Amendment 2
Termination: High impedance or internal 75 ohm termination (jumper selectable)

GPIO Control Port:
Number of Inputs: 2
Number of Outputs: 2
Type: Opto-isolated, active low with internal pull-ups to +5 or +12V (jumper settable)

Connector: 6 pins removable terminal block
Signal Level: closure to ground

Input to Output Processing Delay (HD input video on (7700RD2x2-HD only):
Downconverter Video Delay:
Approximately 1 to 2 frames depending on input video format, processing mode.

Electrical:
Voltage: +12VDC
Power:
7700R2x2-HD 10 Watts.
7700R2x2-HES-HD 10 Watts.
7700RD2x2-HD 14 Watts.
EMI/RFI: Complies with FCC regulations for class A devices.
Complies with EU EMC directive.

Physical:
Number of slots
7700 frame mounting:
7700R2x2-HD 1
7700R2x2-HES-HD 1
7700RD2x2-HD 2

7701 frame mounting:
All versions: 1

Ordering Information:
7700R2x2-HD	2x2 HD/SD Router
7700R2x2-HES-HD	2x2 HD/SD Router with SoftSwitch™
7700RD2x2-HD	2x2 HD/SD Router with dual HD Downconverter

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

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

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