7713HDC

Downconverter & Distribution Amplifier

The 7713HDC is a reclocking high definition serial digital video distribution amplifier and high quality downconverter for 1.5Gb/s HDTV signals. It incorporates Evertz® proprietary detail enhancement algorithms and gamma correction. It can also function as a monitoring distribution amplifier for standard definition 270Mb/s signals. The 7713HDC provides 4 reclocked DA outputs and 3 downconverted SDI or composite analog NTSC/PAL outputs (selectable).

The 7713HDC accepts all the popular international SMPTE 292M video formats. When the 7713HDC downconverts 1080p/23.98sF input video to 525i/59.94 with an embedded 3:2 pulldown sequence, the 3:2 pulldown cadence can be free running or locked to embedded SMPTE 12M-2 time code or an external 6Hz input.

The 7713HDC also de-embeds two groups of audio and re-embeds the audio on the SDI output in time with the video. It can also reassign audio channels within the groups. All parameters may be controlled by use of the on-screen display menu or through VistaLINK® PRO. The re-embedded audio 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. An additional audio delay adjustment can also be made for lip sync correction.

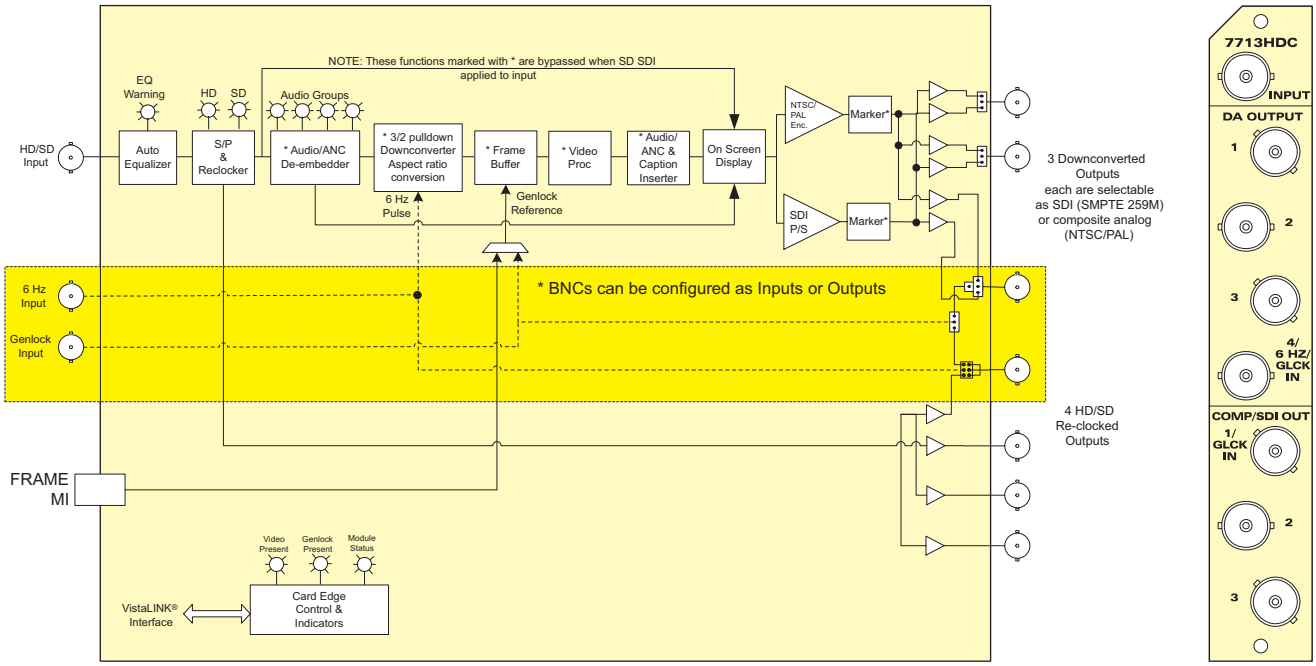
The 7713HDC has color space conversion from ITU rec. 709 to ITU rec. 601, and will provide various downconverted formats such as 16:9 letterbox, 14:9 letterbox, 13:9 letterbox, 4:3 center crop, and 4:3 anamorphic squeeze. The 7713HDC supports Wide Screen Signaling (WSS) on the output to handle various aspect ratios of program material. It also provides on-screen 4:3 aspect ratio markers (or indicators).

The module also transfers the closed caption and timecode information from input to output performing all necessary HD to SD translation and time code recalculations.

The 7713HDC provides card edge LEDs to indicate signal present and audio groups present. The 7713HDC 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

- High quality HD ⇨ SD down conversions
- Evertz® proprietary detail enhancement algorithms
- Supports standard aspect ratio conversions plus user-defined modes
- 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, 720p/50, 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 input
- Supports all necessary color space conversions (ITU rec. 601 to ITU rec.709)
- Full video processing functions gamma correction, GBR gain YCrCb gain and offset, hue adjustment and RGB color limiter
- Reference input from card or 7800FR frame reference allows for phasing of output video
- Line buffer on input to allow clean switching between genlocked video sources that have a phase offset of ±1/4 line
- 1080p/23.98sF conversion to 525i/59.94 with 3:2 pulldown sequence - time code or 6Hz reference
- Output on-screen display used to configure the operating modes
- On-screen 4:3 aspect ratio marker
- De-embeds audio from HD video input and embeds into SD video output (2 groups)
- Moves SMPTE 12M-2 timecode from HD input to SD output, recalculated for frame rate change
- Support for widescreen signalling (WSS) on output
- Card Edge LEDs for signal presence, genlock presence, equalization warning, audio groups present and module status
- VistaLINK® -capable 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 7800FR frame and a 7700FC VistaLINK® Frame Controller



The Complete Solution Provider

Specifications

Serial Video Input:

Standard:	SMPTE 259M (270Mb/s) - pass through mode SMPTE 292M (1.485Gb/s) - auto-detects standard SMPTE 260M, SMPTE 274M, SMPTE 296M, SMPTE 349M
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
Number of Outputs:	4 reclocked
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 at 1.5Gb/s
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
Freq. 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

Genlock Input:

Type:	NTSC or PAL Color Black 1V p-p
Connector:	BNC per IEC 61169-8 Annex A or Frame Genlock on 7700FR-G frames (selectable)
Termination:	High impedance or internal 75Ω termination (jumper selectable)

6HZ Input:

Type:	TTL level active high pulse 1/30 second wide
Connector:	BNC per IEC 61169-8 Annex A
Termination:	500Ω (jumper selectable)

Input to Output Processing Delay (HD Input Video):

Video Delay:	Approximately 1 to 2 frames depending on input video format, processing mode and phase setting
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

7713HDC	High Quality Downconverter with Image Enhancement

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 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
9000NCP	1RU VistaLINK® General Purpose Network Control Panel
9000NCP2	2RU VistaLINK® General Purpose Network 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
7701FR	1RU Multiframe which holds up to 3 single or dual slot modules
S7701FR	Standalone enclosure