16 Channel AES Audio Embedder / De-embedder

Description

The P DM 5280 is a versatile 16 channel (8 x AES) audio embedder and de-embedder, which can be used to address a variety of audio issues in broadcast. The module offers multiformat support for SDI formats up to 3Gbit/s (auto-detect). The module also features optional fiber optic I/O.

The module can be switched between a 16 channel embedder or de-embedder, or used as a combination of both. 16 channels of audio are also de-embedded from the input SDI signal and passed into the audio processing stage. In embedder mode, 16 channels of external audio are passed into the audio processing stage. Audio processing includes adjustable gain, phase invert and mute for all 32 channels as well as a selectable mono mixdown function for each left and right pair.

The processed audio is passed into a 32 x 32 output crossbar where the audio for the embedder and the external outputs can be user mapped.

The module also provides up to 62 frames of programmable output delay adjustable in frames, lines and pixels.

Microprocessor control and on-board Flash RAM enable configurations and settings to be stored within the module. Remote control, status monitoring and error reporting is possible when using the LYNX APPolo Control System.

Features

- Supports SDI formats up to 3Gbit (auto-detect)
- Optional fiber optic I/O
- Switch between 16 channel embedder or de-embedder or combination of both
- 32 channel audio processing stage with adjustable gain, phase invert, mute and stereo to mono mixdown plus overload and silence detection
- 32 x 32 mono output crossbar for embedder and external audio channel assignment

- DolbyE Synchronzer to maintain Guard Band alignment
- Selectable "Auto Pattern Function". With no input video the module will embed audio in the selected test pattern
- Up to 62 frames of programmable delay
- Up to 1.3s audio delay (total)
- Two versions available for balanced and unbalanced AES
- All external audio inputs / outputs are transformer coupled
- Remote control, status monitoring and error reporting possible with LYNX APPolo control system
- Full SNMP support when used with master controller option
- Hot swappable

P DM 5280 UO   P DM 5280 DO
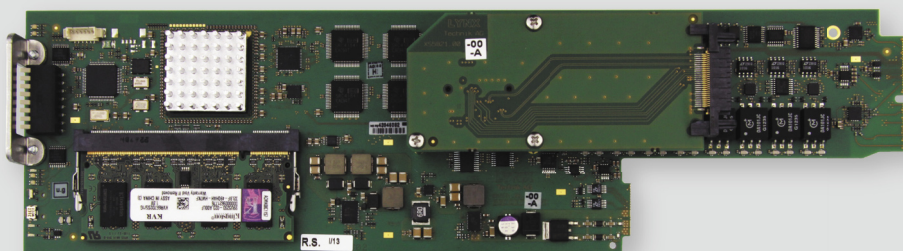
Two versions available: UO = unbalanced AES on MiniDin connectors, DO = balanced AES on Sub D connector

P DM 5280 UO/DO – 3G/HD/SD -16 Channel AES Audio Embedder / De-embedder

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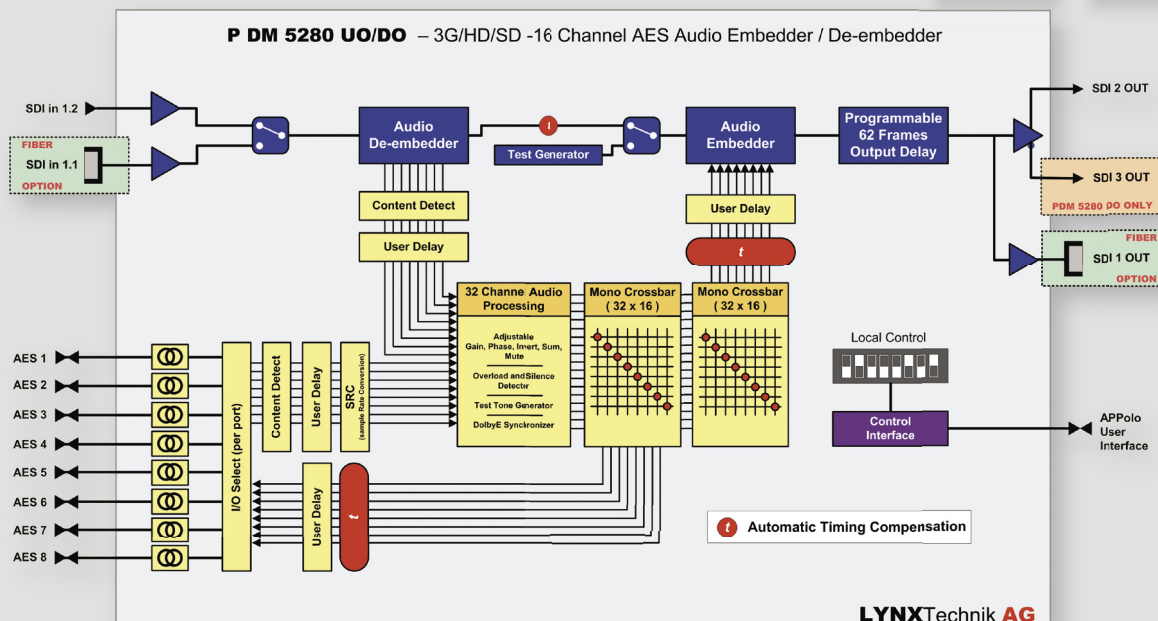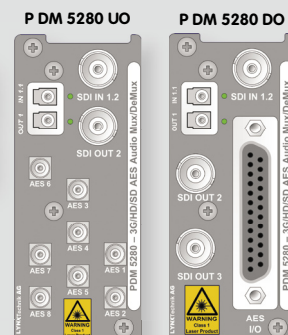
16 Channel AES Audio Embedder / De-embedder

Specifications

Video Input

Signal type	Serial digital video SMPTE, 292M, 424M, 259M with automatic video format and standard detection. SMPTE 2006 (fiber)
Supported formats	SDI formats up to 3Gbit/s* (see table)
No. of inputs	1 (+ 1 optional fiber input, swichable)
Input connector (electrical)	BNC, 75 Ohms
Input connector (optical)	LC / singlemode (optional)
Return loss (elecrical)	> 15dB (270Mbit) > 10dB (2.97Gbit)

Video Outputs

No. of outputs	P DM 5280 UO = 1 (+ 1 optional fiber output) P DM 5280 DO = 2 (+ 1 optional fiber output)
Signal type	Serial digital video SMPTE, 292M, 424M, 259M + SMPTE 2006 (fiber)
Output format	Follows input format
Connector (electrical)	BNC, 75 Ohm
Connector (optical)	LC / singlemode (optional)
Timing jitter	< 0.2UI (270Mbit) < 1.0UI (1.48Gbit) < 2.0UI (2.97GBit)
Alignment jitter	< 0.2UI (270Mbit) < 0.2UI (1.48Gbit) < 0.3UI (2.97GBit)
Return loss	> 15dB (270Mbit), >10dB (2.97Gbit)

AES Audio I/O

No. of inputs / outputs	16 channels on 8 x AES connections. Inputs or ouptuts
Signal type	P DM 5280 UO = 8 x AES3id unbalanced (single ended) P DM 5280 DO = 8 x AES3 balanced
Connectors	P DM 5280 UO = Mini DIN 1.0/2.3, 75 Ohm P DM 5280 DO = Female 25 pin SubD, 110 Ohm balanced
Output levels	P DM 5280 UO = 1 v peak to peak nominal P DM 5280 DO = 4 v peak to peak nominal
Coupling	Transformer (isolated) inputs or outputs

Audio Processing

De-embedder	All 16 audio channels are de-embedded from SDI input
Processing functions	32 channel adjustable: gain, phase, invert, mute, sum plus overload and silence detection.
Crossbars	32 x 16 channel output select crossbar 32 x 16 channel embedder select crossbar I/O select matrix to configure AES inputs and outputs

Video / Audio Delay

Automatic	Automatic AV timing compensation
Output delay	Up to 62 frames of delay manually adjustable in frame / line / pixel increments
Audio delay	Up to 1.3s (1300ms) total. Adjustable for each incoming and out going audio channel Note: *These adjustments are offsets to the automatic processing compensation*

Specifications subject to change

Performance

Cable equalization	Up to 250m (820ft) using Belden 8281 (270Mbit) Up to 140m (459ft) using Belden 1694A (1.48Gbit) Up to 80m (262ft) using Belden 1694A (2.97Gbit)
Control	Basic local configuration using dip switch Full remote control / status monitoring possible when using the LYNX APPolo control system
Status monitoring	Module edge LED indicators

Electrical Specifications

Operating voltage	12 VDC
Power consumption	< 10W
Safety	IEC 60950/ EN 60950/VDE 0805

Mechanical

Size	283mm x 78mm (12" x 4")
Weight	CardModule 120g, (4.2oz) connector plate 50g (1.8oz)

Ambient

Temperature	5°C to 40°C (41°F - 104°F) Maintaining specifications
Humidity	90% Max non condensing

Settings and Control

Local Settings

Local control	*ON/OFF (Dip Switch)*
Embed audio group 1,2,3,4	*Individual ON/OFF (Dip Switches)*
H-Blank / V- Blank	*Individual ON/OFF (Dip Switches)*
Auto test pattern	*ON/OFF (Dip Switch)*

Additional Settings Available from APPolo Control System

Audio I/O port configuration / audio shuffling (mono crossbar)

Test pattern select / audio delay / audio processing / output delay

On Board Indicators / LEDs

General Status / alarm LED - (visible with rack door closed)

SDI status LED / audio status LED / power status LED

Fiber RX and TX activity (on rear connector panel next to fiber connections)

* Supported Video Standards

Bits / Color	10 Bit / 4:2:2 (Y,Cr,Cb)
Formats: SDTV	**525** / 59.94Hz, **625**/50Hz
Formats: 1.5 Gbit	**720p** / 60 / 59.94 / 50 / 30 / 29.97 / 25 / 24 / 23.98 Hz **1080i** / 60 / 59.94 / 50 Hz **1080p** / 30 / 29.97 / 25 / 24 / 23.98 Hz **1080psF** / 25 / 24 / 23.98 Hz
Formats: 3.0 Gbit	**1080p** / 60 / 59.94 / 50 Hz (Level A)

RBO 5025 - Optional Audio Adapter PCB
This option facilitates simplified connections of balanced analog audio I/O to the P DM 5280 DO module SubD 25 pin connector.

Ordering Information

Model #	Description
P DM 5280 UO/DO	3G/HD/SD - 16 Channel AES Audio Embedder / De-embedder (UO = unbalanced AES on MiniDin, DO = Unbalanced AES on 25 pin SubD)
Fiber Optic I/O Options (Select one only - Module has single SFP socket: Fiber output only. Fiber input only. Fiber input and output	
Option: **OH-TX-1**	**Fiber Optic Output**: 1310nm - non CWDM. TX Power -5dBm (SFP module)
Option: **OH-RX-1**	**Fiber Optic Input**: 1260-1620nm. RX Sensitivity -3dBm to -19dBm (SFP module)
Option: **OH-TR-1**	**Fiber Optic Input and Output:** non CWDM. TX wavelength 1310nm / power -5dBm. RX Input Range 1260-1620nm / Sensitivity -3dBm to -19dBm (SFP module)
Option: **OH-TX-4-XXXX**	**Fiber Optic Output CWDM** xxxx Designates wavelength. Select from: 1270, 1290, 1310, 1330, 1350, 1370, 1390, 1410, 1430, 1450, 1470, 1490, 1510, 1530, 1550, 1570, 1590, 1610nm. TX power: -1dbm (SFP module)
Option: **OH-TR-4-XXXX**	**Fiber Optic Input and Output CWDM** xxxx Designates wavelength. Select from: 1270, 1290, 1310, 1330, 1350, 1370, 1390, 1410, 1430, 1450, 1470, 1490, 1510, 1530, 1550, 1570, 1590, 1610nm. TX power: -1dbm. RX range: 1260-1620nm, RX sensitivity -3dBm to -19dBm (SFP module)