7700R2x2-HD, 7700R2x2-HES, 7700RD2x2-HD

2x2 HD/SD-SDI and ASI TS Modular Bypass Protection Routers

The 7700R2x2 series modules are bypass protection routers for high definition 1.5Gb/s or standard definition 270Mb/s serial digital video signals. These modules have two SD/HD compatible inputs signals (program and back-up) that support all popular SMPTE 292M video formats as well as 525/625 line SMPTE 259M-C video formats. These modules also provide three re-clocked primary outputs, and one re-clocked backup output. Based on a programmable set of input signal monitors, the main program or the back-up input signals can be automatically routed to the primary program outputs to ensure the delivery of a valid program output in the case of an input signal fault. Switching can also be controlled and monitored through the use of module GPIOs, card edge controls or remotely using either network control panels (9000NCP, 9000NCP2) or VistaLINK® PRO. The program output is bypass relay protected and provides protection on the program path. If the module is removed from the enclosure or power to the module is lost, the program path is maintained.

The 7700R2X2-HES incorporates Evertz® proprietary SoftSwitch™ technology with full audio proc for clean video and "popless" embedded audio switching. Line synchronizers on the video inputs can accommodate differences in timing of up to ±1/2 a line on the video inputs. The 7700RD2X2-HD provides two monitoring down-converted outputs.

The 7700R2X2-HD and 7700R2X2-HES occupy one card slot and can be housed in a 1RU frame which will hold up to 3 modules, a 3RU frame which will hold up to 15 modules, a 350FR portable frame which will hold up to 7 modules or a standalone enclosure that will hold 1 module.

The 7700R2x2-HD provides additional MPEG-2 feed redundancy switching. By providing automatic smart switching of the main signal to a back up signal, the 7700R2x2-HD offers protection to digital compressed signals. The user can customize all monitored and switching rules to meet Broadcast, Cable, Satellite and IPTV needs.

The 7700R2x2-HD Supports:
- HD/SD-SDI and ASI TS Monitoring with Smart Switch Protection

The 7700R2x2-HES Supports:
- HD/SD-SDI Monitoring with Smart Switch Protection and Embedded Clean Switch

Features & Benefits

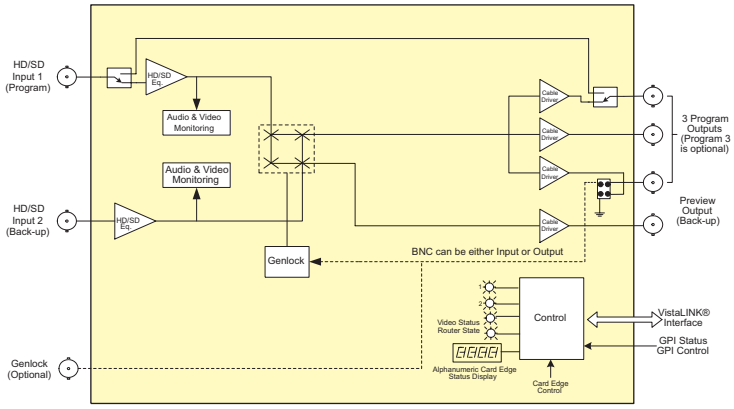
- Support for HD and SD SDI inputs per SMPTE 292M and SMPTE 259M-C
- Auto sensing of HD and SD input formats
- Supports both 525i/59.94 or 625i/50 SD video formats
- Automatic change-over based on programmable input signal monitors
- Generation of three re-clocked program outputs and one preview output (HD if HD inputs are applied, SD if SD inputs are applied)
- GPI control inputs for manual routing control
- GPO status outputs for reporting selector cross-point status
- Card edge menu control for configuration of operating modes
- Card edge LEDs for reporting signal presence, router state, module status
- Remote monitoring through NCP panels or VistaLINK® PRO
- Bypass relay protection on program output
- Controllable switch point when a Genlock reference is provided

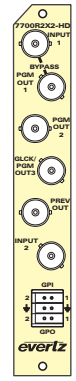
Additional features on 7700RD2X2-HD model only
- Program and preview monitoring SDI outputs (down-converted from HD if HD input applied, reclocked SD if SD input applied)
- Support for 16:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze aspect ratio conversions
- HD to SD color space conversion (ITU rec. 709 to ITU rec. 601)

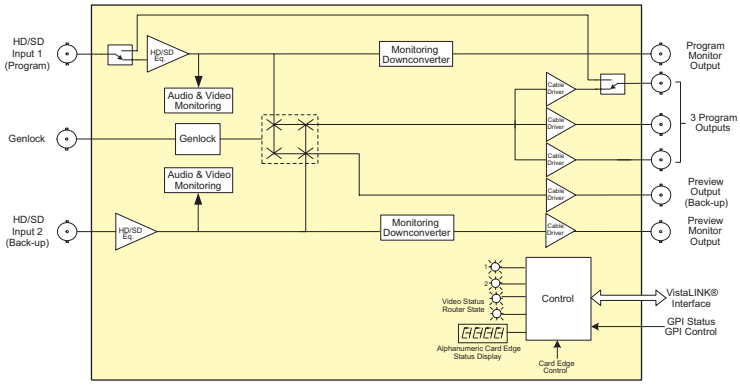
Additional features on 7700R2X2-HES model only
- Integrated SoftSwitch™ technology for clean video and "popless" embedded audio switching
- Dolby-E™ compliant
- VistaLINK® -capable for offering remote monitoring, control, and configuration via SNMP

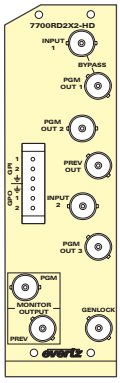
Additional Features on the 7700R2x2-HD only
- TR101290 monitoring bitrate measurement and component matching test on all inputs
- Smart configuration of error threshold and switching rules to avoid false switching
- Complete TS data rate measurement with user settable measurement windows
- Essential TS Monitoring including:
  - TS Loss
  - Sync Byte Error
  - Bitrate Analysis
  - PIDs List Monitoring
  - Continuity Count
  - PAT Monitoring

Note: 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.



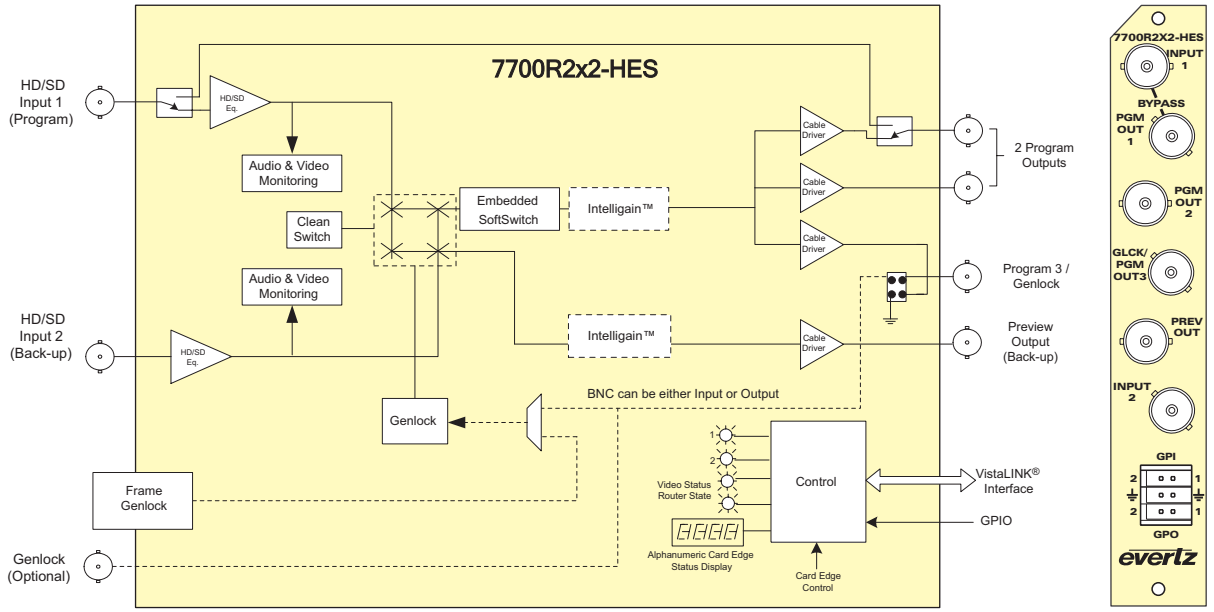






7700R2x2-HD, 7700R2x2-HES, 7700RD2x2-HD

2x2 HD/SD-SDI and ASI TS Modular Bypass Protection Routers



Specifications

Serial Video Input:

Standard:	Auto-detects standard 1.485Gb/s SMPTE 292M (1080i/59.94, 1080i/50, 720p/59.94, 720p/50) SMPTE 260M, SMPTE 274M, SMPTE 296M, SMPTE 349M (HD or SD carrier) 270Mb/s SMPTE 259M-C (525i/59.94 or 625i/50)
Connector:	2 BNC per IEC 61169-8 Annex A
Input Equalization:	Automatic to 100m @ 1.5Gb/s with Belden 1694A or equivalent cable
Return Loss:	> 20dB up to 270MHz > 12dB 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 61169-8 Annex A
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:	> 20dB up to 270MHz > 15dB at 1.5Gb/s
Jitter:	< 0.16 UI (HD) or < 0.10 UI (SD)

Downconverted Serial Video Outputs (7700RD2x2-HD only):

Standard:	SMPTE 259M-C, 270Mb/s
Number of Outputs:	1 Program 1 preview
Connector:	BNC per IEC 61169-8 Annex A
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	750ps nominal
Overshoot:	< 10% of amplitude
Return Loss:	> 15dB at 270Mb/s
Jitter:	< 0.2 UI

Genlock Input:

Type:	NTSC or PAL Color Black 1V p-p HD Tri-level Sync
Connector:	BNC per IEC 61169-8 Annex A
Termination:	High impedance or internal 75Ω (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-pin 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:	+12V DC
Power:	
7700R2x2-HD:	10W
7700R2x2-HES:	10W
7700RD2x2-HD:	14W
EMI/RFI:	Complies with FCC regulations for class A devices Complies with EU EMC directive

Physical (number of slots):

:350FR, 7700FR-C, 7800FR:

7700R2x2-HD:	1
7700R2x2-HES:	1
7700RD2x2-HD:	2

Ordering Information

7700R2x2-HD	2x2 HD/SD Modular Bypass Protection Router
7700R2x2-HES	2x2 HD/SD Modular Bypass Protection Router with SoftSwitch™
7700RD2x2-HD	2x2 HD/SD Modular Bypass Protection Router with dual HD Downconverter

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

+IG Integrated IntelliGain™ Audio and Loudness Processor (on 7700R2x2-HES only)

Rear Plate Suffix

+3RU	3RU Rear Plate for use with 350FR & 7700FR-C Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Enclosures

350FR	3RU Portable Multiframe which holds up to 7 single slot modules
7700FR-C	3RU Multiframe which holds up to 15 single slot modules
7800FR	3RU Multiframe which holds up to 15 single slot modules
7701FR	1RU Multiframe which holds up to 3 single or dual slot modules
S7701FR	Standalone Enclosure