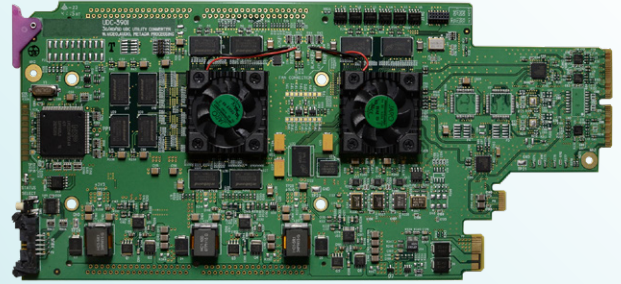


# UDC-3901

## Densité Up/Down/ Crossconversion Compact 3G/HD/SD Up/Down/Cross with Audio and Metadata Processor



All-in-one processor that simplifies integration, reduces space, cabling and overall costs.

The Densité® Series UDC-3901 from Grass Valley® is a compact 3G/HD/SD up/down/crossconverter with video, audio and metadata processing. It offers up/down/crossconversion, with simultaneous 3G, HD and SD outputs.

The processor performs all the up/down/crossconversion, color space and aspect ratio conversion needed to maintain the chosen output formatting, irrespective of whether the input is 3G (Level A or B), HD 1080i, HD 720p or SD. To ensure that up/downconverted television is presented in the correct aspect ratio when aired, the UDC-3901 supports AFD (Active Format Description) SMPTE ST 2016. This provides automatic aspect ratio control using embedded control commands, and prevents on-air aspect ratio errors such as the postage stamp effect. In addition

to AFD, the UDC also supports VLI (Video Line Index) SMPTE RP 186 and WSS, which allows the card to adjust its ARC automatically without any external intervention. The UDC-3901 also processes and converts other ancillary data such as CC (608/708), timecode, teletext/OP-47 and SCTE 104 (SMPTE ST 2010).

An SFP input/output plug-in cartridge option offers a choice of additional input/outputs based from a wide selection of SFP including CVBS, HDMI, Copper and Fiber SDI. When an SFP cartridge is fitted, the card can select between SFP additional inputs and BNC/DIN inputs and can output both electrical and optical signals simultaneously.

The UDC-3901 processor's on-board audio capabilities allows 16 channels of audio, with automatic delay to keep lip sync, gain control, shuffling and downmixing.

Based on the proven Densité modular framework of over 100 functional cards, the flexible, space-efficient UDC-3901 cards accommodate the transition to multiformat production elements into broadcasting workflows, while protecting operational methods and investment in installed equipment. With flexibility to configure up to 24 UDC-3901 modules in the Densité 3+ FR4 frame with dual SD and 3G/HD simulcast each, the Densité platform scales to new market-leading density of 6 UDC/RU which means space- and cost-efficient scaling — today and tomorrow.

The Densité UDC-3901 can be controlled by GV Orbit® or iControl Solo.

## Key Features

### Video

- Up/down/cross/ARC converter with frame sync (50/59.94 Hz)
- Offers a multirate 3G/HD/SD input and simultaneous 3G/HD/SD outputs
- Supports 3G level A (mapping 1) and level B
- Flexible HD/SD/URS reference input
- Advanced video de-interlacing for best image quality
- One frame of processing delay for all conversions
- Automatic ARC using AFD (SMPTE ST 2016), video index (SMPTE RP 186) and WSS

- Custom and fixed ARC presets
- Built-in proc amp with YUV/RGB color correction and legalizer
- Processes and converts ancillary data such as CC (608/708), timecode, teletext/OP-47 and SCTE 104 (SMPTE ST 2010)
- Inserts V-Chip and CGMS in XDS of CC (CEA-608)
- Optional SFP plug-in cartridges to select between SFP additional inputs and BNC/DIN inputs and output both electrical and optical signals simultaneously
- Serial and GPIO ports for automation control

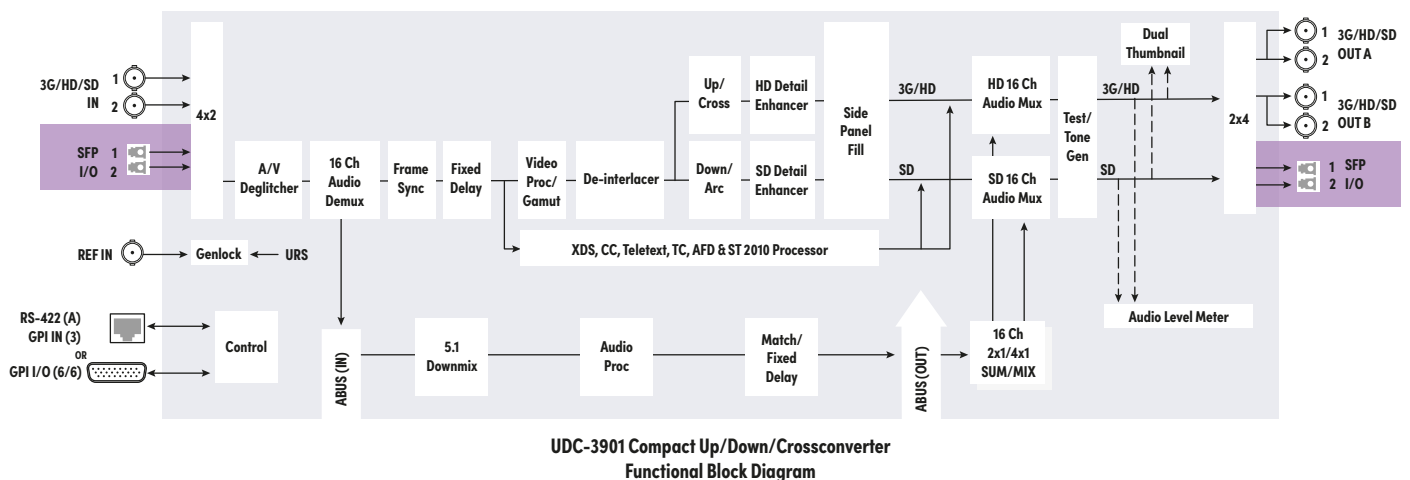
### Audio

- 16 channels embedded audio processing (32 channels internal)
- Automation capabilities based on audio signal type detection
- Audio downmix: 5.1 surround to Lt/Rt or Lo/Ro
- Perfect audio/video sync plus additional audio user delay of up to 2 seconds
- Compatible with Grass Valley audio processing cards using ABUS

### UDC-3901

Input \ Output		SD		HD					
		525	625	720p50	720p59.94	1080i50	1080i59.94	1080p50	1080p59.94
SD	525	X			X		X		X
	625		X	X		X		X	
HD	720p50		X	X		X		X	
	720p59.94	X			X		X		X
	1080i50		X	X		X		X	
	1080i59.94	X			X		X		X
	1080p23.98	X			X		X		X
	1080pSF23.98	X			X		X		X
	1080p25		X	X		X		X	
	1080p29.97	X			X		X		X
3G	1080p50		X	X		X		X	
	1080p59.94	X			X		X		X

### Video Formats Supported



## Specifications

### Video Input (2) / Output (2)

#### Signal:

- SMPTE ST 259-C (270 Mb/s)
- SMPTE ST 292 (1.485/1.001 Gb/s)
- SMPTE ST 424 (2.970, 2.970/1.001 Gb/s)

#### Supported formats:

- SD: 480i59.94, 576i50
- HD: SMPTE ST 274: 1080i59.94/50
- HD: SMPTE ST 296: 720p59.94/50
- 3G: SMPTE ST 425 level A (mapping 1), level B: 1080p59.94/50

#### Cable length:

- 300m (984 ft.) Belden 1694A at 270 Mb/s
- 150m (492 ft.) Belden 1694A at 1.485 Gb/s
- 120m (393 ft.) Belden 1694A at 2.970 Gb/s

#### Return loss: >15 dB up to 3 GHz

#### Jitter:

- HD/SD: <0.2 UI (alignment jitter)
- 3G: <0.3 UI (alignment jitter)

### Reference Input

#### Signal:

- SMPTE ST 170/SMPTE ST 318/ITU 624-4 blackburst
- SMPTE ST 274/SMPTE ST 296 tri-level sync

#### Return loss: >35 dB up to 5.75 MHz

### Video Processing Performance

#### Signal path: 10 bits minimum

#### Latency: 1 frame in all modes

#### Additional delay: up to 15 frames

### Audio Processing Performance

#### Quantization: 24 bits

#### Sampling: 48 kHz, synchronous

#### Number of channels: 16, 8 pairs, 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 2.0 s

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

### GPI

#### Connector: 26-pin D-Sub, optoisolated

#### GPI in: Input selection: 1-2

#### Presets: 1-4

#### GPI out: Selected input: 1-2

#### Selected preset: 1-4

### RS-422 A (automation)

#### Connector: RJ-45

#### Signal: OXTEL series automation protocol

### ABUS Connector

As per ABUS standard, Grass Valley

### Fiber

Full specifications available on SFP optical plug-in cartridges webpage and datasheet.

### 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: 21W Max.



## Ordering

### Densité 3 frame

#### UDC-3901

UDC-3901-3DRP

UDC-3901-3+SRP

### Description

**Compact 3G/HD/SD up/down/crossconverter with video, audio and metadata processing**

Double rear connector panel with SFP cage

Single rear connector panel with SFP cage for Densité 3+

### Options (hardware)

SFP-3G-2OUT-L

SFP-HDMI-OUT

SFP-R-LC

SFP-RR-LC

SFP-T-S13-LC

SFP-TT-S13S13-LC

SFP-RT-S13-LC

### Description

Dual SD/HD/3G SDI long reach output SFP with DIN connector

HDMI output SFP

Single fiber Rx (input) cartridge with LC/PC connector

Dual fiber Rx (input) cartridge with LC/PC connector

Single fiber Tx (output) cartridge at 1310 nm with LC/PC connector

Dual fiber Tx (output) cartridge at 1310 nm with LC/PC connector

Dual fiber Rx/Tx (input/output) cartridge 1310 nm with LC/PC connector

Other types of SFP Optical Plug-In Cartridges may be available for this product.

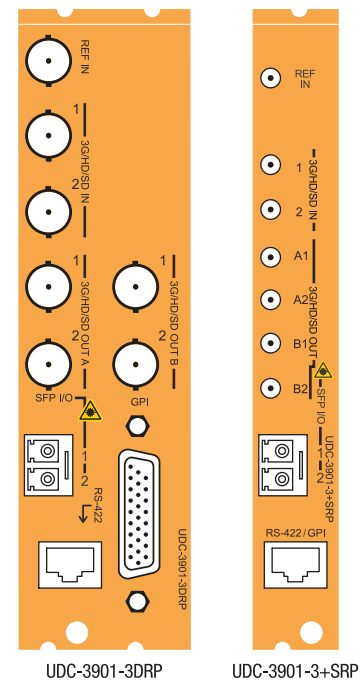
Please visit [www.grassvalley.com](http://www.grassvalley.com) for more information.

NSH26M

Remote control

HD-26 to terminal block adapter for UDC-3901-3DRP only

GV Orbit, iControl and iControl Solo



This product may be protected by one or more patents. For further information, please visit: [www.grassvalley.com/patents](http://www.grassvalley.com/patents)

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