

## SDI Frame Synchronizer with External AES I/O

### Description

The P VD 5810 is a versatile SDI frame synchronizer with full audio support which can be used to address a variety of synchronization issues in broadcast. The module offers multi-format support for SDI formats up to 3Gbit/s (auto-detect).

The module utilizes robust "flywheel" synchronization which can accommodate a wide variety of low quality asynchronous SDI sources. Comprehensive audio support includes de-embedding all 16 channels contained in the SDI input plus 16 external inputs. Audio is passed through a 32 channel audio processing stage before being passed into internal crossbars to configure the external audio outputs and the audio embedder. Audio is synchronized to the video automatically and is free

from disturbances even when dropping and adding frames. A DolbyE synchronizer is also provided to correctly synchronize and maintain critical guard band alignment.

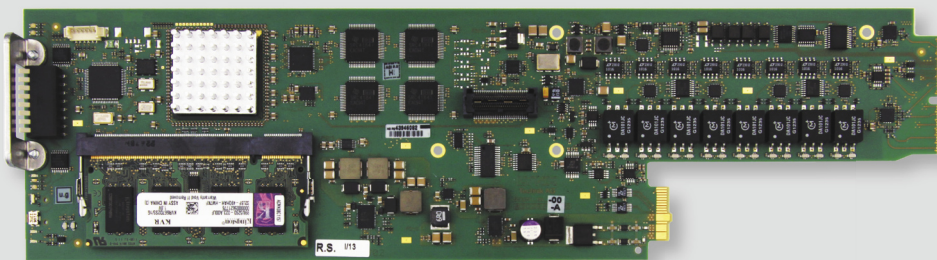
The module also provides up to 62 frames of programmable output delay adjustable in frames, lines and pixels.

Microprocessor control and on-board Flash RAM enable configurations and settings to be stored within the module.

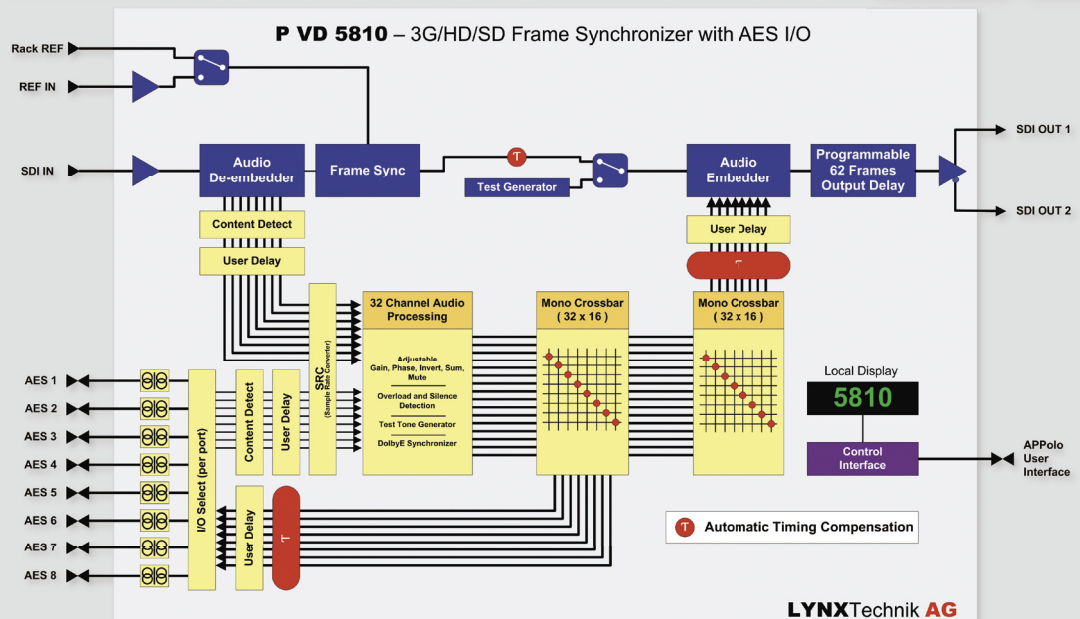
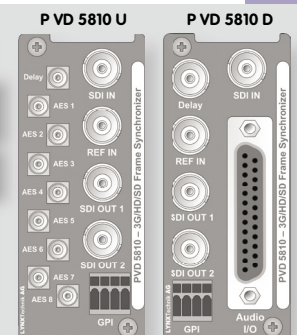
Remote control, status monitoring and error reporting is possible when using the LYNX APPolo Control System.

### Features

- Supports SDI formats up to 3Gbit (auto-detect)
- Robust "flywheel" synchronization for a wide variety of problematic sources
- "Cross lock" compatible reference input
- All 16 channels of audio de-embedded from SDI input
- 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
- Integrated test pattern generator
- Auto-tracking audio delay with no "pops" or "clicks" in audio even when dropping and adding frames
- DolbyE Synchronizer to maintain guard band
- Up to 62 frames of programmable delay
- 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



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



## SDI Frame Synchronizer with External AES I/O

## 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   | 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)                            |

#### Reference Input

|              |   |
|--------------|---|
| Signal type  | Analog bi-level (SDTV) or tri-level (HDTV)<br>Auto-detect and cross lock compatible |
| No of inputs | 1 external or 1 internal (rack frame reference)                                     |
| Connection   | BNC   |
| Impedance    | 75 Ohm  |

#### AES Audio I/O

|                         |  |
|-------------------------|--|
| No. of inputs / outputs | 16 channels on 8 x AES connections. Inputs or outputs  |
| Signal type             | P VD 5810 U = 8 x AES3id unbalanced (single ended)<br>P VD 5810 D = 8 x AES3 balanced        |
| Connectors              | P VD 5810 U = Mini DIN 1.0/2.3, 75 Ohm<br>P VD 5810 D = Female 25 pin SubD, 110 Ohm balanced |
| Output levels           | P VD 5810 U = 1 V peak to peak nominal<br>P VD 5810 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 AES channel (16) 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 outgoing 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 local display and menu system<br>Full remote control / status monitoring possible when using the LYNX APPolo control system |
| Status monitoring  | Module edge LED indicators  |

Specifications subject to change

#### Electrical Specifications

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

#### 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

#### Control

|                     |  |
|---------------------|--|
| Local controls      | Local alphanumeric display with integrated menu system for setting "basic" module parameters. Use of the control system is <b>highly recommended</b> for the operation of this module. |
| Remote control      | Full remote control and status monitoring supported with the APPolo control system   |
| External GPI inputs | GPI inputs (Function configurable with APPolo)   |
| Store user settings | Store up to 7 sets of user settings in module flash ram, switch between any two sets with external GPI input   |

#### On Board Indicators / LEDs

|  |
|--|
| General status / alarm LED - (visible with rack door closed) |
| SDI status LED   |
| Ref 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 VD 5810 D module SubD 25 pin connector.

### Ordering Information

| Model #       | Description   | Includes  |
|---------------|---|---|
| P VD 5810 U/D | 3G/HD/SD - SDI Frame Synchronizer with external AES I/O | CardModule, Rear Termination Panel and Reference Manual (on CD) |