

7710DCDA-HD

HD Down Converter & Distribution Amplifier



The 7710DCDA-HD is a reclocking high definition serial digital video distribution amplifier and a high quality downconverter for 1.5Gb/s HDTV signals. It can also function as a monitoring distribution amplifier for standard definition 270Mb/s signals. It provides 4 reclocked DA outputs and 3 downconverted SDI or composite analog NTSC/PAL outputs (selectable). It accepts all the popular international SMPTE 292M video formats. When the 7710DCDA-HD downconverts 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 SMPTE 12M-2 time code.

The 7710DCDA-HD has color space conversion from ITU rec. 709 to ITU rec. 601, and will provide various downconverted formats such as 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze. It supports Wide Screen Signaling (WSS) on the output to handle various aspect ratios of program material.

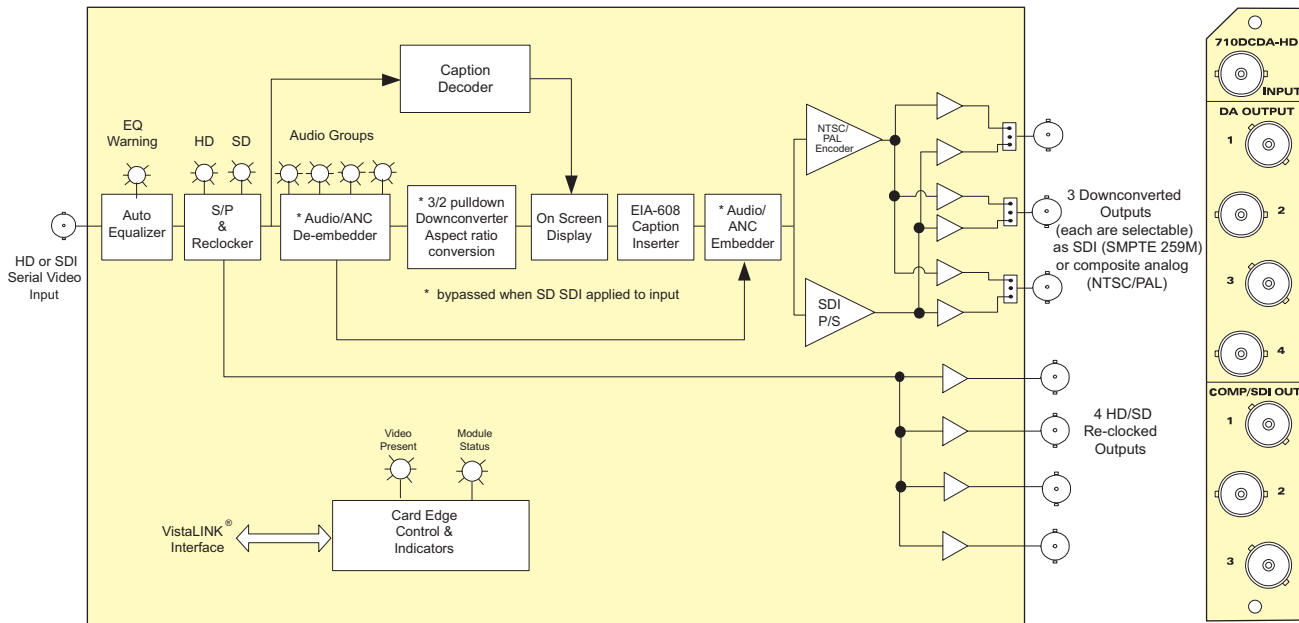
Full 10-bit processing is provided throughout the signal path to achieve excellent downconversion quality. The module allows for selectable horizontal and vertical filters to control picture sharpness. It also de-embeds two groups of audio, and re-embeds the audio on the SDI output in time with the video. All parameters may be controlled by use of the on-screen display menu.

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

►Features & Benefits

- Serial digital 1.5Gb/s HD input per SMPTE 292M
- Supports most international standards including 1080i/60, 1080i/59.94, 1080i/50, 1080p/24, 1080p/23.98, 1080p/24sF, 1080p/23.98sF, 720p/60, 720p/59.94, 480p/60, and 480p/59.94
- Will also accept 270Mb/s SD input 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 downconversion
- 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 color 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 CEA-608 or CEA-708 captions from incoming video
- On-screen aspect ratio marker
- Support for Wide Screen Signaling (WSS) on output
- Card Edge LEDs for signal presence, equalization warning, audio groups present, module status
- VistaLINK® capable for remote monitoring, control and configuration capabilities via SNMP; using VistaLINK® PRO, CP-2116E or CP-2232E Control Panels. VistaLINK® is available when modules are used with the 3RU 7800FR frame and a 7700FC VistaLINK® Frame Controller module in slot 1 of the frame



The Complete Solution Provider





► Specifications

Serial Video Input:

Standard:	SMPTE 259M - Pass-through mode SMPTE 292M (1.5Gb/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 61169-8 Annex A
Input Equalization:	Automatic to 100m @ 1.5Gb/s with Belden 1694A or equivalent cable
Return Loss:	> 15dB up to 1.5GHz

Reclocked Serial Video DA Outputs:

Standard:	Same as input (SMPTE 259M or SMPTE 292M)
Number of Outputs:	4 per card relocked
Connector:	BNC per IEC 61169-8 Annex A
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:	> 15dB up to 1.0GHz > 10dB up to 1.5GHz
Jitter:	< 0.2 UI

Downconverted Serial Video Outputs:

Standard:	SMPTE 259M-C (270Mb/s)
Number of Outputs:	Up to 3 per card (jumper selectable)
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

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 61169-8 Annex A
Signal Level:	1V p-p nominal
DC Offset:	0V ±0.1V
Return Loss:	> 35dB up to 5MHz
Frequency Response:	0.2dB to 4MHz
Differential Phase:	< 0.5° (< 0.3° typical)
Differential Gain:	< 0.8% (< 0.5% typical)
SNR:	> 78dB to 5MHz (shallow ramp)
Impedance:	75Ω

Input to Output Processing Delay:

Video Delay:	Just less than 1 to 2 frames depending on input video format, processing mode and phase setting, 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:	+12V DC
Power:	10W
EMI/RFI:	Complies with FCC Part 15, Class A EU EMC Directive

Physical (number of slots):

350FR:	1
7700FR-C:	1
7800FR:	1

► Ordering Information

7710DCDA-HD	HD downconverter and Distribution Amplifier (4 HD relocked 1.5Gb/s, selectable 3 SD-SDI outputs or 3 composite analog outputs)
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Ordering Options	Rear Plate must be specified at time of order Eg: Model +3RU
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Rear Plate Suffix

+3RU	3RU Rear Plate for use with 350FR, 7700FR-C or 7800FR Multiframe
+1RU	1RU Rear Plate for use with 7701FR Multiframe
+SA	Standalone Enclosure Rear Plate

Accessories

7700FC	VistaLINK® Frame Controller
CP-2116E-H	Remote Control Panel
CP-2232E	Remote Control Panel

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
7801FR	1RU Multiframe which holds up to 4 single or 2 dual slot modules
7701FR	1RU Multiframe which holds up to 3 single or dual slot modules
S7701FR	Standalone enclosure