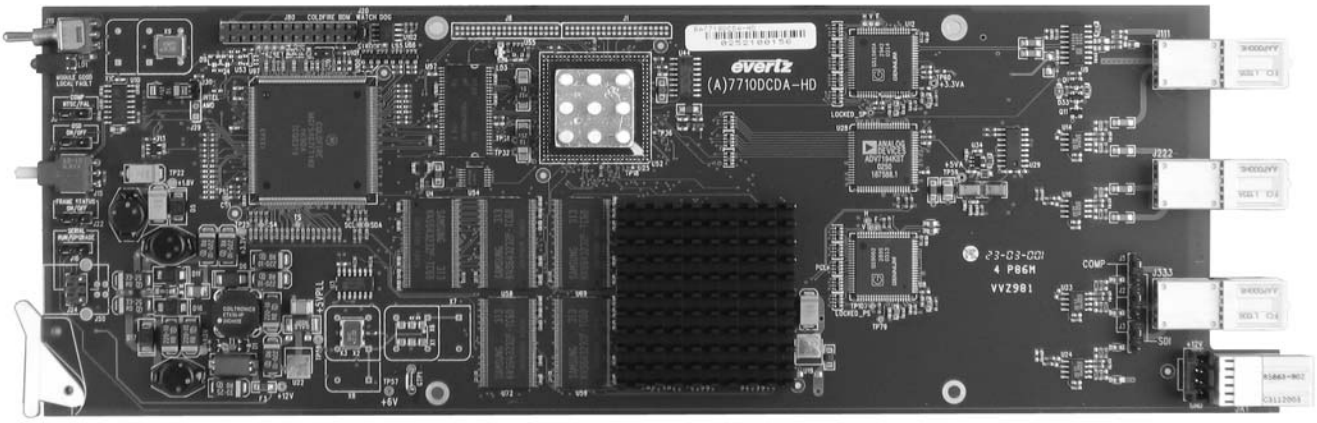
HD Downconverter & Distribution Amplifier

Model 7710DCDA-HD



The 7710DCDA-HD is a reclocking high definition serial digital video distribution amplifier and a high quality downconverter for 1.5 Gb/s HDTV signals. It can also function as a monitoring distribution amplifier for standard definition 270 Mb/s signals. The 7710DCDA-HD provides 4 reclocked DA outputs and 3 downconverted SDI or composite analog NTSC/PAL outputs (selectable). The 7710DCDA-HD accepts all the popular international SMPTE 292M video formats. When the 7710DCDA-HD down converts 1080p/23.98sF input video to 525i/59.94 with a 3:2 pulldown, the 3:2 pulldown cadence can be free running or locked to embedded RP188 time code.

The 7710DCDA-HD has color space conversion from ITU rec. 709 to ITU rec. 601, and will provide various down converted formats such as 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze. Full 10 bit processing is provided throughout the signal path to achieve excellent downconversion quality. The module allows for selectable horizontal and vertical filters to control picture sharpness. It also de-embeds two groups of audio and re-embeds the audio on the SDI output in time with the video. All parameters may be controlled by use of the on screen display menu.

The 7710DCDA-HD has a closed caption monitoring capability that decodes EIA-608 or EIA-708 captions that have been encoded into the VANC data space of an HD video input, or EIA-608 captions from a SD video input.

The 7710DCDA-HD provides card edge LEDs to indicate signal present and audio groups present. The 7710DCDA-HD occupies one card slot in the 3RU frame, which will hold up to 15 modules or the 1RU frame, which will hold up to three modules.

Features

- Serial digital 1.5 Gb/s HD input per SMPTE 292M
- Supports most international standards including 1080i/60, 1080i/59.94, 1080i/50, 1080p/24, 1080p/23.98, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94, 480p/60, and 480p/59.94
- Will also accept 270 Mb/s SD input SDI per SMPTE 259M in a pass through mode - auto senses HD or SD inputs
- 4 Reclocked DA outputs (HD if HD inputs applied, SD if SD inputs applied)
- 3 Selectable SDI or Composite Outputs (downconverted from HD if HD input applied), (from reclocked SD if SD input applied)
- High quality HD -> SD down conversion
- Supports 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze aspect ratio conversions
- 1080p/23.98sF conversion to 525i/59.94 with 3:2 pulldown sequence
- HD to SD colour space conversion (ITU rec. 709 to ITU rec. 601)
- On screen display used to configure the operating modes
- De-embeds Audio from HD video and embeds into standard definition SDI video (2 groups)
- Moves ANC data (e.g. captioning, timecode) from HD video to standard definition SDI video
- Decodes and displays EIA-608 or EIA-708 captions from incoming video
- On Screen aspect ratio marker
- Card Edge LEDs for signal presence, equalization warning, audio groups present, module status
- VistaLINK™ -enabled offering remote control and configuration capabilities via SNMP (using VistaLINK™ PRO, 9000NCP or 9000NCP2 Network Control Panel) is available when modules are used with the 3RU 7700FR-C frame and a 7700FC VistaLINK™ Frame Controller

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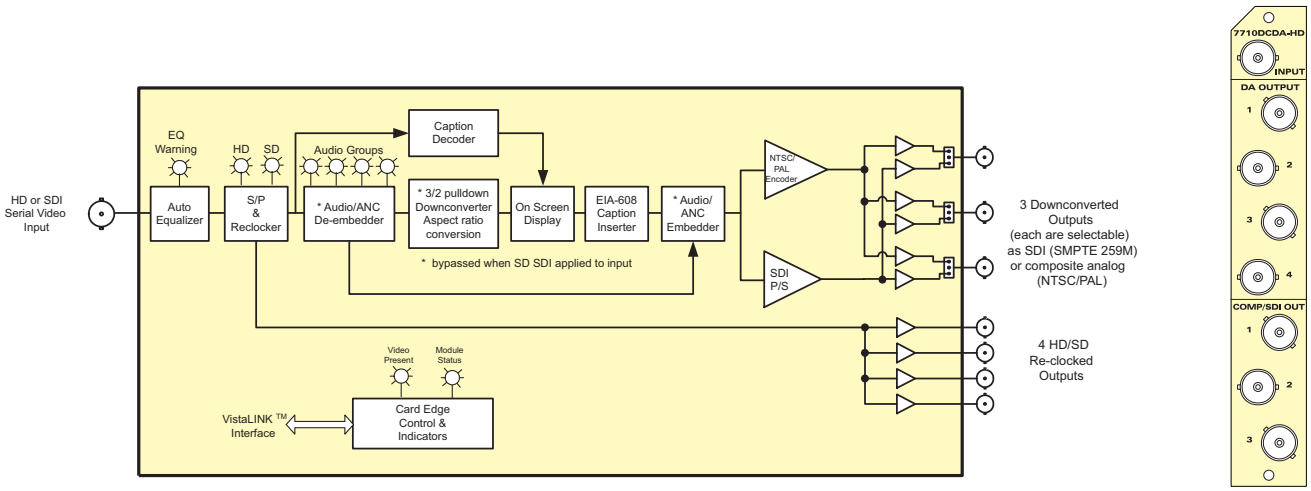
7710DCDA-HD Block Diagram



Specifications

Serial Video Input:

Standard:	SMPTE 259M - Pass through mode SMPTE 292M (1.5 Gb/s), SMPTE 260M, SMPTE 274M, SMPTE 296M, SMPTE 349M 1080i/60, 1080i/50, 1080p/30sF, 1080p/25sF, 1080p/24sF, 1035i/60, 720p/60, 480p/60 and the 1/1.001 divisor versions where applicable software selectable or autodetect
Connector:	BNC per IEC 60169-8 Amendment 2
Input Equalization:	Automatic to 100m @ 1.5Gb/s with Belden 1694 or equivalent cable.
Return Loss:	>15 dB up to 1.5GHz

Reclocked Serial Video DA Outputs:

Standard:	Same as input (SMPTE 259M or SMPTE 292M)
Number of Outputs:	4 Per Card reclocked
Connector:	BNC per IEC 60169-8 Amendment 2
Signal Level:	800mV nominal
DC Offset:	0V ±0.5V
Rise and Fall Time:	200ps nominal for HD 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 ±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 ±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

Rear Plate Suffix

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

Accessories:

7700FC	VistaLINK™ Frame Controller
9000NCP	1RU VistaLINK™ General Purpose Network Control Panel
9000NCP2	2RU VistaLINK™ General Purpose Network Control Panel

Enclosures:

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