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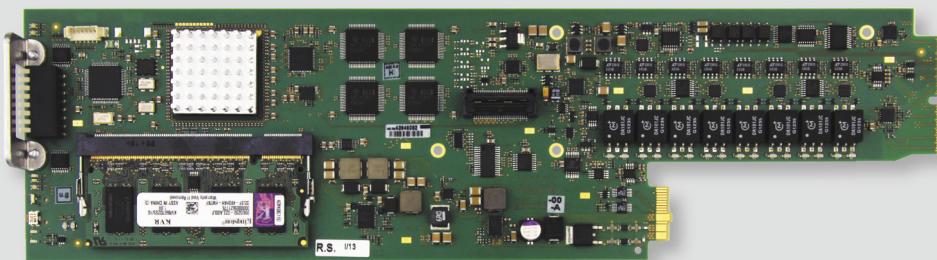
The processed audio is passed onto a 32 x 32 output crossbar where the audio for the embedder and the external outputs can be user mapped.

The module also provides up to 62 frames of programmable output delay adjustable in frames, lines and pixels.
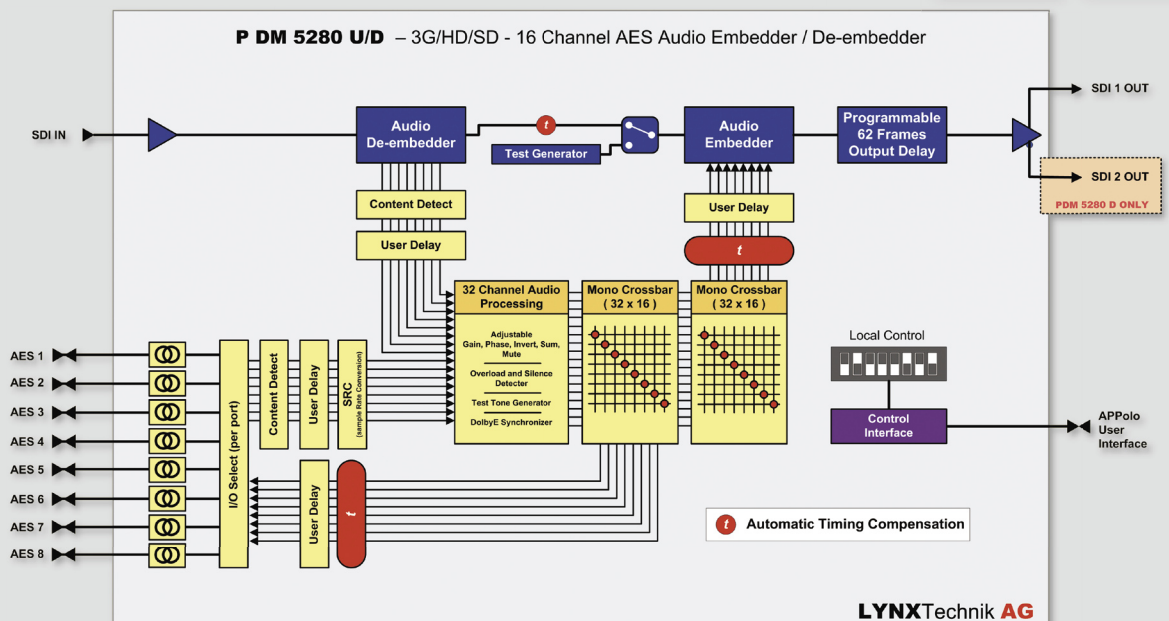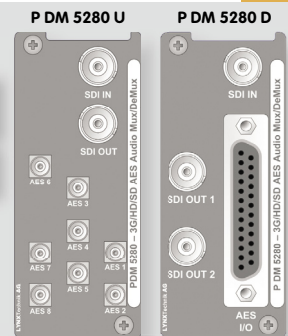
Microprocessor control and on-board Flash RAM enable configurations and settings to be stored within the module. Remote control, status monitoring and error reporting is possible when using the LYNX APPolo Control System.

Features

- Supports SDI formats up to 3Gbit (auto-detect)
- 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
- Selectable "Auto Pattern Function" with no input video the module will embed audio in a selectable test pattern

- DolbyE Synchronizer to maintain Guard Band
- 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 U   P DM 5280 D

Two versions available: U = unbalanced AES on MiniDin connectors, D = balanced AES on Sub D connector

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

LYNXTechnik AG

P DM 5280 U/D

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
Supported formats	SDI formats up to 3Gbit/s* (see table)
No. of inputs	1
Input impedance	75 Ohm
Connector	BNC
Return loss	> 15dB (270Mbit) > 10dB (2.97Gbit)

Video Outputs

No. of outputs	P DM 5280 U = 1 P DM 5280 D = 2
Signal type	Serial digital video SMPTE, 292M, 424M, 259M
Output format	Follows input format
Connector	BNC
Impedance	75 Ohm
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 U = 8 x AES3id unbalanced (single ended) P DM 5280 D = 8 x AES3 balanced
Connectors	P DM 5280 U = Mini DIN 1.0/2.3, 75 Ohm P DM 5280 D = Female 25 pin SubD, 110 Ohm balanced
Output levels	P DM 5280 U = 1 V peak to peak nominal P DM 5280 D = 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 (mono) output select crossbar 32 x 16 channel (mono) embedder select crossbar
Sample rate converters	48 kHz - one per external AES input, selectable ON/OFF

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 10 seconds total. Adjustable for each incoming and out going audio channel. Note: *These adjustments are offsets to the automatic processing compensation*

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

Specifications subject to change

Mechanical

Size	283mm x 78mm
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% maximum, non-condensing

Settings and Control

Local Settings

Local Control	*ON/OFF (Dip Switch)*
Embed Audio Group 1	*ON/OFF (Dip Switch)*
Embed Audio Group 2	*ON/OFF (Dip Switch)*
Embed Audio Group 3	*ON/OFF (Dip Switch)*
Embed Audio Group 4	*ON/OFF (Dip Switch)*
H-Blank	*ON/OFF (Dip Switch)*
V- Blank	*ON/OFF (Dip Switch)*
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
Output delay
Audio processing

On Board Indicators / LEDs

General Status / Alarm LED - (Visible with rack door closed)
SDI Status LED
Audio Status LED
Power Status LED

* 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)

Options

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

Ordering Information

Model #	Description	Includes
P DM 5280 U/D	3G/HD/SD - 16 Channel AES Audio Embedder / De-embedder	CardModule, Rear termination Panel and Reference Manual (on CD)