Grass Valley®
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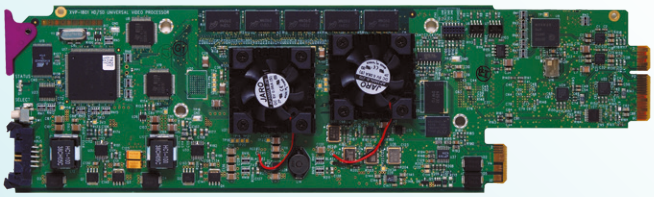
DATASHEET

XVP-1801-UC
HD Upconverter/ Frame Sync/ARC



Space-saving, modular platform for advanced signal processing.

The Densité® Series XVP-1801-UC from Grass Valley® provides high-quality upconversion and frame synchronization. It offers many advanced features, including AFD support and background keying, with optional 16 channel embedded audio processing. The superior conversion quality of the XVP at both 50 and 59.94 Hz stems from multiple technologies, including advanced motion adaptive de-interlacing and anti-ringing.

To ensure that upconverted television is presented in the correct aspect ratio when aired, the XVP module supports AFD (Active Format Description) SMPTE ST 2016. This provides automatic aspect ratio control using embedded control commands, and this prevents on-air aspect ratio errors such as the postage stamp effect. The ARC function offers fixed presets as well as variable user configurable aspect ratios.

In addition to AFD, the XVP also supports VLI (Video Line Index) RP-186 and WSS, which allows the card to adjust its ARC automatically without any external intervention. The module re-inserts the correct AFD, VLI or WSS on the output, along with other HANC and VANC information. With the integration of a frame sync, incoming feed signals can be synched to house, and video/audio levels adjusted using a proc and color correction, when entering the facility.

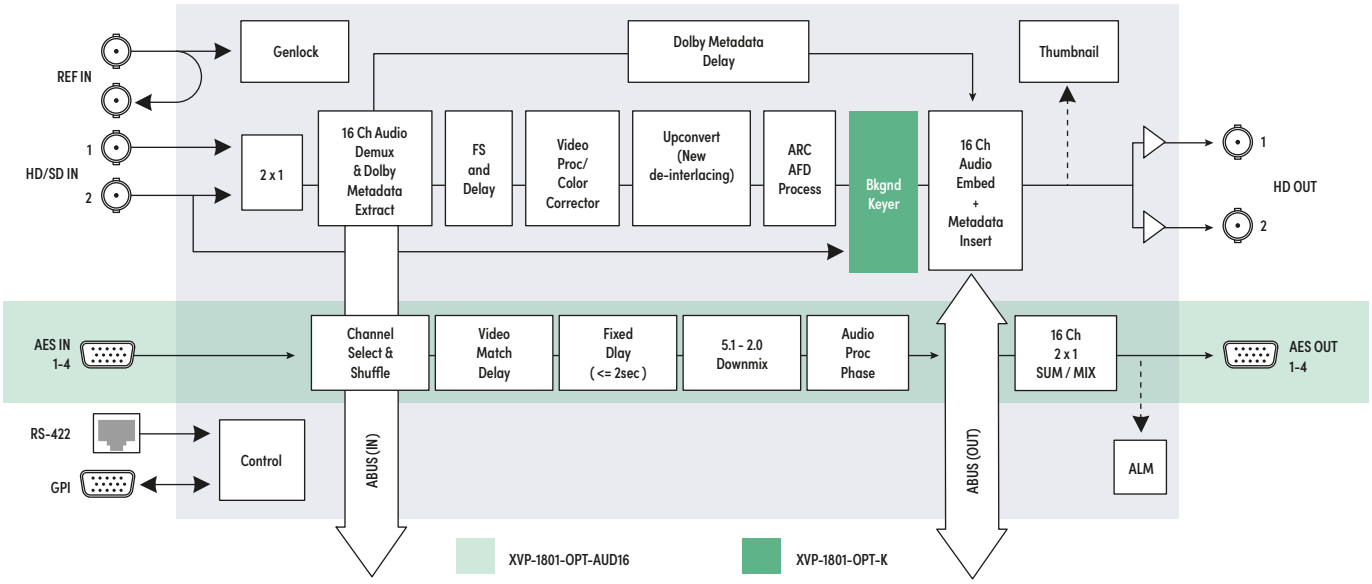
An RS-232/422 port is provided for automation control of ARC presets, and GPIs are also available for user presets.

To further improve on-air presentation, the XVP offers a background keying capability which allows side panels, introduced by upconversion, to be filled with video or graphics.

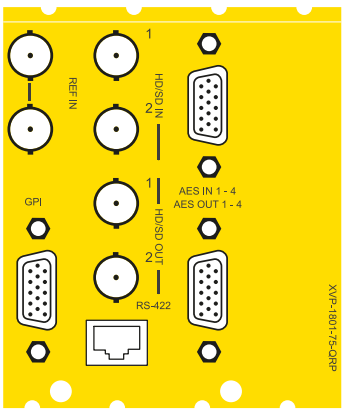
The XVP-1801-UC will pass and delay automatically all 16 channels (four groups) of embedded audio to keep lip sync. Full audio processing, shuffling, downmixing and four AES in and four AES out channels, are available as an option. A higher level of audio capabilities are provided by a range of audio processor companion cards. When connected to a DAP-1781, UAP-1783 or an AAP-1741, the XVP-1801 gains additional AES or analog audio channels while still maintaining lip sync. Depending on the audio processor selected, these boards also offer Dolby E or Dolby Digital (AC-3) for encoding or decoding, upmixing from 2.0 to 5.1, and full dynamic processing (limiter, compressor and expander).

Key Features

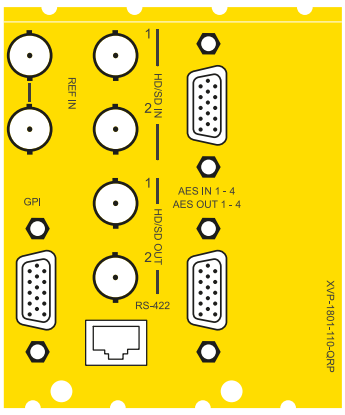
- Upconverter with frame sync
- Advanced adaptive video de-interlacing for higher image quality
- Automatic detection of film sequences
- Automatic ARC, using AFD (SMPTE ST 2016), VLI (RP-186) and WSS detection and correct re-insertion with the output
- Custom and fixed ARC presets
- Background keying capability during up or down conversion which allows side panels or letterbox black bars to be filled with video or graphics
- Built-in proc amp, color correction and legalizer
- Processes and converts ancillary data such as CC (608/708) and timecode
- Perfect audio/video synchronization plus additional audio fixed delay of up to 2 seconds
- Optional 16 channels of embedded full audio processing, shuffling and downmixing
- Optional 4 AES inputs and 4 AES outputs
- Dolby E compatible
- Audio metadata processing (SMPTE ST 2020-A)
- Compatible with Grass Valley audio processing cards, including the UAP-1783, AAP-174 and DAP-1781
- Multiple presets for save and recall
- RS-422 Protocol and GPI ports for automation or external device control
- Thumbnail and ALM streaming over IP
- Can be upgraded in the field to the full XVP-1801 up/down/crossconverter specification



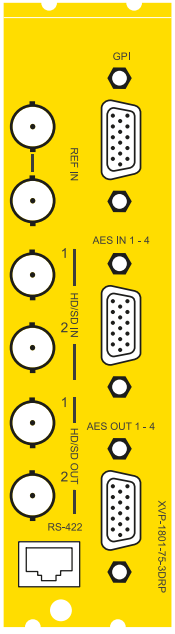
XVP-1801-UC HD Upconverter



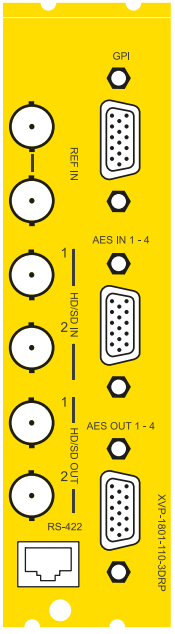
XVP-1801-75-QRP



XVP-1801-110-QRP



XVP-1801-75-3DRP



XVP-1801-110-3DRP

Specifications

Video Inputs (2)

Signal:
SD: SMPTE ST 259-C (270 Mb/s)

Supported formats:
SD: SMPTE ST 125: 480i59.94
SD: EBU: 576i50

Embedded audio: SMPTE ST 299-272

Cable length: 340m (1,115 ft.) Belden 1694A at 270 Mb/s

Return loss: >15 dB up to 1.5 GHz

Video Output

Signal: SMPTE ST 292 (1.485, 1.485/1.001 Gb/s)

Supported formats:
HD: SMPTE ST 274: 1080i59.94/50
HD: SMPTE ST 296: 720p59.94/50

Embedded audio: SMPTE ST 299, SMPTE ST 272

Return loss: >15 dB up to 1.5 GHz

Jitter: <0.2 UI

Reference Input

Signal: SMPTE ST 170/SMPTE ST 318/ITU 624-4/BUT 470-6 blackburst

Return loss: >35 dB up to 5.75 MHz

Video Processing Performance

Signal path: 10 bits

Latency:
1 frame in all modes
Up to 6 frames of additional delay can be added

Audio Digital Inputs (4)

Sampling freq.: 32 to 96 kHz

Quantization: Up to 24 bits

AES3
Level: 0.2 to 7 Vp-p
Impedance: 110Ω balanced

AES3-id
Level: 0.2 to 2 Vp-p
Impedance: 75Ω

Return loss: 15 dB at 6 MHz

Audio Digital Outputs (4)

Sampling freq.: 48 kHz

Quantization: 24 bits

AES3
Level: 3 Vp-p
Impedance: 110Ω balanced

AES-3id
Level: 1.0 Vp-p
Impedance: 75Ω

Return loss: 15 dB at 6 MHz

Audio Processing Performance

Quantization: 24 bits

Sampling: 48 kHz

Number of channels: 16 (4 groups)

Freq. response: ±0.02 dB (20 Hz to 20 kHz)

SNR: 123 dB (A weighted)

THD+N: -138 dB (20 Hz to 20 kHz)

Miscellaneous

Fixed delay: 0 to 2.0s

Step: 1 ms (coarse), 1 sample (fine)

GPI (8)

Connector: 15-pin D-Sub, opto-isolated

GPI in:
Input selection: 1, 2
Presets: 1, 2, 3, 4

GPI out: Provides status of selected input: 1 or 2

RS-422 (Automation)

Connector: RJ45

Signal: OXTEL Series automation protocol

ABUS Connector

As per ABUS standard, Grass Valley

Test Pattern Generator

Video: Color bars – 100% white bar with 75% color

Audio:
Left channel pulsed 1 kHz tone
Right channel steady 1 kHz tone

Electrical

Power: 17W

XVP-1801-UC

	Input \ Output	HD			
		720p50	720p59.94	1080i50	1080i59.94
SD	525		X		X
	625	X		X	
HD	720p50	X		X	
	720p59.94		X		X
	1080i50	X		X	
	1080i59.94		X		X

FIELD UPGRADEABLE TO XVP-1801 UP/DOWN/CROSS CONVERTER

ABUS AUDIO BUS | AFD READY | URS COMPLIANT

Ordering

Densité 2 frame	Densité 3 frame	Description
XVP-1801-UC	XVP-1801-US-3RU	HD/SD Upconverter/Frame Sync/ARC
	XVP-1801-75-3DRP	Double rear connector panel, 75Ω
	XVP-1801-110-3DRP	Double rear connector panel, 110Ω
XVP-1801-75-QRP		Quadruple rear connector panel, 75Ω
XVP-1801-110-QRP		Quadruple rear connector panel, 110Ω
Options (software)	**Description**	
XVP-1801-OPT-AUD16	AES IO support and 16 channels on-board audio processing option	
XVP-1801-OPT-K	Background key input option	
XVP-1801-UG-UC2XVP	HD/SD Upconverter/Frame Sync/ARC	
Options (hardware)		
BOC-DE15-4BNC-1	75Ω digital audio breakout cable	
NSH15M	HD-15 to terminal block adapter	
Remote control	GV Orbit®, iControl™, iControl Solo	