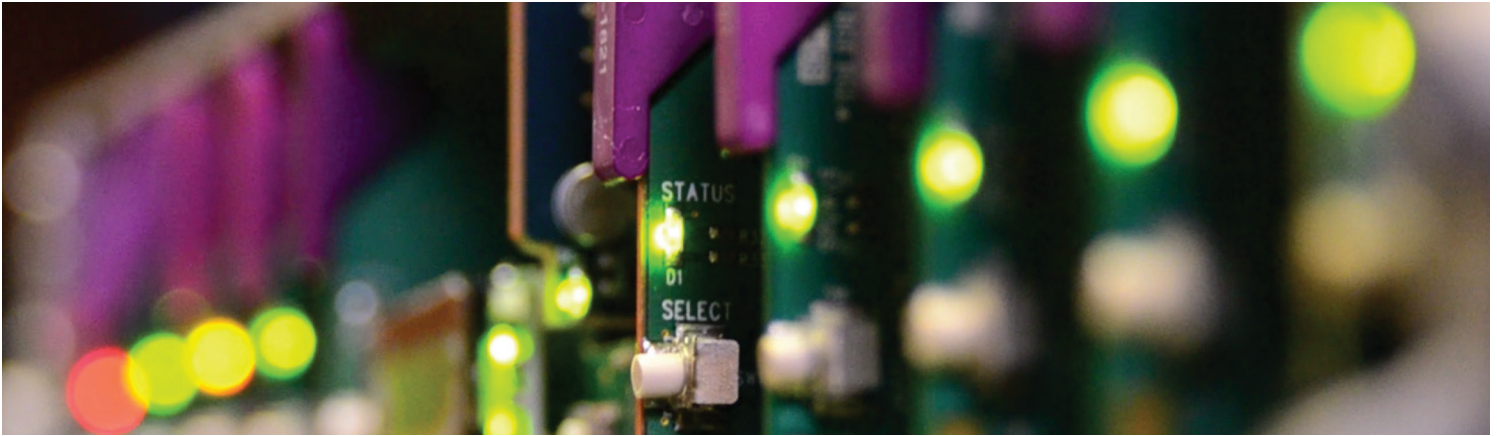# ADX-1901

**3G/HD/SD 8 Channel Analog Audio De-embedder**

## Space-saving, modular platform for advanced signal processing.

The ADX-1901 from Grass Valley, a Belden Brand, is an advanced, high-quality 24-bit 48 kHz analog audio de-embedder designed to extract eight analog audio signals from a 3G/HD/SD video signal. The ADX-1901 can process the eight audio de-embedded channels with functions including level, channel shuffling and mixing.

The loudness measurement features provide for the measurement and logging of up to eight audio programs with iControl Loudness Monitoring software to analyze and report compliance with respect to various loudness legislation around the world. Furthermore, a delay of up to 2.7 seconds can be programmed independently per de-embedded audio channel to provide lip sync correction.

The ADX-1901 can de-embed ancillary timecode (ATC) in 3G/HD, or DVITC in SD, to generate linear timecode (LTC). Up to two GPIO can be generated by extracting GPI events from the timecode user bits in transport applications. Audio metadata extraction from the VANC can be streamed to an external RS-422 output.

The ADX-1901 is designed for the Densité 2 frame, but will be compatible with the Densité 3 frame with the metal extender. Multiple rear connector panels are available according to application needs and the chassis type used.

A fiber input/output cartridge is offered as an option on some rear modules. Once the cartridge is installed, the inputs or outputs are selectable through the control interface.

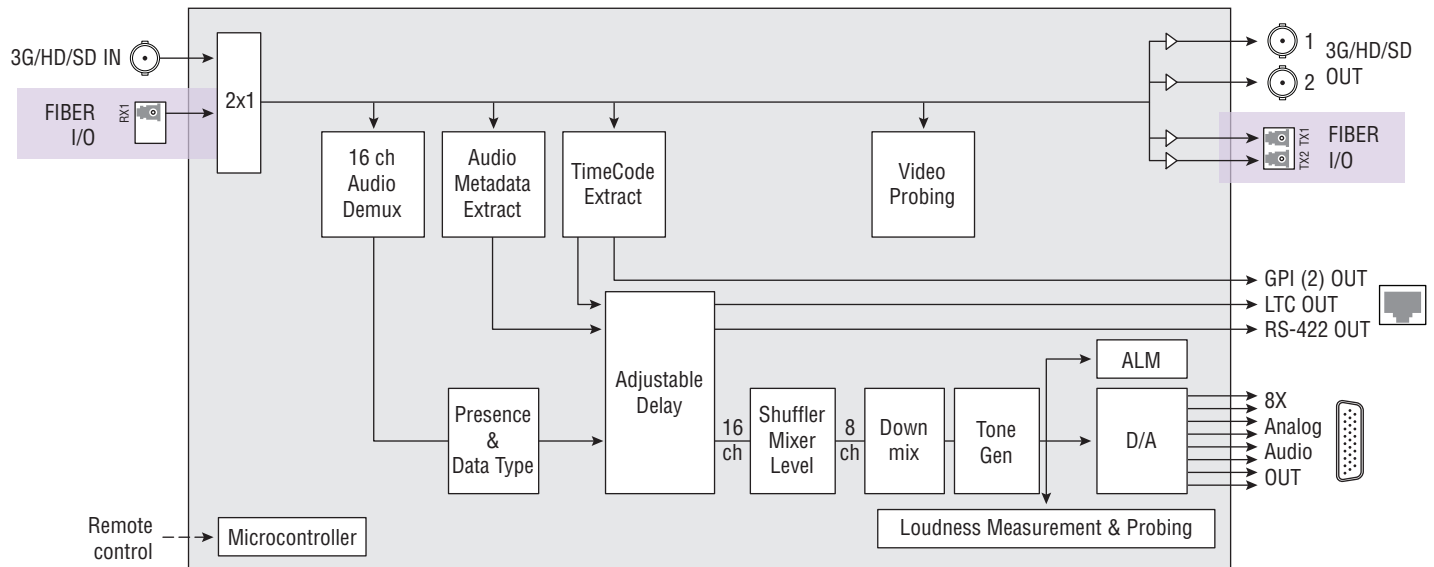# ADX-1901 3G/HD/SD 8 Channel Analog Audio De-embedder

## Audio

- 8 analog audio outputs
- Audio silence output on loss of video input
- Full audio shuffling and mixing on a channel output basis
- Individually adjustable audio output level
- Audio 5.1 surround downmix to Lo/Ro
- Audio delay adjustments of up to 2.7 seconds to compensate for lip sync issues
- Built in test generator (audio)
- Monitoring and reporting of audio output max/min level, silence and phase
- Loudness measurement of up to 8 audio programs and logging with iControl Loudness Monitoring software
- Loudness compliant to EBU R128-2014, ATSC A/85:2013 and ARIB TR-B32 (ITU-R BS.1770-3)

## Video

- 3G/HD/SD input with automatic equalization
- Supports 3G level A (mapping 1) and level B
- Automatic detection of video input format
- Optional optical fiber SFP cartridge
- Black detection monitoring

## Metadata

- Linear timecode (LTC) output translated from DVITC (SD) or ATC (3G/HD)
- 2 GPI data output signals reconstructed from ANC TC user bits
- RS-422 serial data output to carry audio metadata (SMPTE ST 2020-A) from the VANC



ADX-1901 Functional Block Diagram

Options (hardware & software)

With appropriate fiber cartridge & -F rear module



ADX-1901-DRP    ADX-1901-DRP-F    ADX-1901-3SRP    ADX-1901-3SRP-F
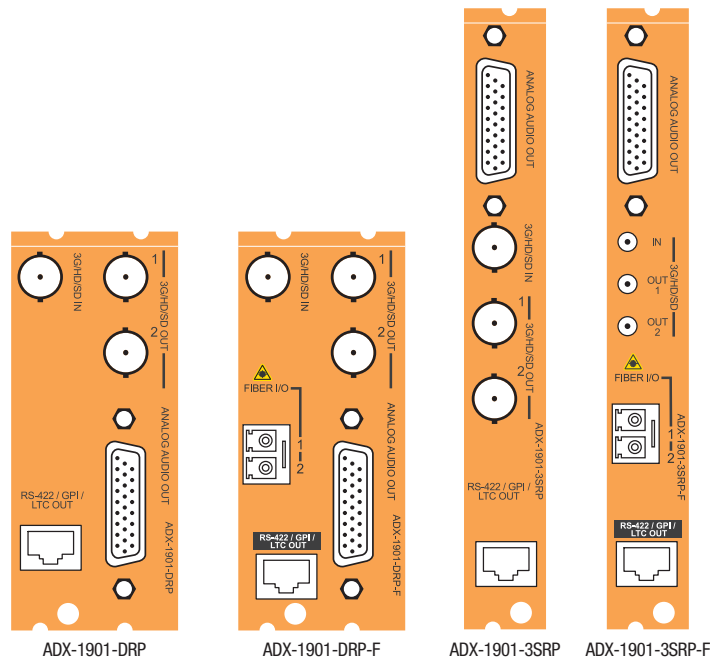
# ADX-1901 3G/HD/SD 8 Channel Analog Audio De-embedder

## SPECIFICATIONS

### Analog Audio Output (8)
**Signal:** Balanced analog audio
**Impedance:** <50Ω
**Max. level:** +24 dBu / 2 kΩ

### Audio Processing Performance
**Quantization:** 24 bits
**Sampling:** 48 kHz
**Audio latency:** 0.967 ms at 48 kHz
**Audio delay:** Up to 2.7s (1 ms steps)
**SNR:** >117 dB A weighted
**0 dBFS:** 0 to +24 dBu (1 dB steps)
**Distortion:** <-90 dB (20 Hz to 5 kHz)
**Crosstalk:** <-110 dB (20 Hz to 20 kHz)
**Freq. response:** ±0.05 dB (20 Hz to 20 kHz)
**Tone generator:** -18 dBFS 1 kHz sine wave interrupted on left channel (250 ms) per EBU R49

### Video Input/Output
**Signal (1):**
 SMPTE ST 259-C (270 Mb/s)
 SMPTE ST 292 (1.485, 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, 1080i50
 HD: SMPTE ST 296: 720p59.94, 720p50
 3G: SMPTE ST 425 level A (mapping 1), level B: 1080p59.94, 1080p50
**Embedded audio:** SMPTE ST 272 (SD), SMPTE ST 299 (HD)
**Embedded ATC:** SMPTE RP 188
**Embedded ANC:** SMPTE ST 291

### Cable length (Belden 1694A):
 SD: 400m (1,312 ft.) at 270 Mb/s
 HD: 200m (656 ft.) at 1.5 Gb/s
 3G: 100m (328 ft.) at 3 Gb/s
**Return loss:** >15 dB up to 3 GHz
**Jitter:** 3G/HD/SD: < 0.2 UI

### Optical Video Input (0 or 1)
**Refer to SFP module specifications:**
SFP-R-S13-LC, SFP-RT-S13-LC, SFP-RT-W13-LC

### Optical Video Output (0, 1 OR 2)
**Refer to SFP module specifications:**
SFP-T-S13-LC, SFP-TT-S13-LC, SFP-RT-W13-LC

### LTC Output (1)
**Signal:** SMPTE ST 12
**Connectors:** RJ45
**Level:** 2 Vp-p

### GPI Signal Output (2)
**Signal:** Contact closure to ground

### RS-422 Metadata Output (1)
**Signal:** RS-422
**Connector:** RJ45
**Output level:** 3 Vp-p (min.)
**Rate:** 115,200 Bd

### Electrical
**Power:** <7W with dual SFP cartridge

END-TO-END LOUDNESS MONITORING

## ORDERING

| Densité 2 Frame | Densité 3 Frame | Description |
|---|---|---|
| ADX-1901 | ADX-1901-3RU | 3G/HD/SD 8-channel analog audio de-embedder |
| ADX-1901-DRP | | Double rear connector panel |
| ADX-1901-DRP-F | | Double rear connector panel with fiber cage |
| | ADX-1901-3SRP | Single rear connector panel |
| | ADX-1901-3SRP-F | Single rear connector panel with fiber cage |

| Options (Hardware) | | Description |
|---|---|---|
| NSH26M | | HD-26 to terminal block adapter |
| SFP-TT-S13S13-LC | | Dual fiber TX (output) cartridge at 1310 nm with LC/PC connector |
| SFP-R-LC | | Single fiber RX (input) cartridge with LC/PC connector |
| SFP-T-S13-LC | | Single fiber TX (output) cartridge at 1310 nm with LC/PC connector |
| SFP-RT-S13-LC | | Single fiber RX (input) and TX (output) cartridge at 1310 nm with LC/PC connector |
| SFP-RT-W13-LC | | Single fiber RX/TX (input/output) cartridge 1310 nm with WDM LC/PC connector |
| SFP-RT-W15-LC | | Single fiber RX/TX (input/output) cartridge 1550 nm with WDM LC/PC connector |

Other types of SFP Optical Plug-In Cartridges may be available for this product. Please visit www.grassvalley.com for more information.

| Remote Control | iControl, iControl Solo |
|---|---|

A BELDEN BRAND