

## 8 Channel Analog Audio Embedder / De-embedder

### Description

The P DM 5380 is a versatile 8 channel analog audio embedder or de-embedder which can be used to address a variety of audio issues in broadcast. The module has multiformat support for SDI formats up to 3Gbit/s (auto detect) and features optional fiber optic I/O.

The module can be switched between an 8 channel embedder or an 8 channel de-embedder, or used as a combination of both. 16 channels of audio are always de-embedded from the SDI input and passed into a audio processing stage. In embedder mode 8 channels of external audio are passed into the audio processing stage. Audio processing includes adjustable gain, phase invert, and mute for all 24 channels as well as a selectable

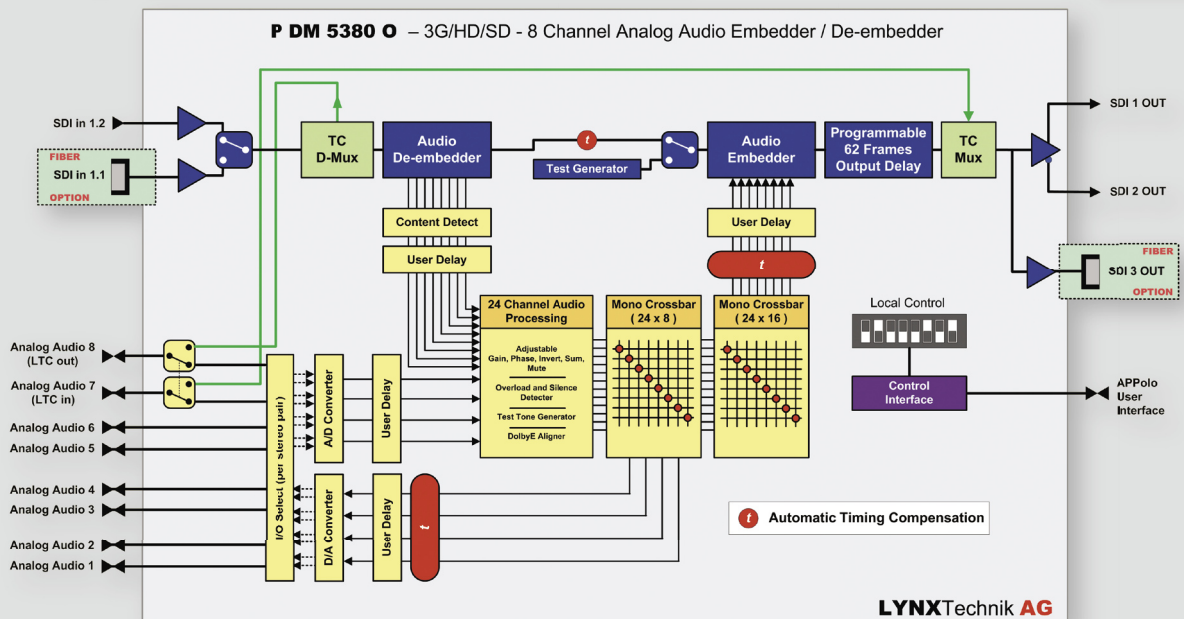
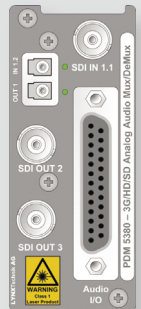
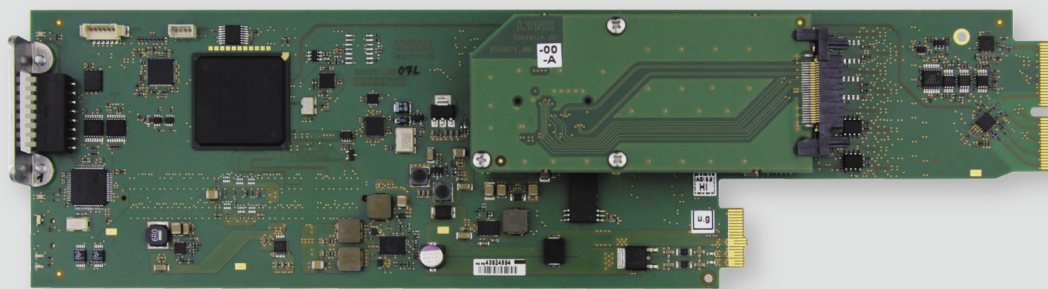
mono mixdown function for each left and right pair. The processed audio is passed onto a 24 x 24 output crossbar where the audio for the embedder, and/or audio for the external outputs can be user mapped.

The module also provides up to 62 frames of programmable output delay as well as the ability to de-embed or embed Timecode using one of the analog audio inputs.

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 8 channel embedder or de-embedder
- 24 channel audio processing stage with adjustable gain, phase invert, mute and stereo to mono mixdown, provides overload and silence detection
- 24 x 24 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 for guard band alignment
- Up to 62 frames of programmable delay
- Up to 10 seconds of audio delay (total)
- Embed or de-embed Timecode using two of the audio inputs
- Remote control, status monitoring and error reporting possible when used with LYNX APPolo control system.
- Full SNMP support when used with master controller option.
- Hot swappable



## 8 Channel Analog 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 (electrical)	> 15dB (270Mbit) > 10dB (2.97Gbit)

#### Video Outputs

No. of outputs	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)

#### Analog Audio I/O

No. of Inputs / outputs	8 x analog audio inputs or 8x analog audio outputs
Signal type	Balanced Analog Audio
Connector	Female 25pin SubD
Output impedance	150 Ohms
Input impedance	>10K Ohm
0 dB full scale range	Selectable: 12, 15, 18, 20, 22, 24 dBu full Scale Level

#### Audio Processing

De-embedder	All 16 audio channels are de-embedded from input SDI
Processing functions	24 channel adjustable: gain, phase, invert, mute, sum plus overload and silence detection.
Crossbars	24 x 8 channel (mono) output select crossbar 24 x 16 channel (mono) embedder select crossbar I/O selection matrix to configure analog inputs and outputs
A/D quantisation	24 bit
Sampling rate	48 kHz

#### 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. <i>Note: These adjustments are offsets to the automatic processing compensation</i>

#### Timecode

I/O	Audio I/O port # 7 and 8 can be reconfigured for Timecode I/O
Function	Embed external LTC Timecode and/or de-embed existing Timecode
Timecode format	LTC I/O (select from D-VITC, ATC-VITC, ATC-LTC internally)

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
Timecode I/O and configuration

#### 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 backpanel next to fiber connections)

#### \* Supported Video Standards

Bits / color	10 Bit / 4:2:2 (Y,Cr,Cb)
Formats: SDTV	<b>525</b> / 59.94Hz, <b>625</b> /50Hz
Formats: 1.5 Gbit	<b>720p</b> / 60 / 59.94 / 50 / 30 / 29.97 / 25 / 24 / 23.98 Hz <b>1080i</b> / 60 / 59.94 / 50 Hz <b>1080p</b> / 30 / 29.97 / 25 / 24 / 23.98 Hz <b>1080psF</b> / 25 / 24 / 23.98 Hz
Formats: 3.0 Gbit	<b>1080p</b> / 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 5380 modules SubD 25 pin connector.

### Ordering Information

Model #	Description
<b>P DM 5380 O</b>	3G/HD/SD - 8 Channel Analog Audio Embedder / De-embedder
<b>Fiber Optic I/O Options</b> (Select One - Single SFP socket: Fiber output only. Fiber input only. Fiber input and output)	
Option: <b>OH-TX-1</b>	<b>Fiber Optic Output:</b> 1310nm - non CWDM. TX Power -5dBm (SFP module)
Option: <b>OH-RX-1</b>	<b>Fiber Optic Input:</b> 1260-1620nm. RX Sensitivity -3dBm to -19dBm (SFP module)
Option: <b>OH-TR-1</b>	<b>Fiber Optic Input and Output:</b> non CWDM. TX wavelength 1310nm / power -5dBm. RX Input range 1260-1620nm / sensitivity -3dBm to -19dBm (SFP module)
Option: <b>OH-TX-4-XXXX</b>	<b>Fiber Optic Output CWDM</b> xxxx Designates TX 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: <b>OH-TR-4-XXXX</b>	<b>Fiber Optic Input and Output CWDM</b> 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)