



# Densité 3+ XIP-3901-UC

## Dual-channel 12G/Quad Link 3G/3G/HD-SDI Upconverter with HDR Application for XIP-3901

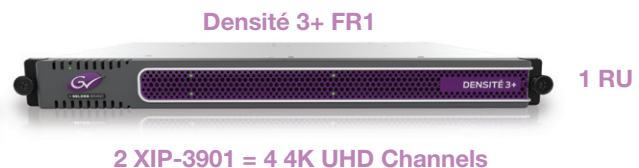
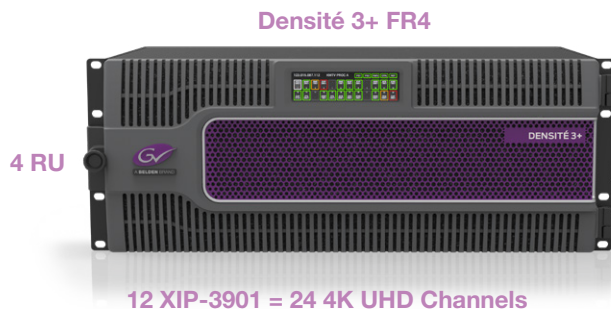
XIP-3901-UC application for the reprogrammable software-defined platform Densité 3+ XIP-3901.

The XIP-3901-UC application from Grass Valley is a dual-channel 12G/quad link 3G/3G/HD-SDI upconverter, which is designed to synchronize, upconvert and process HD and 3G 1080p signals for both 1080p and 4K UHD 2160p broadcast production. The XIP-3901-UC application features broadcast-quality scalers, pixel-based de-interlacing and advanced motion adaptive de-interlacing and anti-ringing, detail enhancement. The XIP-3901-UC application will delay 12G/3G/HD embedded audio and metadata to maintain synchronization with video.

The optional HDR processor, XIP-3901-UDC-HDR, allows conversion between SDR and HDR formats and wide color gamut BT.709 and BT.2020, supporting HLG (ITU-R BT.2100), PQ (ITU-R BT.2100), and S-Log3/S-Gamut3 formats. In addition to the Grass Valley LUTs, you can select BBC LUTs v1.4 or you can choose your own custom LUTs compliant to Adobe cube file v1.0 for fully flexible HDR processing. The HDR processor operates in full 10-bit video signals with the ability to pass sub-blacks and super-whites in SMPTE Narrow video signals and the support of SMPTE Full in PQ and S-Log3 signals.

The XIP-3901 agile processing platform with a rear XIP-3901-3+DRP-H comes with all the 12G/quad link 3G/3G/HD-SDI connectivity to support two 4K UHD processing paths. The XIP-3901 is installed in the established Densité modular frame. Due to advanced processing capabilities and power requirements, the XIP-3901 is supported by the Densité 3+ FR1 and FR4 frames.

Based on the proven Densité modular framework of over 100 cards, the flexible, space-efficient XIP-3901 agile processing platform can accommodate a gradual adoption of different production elements into 1080p and 4K UHD broadcasting workflows — and enables dual HDR/SDR production — all while protecting your investment in installed equipment. With flexibility to configure up to 12 XIP-3901 dual-channel processing applications per Densité 3+ FR4 frame, the Densité platform scales to a market-leading density of 24 4K UHD processors with HDR conversions in a 4 RU frame. This means space and cost-efficient scaling today and tomorrow. The XIP-3901-UC-IP is configured, controlled and monitored by GV Orbit from Grass Valley. It can also be configured and controlled from iControl systems.



**KEY FEATURES**

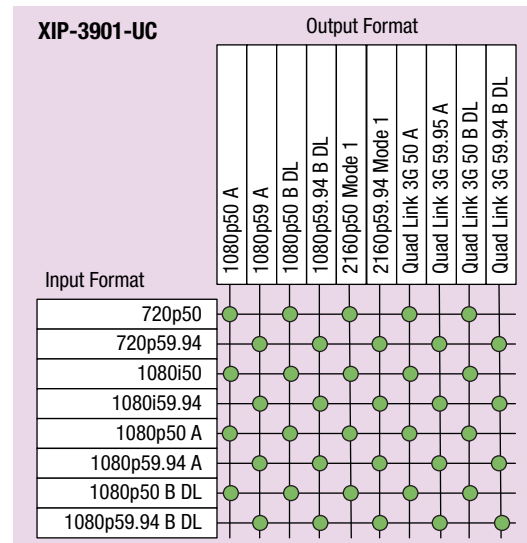
- Independent dual processing channels
- HD 720p/1080i and 3G 1080p inputs
- 3G 1080p, quad link 3G and 12G 2160p outputs
- 12G-SDI Mode 1 and Type 1
- Quad link 3G in 2SI and square division
- 3G level A & level B dual link
- High-quality scaler and advanced de-interlacer
- Integrated frame synchronizer (freeze to last valid frame on error)
- Audio/video deglitcher to handle video hot switch at the input
- XIP-3901-UDC-HDR option provides HDR conversion supporting both Wide Color Gamut BT.709/ BT.2020 and High Dynamic Range: HLG, PQ and S-Log3:
  - All processing operates in full 10-bit video signals with ability to pass sub-blacks and super-whites in SMPTE narrow video
  - Choice between Grass Valley conversions algorithms, BBC HLG LUT v1.4 and user defined 3D-LUT support
  - ITU R BT 2111 HLG/PQ color bar test patterns
- External reference or URS frame reference
- Embedded audio and metadata delay and synchronization
- GV Orbit for configuration, control and monitoring
- Individual XIP-3901 application licensed, purchased as needed
- Rapid switching between applications

**XIP-3901-UDC-HDR processing option supported conversions:**

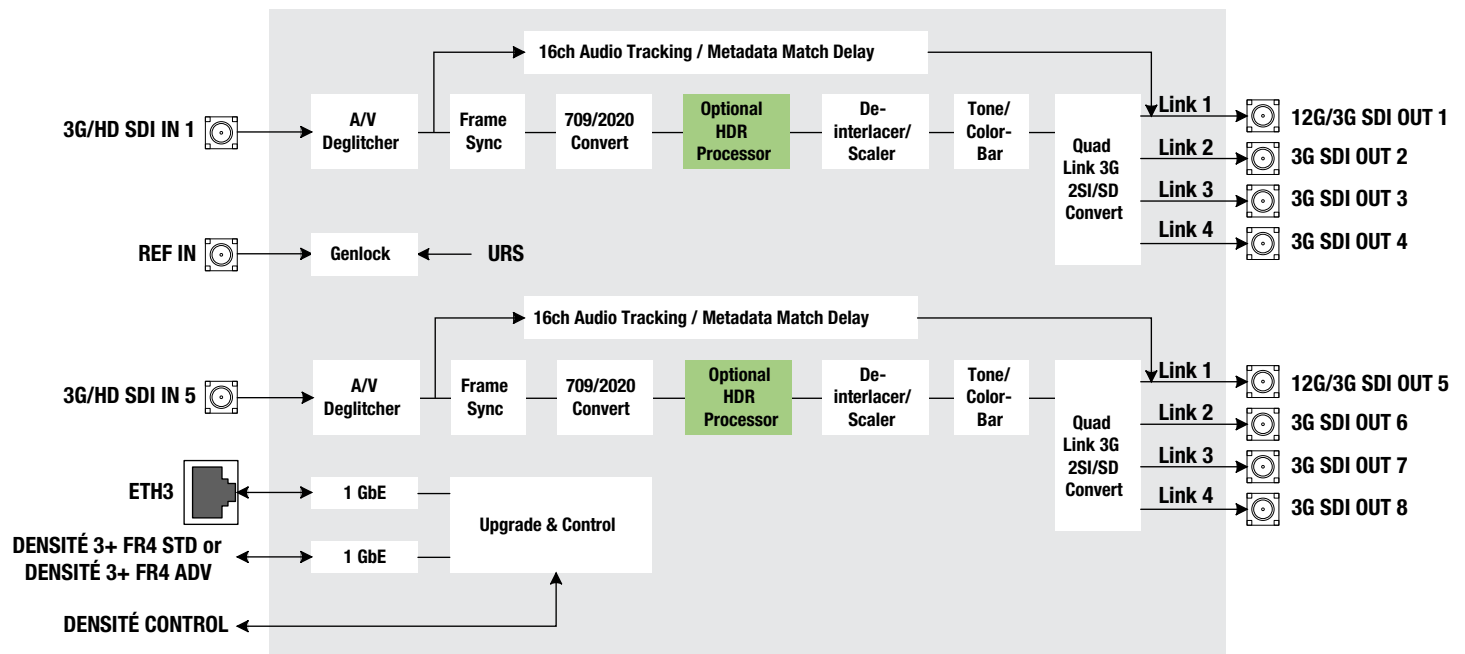
GV LUT Conversions	BBC LUTs v1.4	Up to 8 User-defined LUTs
BT.709↔BT.2020	BT.709↔HLG BT.2100 Scene-referred	Adobe cube file v1.0 – 33 cube
BT.709↔HLG BT.2100	BT.709↔HLG BT.2100 Display-referred	BT.709↔BT.2020
BT.709↔PQ ST.2100	HLG BT.2100↔PQ BT.2100	Narrow↔Full range
S-Log3/S-Gamut3→BT.709	S-Log3 BT.2020→HLG BT.2100	
S-Log3/S-Gamut3→HLG BT.2100		
S-Log3/S-Gamut3→PQ BT.2100		

**And new ITU R BT.2111 HLG/PQ Color bar test patterns**

**Supported input/output video formats:**



**XIP-3901-UC Application Functional Diagram**



**XIP-3901-UC 12G/Quad Link 3G/3G/HD Dual Upconverter with Optional HDR Processing Application**

OPTIONAL LICENSE:  
■ XIP-3901-UDC-HDR

**SPECIFICATIONS**

**SDI (Inputs/Outputs)**

**Physical:** 16 HD-BNC connectors: 2 in, 8 out

**SDI Standard:**

- SMPTE ST 292 (1.485, 1.485/1.001 Gb/s)
- SMPTE ST 424 (2.970, 2.970/1.001 Gb/s)
- SMPTE ST 2082-1:2015 (out 1 & 5)

**Supported Input Formats:**

- HD: SMPTE ST 274: 1080i59.94, 1080i50
- HD: SMPTE ST 296: 720p59.94, 720p50
- 3G: SMPTE ST 425 level A (mapping 1), level B dual link: 1080p59.94, 1080p50

**Supported Output Formats:**

- 3G: SMPTE ST 425 level A (mapping 1), level B dual link: 1080p59.94, 1080p50
- 4K UHD: Quad Link 3 Gb/s SMPTE ST 425-5: 1080p59.94, 1080p50
- 12G: SMPTE ST 2082-10: 2160p59.94, 2160p50

**Cable length (Belden 1694A):**

- HD: 250m (820 ft.) at 1.485 Gb/s
- 3G: 150m (492 ft.) at 2.970 Gb/s
- 12G: 55m (180 ft.) at 11.88 Gb/s

**Jitter:**

- HD/SD: <0.2 UI (alignment jitter)
- 3G: <0.3 UI (alignment jitter)
- 12G: <0.3 UI (alignment jitter)

**Reference Input**

**Physical:** SMPTE ST 170/SMPTE ST 318/ITU 624-4 blackburst

**Ethernet Port for Media**

Not used by this application

**Ethernet Port for Control**

**Physical:** One electrical RJ45 port  
**Standard:** IEEE 802.3 1000 Mb/s

**Video Processing Performance**

**Signal path:** 10 bits minimum

**Electrical**

**Power:** 60W maximum

**ORDERING**

**Application Software**

**XIP-3901-UC**

12G/3G/HD SDI Dual Up Converter application

**Application Option**

**XIP-3901-UDC-HDR**

HDR processing option

**Densité 3+ Frame**

**XIP-3901**

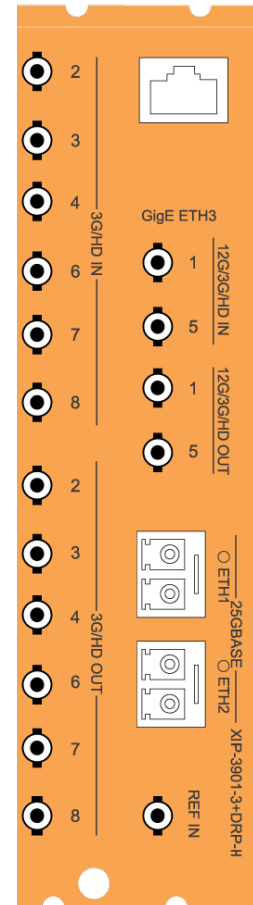
Agile SDI/IP processing platform

**XIP-3901-3+DRP-H**

Double rear panel for Densité 3+ with HD-BNC

**Remote Control**

GV Orbit version 1.2, iControl or iControl Solo (version 7.50 or higher required)



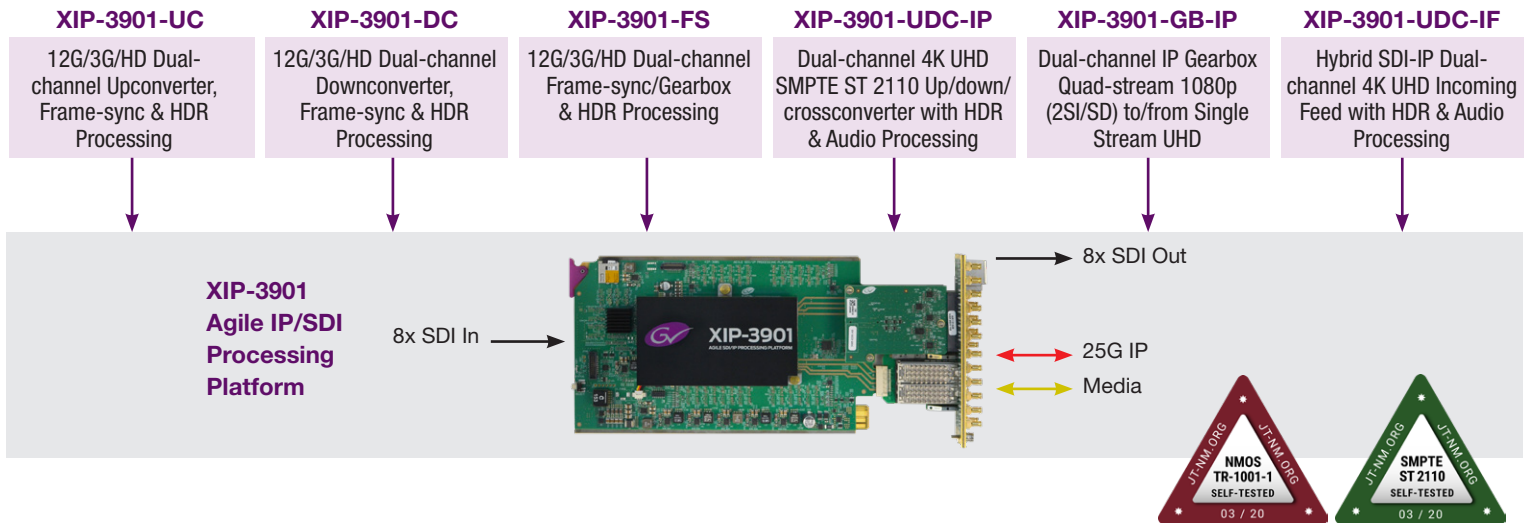
XIP-3901-3+DRP-H

### XIP Application Portfolio

All the processing applications delivered on the XIP-3901 platform allow live productions, either from trucks, venues, stadiums or broadcast facilities to make the most of new UHD and HDR formats. Packing lots of audio/video processing power in a small form factor results in savings in terms of space, power and weight.

The XIP-3901 Agile Processing Platform also provides long-term value by protecting a customer's CAPEX investment in current HD and UHD SDI and now IP infrastructure. The application-based licensing model adapts the XIP-3901 to new workflows with different software applications resulting in a truly virtualized hardware environment.

### XIP Application Agility Evolution



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