

## 16 Channel AES Audio Embedder / De-embedder

### Description

The PDM 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.

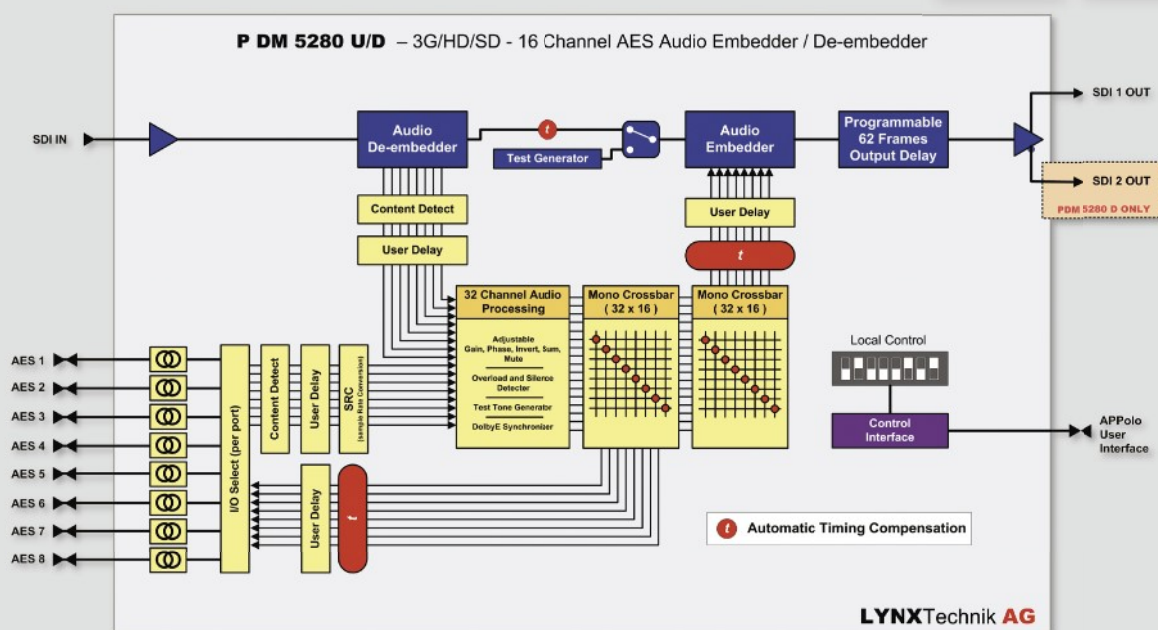
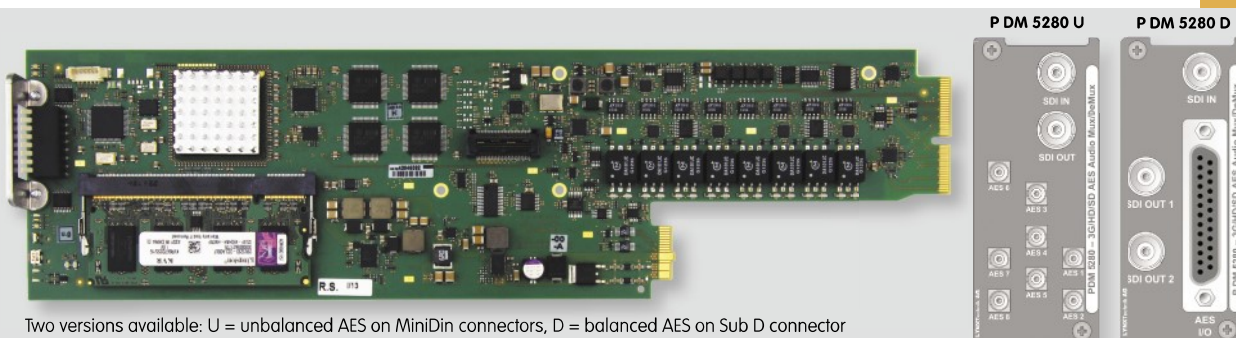
The processed audio is passed onto a 32 x 32 output crossbar where the audio for the embedder and the external outputs can be user mapped.

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



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## CardModules

### 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)<br>> 10dB (2.97Gbit)                                                                                                                                    |
| Video Outputs             |                                                                                                                                                                          |
| No. of outputs            | P DM 5280 U = 1<br>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)<br>< 1.0UI (1.48Gbit)<br>< 2.0UI (2.97Gbit)                                                                                                            |
| Alignment jitter          | < 0.2UI (270Mbit)<br>< 0.2UI (1.48Gbit)<br>< 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 outputs                                                                                                                    |
| Signal type               | P DM 5280 U = 8 x AES3id unbalanced (single ended)<br>P DM 5280 D = 8 x AES3 balanced                                                                                    |
| Connectors                | P DM 5280 U = Mini DIN 1.0/2.3, 75 Ohm<br>P DM 5280 D = Female 25 pin SubD, 110 Ohm balanced                                                                             |
| Output levels             | P DM 5280 U = 1 V peak to peak nominal<br>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<br>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.<br><i>Note: These adjustments are offsets to the automatic processing compensation</i> |
| Performance               |                                                                                                                                                                          |
| Cable equalization        | Up to 250m (820ft) using Belden 8281 (270Mbit)<br>Up to 140m (459ft) using Belden 1694A (1.48Gbit)<br>Up to 80m (262ft) using Belden 1694A (2.97Gbit)                    |
| Control                   | Basic local configuration using dip switch<br>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

### 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) |

| 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     | <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<br><b>1080i</b> / 60 / 59.94 / 50 Hz<br><b>1080p</b> / 30 / 29.97 / 25 / 24 / 23.98 Hz<br><b>1080psF</b> / 25 / 24 / 23.98 Hz |
| Formats : 3.0 Gbit | <b>1080p</b> / 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.