

# HDX6803+AO+T

Auto-Sensing HD/SD Audio De-Embedder with up to 8 AES  
and 8 Analog audio Outputs



The HDX6803+AO+T HD/SD audio de-embedder module for the 6800+™ modular core processing platform has up to eight AES and eight Analog Audio outputs with a video processing amplifier.

It allows control over the video while functioning as a de-embedded audio processor for hot-switching de-embedded audio. This new module provides full audio delay, audio processing and the ability to de-embed metadata to external sources. The HDX6803+AO+T is ideal for any broadcast operation where the de-embedding of audio from HD or SD video signals is required, or where HD or SD video and (embedded and/or discrete) audio signals are processed.

## Features

- Inputs:
  - One video serial digital input
  - DARS input (unbalanced, balanced compatible with external baluns)
  - Fiber receiver (OP+HDX+R+D version)
- Outputs:
  - Four serial video digital outputs
  - Eight AES outputs (unbalanced, balanced compatible with external baluns)
  - Four AES standard; eight with HDX68OPT-AES8 license option
  - Eight discrete Analog Audio outputs
  - RS-232/422 serial port metadata output
- Operates video standards:
  - 525 and 625 (SMPTE 259M)
  - 1080i/p
  - 720p (SMPTE 274M/296M)
- Auto-detect or user-forced input video standard
- 10-bit video processing
- Digital equalization (supports Belden 8281/1694A and newer, thin coaxial cables like Alcatel SD02)
- Passes all HANC samples
- Passes VANC with user-selectable option for VBI/ANC line-by-line video deleting
- Up to eight frames of HD and 50 frames of SD video delay
- Loss of video modes:
  - Pass
  - Black
  - Freeze
- Video processing amplifier with controls for:
  - Luminance gain
  - Luminance offset
  - Chrominance gain
  - Chrominance offset
  - White clip
  - Black clip
  - Hue adjustment
- Ability to de-embed metadata
- Dolby® header adjustment
- Support for fiber receiver (OP+ HDX+R versions) option via sub module on main module
- Basic audio limiting capability:
  - User-selectable threshold for soft compression limiting
  - Adjustable compression slope
  - Adjustable attack time/rate
  - Adjustable delay time/rate
  - Noise gate level and time
- Video and audio test generator
- AES/Analog audio routing/advanced processing
- Internal audio processing amplifier with gain, swap, invert, delay, mix (sum) of de-embedded audio channels
- Bypassable sample rate conversion for external and embedded audio
- Data mode for passing compressed audio – apt-X®, Dolby® E, AC-3
- 16-, 20- or 24-bit audio processing
- C, U and V bit transparency

- Shadowed/restored parameter settings when switching video standards
- Card-edge control
- Ethernet remote control and monitoring
- V-fade of the output audio on audio source change

## Details

Each HDX6803+AO+T package includes a module-specific breakout cable that expands the number of available connections beyond what would fit on a triple-slot back connector. The breakout cable includes an RS-232/422 serial connector to embed or de-embed Dolby® metadata.

The HDX6803+AO+T can be controlled manually via card-edge controls with OSD video display or remotely using CCS Navigator™, HTTP web server or third-party SNMP-based control applications. In addition, the module is Q-SEE™-compliant, allowing for direct thumbnail monitoring when installed in a FR6822+QXFE frame.

## Specifications

*Specifications and designs are subject to change without notice*

SERIAL VIDEO INPUT	
Number	1
Standards	1080p (SMPTE 424M) - 3 Gb/s HD 1080i/p (SMPTE 274M);720p (SMPTE 296M) – HD-SDI SMPTE 259M-C, 270 Mb/s, 525/625 component: SD-SDI
Connector	BNC per IEC 169-8
Impedance	75 ohms
Frame Rate	1080i/p: 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 Hz (3 Gb/s rates are future software upgradeable) 720p: 50, 59.94, 60 Hz
Return Loss	>15 dB from 5 to 1485 MHz; &gt;12 dB from 1485 to 2970 MHz
Equalization	3 Gb/s-adaptive cable equalization for up to 164 ft (50 m), typical of Belden 1694A coaxial cable HD-adaptive cable equalization for up to 492 ft (150 m), typical of Belden 1694A coaxial cable SD-adaptive cable equalization for up to 984 ft (300 m), typical of Belden 8281 coaxial cable

SERIAL VIDEO OUTPUT	
Number	4
Standards	1080p (SMPTE 424M) - 3 Gb/s HD 1080i/p (SMPTE 274M); 720p (SMPTE 296M) – HD-SDI SMPTE 259M-C, 270 Mb/s, 525/625 component – SD-SDI
Frame Rate	1080i: 25, 29.97, 30, 59.94 Hz 1080p: 23.98 (p/psf), 24 (p/psf), 25, 29.97, 30, 50, 59.94, 60 Hz (3 Gb/s rates are software upgradeable) 720p: 50, 59.94, 60 Hz 525, 625
Connector	BNC per IEC 169-8
Impedance	75 ohms
Return Loss	>15 dB from 5 to 1485 MHz; &gt;12 dB from 1485 to 2970 MHz
D.C. Offset	0 V ±0.5 V
Signal Level	800 mV 10%
Rise and Fall Time	<135 ps - 3 Gb/s <270 ps - HD-SDI 0.4 to 1.5 ns - SD-SDI
Overshoot/Undershoot	<10%
Jitter	3 Gb/s: <2 UI pk-pk of timing jitter (>10 Hz); <0.3 UI pk-pk of alignment jitter (>100 kHz) HD: <1 UI pk-pk of timing jitter (>10 Hz); <0.2 UI pk-pk of alignment jitter for (>100 kHz) SD: <0.2 UI pk-pk (>10 Hz);
Delay	Up to 8 frames less 2 lines for 3G/HD; 50 frames for SD

**UNBALANCED AES/DARS INPUT**

Connector	BNC (IEC 169-8)
Impedance	75 ohms
Return Loss	>25 dB, 0.1 to 6.0 MHz
Sensitivity	<100 mV
Input Audio Rate	32 to 108 kHz

**BALANCED AES/DARS INPUT (WITH EXTERNAL BALUNS)**

Connector	XLR with external baluns
Sensitivity	<200 mV
Impedance	110 ohms $\pm$ 20% (0.1 to 6 MHz)
Maximum Input Signal	10 V (pk-pk)
Common Mode Rejection	0 to 7 V (0 to 20 kHz)
Input Audio Rate	32 to 108 kHz

**AES UNBALANCED OUTPUT**

Standard	AES3, SMPTE 276M
Type	Unbalanced, AC coupled
Connector	BNC (IEC 169-8)
Impedance	75 ohms
Return Loss	>25 dB, 0.1 to 6 MHz >30 dB, 0.1 to 6 MHz
Signal Amplitude	1 V pk-pk $\pm$ 10% into 75 ohms load
Audio Rate	48 kHz
Rise and Fall Time	30 to 44 ns (10 to 90%)
Bits	24, 20 or 16

**AES BALANCED OUTPUT (WITH EXTERNAL BALUNS)**

Type	Balanced, transformer coupled
Connector	XLR with external baluns
Impedance	110 ohms $\pm$ 20% (0.1 to 6 MHz)
Signal Amplitude	2 to 7 V pk-pk into 110 ohms load
Audio Rate	48 kHz
Jitter	$\pm$ 20 ns
Rise and Fall Time	5 to 30 ns (10% to 90%)
Bits	24, 20 or 16

## ANALOG AUDIO INPUT

Number of Inputs	8 mono channels
Connector	Weidmuller 24-pin locking header-socket pair
Input Audio Level	28 dBu to 12 dBu (adjustable in 2 dB increments)
Input Impedance	66 ohms
Frequency Response	<math>\pm 0.1\text{ dB}</math> @ 0 dBFS (+28 dBu), 20 Hz to 20 kHz, typical
THD	>90 dB @ 1kHz, -1 dBFS = +23 dBu (66 ohms) or -1 dBFS = +17 dBm (600 ohms), typical
SNR	>100 dB @ -60dBFS
Cross Talk	>95 dB, 20 Hz to 20 kHz, typical
Linearity	<math>\pm 1.0\text{ dB}</math> (to -100 dBFS), typical

## FIBER OPTIC INPUT (RECEIVER)

Number of Inputs	1
Wavelength	1260 to 1620 nm
Connector	SC/PC per IEC 61754-4-1
Overload Input Power	0 dBm PIN
Input Sensitivity	-20 dBm PIN

## RS-232/RS-422 (METADATA I/O)

Standard	Electrical specification EIA-232C
Connector	DB-9 232/422 switchable

## POWER AND TEMPERATURE

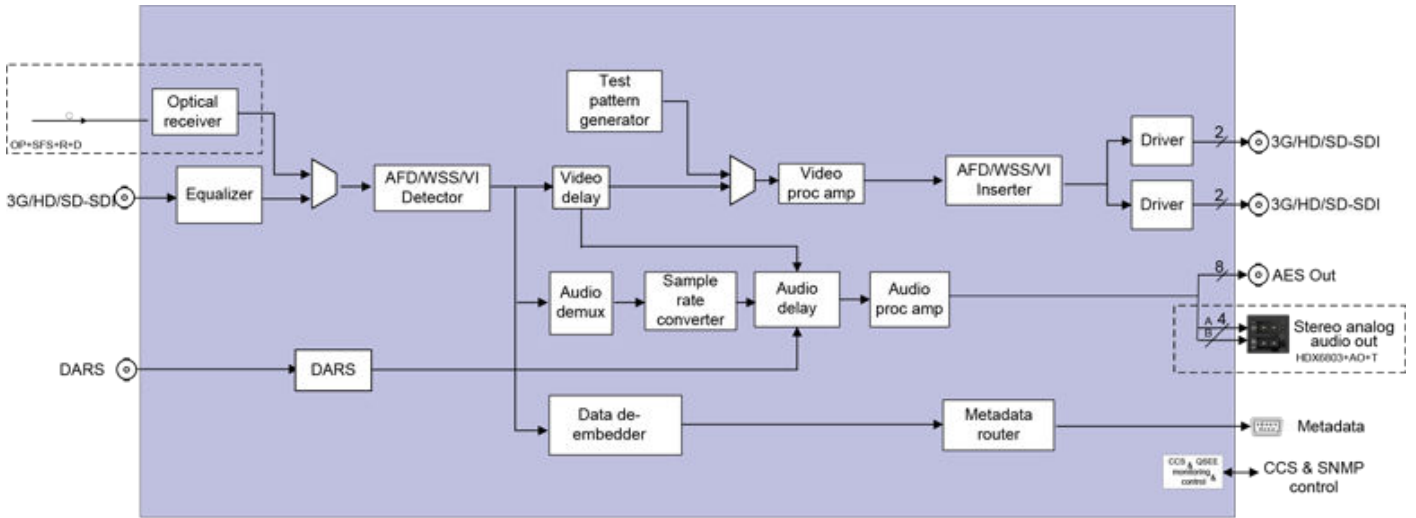
Power Consumption	12 W maximum
Operating Temperature	41° to 113° F (5° to 45° C)

## Ordering Information

HDX6803+AO+T	Auto-sensing HD/SD de-embedder with 4 AES outputs, 8 Analog audio outputs, 3 Gb/s-capable (with appropriate software key), includes triple-slot back module and breakout cable, Q-SEE-compliant
HDX68OPT-AES8	Optional software key upgrade for HDX6803+ to provide 8 discrete AES outputs
HDX68OPT-3G	Optional software key upgrade for HDX6803+ to provide 3 Gb/s HD capability



Block Diagram



<sup>1</sup>Available via breakout cable (included).

Back Module

