HMX6803+D

Auto-Sensing 3G/HD/SD Audio Embedder with up to 8 AES Inputs

The HMX6803+D 3G/HD/SD audio embedder for the 6800+™ modular core processing platform has up to eight AES inputs with a video processing amplifier.

This module allows for control over the picture, has an embedded audio processor for hot-switching embedded audio, provides full audio delay and processing, and has the ability to embed metadata from external sources. The HMX6803+D can be used in any broadcast facility where the embedding of AES on SD or HD signals is required, or where the processing of SD or HD video and audio signals is essential.

The OP+HMX+D version includes the fiber sub-module, which will allow the addition of an optical transmitter to complement the electrical inputs.

Features

- Inputs:
  - One video serial digital input
  - Eight AES inputs (unbalanced, balanced compatible with external baluns)
  - Four AES inputs standard, eight AES with HMX68OPT-AES8 license option
  - Eight discrete Analog Audio inputs
  - DARS Input (unbalanced, balanced compatible with external baluns)
  - RS232/422 serial port for external metadata source

- Outputs:
  - Four serial video digital outputs
  - Fiber transmitter (OP+HMX+D version)

- Operational video standards:
  - 525 and 625 (SMPTE 259M)
  - 1080i/p
  - 720p (SMPTE 274M/296M)
  - 3 Gb/s (SMPTE 424M) upgradeable
  - 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-byline 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 embed AES on output (fiber or SDI) without video source or genlock
  - Ability to embed external metadata
  - Dolby® header adjustment
  - 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

- Module will directly support eight AES unbalanced inputs only; balanced AES supported via external baluns adapters
- Video and audio test generator
- AES audio routing/advanced processing
- Internal audio processing amplifier with gain, swap, invert, delay, mix (sum) of de-embedded and external 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 HMX6803+D package includes a module-specific breakout cable that expands the number of available connections beyond what would fit on a standard two-slot back connector. The breakout cable includes an RS-232/422 serial connector to embed or de-embed Dolby® metadata.

HMX6803+D 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.

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; >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; >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 ±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

FIBER OPTIC OUTPUT (TRANSMITTER)	
Number of Inputs	1
Wavelengths (nm)	1310 FP 1270, 1290, 1310, 1330, 1350, 1370, 1430, 1450, 1470, 1490, 1520, 1530, 1550, 1570, 1590, 1610 CWDM
Connector	SC/PC per IEC 61754-4-1 ST/PC (optional) FC/PC (optional)
Output Power	-7 dBm ±1 dBm FP 0 dBm ±2 dBm CWDM
Extinction Ratio	8 dB, typical

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

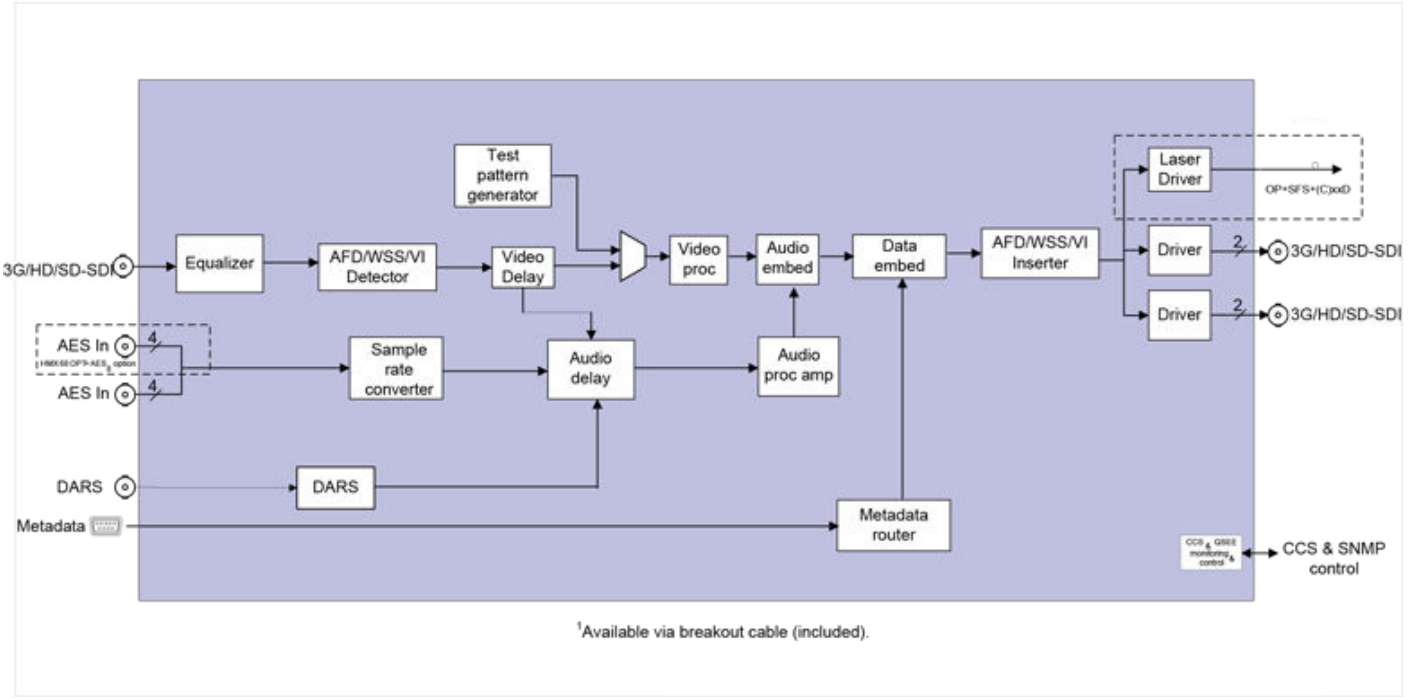
HMX6803+D	Auto-sensing HD/SD embedder with 4 AES inputs, 3 Gb/s-capable (with appropriate software key), includes double-slot back module and breakout cable, Q-SEE-compliant
HMX68OPT-AES8	Optional software key upgrade for HMX6803+ to provide 8 discrete AES inputs
HMX68OPT-3G	Optional software key upgrade for HMX6803+ to provide 3 Gb/s HD capability
OP+HMX+13D	Auto-sensing HD/SD embedder with 4 AES inputs, 3 Gb/s-capable (with appropriate software key), includes double-slot back module and breakout cable, Q-SEE-compliant with 1310 nm fiber optic transmitter
OP+HMX+CxxD*	Auto-sensing HD/SD embedder with 4 AES inputs, 3 Gb/s-capable (with appropriate software key), includes double-slot back module and breakout cable, Q-SEE-compliant with CWDM fiber optic transmitter
6800+OPT+16CAPM	Breakout cable with coaxial connectors for unbalanced AES I/O (NOTE: 1 cable provided with each HMX6803+ or OP+HMX unit ordered)
NOTE: One unbalanced audio breakout cable (6800+OPT+16CAPM) is included with each HMX6803+D module purchased and does not need to be ordered/purchased separately. Additional/replacement cables can be ordered using part number 6800+OPT+16CAPM.	

CONNECTOR OPTIONS	
OP+OPT+ST	OPTO+ -ST connector option for OPTO+ fiber modules
OP+OPT+FC	OPTO+ -FC connector option for OPTO+ fiber modules

Images/Diagrams

Selenio 6800+™

Block Diagram



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