



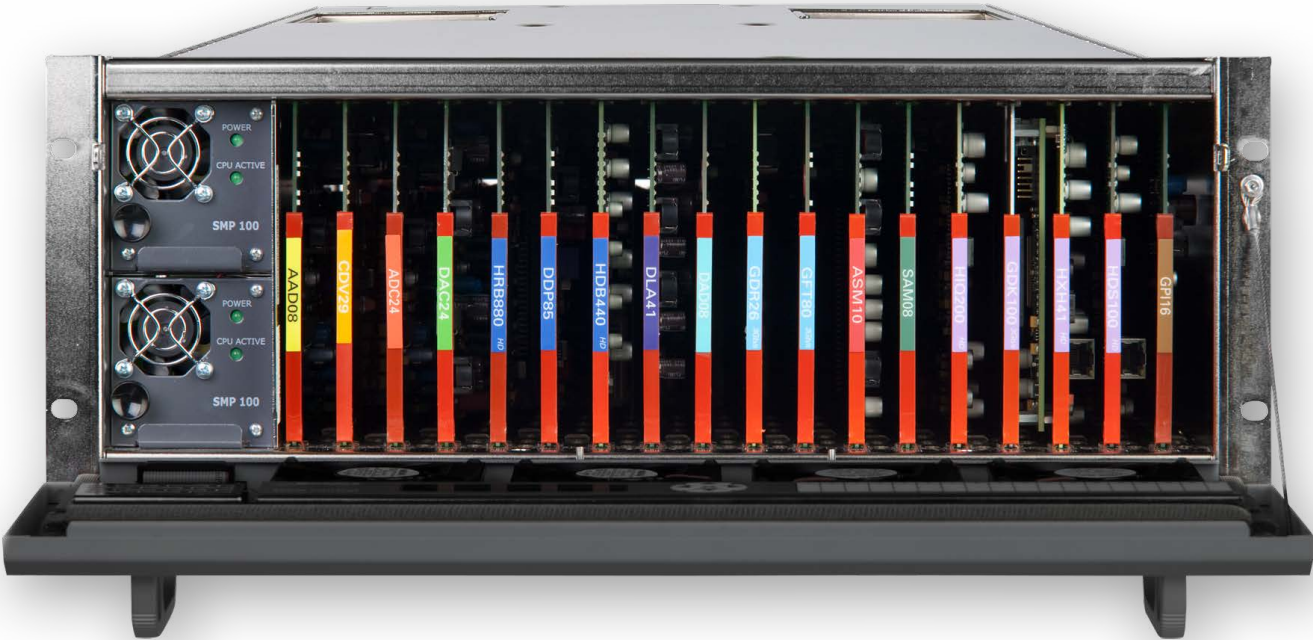
Synapse

Modular signal processing



Introduction

Synapse is the industry’s most powerful and comprehensive audio and video processing system. Its modular architecture is designed to support mission critical broadcast applications. Synapse modules make it possible to process, distribute, convert or analyse any type of uncompressed video and audio signals. Some examples: frame synchronization, video up & down conversion, audio (de)embedding, Dolby processing, integrity checking, logo insertion, multiviewing, etc.



The system explained

Although Synapse is unequalled in its flexibility and processing power, you could position the system in what the industry calls 'glue', 'infrastructure equipment', 'terminal gear' or just 'modular equipment'.

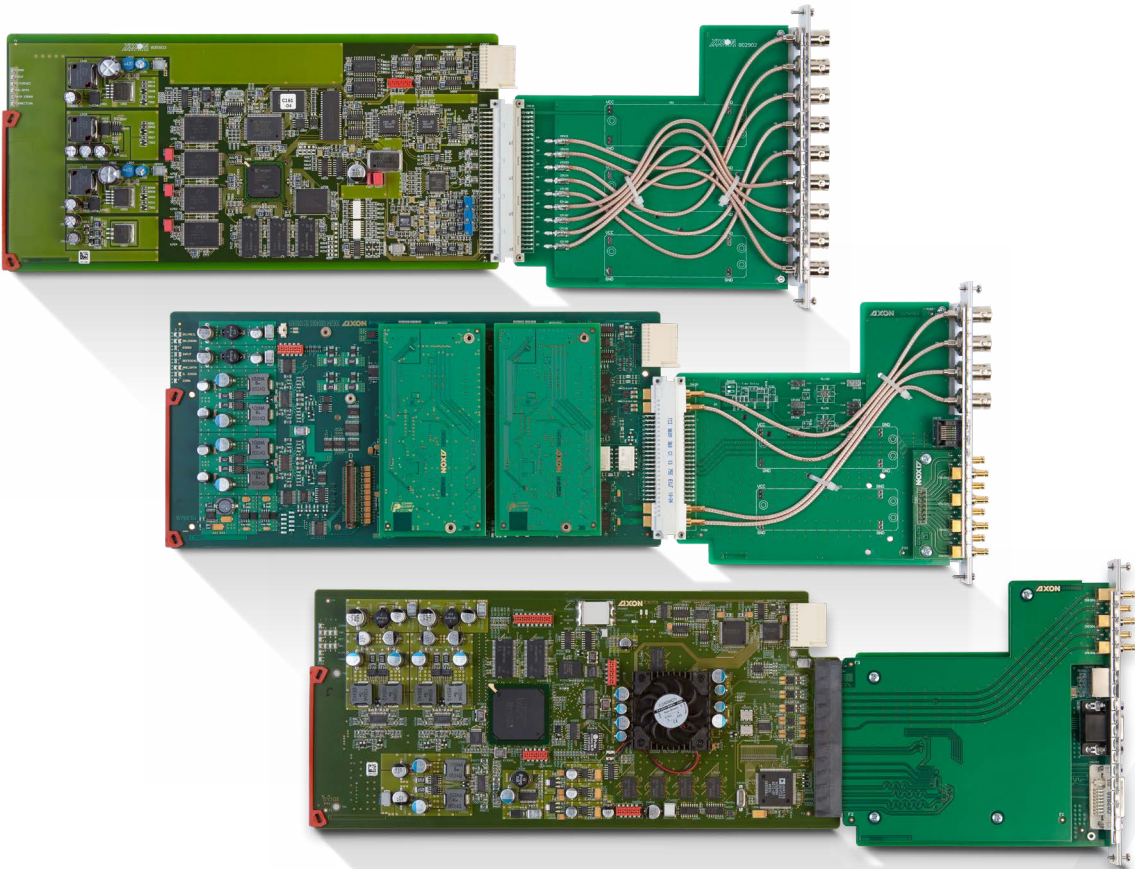
Thanks to the single form-factor of both the connector panel as well as the processing module, each card fits in each Synapse frame whether they are new or old. This unique form factor also ensures flexible I/O through interchangeable rear connector panels and use of SFP connectors.

The system is packed with innovative technologies. We also offer flexible upgrade paths all the way to UHD, helping you to protect your investment and lowering cost of ownership when standards evolve again.

The modules connect directly into the frame via a high-density connector that powers the cards by a hot swappable (dual redundant) power supply. The size of the Synapse card and the connector panel is the result of several design criteria that were defined in the original design.

The frames offer more than just a housing for the modules. They are unique intelligent systems that form the foundation of extremely flexible building blocks. These building blocks (almost 300 different processing modules) range from simple functions like a distribution amplifier to cards that perform a massive array of functions in a single slot.

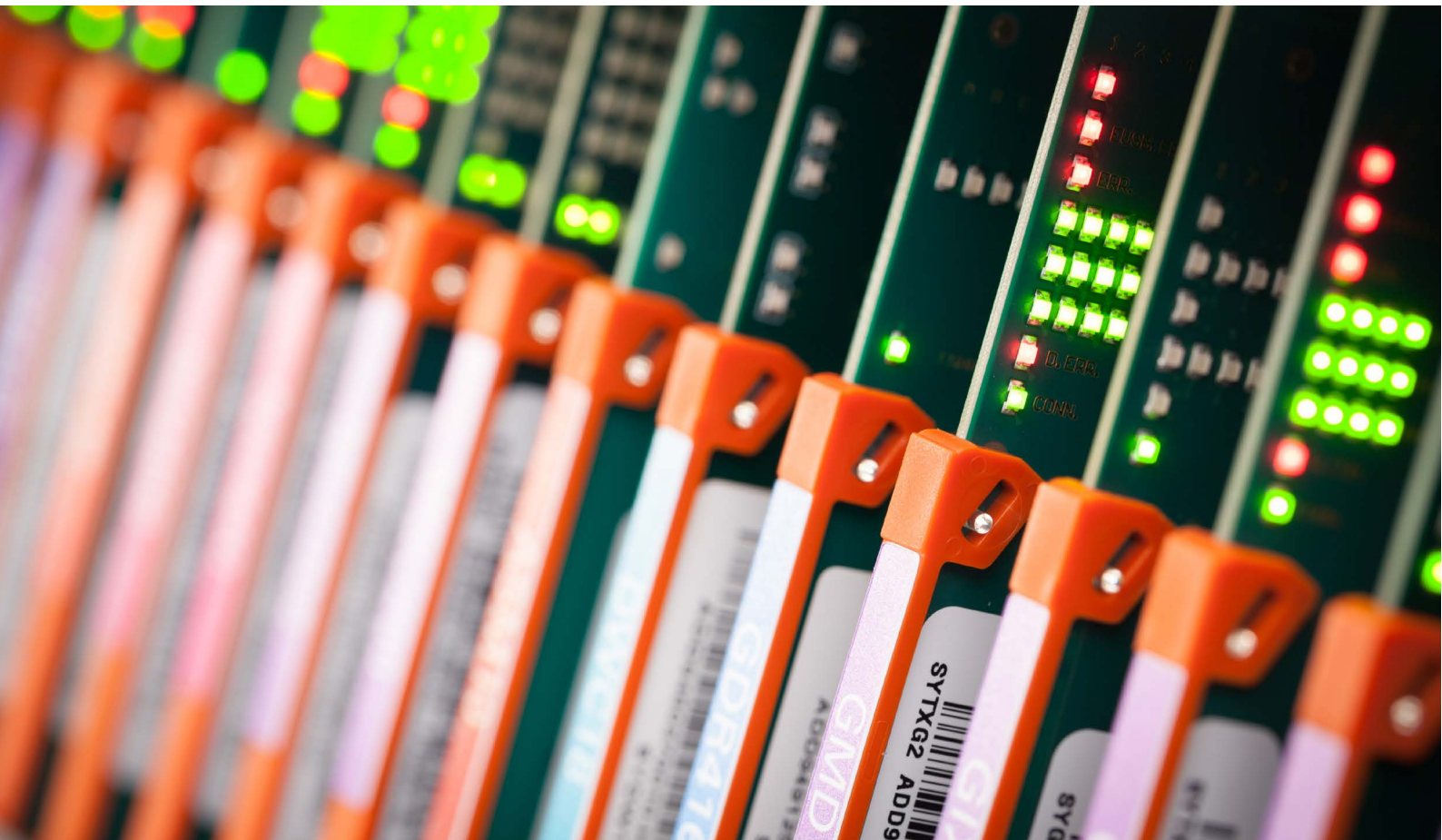
It is the beating heart in any broadcast environment.



Synapse's key benefits

Synapse has various unique features that ensure a good return on investment and many years of trouble free operation with the inherent versatility to adapt to changes in this constantly moving industry.

- **Flexibility**
Using the right combination of cards makes it possible to create any kind of transmission chain you could possibly want. This flexibility makes any type of processing job possible.
- **Massive processing power**
Not limited by a single function but integrating a wide variety of functions combined on a single processing board, resulting in lower footprint in power consumption and space.
- **Easy deployment, low wiring**
The frame has an internal add-on bus which can transport audio from one card to the other internally without any external wiring. Less wiring means easy deployment due to less wiring.
- **Easy to use and intuitive interfaces**
Configuration and control of Synapse is done via Cortex (FOC) or Cerebrum in an intuitive and easy to use graphical user interface.
- **Lower cost of ownership**
Synapse is based on a single form factor. This will protect your investment and makes swapping cards between frames possible when systems change, or the infrastructure is dynamic like in OB-vans.



Single form factor

Synapse is based on a single form factor. This is important as it will protect your investment and ensures inter frame swapping when systems change or the infrastructure is dynamic (as in OB-vans). All cards sold today can fit in a frame first sold in 2001, and every card sold from day one will fit in a frame bought today.

This is protection of your investment and lowers cost of ownership when things change.

Thanks to the front card rear connector panel construction Synapse can use different connectors between the front and the back. It is not limited to a single connector model and therefore the R&D team of EVS can make selections that best suit the performance needed. On page 10 you can see examples of 96-pin DIN41612 connectors, 4-coax+64 pin DIN41612, 8-coax, the 90 degree angled PCIe connector and we also introduced a 300 pin Searay connector.

- This single form factor is used in 2 frame options:
- **SFR18** 4RU 18 slots Synapse frame with redundant power and dual reference
 - **SFR08** 2RU 8 slots Synapse frame with redundant power and dual reference



For a more detailed explanation of how the Synapse system works and all its benefits, please refer to our 'Synapse - the system' brochure or visit our website: www.evs.com

Synapse Comes with Cortex: free configuration, monitoring & control software

Synapse modules are setup and configured by their settings and status items of their internal menu. These settings are always accessible via the front control. Some cards however, like for instance the multiviewer cards and Dolby processing cards, have complex menus and require a graphical user interface to make the modules more intuitive to control and easier to configure.

To make Synapse easier to control, it comes with an entirely free-of-charge control and monitoring software application called Cortex. Cortex provides comprehensive configuration, monitoring and maintenance tools for Synapse. This Windows based application includes functionality that enables the user to **remotely**:

- **Configure** complex systems in a short time frame;
- **Control** devices using an intuitive graphical user interface;
- View, record and archive the system events and **report** these to the user using a hierarchical system status display;
- **Maintain** the system over its lifetime with firmware update tools and backup and restore features.

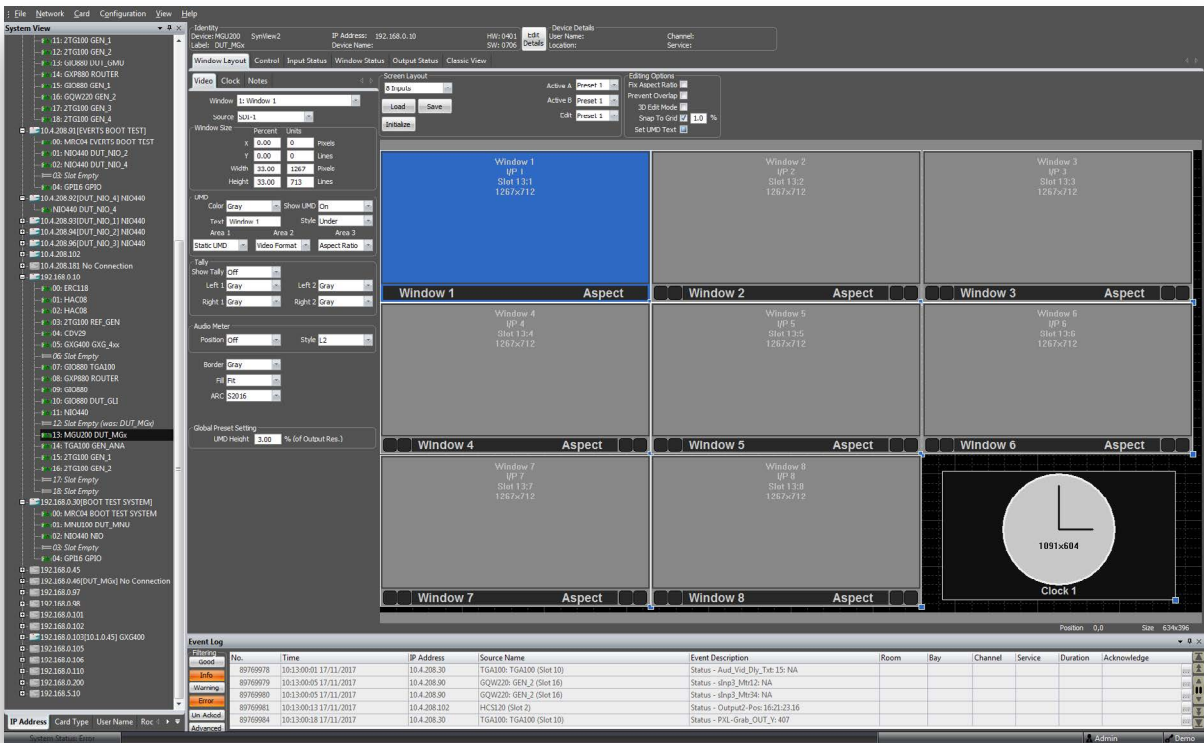
Cortex automatically discovers connected Synapse frames, Ethernet connected via the frame’s rack controller, and displays these frames in a treeview. Expending a frame will reveal the individual modules in that frame. Selecting a module will open that module’s user interface. Two examples screens can be seen on the next page.

The standard version of Cortex is available free of charge from the company website, downloadable from www.evs.com/downloads.

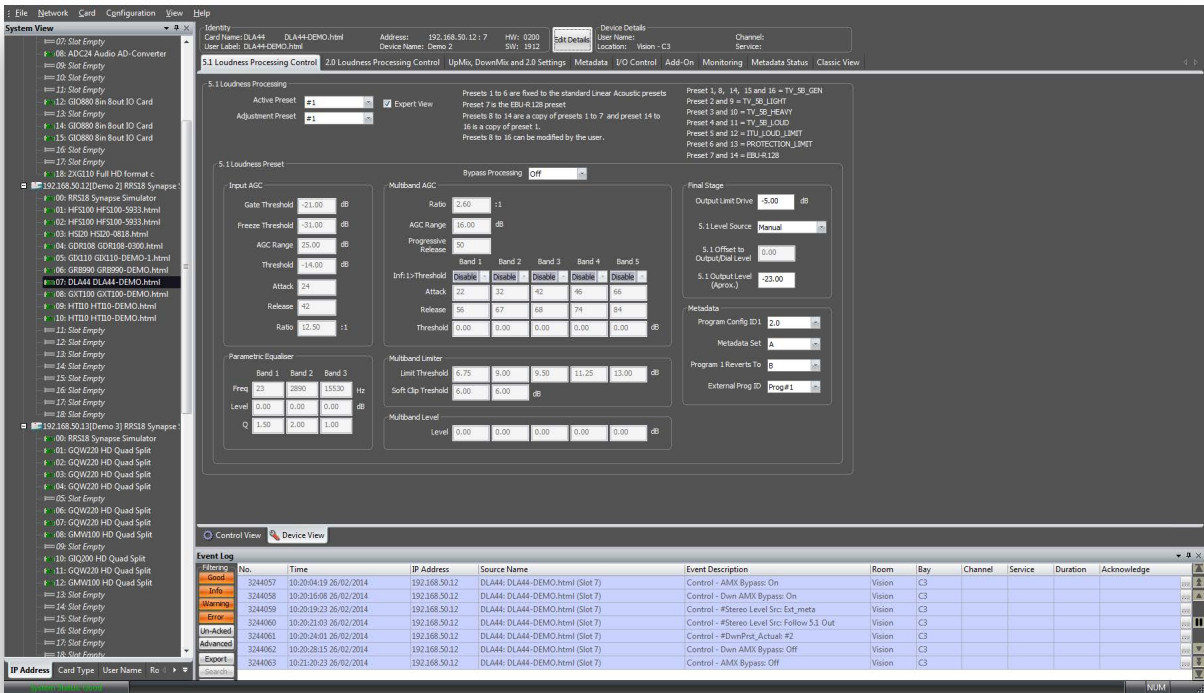
Third party control and monitoring via ACP and SNMP

All Synapse modules communicate to the outside world via ACP, EVS’s Control Protocol. This protocol is not only implemented in Cortex but also in many third party control and monitoring software providers.

Besides ACP, Synapse frames can also be optionally equipped with an SNMP enabled rack controller, giving you the possibility to control and monitor all module settings via standard SNMP applications using the provided MIB files of our modules.



An example of the multiviewer control interface in which you can setup and configure your multiview layout. With the tabs on top of the interface you can access other control and status interfaces.



An example of the DLA44 audio loudness control module graphical user interface.

Frames	ERC108-118	Enhanced rack controller for SFR08 and SFR18 with optional SNMP agent 19" rack frames: 4, 8 and 18 slots	12 14
	ERS108-118		
	SFR08 - SFR18		
Analog audio distribution	AAD08	Dual channel 1 to 8 analog audio distribution amplifier	16
Analog video distribution	CDV07	Analog video (black burst / Tri-level) distribution amplifier (Word Clock DA for high impedance circuits)	18
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	CDV29	Reference (black burst / Tri-level) distribution amplifier with 9 outputs and Synapse reference inputs	22
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	GEB500-550-900-950-990		
	HEB500-550-900-950-990		
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	GMA100-110-120-130-140		
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	HAS05M	HD, SD 8 channel 2-group embedded audio processing card (legacy)	194
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	GPD100 - HPD100	3Gb/s, HD, SD embedded domain PCM to Dolby Digital (plus) encoder with audio shuffler	64
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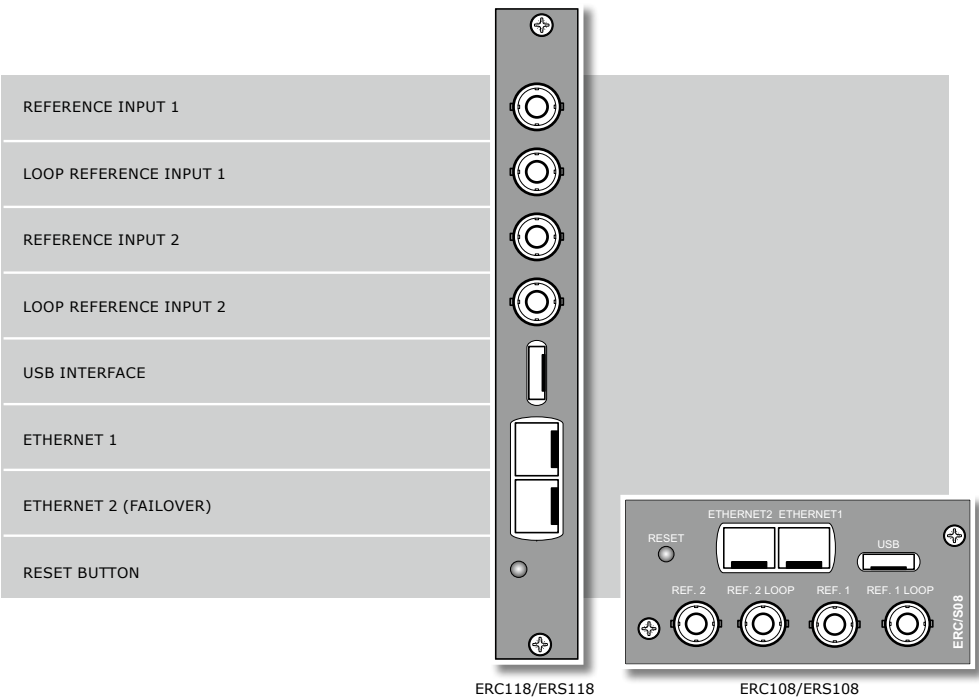
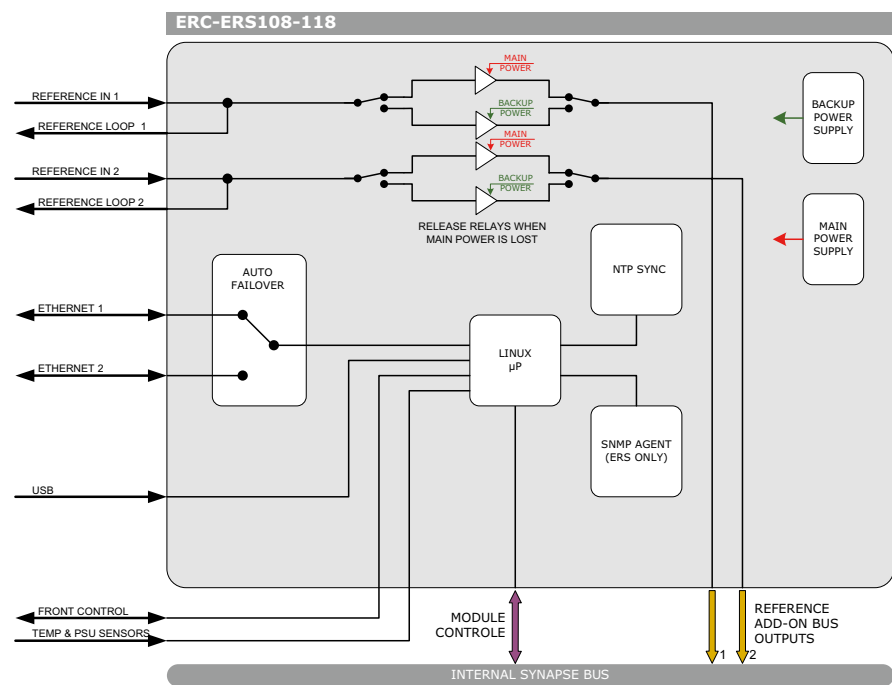
Audio processing	2AI48	Dual AES/EBU back-up switcher with integrity checking	68
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	DAS24	4 channel (2 x AES/EBU) digital audio mixing and shuffle module	74
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	GDV080-090 - HDV080-090	Monitoring distribution amplifier with down converted SD or analog video outputs and optional audio de-embedder	104
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SFP modules	SFP modules	Overview of available SFP modules, compatible with all backpanels with SFP cages	197

Available SD-only modules

The following SD-only products, of which there are HD or 3Gb/s equivalents, are not described in this catalog. These modules are still available at EVS. All details, like ordering information and technical specifications, can be found on our website: www.evs.com

Frame synchronizers	2FS10	Dual channel frame synchronizer
Integrity checking and probing	2IX08	Dual channel basic integrity checking probe with switch-over function
	2IX09 - 2IX10	Dual channel (enhanced) integrity checking probe with switch-over function and frame synchronizer
Bridging and VBI insertion	INS21	VBI line inserter/swapper (databridge)
	INS400	SD, CVBS VBI line inserter/swapper (databridge) for composite and SDI inputs



Enhanced rack controller for SFR18 and SFR08 with optional SNMP agent

The EVS ERC108 and ERC118 are the central controllers of respectively the Synapse SFR08 and SFR18 system frames. The ERS108 and ERS118 include an SNMP agent. They are used to configure, control and monitor Synapse systems and to provide network connectivity. The ERS/ERC108-118 also provides an input for two independent references with loop-through.

- TCP/IP and UDP support
- Support for up to 2 NTP servers
- PSU status announcements
- Temperature measurement of frame
- Dual redundant gigabit Ethernet
- USB interface for for instance a USB relay box
- Dual reference inputs with loop
- Supports reference distribution of Bi-Level sync, Tri-level sync and Word Clock
- Reset button

Ordering information

Module:

- **ERC118:** Central rack controller for the SFR18 frame
- **ERS118:** Central rack controller for the SFR18 frame with SNMP agent
- **ERC108:** Central rack controller for the SFR08 frame
- **ERS108:** Central rack controller for the SFR08 frame with SNMP agent

Ethernet:

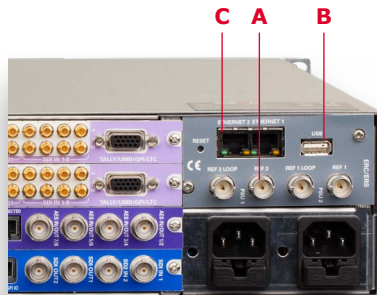
Shielded Twisted Pair (STP) 10base-T, 100base-TX, 1000base-T full duplex

Specifications

- **Reference input standard:** PAL (ITU624-4), NTSC (SMPTE 170M), Bi-Level sync (SDIF-2 (TTL compatible), Tri-Level sync (
- **Ref input signal level:** Tri-level 600 mVp-p nominal, Bi-level 300mVp-p nominal, 75 Ohm terminated
- **Ref input impedance:** high impedance with loop for termination
- **Ref input return loss:** >25dB to 10MHz



Central genlock (A)
(Bi- and Tri-level sync and Word Clock) The Synapse range has a built-in dual reference distribution system



USB interface (B)
USB connector reserved for GPI dongle

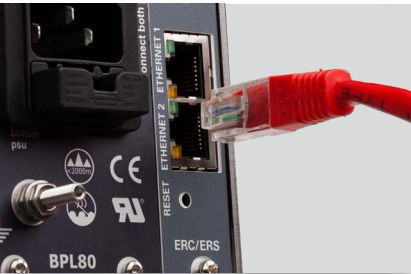
Ethernet (C)
Built-in dual Ethernet based networking with auto failover

19" rack frames: 8 and 18 slots

The SFR08 and SFR18 are the generic module holders for the Synapse system.

The SFR08 is a 2 RU frame with 8 slots and the SFR18 is our most dense frame with 18 slots in 4 RU. These frames incorporate several unique functions that stand out from the conventional frames found in most other card based infrastructure products.

- 2x Central genlock input for all cards that require a reference
- Ethernet connection for remote control, setup and maintenance (dual Ethernet with auto failover)
- GPI outputs for alarm and power supply failure via USB dongle
- Redundant auto input range power supply
- Full control of all card and frame parameters through intuitive interface on inside front panel
- Internal Synapse ADD-ON daisy chain bus for audio, GPI and multiview applications



Built-in Ethernet



1 or 2 power supplies



Independent AC inlets

Rack controllers

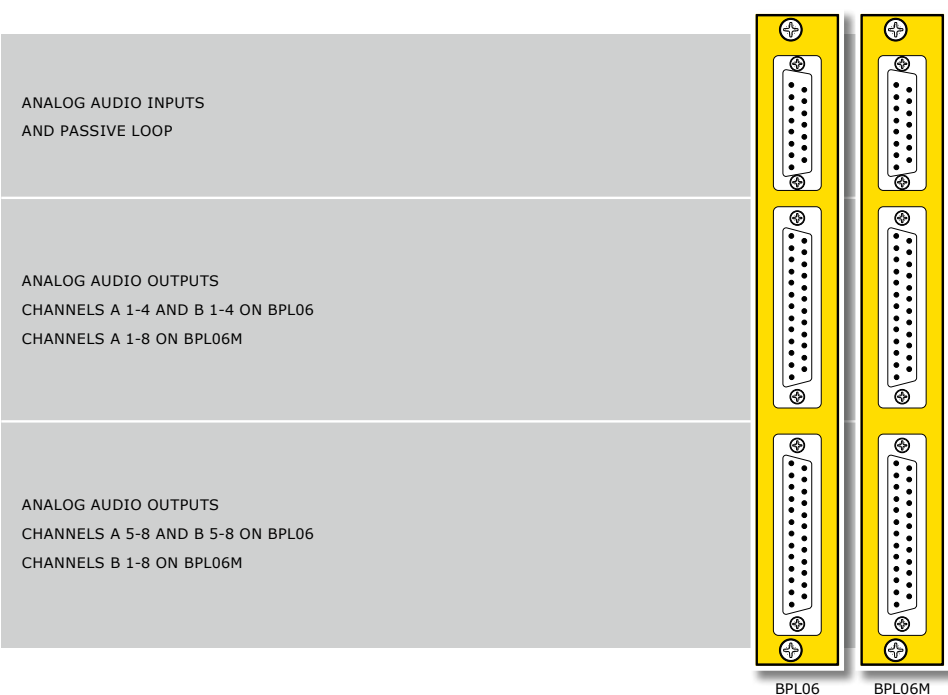
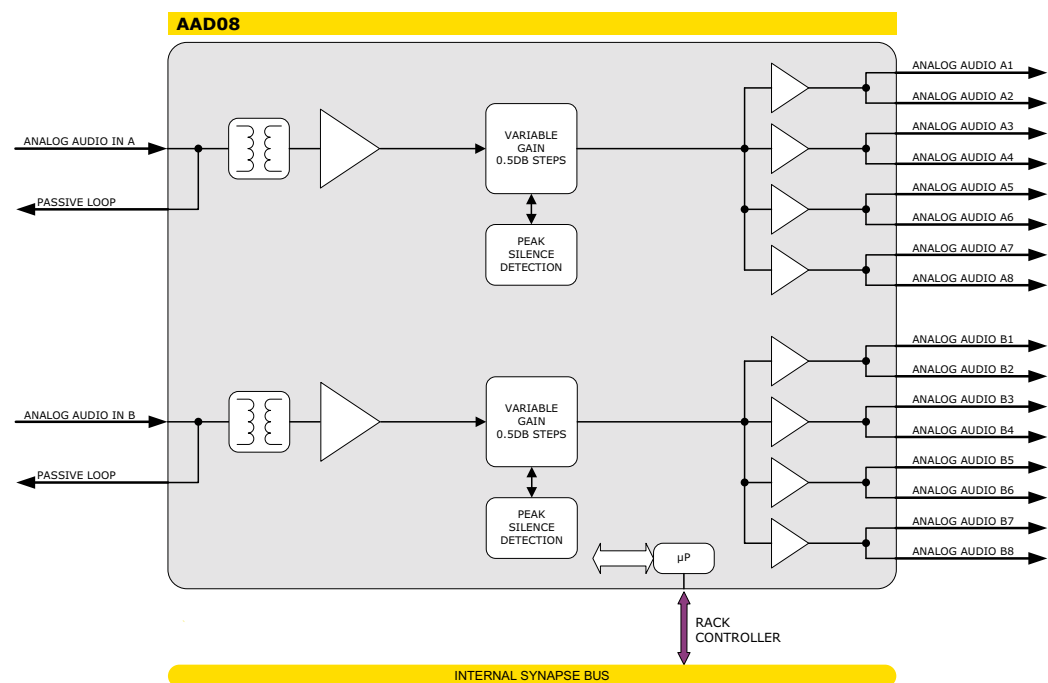
The frame comes with a built-in rack controller like the ERC18 or ERS18 (for the SFR18).

Ordering information

- **SFR08:** 19"-2RU housing with 8 slots, including rack controller (ERC108) and 1 power supply unit
- **SFR08S:** 19"-2RU housing with 8 slots, including rack controller (ERS108) and 1 power supply unit, SNMP compatible
- **SMP75:** Extra power supply unit for SFR08
- **SFR18:** 19"-4RU housing with 18 slots, including rack controller (ERC118) and 1 power supply unit
- **SFR18S:** 19"-4RU housing with 18 slots, including rack controller (ERS118) and 1 power supply unit, SNMP compatible
- **SMP175:** Extra power supply unit for SFR18

Specifications

- **Dimensions SFR08 (HxWxD):** 87mm x 483mm x 492 mm (537 mm including front lid)
- **Dimensions SFR18 (HxWxD):** 176mm x 483mm x 510 mm (528 mm including front lid)
- **Weight SFR08:** 11.5 kg (25.3 lbs)
- **Weight SFR18:** 11 kg (24.2 lbs) - less weight than the SFR08
- **Power SFR08:** input 82-264 VAC max output 150 Watt
- **Power SFR18:** input 95-264 VAC max output 330 Watt



Dual channel 1 to 8 analog audio distribution amplifier

The AAD08 Analog Audio Distribution Amplifier provides dual channel 8 way distribution. It utilizes high quality components to provide high reliability and excellent audio performance. The AAD08 features Real Transformers on its inputs, Variable Gain, Peak Detection and Silence Detection.

- 8 balanced outputs per channel
- Transformer coupled input
- Low impedance output with transformer properties
- Level control (0.5dB increments)
- Peak detection 0 dBu to 24 dBu
- Silence detection
- 24dBu maximum input level
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- Generic analog audio distribution
- Analog audio silence and clipping detection/probing
- Analog audio galvanic isolation / hum suppression

Ordering information

Module:

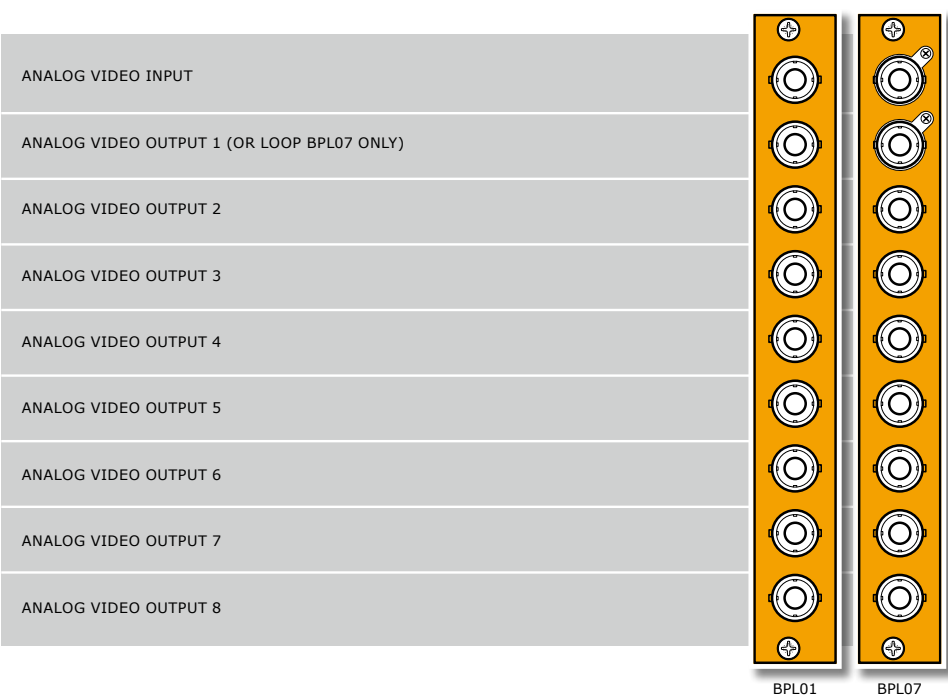
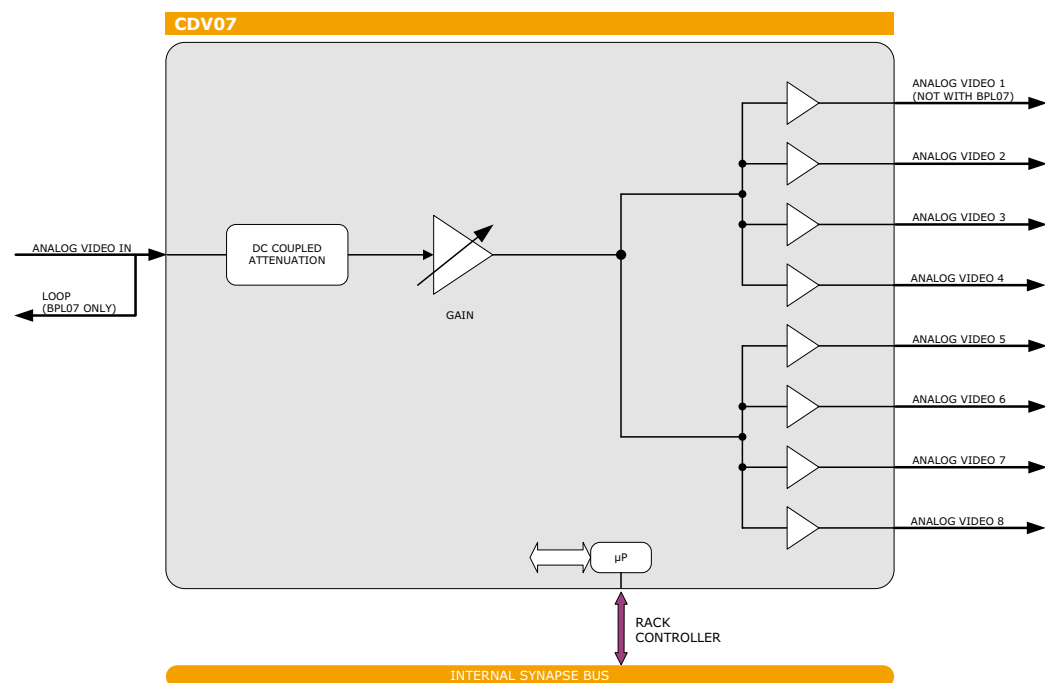
- **AAD08:** Dual channel 1 to 8 analog audio distribution amplifier

Standard I/O:

- **BPL06_AAD08:** I/O panel for AAD08 with 4 stereo outputs on sub-D
- **BPL06M_AAD08:** I/O panel for AAD08 with 8 mono outputs on sub-D

Specifications

visit www.evs.com



Analog video (black and burst / Tri-level) distribution amplifier (Word Clock DA for high impedance circuits)

The CDV07 is a basic analog distribution amplifier providing a low loss electronically balanced input with loop through (when used with the BPL07) or terminated (when used with the BPL01). If necessary the input can be used fully floating by unscrewing the tabs on the BPL07.

The CDV07 is designed for applications where cost effective analog video or black and burst distribution is needed. The straightforward design enables easy installation and reliable operation.

- Adjustable input gain
- DC coupled
- Compatible with Tri-level sync
- Compatible with Word Clock for high impedance circuits
- Floating inputs and loop through with BPL07
- +/- 6dB gain adjustment
- Input status detection
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18 frame and the Ethernet port (ACP)

Applications

- Word Clock distribution into high impedance circuits
- Tri-level sync distribution

ordering information

Module:

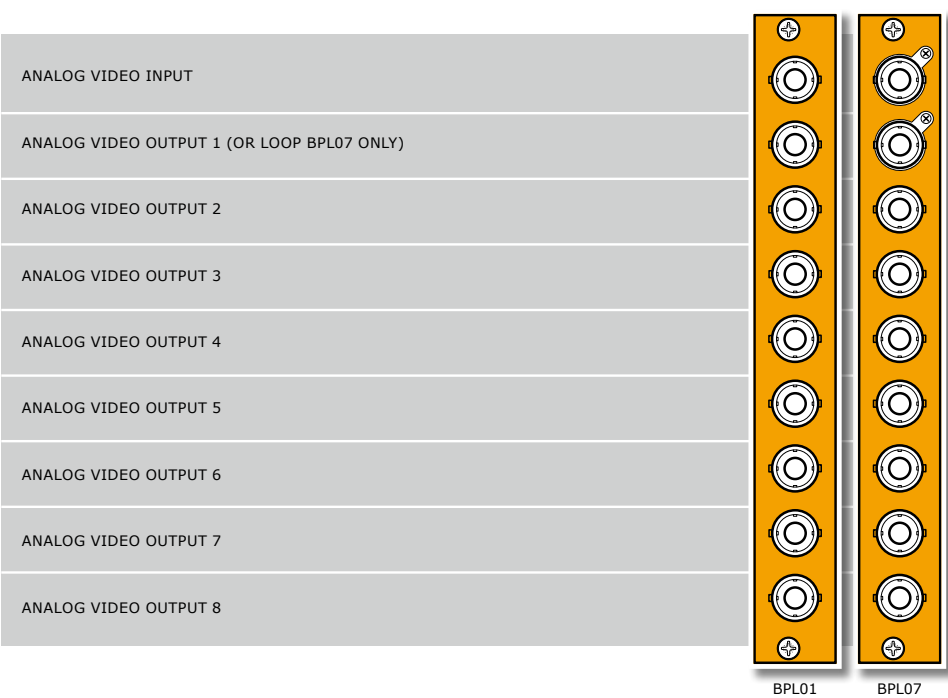
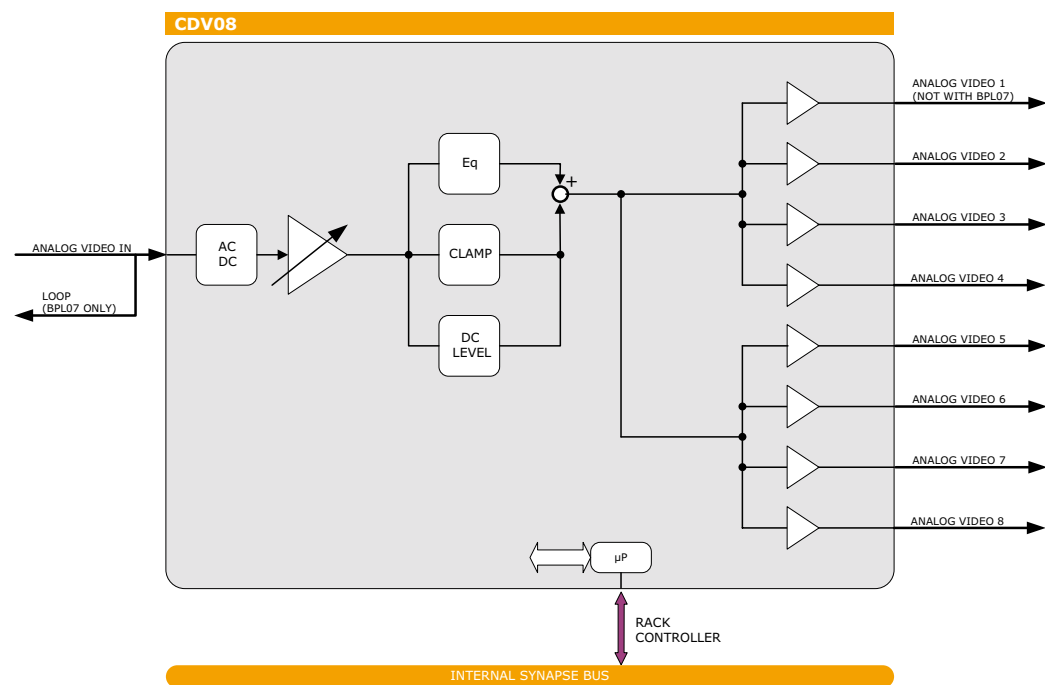
- **CDV07:** Analog video distribution amplifier

Standard I/O:

- **BPL01_CDV07:** I/O panel for CDV07
- **BPL07_CDV07:** I/O panel for CDV07 with loop through

Specifications

visit www.evs.com



Analog video distribution amplifier with cable equalizer

The CDV08 is an enhanced analog distribution amplifier providing a low loss electronically balanced input with loop through when used with the BPL07 or terminated when used with the BPL01.

If necessary the input can be used fully floating by unscrewing the tabs on the BPL07.

- Adjustable input gain
- AC or DC coupled
- Equalizer for up to 300 meter of RG59 or equivalent cable
- Equalizer level of up to 230%
- Floating inputs and loop through with BPL07
- +/- 3 dB gain adjustment
- Input status detection
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18 frame and the Ethernet port (ACP)

Applications

The CDV08 is designed for applications where a long cable length is used and analog video or black and burst signals need equalization. The straightforward design enables easy installation and reliable operation.

Ordering information

Module:

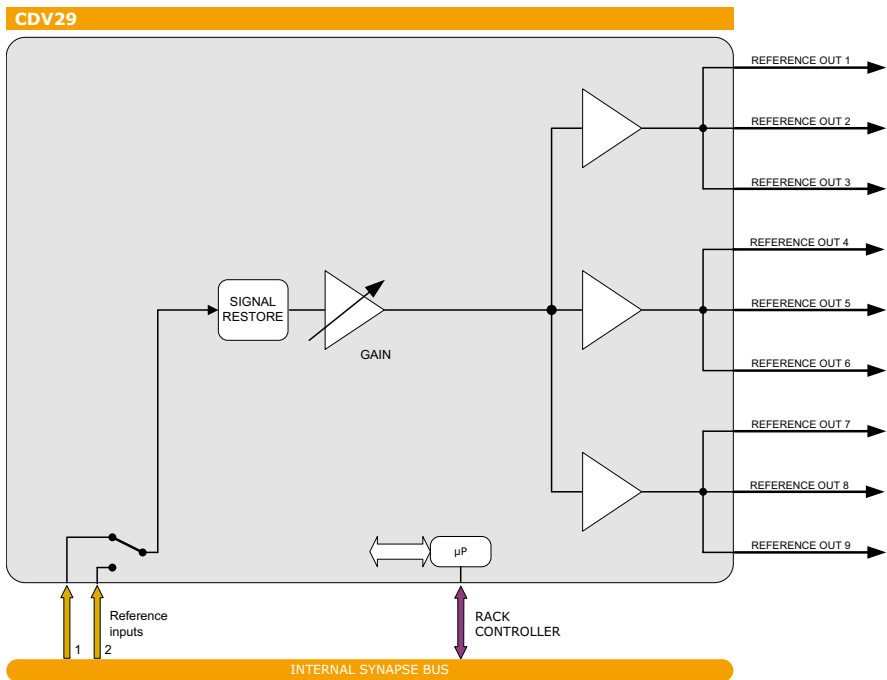
- **CDV08:** Analog video distribution amplifier with cable equalizer

Standard I/O:

- **BPL01_CDV08:** I/O panel for CDV08
- **BPL07_CDV08:** I/O panel for CDV08 with loop through

Specifications

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Reference (black and burst / Tri-level) distribution amplifier with 9 outputs and Synapse BUS reference inputs

The CDV29 is a basic analog distribution amplifier providing 9 buffered outputs via the use of the internal Synapse Reference distribution system.

- 9 outputs
- Adjustable input gain
- DC restored
- Compatible with Tri-level sync
- +/- 6dB gain adjustment
- Input status detection
- Back-up functionality. In case of reference loss, the card can automatically switch to other reference input.
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18 frame and the Ethernet port (ACP)

Applications

The CDV29 is designed for applications where a cost effective analog Tri-level or Bi-level (black and burst) distribution is needed. The straightforward design enables easy installation and reliable operation.

Ordering information

Module:

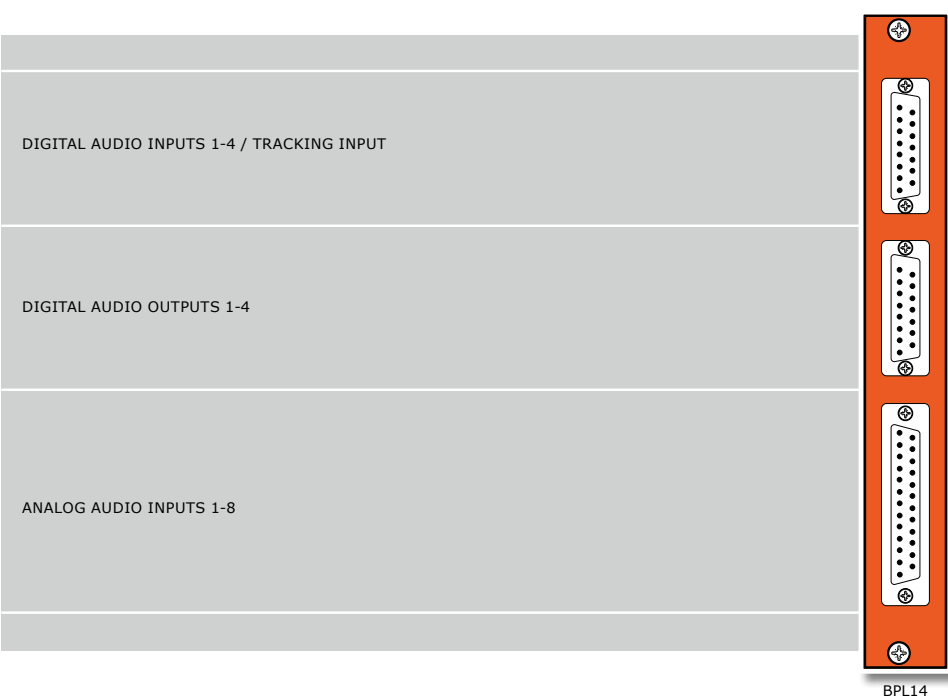
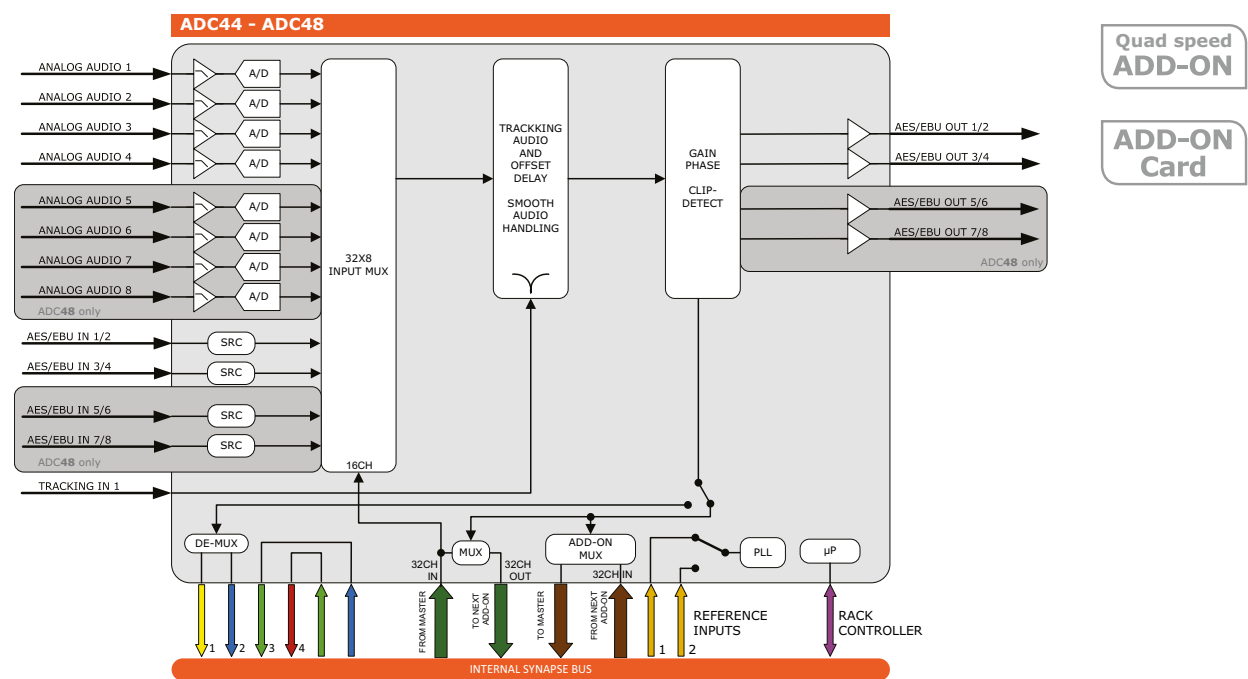
- **CDV29:** Analog video distribution amplifier with 9 outputs and Synapse reference inputs

Standard I/O:

- **BPL01_CDV29:** I/O panel for CDV29

Specifications

visit www.evs.com



4 or 8 channel 24-bit audio A/D converter with analog and AES/EBU inputs

The ADC44 and ADC48 are multi-functional products. Their basic function is the conversion of analog audio to AES/EBU digital audio. In addition to the analog inputs it has AES/EBU inputs with a sample rate converter (SRC). The ADC44/48 has a tracking audio delay and a delay offset of up to 650ms at 96kHz or 1300ms at 48kHz.

It can also perform the Synapse ADD-ON function. In ADD-ON mode the card acts as an analog or digital audio input board that feeds a master card positioned one slot left of the ADD-ON card. Both the normal and Quad Speed Audio bus are supported. The card acts as a analog audio embedder for example if used in combination with the ASV12, SFS11 or GXG100 or in Quad speed mode with the GXG400 (many more options available). The audio data that enters the Synapse bus to a master card is identical to the data present in the local AES/EBU outputs. The AES/EBU 110 Ohms and analog audio signals are available on sub-D connectors.

- 24-bit audio conversion
- 8 channel internal processing selectable from 8 analog or 8 digital channels
- 24-bit audio conversion
- 8 channel internal processing selectable from 8 analog or 8 digital channels in ADC48
- 4 channel internal processing selectable from 4 analog or 4 digital channels in ADC44
- Any input to any output selection (This can be a mix of analog and digital signals)
- AES/EBU inputs with selectable SRC (32 to 96kHz sampling)
- 96kHz and 48kHz sample clock locked to: B&B ref or word clock ref. (In ADD-ON, only 48kHz)
- 96kHz and 48kHz sample clock in free running mode (In ADD-ON, only 48kHz)
- In- and outputs analog reference levels adjustable for 12, 15, 18 and 24dBu
- Adjustable audio gain (in 0.25dB) and phase (0-180 deg)
- Can be used as a Synapse ADD-ON card
- Adjustable audio delay offset up to 1300ms in 1ms increments (@48kHz)
- Tracking audio delay on dedicated BNC input
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18 frame and the Ethernet port (ACP)

Complementary products:

- All embedding master cards with a normal or a Quad Speed Audio bus.

Applications

- Stand alone high quality Audio A/D conversion
- Generic analog and digital audio ADD-ON card for dedicated Synapse MASTER cards which have an embedding function
- AES/EBU ProcAmp

Ordering information

Module:

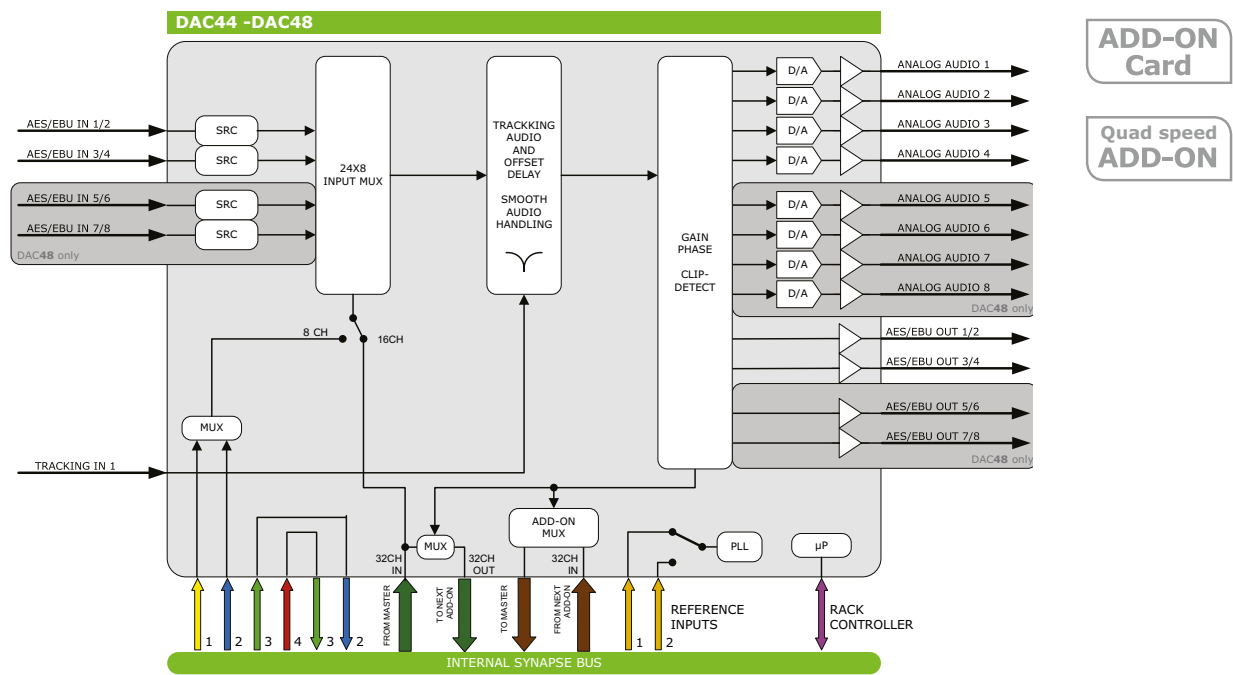
- **ADC44:** 4 channel 24 bit A/D converter with AES/EBU bypass inputs
- **ADC48:** 8 channel 24-bit A/D converter with AES/EBU bypass inputs

Standard I/O:

- **BPL14_ADCxx:** I/O panel for ADCxx with balanced analog audio in, balanced AES/EBU in and balanced AES/EBU out

Specifications

visit www.evs.com



4 or 8 channel 24-bit audio D/A converter with analog and AES/EBU outputs

The DAC44 and DAC48 are multi-functional products. Their basic function is the conversion of AES/EBU digital audio to analog audio. In addition to the analog outputs they have AES/EBU outputs and offer the Synapse ADD-ON function. In ADD-ON mode the card acts as an input board which is fed by a master card positioned one slot left of the ADD-ON card. Both normal and Quad Speed Audio bus are supported. The DAC48 for example acts as an analog and digital audio de-embedder when used in combination with the EVS SAV12 (SDI to CVBS converter) or HFS12 (frame synchronizer) or in Quad Speed mode with an HLD200 (long time delay) or GXG400 (up/down/cross converter). The AES/EBU in- and outputs are available on 110 Ohm sub-D connectors. You can control channel selection/ swapping, and gain and phase control of all audio channels.

The DAC44 is a 4 channel Digital to Analog converter with 2 AES inputs, 2 AES outputs and 4 analog outputs. The DAC48 is an 8 channel converter with 4 AES inputs, 4 AES outputs and 8 analog audio outputs.

- 24-bit audio conversion
- 8 analog and 4 AES/EBU outputs (a copy of the analog outputs) in DAC48
- 4 analog and 2 AES/EBU outputs (copy of analog channels) in DAC44
- 96kHz and 48kHz sample clock locked to black and burst ref or Word Clock ref. (in ADD-ON mode, only 48kHz)
- 96kHz and 48kHz sample clock in free running mode (In ADD-ON mode, only 48kHz is possible)
- Output analog reference levels adjustable for 12, 15, 18 and 24dBu
- Adjustable audio gain (in 0.25dB) and phase (0-180 deg)
- Can be used as a Synapse ADD-ON card in both normal as well as Quad Speed Bus modes
- Individual selection of each mono channel out of the AES/EBU domain
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Complementary card to:
All de-embedding master cards normal and Quad Speed bus

Applications

- Generic audio D/A converter, with AES/EBU processed outputs
- ADD-ON D/A converter next to Synapse de-embedding products

Ordering information

Module:

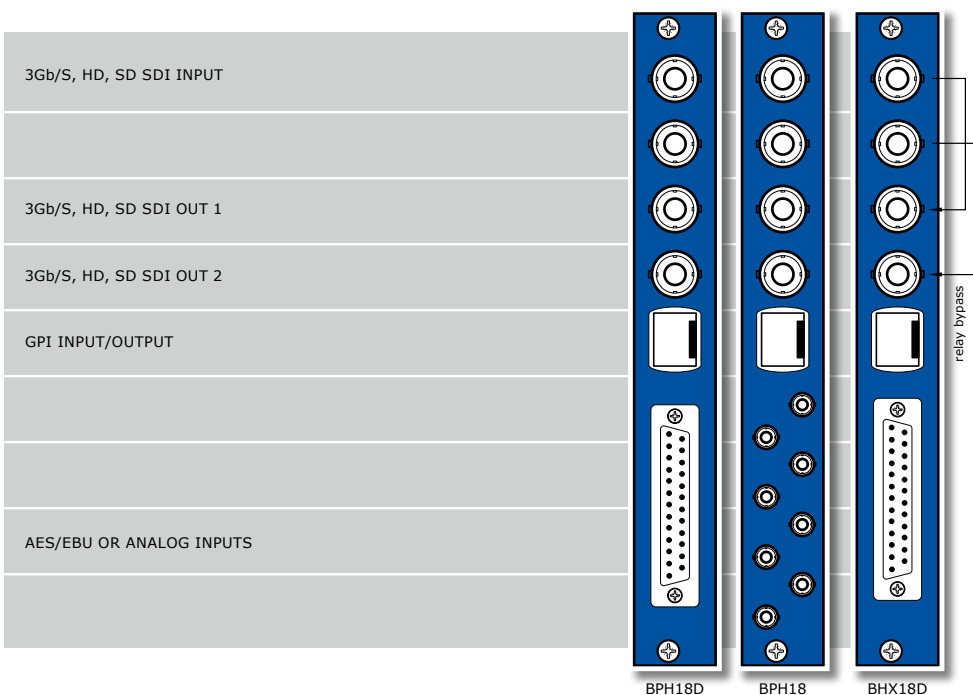
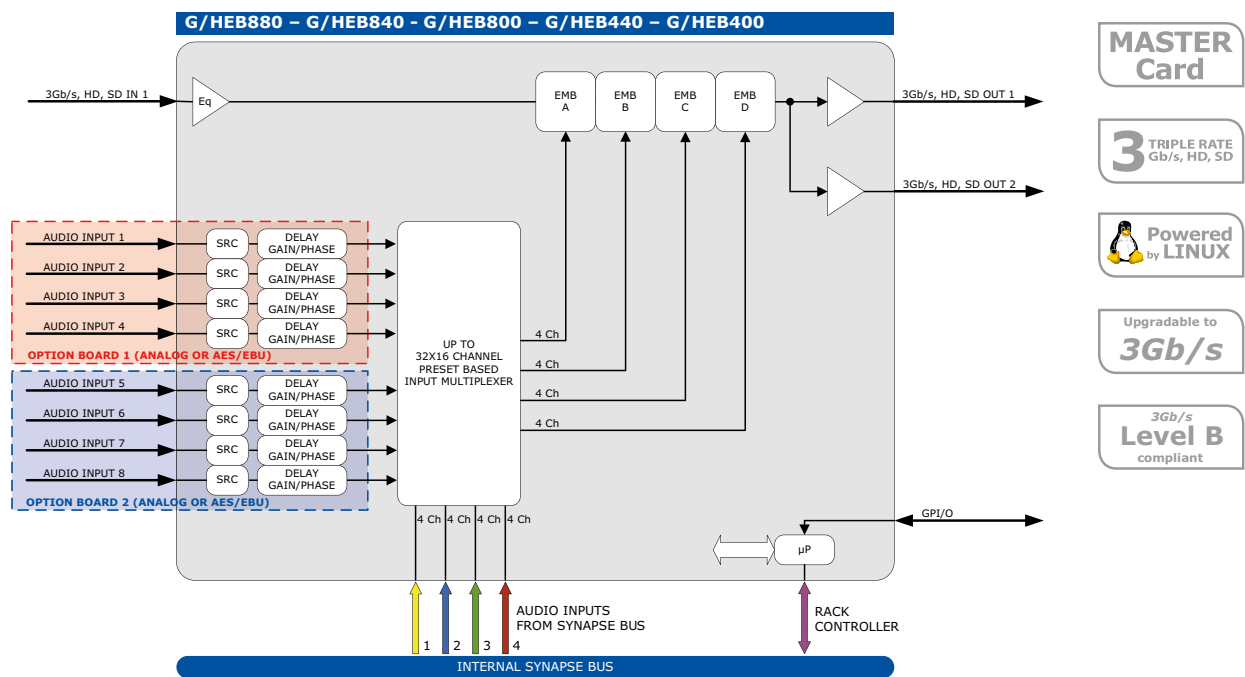
- **DAC44:** 4 channel 24 bit audio D/A converter with AES/EBU outputs
- **DAC48:** 8 channel 24 bit audio D/A converter with AES/EBU outputs

Standard I/O:

- **BPL13_DAC48:** I/O panel for DAC48 with balanced analog audio outputs, balanced AES/EBU outputs and balanced AES/EBU inputs

Specifications

visit www.evs.com



3Gb/s, HD, SD basic analog and/or digital audio embedder

The G-HEB880-840-800-440-400 is a 3GB/s, HD SDI and SD SDI audio embedder. It is capable of inserting or appending up free-running AES/EBU digital audio channels or analog audio channels. The card has 2 option input boards: 4 mono analog audio inputs (4ch total) per board, or 4 stereo AES/EBU inputs (8ch total) per board.

In addition, four ADD-ON cards can be connected to create a routing matrix. The architecture of Emb_A to Emb_D blocks is identical. The local AES inputs can be controlled to adjust Phase, Gain and delay (on the fly).

Future upgrades are possible, like for instance the HEB400 can be future upgraded to HEB880, GEB800 or GEB840, etc. This allows for staged implementation of HD infrastructures and spread the cost over multiple budget years.

- Compatible with the following input formats (auto selecting) (1080p only for GEB):
 - 1080p59.94
 - 1080p29.97
 - 720p50
 - 1080p50
 - 1080p25
 - SD525
 - 1080i59.94
 - 1080p(sf)23.98
 - SD625
 - 1080i50
 - 720p59.94
- Dual offset audio delay adjustable between 0 and 500ms
- Up to 8 AES/EBU inputs with sample rate converter (available with 110 Ohm and 75 Ohm inputs)
- Up to 8 analog audio inputs (available with balanced or unbalanced connectors)
- 8 extra AES/EBU inputs through the Synapse bus
- 2 SDI + embedded audio outputs

- 7 presets that configure all 16 input channels at once. controlled by GPI or ACP (Cortex)
- Audio level and phase control
- Audio offset delay up to 5000ms
- AES/EBU inputs accept synchronous streams like Dolby E and asynchronous up to 96kHz sampling via the built in Sample Rate Converters.
- 16 extra audio channels (4 groups) with ADD-ON card for input multiplexing
- Peak detection 0 dBFS
- Silence detection with threshold (-100 to -20dBFS) and time control (1 to 255 sec)
- Transparent for ATC time code RP188, RP196, RP215
- Locks to SDI input
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18 frame and the Ethernet port (ACP)
- Optional relay bypass (BHX18 or BHX18D)

Complementary cards:

- ADC20, ADC24, DIO24, DIO48

Applications

- 3Gb/s, HD and SD audio embedding
- Up to 16 channel preset based audio embedding

Ordering information

Module:

- GEB880:** 3Gb/s, HD, SD 16 ch digital audio embedder
- HEB880:** HD, SD digital 16 ch audio embedder
- GEB840:** 3Gb/s, HD, SD digital and analog audio embedder

- HEB840:** HD, SD digital and analog audio embedder
- GEB800:** 3Gb/s, HD, SD 8 ch digital audio embedder
- HEB800:** HD, SD 8 ch digital audio embedder
- GEB440:** 3Gb/s, HD, SD 8 ch analog audio embedder
- HEB440:** HD, SD 8 ch analog audio embedder
- GEB400:** 3Gb/s, HD, SD 4 ch analog audio embedder

Input/output options

Card model	Option board 1	Option board 2
GEB880	4 AES/EBU inputs (8 channels)	4 AES/EBU inputs (8 channels)
HEB880	4 AES/EBU inputs (8 channels)	4 AES/EBU inputs (8 channels)
GEB840	4 AES/EBU inputs (8 channels)	4 analog inputs (4 channels)
HEB840	4 AES/EBU inputs (8 channels)	4 analog inputs (4 channels)
GEB800	4 AES/EBU inputs (8 channels)	None
HEB800	4 AES/EBU inputs (8 channels)	None
GEB440	4 analog inputs (4 channels)	4 analog inputs (4 channels)
HEB440	4 analog inputs (4 channels)	4 analog inputs (4 channels)
GEB400	4 analog inputs (4 channels)	None
HEB400	4 analog inputs (4 channels)	None

- HEB400:** HD, SD 4 ch analog audio embedder

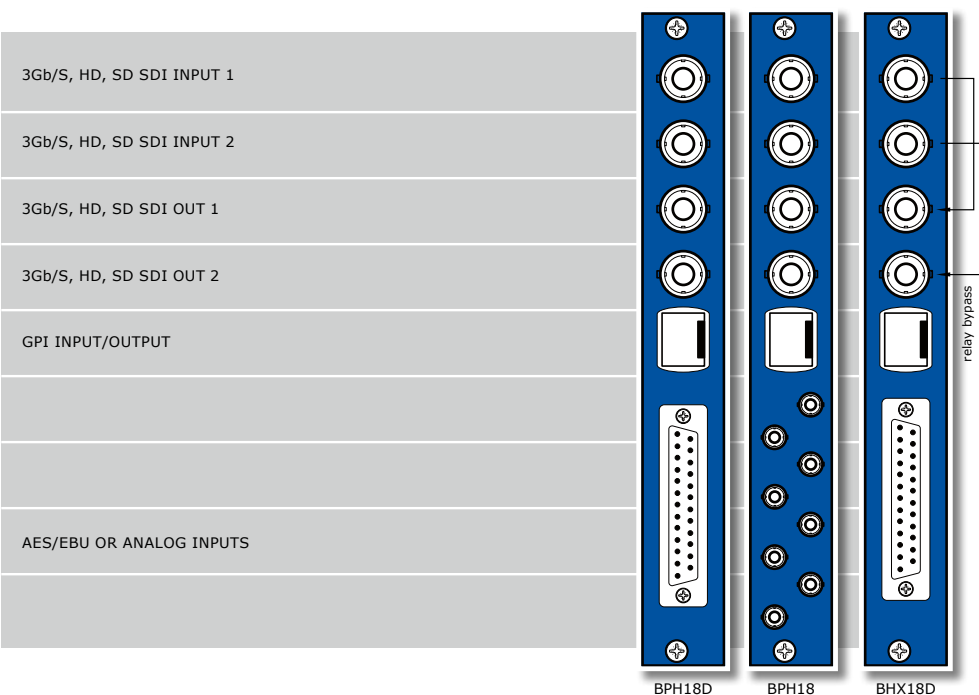
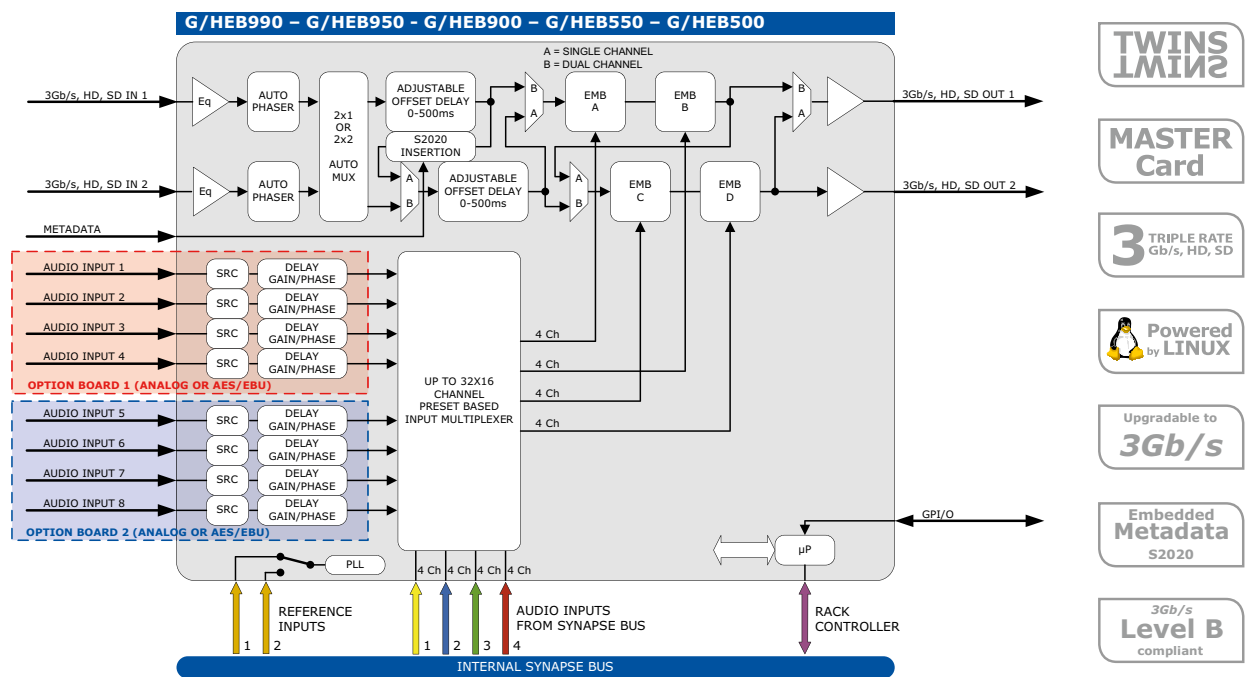
Standard I/O:

- BPH18_GEBxxx:** I/O panel for G-HEBxxx with unbalanced AES/EBU or analog audio inputs
- BPH18D_GEBxxx:** I/O panel for G-HEBxxx with balanced AES/EBU or analog audio inputs

Relay bypass I/O:

- BHX18D_GEBxxx:** I/O panel for G-HEBxxx with balanced AES/EBU or analog audio inputs with relay bypass

Specifications visit www.evs.com



3Gb/s, HD, SD enhanced digital and/or analog audio embedder with 'TWINS' dual channel function

The G-HEB990-950-900-550-500 is a 3GB/s SDI, HD SDI and SD SDI audio embedder. It is capable of inserting or appending free-running AES/EBU digital or analog audio channels. The card has 2 option input boards: 4 mono analog audio inputs (4ch total) or 4 stereo AES/EBU inputs (8ch total) per board.

The core of these modules consists of four embedder blocks and 2 delay blocks. These blocks can be used for a single SDI 4 group embedder (with up to 1 sec of video offset delay), or in parallel for 2 individual channels with 2 group embedders each (with individual 500ms offset delay) in a TWINS function. Each block is capable of embedding 4 audio channels into one group, which gives a total of 16 audio channels into four (or 2x2) groups. The TWINS mode is a single command operation and controls 4 individual selection switches as can be seen in the block diagram.

In addition, four ADD-ON cards can be connected to create a routing matrix. The architecture of Emb_A to Emb_D blocks is identical. The local AES inputs can be controlled to adjust Phase, Gain and delay (on the fly).

Future upgrades are possible, like for instance the HEB900 can be future upgraded to HEB990, GEB900 or GEB990.

- 2 SDI inputs (with auto switch on carrier loss)
- Dual offset audio delay adjustable between 0 and 500ms
- Dual (TWINS*) or single SDI mode
- Auto SRC-off for bitstream sources like Dolby E

- Up to 8 AES/EBU inputs with sample rate converter
- Up to 8 analog audio inputs (balanced or unbalanced)
- Compatible with the following input formats (auto selecting) (1080p only for GEB):
 - 1080p59.94 ■ 1080p29.97 ■ 720p50
 - 1080p50 ■ 1080p25 ■ SD525
 - 1080i59.94 ■ 1080p(sf)23.98 ■ SD625
 - 1080i50 ■ 720p59.94
- AES/EBU inputs accept synchronous streams like Dolby E and asynchronous up to 96kHz sampling via the built in Sample Rate Converters.
- 8 extra AES/EBU inputs through the Synapse bus
- 2 (2x1) SDI + embedded audio outputs
- 7 presets to configure all 16 input channels (GPI and ACP)
- Append and overwrite modes
- Audio level, phase and offset delay (up to 5000 ms)
- 16 extra audio channels (4 groups) with ADD-ON card
- Peak detection 0dBFS
- Silence detection with threshold and time control
- Transparent for ATC time code RP188, RP196, RP215
- Locks to Tri-level, Bi-level syncs or SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)
- Optional relay bypass (BHX18 or BHX18D)

Complementary cards:

- ADC20, ADC24, DIO24, DIO48

* In dual mode, or 2-SDI shuffle mode, the input signals need to be of the same SDI format

Applications

- 3Gb/s, HD and SD (preset based) audio embedding
- Copied audio embedding into two individual SDI video streams

Ordering information

Module:

- **GEB990:** 3Gb/s, HD, SD enhanced 16 ch digital audio embedder
- **HEB990:** HD, SD enhanced digital 16 ch audio embedder

- **GEB950:** 3Gb/s, HD, SD enhanced digital and analog audio embedder
- **HEB950:** HD, SD enhanced digital and analog audio embedder
- **GEB900:** 3Gb/s, HD, SD enhanced 8 ch digital audio embedder
- **HEB900:** HD, SD enhanced 8 ch digital audio embedder
- **GEB550:** 3Gb/s, HD, SD enhanced 8 ch analog audio embedder

- **HEB550:** HD, SD enhanced 8 ch analog audio embedder
- **GEB500:** 3Gb/s, HD, SD enhanced 4 ch analog audio embedder
- **HEB500:** HD, SD enhanced 4 ch analog audio embedder

Standard I/O:

- **BPH18_GEBxxx:** I/O panel for G-HEBxxx with unbalanced AES/EBU or analog audio inputs

- **BPH18D_GEBxxx:** I/O panel for G-HEBxxx with balanced AES/EBU or analog audio inputs

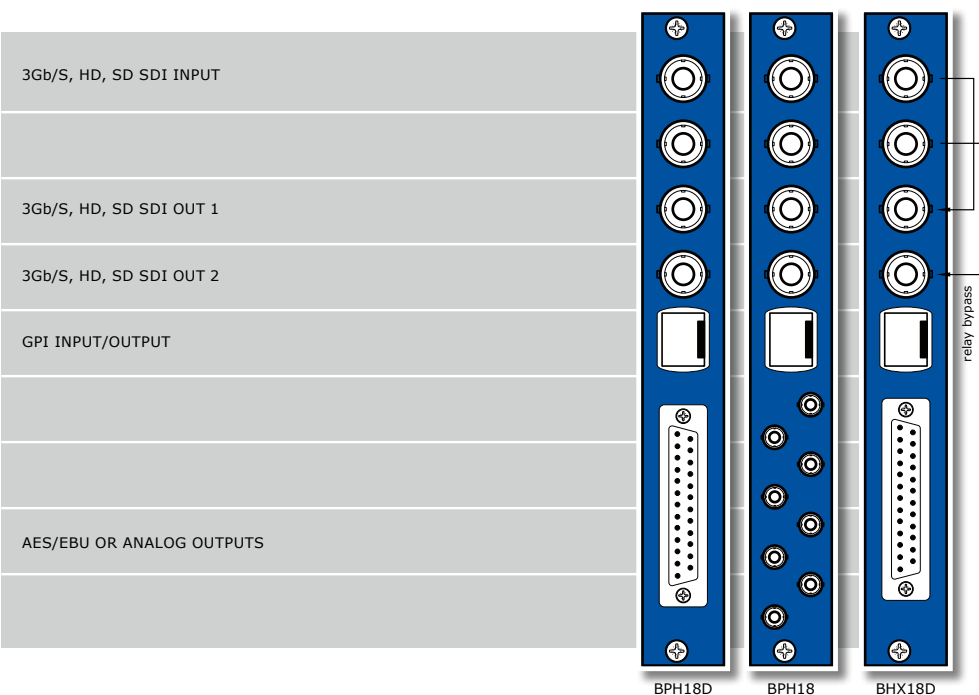
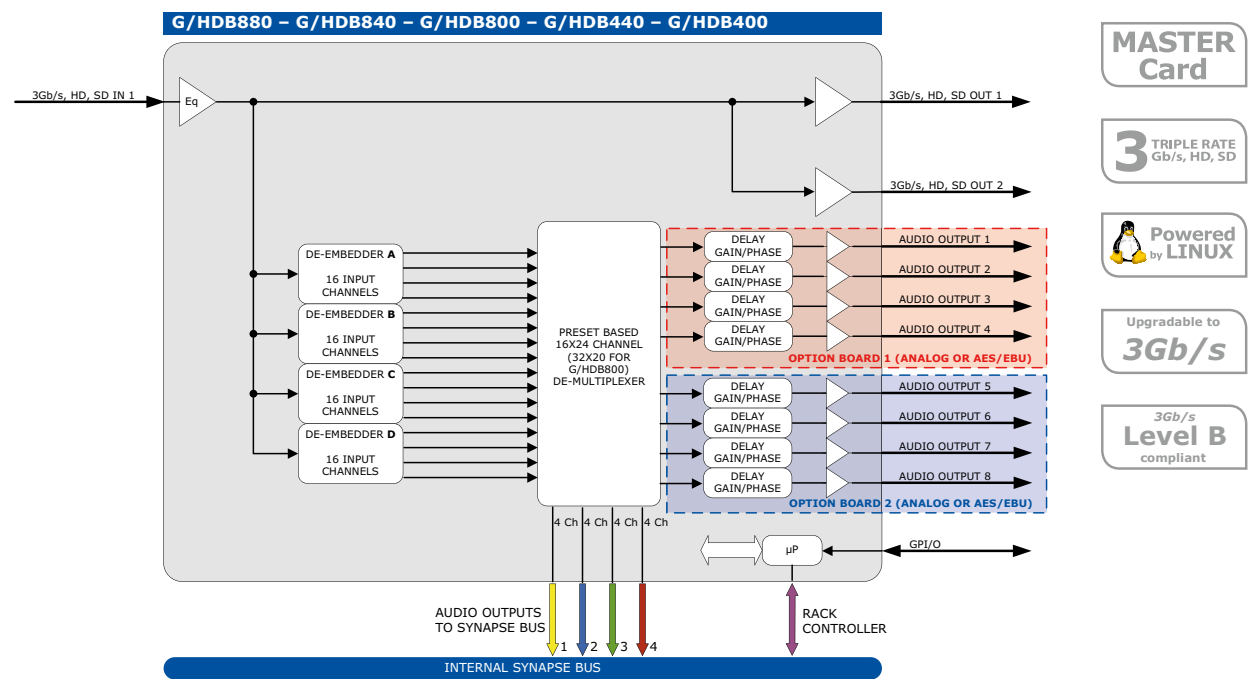
Relay bypass I/O:

- **BHX18D_GEBxxx:** I/O panel for G-HEBxxx with balanced AES/EBU or analog audio inputs with relay bypass

Specifications and RELAY I/O
visit www.evs.com

Input/output options

Card model	Option board 1	Option board 2
GEB990	4 AES/EBU inputs (8 channels)	4 AES/EBU inputs (8 channels)
HEB990	4 AES/EBU inputs (8 channels)	4 AES/EBU inputs (8 channels)
GEB950	4 AES/EBU inputs (8 channels)	4 analog inputs (4 channels)
HEB950	4 AES/EBU inputs (8 channels)	4 analog inputs (4 channels)
GEB900	4 AES/EBU inputs (8 channels)	None
HEB900	4 AES/EBU inputs (8 channels)	None
GEB550	4 analog inputs (4 channels)	4 analog inputs (4 channels)
HEB550	4 analog inputs (4 channels)	4 analog inputs (4 channels)
GEB500	4 analog inputs (4 channels)	None
HEB500	4 analog inputs (4 channels)	None



3Gb/s, HD, SD basic analog and/or digital audio de-embedder

The GDB880-840-800-440-400 is a 3Gb/s,HD SDI and SD SDI audio de-embedder. It is capable of extracting AES/EBU digital audio channels or analog audio channels. The card has 2 option output boards: 4 mono analog audio outputs (4ch total) per board, or 4 stereo AES/EBU outputs (8ch total) per board.

In addition, four ADD-ON cards can be connected to create a routing matrix. The architecture of DeEmb_A to DeEmb_D blocks is identical. The local AES/EBU or analog outputs can be controlled to adjust Phase, Gain and delay (on the fly).

Future upgrades are possible, like for instance the HDB400 can be future upgraded to HDB880, GDB800 or GDB880, etc. This allows for staged implementation of HD infrastructures and spread the cost over multiple budget years.

- Up to 8 AES/EBU outputs (available with 110 Ohm and 75 Ohm connectors)
- Up to 8 analog audio outputs (available with balanced or unbalanced connectors)
- 2 SDI + embedded audio outputs
- 8 extra AES/EBU inputs through the Synapse bus
- Pre and post delay de-embedding
- 7 presets that configure all 16 output channels at once, controlled by GPI or ACP (Cortex)
- Audio level and phase control
- Audio offset delay up to 5000 ms
- 16 extra audio channels (4 groups) with ADD-ON card for additional audio outputs
- Peak detection 0dBFS
- Silence detection with threshold (-100 to -20dBFS) and time control (1 to 255 sec)
- Transparent for ATC time code RP188, RP196, RP215
- Locks to SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)
- Optional relay bypass (BHX18 or BHX18D)

Complementary cards

- DAC20, DAC24, ADL24, DAS24, DIO48

Applications

- 3Gb/s, HD and SD audio de-embedding
- Up to 16 channel preset based audio de-embedding

Ordering information

Module:

- **GDB880:** 3Gb/s, HD, SD 16 ch digital audio de-embedder
- **HDB880:** HD, SD digital 16 ch audio de-embedder

- **GDB840:** 3Gb/s, HD, SD digital and analog audio de-embedder
- **HDB840:** HD, SD digital and analog audio de-embedder
- **GDB800:** 3Gb/s, HD, SD 8 ch digital audio de-embedder
- **HDB800:** HD, SD 8 ch digital audio de-embedder
- **GDB440:** 3Gb/s, HD, SD 8 ch analog audio de-embedder
- **HDB440:** HD, SD 8 ch analog audio de-embedder

- **GDB400:** 3Gb/s, HD, SD 4 ch analog audio de-embedder
- **HDB400:** HD, SD 4 ch analog audio de-embedder

Standard I/O:

- **BPH18_GDBxxx:** I/O panel for G-HDBxxx with unbalanced AES/EBU or analog audio outputs
- **BPH18D_GDBxxx:** I/O panel for G-HDBxxx with balanced AES/EBU or analog audio outputs

Relay bypass I/O:

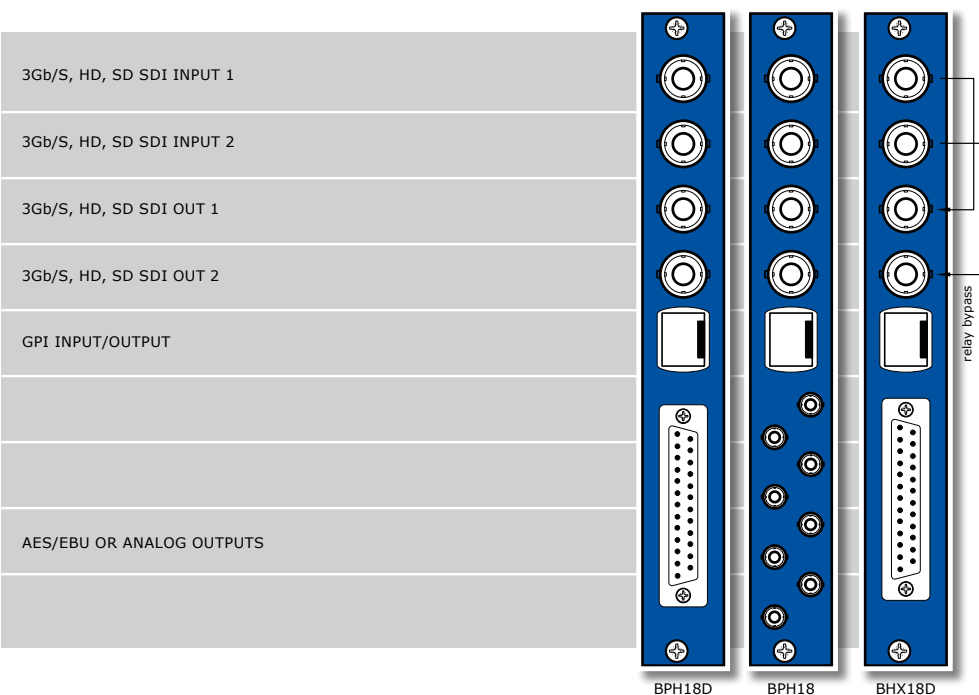
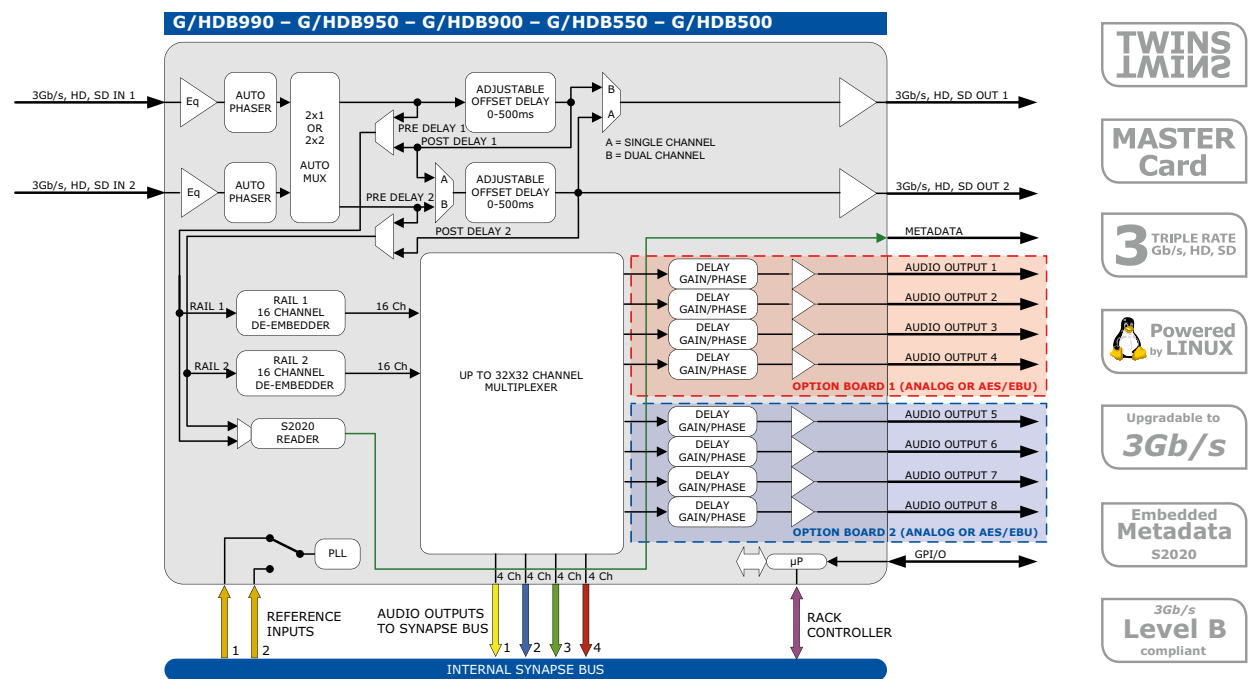
- **BHX18D_GDBxxx:** I/O panel for G-HDBxxx with balanced AES/EBU or analog audio outputs with relay bypass

Specifications

visit www.evs.com

Input/output options

Card model	Option board 1	Option board 2
GDB880	4 AES/EBU outputs (8 channels)	4 AES/EBU outputs (8 channels)
HDB880	4 AES/EBU outputs (8 channels)	4 AES/EBU outputs (8 channels)
GDB840	4 AES/EBU outputs (8 channels)	4 analog outputs (4 channels)
HDB840	4 AES/EBU outputs (8 channels)	4 analog outputs (4 channels)
GDB800	4 AES/EBU outputs (8 channels)	None
HDB800	4 AES/EBU outputs (8 channels)	None
GDB440	4 analog outputs (4 channels)	4 analog outputs (4 channels)
HDB440	4 analog outputs (4 channels)	4 analog outputs (4 channels)
GDB400	4 analog outputs (4 channels)	None
HDB400	4 analog outputs (4 channels)	None



3Gb/s, HD, SD enhanced digital and/or analog audio de-embedder with 'TWINS' dual channel function

The GDB990-950-900-550-500 is a 3Gb/s,HD SDI and SD SDI audio de-embedder. It is capable of extracting AES/ EBU digital audio channels or analog audio channels. The card has 2 option output boards: 4 mono analog audio outputs (4ch total) or 4 stereo AES/EBU outputs (8ch total) per board.

The core consists of four de-embedder blocks. In front of these de-embedders are SDI channel selection muxes which allow for individual de-embedding out of the two SDI inputs. The delay blocks can be used in series for a single SDI 4 group de-embedder (with up to 1 sec of video offset delay), or in parallel for 2 individual channels with each 2 group de-embedders (with individual 500ms offset delay) in a TWINS function. Each block is capable of de-embedding 4 audio selectable out of 16 channels from each input. The TWINS mode controls 2 individual selection switches.

In addition, four ADD-ON cards can be connected to create a routing matrix. The architecture of DeEmb_A to DeEmb_D blocks is identical. The local AES/EBU or analog outputs can be controlled to adjust Phase, Gain and delay (on the fly).

Future upgrades are possible, like for instance the HDB900 can be future upgraded to HDB990, GDB900 or GDB990.

- Dual (TWINS*) or single channel SDI mode
- Up to 8 AES/EBU outputs
- Up to 8 analog audio outputs (available with balanced or unbalanced connectors)
- 2 SDI inputs (with auto switch on carrier loss and switch back function)
- 8 extra AES/EBU inputs through the Synapse bus
- 2 SDI + embedded audio outputs
- Pre and post delay de-embedding
- 7 presets that configure all 16 output channels at once, controlled by GPI or ACP (Cortex)
- Audio level and phase control
- Audio offset delay up to 5000 ms
- Video offset delay up to one second (or 2x 500ms)
- 16 extra audio channels (4 groups) with ADD-ON card for additional audio outputs
- Peak detection 0 dBFS
- Silence detection with threshold (-100 to -20dBFS) and time control (1 to 255 sec)
- Transparent for ATC time code RP188, RP196, RP215
- Locks to Tri-level, Bi-level syncs and SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)
- Optional relay bypass (BHX18 or BHX18D)

Complementary cards

- DAC20, DAC24, ADL24, DAS24, DIO48

* In dual mode, or 2-SDI shuffle mode, the input signals need to be of the same SDI format

Applications

- 3Gb/s, HD and SD audio de-embedding
- Audio routing from two individual SDI streams

Ordering information

Module:

- GDB990: 3Gb/s, HD, SD enhanced 16 ch digital audio de-embedder
- HDB990: HD, SD enhanced 8 ch digital audio de-embedder
- GDB900: 3Gb/s, HD, SD enhanced 8 ch digital audio de-embedder
- HDB900: HD, SD enhanced 8 ch digital audio de-embedder
- GDB550: 3Gb/s, HD, SD enhanced 8 ch analog audio de-embedder
- HDB550: HD, SD enhanced 8 ch analog audio de-embedder
- GDB500: 3Gb/s, HD, SD enhanced 8 ch analog audio de-embedder
- HDB500: HD, SD enhanced 8 ch analog audio de-embedder

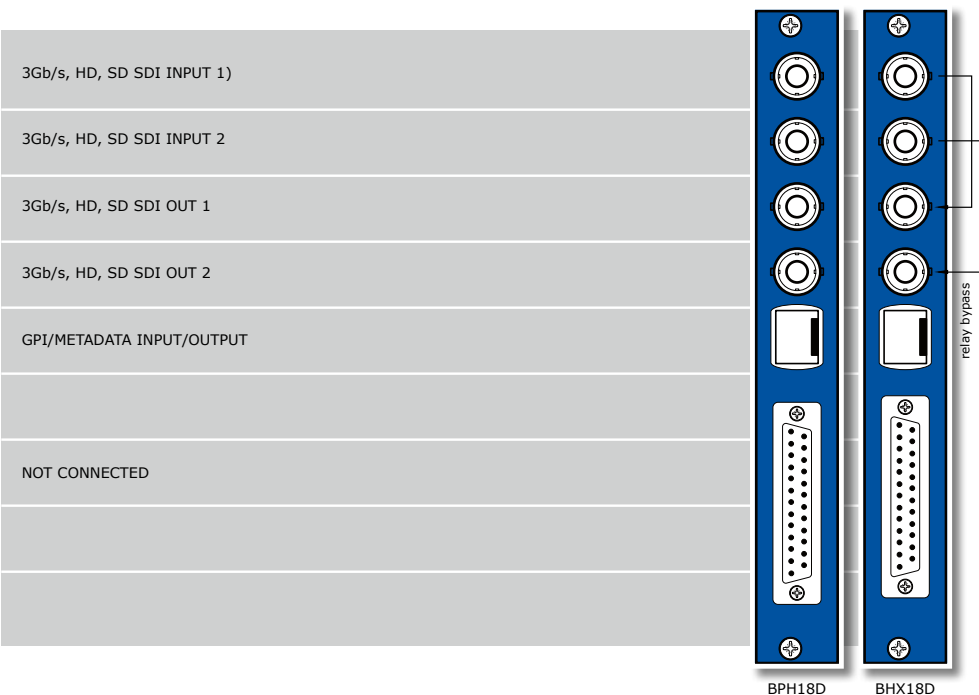
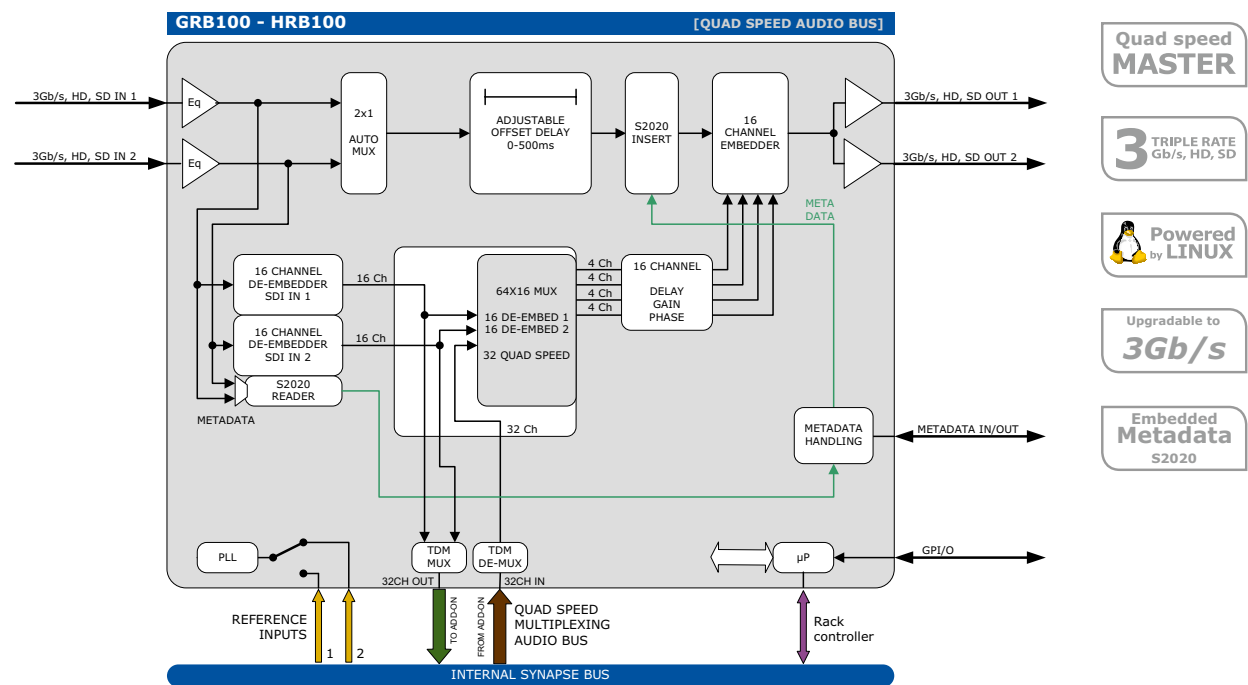
Input/output options

Card model	Option board 1	Option board 2
GDB990	4 AES/EBU outputs (8 channels)	4 AES/EBU outputs (8 channels)
HDB990	4 AES/EBU outputs (8 channels)	4 AES/EBU outputs (8 channels)
GDB950	4 AES/EBU outputs (8 channels)	4 analog outputs (4 channels)
HDB950	4 AES/EBU outputs (8 channels)	4 analog outputs (4 channels)
GDB900	4 AES/EBU outputs (8 channels)	None
HDB900	4 AES/EBU outputs (8 channels)	None
GDB550	4 analog outputs (4 channels)	4 analog outputs (4 channels)
HDB550	4 analog outputs (4 channels)	4 analog outputs (4 channels)
GDB500	4 analog outputs (4 channels)	None
HDB500	4 analog outputs (4 channels)	None

- GDB950: 3Gb/s, HD, SD enhanced digital and analog audio de-embedder
- HDB950: HD, SD enhanced digital and analog audio de-embedder
- GDB900: 3Gb/s, HD, SD enhanced 8 ch digital audio de-embedder
- HDB900: HD, SD enhanced 8 ch digital audio de-embedder
- GDB550: 3Gb/s, HD, SD enhanced 8 ch analog audio de-embedder
- HDB550: HD, SD enhanced 8 ch analog audio de-embedder
- BPH18D_GDBxxx: I/O panel for G-HDBxxx with balanced AES/EBU or analog audio outputs
- BPH18_GDBxxx: I/O panel for G-HDBxxx with unbalanced AES/EBU or analog audio outputs
- BHX18D_GDBxxx: I/O panel for G-HDBxxx with balanced AES/EBU or analog audio inputs with relay bypass

Specifications and RELAY I/O

visit www.evs.com



3Gb/s, HD, SD dual SDI embedded domain shuffler and re-embedder with S2020 insertion

The GRB100 is a 64x16 channel shuffler - re-embedder. The source audio channels used for embedding into the output SDI can be derived from 2 individual 3Gb/s HD or SD inputs and from the 32 channels that are available in the Quad Speed multiplexing audio ADD-ON bus.

One of the nice features of this card is that the output embeds 16 channels and that the source for these audio can be derived from both SDI input 1 (that normally also carries the video) and from SDI input 2. Input two can be connected to a second SDI source that is just used for carrying audio (the two SDI streams need to be clock locked).

The HRB100 can be future upgraded to GRB100. This allows for staged implementation of HD infrastructures and spread the cost over multiple budget years.

- 2 SDI inputs (with auto switch on carrier loss, and switch back function)
- 2 SDI outputs
- Compatible with the following input formats (auto selecting) (1080p only for GXX):
 - 1080p59.94
 - 1080p29.97
 - 720p50
 - 1080p50
 - 1080p25
 - SD525
 - 1080i59.94
 - 1080p(sf)23.98
 - SD625
 - 1080i50
 - 720p59.94
- Single video delay adjustable between 0 and 500ms
- Two SDI inputs can source the audio embedder when sources are clock locked (not phase locked*)

- De-embedding of all 32 channels from SDI 1 and SDI 2 to the Synapse bus
- 32 extra inputs through the Synapse bus
- 7 presets that configure all embedding channels, controlled by GPI or ACP (Cortex)
- S2020 metadata reading and insertion from an external source
- Metadata-shuffler (can also be used as metadata-generator)
- Append and overwrite modes
- Audio level and phase control
- Audio offset delay up to 5000 ms
- Transparent for ATC time code RP188, RP196, RP215
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)
- Optional relay bypass (BHX18D)

* In 2-SDI shuffle mode the sources need to be running on the same clock, the phase is not critical

Complementary cards:

- DIO88, DLA44, DLA43, DLA42, DLA41, DBD18

Applications

- Embedded domain shuffling and swapping (from second SDI input)
- MASTER card for high end audio processing such as performed in the DLAXx

Ordering information

Module:

- **GRB100:** 3Gb/s, HD, SD re-embedder/shuffler
- **HRB100:** HD, SD re-embedder/shuffler

Standard I/O:

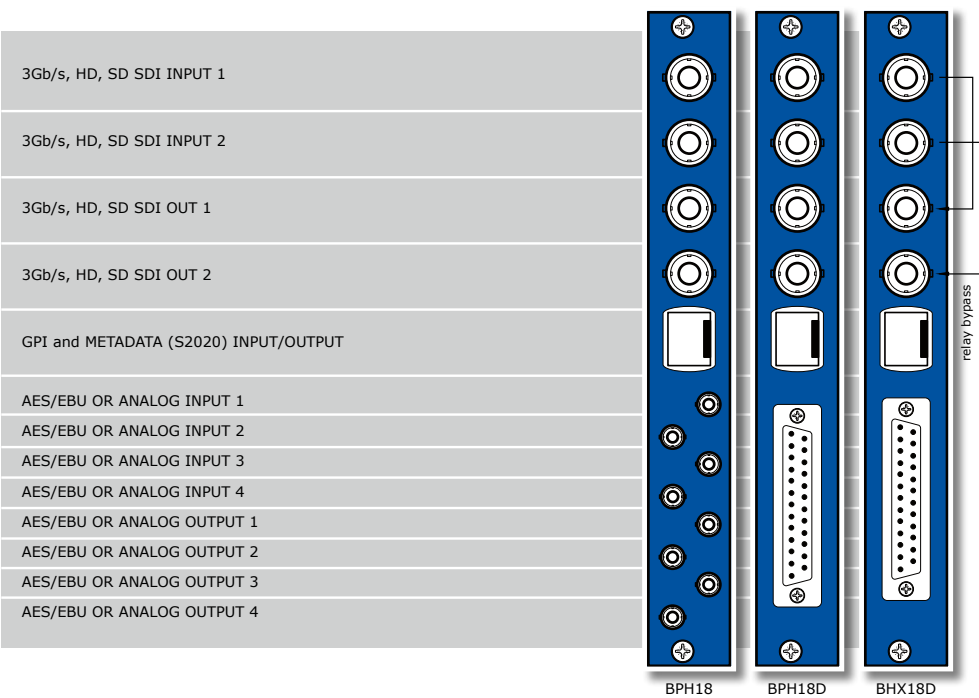
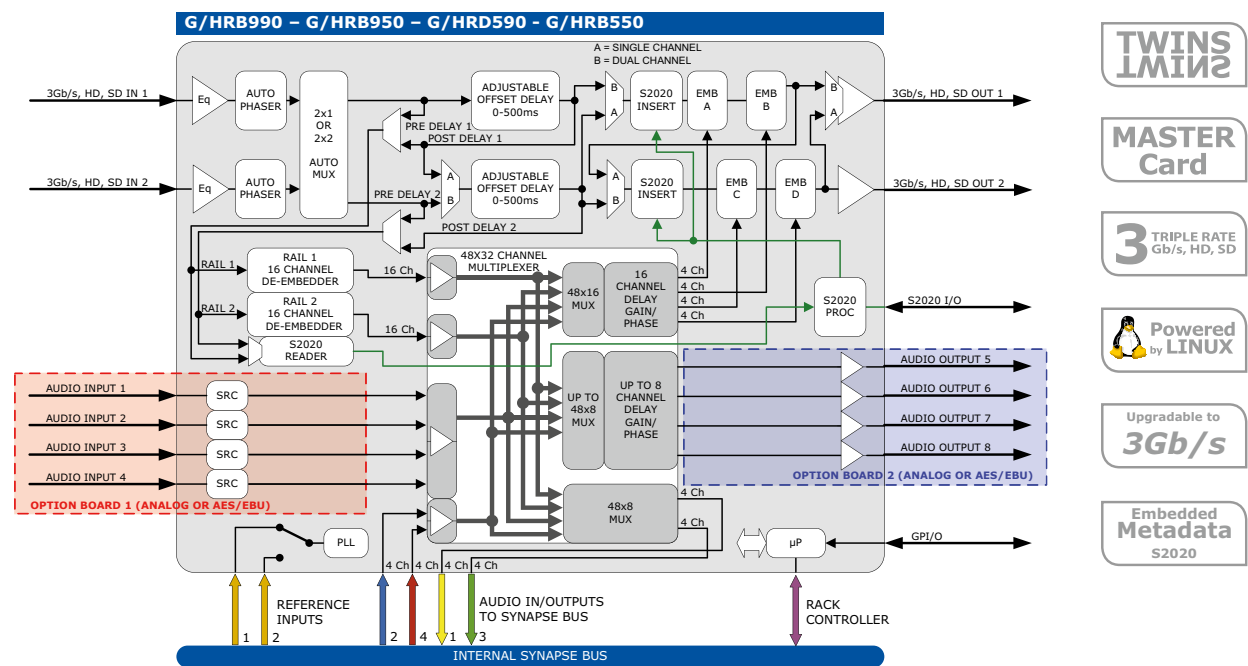
- **BPH18D_GRB100:** I/O panel for G-HRB100

Relay bypass I/O:

- **BHX18D_GRB100:** relay I/O panel for G-HRB100

Specifications

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3Gb/s, HD, SD digital or analog audio de-embedder, re-embedder, embedded domain shuffler with S2020 metadata insertion

The G/HRB550-590-950-990 is a 48x32 channel re-embedder, with a 16 channel embedder (2x 8 channels in 2 individual SDI streams), 4 AES/EBU or analog outputs, and 4 AES channels to the Synapse ADD-ON bus. The source audio channels can be derived from 2 x 16 channel embedded domain streams, 4 AES/EBU or analog physical audio inputs and 8 channels from the Synapse bus.

The HRB550 can be future upgraded to GRB550. This allows for staged implementation of HD infrastructures and spread the cost over multiple budget years.

- 2 SDI inputs (with auto switch on carrier loss, and switch back function)
- 2 SDI outputs (2x1 or 2x2 function)
- Compatible with the following input formats (auto selecting) (1080p only for GRB):
 - 1080p59.94 1080p29.97 720p50
 - 1080p50 1080p25 SD525
 - 1080i59.94 1080p(sf)23.98 SD625
 - 1080i50 720p59.94
- Dual offset audio delay adjustable between 0 and 500ms
- Dual (TWINS*) or single channel SDI mode
- 4 AES/EBU inputs with sample rate converter (available with 110 Ohm and 75 Ohm inputs), or 4 analog inputs (available with balanced or unbalanced connectors).
- 4 AES/EBU outputs or 4 analog outputs
- Auto SRC-off for bitstream sources like Dolby E
- 4 extra AES/EBU inputs through the Synapse bus

- 7 presets that configure all I/O channels controlled by GPI or ACP (Cortex)
- S2020 metadata insertion from an external source
- Append and overwrite modes
- Audio level and phase control
- Audio offset delay up to 5000 ms
- Peak detection 0dBFS
- Silence detection with threshold (-100 to -20dBFS) and time control (1 to 255 sec)
- Locks to Tri-level, Bi-level syncs or SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)
- Optional relay bypass (BHX18 or BHX18D)

* In dual mode, or 2-SDI shuffle mode, the input signals need to be of the same SDI format

- Complementary cards:**
- DAC20, DAC24, DAS24, DIO48, ADC20, ADC24, DIO24

Applications

- Embedded domain shuffling with external (manipulated from internal) domain analog audio channels
- 3rd party audio processing from an embedded domain source

Ordering information

Module:

- GRB990:** 3Gb/s, HD, SD digital audio re-embedder and shuffler

- HRB990:** HD, SD digital audio re-embedder/shuffler
- GRB950:** 3Gb/s, HD, SD digital audio re-embedder/shuffler with analog outs
- HRB950:** HD, SD digital audio re-embedder/shuffle with analog outs
- GRB590:** 3Gb/s, HD, SD analog audio re-embedder/shuffler with digital outs
- HRB590:** HD, SD analog audio re-embedder/shuffler with digital outs

- GRB550:** 3Gb/s, HD, SD analog audio re-embedder/shuffler
- HRB550:** HD, SD analog audio re-embedder/shuffler

Standard I/O:

- BPH18_GRBxxx:** I/O panel for G-HRBxxx with unbalanced AES/EBU or analog audio in or outputs
- BPH18D_GRBxxx:** I/O panel for G-HRBxxx with balanced AES/EBU or analog audio in or outputs

Relay bypass I/O:

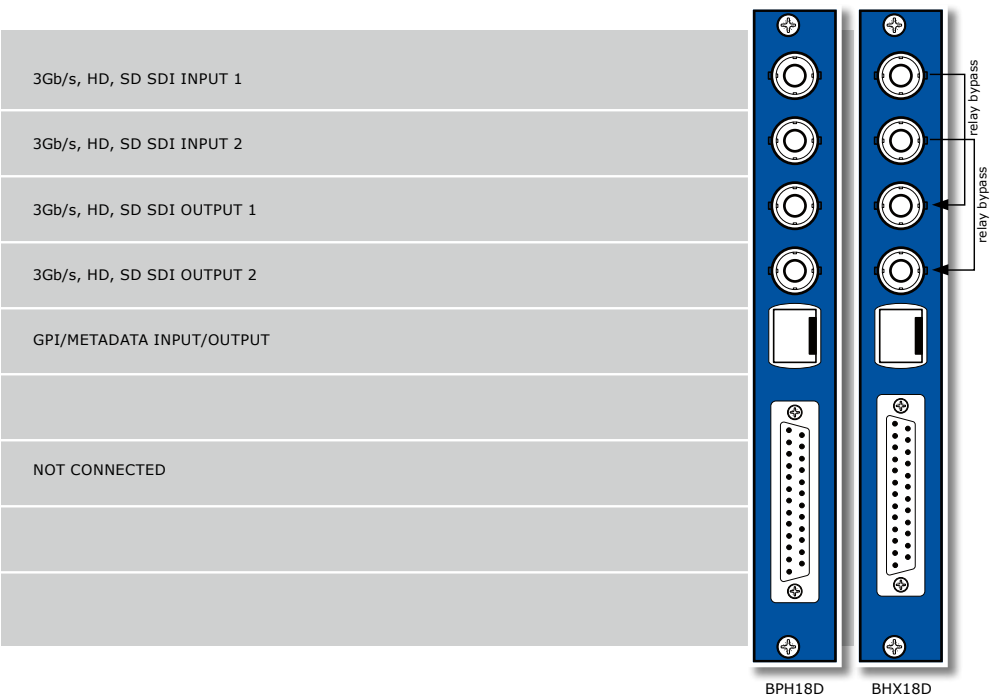
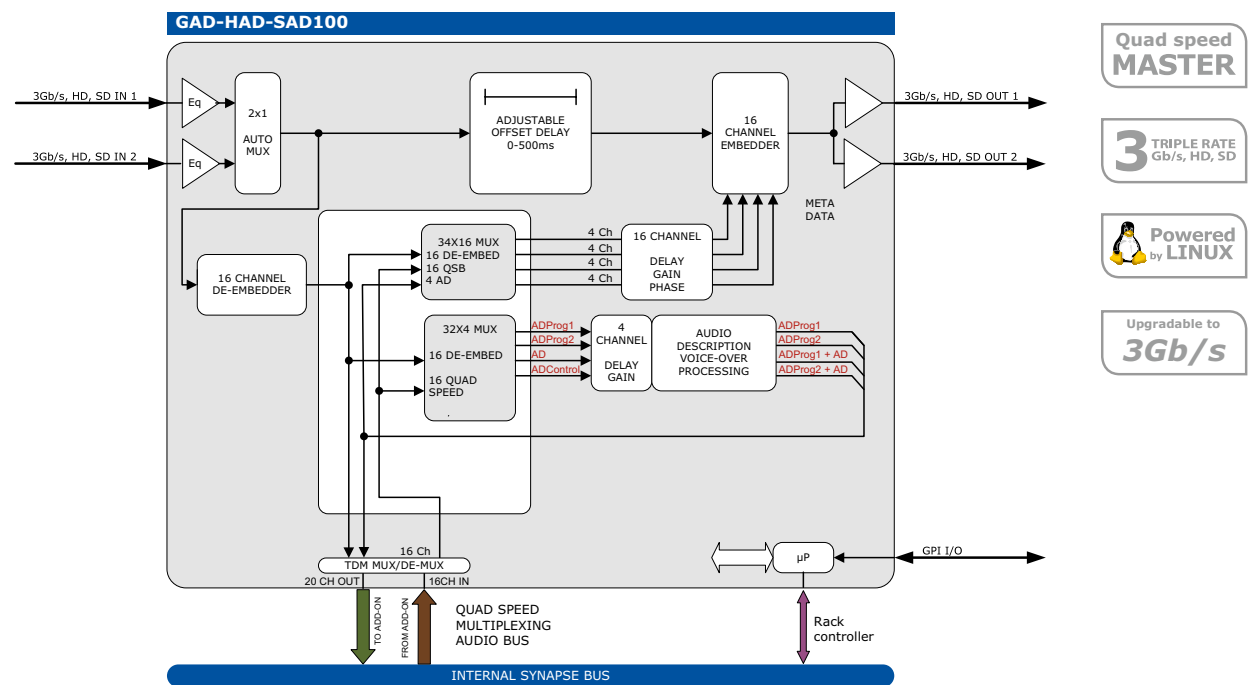
- BHX18D_GRBxxx:** I/O panel for G-HRBxxx with balanced AES/EBU or analog audio in or outputs with relay bypass

Specifications

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Input/output options

Card model	Option board 1	Option board 2
GRB990	4 AES/EBU inputs (8 channels)	4 AES/EBU outputs (8 channels)
HRB990	4 AES/EBU inputs (8 channels)	4 AES/EBU outputs (8 channels)
GRB950	4 AES/EBU inputs (8 channels)	4 analog outputs (4 channels)
HRB950	4 AES/EBU inputs (8 channels)	4 analog outputs (4 channels)
GRB590	4 analog inputs (4 channels)	4 AES/EBU outputs (8 channels)
HRB590	4 analog inputs (4 channels)	4 AES/EBU outputs (8 channels)
GRB550	4 analog inputs (4 channels)	4 analog outputs (4 channels)
HRB550	4 analog inputs (4 channels)	4 analog outputs (4 channels)



3Gb/s, HD, SD embedded domain audio description and voice-over processor

The GAD100, HAD100 and SAD100 are embedded domain Audio Description processors with a Voice-Over mode. This processor uses a stereo track as main program (input 1-2 of the AD processor) and mixes the AD track triggered by the mix enable track (input 3-4 of the AD processor). The output of the AD processor can be routed to PCM channels of the 16 channel embedder or Quad Speed Bus.

The Quad Speed audio bus allows for implementation of ‘in between’ audio processing. This means that we can stream the de-embedded audio channels or audio described (mixed) channels to a Quad Speed Audio ADD-ON card like the DLA44 or the DSF66. The ADD-ON card processes this audio and sends it back to the G/H/SAD100 for further VO or AD processing. The ADD-ON card does not need a connector panel and all audio routing is performed inside the Synapse frame by just placing these cards in adjacent slots.

The SAD100 and HAD100 can be future upgraded to GAD100. This allows for staged implementation of SD to HD infrastructures and spread the cost over multiple budget years.

- Audio Description processor with free routable I/O
- 2 SDI inputs (with auto switch on carrier loss, and switch back function)
- 2 SDI + embedded audio outputs
- 7 presets that configure all 16 output channels at once, controlled by GPI or ACP (Cortex)

- Compatible with the following input formats (auto selecting) (1080p only for GAD):
 - 1080p59.94 ■ 1080p29.97 ■ 720p50
 - 1080p50 ■ 1080p25 ■ SD525
 - 1080i59.94 ■ 1080p(sf)23.98 ■ SD625
 - 1080i50 ■ 720p59.94
- Offset video delay adjustable between 0 and 1000ms
- Quad Speed Audio ADD-ON bus for bidirectional audio processing
- Append and overwrite modes
- Audio level and phase control
- Audio offset delay up to 5000 ms
- Peak detection 0dBFS
- Silence detection with threshold (-100 to -20dBFS) and time control (1 to 255 sec)
- Transparent for ATC time code RP188, RP196, RP215
- Built-in linesync (autophaser)
- Locks to Tri-level, Bi-level syncs or input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)
- Optional relay bypass (BHX18D)

Complementary cards:

- DLA44, DLA43, DLA42, DLA41 and DIO88 (plus all future Quad Speed audio ADD-ON cards)

Applications

- 3Gb/s, HD and SD embedded Audio Description Processing
- 3Gb/s, HD and SD embedded Voice-Over Processing
- Preset based 16 channel audio (AD) shuffling

Specifications

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Ordering information

Module:

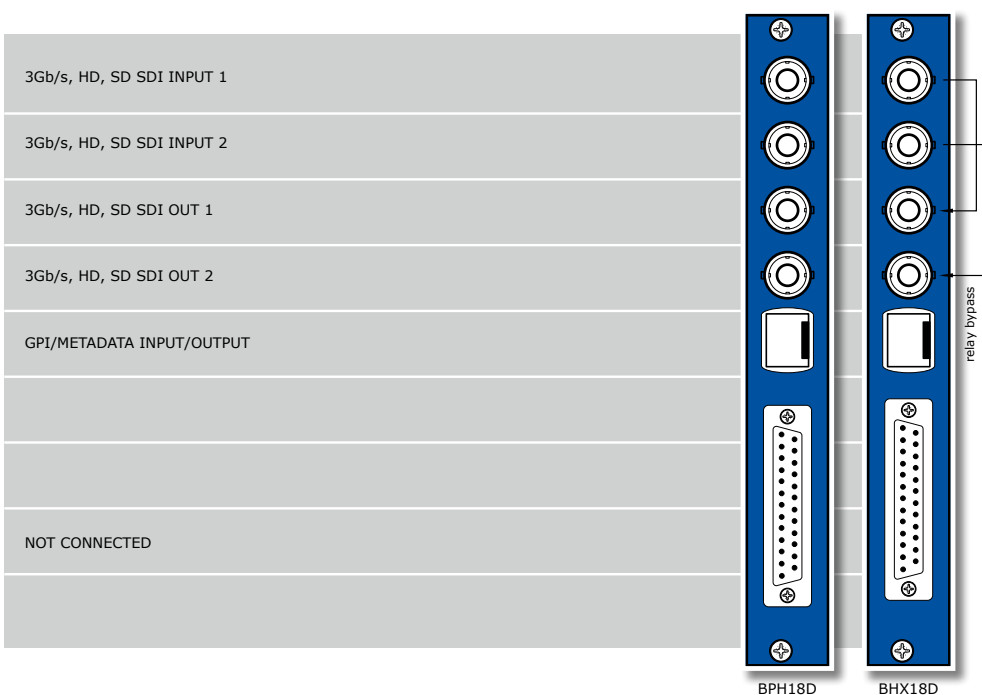
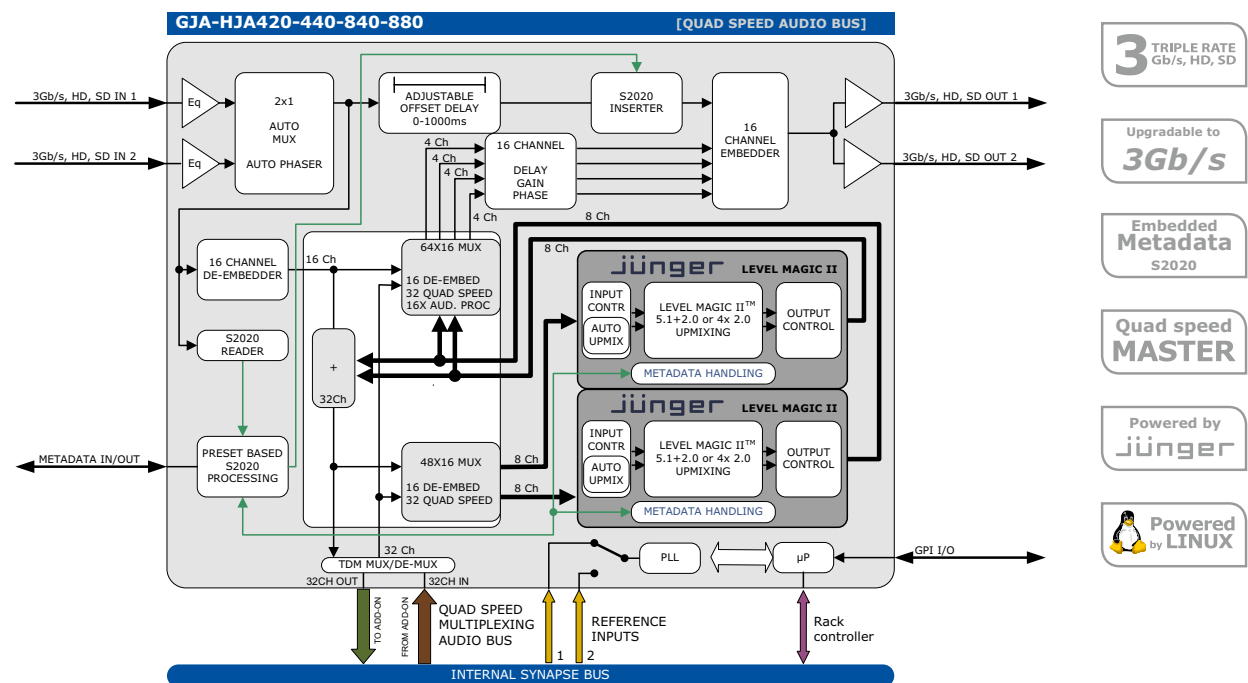
- **GAD100:** 3Gb/s, HD, SD embedded domain Audio Description/ Voice-Over processor
- **HAD100:** HD, SD embedded domain Audio Description/ Voice-Over processor
- **SAD100:** SD embedded domain Audio Description/ Voice-Over processor

Standard I/O:

- **BPH18D_GAD100:** I/O panel for G-H-SAD100

Relay bypass I/O:

- **BHX18D_GAD100:** I/O panel for G-H-SAD100 with relay bypass



3Gb/s, HD, SD embedded domain Loudness controller based on Jünger Audio algorithms

The GJAxxx and HJAxxx are embedded domain dual audio stream hardware processors, designed for broadcasters who need automatic loudness control and optional upmixing.

Based on the popular and well respected LEVEL MAGIC II™ processing these cards can perform a high quality loudness adjustment completely conform the CALM and R128 standards.

Users can adjust all the Jünger based settings of the processing and embedded handling directly from the GUI in Cortex, with control offered over a variety of different parameters. Output level controls and delay adjustments are also offered for each of the channels in the final 5.1 mix (440 and 880 models only).

The Quad Speed audio bus allows for implementation of additional audio processing. This means that an additional processing card like for instance a DDP24 or DBD28 can be added to perform Dolby processing, without any additional wiring. The ADD-ON card often does not need a connector panel and all audio routing is performed inside the frame by just placing these cards in the adjacent slots.

- G-HJA420 = 4x 2.0 loudness control for SDI embedded I/O
- G-HJA440 = 5.1 + 2.0 loudness control and auto upmix for SDI embedded I/O
- G-HJA840 = 8x 2.0 loudness control for SDI embedded I/O
- G-HJA880 = 2x 5.1 + 2.0 loudness control and auto upmix for SDI embedded I/O

- LEVEL MAGIC II™ loudness management according to: EBU R128, ITU.1770, ATSC A/85 and ARIB TR-B32
- Dynamics with compressor and expander
- Surround up mix functionality (440 and 880 models only)
- Dolby® metadata generator
- Output gain and delay adjustments
- Cross fading between upmixed and discrete 5.1 (5.1/2.0 input auto-sensing)
- 16 channels of audio gain and delay (up to 5000ms) prior to the embedding stage
- 2 SDI inputs with auto switch on carrier loss, and switch back
- 2 SDI + embedded audio outputs
- Compatible with the following input formats (auto selecting) (1080p only for GJAxxx)
 - 1080p59.94 ■ 1080p29.97 ■ 720p50
 - 1080p50 ■ 1080p25 ■ SD525
 - 1080i59.94 ■ 1080p(sf)23,98 ■ SD625
 - 1080i50 ■ 720p59.94
- Video offset delay between 0 and 1000ms
- Quad Speed Audio bus for bidirectional audio processing
- 7 presets that configure all 16 input channels at once
- Append and overwrite modes
- Silence detection and peak detection (0dBFS)
- Transparent for ATC time code RP188, RP196, RP215
- Locks to Tri-level, Bi-level syncs or input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

- Complementary cards:**
- DBD28, DDP24, DDP84 (plus all Quad Speed audio cards)

Applications

- 3Gb/s, HD and SD embedded domain loudness control for Transmission and Ingest
- Preset based 16 channel audio shuffling/processing

Ordering information

Modules:

- **GJA420:** 3Gb/s, HD, SD embedded domain 4x 2.0 loudness control
- **HJA420:** HD, SD embedded domain 4x 2.0 loudness control
- **GJA440:** 3Gb/s, HD, SD embedded domain 5.1 + 2.0 loudness control and auto upmix
- **HJA440:** HD, SD embedded domain 5.1 + 2.0 loudness control and auto upmix
- **GJA840:** 3Gb/s, HD, SD, embedded domain 8x 2.0 loudness control
- **HJA840:** HD, SD, embedded domain 8x 2.0 loudness control

- **GJA880:** 3Gb/s, HD, SD embedded domain 2x 5.1 + 2.0 loudness control and auto upmix
- **HJA880:** HD, SD embedded domain 2x 5.1 + 2.0 loudness control and auto upmix

Standard I/O:

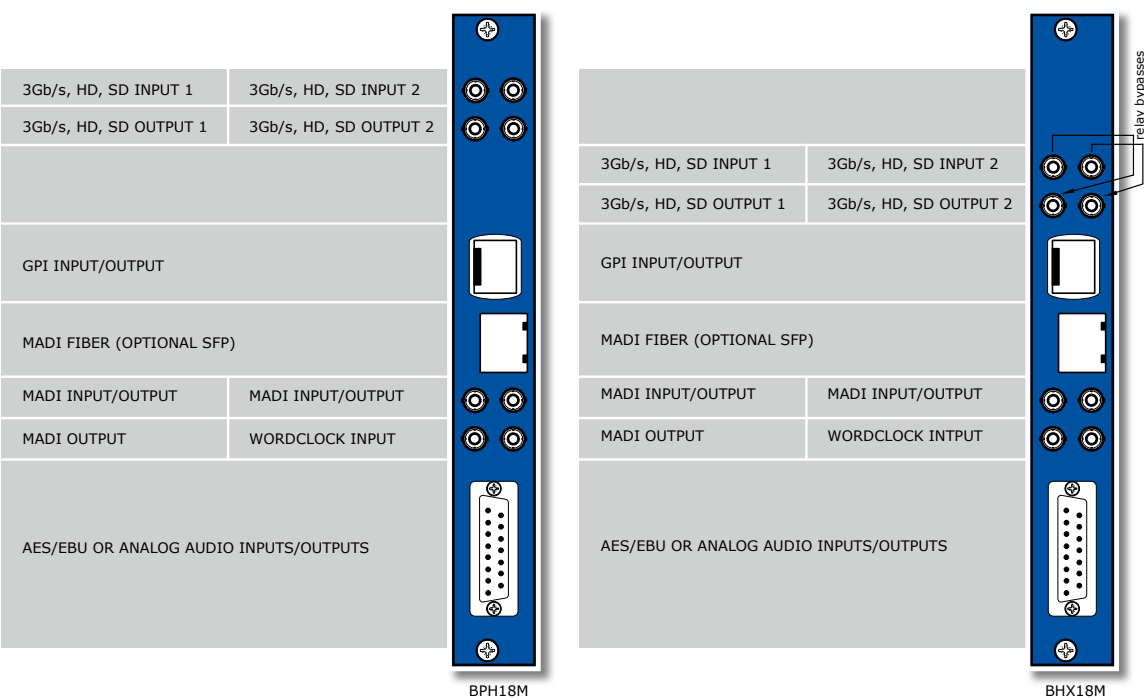
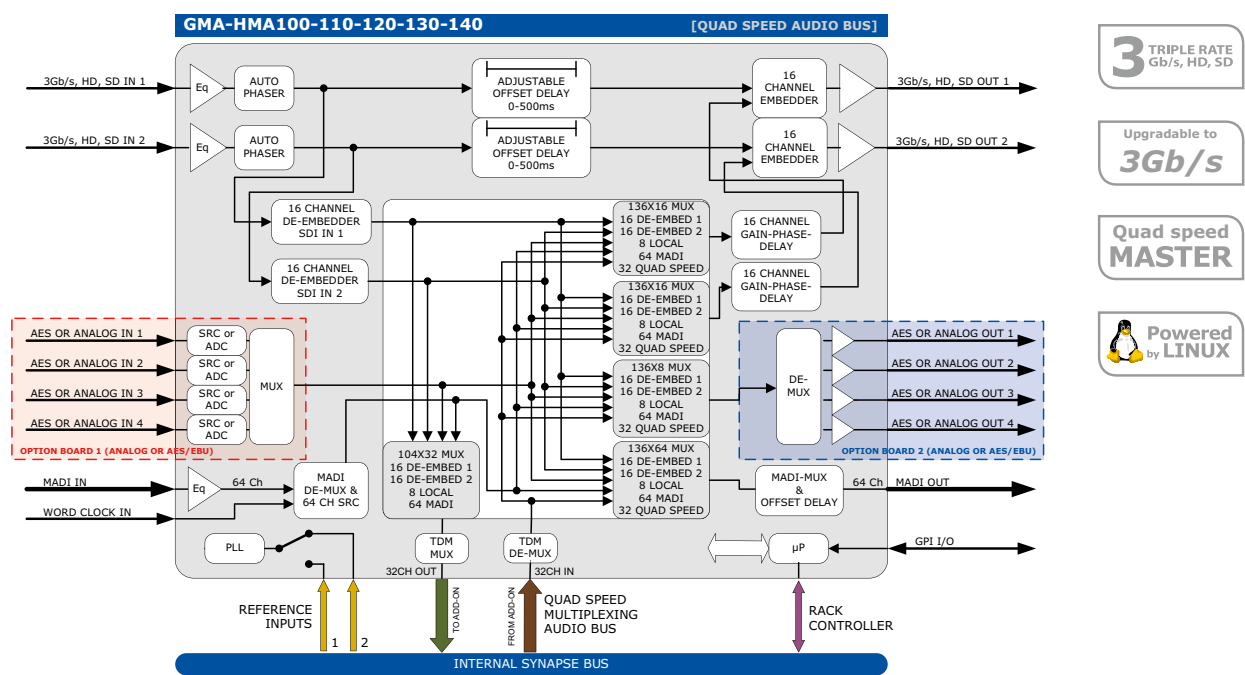
- **BPH18D_GJAxxx:** standard I/O panel for G-HJAxxx

Relay bypass I/O:

- **BHX18D_GJAxxx:** I/O panel for G-HJAxxx with relay bypass

Specifications

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Dual 3Gb/s, HD, SD embedded domain shuffler with MADI I/O and analog or digital audio I/O

The GMA and HMA are dual SDI (up to 3Gb/s) embedded domain audio shufflers with a 64 channel MADI input and output.

The core of this card is a very large, anything to anything shuffler/mux. It allows for any available source to be placed on any available output. The total audio routing capability is a massive 136 channels to 136 channels.

The Quad Speed audio bus allows for implementation of 'in between' audio processing. So next to a lot of shuffling capabilities we can add a Quad Speed ADD-ON card and allow for for instance watermarking (DAW77/88/99), loudness control (DLA42/43) or additional AES/EBU I/O (DIO88)

- MADI input (up to 64 channel)
- MADI output (up to 64 channel)
- Both MADI channels are bi-directional for future 128 channel applications
- Dual SDI (SD, HD and 3Gb/s) video inputs
- Dual SDI (SD, HD and 3Gb/s) video outputs
- Compatible with the following input formats (auto selecting) (1080p only for GMA):
 - 1080p59.94 ■ 1080p29.97 ■ 720p50
 - 1080p50 ■ 1080p25 ■ SD525
 - 1080i59.94 ■ 1080p(sf)23.98 ■ SD625
 - 1080i50 ■ 720p59.94
- Video offset delay between 0 and 500ms per video

- Quad Speed audio ADD-ON bus for bidirectional audio processing
- Streaming channel 1-32
- 4 analog or AES/EBU audio inputs (optional)
- 4 analog or AES/EBU audio outputs (optional)
- Append and overwrite modes
- Audio level and phase control for the channels that enter the embedders
- Audio offset delay up to 5000 ms for the channels that enter the embedders
- Peak detection 0dBFS
- Transparent for ATC time code RP188, RP196, RP215
- Locks to Tri-level, Bi-level syncs or input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)
- Optional fiber or relay bypass I/O panels

Complementary cards:

- DLA41/42/43/44, DAW77/88/99 and DIO88 (plus all other Quad Speed audio ADD-ON cards)

Applications

- 3Gb/s, HD and SD embedded domain to MADI and vice versa shuffler
- In video routing audio shuffler via MADI TDM bus (2 GMA100 will give a 4 video 64 audio channel shuffler)
- MADI audio (mixing console) to embedded video converter.

Ordering

information

Modules:

- **GMA100:** Dual channel 3Gb/s, HD, SD embedded MADI shuffler

- **HMA100:** Dual channel HD, SD embedded MADI shuffler
- **GMA110:** Dual channel 3Gb/s, HD, SD embedded MADI shuffler with analog audio inputs
- **HMA110:** Dual channel HD, SD embedded MADI shuffler with analog audio inputs
- **GMA120:** Dual channel 3Gb/s, HD, SD embedded MADI shuffler with analog audio outputs
- **HMA120:** Dual channel HD, SD embedded MADI shuffler with analog audio outputs

- **GMA130:** Dual channel 3Gb/s, HD, SD embedded MADI shuffler with digital audio inputs
- **HMA130:** Dual channel HD, SD embedded MADI shuffler with digital audio inputs
- **GMA140:** Dual channel 3Gb/s, HD, SD embedded MADI shuffler with digital audio outputs
- **HMA140:** Dual channel HD, SD embedded MADI shuffler with digital audio outputs

Standard I/O:

- **BPH18M_GMAxxx:** I/O panel for G-HMAxxx

Relay bypass I/O:

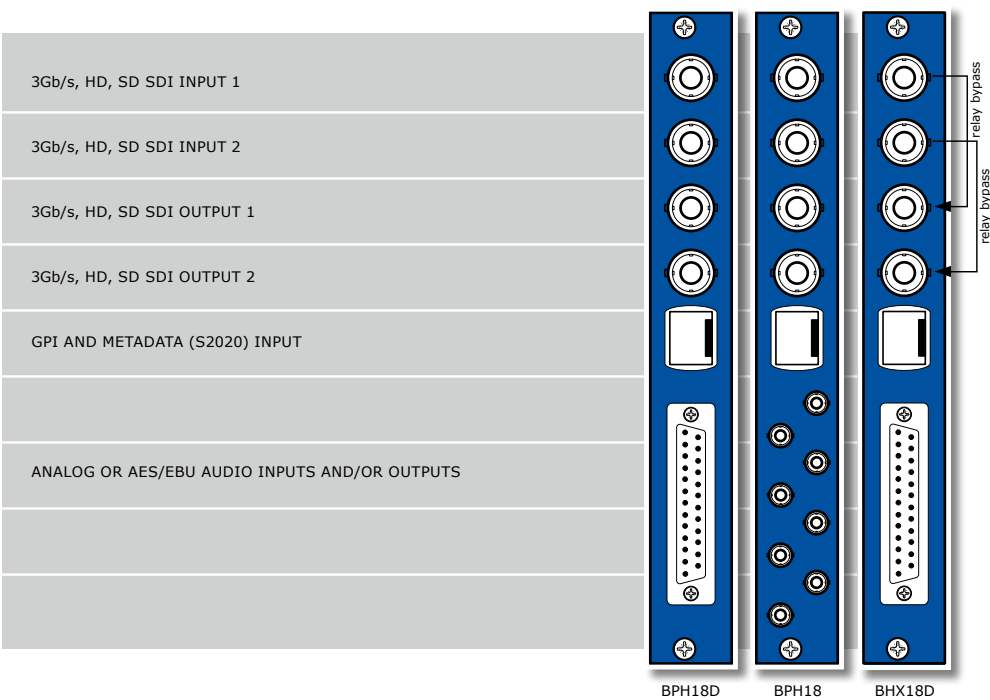
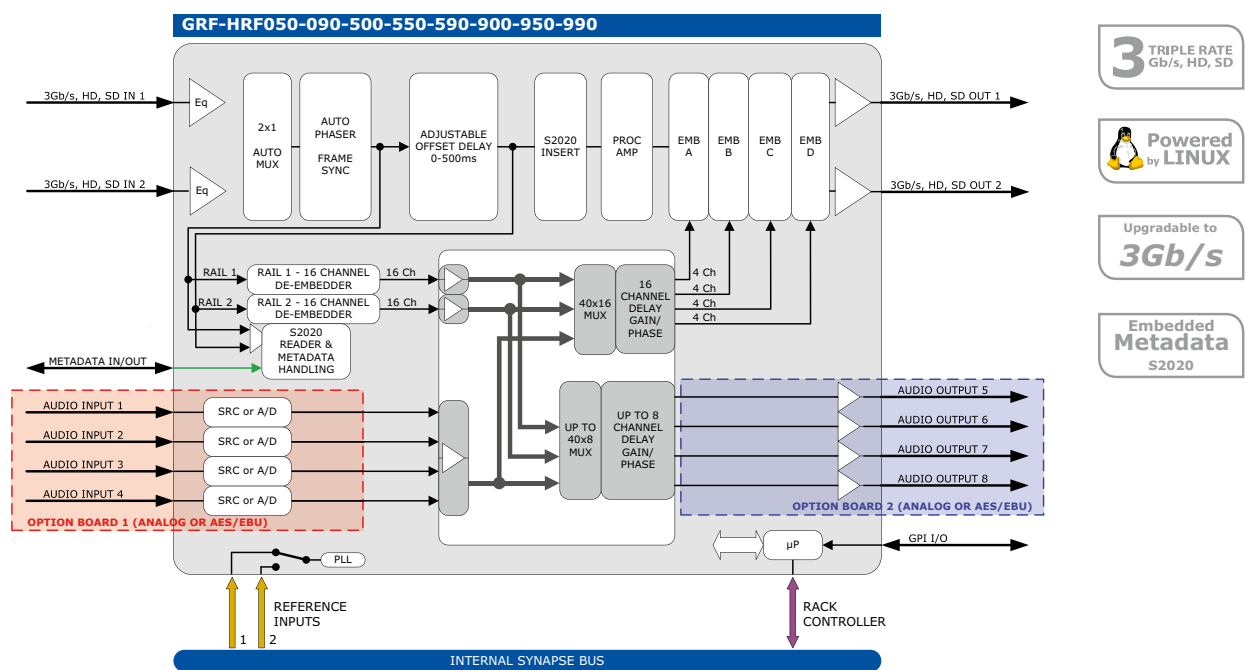
- **BHX18M_GMAxxx:** I/O panel for G-HMAxxx with relay bypass

Specifications

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Input/output options

Card model	Option board 1	Option board 2
GMA100	None	None
HMA100	None	None
GMA110	4 analog inputs (4 channels)	None
HMA110	4 analog inputs (4 channels)	None
GMA120	None	4 analog outputs (4 channels)
HMA120	None	4 analog outputs (4 channels)
GMA130	4 AES/EBU inputs (8 channels)	None
HMA130	4 AES/EBU inputs (8 channels)	None
GMA140	None	4 AES/EBU outputs (8 channels)
HMA140	None	4 AES/EBU outputs (8 channels)



3Gb/s, HD, SD analog or AES/EBU audio re-embedder with audio shuffler and framesync

The GRFxxx and HRFxxx are re-embedders with analog or digital audio inputs and/or outputs and a built-in framesync. Re-embedding of available embedded sources is also included (shuffling).

The HRFxxx can be future upgraded to GRFxxx. This allows for staged implementation of HD infrastructures and spread the cost over multiple budget years.

- 2 SDI inputs (with auto switch on carrier loss, and switch back function)
- 2 SDI outputs
- Compatible with the following input formats (auto selecting) (1080p50/60 only for GRFxxx):
 - 1080p59.94 ■ 1080p29.97 ■ 720p50
 - 1080p50 ■ 1080p25 ■ SD525
 - 1080i59.94 ■ 1080p(sf)23.98 ■ SD625
 - 1080i50 ■ 720p59.94
- Offset video delay adjustable between 0 and 500ms
- Optional 4 analog audio outputs that can be used with balanced and unbalanced outputs via the BPH18D and BPH18 respectively (unbalanced outputs have a -6dB gain mismatch)
- Optional 4 AES/EBU outputs with sample rate converter (available with 110 Ohm and 75 Ohm outputs)
- 7 presets that configure all I/O channels, controlled by GPI or ACP (Cortex)
- S2020 metadata insertion from an external source
- Append and overwrite modes
- Audio level and phase control

- Audio offset delay up to 5000 ms
- Peak detection 0 dBFS
- Silence detection with threshold (-100 to -20dBFS) and time control (1 to 255 sec)
- Video Proc-Amp with Y, Cr, Cb controls for level and black
- Transparent for ATC time code RP188, RP196, RP215
- Locks to Tri-level, Bi-level syncs or SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)
- Optional relay bypass (BHX18 or BHX18D)

Applications

- Ingest re-embedding of analog or digital audio with shuffle function from asynchronous video sources

Ordering information

Module:

- **GRFxxx:** 3Gb/s, HD, SD audio re-embedder/shuffler/framesync (for type numbers, refer to table below)
- **HRFxxx:** HD, SD audio re-embedder/shuffler/framesync (for type numbers, refer to table below)

Standard I/O:

- **BPH18_GRFxxx:** I/O panel with unbalanced audio inputs
- **BPH18D_GRFxxx:** I/O panel with balanced audio inputs

Relay bypass I/O:

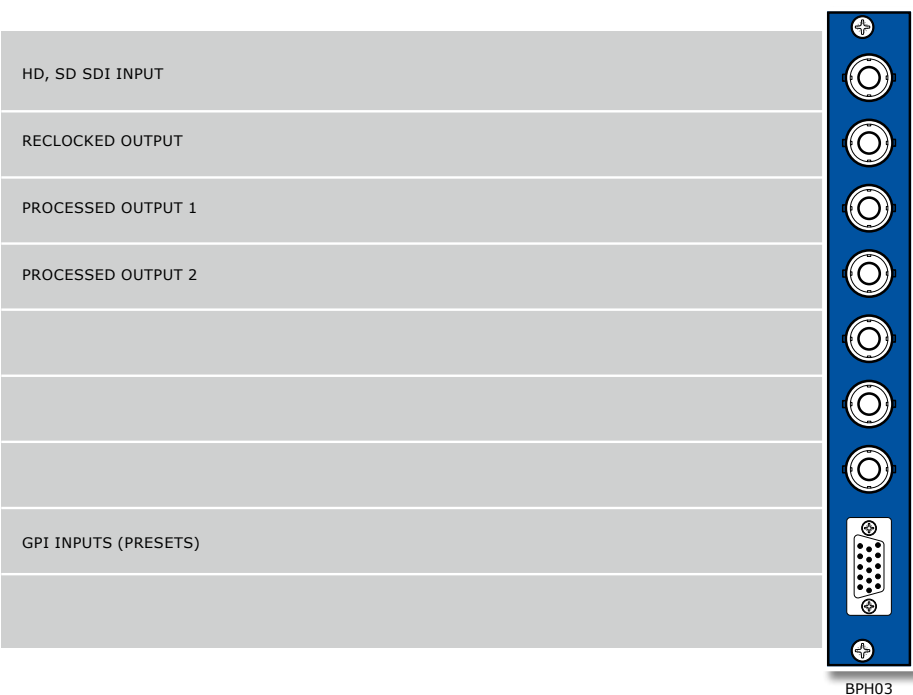
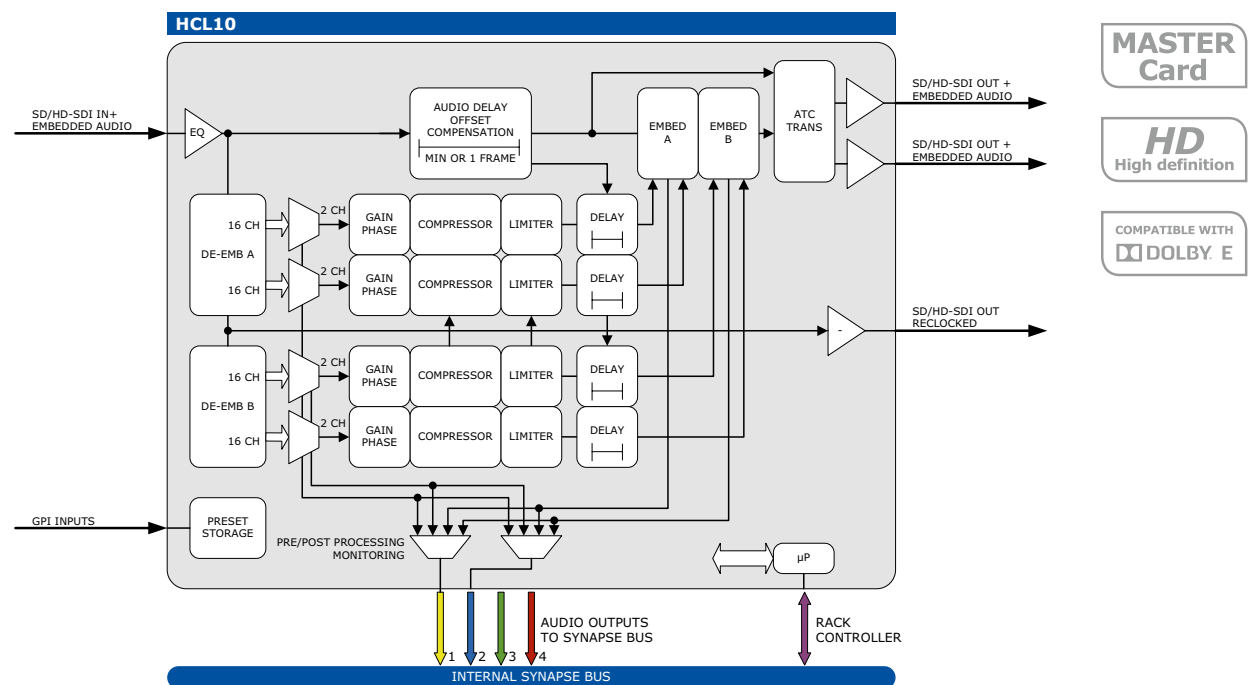
- **BHX18D_GRFxxx:** I/O panel with balanced audio inputs and relay bypass

Specifications

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Input/output options

Card model	Option board 1	Option board 2
GRF-HRF050	None	4 analog outputs (4 channels)
GRF-HRF090	None	4 AES/EBU outputs (8 channels)
GRF-HRF500	4 analog inputs (4 channels)	None
GRF-HRF550	4 analog inputs (4 channels)	4 analog outputs (4 channels)
GRF-HRF590	4 analog inputs (4 channels)	4 AES/EBU outputs (8 channels)
GRF-HRF900	4 AES/EBU inputs (8 channels)	None
GRF-HRF950	4 AES/EBU inputs (8 channels)	4 analog outputs (4 channels)
GRF-HRF990	4 AES/EBU inputs (8 channels)	4 AES/EBU outputs (8 channels)



HD, SD embedded audio compressor/limiter

The HCL10 is a high quality preset based 8 channel HD/SD embedded audio compressor/limiter. The card is able to compress and limit 8 channels and insert them in to 2 groups of embedded audio. Main features are:

- Free selection of any 8 channels out of all 16 channels
- Input Gain and Phase control
- Adjustable Video offset delay to minimum (approx. 2.5 ms) or 1 frame
- Preset control of audio processing parameters for all 6 presets include:
 - User defined preset label of 16 characters
 - bypass for non PCM on stereo pairs
 - bypass of Compressor or Limiter on stereo pairs
 - Channel link: Multi mono, dual stereo, quad, all 8 channels, 2+6 and 6+2
 - Threshold from -80 to 0 dBFS
 - Compression ratio between 1:1 and 15:1
 - Compressor Attack adjustment between 1 and 500ms
 - Compressor release adjustment between 10 and 5000ms
 - Compressor Knee adjustment
 - Compressor Level detection
 - Compressor Makeup gain of -60 to +12 dB
 - Limit Threshold adjustment
 - Limit Knee adjustment
 - Limit release adjustment between 100 and 5000ms
 - Limit output gain between -60 and +12dB
 - Level meters & reduction meters (in status menu)
 - Pre and post processor monitoring via Synapse ADD-ON card

- Full status information of the video and all embedded audio parameters.
- Audio format detection (e.g. AC3, Dolby E and PCM)

Complementary cards:

- DAC20, DAC24, DAS24, DIO48, DIO24

Applications

The primary application of the HCL10 will be seen in output stages of the transmission chain. The card can be used next to a video legalizer, a truck output and all transmission outputs. The HCL10 will 'legalize' all leaving audio content to predefined audio parameters that can be recalled in presets. Another application is seen as an ingest compressor limiter.

Ordering information

Module:

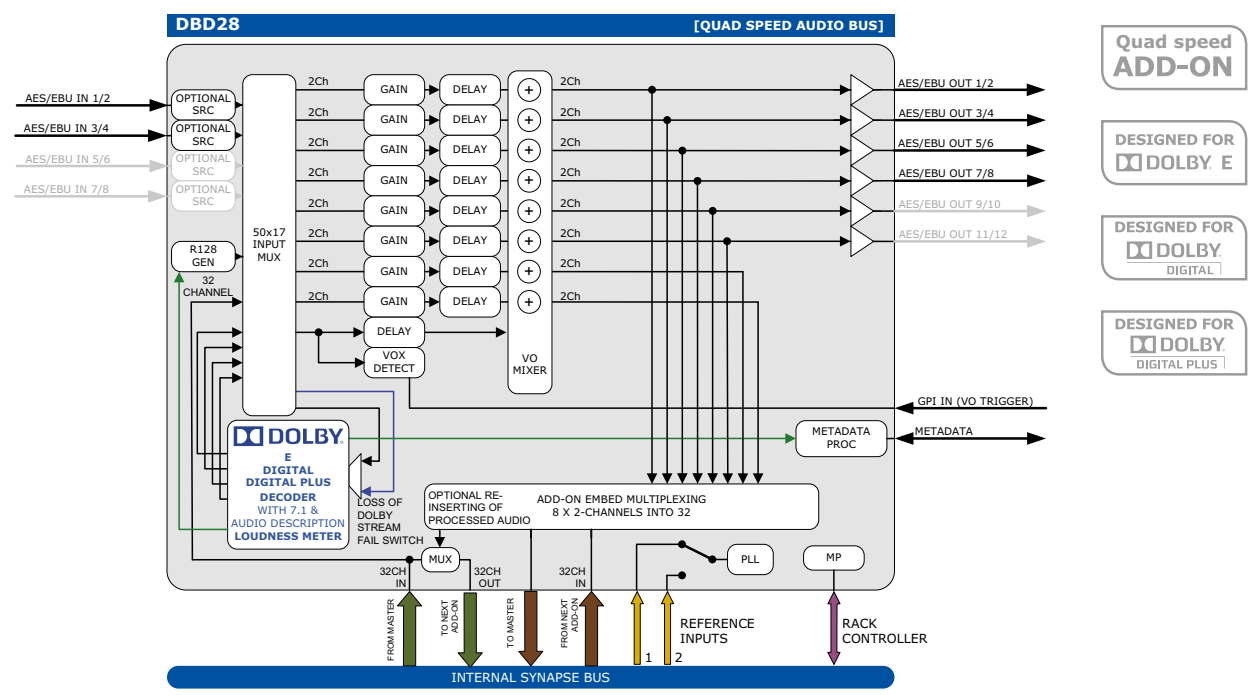
- HCL10:** HD/SD embedded audio compressor/limiter

Standard I/O:

- BPH03_HCL10:** I/O panel for HCL10 with GPI I/O on sub-D

Specifications

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Multi format Dolby stream decoder with Voice Over module

The DBD28 is a next generation Dolby multi format decoder with quad speed ADD-ON audio bus. Based on the Dolby's new Cat. No. 1100sub module it is capable of decoding Dolby E, Dolby Digital and Dolby Digital Plus. The enhanced feature set includes the capability of decoding 7.1-channel Dolby Digital Plus or 5.1-ch Dolby Digital 5.1 with audio description, carried in a single bitstream (single PID), or as two bitstreams (Dual PID). In addition to the extensive Dolby Decoding capabilities this card can add a voice activated (or triggered by GPI) Voice Over signal to any of the decoded streams or plain PCM streams that could enter the unit.

Individual delay and gain controls are available for all decoded or plain PCM streams that entered the card. A dual mode I/O configuration is possible with physical 2x AES/EBU in and 6x AES/EBU out or 4x AES/EBU in and 4x AES/EBU out.

- Multi format ADD-ON or stand alone Dolby stream decoder
 - Dolby E
 - Dolby Digital
 - Dolby Digital Plus
- 16 channel PCM processing capabilities
- Quad Speed audio bus for convenient routing of ADD-ON channels
- Optional re-inserting of processed audio for downstream post-processing (DLAxx)
- 2 or 4 physical stereo AES/EBU inputs and 16 stereo ADD-ON bus inputs

- 4 or 6 physical stereo AES/EBU (can contain Dolby Bit streams) outputs and 8 stereo (into 16 stereo) bus outputs
- E decoding with automatic source selection on loss of E
- Voice activated Voice Over engine that can be applied to any of the 16 internal streams
 - GPI trigger of VO is included
 - GPI can be used as 'cough button' to mute unwanted voice activated mixing
- Physical metadata output
- Individual offset delay per channel
- Individual gain control per channel (except bitstream input)
- Able to handle all AES/EBU input formats (optional SRC on inputs)
- Full audio channel shuffling
- Loudness measurement according to ITU BS.1770 and ITU BS.1770-2 (CALM and R128)
- A tone generator is included that can be controlled by the loudness measurement.
- It will generate a -20dBFS sinewave when the loudness measurement reads and measures -20LUFS so a normal peak/VU meter can be used to read loudness
- Full control and status monitoring through the front panel of the Synapse frame and the Ethernet port (ACP)

Complementary cards:

- All Quad Speed audio MASTER cards (G/HEP100, G/HED100, G/HRB100, G/HDK100, G/HXT110 etc).
- DLA41, DLA42, DLA43 and DLA44

Applications

- Multi format Dolby Stream monitoring decoder
- Efficient Dolby stream processing to Quad Speed audio MASTER Cards.
- Extra Dolby channel processing next to G/HEP100, G/HPD100 and G/HED100

Ordering information

Module:

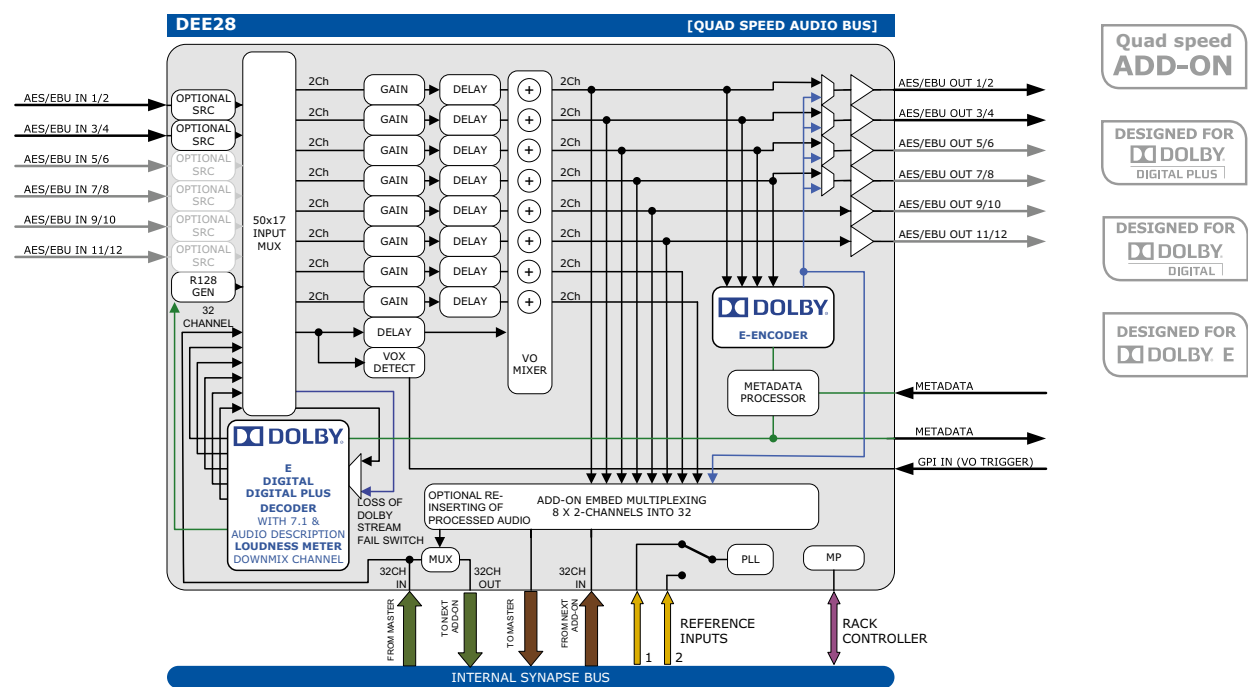
- **DBD28:** Multi format Dolby stream decoder with Voice Over module

Standard I/O:

- **BPL11_DBD28:** I/O panel for DBD28

Specifications

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Multi format dolby stream decoder and Dolby E encoder with voice over module

The DEE28 is a next generation Dolby multi-format decoder and Dolby E encoder with Quad Speed ADD-ON audio bus. It replaces the popular combination DBD08 and DBE08 on a single card. It is capable of decoding Dolby E, Dolby Digital and Dolby Digital Plus and encoding to Dolby E. The enhanced feature set includes the capability of decoding 7.1-channel Dolby Digital Plus or 5.1-ch Dolby Digital 5.1 with audio description, carried in a single bitstream (Single PID), or as two bitstreams (Dual PID).

In addition to the extensive Dolby Decoding capabilities this card can add a voice activated (or triggered by GPI) Voice Over signal to any of the decoded streams or plain PCM streams that could enter the unit.

Individual delay and gain controls are available for all decoded or plain PCM streams that entered the card. A dual mode I/O configuration is possible with physical 2x AES/EBU in and 6x AES/EBU out or 4x AES/EBU in and 4x AES/EBU out.

- Multi-format ADD-ON or stand alone Dolby stream decoder for Dolby E, Dolby Digital, Dolby Digital Plus
- Dolby E Encoder
- 16 channel PCM processing capabilities
- Quad Speed audio bus
- Optional re-inserting of processed audio for downstream post-processing (DLAxx)
- Up to 6 physical stereo AES inputs and 16 stereo bus inputs

- Up to 6 physical stereo AES (can contain Dolby bit streams) outputs and 8 stereo (into 16 stereo) bus outputs
- E decoding with automatic source selection on loss of E
- Voice activated Voice-Over engine that can be applied to any of the 16 internal streams
- GPI trigger of VO
- GPI can be used as 'cough button' to mute unwanted voice activated mixing
- Physical metadata output
- Individual offset delay and gain control per channel
- Able to handle all AES/EBU input formats
- Full audio channel shuffling
- Loudness measurement according to ITU BS.1770 and ITU BS.1770-3 (CALM and R128)
- A tone generator is included that can be controlled by the loudness measurement. It will generate a -20dBFS sine wave when the loudness measurement reads and measures -20LUFS so a normal peak/VU/dBFS meter can be used to read loudness
- Full control and status monitoring through the front panel of the Synapse frame and the Ethernet port (ACP)

Complementary cards:

- All Quad Speed audio MASTER cards (G/HEP100, G/HED100, G/HRB100, G/HDK200, G/HXT110 etc).
- DLAxx, DAWxx, DSF66

Applications

- Multi format Dolby Stream monitoring decoder
- Dolby E encoder
- Efficient Dolby stream processing to Quad Speed audio MASTER Cards
- Extra Dolby channel processing next to G/HEP100, G/HPD100 and G/HED100

Ordering information

Module:

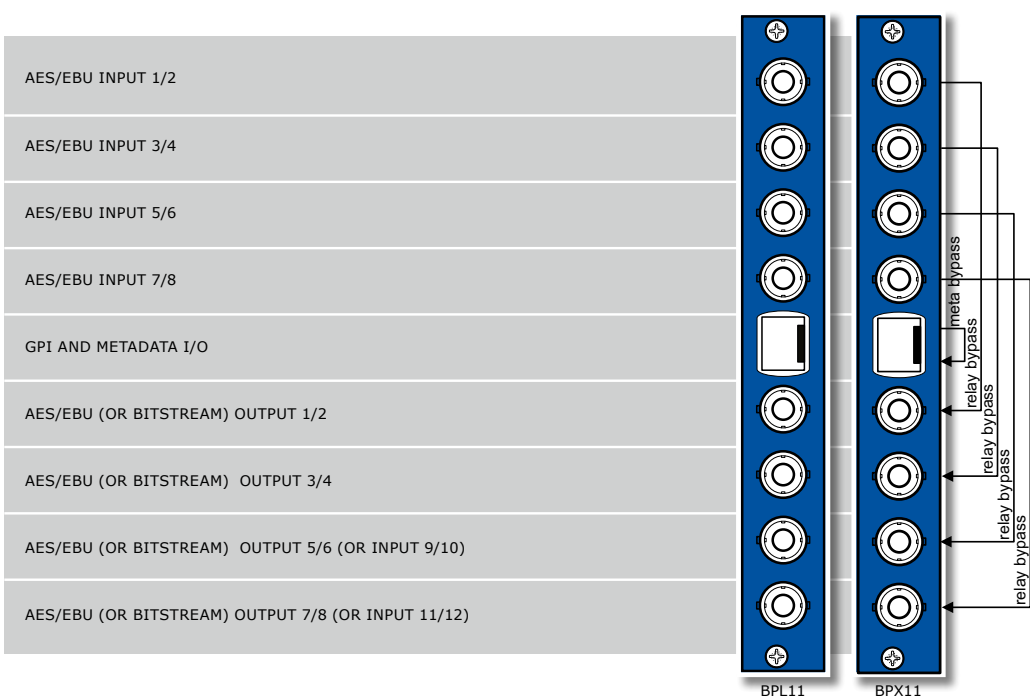
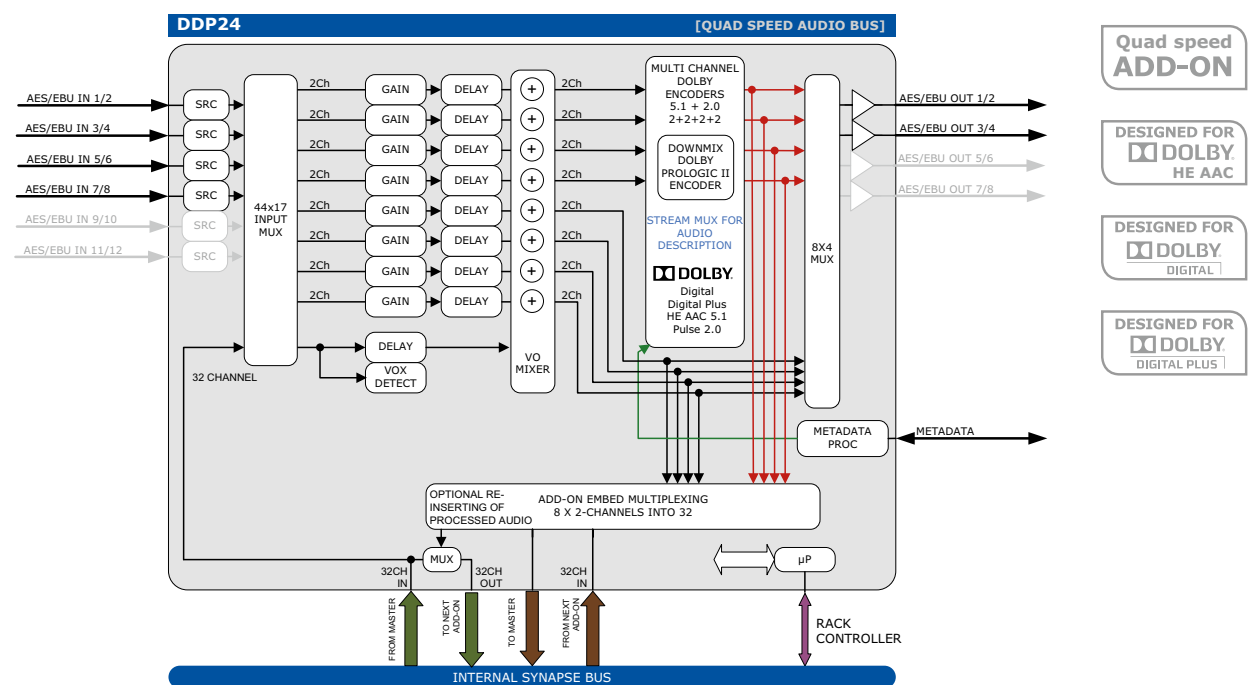
- **DEE28:** Multi format Dolby stream decoder and Dolby E encoder with voice over module

Standard I/O:

- **BPL11_DEE28:** I/O panel for DEE28

Specifications

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Multi channel Dolby Digital (Plus), Dolby HE AAC 5.1 and Dolby Pulse 2.0 encoder

The DDP24 is a Quad Speed ADD-ON multi channel Dolby Digital (plus), Dolby HE AAC 5.1 and Dolby Pulse encoder. The card is designed for the use with the Synapse high efficient Quad Speed multiplexing audio bus. The Quad Speed bus enables ADD-ON cards to be connected with a MASTER card and have both input and output signals connected to this card for convenient routing and integration. The card can be configured as a 4in/4out or 6in/2out module.

The DDP24 receives the discrete audio in PCM from one of the 4 (or 6) physical AES/EBU inputs or any of the 32 stereo pairs that can enter the card via the Quad Speed audio bus. The encoded Dolby signals are available on its 4 (or 2) physical output connectors, via the Internal Synapse bus directly to the MASTER card or to the looping Quad Speed bus outputs. The same counts for the bitstream outputs that can be routed to the physical outputs, the Quad Speed bus return path outputs or the Quad Speed bus looping outputs.

An additional level activated Voice Over processor is included. This processor detects a user defined signal level and then ducks the predefined channels that are used to mix the VO with. The VO can be applied to 8 stereo channels (user selectable). The DDP24 has the ability to use stream muxing in a Dolby Digital Plus environment. This stream contains both the (multi channel) audio stream as the audio description stream in a convenient single Dolby Digital Plus stream (single PID) or in a dual stream (dual PID).

The DDP24 gets its processing clock from the MASTER card and will operate fully clock synchronous with this MASTER card. You can use the DDP24 standalone by locking on AES1 to 4 or reference inputs 1 or 2.

- Quad Speed audio bus for convenient routing of ADD-ON channels
- Optional re-inserting of processed audio for downstream post-processing (DLAxx)
- 4 or 6 physical stereo AES/EBU inputs and 16 stereo bus inputs
- 4 or 2 physical stereo AES/EBU (can contain Dolby bitstreams) outputs and 8 stereo (into 16 stereo) bus outputs
- Up to 4 times 2.0 Dolby Digital (Plus) or Pulse outputs
- 5.1 Dolby Digital (Plus)+ 2.0 Dolby Digital (Plus)
- HE AAC 5.1 + Dolby Pulse 2.0 stream
- Dolby Pro Logic II encoding from downmixed discrete 5.1 source
- Physical metadata input and output
- Dolby metadata mixing
- Audio description processing (single or dual PID)
- Individual offset delay per input
- Individual gain control per input (except bitstream input)
- Able to handle all AES/EBU input formats
- Full audio channel shuffling

Complementary cards:

- All Quad Speed audio cards (G/HEP100, G/HED100, G/HRB100, G/HDK100, G/HXT110, DAW88, DLA41, etc)

Applications

- Efficient Dolby processing to Quad Speed audio MASTER Cards
- Extra Dolby channel processing next to G/HEP100, G/HPD100 and G/HED100

Ordering information

Module:

- **DDP24:** Quad Speed multi channel Dolby encoder

Standard I/O:

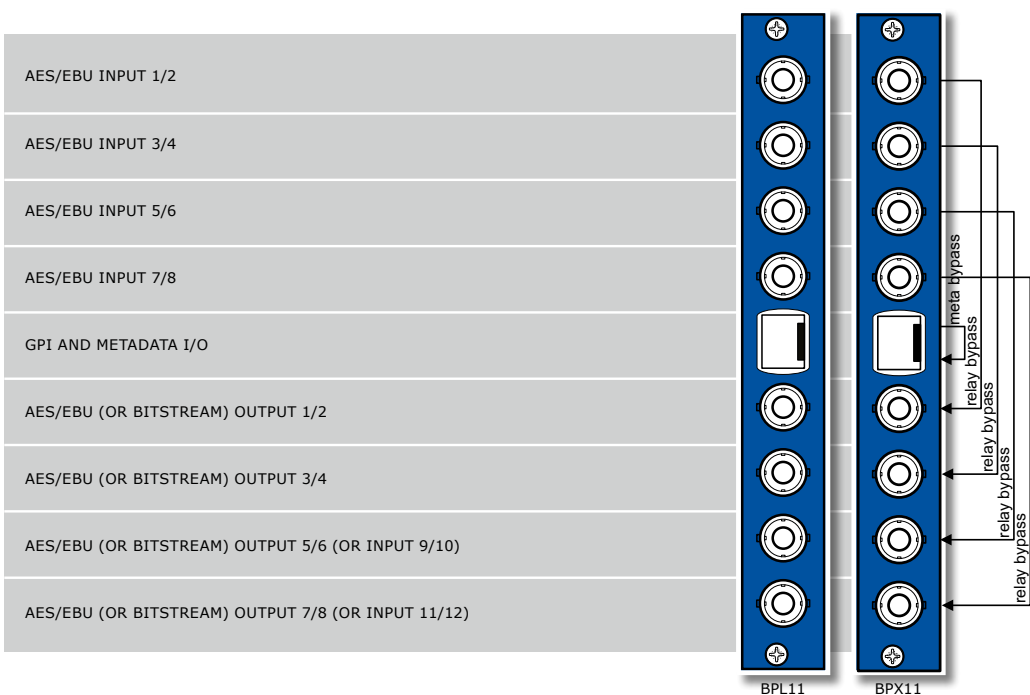
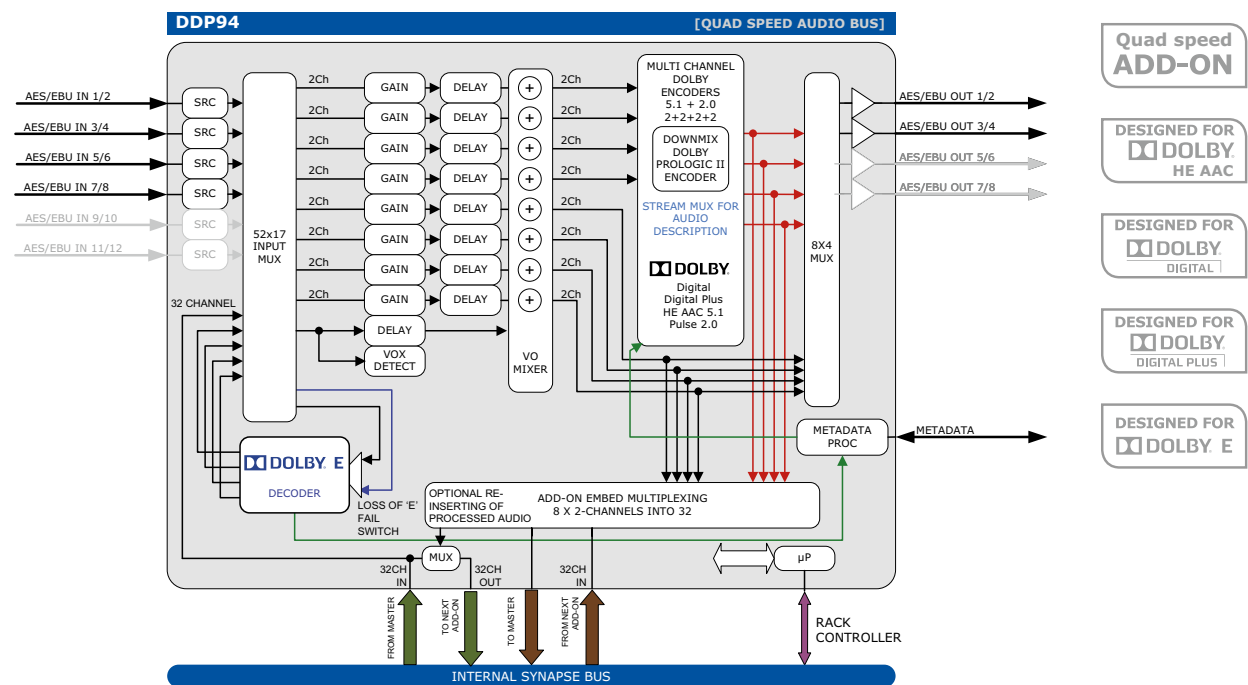
- **BPL11_DDP24:** I/O panel for DDP24

Relay bypass I/O:

- **BPX11_DDP24:** I/O panel for DDP24 with relay bypass

Specifications

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Multi channel Dolby Digital (Plus), Dolby HE AAC 5.1 and Dolby Pulse 2.0 encoder with Dolby E decoder

The DDP94 is a Quad Speed ADD-ON Dolby E decoder and multi channel Dolby Digital (plus), Dolby HE AAC 5.1 and Dolby Pulse 2.0 encoder. The card is designed for the use with the Synapse high efficient Quad Speed multiplexing audio bus. The Quad Speed bus enables ADD-ON cards to be connected with a MASTER card and have both input and output signals connected to this card for convenient routing and integration.

The DDP94 receives the Dolby E or PCM from one of the 4 (or 6) physical AES/EBU inputs or any of the 32 stereo pairs that can enter the card via the Quad Speed audio bus. The encoded Dolby signals (or the decoded stereo AES/EBU signals) are available on its 4 (or 2) physical output connectors, via the internal Synapse bus directly to the MASTER card or to the looping Quad Speed bus outputs. The same counts for the bitstream outputs that can be routed to the physical outputs, the Quad Speed bus return path outputs or the Quad Speed bus looping outputs. The latter will make it possible to route the decoded E (PCM) streams to an adjacent ADD-ON card for further processing.

An additional level activated Voice Over processor is included. This processor detects a user defined signal level and then ducks the predefined channels that are used to mix the VO with. The VO can be applied to 8 stereo channels (user selectable). The DDP94 has the ability to use stream muxing in a Dolby Digital Plus environment. This stream contains both the (multi channel) audio stream as the audio description stream in a convenient

single Dolby Digital Plus stream (single PID) or in a dual stream (dual PID). The DDP94 gets its processing clock from the MASTER card and will operate fully clock synchronous with this MASTER card. You can use the DDP94 standalone by locking on AES1 to 4 or reference inputs 1 or 2.

- Quad Speed audio bus for routing of ADD-ON channels
- Optional re-inserting of processed audio for downstream post-processing (DLAxx)
- 4 or 6 physical AES/EBU inputs and 16 stereo bus inputs
- 4 or 2 physical AES/EBU (can contain Dolby bitstreams) outputs and 8 stereo (into 16 stereo) bus outputs
- E decoding with automatic source selection on loss of E
- Up to 4 times 2.0 Dolby Digital (Plus) or Pulse outputs
- 5.1 Dolby Digital (Plus) + 2.0 Dolby Digital (Plus)
- HE AAC 5.1 + Dolby Pulse 2.0 stream
- Dolby Pro Logic II encoding from downmixed discrete 5.1 source
- Metadata mixing
- Audio description processing (single or dual PID)
- Physical metadata output and input
- Individual offset delay per input
- Individual gain control per input (except bitstream input)
- Able to handle all AES/EBU input formats
- Full audio channel shuffling

Complementary cards:

- All Quad Speed audio cards (G/HEP100, G/HED100, G/HRB100, G/HDK100, G/HXT110, DAW88, DLA41, etc)

Applications

- Efficient Dolby processing to Quad Speed audio MASTER cards
- Extra Dolby channel processing next to G/HEP100, G/HPD100 and G/HED100

Ordering information

Module:

- **DDP94:** Quad Speed multi channel Dolby encoder with Dolby E decoder

Standard I/O:

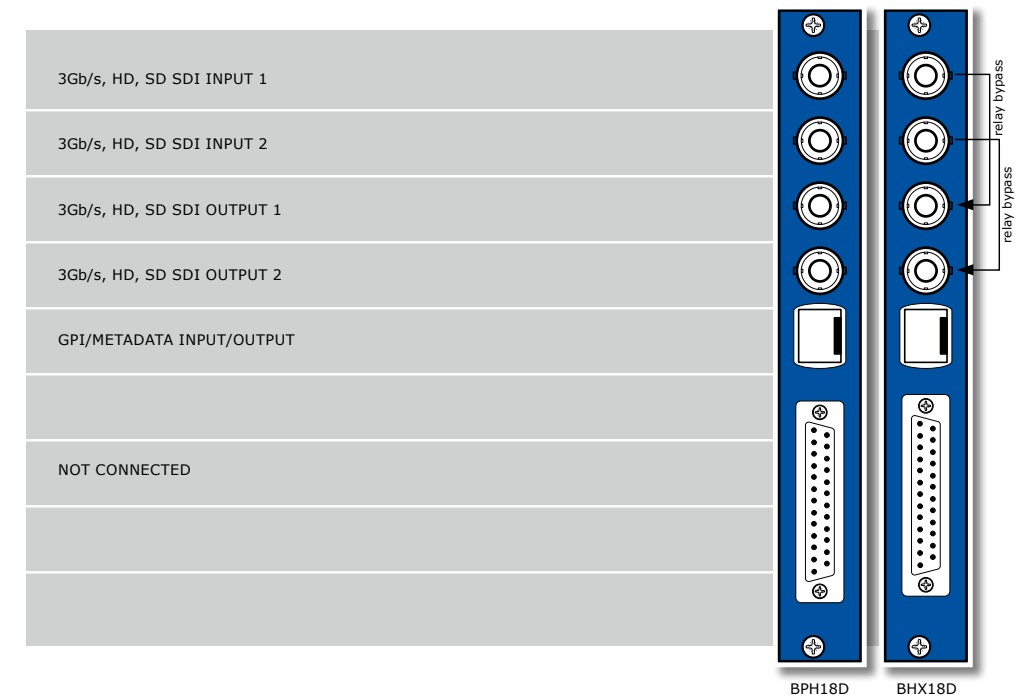
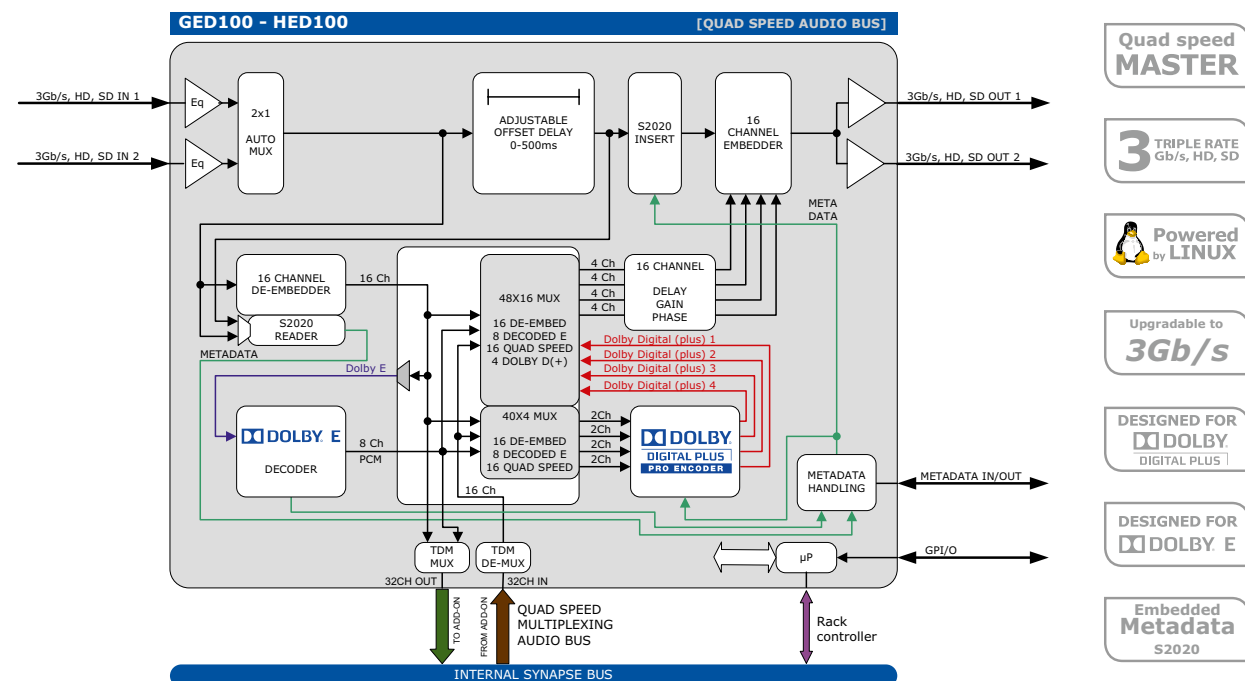
- **BPL11_DDP94:** I/O panel for DDP94

Relay bypass I/O:

- **BPX11_DDP94:** I/O panel for DDP94 with relay bypass

Specifications

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3Gb/s, HD, SD embedded domain Dolby E to Dolby Digital (plus) transcoder with audio shuffler

The GED100 and HED100 are embedded domain Dolby E to Dolby Digital or Dolby Digital Plus transcoders. Simultaneous encoding of 5.1+2.0 or 4 individual stereo channels (languages) to 4 Dolby Digital (Plus) 2.0 streams is possible. The new Quad Speed audio bus allows for implementation of 'in between' audio processing. This means that we can stream the decoded Dolby E audio to a Quad Speed audio ADD-ON card like the DLA44 or DLA42, process this audio and send it back to the G/HED100 for encoding into Dolby Digital or Dolby Digital plus. The ADD-ON card does not need a connector panel and all audio routing is performed inside the Synapse frame by just placing these cards in adjacent slots.

The HED100 can be future upgraded to GED100. This allows for staged implementation of HD infrastructures and spread the cost over multiple budget years.

- Dolby E decoding (no Dolby Digital Decoding)
- Encoding of up to 4 times 2.0 Dolby Digital (Plus) outputs, or 5.1 Dolby Digital (Plus) + 2.0 Dolby Digital (Plus)
- Dolby Pro Logic II encoding on the 2.0 channel
- Downmix of 5.1 to 2.0
- Compatible with the following input formats (auto selecting) (1080p only for GED100):
 - 1080p59.94 ■ 1080p29.97 ■ 720p50
 - 1080p50 ■ 1080p25 ■ SD525
 - 1080i59.94 ■ 1080p(sf)23.98 ■ SD625
 - 1080i50 ■ 720p59.94

- S2020 metadata handling
- 2 SDI inputs (with auto switch on carrier loss, and switch back function)
- Offset video delay adjustable between 0 and 500ms
- Quad Speed audio ADD-ON bus for bidirectional audio processing
- 2 SDI + embedded audio outputs
- 7 presets that configure all 16 input channels at once, controlled by GPI or ACP (Cortex)
- Append and overwrite modes
- Audio level and phase control
- Audio offset delay up to 5000 ms
- Peak detection 0 dBFS
- Silence detection with threshold (-100 to -20dBFS) and time control (1 to 255 sec)
- Transparent for ATC time code RP188, RP196, RP215
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18 frame and the Ethernet port (ACP)
- Optional relay bypass (BHX18D)

Complementary cards:

- DLA44, DLA43, DLA42, DLA41 and DIO88 (plus all future Quad Speed audio ADD-ON cards)

Applications

- 3Gb/s, HD and SD Dolby transcoding in transmission
- Preset based 16 channel audio/bitstream shuffling

Specifications

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Ordering information

Module:

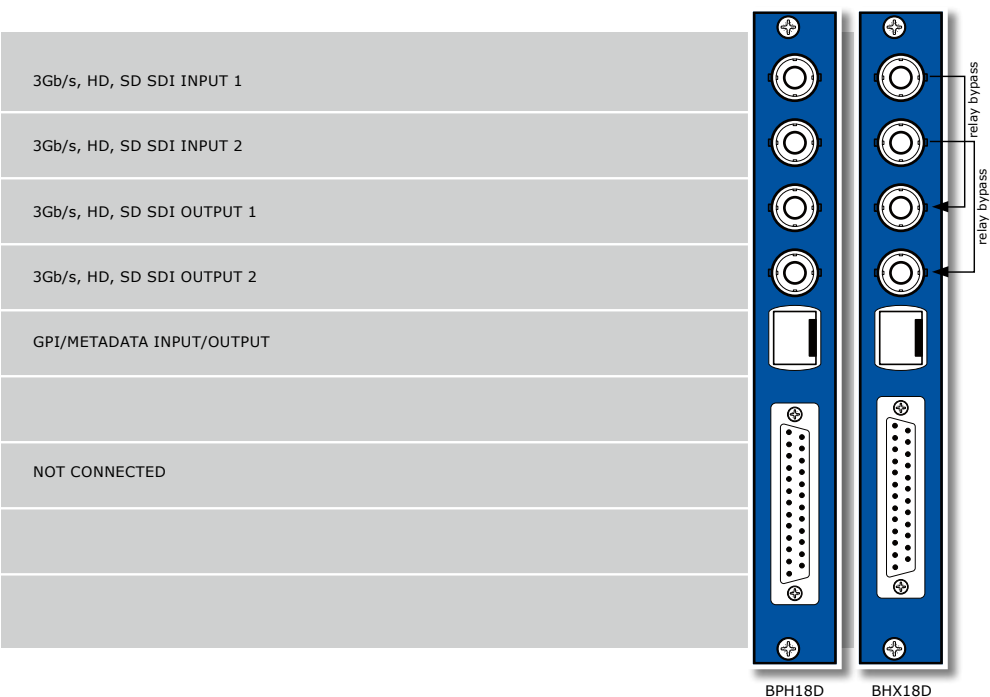
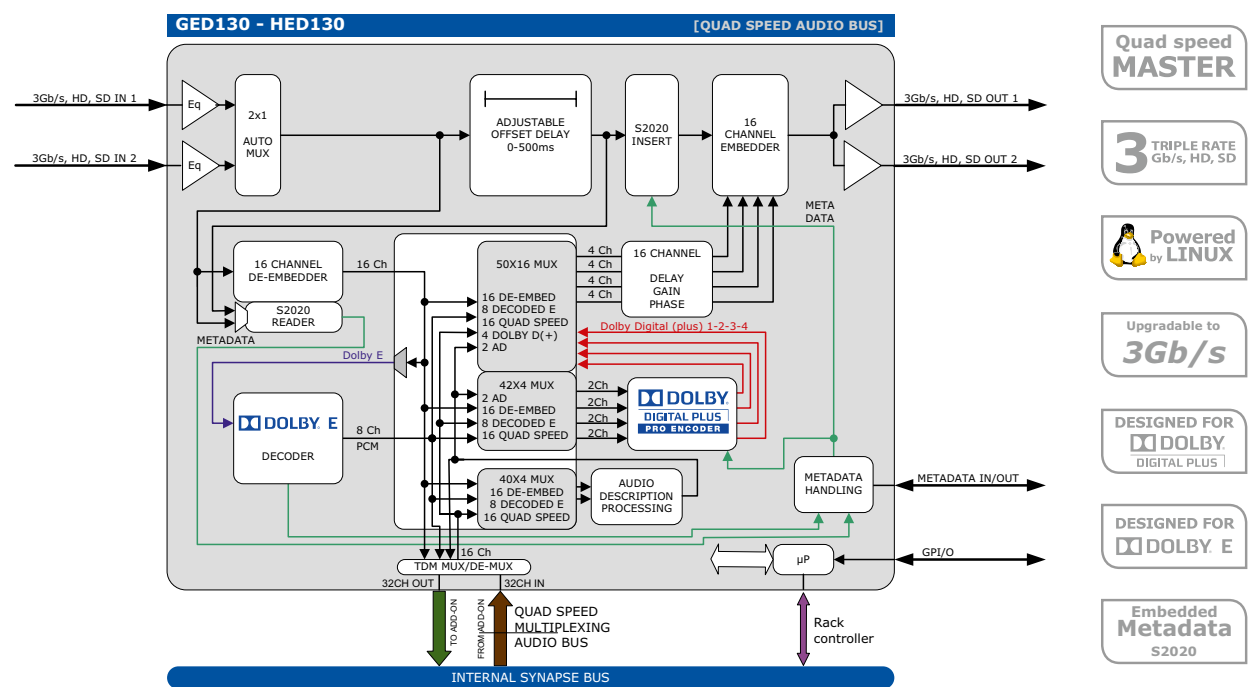
- **GED100:** 3Gb/s, HD, SD
embedded domain Dolby
E decoder Dolby Digital
(plus) encoder re-embedder
- **HED100:** HD, SD
embedded domain Dolby
E decoder Dolby Digital
(plus) encoder re-embedder

Standard I/O:

- **BPH18D_GED100:**
I/O panel for G-HED100
with (future use) balanced
AES/EBU inputs

Relay bypass I/O:

- **BHX18D_GED100:**
I/O panel for G-HED100
with (future use) balanced
AES/EBU inputs with relay
bypass



3Gb/s, HD, SD embedded domain Dolby E to Dolby Digital (plus) transcoder with audio shuffler and audio description processor

The GED130 and HED130 are embedded domain Dolby E to Dolby Digital or Dolby Digital Plus transcoders with fully routable audio description processor. This processor uses a stereo track as main program (input 1-2 of the AD processor) and mixes the AD track triggered by the mix enable track (input 3-4 of the AD processor). The output of the AD processor can be routed to any of the Dolby digital encoder inputs or any of the normal PCM channels of the 16 channel embedder. Simultaneous encoding of 5.1+2.0 or 4 individual stereo channels (languages) to 4 Dolby Digital (Plus) 2.0 streams is possible.

The new Quad Speed audio bus allows for implementation of 'in between' audio processing. This means that we can stream the decoded Dolby E audio to a Quad Speed audio ADD-ON card like the DLA44 or DLA42, process this audio and send it back to the G/HED130 for encoding into Dolby Digital or Dolby Digital plus. The ADD-ON card does not need a connector panel and all audio routing is performed inside the Synapse frame by just placing these cards in adjacent slots.

- Dolby E decoding (no Dolby Digital Decoding)
- Encoding of up to 4 times 2.0 Dolby Digital (Plus) outputs, or 5.1 Dolby Digital (Plus) + 2.0 Dolby Digital (Plus)
- Dolby Pro Logic II encoding on the 2.0 channel
- Downmix of 5.1 to 2.0
- S2020 metadata handling
- 2 SDI inputs (with auto switch on carrier loss, and switch back function)

- Compatible with the following input formats (auto selecting) (1080p only for GED130):
 - 1080p59.94 ■ 1080p29.97 ■ 720p50
 - 1080p50 ■ 1080p25 ■ SD525
 - 1080i59.94 ■ 1080p(sf)23.98 ■ SD625
 - 1080i50 ■ 720p59.94
- Offset video delay adjustable between 0 and 500ms
- Quad Speed audio ADD-ON bus for bidirectional audio processing
- 2 SDI + embedded audio outputs
- 7 presets that configure all 16 input channels at once, controlled by GPI or ACP (Cortex)
- Append and overwrite modes
- Audio level and phase control
- Audio offset delay up to 5000 ms
- Peak detection 0 dBFS
- Silence detection with threshold (-100 to -20dBFS) and time control (1 to 255 sec)
- Transparent for ATC time code RP188, RP196, RP215
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18 frame and via Ethernet
- Optional relay bypass (BHX18D)

- Complementary cards:**
- DLA44, DLA43, DLA42, DLA41 and DIO88 (plus all future Quad Speed audio ADD-ON cards)

Applications

- 3Gb/s, HD and SD Dolby transcoding in transmission with audio description
- Preset based 16 channel audio/bitstream shuffling

Specifications

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Ordering information

Module:

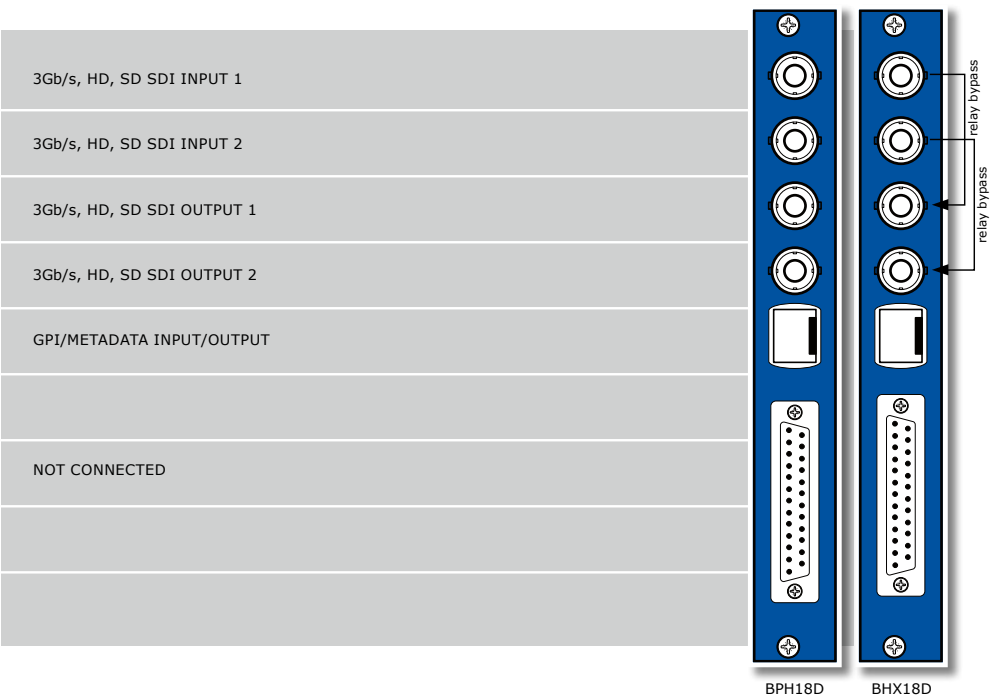
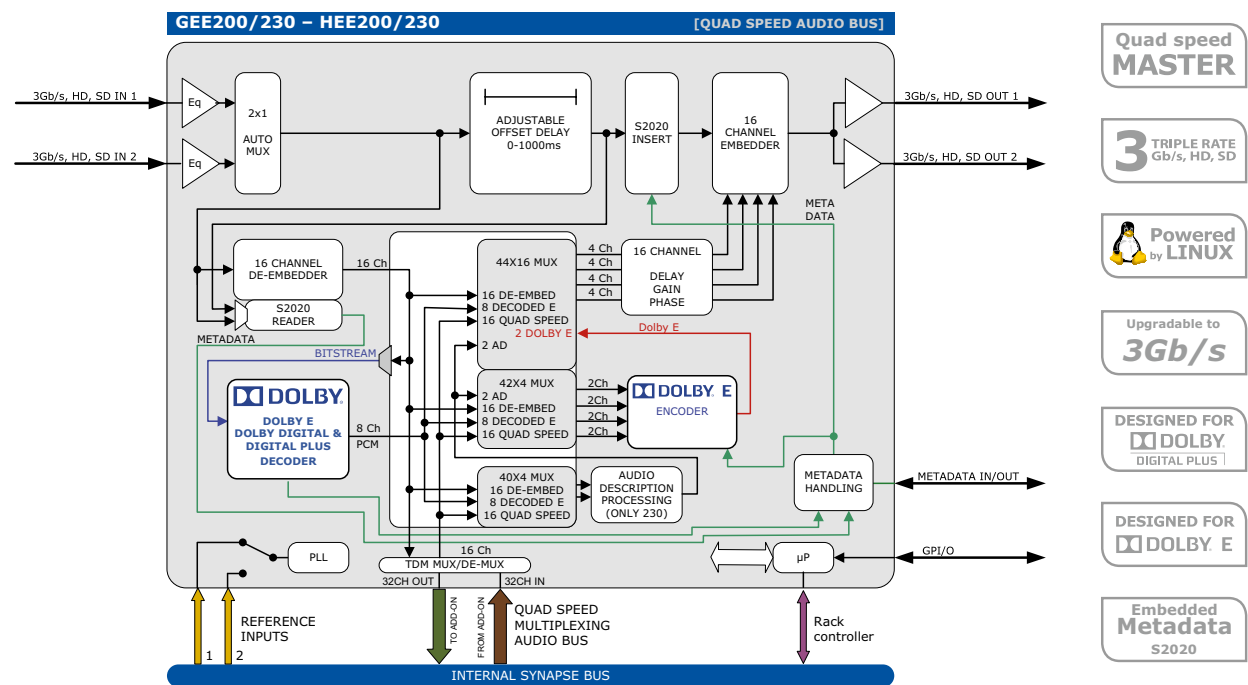
- **GED130:** 3Gb/s, HD, SD embedded domain Dolby E decoder Dolby Digital (plus) encoder re-embedder with audio description
- **HED130:** HD, SD embedded domain Dolby E decoder Dolby Digital (plus) encoder re-embedder with audio description

Standard I/O:

- **BPH18D_GED130:** I/O panel for G-HED130 with (future use) balanced AES/EBU inputs

Relay bypass I/O:

- **BHX18D_GED130:** I/O panel for G-HED130 with (future use) balanced AES/EBU inputs with relay bypass



3Gb/s, HD, SD embedded domain Dolby E/D/D+ decoder to Dolby E encoder with optional audio description

The GEE200/230 and HEE200/230 are embedded domain Dolby E/D/D+ to Dolby E processors with audio shuffler and an optional fully routable Audio Description processor. This processor uses a stereo track as main program (input 1-2 of the AD processor) and mixes the AD track triggered by the mix enable track (input 3-4 of the AD processor). The output of the AD processor can be routed to any of the Dolby E encoder inputs or any of the normal PCM channels of the 16 channel embedder. Simultaneous encoding of 5.1, 5.1+2.0 or 4 individual stereo channels (languages) to a Dolby E stream is possible.

The Quad Speed audio bus allows for implementation of 'in between' audio processing. This means that we can stream the decoded Dolby E audio to a Quad Speed Audio ADD-ON card like the DLA44 or DLA42, process this audio and send it back to the G/HEE2x0 for encoding into Dolby E. The ADD-ON card does not need a connector panel and all audio routing is performed inside the Synapse frame by just placing these cards in adjacent slots.

The HEE2x0 can be future upgraded to GEE2x0. This allows for staged implementation of HD infrastructures and spread the cost over multiple budget years

- Dolby E, Dolby Digital and Dolby Digital Plus decoding
- Encoding of up to 4 times 2.0 Dolby E outputs, or 5.1 Dolby E or 5.1+2.0 Dolby E
- Audio Description processor with free routable I/O
- S2020 metadata handling

- 2 SDI inputs with auto switch on carrier loss, and switch back function
- Compatible with 1080p(sf)23.98/25/29.97/50/59.94, 1080i50/59.94, 720p50/59.94, SD525/625
- Offset video delay, adjustable between 0 and 1000ms
- Quad Speed Audio ADD-ON bus
- 2 SDI + embedded audio outputs
- 7 presets that configure all 16 input channels at once, controlled by GPI or ACP (Cortex)
- Append and overwrite modes
- Audio level and phase control
- Audio offset delay up to 5000 ms
- Silence detection (with customizable threshold and time control) and Peak detection 0dBFS
- Transparent for ATC time code RP188, RP196, RP215
- Locks to Tri-level, Bi-level syncs or input
- Full control and status monitoring via frame font and ACP
- Optional relay bypass (BHX18D)

Complementary cards:

- DLA44, DLA43, DLA42, DLA41 and DIO88 (plus all future Quad Speed audio ADD-ON cards)

Applications

- 3Gb/s, HD and SD Dolby transcoding in transmission with audio description
- Preset based 16 channel audio/bitstream shuffling

Ordering information

Module:

- **GEE200:** 3Gb/s, HD, SD embedded domain Dolby E,D,D+ decoder and Dolby E encoder
- **HEE200:** HD, SD embedded domain Dolby E,D,D+ decoder and Dolby E encoder
- **GEE230:** 3Gb/s, HD, SD embedded domain Dolby E,D,D+ decoder and Dolby E encoder with audio description processor
- **HEE230:** HD, SD embedded domain Dolby E,D,D+ decoder and Dolby E encoder with audio description processor

Standard I/O:

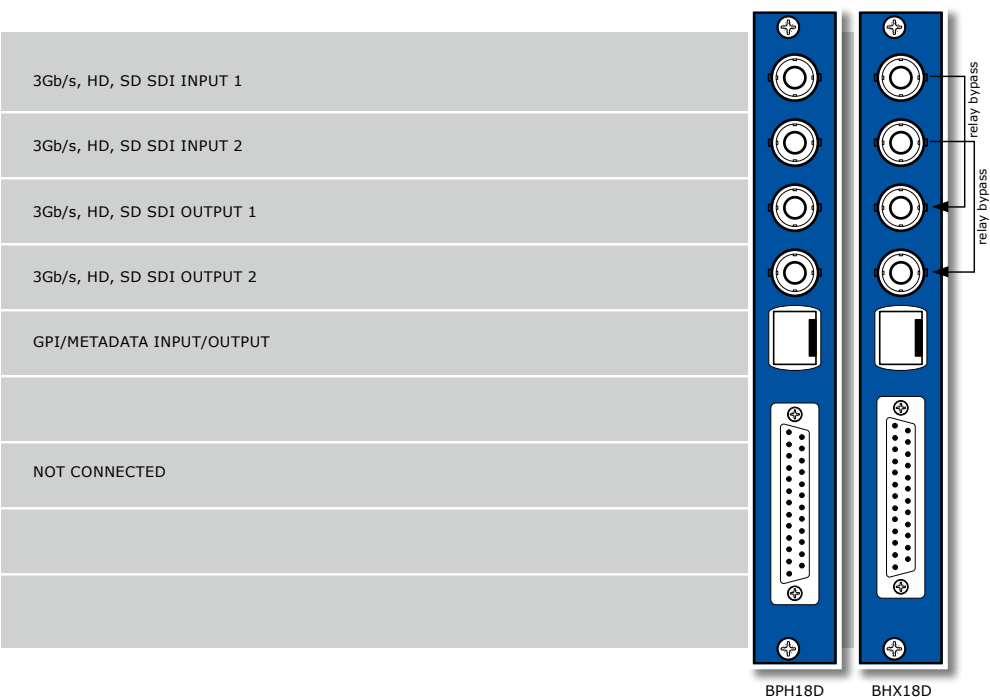
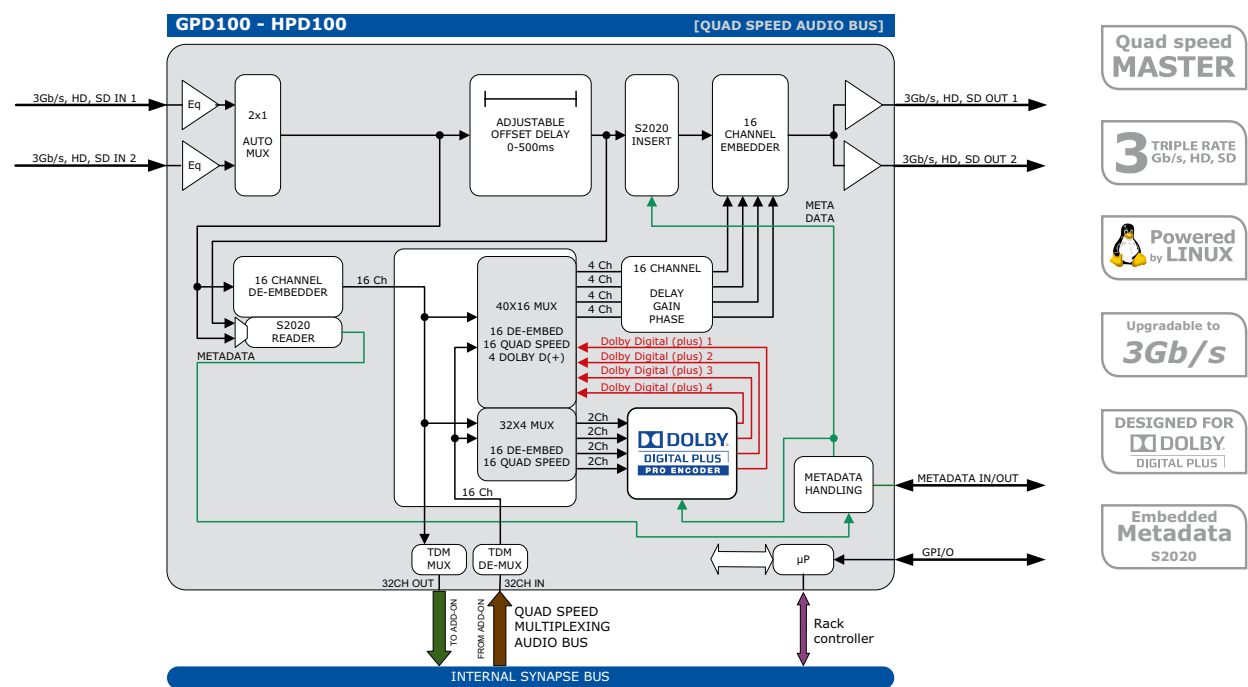
- **BPH18D_GEExxx:** I/O panel for G-HEExxx with (future use) balanced AES/EBU inputs

Relay bypass I/O:

- **BHX18D_GEExxx:** I/O panel for G-HEExxx with (future use) balanced AES/EBU inputs with relay bypass

Specifications

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3Gb/s, HD, SD embedded domain PCM to Dolby Digital (plus) encoder with audio shuffler

The GPD100 and HPD100 are embedded domain PCM to Dolby Digital or Dolby Digital Plus transcoders. Simultaneous encoding of 5.1+2.0 or 4 individual stereo channels (languages) to 4 Dolby Digital (Plus) 2.0 streams is possible.

The new Quad Speed audio bus allows for implementation of 'in between' audio processing. This means that we can stream the decoded Dolby E audio to a Quad Speed audio ADD-ON card like the DLA44 or DLA42, process this audio and send it back to the G/HPD100 for encoding into Dolby Digital or Dolby Digital Plus. The ADD-ON card does not need a connector panel and all audio routing is performed inside the Synapse frame by just placing these cards in adjacent slots.

The HPD100 can be future upgraded to GPD100. This allows for staged implementation of HD infrastructures and spread the cost over multiple budget years.

- Encoding of up to 4 times 2.0 Dolby Digital (Plus) outputs or 5.1 Dolby Digital (Plus) + 2.0 Dolby Digital (Plus)
- Dolby Pro Logic II encoding on the 2.0 channel
- Downmix of 5.1 to 2.0
- Embedded S2020 handling
- 2 SDI inputs (with auto switch on carrier loss, and switch back function)
- Video offset delay between 0 and 500ms

- Compatible with the following input formats (auto selecting)(1080p50 and 59.94 in GPD100 only)
 - 1080p59.94
 - 1080p50
 - 1080i59.94
 - 1080i50
 - 1080p29.97
 - 1080p25
 - 1080p(sf)23.98
 - 720p59.94
 - 720p50
 - SD525
 - SD625
- Quad Speed audio ADD-ON bus for bidirectional audio processing
- 2 SDI + embedded audio outputs
- 7 presets that configure all 16 input channels at once, controlled by GPI or ACP (Cortex)
- Append and overwrite modes
- Audio level and phase control
- Audio offset delay up to 5000 ms
- Peak detection 0dBFS
- Transparent for ATC time code RP188, RP196, RP215
- Full control and status monitoring through the front panel of the frame and via the Ethernet port (ACP)
- Optional relay bypass (BHX18 or BHX18D)

Complementary cards:

- DLA44, DLA43, DLA42, DLA41 and DIO88 (plus all other Quad Speed audio ADD-ON cards)

Applications

- 3Gb/s, HD and SD Dolby transcoding in transmission
- Preset based 16 channel audio/bitstream shuffling
- On the fly audio routing to two individual SD, HD and 3Gb/s SDI video streams

Ordering

information

Module:

- **GPD100:** 3Gb/s, HD, SD embedded domain PCM to Dolby Digital (Plus) encoder with audio shuffler
- **HPD100:** HD, SD embedded domain PCM to Dolby Digital (Plus) encoder with audio shuffler

Standard I/O:

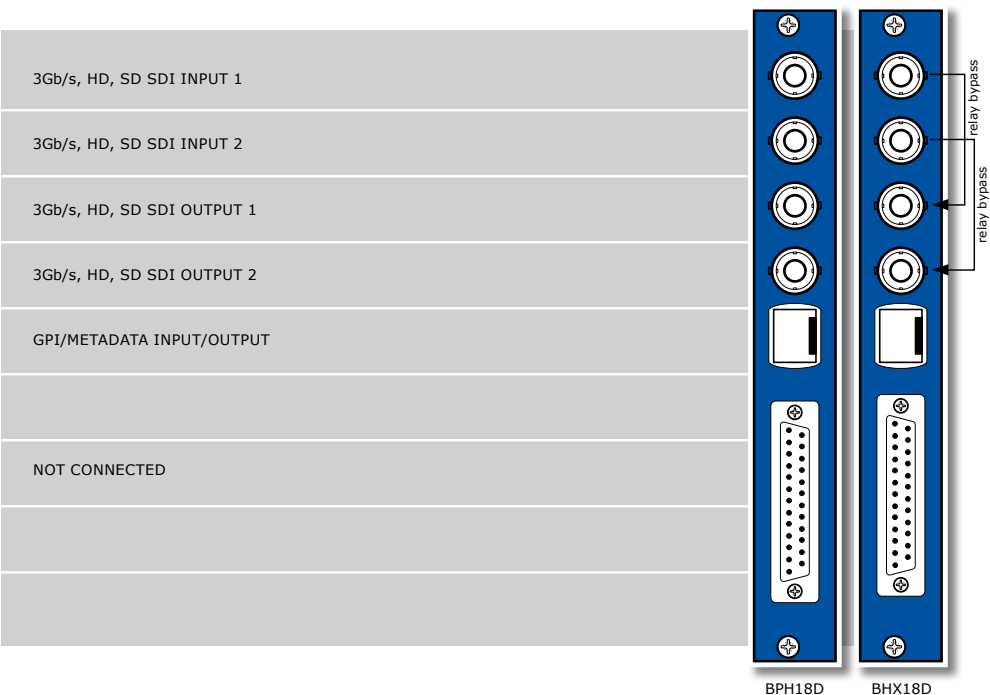
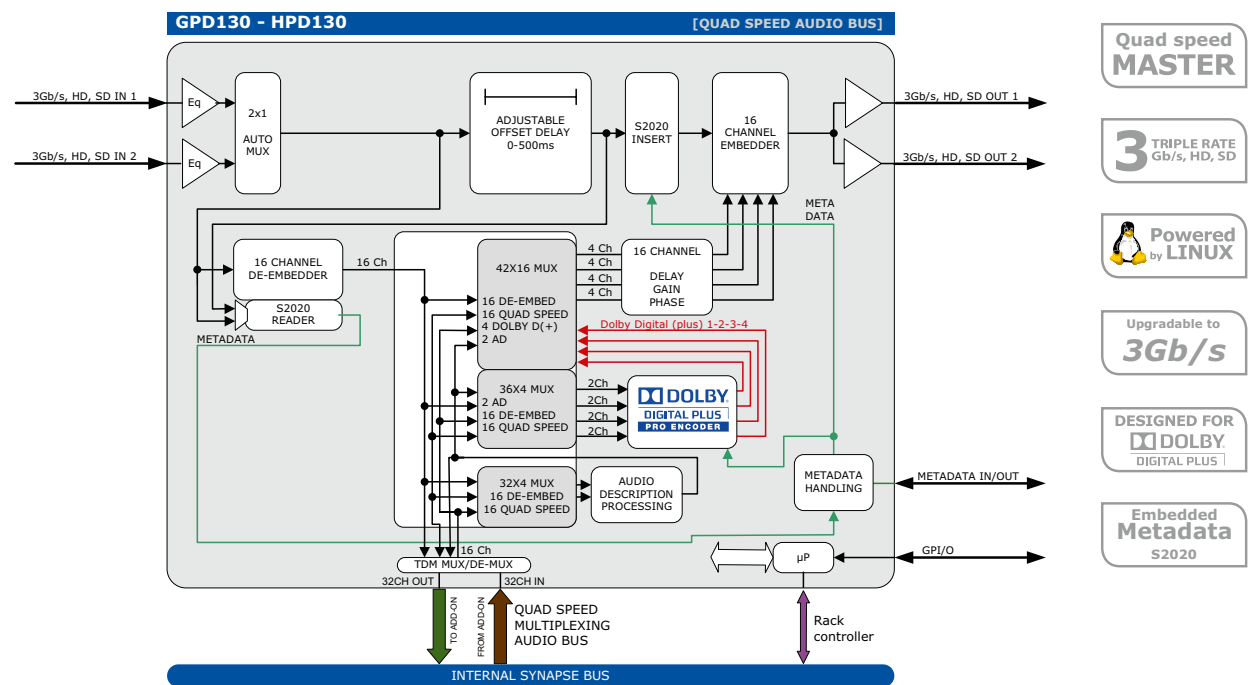
- **BPH18D_GPD100:** I/O panel for G-HPD100 with (future use) balanced AES/EBU inputs

Relay bypass I/O:

- **BHX18D_GPD100:** I/O panel for G-HPD100 with (future use) balanced AES/EBU inputs with relay bypass

Specifications

visit www.evs.com



3Gb/s, HD, SD embedded domain PCM + AD to Dolby Digital (Plus) encoder with audio shuffler and audio description processor

The GPD130 and HPD130 are embedded domain PCM to Dolby Digital or Dolby Digital Plus encoders with fully routable audio Description processor. This processor uses a stereo track as main program (input 1-2 of the AD processor) and mixes the AD track triggered by the mix enable track (input 3-4 of the AD processor). The output of the AD processor can be routed to any of the Dolby digital encoder inputs or any of the normal PCM channels of the 16 channel embedder. Simultaneous encoding of 5.1+2.0 or 4 individual stereo channels (languages) to 4 Dolby Digital (Plus) 2.0 streams is possible.

The new Quad Speed audio bus allows for implementation of 'in between' audio processing. This means that it can stream the decoded Dolby E audio to a Quad Speed audio ADD-ON card like the DLA44 or DLA42, process this audio and send it back to the G/HPD130 for encoding into Dolby Digital or Dolby Digital plus. The ADD-ON card does not need a connector panel and all audio routing is performed inside the Synapse frame by just placing these cards in adjacent slots.

- Encoding of up to 4 times 2.0 Dolby Digital (Plus) outputs or 5.1 Dolby Digital (Plus) + 2.0 Dolby Digital (Plus)
- Audio Description processor with free routable I/O
- Dolby Pro Logic II encoding on the 2.0 channel
- Downmix of 5.1 to 2.0
- Embedded S2020 handling
- 2 SDI inputs (with auto switch on carrier loss, and switch back function)

- Compatible with the following input formats (auto selecting)(1080p50 and 59.94 in GPD130 only)
 - 1080p59.94 ■ 1080p29.97 ■ 720p50
 - 1080p50 ■ 1080p25 ■ SD525
 - 1080i59.94 ■ 1080p(sf)23.98 ■ SD625
 - 1080i50 ■ 720p59.94
- Offset video delay adjustable between 0 and 500ms
- Quad Speed audio ADD-ON bus for bidirectional audio processing
- 2 SDI + embedded audio outputs
- 7 presets that configure all 16 input channels at once, controlled by GPI or ACP (Cortex)
- Append and overwrite modes
- Audio level and phase control
- Audio offset delay up to 5000 ms
- Peak detection 0dBFS
- Silence detection with threshold (-100 to -20dBFS) and time control (1 to 255 sec)
- Transparent for ATC time code RP188, RP196, RP215
- Locks to Tri-level, Bi-level syncs or input
- Full control and status monitoring through the front panel of the frame and via the Ethernet port (ACP)
- Optional relay bypass (BHX18D)

Complementary cards:

- DLA44, DLA43, DLA42, DLA41 and DIO88 (plus all other Quad Speed audio ADD-ON cards)

Applications

- 3Gb/s, HD and SD Dolby transcoding in transmission with audio description
- Preset based 16 channel audio/bitstream shuffling
- On the fly audio routing to two individual SD, HD and 3Gb/s SDI video streams

Ordering information

Module:

- **GPD130:** 3Gb/s, HD, SD embedded domain PCM + AD to Dolby Digital (plus) encoder
- **HPD130:** HD, SD embedded domain PCM + AD to Dolby Digital (plus) encoder

Standard I/O:

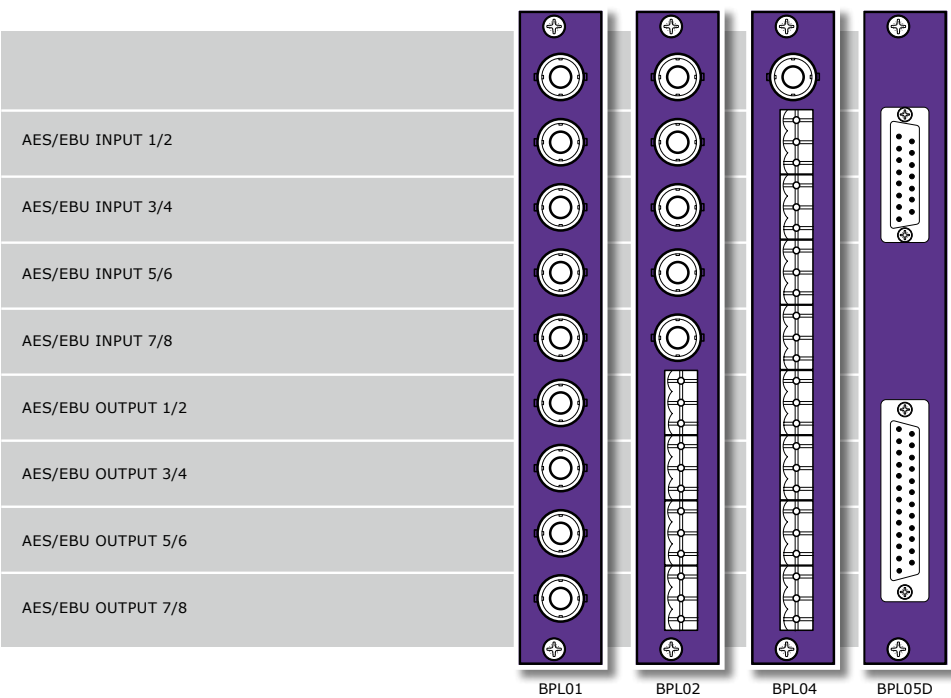
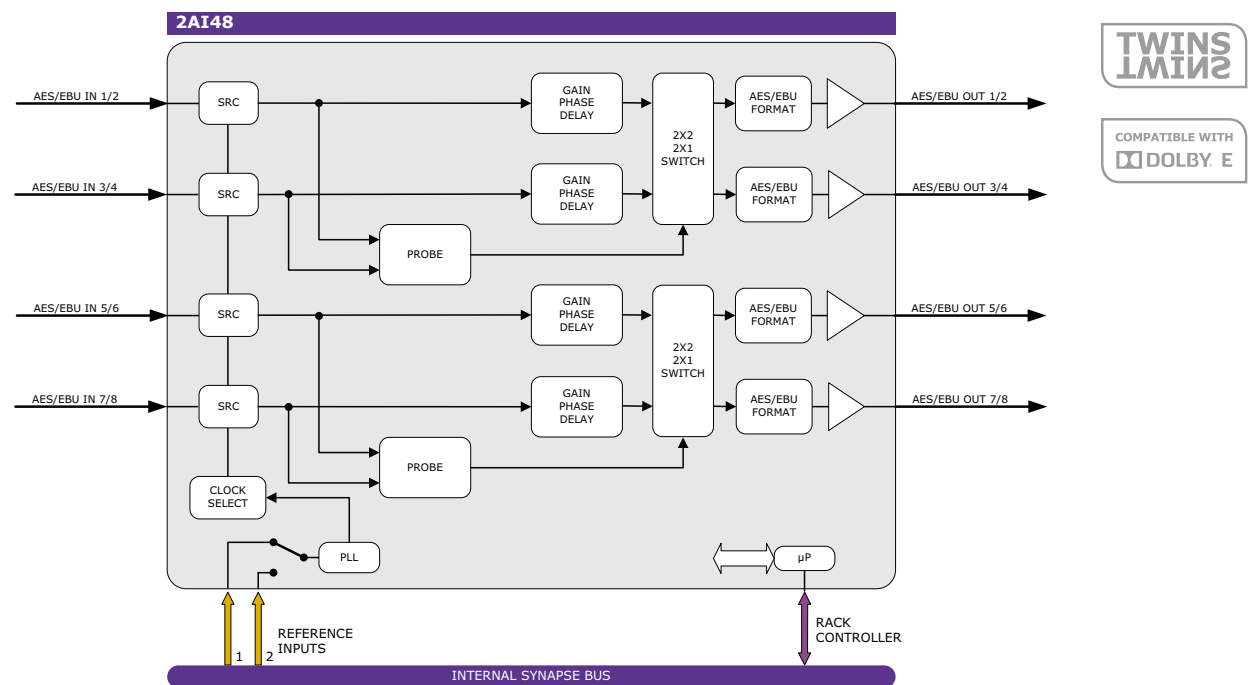
- **BPH18D_GPD130:** I/O panel for G-HPD130 with (future use) balanced AES/EBU inputs

Relay bypass I/O:

- **BHX18D_GPD130:** I/O panel for G-HPD130 with (future use) balanced AES/EBU inputs with relay bypass

Specifications

visit www.evs.com



Dual AES/EBU back-up switcher with integrity checking

The 2AI48 is a dual AES/EBU back-up switcher. It contains 2 completely individual paths with main and back-up inputs. The unit can be triggered by our ACP control protocol or automatically by several input triggers. These triggers are loss of input, audio silence, clipping and crc errors.

- 2x1 or 2x2 function
- Automatic back-up triggered by:
 - Loss of input (carrier detect)
 - Silence with threshold and time adjustment
 - Audio clip with time adjustment
 - CRC errors
- AES/EBU inputs with optional SRC (32 to 192kHz sampling)
- 48kHz sample clock locked to: black and burst ref or Word Clock reference
- 48kHz sample clock in free running mode
- Available with 110 Ohm (phoenix or sub-D) or 75 Ohm (BNC) AES/EBU inputs and outputs
- Adjustable audio gain (in 0.25dB) and phase (0-180 deg)
- Adjustable audio delay offset up to 1300ms in 1ms increments
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18 frame and the Ethernet port (ACP)

Applications

- High density AES/EBU back-up switching in lines areas

Ordering information

Module:

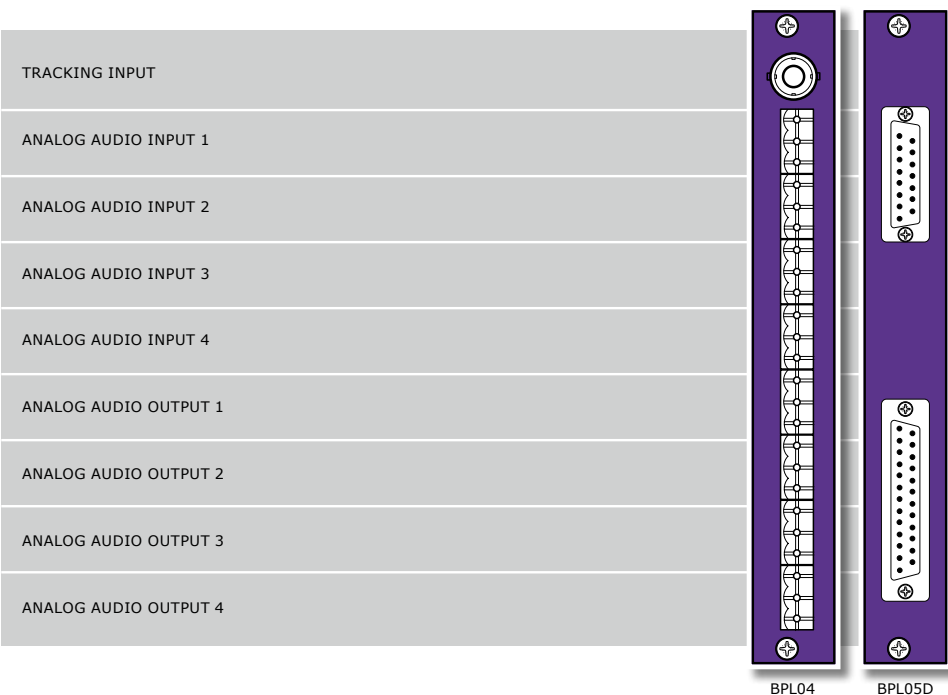
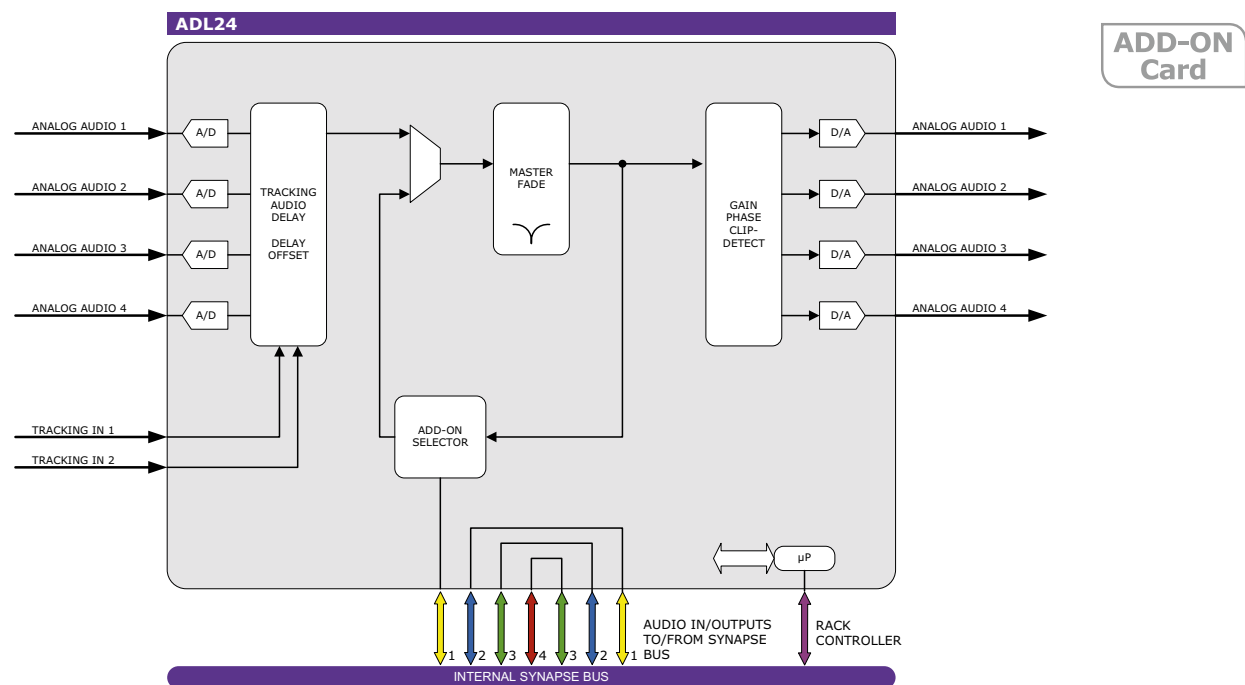
- **2AI48:** Dual AES/EBU back-up switcher with integrity checking

Standard I/O:

- **BPL01_2AI48:** I/O panel for 2AI48 with unbalanced AES/EBU in and outputs
- **BPL02_2AI48:** I/O panel for 2AI48 with unbalanced AES/EBU in and balanced AES/EBU out
- **BPL04_2AI48:** I/O panel for 2AI48 with balanced AES/EBU in and balanced AES/EBU out
- **BPL05D_2AI48:** I/O panel for 2AI48 with balanced AES/EBU in and balanced AES/EBU out on sub-D

Specifications

visit www.evs.com



Analog audio tracking delay with offset

The ADL24 is an audio delay card, its main application is to delay analog audio signals. The card has a tracking audio delay and a delay offset ranging from 0 ms up to 5200 ms at 48 kHz. This card can also be used as an ADD-ON card. In ADD-ON mode the card acts as an analog input or output board that feeds a MASTER card positioned to the left with embedder or de-embedder functionality. For example the SDB20 can perform a de-embedder function with the ADL24 as its output card.

The audio data that enters the synapse bus from a MASTER card is identical to the analog audio on the local outputs. If the ADL24 is used with an SEB20 MASTER card, the ADL24 performs as an analog input. The ADL24 converts the analog audio digital audio signals and put these on the Synapse bus. The signals can be embedded into the SDI data stream.

- 24 bit audio conversion
- 48, 96 and 192 kHz internal sampling for up to 90kHz analog audio bandwidth
- Sample clock can be derived from MASTER card (ADD-ON mode).
- Analog reference levels adjustable for +12, +15, +18 and +24dBu
- Adjustable audio gain (in 0.25dB) and phase (0-180 deg)
- Can be used as a Synapse ADD-ON card for embedding or de-embedding
- Adjustable audio delay offset up to 5200ms in 1ms increments
- Tracking audio delay
- MASTER fade function for dedicated Synapse applications
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18 frame and the Ethernet port (ACP)

Applications

- Analog audio tracking delay functions
- Generic analog audio ADD-ON card for dedicated Synapse MASTER cards that have an embedding function. Both input and output options
- Offset delay for compensation of large screen venue displays

Specifications

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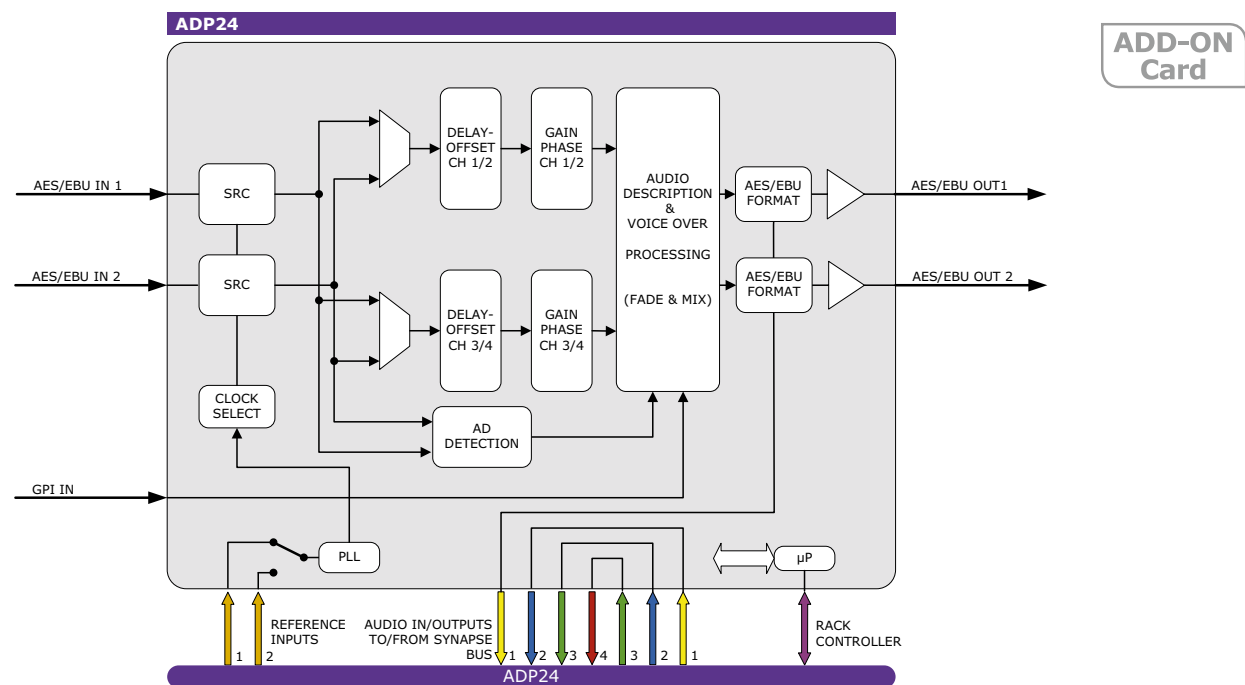
Ordering information

Module:

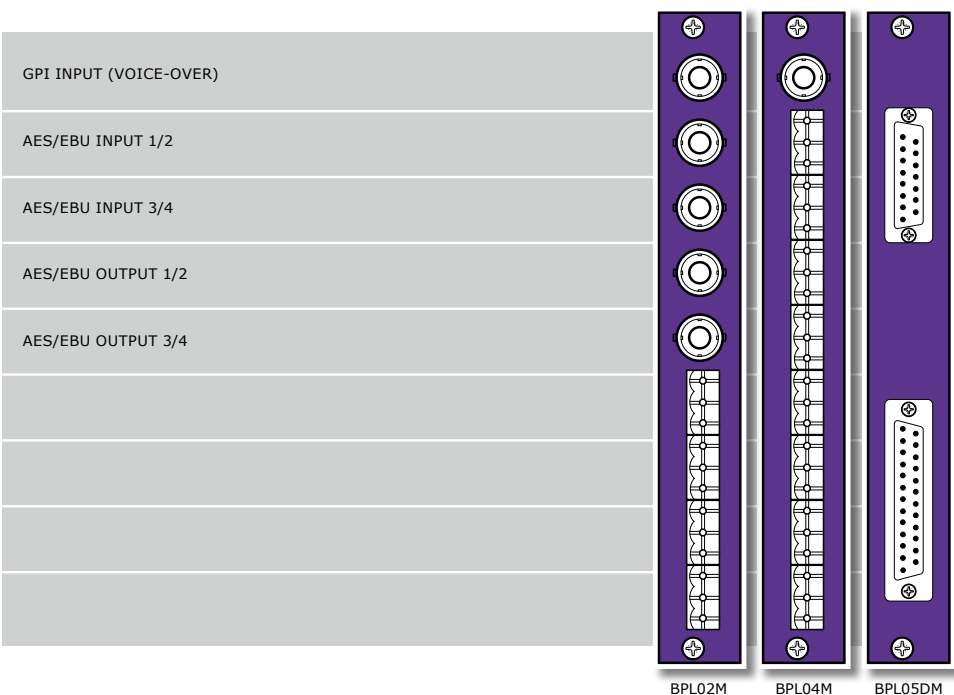
- **ADL24:** Analog audio tracking delay with offset

Standard I/O:

- **BPL04_ADL24:** I/O panel for ADC24 with balanced analog audio in and balanced analog audio out
- **BPL05D_ADL24:** I/O panel for ADC24 with balanced analog audio in and balanced analog audio out and tracking on sub-D



ADD-ON
Card



Audio description and Voice Over processing card

The ADP24 is the AES/EBU equivalent of the ADP10. The card is designed to decode the audio description track that is part of an AES/EBU audio stream. It reads the description track and mixes this with the program material. The result is then overwritten in the original audio description track (default 3/4). The user is free to change the default track description, and can change the individual offset delay of the audio tracks. The adjustable delay can also be used for compensation of other video related propagation delay like Dolby Digital encoding.

- Audio description or Voice Over mode
- Automatic Audio Description recognition
- Adjustable Voice Over, fade-in and fade-out time
- Flexible channel assignment
- 1 original program output
- 1 audio described (mixed) output
- Adjustable offset delay per stereo pair
- Gain (0.25db steps) and phase control (0-180 deg) per channel
- Compatible with pan information
- Can be locked to AES1, AES2, MASTER Synapse card, Word Clock and black and burst
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- Generic digital audio description processing
- AES/EBU Voice Over module

Ordering information

Module:

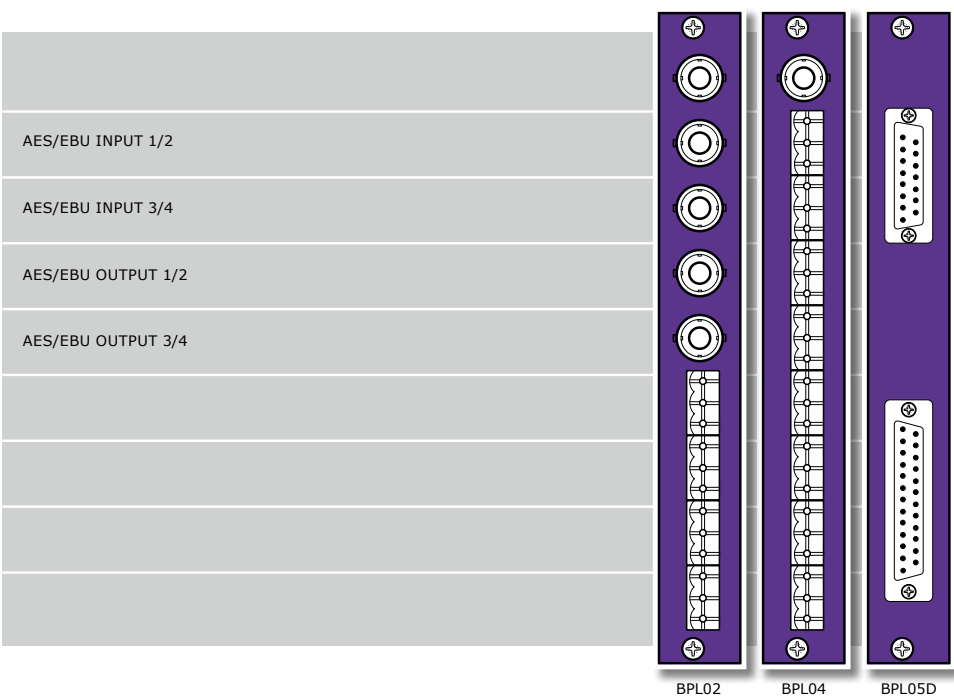
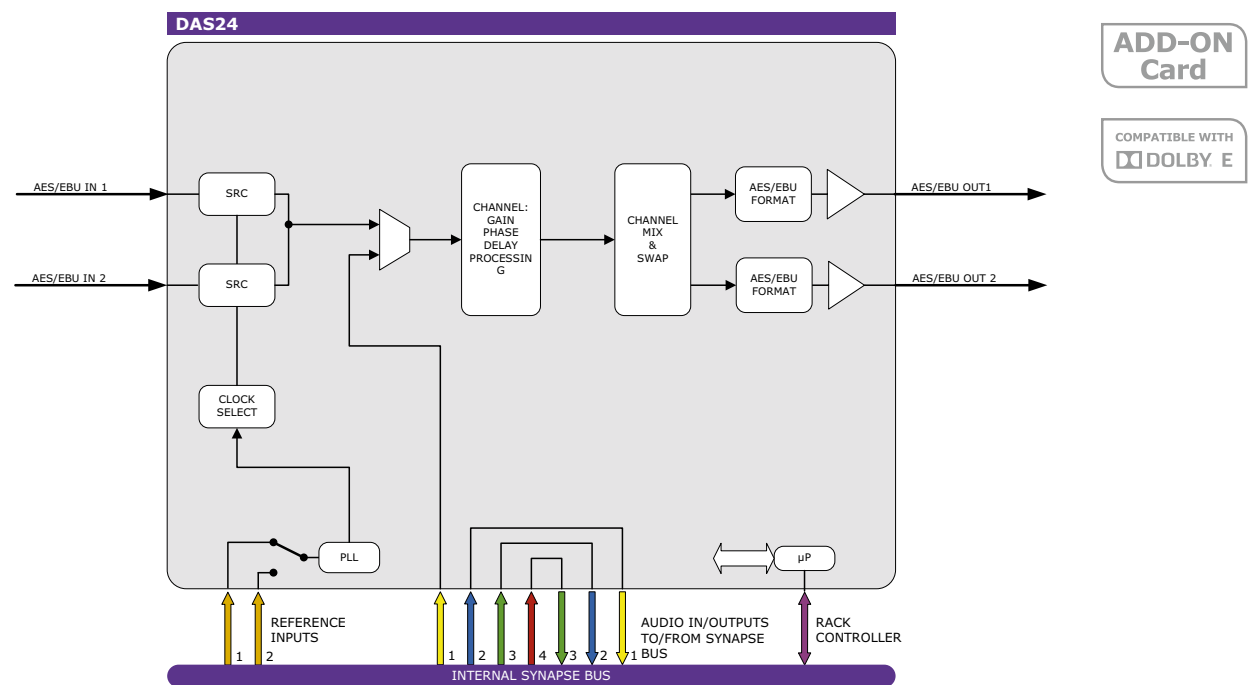
- **ADP24:** Audio description and Voice Over processing card

Standard I/O:

- **BPL02M_ADP24:**
I/O panel for ADP24 with unbalanced AES/EBU in and unbalanced AES/EBU out
- **BPL04M_ADP24:**
I/O panel for ADP24 with balanced AES/EBU in and balanced AES/EBU out
- **BPL05DM_ADP24:**
I/O panel for ADP24 with balanced AES/EBU in, balanced AES/EBU out and tracking on sub-D

Specifications

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4 channel (2 x AES/EBU) digital audio mixing and shuffle module

The DAS24 is 4 channel digital audio ADD-ON card. Its basic function is the routing and processing of de-embedded audio from a MASTER card to external devices. The DAS24 can perform channel swapping, mixing, gain/phase control. The card has additional AES/EBU inputs with a Sample Rate Converter (SRC) and can therefore be used as an audio shuffler/mixer. The DAS24 has a delaying capability for each channel of up to 1300ms. In ADD-ON mode the card acts as a digital audio output board that is fed from a MASTER card positioned one slot left of the ADD-ON card. The AES/EBU inputs and outputs are available on 75 Ohm BNC or 110 Ohm screw terminals. AES/EBU inputs with optional SRC (32 to 96kHz sampling).

- Sample clock can be derived from MASTER card (ADD-ON mode)
- 96kHz and 48kHz sample clock locked to: black and burst ref or Word Clock ref.
- 96kHz and 48kHz sample clock in free running mode
- Available with 110 Ohm (phoenix) or 75 Ohm (BNC) AES/EBU inputs and outputs
- Adjustable audio gain (in 0.25dB) and phase (0-180 deg)
- Can be used as a Synapse ADD-ON output card
- Full 4 channel shuffling and mixing
- Tracking audio delay on dedicated BNC input
- Offset delay up to 1300 ms
- MASTER fade function for dedicated Synapse applications
- Audio clipping indication
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- AES/EBU audio shuffling and mixing
- Synapse ADD-ON digital audio output

Ordering information

Module:

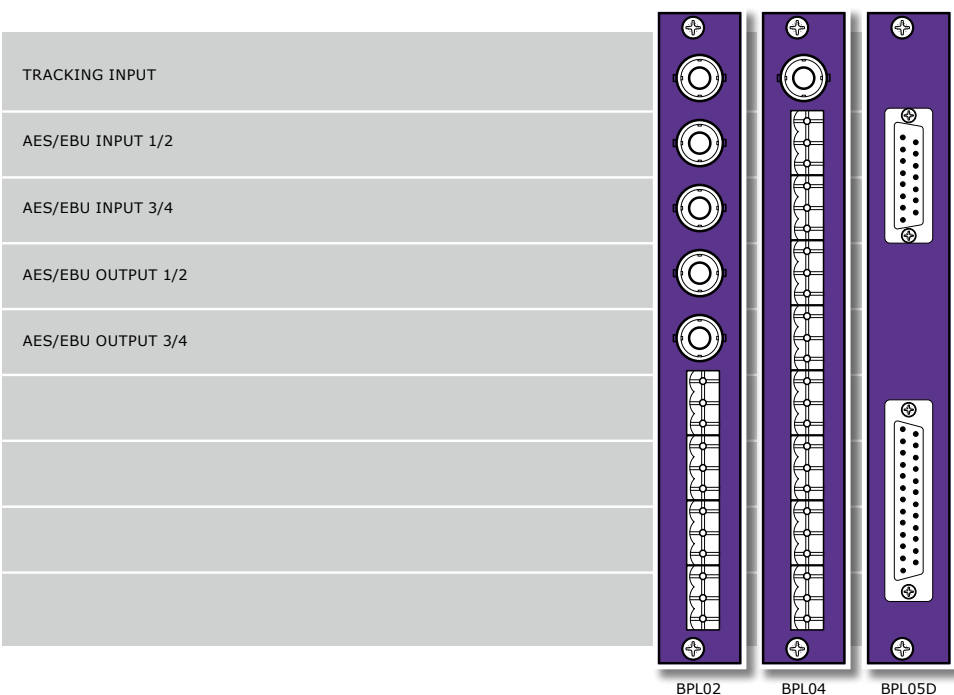
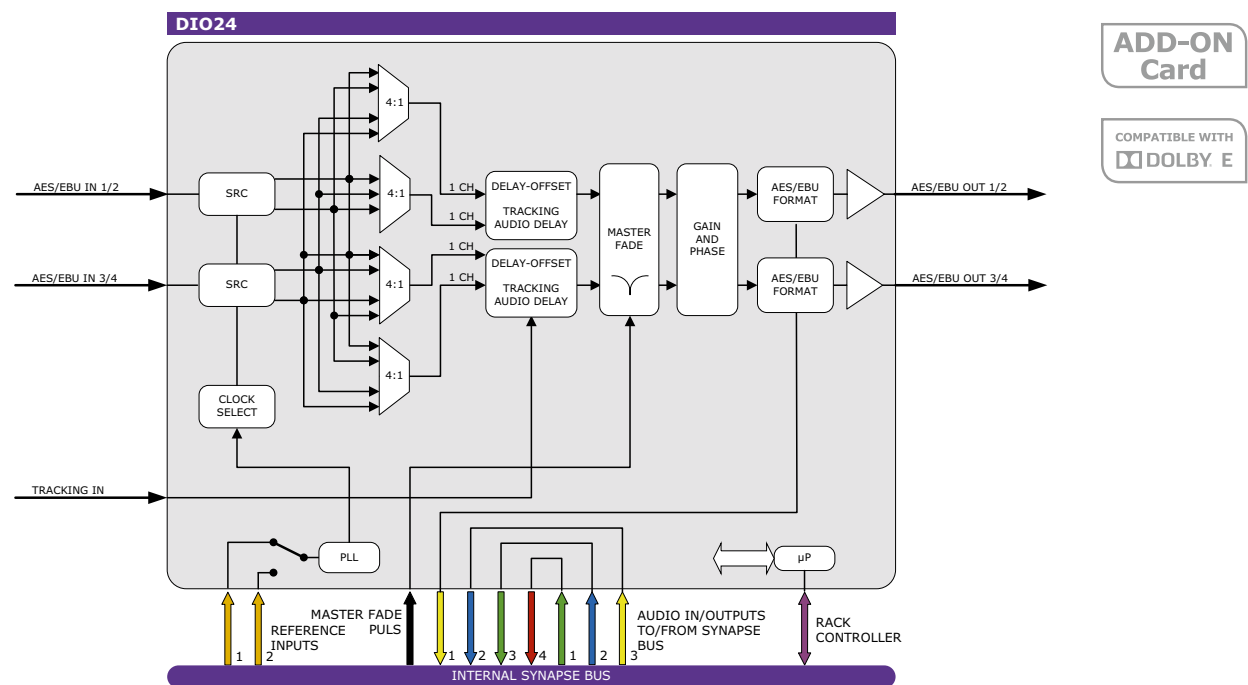
- **DAS24:** 4 channel (2 x AES/EBU) digital audio mixing and shuffle module

Standard I/O:

- **BPL02_DAS24:** I/O panel for DAS24 with unbalanced AES/EBU in and unbalanced AES/EBU out
- **BPL04_DAS24:** I/O panel for DAS24 with balanced AES/EBU in and balanced AES/EBU out
- **BPL05D_DAS24:** I/O panel for DAS24 with balanced AES/EBU in and balanced AES/EBU out on sub-D

Specifications

visit www.evs.com



4 channel digital audio sample rate converter, tracking (and offset) delay - ADD-ON card

The DIO24 is a multi-functional product. Its basic function is the conversion of asynchronous AES/EBU digital audio into synchronous AES/EBU utilizing the on-board sample rate converter. The DIO24 has a tracking audio delay, with a delay offset possibility of up to 1300ms, and it can perform the Synapse ADD-ON input function.

- AES/EBU inputs with optional SRC (32 to 192kHz sampling)
- Sample clock can be derived from MASTER card (ADD-ON mode)
- 96kHz and 48kHz sample clock locked to: black and burst ref or Word Clock ref.
- 96kHz and 48kHz sample clock in free running mode
- Available with 110 Ohm (phoenix or sub-D) or 75 Ohm (BNC)
- AES/EBU inputs and outputs
- Adjustable audio gain (in 0.25dB) and phase (0-180 deg)
- Can be used as a Synapse ADD-ON input or output card
- Adjustable audio delay offset up to 1300ms in 1ms increments
- Tracking audio delay on dedicated BNC input
- MASTER fade function for dedicated Synapse applications
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- Dual AES/EBU standalone tracking digital audio delay
- Dual AES/EBU offset delay
- Dual generic sample rate converter (lock AES to black and burst)

Specifications

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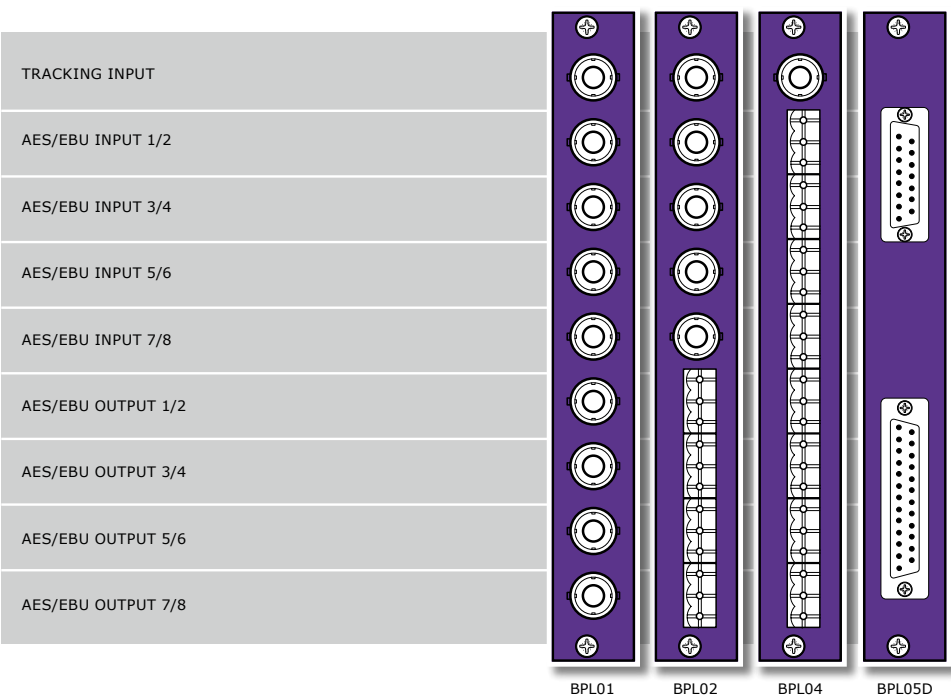
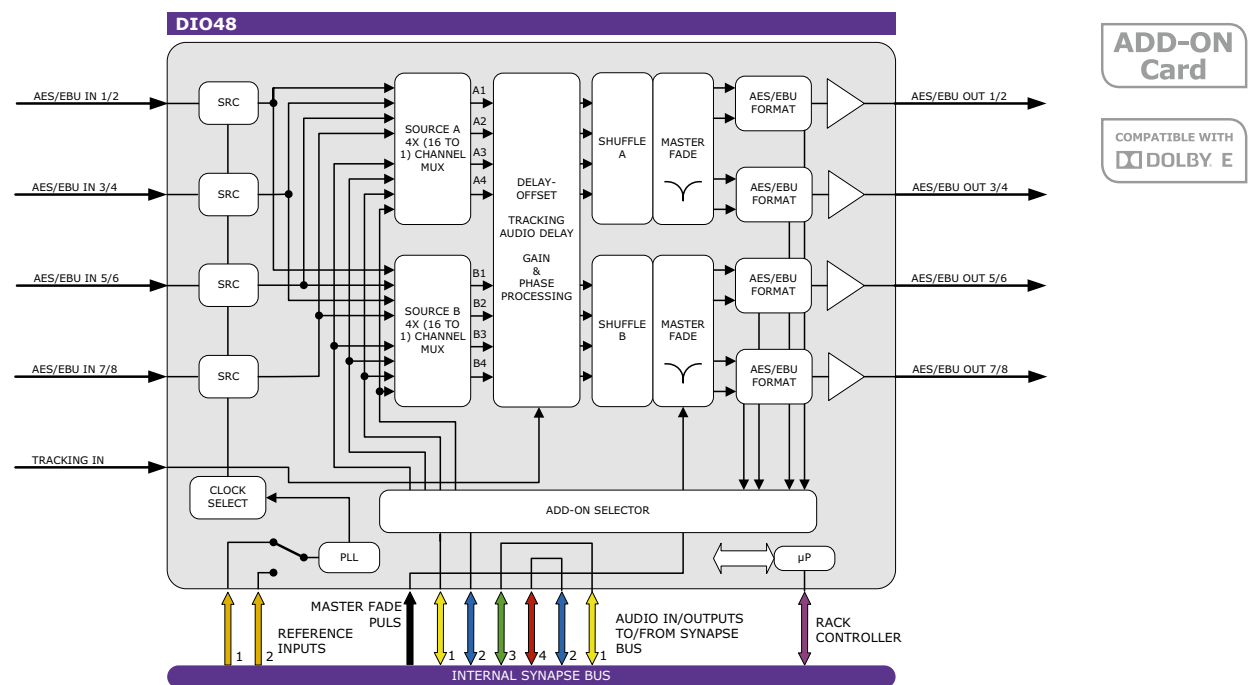
Ordering information

Module:

- **DIO24:** 4 channel digital audio sample rate converter, tracking (and offset) delay ADD-ON card

Standard I/O:

- **BPL02_DIO24:** I/O panel for DIO24 with unbalanced AES/EBU in and balanced AES/EBU out
- **BPL04_DIO24:** I/O panel for DIO24 with balanced AES/EBU in and balanced AES/EBU out
- **BPL05D_DIO24:** I/O panel for DIO24 with balanced AES/EBU in and balanced AES/EBU out on sub-D



8 channel digital audio (192kHz) sample rate converter, tracking (and offset) delay ADD-ON card

The DIO48 is a multi-functional product. Its basic function is the conversion of asynchronous AES/EBU digital audio into synchronous AES/EBU utilizing the on-board sample rate converter. The DIO48 has a tracking audio delay, with a delay offset possibility of up to 1300ms, and it can perform the Synapse ADD-ON input and output function. Also provided in this module is shuffling and mixing of the AES channels. This board can be used as an input or output ADD-ON board.

- Selection of 8 channels out of all local and ADD-ON inputs
- Full mixing capabilities of 2 x 4 channels (A and B)
- AES/EBU inputs with optional SRC (32 to 192kHz sampling)
- Sample clock can be derived from MASTER card (ADD-ON mode)
- 48kHz sample clock locked to: black and burst ref or Word Clock reference
- 48kHz sample clock in free running mode
- Available with 110 Ohm (phoenix or sub-D) or 75 Ohm (BNC) AES/EBU in- and outputs
- Adjustable audio gain (in 0.25dB) and phase (0-180 deg)
- Can be used as a Synapse ADD-ON input or output card
- Adjustable audio delay offset up to 1300 ms in 1ms increments
- Tracking audio delay on dedicated BNC input
- MASTER fade function for dedicated Synapse applications
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Complementary cards:

- All conventional embedding and de-embedding cards

Applications

- Can be used as an independent audio delay with tracking possibility
- Can be used as a four channel sample rate converter
- 8 channel ADD-ON input card to the HXT10 (and many other 2 group embedding MASTER cards)

Ordering information

Module:

- **DIO48:** 8 channel digital audio sample rate converter, tracking (and offset) delay ADD-ON card

Standard I/O:

- **BPL01_DIO48:** I/O panel for DIO48 with unbalanced AES/EBU inputs and outputs
- **BPL02_DIO48:** I/O panel for DIO48 with unbalanced AES/EBU in and balanced AES/EBU outputs

■ **BPL04_DIO48:**

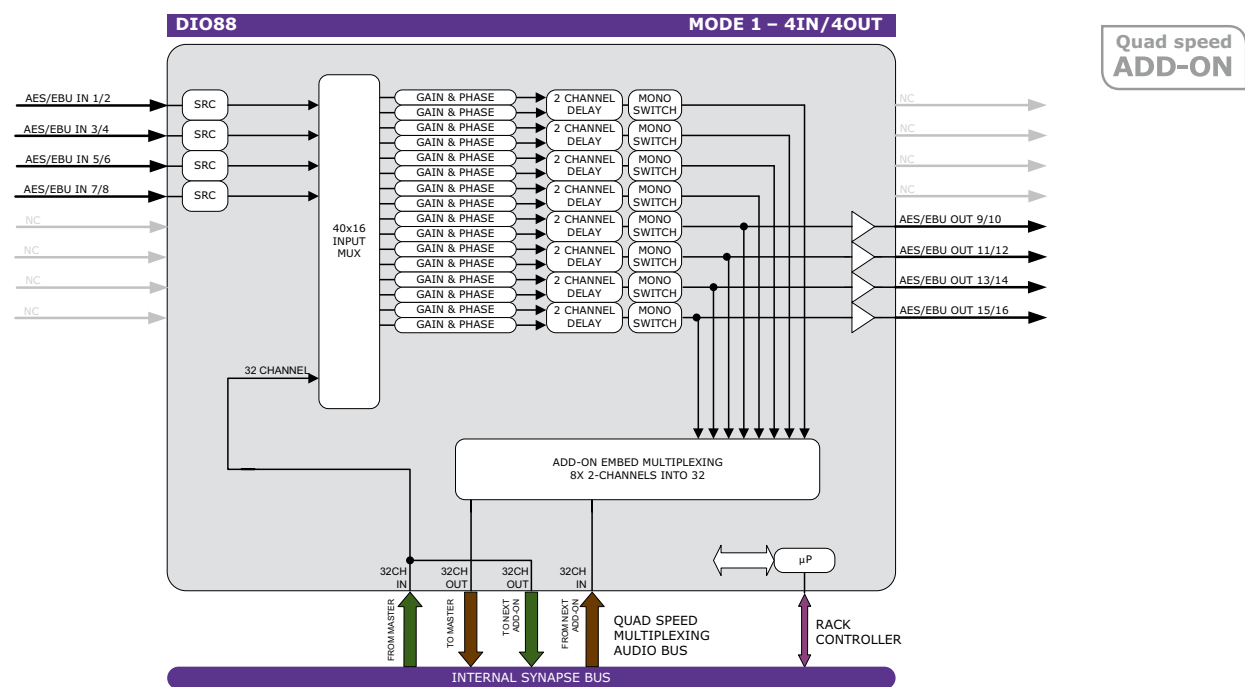
I/O panel for DIO48 with balanced AES/EBU in and balanced AES/EBU out

■ **BPL05D_DIO48:**

I/O panel for DIO48 with balanced AES/EBU in and balanced AES/EBU out on sub-D

Specifications

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MODE 1	MODE 2	MODE 3
AES/EBU IN 1/2	AES/EBU IN 1/2	AES/EBU OUT 1/2
AES/EBU IN 3/4	AES/EBU IN 3/4	AES/EBU OUT 3/4
AES/EBU IN 5/6	AES/EBU IN 5/6	AES/EBU OUT 5/6
AES/EBU IN 7/8	AES/EBU IN 7/8	AES/EBU OUT 7/8
AES/EBU OUT 1/2	AES/EBU IN 9/10	AES/EBU OUT 9/10
AES/EBU OUT 3/4	AES/EBU IN 11/12	AES/EBU OUT 11/12
AES/EBU OUT 5/6	AES/EBU IN 13/14	AES/EBU OUT 13/14
AES/EBU OUT 7/8	AES/EBU IN 15/16	AES/EBU OUT 15/16

Universal triple mode, 16 channel I/O card for Quad Speed ADD-ON applications

The Synapse Quad Speed audio bus enables up to 32 channels being transported from MASTER card to ADD-ON card and simultaneously 32 channels from ADD-ON card(s) to MASTER card.

The DIO88 can be used in 3 modes. The card only works as an ADD-ON card and can therefore not be used without a Quad Speed MASTER card.

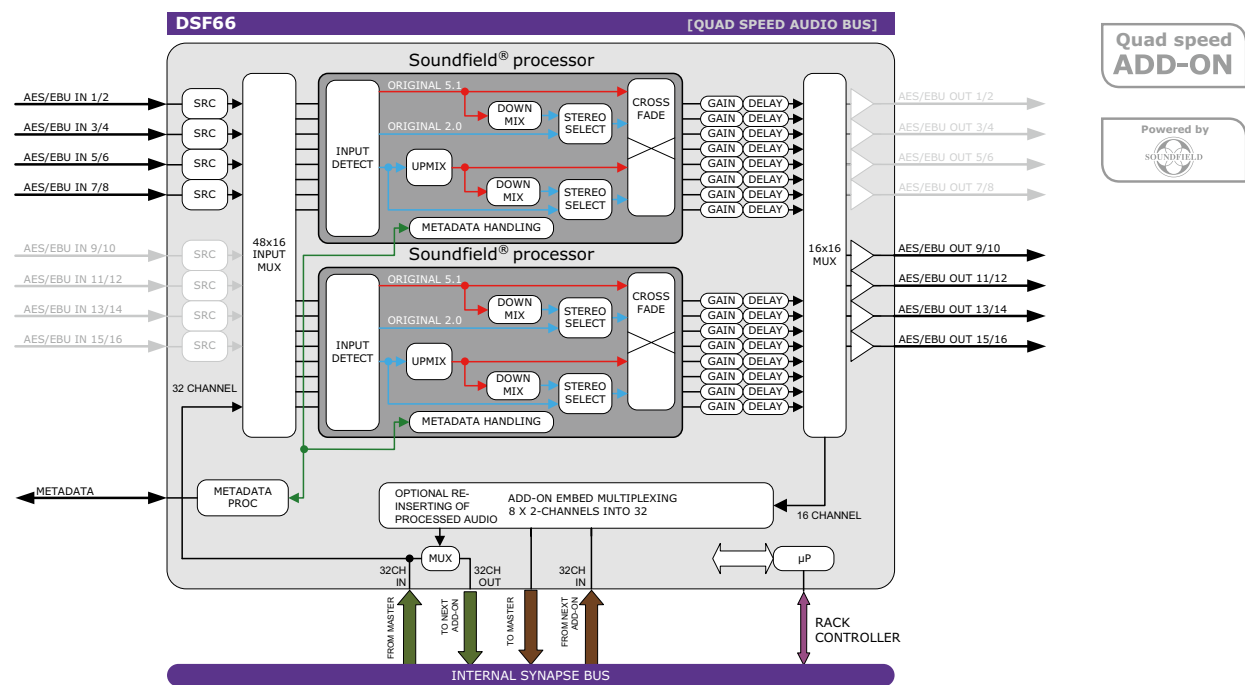
Mode 1 makes the card a universal 4 AES/EBU in and 4 AES/EBU output card. This gives the user a function to insert and extract up to 8 mono channels from any Quad Speed compatible MASTER card.

Mode 2 turns the DIO88 into an 8 AES/EBU insert card, providing the insertion of up to 16 mono channels into any Quad Speed compatible MASTER card.

Mode 3 is used to extract 8 AES/EBU (16 mono audio) channels from a Quad Speed compatible MASTER Card.

- Triple mode Quad Speed audio ADD-ON card (Cortex controllable, no reboot required)
 - Mode 1: 4x AES/EBU in and 4x AES/EBU out
 - Mode 2: 8x AES/EBU in
 - Mode 3: 8x AESEBU out
 - Full audio swapping of all input channels allow for a selection of any AES/EBU input or any of the 32 channel bus input to be selected
 - 16 channels of audio gain
 - 16 channels of audio phase reversal
 - 8x 2 channel audio delay up to 1300ms
 - 8 stereo>mono switches
 - 16x 2 channel audio insertion into 32 channel Quad Speed audio bus (allows for duplicates)
 - Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)
- Compatible MASTER cards:**
- G/HDK100, G/HXT110, G/HEP100, G/HPD100, G/HED100 and all other Quad Speed MASTER cards

- Applications**
- 16 channel insertion to Quad Speed audio MASTER card
 - 16 channel extraction from Quad Speed audio MASTER card
- Ordering information**
- Module:**
- **DIO88:** Universal triple mode, 16 channel I/O Quad Speed ADD-ON card
- Standard I/O:**
- **BPL11_DIO88:** I/O panel for DIO88 with unbalanced AES/EBU in and out
- Specifications**
- visit www.evs.com



MODE 1	MODE 2	MODE 3
AES/EBU IN 1/2	AES/EBU IN 1/2	AES/EBU OUT 1/2
AES/EBU IN 3/4	AES/EBU IN 3/4	AES/EBU OUT 3/4
AES/EBU IN 5/6	AES/EBU IN 5/6	AES/EBU OUT 5/6
AES/EBU IN 7/8	AES/EBU IN 7/8	AES/EBU OUT 7/8
AES/EBU IN 9/10	AES/EBU IN 9/10	AES/EBU OUT 9/10
AES/EBU IN 11/12	AES/EBU IN 11/12	AES/EBU OUT 11/12
AES/EBU IN 13/14	AES/EBU IN 13/14	AES/EBU OUT 13/14
AES/EBU IN 15/16	AES/EBU IN 15/16	AES/EBU OUT 15/16
METADATA I/O	METADATA I/O	METADATA I/O

BPL11

BPX11

Dual digital audio upmixer and downmixer based on SoundField® algorithms

The DSF66 is a dual stereo-to-5.1 upmix and downmix processor, designed for HD broadcasters who use a lot of archived stereo material and wish to generate 5.1 broadcast mixes from stereo soundtracks. The DSF66 also has a shared metadata input and shared physical I/O.

Software and hardware upmixing tools have existed for some years but most of them create material for the extra three channels in a 5.1 mix by using processing, for example adding reverb or applying phase-shifts to the stereo material to create information for the rear surround channels. Instead, the DSF66 generates the material for the extra channels by closely analyzing the source stereo signal over time. Using a unique algorithm developed for this purpose, the DSF66 can detect reverberant content in the stereo signal, differentiate it from the direct sounds in the mix, and separate it out to the surround channels.

Users can adjust the details of the processing directly from the DSF66 GUI in Cortex, which offers control over a variety of parameters including the level of the direct and ambient components in the front and rear channels, and the divergence of the Centre channel in the generated 5.1 mix, with options from a discrete Centre channel at one extreme to a phantom Centre at the other. Output level controls are also offered for each of the channels in the final 5.1 mix.

The DSF66 can be used in 3 modes:

Mode 1 makes the card a universal 4 AES/EBU in and 4 AES/EBU output card. This gives the user a function to insert and extract 8 mono channels from a MASTER card.

Mode 2 turns the DSF66 into an 8 AES/EBU insert card, providing the insertion of up to 16 mono channels into any Quad Speed compatible MASTER card.

Mode 3 is used to extract 8 AES/EBU (16 mono audio) channels from a Quad Speed compatible MASTER Card.

- 3 physical I/O modes 4-in + 4-out, 8-in, or 8-out
- Output gain and delay adjustments
- 2x Upmix stereo to 5.1
- 2x Downmix from 5.1
- Cross fading between upmixed and discrete 5.1 (5.1/2.0 input auto-sensing)
- Cross fading between downmixed and discrete 2.0 (5.1/2.0 input auto-sensing)
- 8 presets for convenient storing of use cases
- Locks to Black & Burst, AES input and MASTER Card
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18 frame and the Ethernet port (ACP)

Complementary cards:

- All Quad Speed audio Cards (G/HEP100, G/HED100, G/HRB100, G/HDK100, G/HXT110, DLA41, etc)

Applications

- High-End upmixing and downmixing of broadcast related program audio streams
 - To ensure a constant 5.1 + Stereo output regardless of input format
 - Simultaneous independent Upmixer and Downmixer (LoRo or LtRt)

Specifications

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Ordering information

Module:

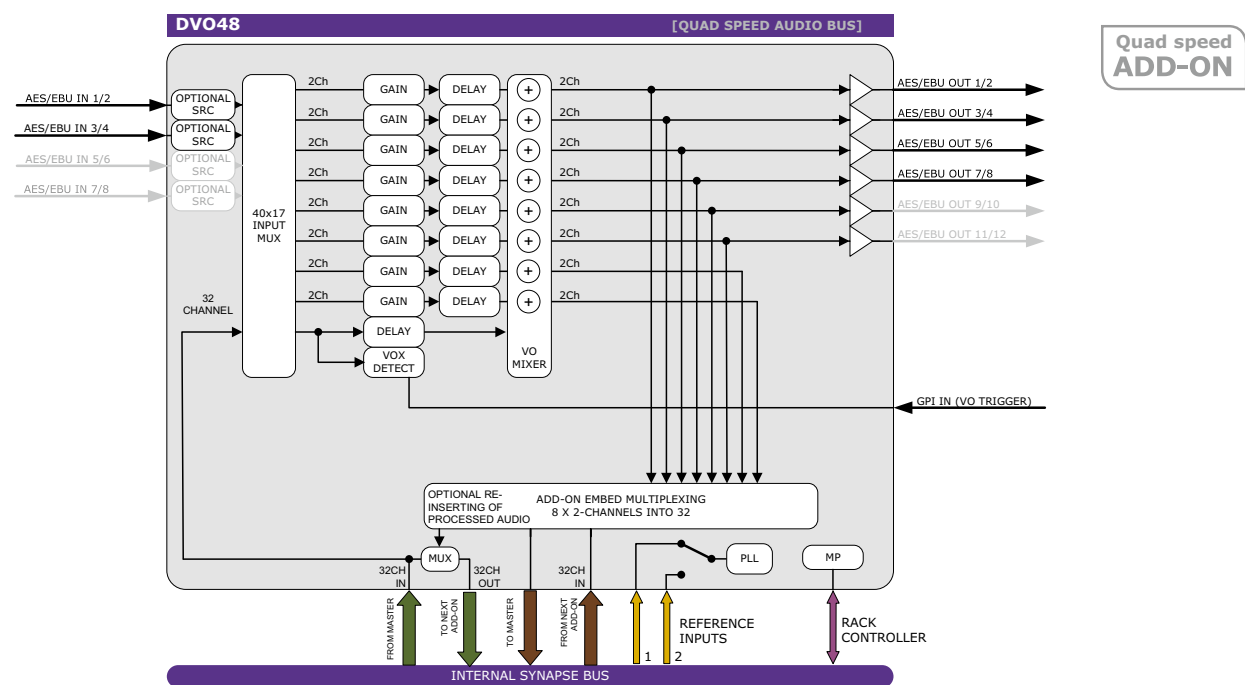
- **DSF66:** Dual digital audio upmixer and downmixer based on SoundField® algorithms

Standard I/O:

- **BPL11_DSf66:** I/O panel for DSF66 with unbalanced AES/EBU in and out

Relay bypass I/O:

- **BPX11_DSf66:** I/O panel for DSF66 with unbalanced AES/EBU in and out and bypass relay



Voice-over card with quad speed add-on bus

The DVO48 is an AES/EBU Voice-Over card. The Synapse Quad Speed audio bus enables up to 32 channels being transported from MASTER card to ADD-ON card and simultaneously 32 channels from ADD-ON card(s) to MASTER card.

- Voice activated Voice-Over engine that can be applied to any of the 16 internal streams
- GPI trigger of VO is included
- GPI can be used as 'cough button' to mute unwanted voice activated mixing
- 16 channel PCM processing capabilities
- Quad Speed audio bus for convenient routing of ADD-ON channels
- Optional re-inserting of processed audio for downstream post-processing into other Quad Speed bus devices
- 2 or 4 physical stereo AES inputs and 16 stereo bus inputs.
- 4 or 6 physical stereo AES(can contain Dolby bit streams) outputs and 8 stereo (into 16 stereo) bus outputs
- 16x 2 channel audio insertion into 32 channel Quad Speed audio bus (allows for duplicates)
- Full control and status monitoring through the front panel of the Synapse frame and the Ethernet port (ACP)

Complementary cards:

- G/HDK100, G/HXT110, G/HEP100, G/HPD100, G/HED100 and all other Quad Speed audio bus enabled MASTER cards

Applications

- Voice-Over application in multi-channel environments

Ordering information

Module:

- **DVO48:** Voice-Over card with Quad Speed ADD-ON bus

Standard I/O:

- **BPL11_DVO48:** I/O panel for DVO48 with unbalanced AES/EBU in and out

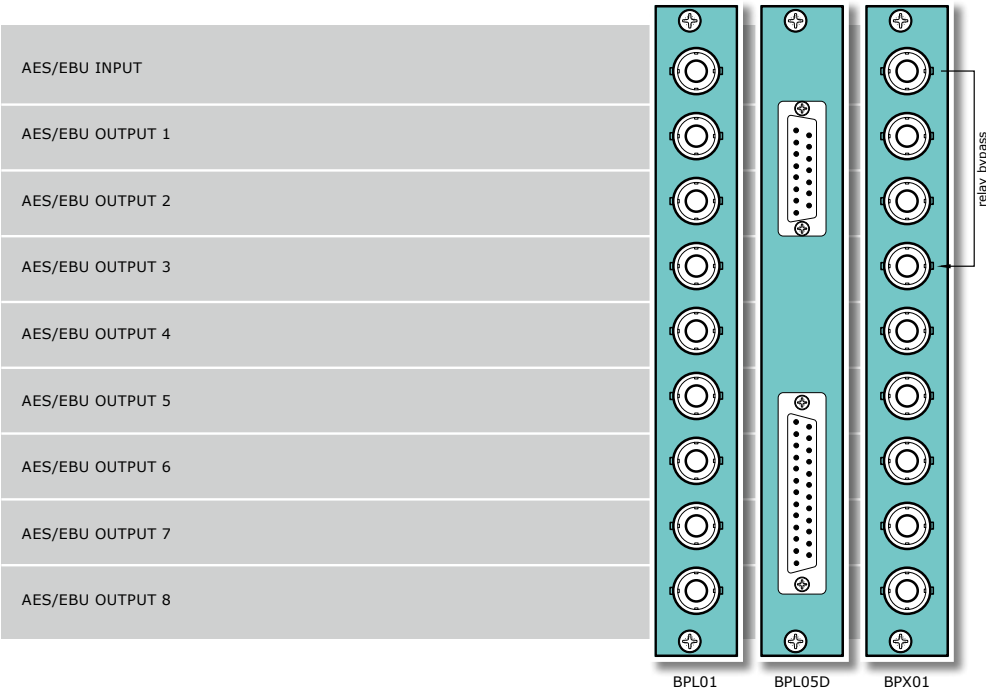
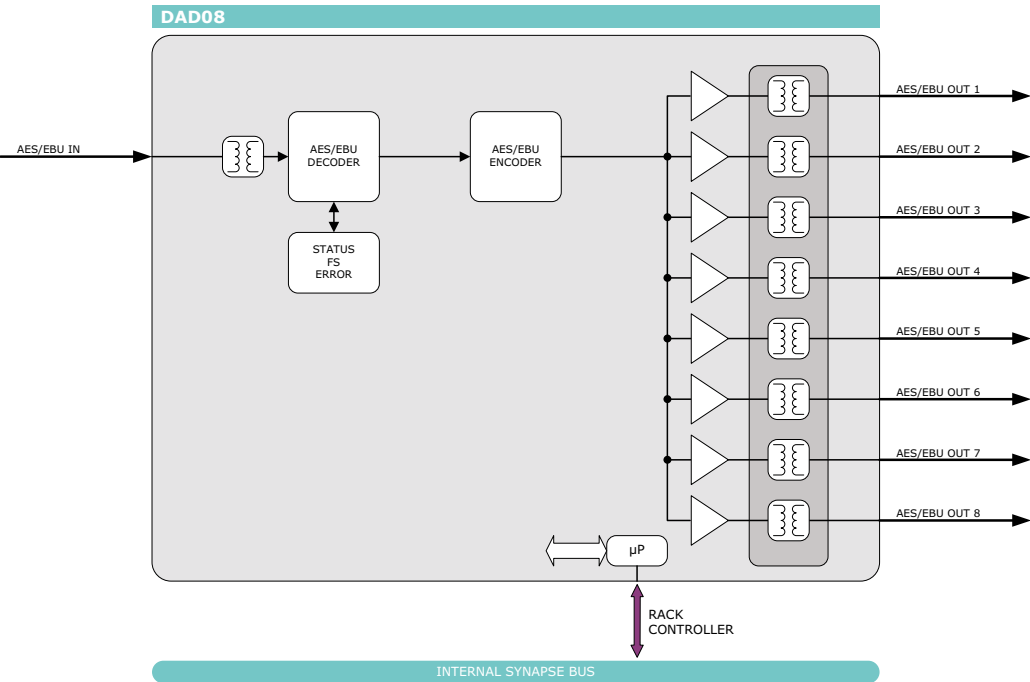
Relay bypass I/O:

- **BPX04_DVO48:** I/O panel for DVO48 with unbalanced AES/EBU in and out and bypass relay

Specifications

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MODE 1	MODE 2
AES/EBU IN 1/2	AES/EBU IN 1/2
AES/EBU IN 3/4	AES/EBU IN 3/4
AES/EBU IN 5/6	AES/EBU IN 5/6
AES/EBU IN 7/8	AES/EBU IN 7/8
AES/EBU OUT 1/2	AES/EBU OUT 1/2
AES/EBU OUT 3/4	AES/EBU OUT 3/4
AES/EBU OUT 5/6	AES/EBU OUT 5/6
AES/EBU OUT 7/8	AES/EBU OUT 7/8
AES/EBU IN 5/6	AES/EBU OUT 9/10
AES/EBU IN 7/8	AES/EBU OUT 11/12



Digital (AES/EBU) audio distribution amplifier with transformer coupled outputs

The DAD08 is a digital audio distribution amplifier that distributes a single input to eight outputs. The DAD08 accepts AES/EBU or SPDIF (Consumer Interface Format) digital audio input which is then reclocked, buffered and distributed to the eight outputs.

The DAD08 has transformer coupled balanced input and outputs. Multiple regenerated independent low jitter outputs make the DAD08 ideal for the most demanding digital audio signal distribution requirements in both large and small audio and video facilities. Balanced or unbalanced use is automatically selected by use of the appropriate connector panel.

- 8 Outputs
- Transformer coupled input
- Transformer coupled outputs
- 32 to 96 kHz compatibility
- Signal present indication
- Sample frequency indication
- Compatible with 110 Ohm and 75 Ohm environments
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- Generic digital audio distribution

Ordering information

Modules:

- **DAD08:** Digital (AES/EBU) audio distribution amplifier with transformed coupled outputs

Standard I/O:

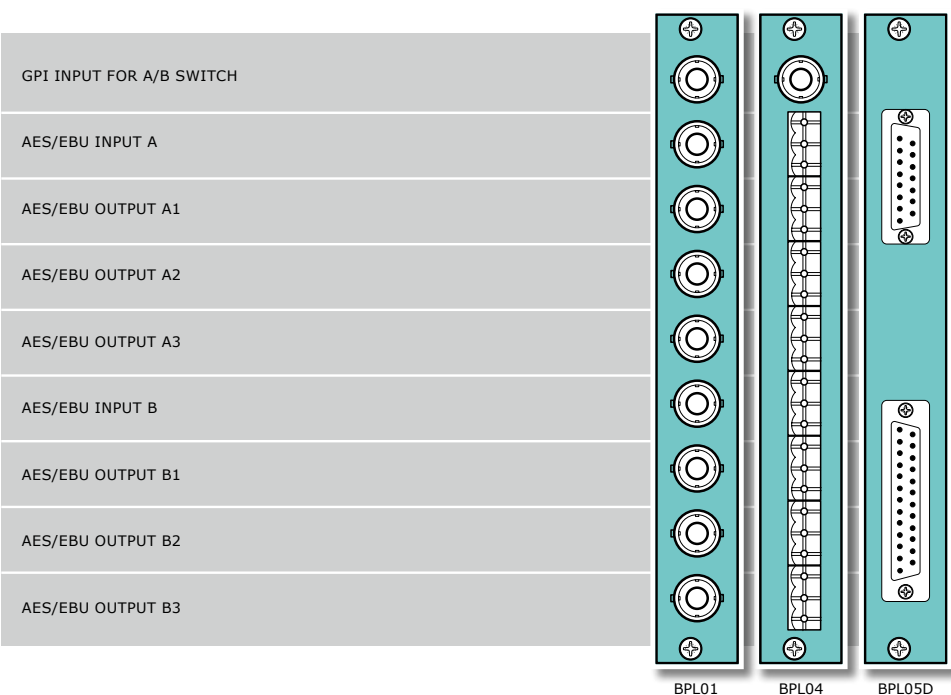
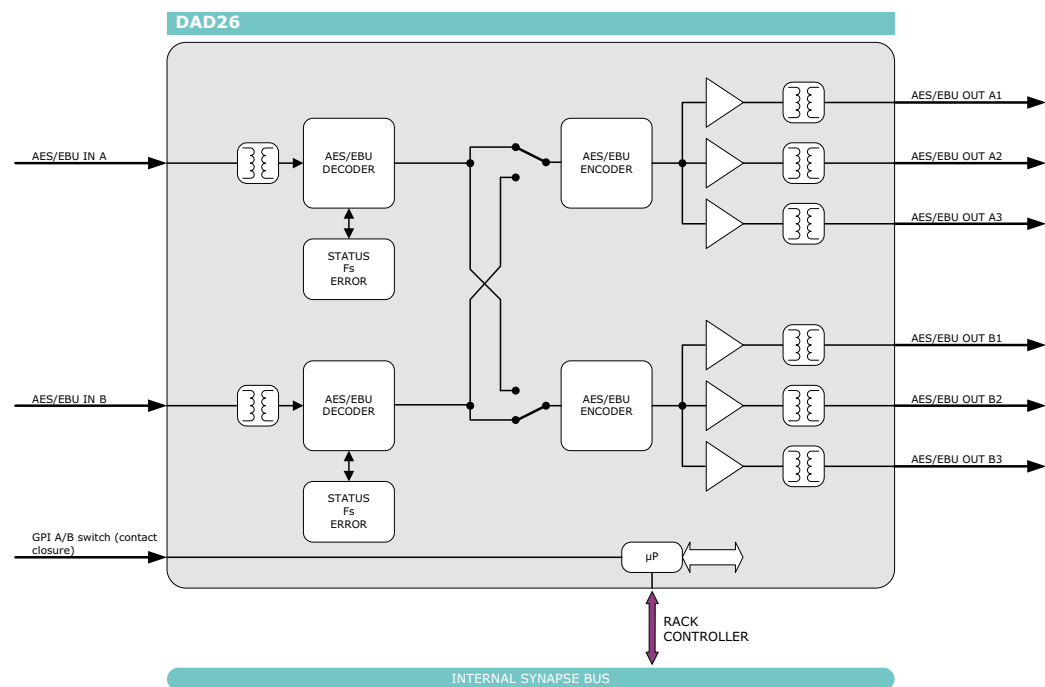
- **BPL01_DAD08:** I/O panel for DAD08 with unbalanced AES/EBU in and unbalanced AES/EBU out
- **BPL05D_DAD08:** I/O panel for DAD08 with balanced AES/EBU in and balanced AES/EBU out on sub-D

Relay bypass I/O:

- **BPX01_DAD08:** I/O panel for DAD08 with relay bypass

Specifications

visit www.evs.com



Dual channel digital (AES/EBU) audio distribution amplifier with 2x2 and 2x1 function

The DAD26 is a dual (AES/EBU) channel digital audio distribution amplifier. It has 2 individual inputs and two times three outputs. All outputs can be assigned to a single input making the device a 1 to 6 DA. A (GPI controlled) switch can be used to enable a 2x2 or 2x1 function. The DAD26 accept AES/EBU or SPDIF (Consumer Interface Format) digital audio input that is then reclocked, buffered and distributed to the dual 3 outputs. The DAD26 has transformer coupled balanced input and outputs and can be used with unbalanced I/O via the BPL01. Multiple regenerated independent low jitter outputs make the DAD26 ideal for the most demanding digital audio signal distribution requirements in both large and small audio and video facilities. Balanced or unbalanced use is automatically selected by use of the appropriate connector panel.

- 2 Inputs
- 2 x 3 Outputs
- 2x1 or 2x2 function (GPI, Ethernet, signal detection)
- Transformer coupled inputs
- Transformer coupled outputs
- 32 to 192 kHz compatibility
- Signal present indication
- Sample frequency indication
- Compatible with 110 Ohm and 75 Ohm environments
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- Generic digital audio distribution
- AES/EBU back-up switching

Specifications

visit www.evs.com

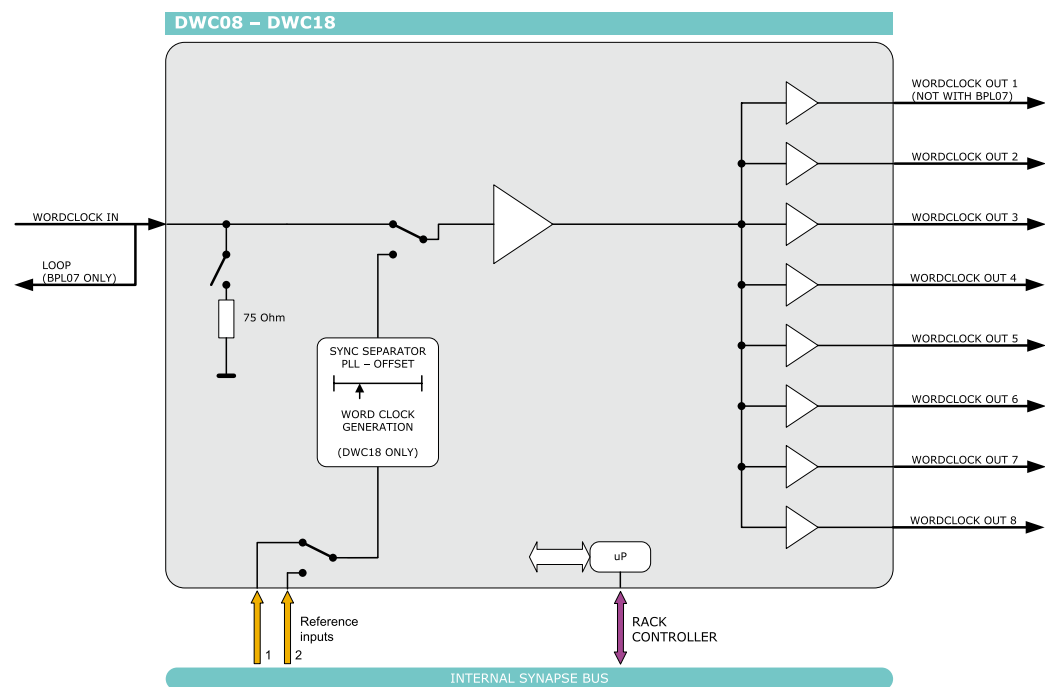
Ordering information

Modules:

- **DAD26:** Dual channel Digital (AES/EBU) audio distribution amplifier with 2x2 and 2x1 function

Standard I/O:

- **BPL01_DAD26:** I/O panel for DAD26 with unbalanced AES/EBU in and unbalanced AES/EBU out
- **BPL04_DAD26:** I/O panel for DAD26 with balanced AES/EBU in and balanced AES/EBU out
- **BPL05D_DAD26:** I/O panel for DAD26 with balanced AES/EBU in and balanced AES/EBU out on sub-D



Word Clock distribution amplifier with optional video reference locked Word Clock generator

The DWCO8/18 is a dedicated Word Clock distribution amplifier. It accepts a Word Clock input (with loop through if a BPL07 is used) and outputs 8 (7) individually buffered replicas of the input.

The DWC18 has a unique feature in the possibility to source the card with a black and burst or Tri-level reference through the internal Synapse frame distribution rail and use this source to generate a reference locked Word Clock. This feature makes the DWC18 a true broadcast enabled Word Clock generator.

- 8 outputs (7 with BPL07)
- High impedance or 75 Ohm terminated input
- 32 to 192 kHz compatibility
- Signal present indication
- Word Clock generation from video reference with phase timing delay offset (DWC18 only)
- Frequency indication
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- Generic Word Clock distribution or video reference locked generation

Ordering information

Modules:

- **DWC08:** Word Clock DA 1 in, 8 out
- **DWC18:** Word Clock DA 1 in, 8 out with video locked Word Clock generation

Standard I/O:

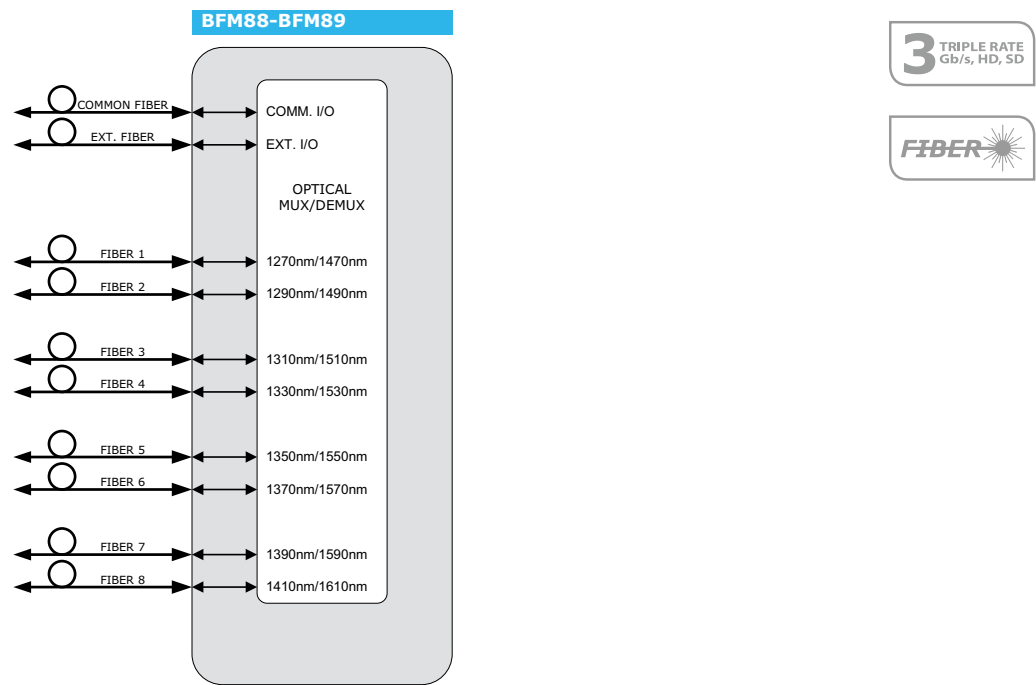
- **BPL01_DWC18:** I/O panel for DWCO8-18
- **BPL07_DWC18:** I/O panel for DWCO8-18 with loop through

Relay bypass I/O:

- **BPX01_DWC18:** I/O panel for DWCO8-18 with relay bypass

Specifications

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CWDM 8 to 16 channel optical multiplexer and de-multiplexer

The BFM88 and BFM89 are passive optical multiplexing/de-multiplexing modules onto single mode fibers. These modules allow you to multiplex or de-multiplex 8 wavelengths onto or from one fiber with use of CDWM technology. The BFM88 can handle 8 wave-lengths from 1270nm to 1410nm and the BFM89 from 1470nm to 1610nm. An extra functionality added to these products is the option to have extended inputs/outputs. This will give you the opportunity to cascade two back panels. This enables users to mux/demux 16 channels onto one fiber, worlds most dense CWDM solution.

Average fiber distance up to 15km with GFT80 + BFT88/ BFT89 and GFR80 + BFR80 combo's at 3Gb/s.

- Up to 16ch 3Gb/s - HD-SDI CWDM system in only 1RU, world's most compact CWDM solution
- Bi-directional mux/demux of up to 16 wavelengths from 1270nm to 1610nm
- Expandable from 8 to 16 channels
- Low insertion loss
- High stability and reliability. Failsafe because back panel is passive
- Fiber inputs/outputs on LC/LC connectors
- One common input/output for combined wavelengths
- Wide pass band
- Fiber protection on back panel
- Occupies only one back panel slot for every 8 channels
- Connector panel can also be used outside a Synapse frame (not sacrificing a slot)

Complementary cards

- GFT80 with BFT88/89 back panels
- GFR80 with BFR80 back panel

Applications

- High density fiber transmission
- (Existing) Studio infrastructure
- OB Van I/O
- Line monitoring
- WDM network
- Telecommunication
- Fiber optical amplifiers
- Access network

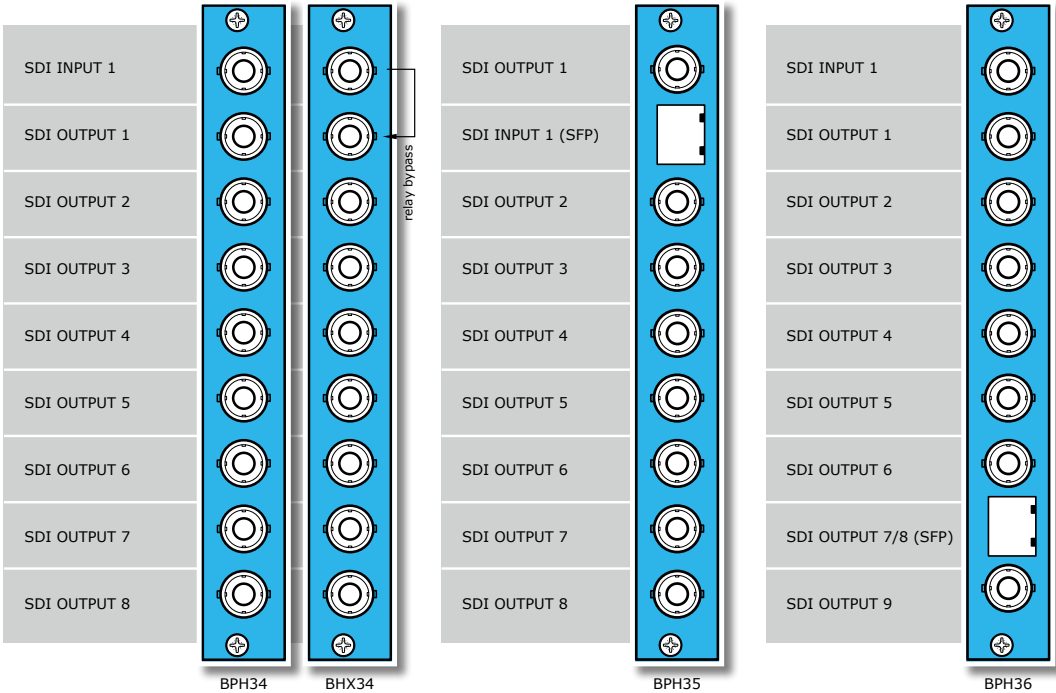
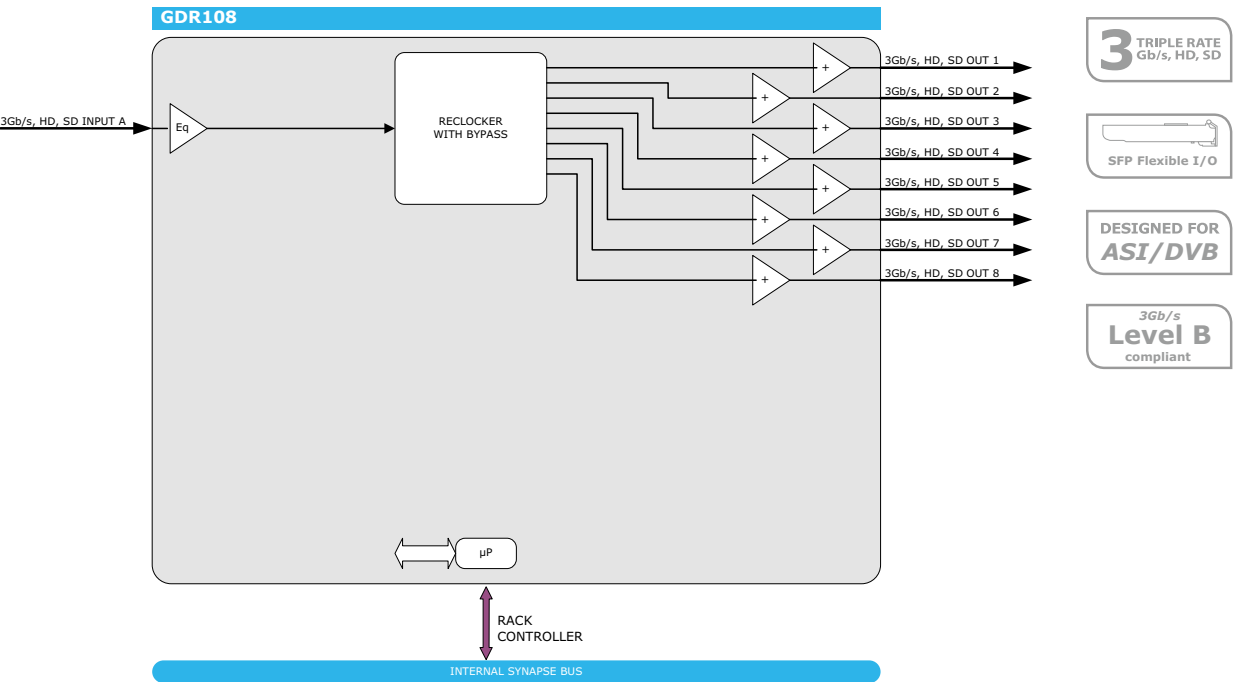
Ordering information

Standard I/O:

- **BFM88:** 8 channel fiber CWDM module with LC connectors 1270nm-1410nm
- **BFM89:** 8 channel fiber CWDM module with LC connectors 1470nm-1610nm

Specifications

visit www.evs.com



3Gb/s, HD, SD 1 to 8 distribution amplifier with reclocked outputs (ASI/DVB compatible)

The GDR108 is a single channel 3Gb/s, HD and SD SDI reclocking 1 input to 8 outputs distribution amplifier. This card is ASI/DVB compatible.

- Compatible with
 - SD SDI 270 Mbit/s (SMPTE 259M)
 - HD SDI 1485Mbit/s (SMPTE 292M)
 - 3Gb/s SDI 2970Mbit/s (SMPTE 424M)
 - ASI/DVB
- Bypass function of the reclocker for non-standard frequencies
- Optional SFP module on the input (only with BPH35) for fiber, CVBS, HDMI or SDI input
- Optional SFP module on output 8 (only with BPH36) for 2x fiber, 2x CVBS, 2x SDI outputs or 1x HDMI output

Applications

- Single channel generic wideband 3Gb/s distribution amplifier

Specifications

visit www.evs.com

Ordering information

Module:

- GDR108:** 3Gb/s, HD, SD SDI reclocking ditribution amplifier

Standard I/O:

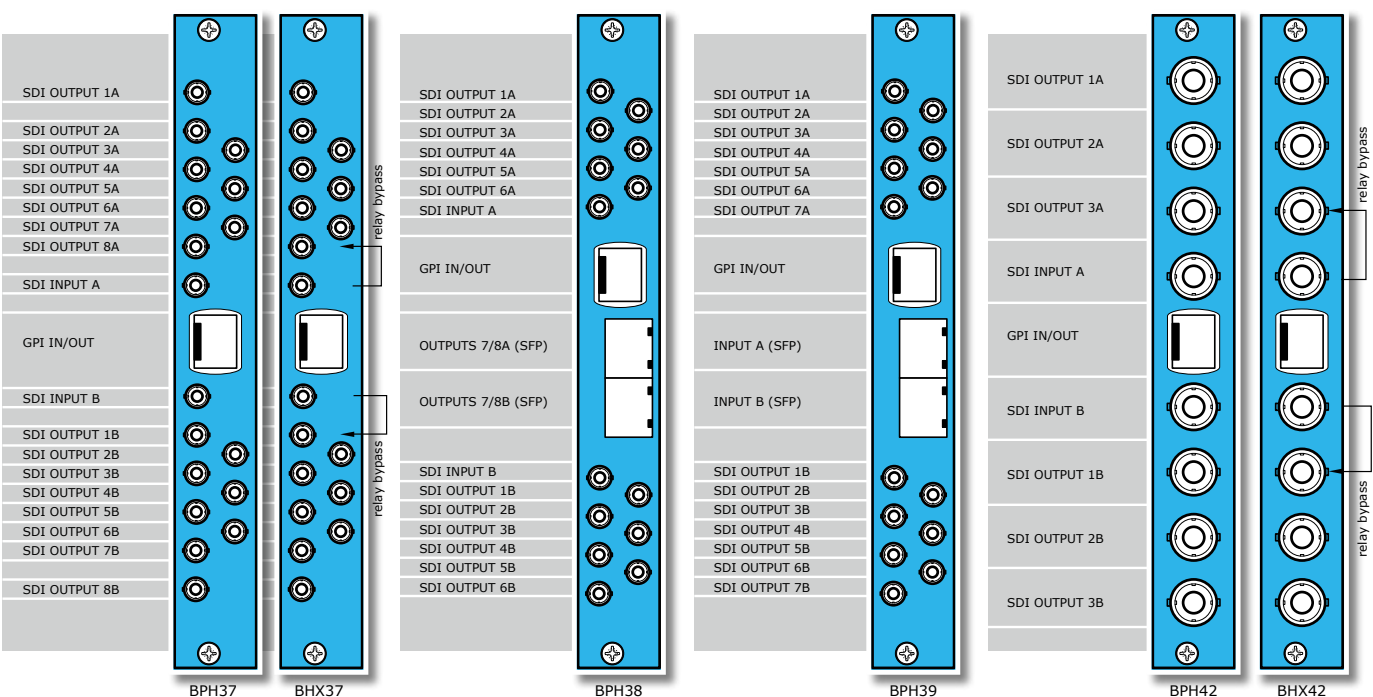
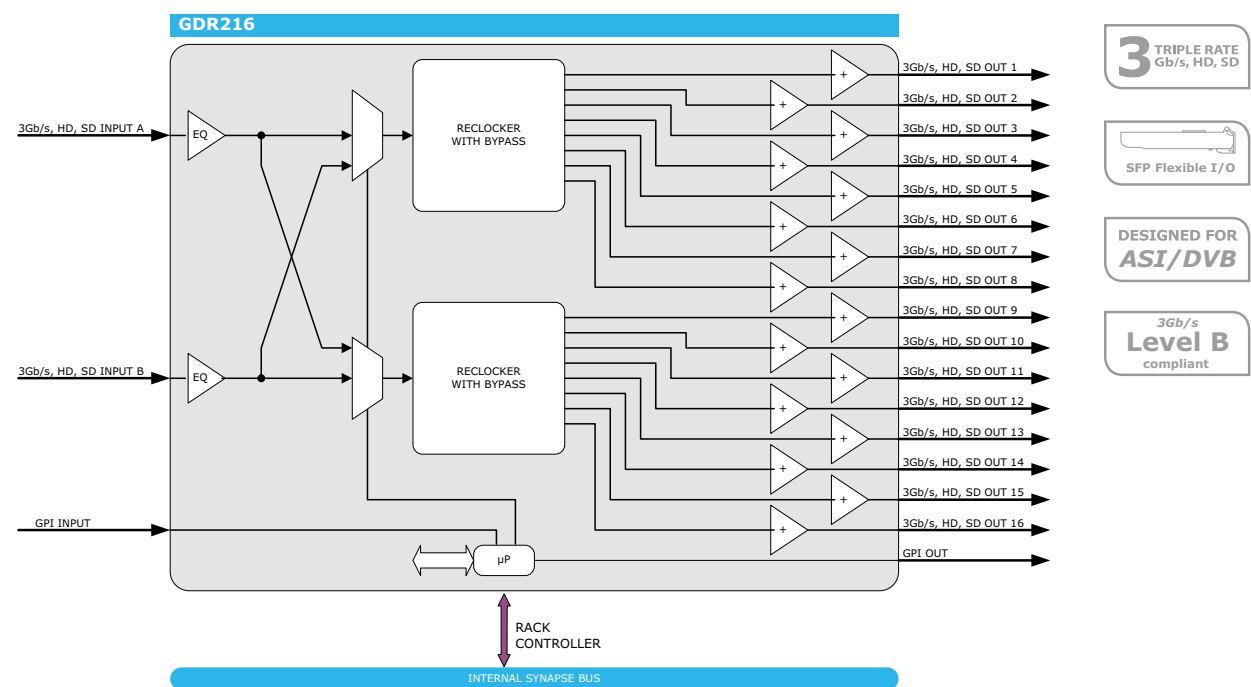
- BPH34_GDR108:** I/O panel for GDR108

Relay bypass I/O:

- BHX34_GDR108:** I/O panel for GDR108 with relay bypass

SFP I/O:

- BPH35_GDR108:** I/O panel for GDR108 with SFP module option on input 1
- BPH36_GDR108:** I/O panel for GDR108 with SFP module option on outputs 7/8 (1 extra output compared to BPH34, BHX34 and BPH35)



3Gb/s, HD, SD dual input distribution amplifier with 16 reclocked outputs (ASI/DVB compatible)

The GDR216 is a dual channel 3Gb/s, HD, SD SDI reclocking distribution amplifier with simple switching capabilities and selectable outputs. This card is ASI/DVB compatible.

- Single or dual channel with 16 configurable outputs
- Flexible selection of inputs to outputs
- Input switching as emergency bypass (not clean) on carrier detects
- GPI controlled input swapping and status monitoring
 - GPI input 1 = select input 1
 - GPI input 2 = select input 2
 - GPI output 0 = crossed mode or straight mode status
 - GPI output 1 = input 1 status
 - GPI output 2 = input 2 status
- 2x2 or 2x1 function
- 2x 1→8 or 1x 1→16 function
- Compatible with
 - SD SDI 270 Mbit/s (SMPTE 259M)
 - HD SDI 1485 Mbit/s (SMPTE 292M)
 - 3Gb/s SDI 2970 Mbit/s (SMPTE 424M)
 - ASI/DVB
- Bypass function of the reclocker for non-standard frequencies
- Optional SFP modules on outputs 7A/B and 8A/B with BPH38 for 2x fiber, 2x CVBS, 2x SDI outputs or 1x HDMI output modules
- Optional SFP modules on the inputs with BPH39 (2 sfp modules with 1 input each) for 2x fiber, 2x CVBS, 2x SDI input or 2x HDMI input. This backpanel has 7 outputs per input instead of 8.

Applications

- Dual channel generic wideband 3Gb/s distribution amplifier
- 1 to 16 generic wideband 3Gb/s distribution amplifier

Ordering information

Module:

- GDR216:** 3Gb/s, HD, SD SDI dual reclocking distribution amplifier

Standard I/O:

- BPH37_GDR216:** I/O panel for GDR216
- BPH42_GDR216:** I/O panel for GDR216 with BNC connectors instead of DIN1.0/2.3 (less outputs compared to BPH37, BPH38 or BPH39)

SFP I/O:

- BPH38_GDR216:** I/O panel for GDR216 with SFP module options on outputs 7A and B and outputs 8A and B

BPH39_GDR216:

I/O panel for GDR216 with SFP module option on inputs A and B (1 less output compared to BPH37, BHX37 and BPH38)

Relay bypass I/O:

BHX37_GDR216:

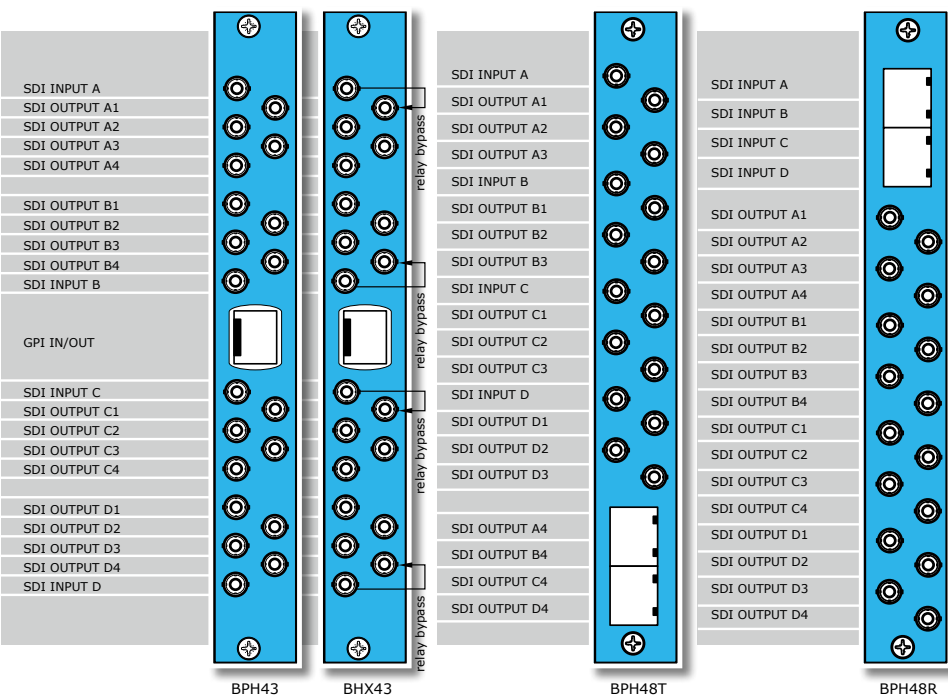
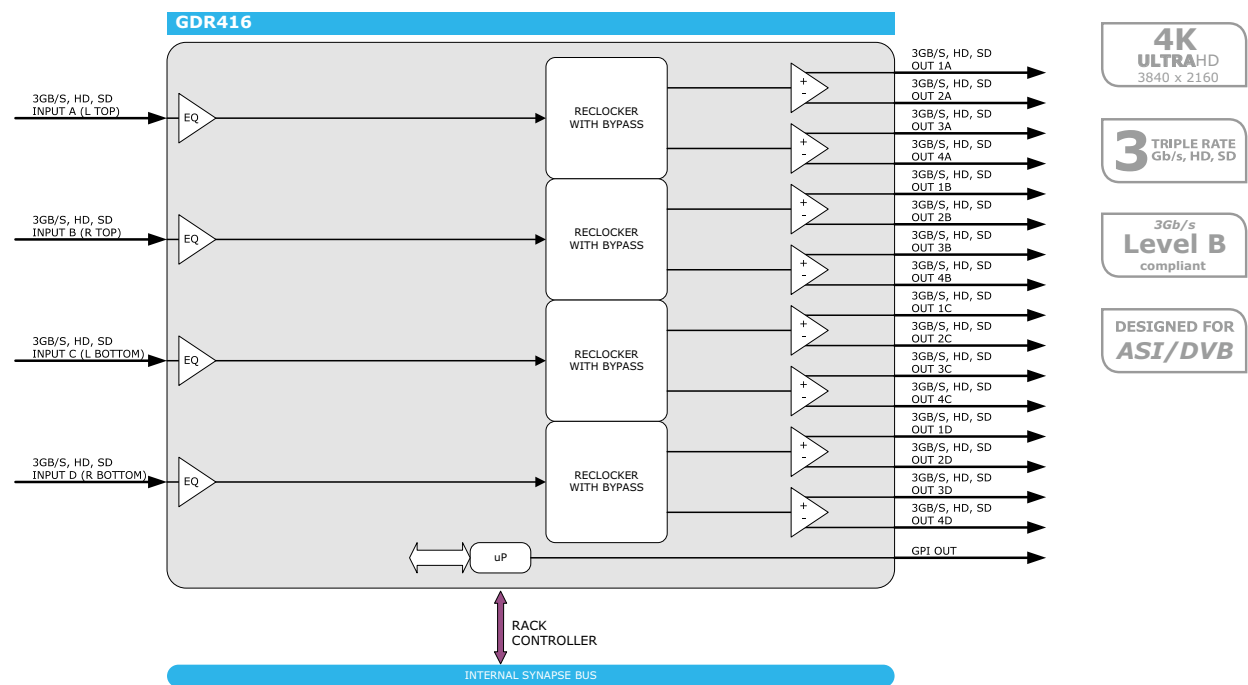
I/O panel for GDR216 with relay bypass

BHX42_GDR216:

I/O panel for GDR216 with relay bypass on BNC connectors instead of DIN1.0/2.3 (less outputs compared to BHX37)

Specifications

visit www.evs.com



4K, HD and SD four input distribution amplifier with 4 reclocked outputs per channel

The GDR416 is a four channel, 3Gb/s, HD, SD SDI reclocking distribution amplifier.

- Quad channel DA with 16 outputs
- Conversions between SMPTE standards
- GPI controlled input swapping and status monitoring:
 - GPO-0 = Carrier detect A
 - GPO-1 = Carrier detect B
 - GPO-2 = Carrier detect C
 - GPO-3 = Carrier detect D
- Compatible with:
 - SD SDI 270 Mbit/s (SMPTE 259M)
 - HD SDI 1485 Mbit/s (SMPTE 292M)
 - 3Gb/s SDI 2970 Mbit/s (SMPTE 424M)
 - ASI/DVB only on positive outputs
- Bypass function of the reclocker for non-standard frequencies
- Flexible choice of I/O standards through use of SFP modules, like fibers and HDMI I/O with BPH48x

Applications

- 4K generic wideband DA
- Quad channel generic wideband 3Gb/s DA
- E2O Electrical top Optical converter with BPH48T
- O2E Optical to Electrical converter with BPH48R

Relay bypass I/O:

- **BHX43_GDR416:** I/O panel for GDR416 with relay bypass

Specifications visit www.evs.com

Ordering information

Module:

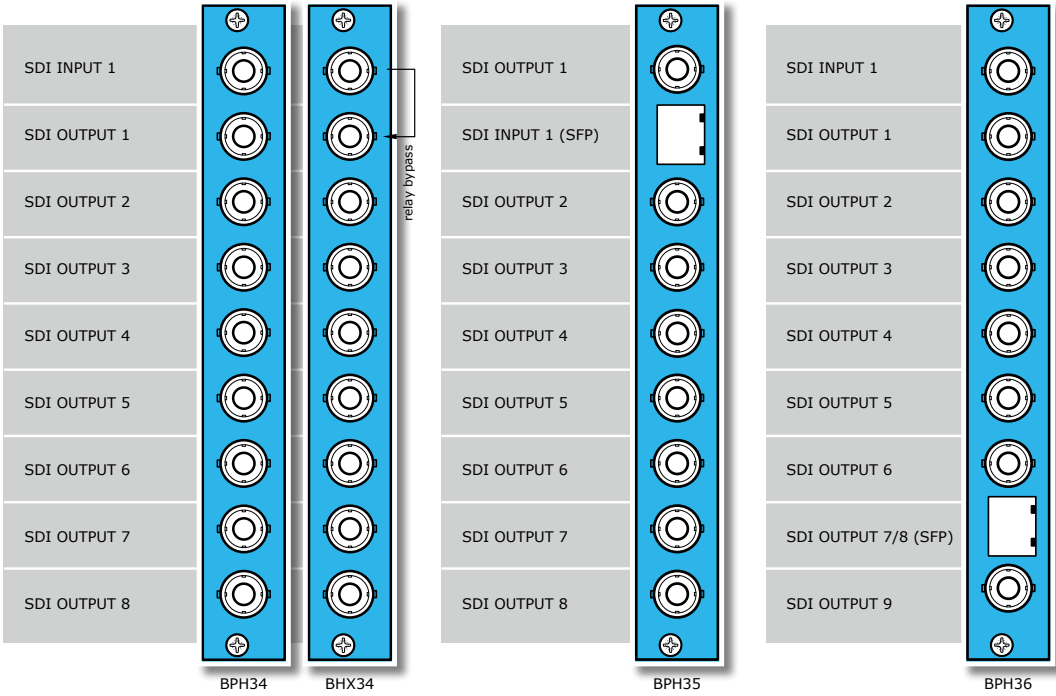
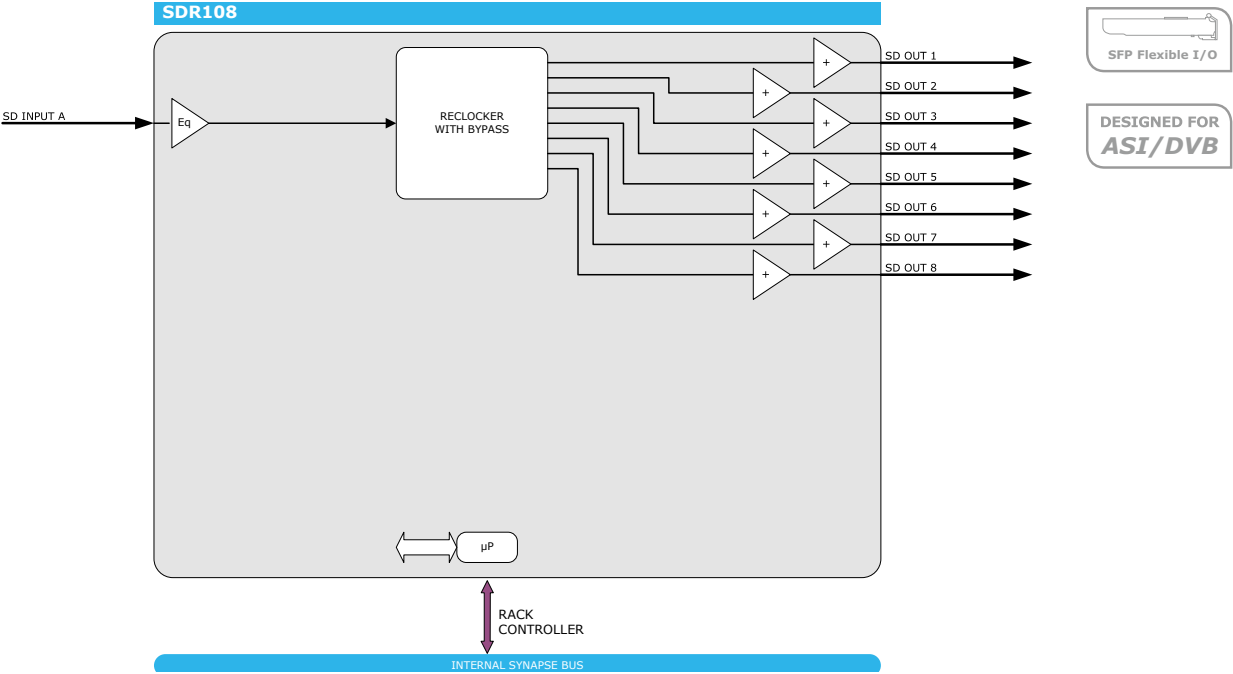
- **GDR416:** 4K, 3Gb/s, HD, SD-SDI quad reclocking distribution amplifier

Standard I/O:

- **BPH43_GDR416:** I/O panel for GDR416 with RJ45 GPI/O

SFP I/O:

- **BPH48T_GDR416:** I/O panel for GDR416 with SFP module output options
- **BPH48R_GDR416:** I/O panel for GDR416 with SFP module input options



SD 1 to 8 distribution amplifier with reclocked outputs (ASI/DVB compatible)

The SDR108 is a single channel SD SDI reclocking 1 input to 8 outputs distribution amplifier. This card is ASI/DVB compatible.

- Compatible with
 - SD SDI 270 Mbit/s (SMPTE 259M)
 - ASI/DVB
- Bypass function of the reclocker for non-standard frequencies
- Optional SFP module on the input (only with BPH35) for fiber, CVBS, HDMI or SDI input
- Optional SFP module on output 8 (only with BPH36) for 2x fiber, 2x CVBS, 2x SDI outputs or 1x HDMI output

Applications

- Single channel generic wideband SD SDI distribution amplifier

Specifications

visit www.evs.com

Ordering information

Module:

- SDR108:** SD SDI reclocking ditribution amplifier

Standard I/O:

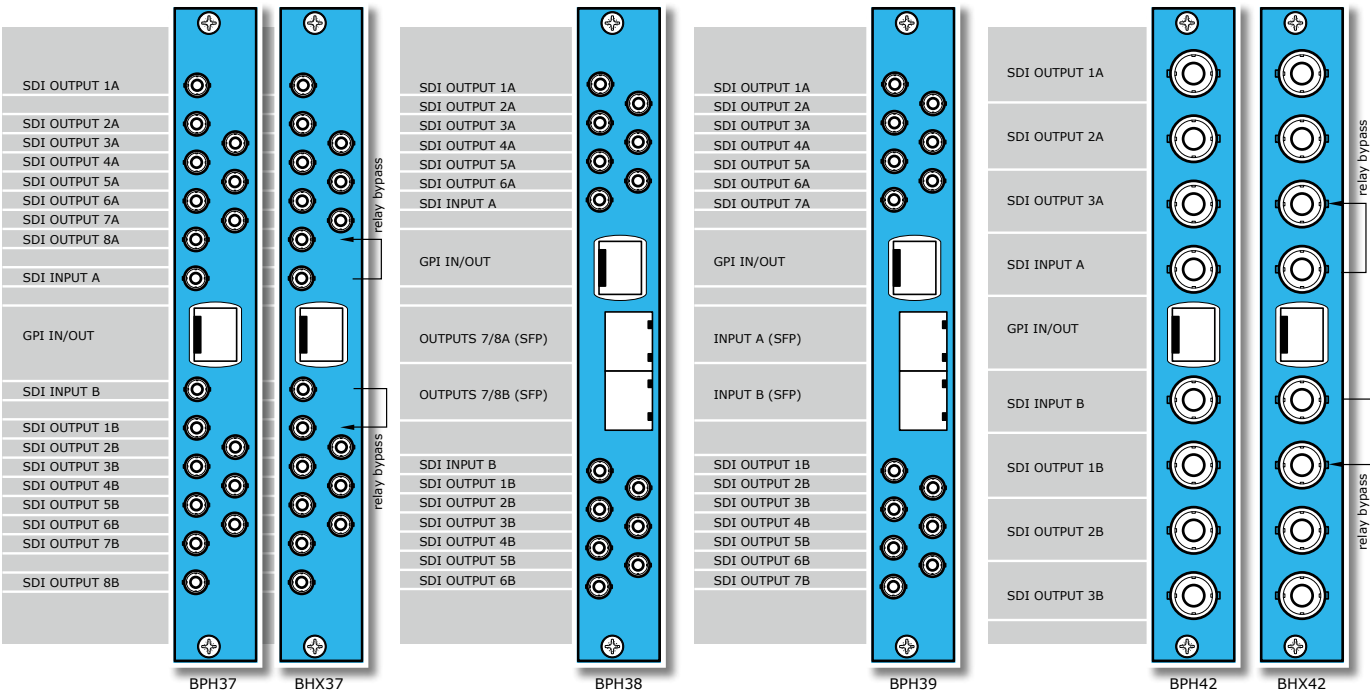
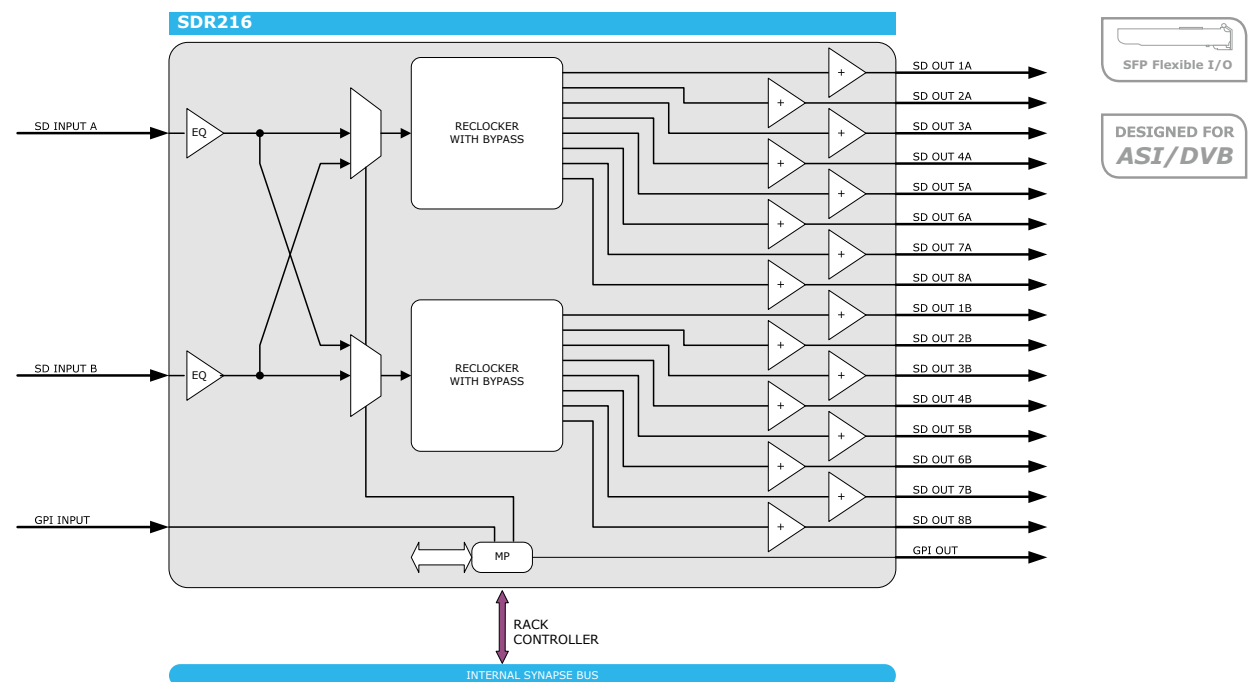
- BPH34_SDR108:** I/O panel for SDR108

Relay bypass I/O:

- BHX34_SDR108:** I/O panel for SDR108 with relay bypass

SFP I/O:

- BPH35_SDR108:** I/O panel for SDR108 with SFP module option on input 1
- BPH36_SDR108:** I/O panel for SDR108 with SFP module option on outputs 7/8 (1 extra output compared to BPH34, BHX34 and BPH35)



SD dual input distribution amplifier with 16 reclocked outputs (ASI/DVB compatible)

The SDR216 is a dual channel SD SDI reclocking distribution amplifier with simple switching capabilities and selectable outputs. This card is ASI/DVB compatible.

- Single or dual channel with 16 configurable outputs
- Flexible selection of inputs to outputs
- Input switching as emergency bypass (not clean) on carrier detects
- GPI controlled input swapping and status monitoring
 - GPI input 1 = select input 1
 - GPI input 2 = select input 2
 - GPI output 0 = crossed mode or straight mode status
 - GPI output 1 = input 1 status
 - GPI output 2 = input 2 status
- 2x2 or 2x1 function
- 2x 1→8 or 1x 1→16 function
- Compatible with
 - SD SDI 270 Mbit/s (SMPTE 259M)
 - ASI/DVB
- Bypass function of the reclocker for non-standard frequencies
- Optional SFP modules on outputs 7A/B and 8A/B with BPH38 for 2x fiber, 2x CVBS, 2x SDI outputs or 1x HDMI output modules
- Optional SFP modules on the inputs with BPH39 (2 sfp modules with 1 input each) for 2x fiber, 2x CVBS, 2x SDI input or 2x HDMI input. This backpanel has 7 outputs per input instead of 8.

Applications

- Dual channel generic wideband SD SDI distribution amplifier
- 1 to 16 generic wideband SD SDI distribution amplifier

Ordering information

Module:

- SDR216:** 3Gb/s, HD, SD SDI dual reclocking distribution amplifier

Standard I/O:

- BPH37_SDR216:** I/O panel for SDR216
- BPH42_SDR216:** I/O panel for SDR216 with BNC connectors instead of DIN1.0/2.3 (less outputs compared to BPH37, BPH38 or BPH39)

SFP I/O:

- BPH38_SDR216:** I/O panel for SDR216 with SFP module options on outputs 7A and B and outputs 8A and B

BPH39_SDR216:

I/O panel for SDR216 with SFP module option on inputs A and B (1 less output compared to BPH37, BPH38 and BPH39)

Relay bypass I/O:

BHX37_SDR216:

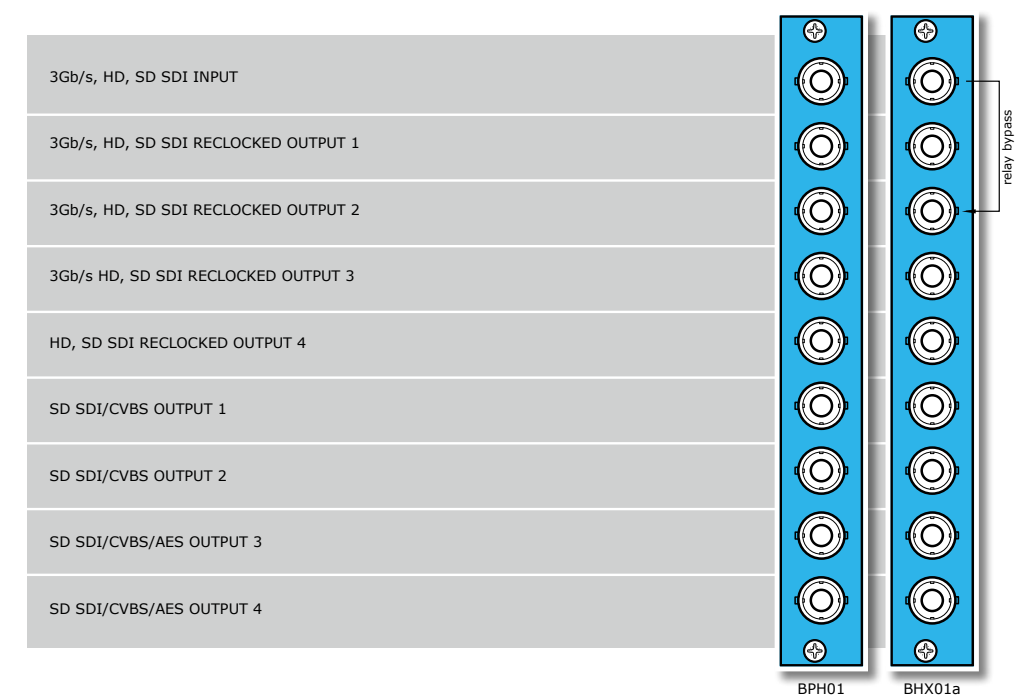
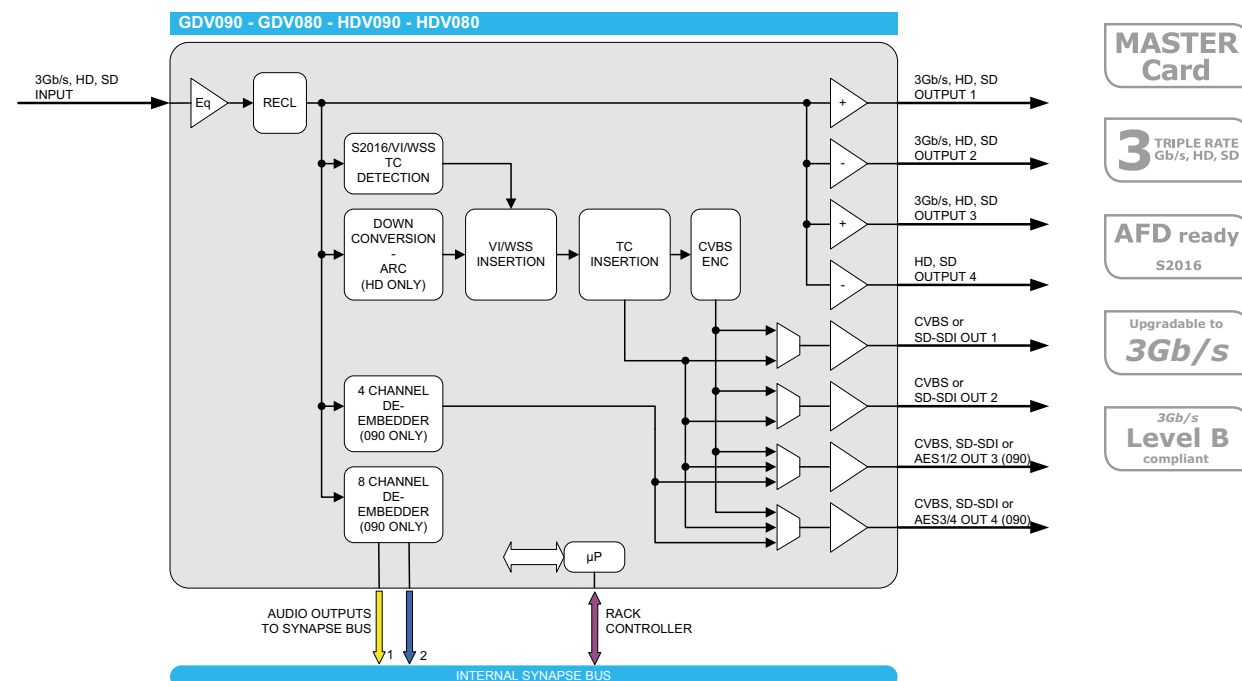
I/O panel for SDR216 with relay bypass

BHX42_SDR216:

I/O panel for SDR216 with relay bypass on BNC connectors instead of DIN1.0/2.3 (less outputs compared to BHX37)

Specifications

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Monitoring distribution amplifier with down converted SD or analog video outputs and optional 8 channel audio de-embedder

The GDV090/80 and HDV090/080 are 3Gb/s - HD - SD SDI distribution amplifiers with a built-in 3Gb/s, HD SDI to SD SDI or composite down converter. The G-HDV090 is capable of de-embedding 8 channels audio into 2 groups on the bus. The G-HDV090 is also capable of de-embedding 4 channels audio in two AES channels on the back panel. This card acts as a MASTER Card. It is an audio extractor that outputs 2 x 4 channels ADD-ON audio signals via the local bus to two ADD-ON cards.

The GDV080 is future upgradeable to GDV090. The HDV080 is future upgradeable to HDV090, GDV080 or GDV090.

- 1 auto-detect 3Gb/HD/SD SDI input
- 4x reclocked HD/SD SDI outputs or 3x 3Gb outputs
- 4 individually switchable down converted video outputs.
User can choose from CVBS or SD SDI or AES audio
(lowest 2 BNCs on GDV/HDV090 only)
- Supports 16:9 letterbox, 14:9 letterbox and 4:3
(anamorphic and center crop)
- HD to SD color space conversion (ITU709 and ITU601)
- Reads S2016 and converts to WWS/VI preset based
(3Gb/s and HD)
- Copies WSS/VI into SD output
- Reads ATC data and transports TC data from 3Gb/s, HD
and SD to SD SDI
- 2 groups de-embedding on bus
- Selectable NTSC setup removal
- Y level adjustable for SMPTE
- Locks to SDI input
- Full control and status monitoring through the front
panel of the frame and the Ethernet port (ACP)

Complementary cards:

- DAC20, DAC24, DAS24, DIO48, DIO24

Applications

- Generic 3Gb/s, HD, SDI distribution with preview output
- Pre-routing down converted DA or SD with monitoring output
- De-embedding of two group on the bus (GDV/HDV090 only)
- De-embedding of two AES channels on back panel (GDV/HDV090 only)

Ordering information

Module:

- **GDV080:** 3Gb/s, HD, SD SDI Monitoring distribution amplifier with down converted SD or analog video outputs
- **GDV090:** 3Gb/s, HD, SD SDI Monitoring distribution amplifier with down converted SD or analog video outputs and digital audio outputs
- **HDV080:** HD and SD SDI Monitoring distribution amplifier with down converted SD or analog video outputs

- **HDV090:** HD and SD SDI Monitoring distribution amplifier with down converted SD or analog video outputs and digital audio outputs

Standard I/O:

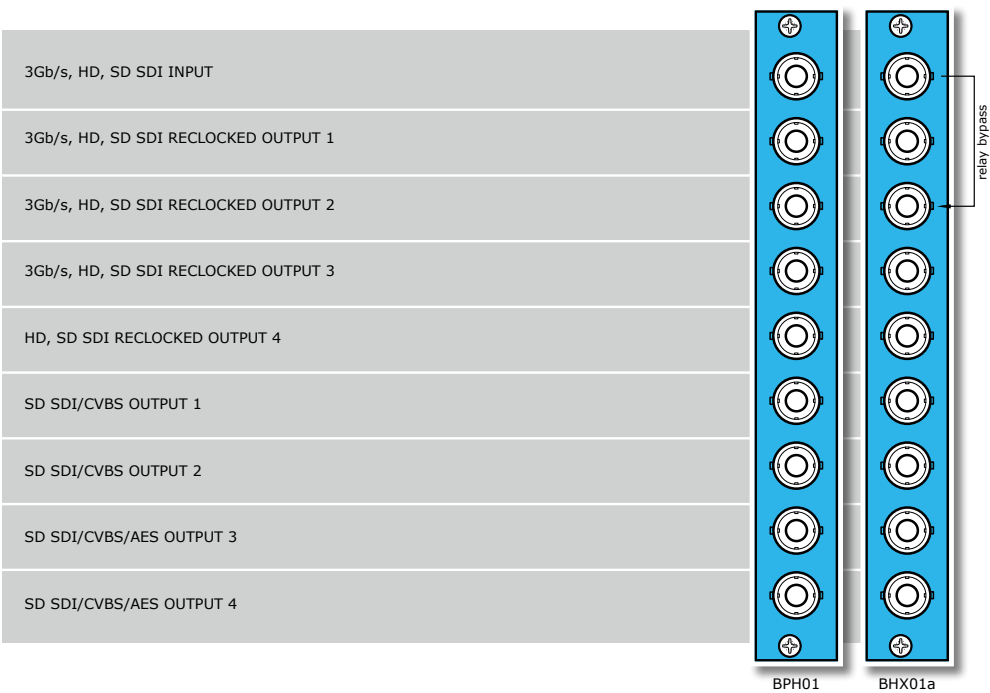
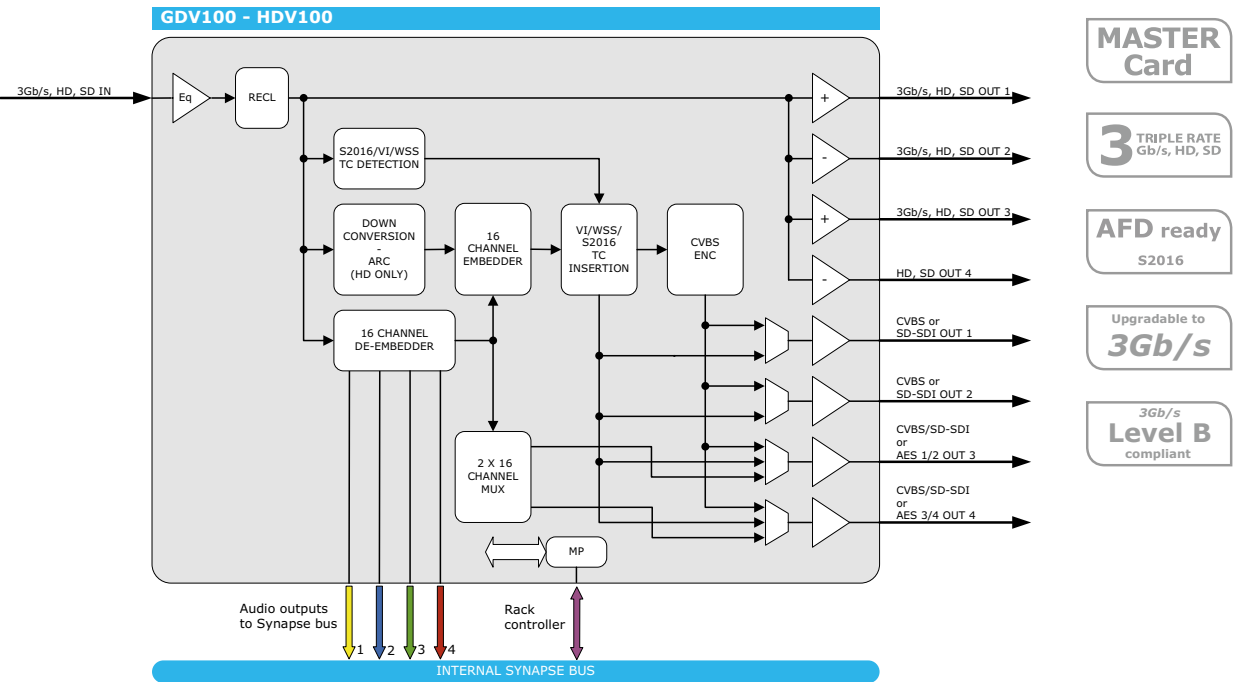
- **BPH01_GDVxxx:**
I/O panel for G-HDVxxx

Relay bypass I/O:

- **BHX01a_GDVxxx:**
I/O panel for G-HDVxxx
with relay bypass

Specifications

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Monitoring distribution amplifier with down converted SD or analog video outputs and 16 channel audio de-embedder

The G-HDV100 is a 3Gb/s - HD - SD SDI distribution amplifier with a built-in 3Gb/s, HD SDI to SD SDI or composite down converter. The G-HDV100 is capable of de-embedding 16 channels audio into 4 groups on the bus. The G-HDV100 can also de-embed 4 channels audio in two AES channels on the back panel. This card acts as a MASTER-card.

- 1 auto-detect 3Gb/HD/SD SDI input
- 4 reclocked HD/SD SDI outputs or 3 3Gb outputs
- 4 individually switchable down converted video outputs. User can choose from CVBS or SD SDI or AES audio
- Supports 16:9 letterbox, 14:9 letterbox, 4:3 (anamorphic and centre crop)
- HD to SD color space conversion (ITU709 and ITU601)
- Reads S2016 and converts that into WWS/VI preset based (3Gb/s and HD)
- Copies WWS/VI into SD output (SD)
- Reads ATC data and transports TC data from 3Gb/s, HD and SD to SD SDI
- Transparent for 16 channels of audio on down converted video
- 4 groups de-embedding on bus
- Selectable NTSC setup removal
- Y level adjustable for SMPTE
- Locks to SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Complementary cards:

- DAC20, DAC24, DAS24, DIO48, DIO24

Applications

- Generic 3Gb/s, HD, SDI Distribution with preview output
- Pre-routing down converted DA or SD with monitoring output
- De-embedding of 16 channels to the ADD-On bus
- De-embedding of two AES channels on back panel

Ordering information

Module:

- **GDV100:** 3Gb/s, HD, SD SDI Monitoring distribution amplifier with down converted outputs and 16 channels de-embedder
- **HDV100:** HD and SD SDI Monitoring distribution amplifier with down converted outputs and 16 channels de-embedder

Standard I/O:

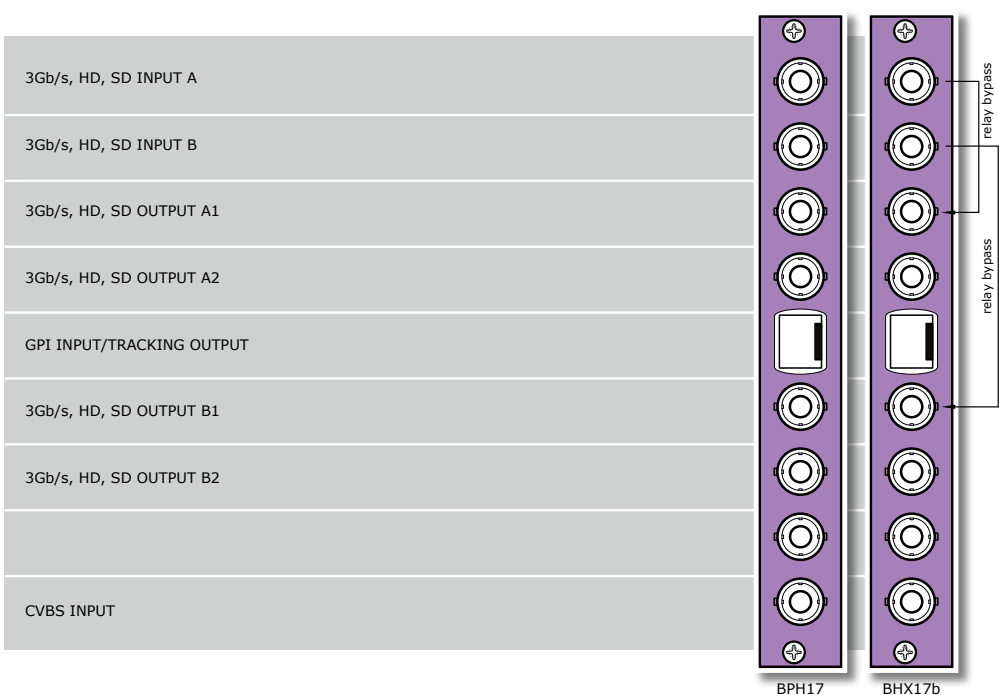
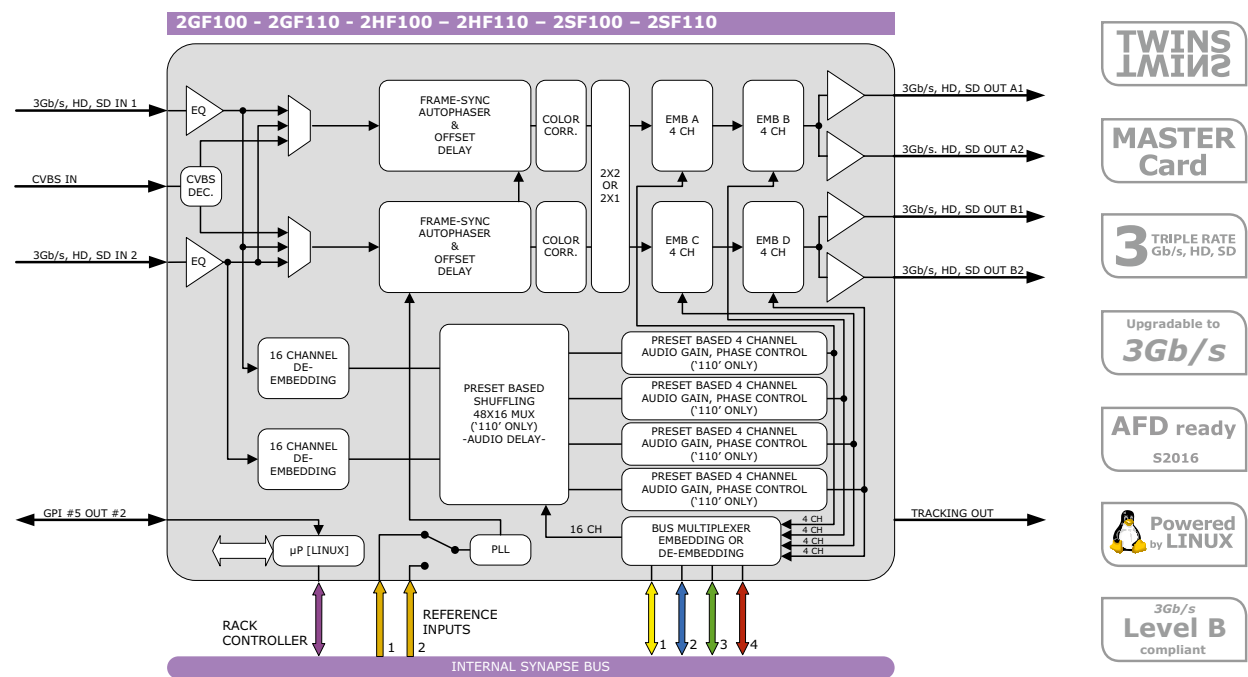
- **BPH01_GDVxxx:** I/O panel for G-HDVxxx

Relay bypass I/O:

- **BHX01a_GDVxxx:** I/O panel for G-HDVxxx with relay bypass

Specifications

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Dual channel 3Gb/s, HD, SD frame synchronizer with optional audio shuffler

The 2GF100/110, 2HF100/110 and 2SF100/110 are dual channel frame synchronizers with back-up inputs and 8 channel audio transparency and color correcting capabilities. The powerful matrix multiplexer can feed audio from the embedded domain into the Synapse bus to an ADD-ON card like the DIO48. This matrix multiplexer also allows for audio to be inserted from the ADD-ON bus into the embedded domain of the 2GF-2HF-2SF100/110. The 2GF110, 2HF110 and 2SF110 add a full audio shuffler and audio ProcAmp with gain and phase control.

The 2GF100/110 is compatible with SD, HD and 3Gb/s SDI (for full 1080p50 or 1080p59.94 use). The 2HF100/110 is compatible with SD and HDSDI (1.5Gb/s) and can be future upgraded to 3Gb/s compatibility. The 2SF100/110 is limited to SD SDI only but can also be upgraded to HD or even 3Gb/s.

- 3 inputs: 2 SDI and 1 composite.
- Configurable output function
 - Straight (1=1, 2=2)
 - Crossed (2=1, 1=2)
 - A only (1=1, 2=1)
 - B only (1=2, 2=2)
- Compatible with the following input formats (auto selecting) (1080p50/60 only for 2GF100/110):
 - 1080p59.94
 - 1080p50
 - 1080i59.94
 - 1080i50
 - 1080p29.97
 - 1080p25
 - 1080p23.98
 - 720p59.94
 - 720p50
 - 720p29.97
 - 720p23.98
 - SD525
 - SD625

- Two individual conversion paths. The inputs can be different standards SD or HD and unlocked to the single output format.
- Framesync with output phase control in frames, lines and pixels with respect to reference. Delay setting are stored per output format for a constant latency operation.
- 30 Frames delay offset (per channel) for all 1080 formats
- 60 Frames delay offset (per channel) for all 720 formats
- 125 Frames delay offset (per channel) for all SD formats
- 5 GPI inputs assignable to various preset banks
- ARC triggers by VI, WSS, WSSExt and S2016 (AFD)
- Individual color corrector for video path A and B
- Transparent for 8 channels of embedded audio per channel
- Embedded domain cross input audio shuffling, gain and phase control (2GF/2HF110 only)
- Embedding and de-embedding through synapse bus
- Video ProcAmp, Color corrector and Hue control
- Locks to Bi-level, Tri-level syncs or SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

- Complementary cards:**
- DAC20, DAC24, DAS24, DIO48, ADC20, ADC24, DIO24

Applications

- Transmission output frame synchronizer with back-up input.
- Combining embedded audio channels of 2 inputs into 1 (2xHF110 only)

Ordering information

- Module:**
- 2GF100:** Dual channel 3Gb/s, HD, SD frame synchronizer
 - 2GF110:** Dual channel 3Gb/s, HD, SD frame synchronizer with audio shuffler ProcAmp
 - 2HF100:** Dual channel HD, SD frame synchronizer
 - 2HF110:** Dual channel HD, SD frame synchronizer with audio shuffler ProcAmp
 - 2SF100:** Dual channel SD frame synchronizer
 - 2SF110:** Dual channel SD frame synchronizer with audio shuffler ProcAmp

Standard I/O:

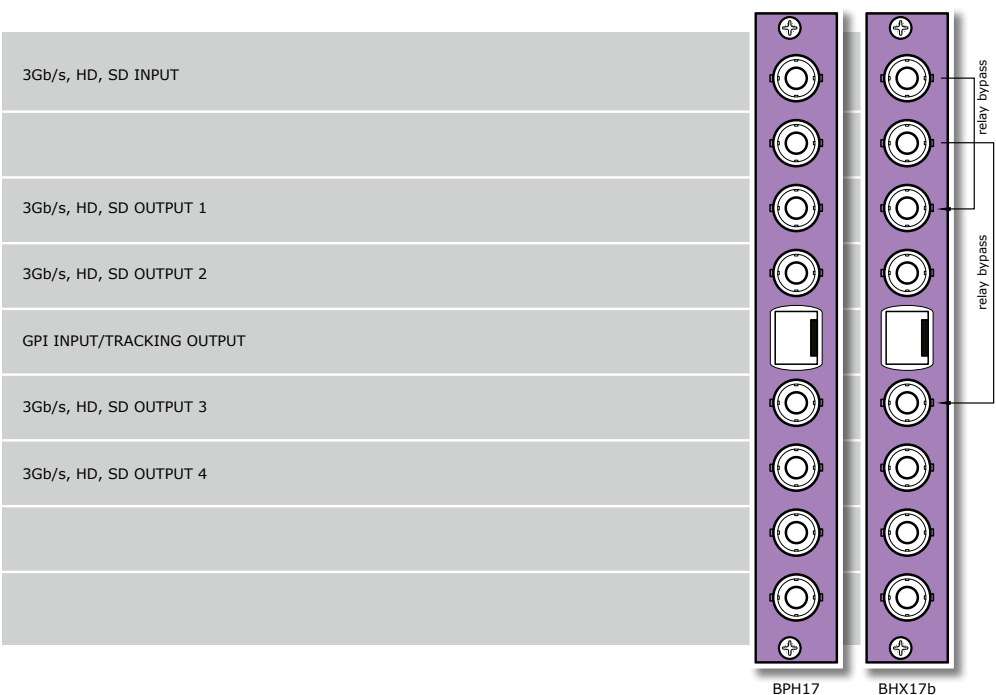
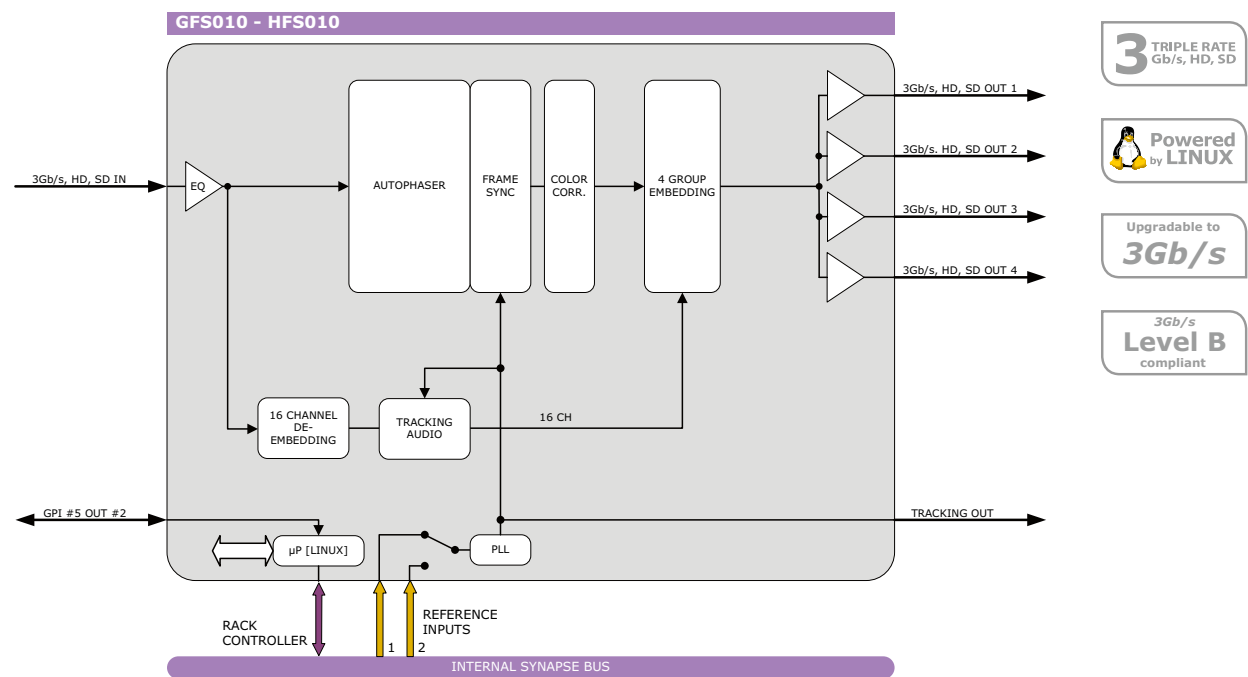
- BPH17_2GFxxx:** Standard I/O panel for 2GF-2HF-2SFxxx

Relay bypass I/O:

- BHX17b_2GFxxx:** I/O panel for 2GF-2HF-2SFxxx with relay bypass

Specifications

visit www.evs.com



3Gb/s, HD, SD basic frame synchronizer

The GFS010 and HFS010 are frame synchronizers with 16 channel audio transparency and color correcting capabilities.

The GFS010 is compatible with SD, HD and 3Gb/s SDI (for full 1080p50 or 1080p59.94 use). The HFS010 is compatible with SD and HDSDI (1.5Gb/s) and can be future upgraded to 3Gb/s compatibility.

- 1 input
- Compatible with the following input formats (auto selecting) (1080p50/60 only for GFS010):
 - 1080p59.94 ■ 1080p25 ■ 720p25
 - 1080p50 ■ 1080p23.98 ■ 720p23.98
 - 1080i59.94 ■ 720p59.94 ■ SD525
 - 1080i50 ■ 720p50 ■ SD625
 - 1080p29.97 ■ 720p29.97
- Transparent for 16 channels of embedded audio
- Video ProcAmp (Y and C control)
- Color corrector (RGB and total gain, RGB and total black)
- Hue control for NTSC inputs
- Locks to Bi-level, Tri-level syncs or SDI input
- Framesync with output phase control in Lines and pixels with respect to reference
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- Transmission output frame synchronizer
- General purpose post router autophaser

Ordering information

Module:

- **GFS010:** 3Gb/s, HD, SD frame synchronizer
- **HFS010:** HD, SD frame-synchronizer

Standard I/O:

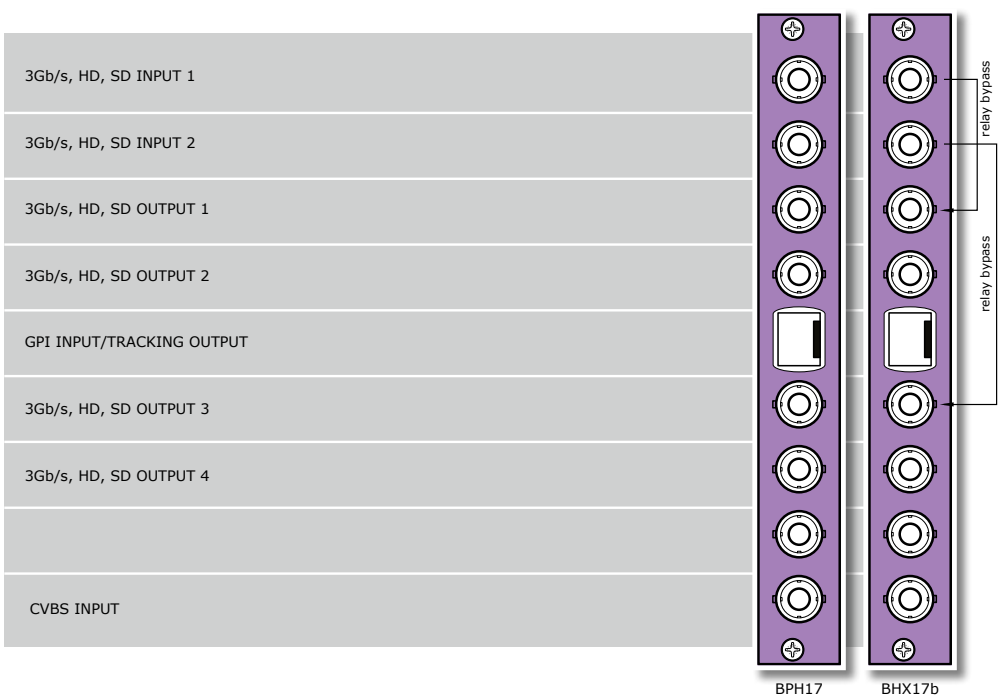
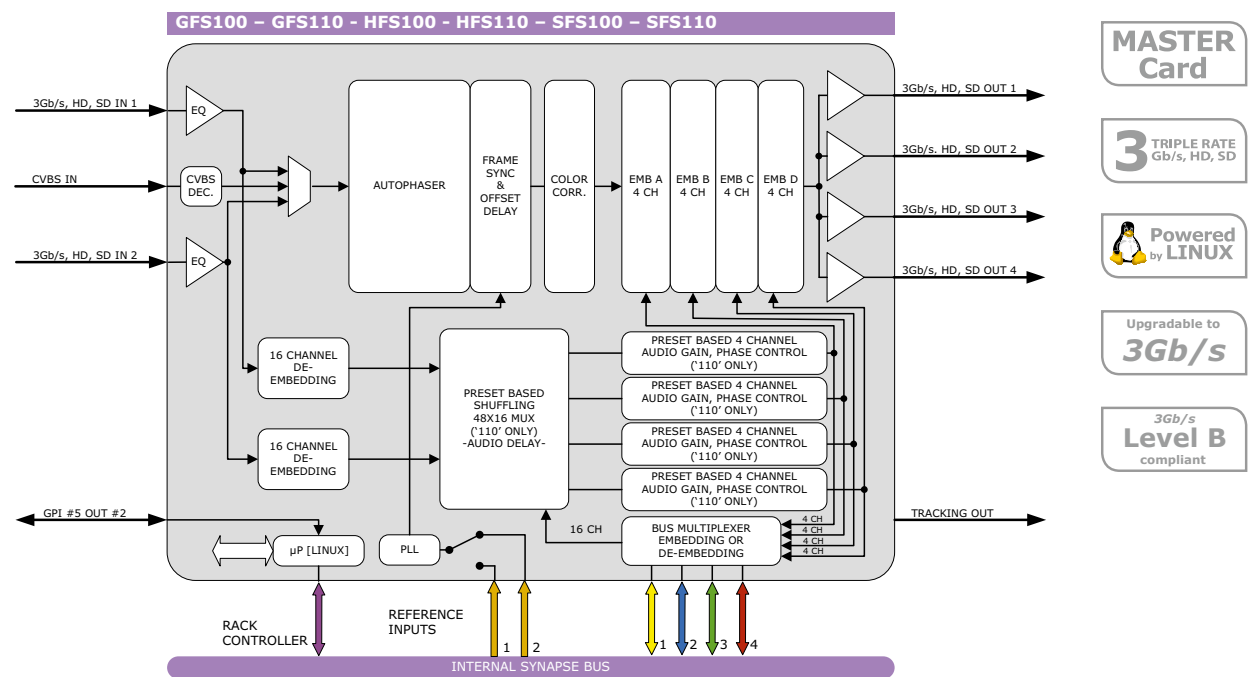
- **BPH17_GFS010:** I/O panel for G-H-SFS010

Relay bypass I/O:

- **BHX17b_GFS010:** I/O panel for G-HFS010 with relay bypass

Specifications

visit www.evs.com



3Gb/s, HD, SD frame synchronizer with optional audio shuffler

The GFS100/110, HFS100/110 and SFS100/110 are frame synchronizers with back-up inputs and 16 channel audio transparency and color correcting capabilities. The powerful matrix multiplexer can feed audio from the embedded domain into the Synapse bus to an ADD-ON card like the DIO48. This matrix multiplexer also allows for audio to be inserted from the ADD-ON bus into the embedded domain of the G-H-SFS100/110. The GFS110, HFS110 and SFS110 add a full audio shuffler and audio ProcAmp with gain and phase control.

The GFS100/110 is compatible with SD, HD and 3Gb/s SDI (for full 1080p50 or 1080p59.94 use). The HFS100/110 is compatible with SD and HDSDI (1.5Gb/s) and can be future upgraded to 3Gb/s compatibility. The SFS100/110 is limited to SD SDI only but can also be upgraded to HD or even 3Gb/s.

- 3 inputs: 2 SDI and 1 composite.
- Compatible with the following input formats (auto selecting) (1080p50/60 only for 2GF100/110):
 - 1080p59.94 1080p25 720p25
 - 1080p50 1080p23.98 720p23.98
 - 1080i59.94 720p59.94 SD525
 - 1080i50 720p50 SD625
 - 1080p29.97 720p29.97
- Framesync with output phase control in frames, lines and pixels with respect to reference. Delay setting are stored per output format for a constant latency operation.
- 30 Frames delay offset (per channel) for all 1080 formats
- 60 Frames delay offset (per channel) for all 720 formats
- 120 Frames delay offset (per channel) for all SD formats
- 5 GPI inputs assignable to various preset banks
- Transparent for 16 channels of embedded audio
- Embedded domain cross input audio shuffling, gain and phase control (GFS/HFS/SFS110 only)
- Embedding and de-embedding through synapse bus
- Video ProcAmp, Color corrector and Hue control
- Locks to Bi-level, Tri-level syncs or SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Complementary cards:

- DAC20, DAC24, DAS24, DIO48, ADC20, ADC24, DIO24

Applications

- Transmission output frame synchronizer with back-up input
- General purpose post router autophaser

Ordering information

Module:

- GFS100:** 3Gb/s, HD, SD frame synchronizer
- GFS110:** 3Gb/s, HD, SD frame synchronizer with audio shuffler ProcAmp
- HFS100:** HD, SD frame synchronizer converter
- HFS110:** HD, SD frame synchronizer with audio shuffler ProcAmp
- SFS100:** SD Frame synchronizer converter
- SFS110:** SD Frame synchronizer with audio shuffler ProcAmp

Standard I/O:

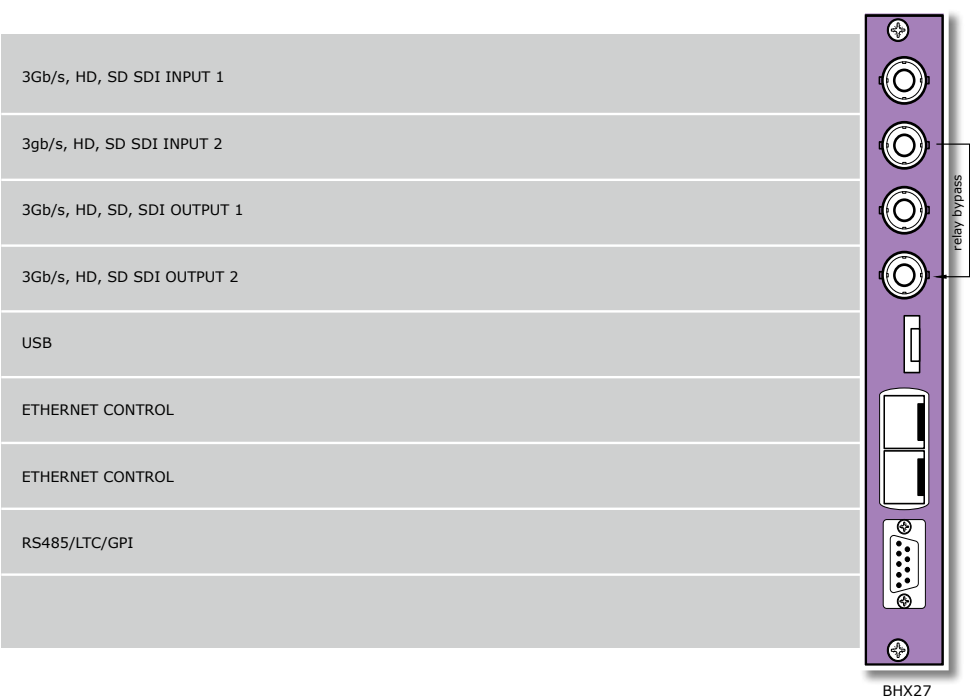
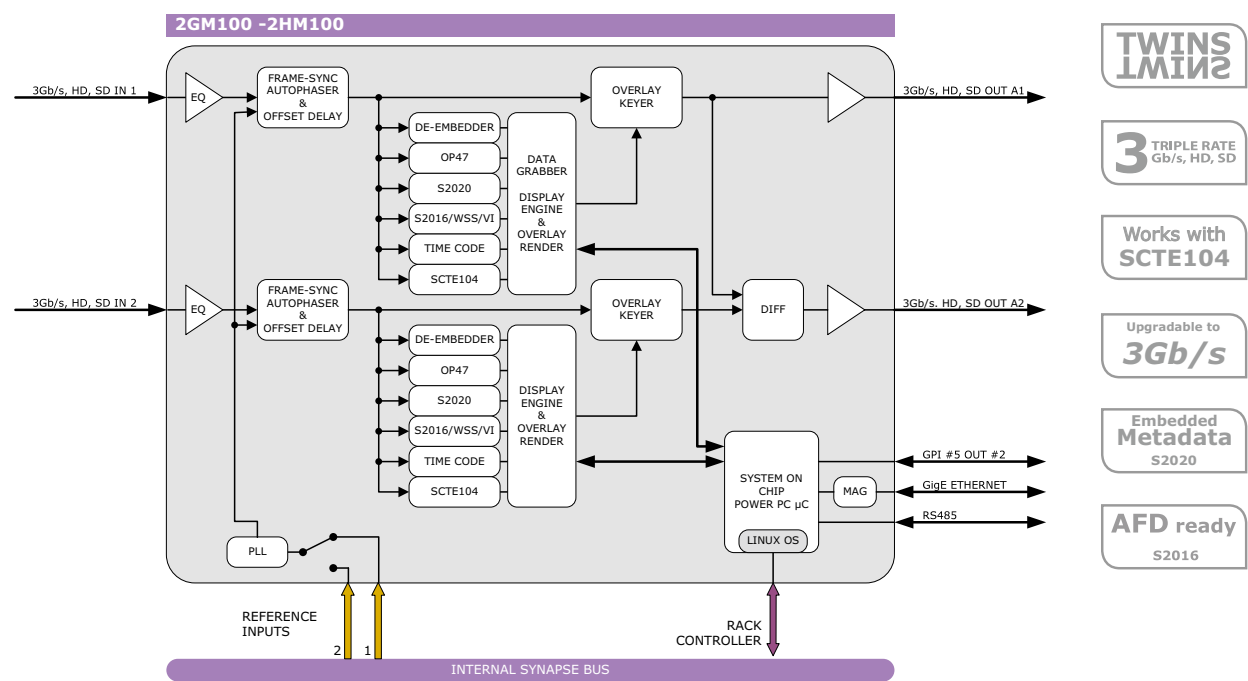
- BPH17_GFSxxx:** I/O panel for G-H-SFSxxx

Relay bypass I/O:

- BHX17b_GFSxxx:** I/O panel for G-H-SFSxxx with relay bypass

Specifications

visit www.evs.com



Dual channel VANC data (eg OP47, SCTE104, TC, S2020 and S2016) analyzer for OSD applications

The 2GM100 and 2HM100 are VANC data analyzers with an application in mind where the data is monitored on screen in the SDI domain. Monitoring the data through ACP and SNMP is also possible.

The different VANC signals are decoded and displayed as an overlay on the SDI output. Audio is also decoded and monitored for presence and format. The dual channel decoder analyzer can also be used to look for differences between a known good signal and the signal under test.

The layout of the OSD is defined into groups and can be switched on or off by menu selection. All OSD ANC data is displayed timed correctly on their original frame. OP47 and s2031 data need to be decoded and rendered and will take a finite time to process. This offset can be compensated by additional video delay.

- Two individual channels with autophaser, Framesync and offset delay
- Up to 20 frames offset delay @ 1080i, and 10 frames @ 1080p
- OSD monitoring of the following data:
 - Embedded audio of all 4 groups: presence of PCM, with clip and silence detections, and presence of Dolby
 - S2031 Subtitles: line number, subtitle page number, subtitle text position (position & color)
 - OP47 Subtitles: DID/SDID, line number, subtitle page number and Subtitle text (position & color)
 - Audio metadata S2020: DID/SDID, line number, program config, program id, program description, coding mode, bitstream mode, dialogue normalization, LFE flag, etc.
 - AFD (S2016), WSS and VI
 - Timecode: ANC VITC decoded, ANC LTC decoded, drop/non drop frame, frames per second.
 - SCTE104: WHP296 extension to SCTE104, subtitle timing (delay/non delay), subtitle mode (live/not live), DOG logo insert mode
- Locks to SDI input, or external reference
- Full control and status monitoring through the front panel of the Synapse frame and via the Ethernet port (ACP)

Applications

- The 2HM100/2GM100 can be used as active probe in an ingest or lines centre

Ordering information

Module:

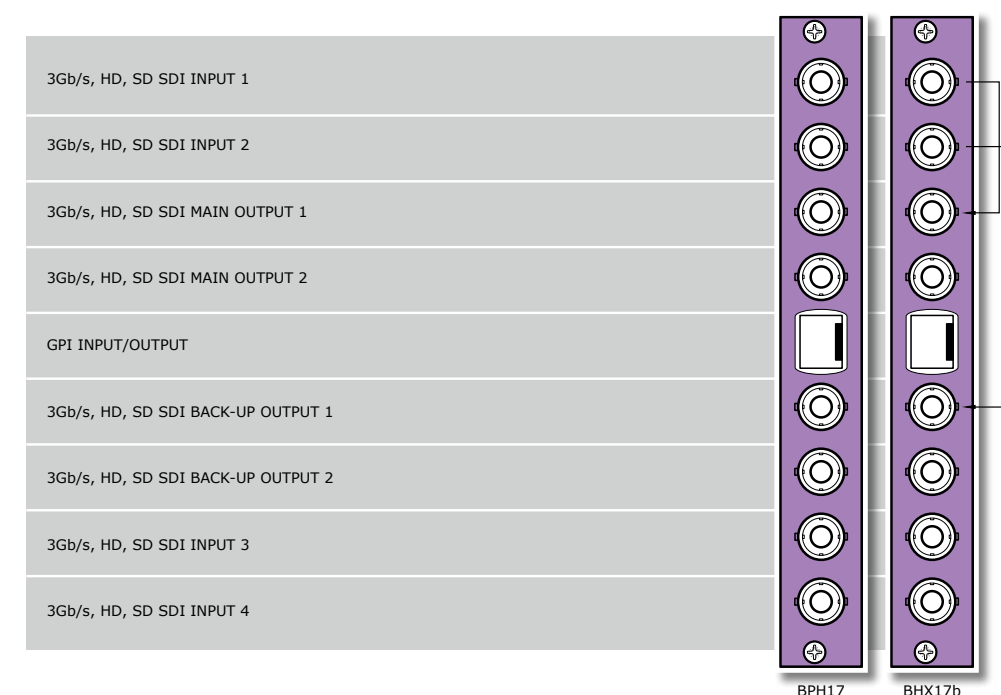
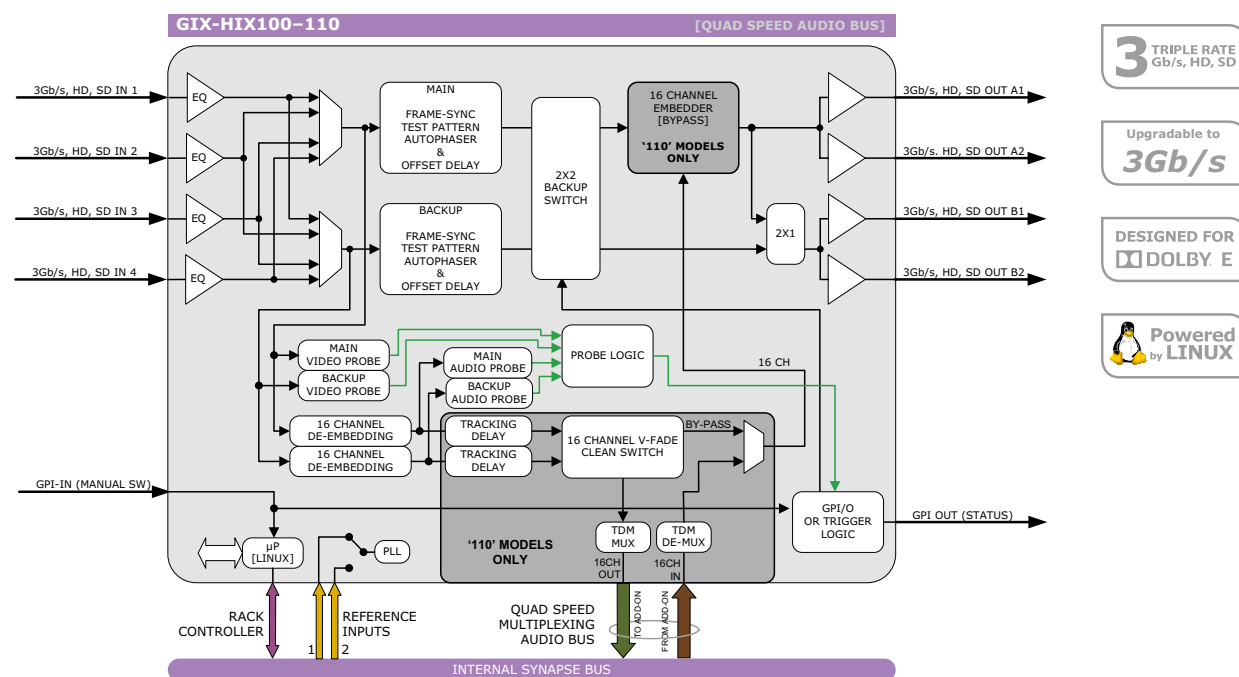
- 2GM100:** 3Gb/s, HD, SD Dual channel VANC data analyzer for OSD applications
- 2HM100:** HD, SD Dual channel VANC data analyzer for OSD applications

Relay bypass I/O:

- BHX27_2GM100:** I/O panel for 2GM100 or 2HM100 with relay bypass

Specifications

visit www.evs.com



Dual channel 3Gb/s, HD, SD integrity checking probe with optional clean audio (2×1) switch-over function

The GIX100-110 and HIX100-110 are dual channel high performance 3Gb/s, HD and SD SDI video and embedded audio probes (signal integrity monitor) with clean video switch-over function.

The switch function can be triggered by any of the integrity controls or by GPI. Besides the extensive probe functions, the cards also provide full line and frame synchronization on both inputs.

The '110' adds a smooth 16 channel audio change over with V-fade processing. An interesting feature is the ability to apply 4 individual sources and pre-route these signals to any of the main channels. This enables a back-up functionality beyond two channels and can be used for adding a third or fourth back-up channel.

- 4 free selectable inputs per probe input
- Clean back-up switching through built-in frame synchronizers (input formats need to be equal)
- Clean audio switch-over through V fade in '110'
- Tracking audio delay in '110'
- Output configuration of 2x main + 2x back-up or 4x main (in 2x2 mode, the back-up channel has no clean audio processing)
- Probe functions:
 - SDI carrier detect
 - TRS validation
 - ANC checksum validation
 - Video content freeze detection

- Video content black detection
- VANC WST and OP47 present detection
- Timecode availability
- Audio channel detection (16 channels)
- Audio silence detection (16 channels)
- Audio Clip/5 sample full-scale indication (16 channels)
- Dolby E present detection (with disable of V fade function in '110')
- An extensive probing matrix allows adjustment of individual classes of importance of the channels next to the main and back-up channels
- Test pattern generator as 5th source for emergency and test
- Quad Speed Audio ADD-ON bus for post fade audio processing ('110' only)
- Locks to Bi-level, Tri-level or SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Complementary cards for '110' model:

- DLA41, DLA42, DLA43, DLA44, DIO88, DBD18

Applications

- The GIX can be used as station output card, and ingest quality control card or a generic 2 x 2 switch
 - The integrity checking can also be performed for alarm monitoring purposes with the switch function disabled
 - Generic probing with automatic back-up switching
 - Multi input back-up capability allows for complex back-up routing in multi platform environments
 - **GIX110:** Dual channel 3Gb/s, HD, SD enhanced integrity checking probe with switch-over function and clean audio switching
 - **HIX110:** Dual channel HD, SD enhanced integrity checking probe with switch-over function and clean audio switching
- Standard I/O:**
- **BPH17_GIXxxx:**
I/O panel for G-HIXxxx
- Relay bypass I/O:**
- **BHX17b_GIXxxx:**

Standard I/O:

- **BPH17_GIXxxx:**
I/O panel for G-HIXxxx

Relay bypass I/O:

- **BHX17b_GIXxxx:**
I/O panel for G-HIXxxx
with relay bypass

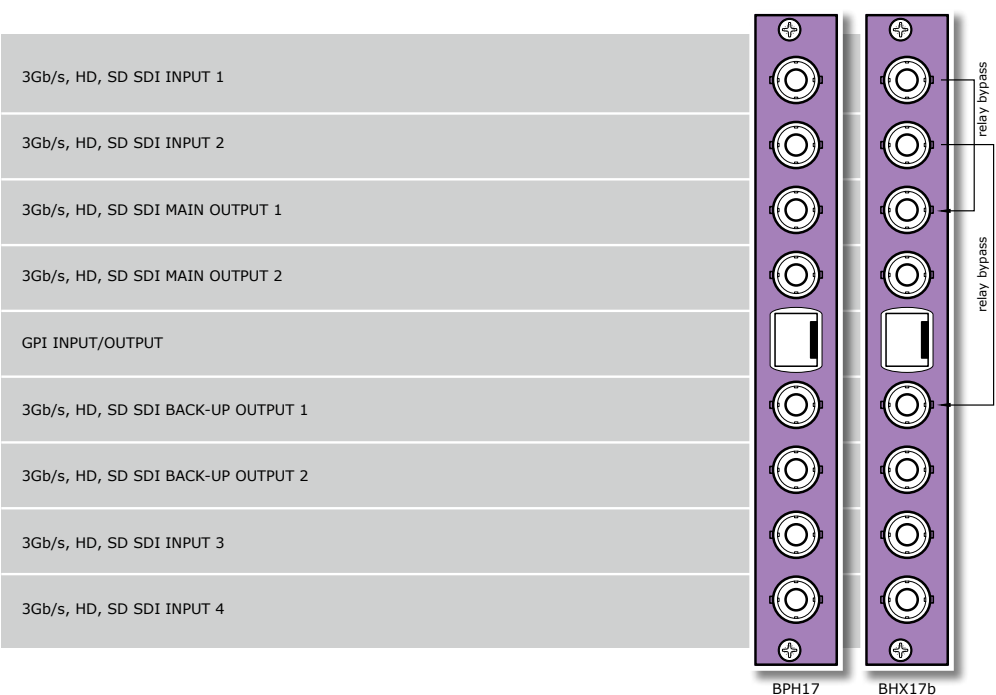
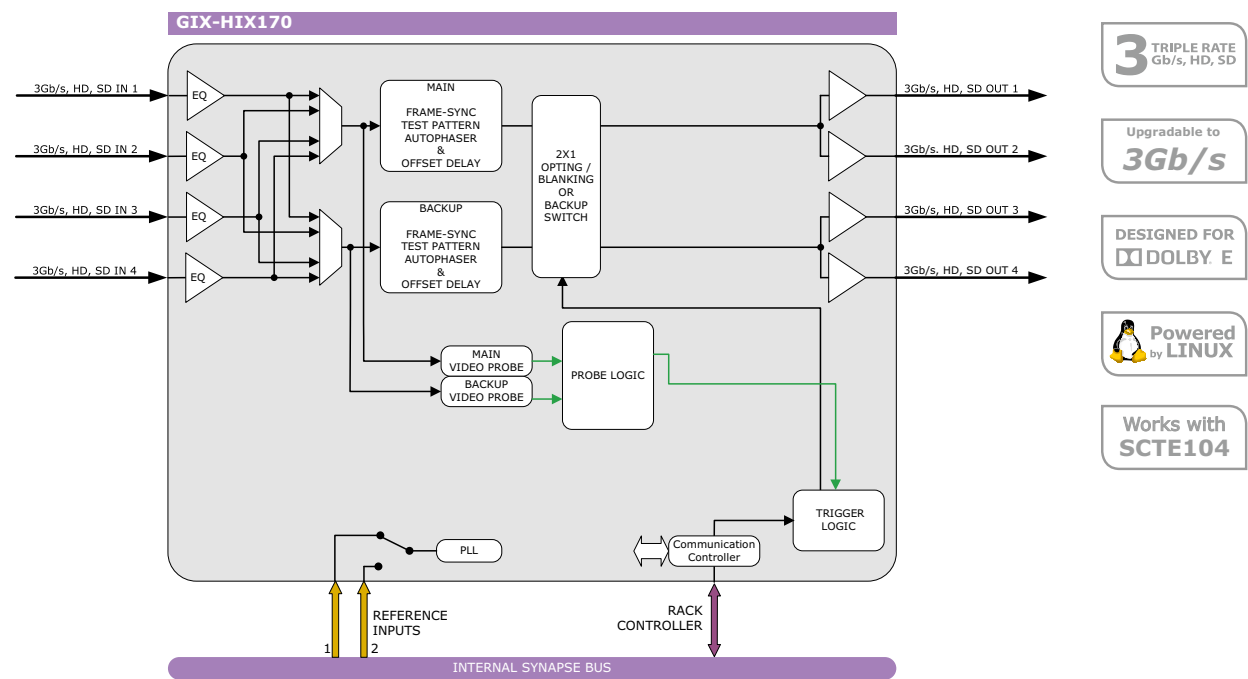
ordering information

Modules:

- **GIX100:** Dual channel 3Gb/s, HD, SD enhanced integrity checking probe with switch-over function
- **HIX100:** Dual channel HD, SD enhanced integrity checking probe with switch-over function

Specifications

visit www.evs.com



Dual channel 3Gb/s, HD, SD integrity checking probe with SCTE104 (WHP296) compatibility

The GIX170 and HIX170 are dual channel high performance 3Gb/s, HD and SD SDI video and SCTE104 probes (signal integrity monitor) with opting, blanking or backup video switch-over function.

The switch function can be triggered by any of the integrity controls. Besides the extensive probe functions, the cards also provide full line and frame synchronization on both inputs.

An interesting feature is the ability to apply 4 individual sources and pre-route these signals to any of the main channels. This enables a backup functionality beyond two channels and can be used for adding a third or fourth backup channel.

The core capacity of the GIX/HIX170 is the ability to switch on SCTE104 (WHP296) triggers or the absence of them as outlined below. When not used as SCTE104 switch, the card reverts to a 2x1 backup function without SCTE probing.

- 4 free selectable inputs per probe input
- Clean back-up switching through built-in frame synchronizers (input formats need to be equal)
- Output configuration: 4x main

- Probe functions:
 - SCTE104 triggers (refer to our website for specifics)
 - SDI carrier detect
 - TRS validation
 - ANC checksum validation
- An extensive probing matrix allows adjustment of individual classes of importance of the channels next to the main and back-up channels
- Test pattern generator as 5th source for emergency and test
- Quad Speed Audio ADD-ON bus (monitoring only)
- Locks to Bi-level, Tri-level or SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Complementary cards for '110' model:

- DLA41, DLA42, DLA43, DLA44, DIO88, DBD18

Applications

- The GIX170 can be used as station output card, and ingest quality control card or a generic 2 x 1 switch.
- The integrity checking can also be performed for alarm monitoring purposes with the switch function disabled.
- Generic probing with automatic back-up switching
- Multi input backup capability allows for complex backup routing in multi platform environments

ordering information

Modules:

- **GIX170:** Dual channel 3Gb/s, HD, SD enhanced integrity checking probe with SCTE104 compatibility
- **HIX170:** Dual channel HD, SD enhanced integrity checking probe with SCTE104 compatibility

Standard I/O:

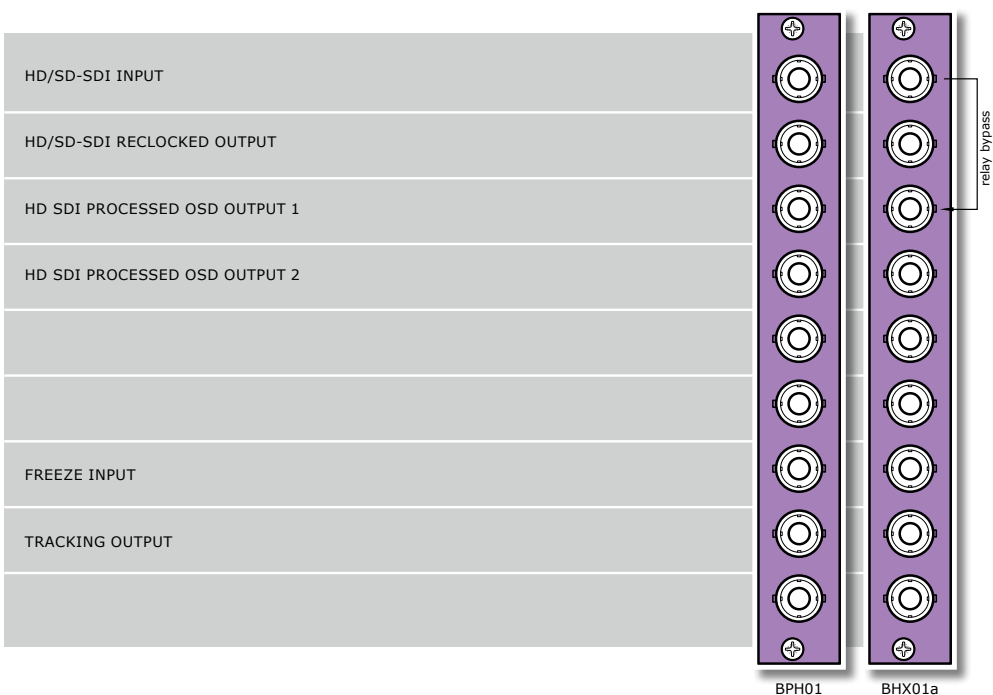
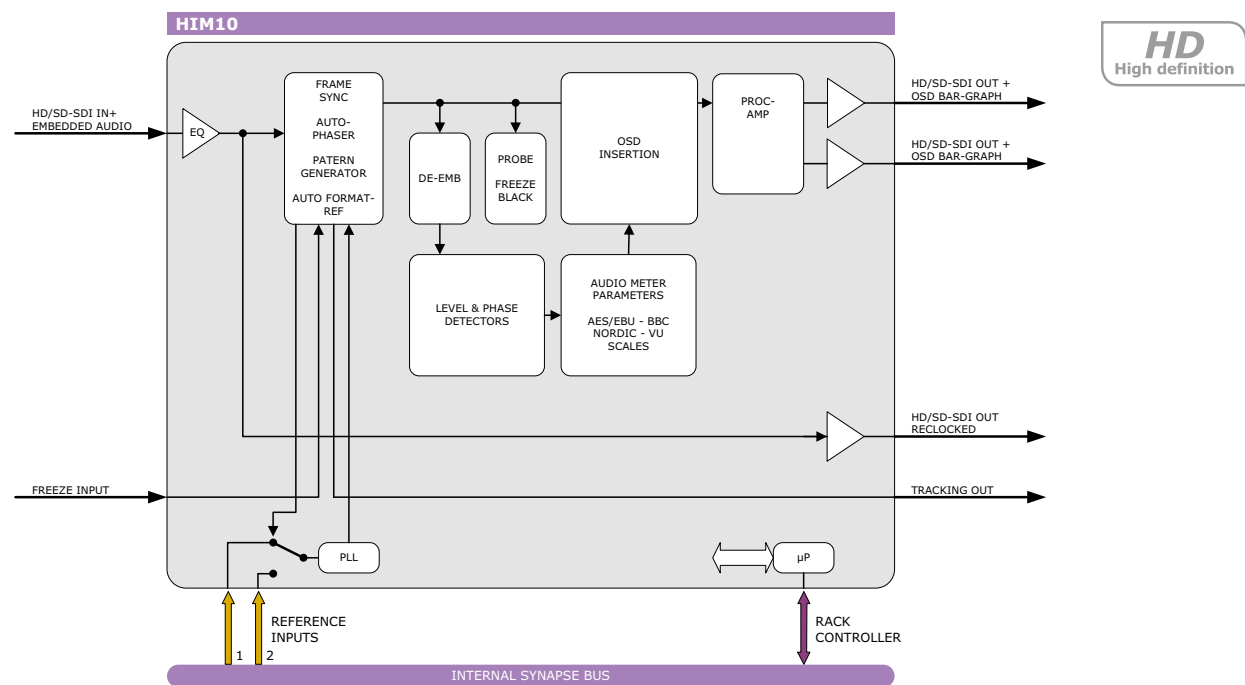
- **BPH17_GIX170:** I/O panel for G-HIX170

Relay bypass I/O:

- **BHX17b_GIX170:** I/O panel for G-HIX170 with relay bypass

Specifications

visit www.evs.com



HD, SD integrity checking/probe with audio and phase OSD bargraph insertion

The HIM10 is an HD/SD integrity checking probe with OSD audio level and phase bargraphs. The input can detect loss of input, freeze frame and black level. It is based on a full functioning frame synchronizer with auto phasing capabilities (linesynchronizer). The OSD bargraph features up to 4 audio levels where each bar can be any of the 16 embedded audio channels. The two phase meters show the phase between the bars 1 and 2, and between bar 3 and 4.

- Full HD/SD frame synchronizer
- Compatible with the following standards:
 - 1080i59.94 ■ 1080p23.98 ■ 720p25
 - 1080i50 ■ 720p59.94 ■ 720p23.98
 - 1080p29.97 ■ 720p50 ■ SD525
 - 1080p25 ■ 720p29.97 ■ SD625
- Synchronize, delay and free-run modes
- Locks to Bi-level and Tri-level syncs
- Offset H and V adjustment
 - Up to 2199 pixels H
 - Up to 1124 lines V
- Manual freeze
- GPI freeze
- Field and frame freeze modes
- On input loss display Freeze, Black, Grey or Green
- Built-in ProcAmp with individual controls for Y, Cr, Cb, Y-Black, Cb-Black, Cr-Black
- Line lock mode for better auto-phasing
- Selectable ANC blanking of H, V or H&V
- Delay status information
- Switch status information
- Embedded audio locking to embedded audio clock or video clock
- 4 free selectable OSD audio level bargraphs
- Masked or transparent bargraphs
- AES/EBU, BBC, Nordic and VU scales
- Picture freeze and black detection between 1 and 4000 frames
- Adjustable thresholds for freeze and black (allows for detection of noisy signals)
- Audio silence detection with adjustable time (1-255 sec) and level (-20 to -100 dBFs)
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

The HIM10 can be used as an active probe in an ingest or lines centre. The unit can also perform audio level and phase insertion (OSD) for use in a lines centre, control room and OB Van applications.

Ordering information

Module:

- **HIM10:** HD/SD integrity checking/probe with audio and phase OSD bargraph insertion

Standard I/O:

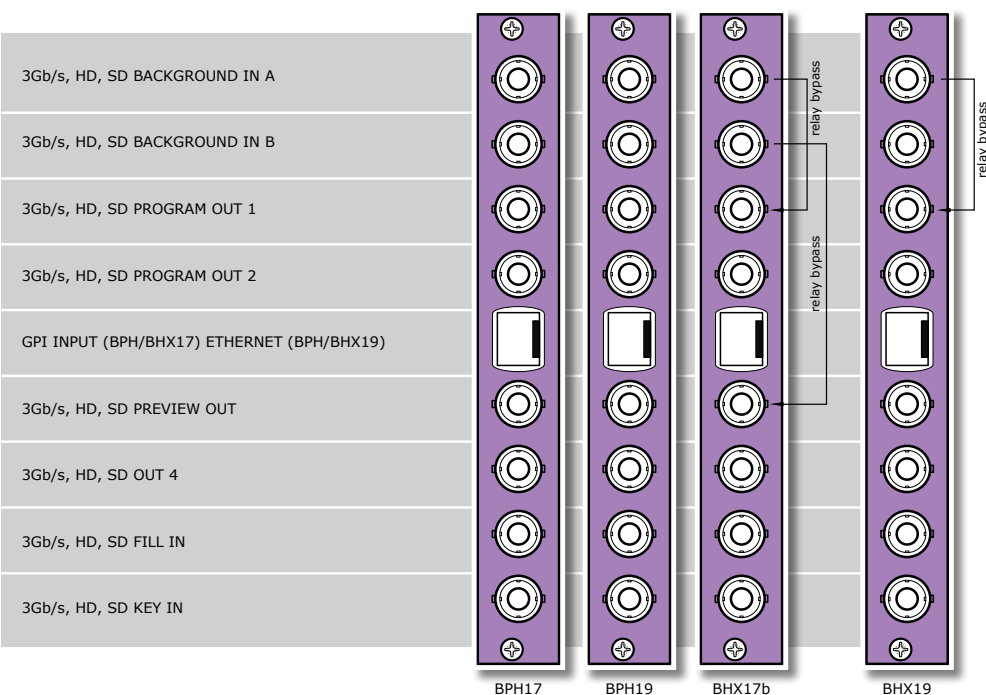
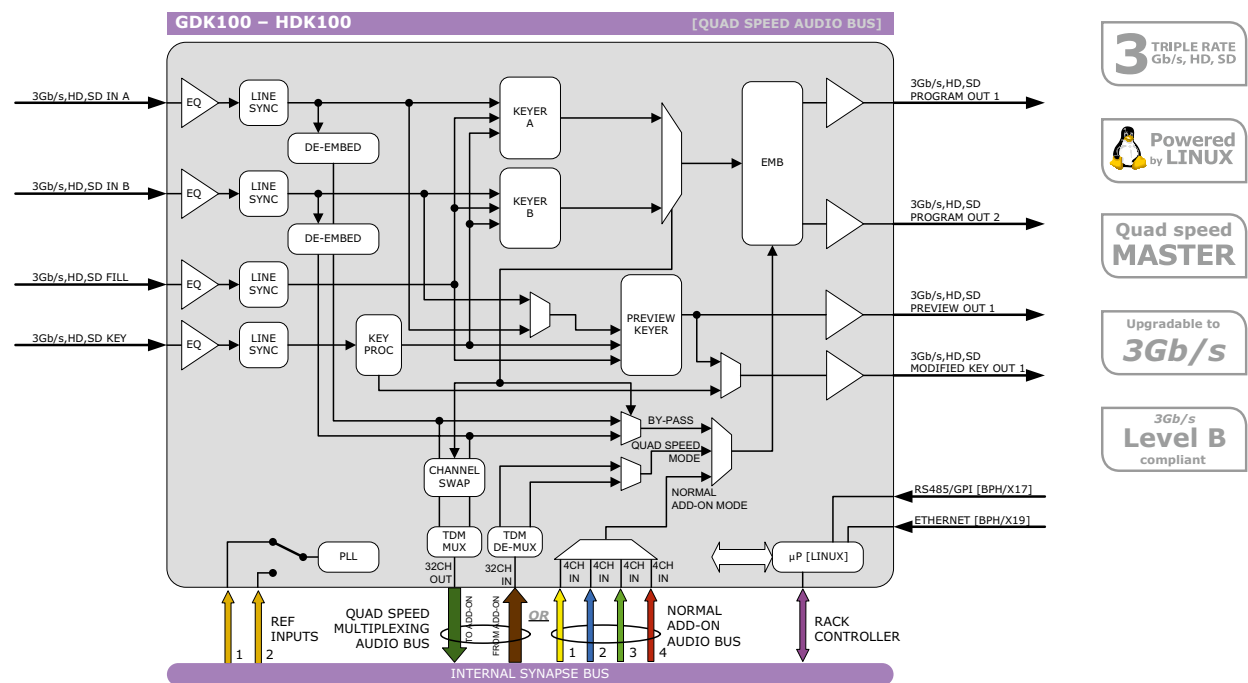
- **BPH01_HIM10:** I/O panel for HIM10

Relay bypass I/O:

- **BHX01_HIM10:** I/O panel for HIM10 with relay bypass

Specifications

visit www.evs.com



Dual background input 3Gb/s, HD, SD downstream keyer

The G/HDK100 is a keyer module for the Synapse system. This module has 4 triple rate (SD, HD, 3Gb/s) inputs: 2 background inputs, 1 fill input and 1 key input. It also has 4 triple rate outputs: 2 program outputs, 1 preview output and a user definable output (program, preview or modified key output). Depending on the connector panel you have either Ethernet (for easy and fast card upgrading) or GPI control (over RJ45).

The GDK is compatible with SD-SDI (270Mb/s), HD-SDI (1.5Gb/s) and 3Gb/s for full 1080p50 or 1080p59.94 use. The HDK is compatible with SD-SDI and HD-SDI and can be future upgraded to 3Gb/s compatibility.

- 2 selectable background inputs
- Key input
- Fill input
- Self key
- The 4th output can be software configured for any output task: program, preview or modified key output
- Adjustable slice level and transparency (with definable modified key monitor output)
- Preview output for content verification prior to go on air
- Transparent for 16 channels of embedded audio
- Transparent for all ANC data
- Compatible with the following input formats (1080p50/60 only for GDK, 1080 and 720 only for HDK/GDK):
 - 1080p59.94
 - 1080p50
 - 1080i59.94
 - 1080i50
 - 1080p29.97
 - 1080p25
 - 1080p23.98
 - 720p59.94
 - 720p50
 - 720p23.98
 - 720p29.97
 - SD525
 - SD625
- Depending on the connector panel you have either Ethernet or GPI control.
 - GPI with BPH17 or BHX17b
 - Ethernet with BPH19 or BHX19 (for fast updates)
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Complementary cards:

- DAC20, DAC24, DAS24, DIO48, ADC20, ADC24, DIO24, DLA44, DLA43

Applications

- The G/HDK100 can be used as a downstream keyer for external logo generated keying and other graphical overlay keying

BHX19_GDK100:

I/O panel for G-HDK100 with Ethernet with relay bypass

Specifications

visit www.evs.com

Ordering information

Module:

- GDK100:** 3Gb/s, HD, SD downstream keyer with dual background input
- HDK100:** HD, SD downstream keyer with dual background input

Standard I/O:

- BPH17_GDK100:** I/O panel for G-HDK100 with GPI
- BPH19_GDK100:** I/O panel for G-HDK100 with Ethernet

Relay bypass I/O:

- BHX17b_GDK100:** I/O panel for G-HDK100 with GPI with relay bypass

3Gb/s, HD keyer, mixer with dual 2D DVE

For the GDK/HDK200 block schematic please refer to the the next page.

The GDK/HDK200 are advanced keyer platforms for use in transmission applications. Especially where a full MASTER control unit is overkill these cards can be a cost and space saving alternative. These units have 4 triple rate (all SD, HD, 3Gb/s capable) inputs: 2 background inputs, 1 fill input and 1 key input. It also has 4 triple rate outputs: 2 program outputs and 2 preview outputs. Depending on the connector panel you have either Ethernet (for easy and fast card upgrading) or GPI control (over RJ45).

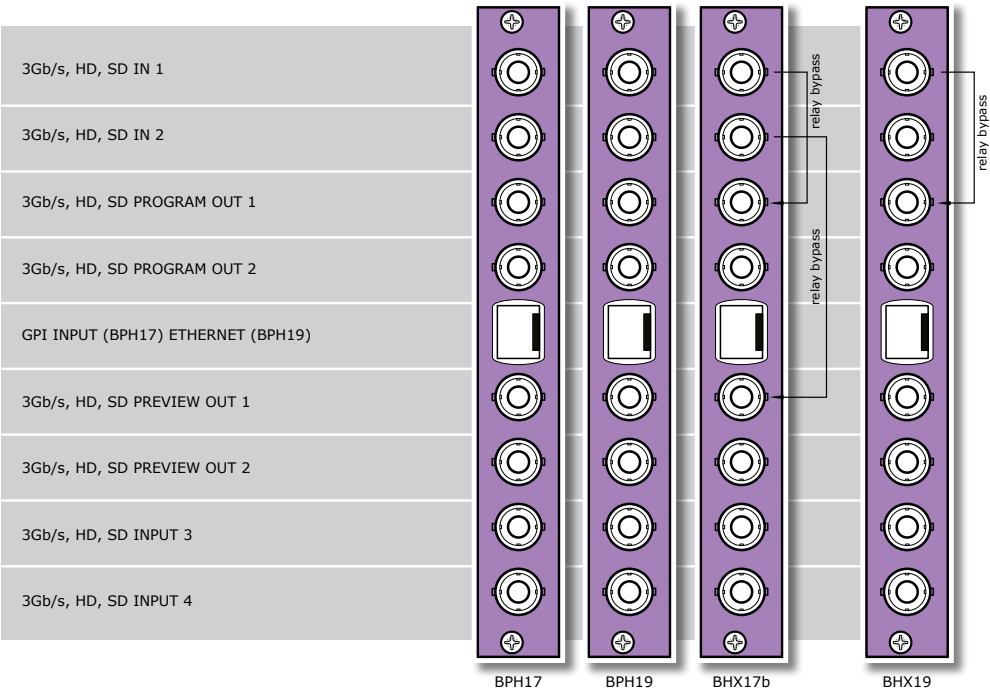
The GDK/HDK200 are not designed for external 3rd party control protocols. The units can be used with GPI's, and Cortex 'soft' control panels. Of course is 3rd party control via ACP possible.

The GDK is compatible with SD SDI, HD SDI and 3Gb/s SDI (for 1080p50 or 1080p59.94 use). The HDK is compatible with SD-SDI and HD-SDI and can be future upgraded to 3Gb/s compatibility.

- 2 selectable background inputs
- Key input
- Fill input
- Self key
- 2x 2D DVE
- Advanced routing capabilities for flexible program/production applications
- Mix engine with speed and transition adjustments
- Adjustable slice level and transparency (with definable modified key monitor output)
- Preview output with transition preview for content verification prior to go on air
- Transparent for 16 channels of embedded audio
- Transparent for all ANC data
- Quad Speed audio bus for enhanced external audio applications
- Compatible with the following input formats (1080p50/60 only for GDK, 1080 and 720 only for HDK/GDK):
 - 1080p59.94 ■ 1080p25 ■ 720p25
 - 1080p50 ■ 1080p23.98 ■ 720p23.98
 - 1080i59.94 ■ 720p59.94 ■ SD525
 - 1080i50 ■ 720p50 ■ SD625
 - 1080p29.97 ■ 720p29.97
- Depending on the connector panel you have either Ethernet or GPI control.
 - GPI with BPH17 or BHX17b
 - Ethernet with BPH19 or BHX19 (for fast updates)
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Complementary cards:

- DLA44, DLA43, DLA42, ADC24 and DIO24 (for Voice Over functions)



Applications

- The GDK/HDK200 can be used as an entry level program output processor for basic program channels
- Production (3Gb/s) mixer/2D-DVE for life applications like sports events

BHX19_GDKxxx:

I/O panel for G-H-SDKxxx with Ethernet with relay bypass

Specifications

visit www.evs.com

Ordering information

Module:

- **GDK200:** 3Gb/s, HD, SD keyer/mixer with 2D DVE
- **HDK200:** HD, SD keyer/mixer with 2D DVE

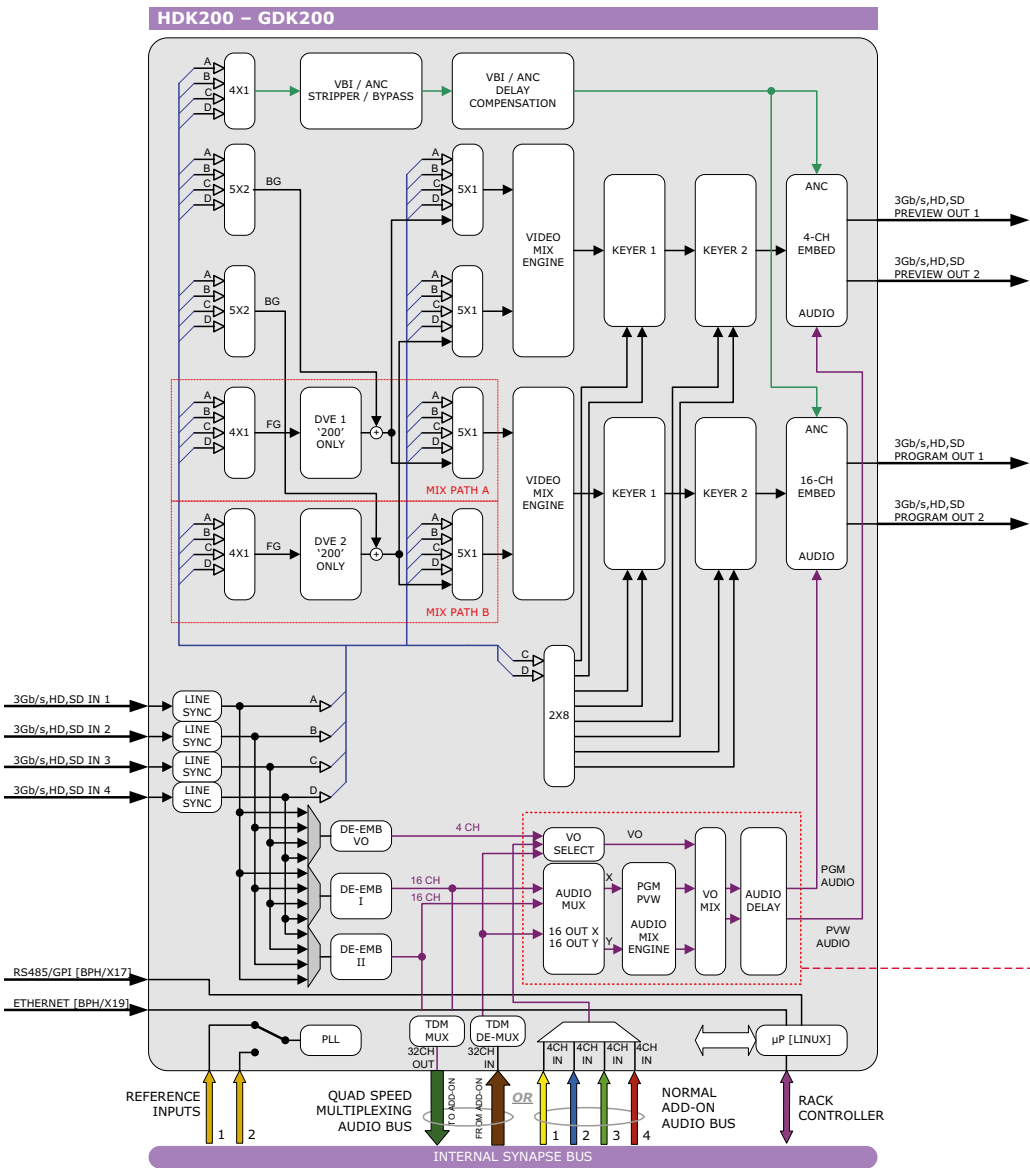
Standard I/O:

- **BPH17_GDKxxx:** I/O panel for G-H-SDKxxx with GPI
- **BPH19_GDKxxx:** I/O panel for G-H-SDKxxx with Ethernet

Relay bypass I/O:

- **BHX17b_GDKxxx:** I/O panel for G-H-SDKxxx with GPI with relay bypass

3Gb/s, HD keyer, mixer with dual 2D DVE



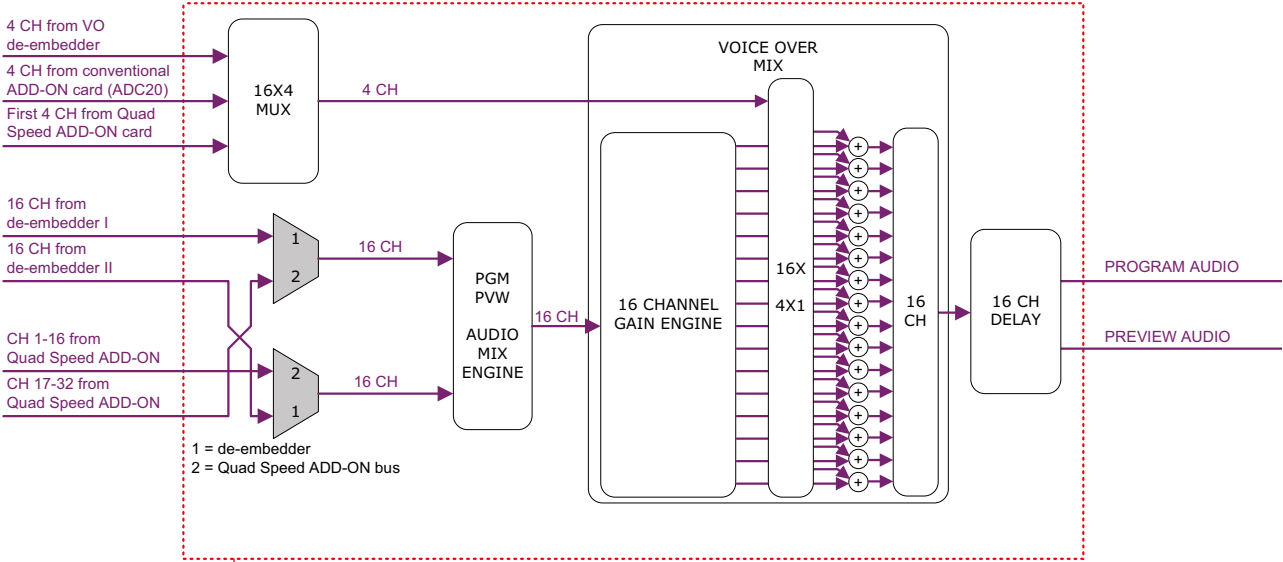
3 TRIPLE RATE
Gb/s, HD, SD

Powered
by
LINUX

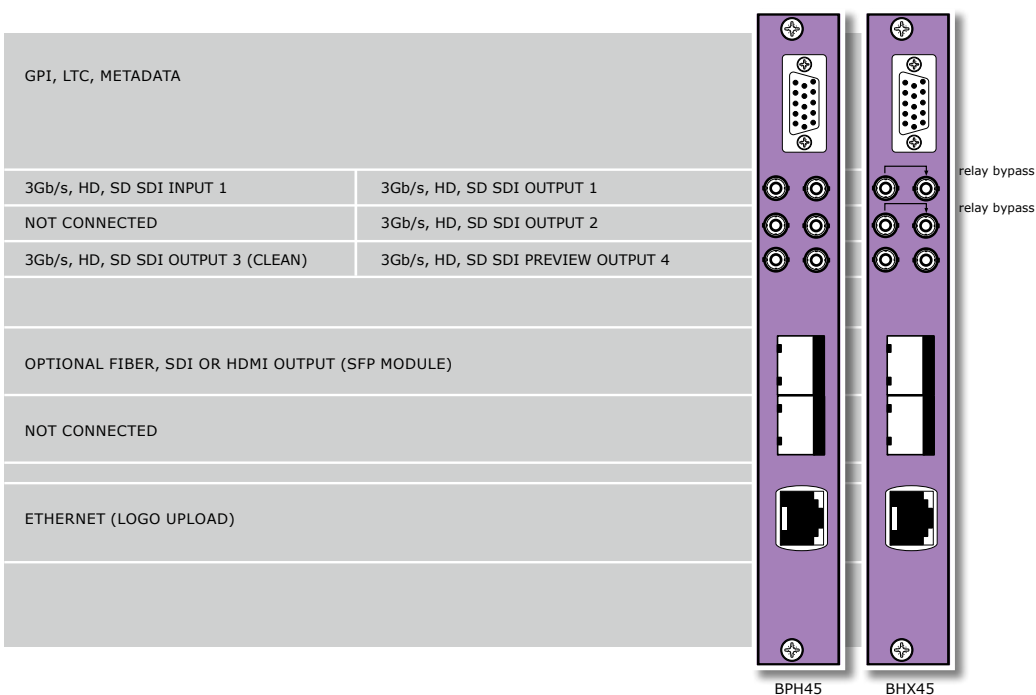
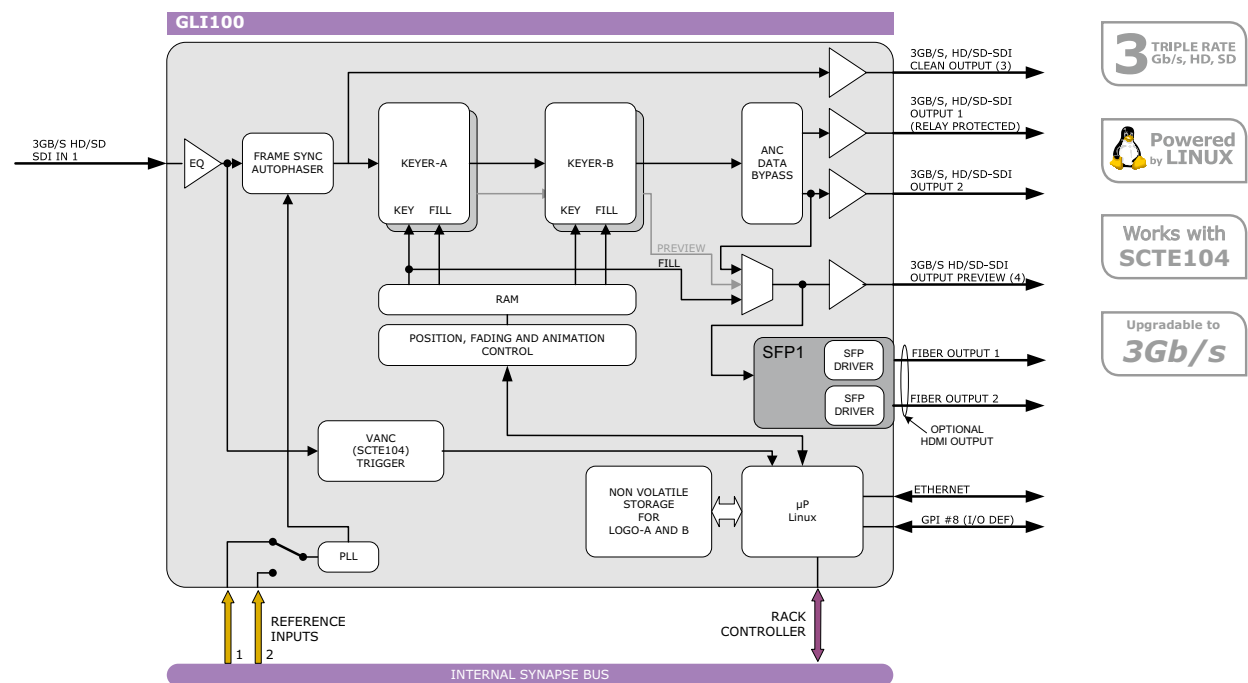
Quad speed
MASTER

Upgradable to
3Gb/s

3Gb/s
Level B
compliant



The product description, feature summary and ordering information of the GDK/HDK150 and GDK/HDK200 can be found on the previous page.



3Gb/s, HD, SD SDI preset based dual logo inserter

The HLI/GLI100 are dual logo inserters, with a preset based logo recall function through a flexible user interface and a local storage. Multiple logos including animated ones can be selected through the synapse menu, GPI, or triggered by VANC (SCTE104) data contained the input. The HLI/GLI100 is capable of inserting two logos and will be used for channel branding with the option to alter the main channel logo on the fly, preset based and simultaneously add a "theme logo" that is triggered as a one shot with predefined fade in and fade out times.

The HLI/GLI100 is capable of generating logos to be inserted by other devices and can be configured to provide Key and Fill. It has a fully featured preview bus allowing transitions and keying levels to be previewed before the logo or audio placed into the program stream.

Intelligent Content Allocation ensures efficient use of image RAM. For full frames, the area of interest is automatically detected up to 20 percent of the screen surface. This increases animation duration from 100 for full frames (1920x1080) to 500 frames (20% area of 1920x1080).

- 3Gb/s, HD and SD SDI compatible
- Formats: 1080p50/59.94 (GLI models only), 1080i50/59.94, 720p50/59.94 SD625/50, SD525/59.94
- Logo inserter or generator mode (key and fill output)
- Two individual logo inserters

- Logos are stored in onboard non-volatile memory and accessible through FTP or WebDAV
- Logo A: 32 presets for full screen 1920x1080, or a maximum 500 frames of animation
- Logo B: Sharing the memory allocated for Logo A, Logo B has an additional 32 presets for full screen 1920x1080, or maximum 500 frames of animation
- Horizontal and vertical positioning
- Transparency settings
- Fade in and fade out time
- Macro: fade in, hold, fade out and animation, 1 time or loop
- Frame-sync and autophaser for stable input locking
- On loss of input, show freeze, color field or recall apology preset on processed output
- Clean output from frame-synchronizer
- Optional HDMI or Fiber output on SFP cage
- 8 GPIO contacts assignable to presets, including optional take and priority mode.
- Trigger information contained in VANC (SCTE104) packets on SDI input can be used to recall logos
- Input video format and presence can be detected and used in conjunction with GPIs, VANC (SCTE104) information to select banks of logos, the specific logo from each range is determined by the information contained in the other trigger signals.
- Safety relay bypass when using a BHX45
- Logo uploading through dedicated Ethernet port
- Locks to Bi-level, Tri-level syncs or SDI input
- Full control and status monitoring through the front panel of the frame and via the Ethernet port (ACP)

Applications

- Channel branding
- Full screen static announcements
- Animations and dynamic theme logos

Ordering information

Module:

- **HLI100:** HD, SD SDI preset based dual logo inserter
- **GLI100:** 3Gb/s, HD, SD SDI preset based dual logo inserter

Standard I/O:

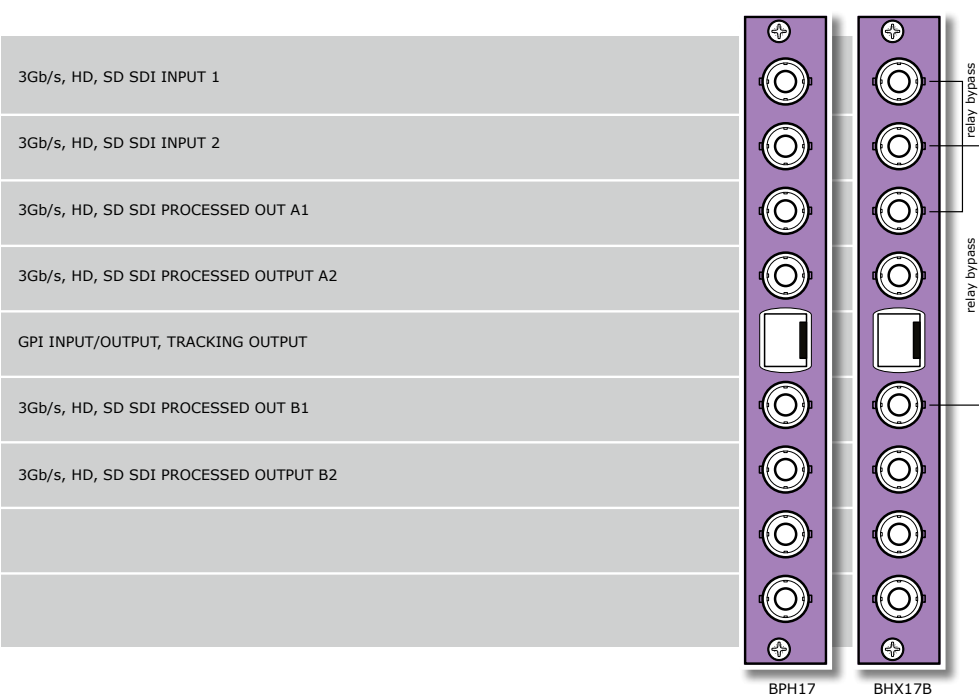
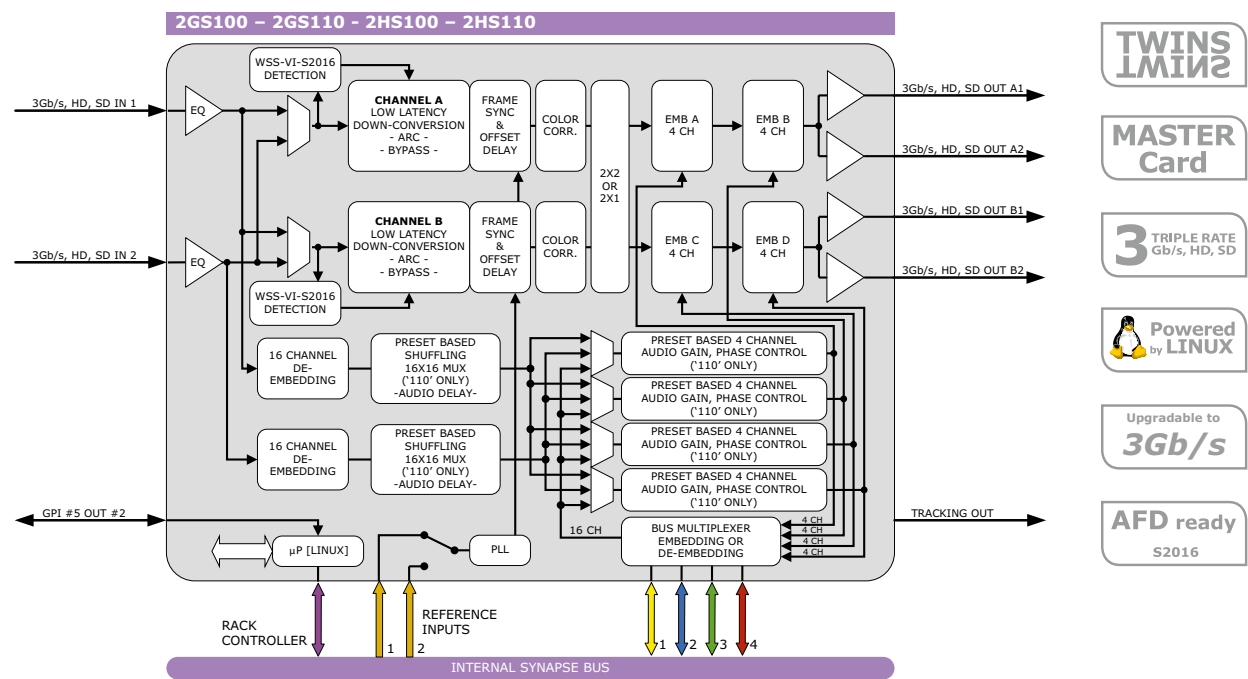
- **BPH45_GLI100:** I/O panel for GLI100

Relay bypass I/O:

- **BHX45_GLI100:** I/O panel with relay bypasses for GLI100

Specifications

visit www.evs.com



Dual channel 3Gb/s, HD, SD down-converter with color corrector and optional cross input audio shuffler

The 2GS100/110 and 2HS100/110 are dual channel high-quality down converters. The optimized scaling and filter algorithms ensure crisp broadcast ready pictures from a native 3Gb/s or HD source, by use of a 64 tap FIR filters. The embedded audio is carried over to the SD domain. The appropriate aspect ratio can be applied by control of S2016 and GPI inputs by use of 16 presets per output that can store the aspect ratio conversions.

The 2HS110 and 2GS110 are also very powerful cross-input audio shufflers and ProcAmps. With the 110 models you can de-embed 2x8 channels out of any of the 16 embedded audio channels of both HD/SD inputs and shuffle these channels. This means you can combine embedded audio channels from input 1 and embedded audio channels from input 2 in your SD outputs. The embedded audio is carried over to the SD domain.

The 2GS100/110 is compatible with SD, HD and 3Gb/s SDI (for full 1080p50 or 1080p59.94 use). The 2HS100/110 is compatible with SD and HD SDI (1.5Gb/s) and can be future upgraded to 3Gb/s compatibility

- 3 inputs: 2 SDI and 1 composite
- Configurable output function (straight, crossed, A only or B only)
- Low latency conversion process: as low as 1 field in controlled timing environment
- 5 GPI inputs assignable to various preset banks
- ARC triggers by S2016 (AFD)

- Compatible with the following input formats (auto selecting) (1080p50/60 only for 2GS100/110):
 - 1080p59.94 ■ 1080p25 ■ 720p25
 - 1080p50 ■ 1080p23.98 ■ 720p23.98
 - 1080i59.94 ■ 720p59.94 ■ SD525
 - 1080i50 ■ 720p50 ■ SD625
 - 1080p29.97 ■ 720p29.97
- Output standards: SD625 or SD525 (only one standard can be chosen for both outputs simultaneously)
- framesync with output phase control in frames, lines and pixels with respect to reference. Delay setting are stored per output format for a constant latency operation
- 30 Frames (1080i/p), 60 frames (720p) or 125 frames (SD) delay offset per channel
- All ARC modes contain:
 - Anamorphic ■ V-Zoom ■ PBox 4:3/14:9
 - Center Cut ■ LBox 16:9/14:9 ■ Variable H and V
- 16 Free individual programmable presets banks for:
 - Down-converter ARC A and B
 - Transparent ARC A and B
 - VI/WSS/AFD insertion A and B
 - Shuffling/gain/phase (110 only)
- Individual RGB color correctors for video channels A and B
- Transparent for 8 channels of embedded audio per channel
- Embedded domain cross input audio shuffling, gain and phase control (2GS/2HS110 only)
- Embedding and de-embedding through synapse bus
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- High quality low latency up-conversion (with zero motion artifacts) for 2 channels
- Free running fill-in camera positions up-conversion and synchronization
- Combining embedded audio channels of 2 inputs into 1 (2HS110 and 2GS110 only)

Standard I/O:

- **BPH17_2GSxxx:** I/O panel for 2GS-HSxxx

Relay bypass I/O:

- **BHX17b_2GSxxx:** I/O panel for 2GS-2HSxxx with relay bypass

Specifications

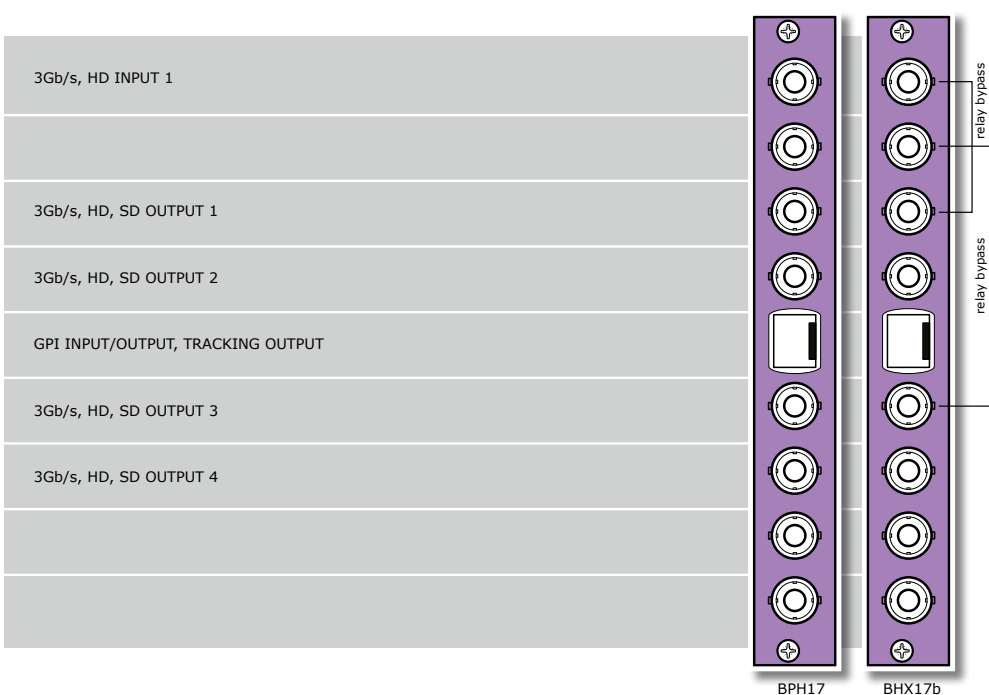
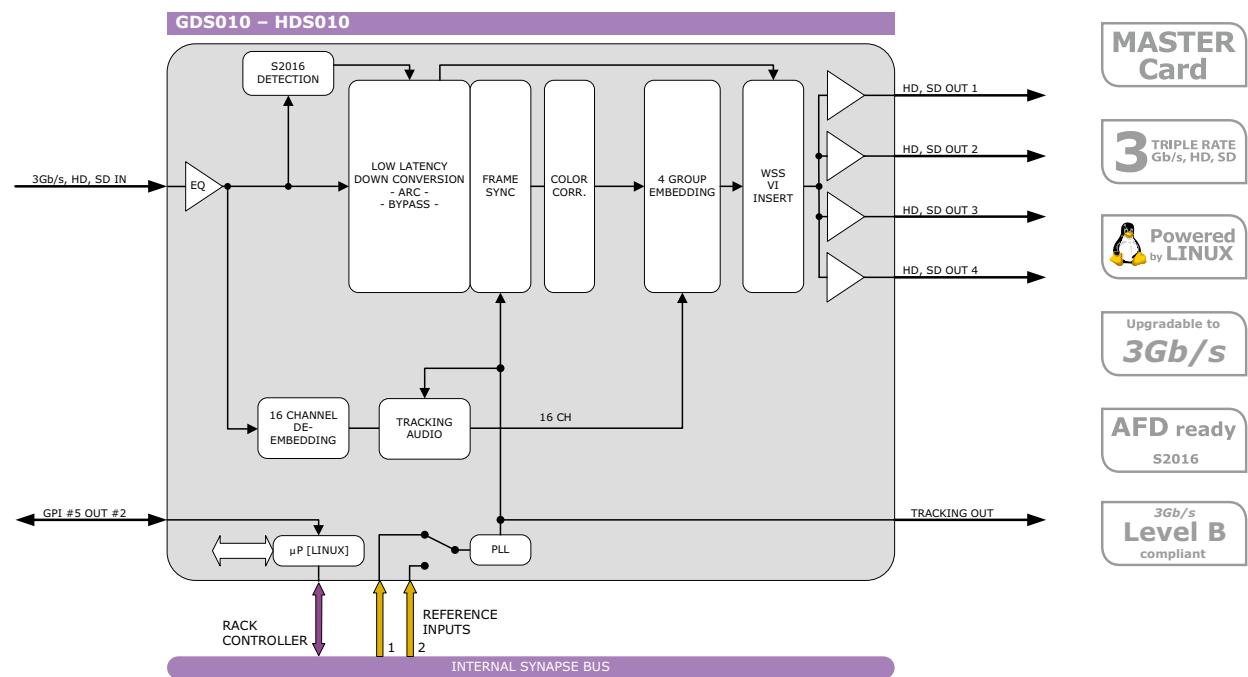
visit www.evs.com

Ordering

information

Module:

- **2GS100:** Dual channel 3Gb/s up-converter with color corrector
- **2GS110:** Dual channel 3Gb/s up-converter with color corrector with cross input audio shuffler
- **2HS100:** Dual channel HD up-converter with color corrector
- **2HS110:** Dual channel HD up-converter with color corrector with cross input audio shuffler



3Gb/s, HD, SD basic down-converter/synchronizer

The GDS010 and HDS010 are low latency down-converters with 16 channel audio transparency.

The GDS010 is compatible with SD, HD and 3Gb/s SDI (for full 1080p50 or 1080p59.94 use). The HDS010 is compatible with SD and HD SDI and can be future upgraded to 3Gb/s compatibility.

- Low latency conversion process (as low as 1 field in controlled timing environment)
- Compatible input (auto selecting) and output formats (1080p50/60 only for GDS010):
 - 1080p59.94 1080p25 720p29.97
 - 1080p50 1080p23.98 720p25
 - 1080i59.94 1035i/59.94 720p23.98
 - 1080i50 720p59.94 SD525
 - 1080p29.97 720p50 SD625
- Framesync with output phase control lines and pixels with respect to reference
- All ARC modes contain:
 - Anamorphic V-Zoom PBox 4:3/14:9
 - Center Cut LBox 16:9/14:9 Variable H and V
- 16 Free individual programmable presets banks for:
 - Down-converter ARC
 - VI insertion
 - WSS insertion
 - S2016 insertion
- 5 GPI inputs assignable to various preset banks
 - Down-conversion aspect ratio
 - Insertion of VI, WSS, AFD (S2016)
- ARC triggers by VI, WSS, WSSext and S2016 (AFD)
- Transparent for 16 channels of embedded audio
- Hue control for NTSC inputs
- OP47 translation into WST-B
- Color corrector (RGB and total gain, RGB and total black)
- Locks to Bi-level syncs or SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- Basic down-conversion with transparent audio

Ordering information

Module:

- GDS010:** 3Gb/s, HD, SD down-converter
- HDS010:** HD, SD down-converter

Standard I/O:

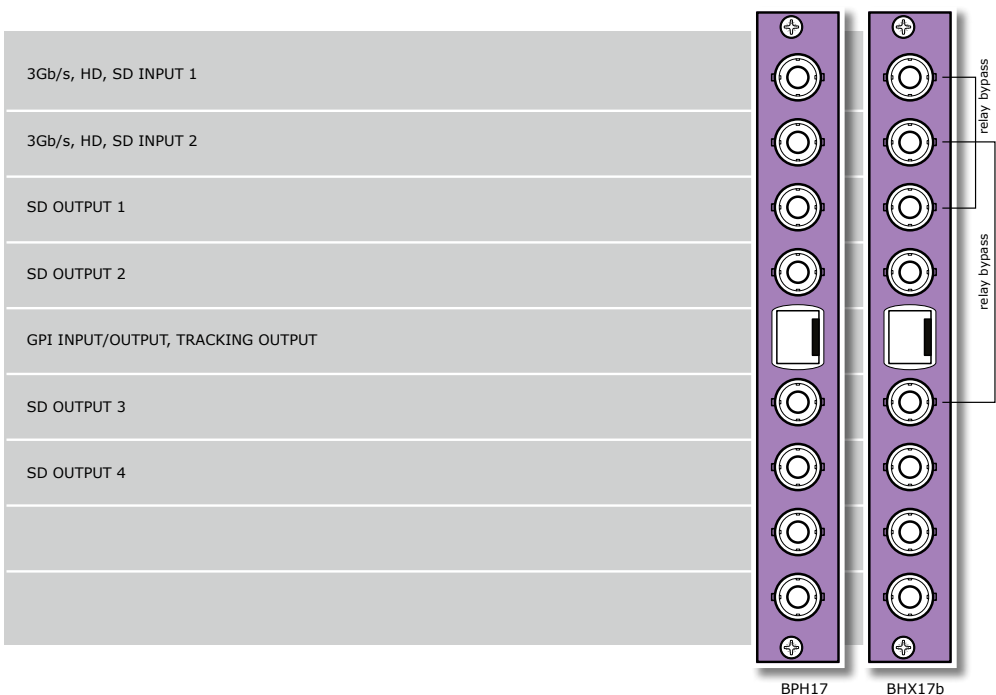
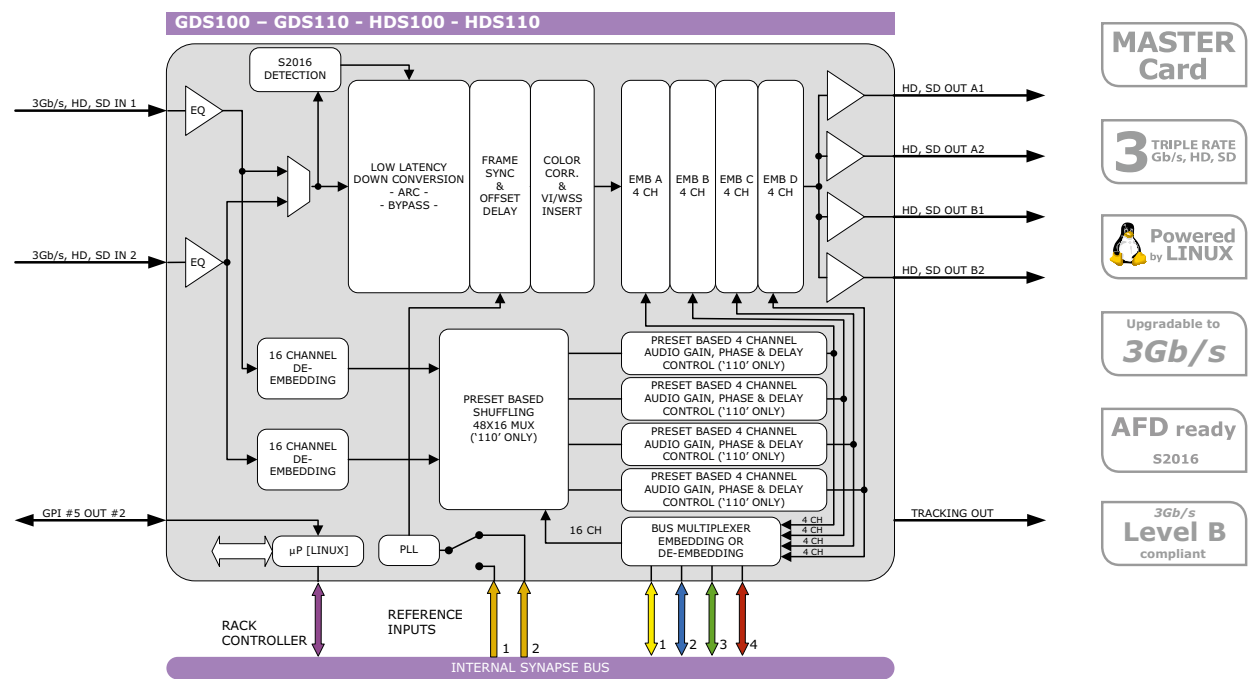
- BPH17_GDS010:** I/O panel for G-HDS010

Relay bypass I/O:

- BHX17b_GDS010:** I/O panel for G-HDS010 with back-up relay and RJ45 GPI I/O

Specifications

visit www.evs.com



3Gb/s, HD, SD down-converter/synchronizer with optional cross input audio shuffler

The GDS100/110 and GHS100/110 are high-quality down converters. The optimized scaling and filter algorithms ensure crisp broadcast ready pictures from a native 3Gb/s or HD source, by use of a 64 tap FIR filters. The appropriate aspect ratio can be applied by control of S2016 and GPI inputs by use of 16 presets per output that can store the aspect ratio conversions.

They are also very powerful cross-input audio shufflers and ProcAmps. With the 110 models you can de-embed 2x8 channels out of any of the 16 embedded audio channels of both HD and SD inputs and shuffle these channels. This means you can combine embedded audio from input 1 and from input 2 in your SD outputs. The embedded audio is carried over to the SD domain.

The GDS100/110 is compatible with SD, HD and 3Gb/s SDI (for full 1080p50 or 1080p59.94 use). The HDS100/110 is compatible with SD and HD SDI (1.5Gb/s) and can be future upgraded to 3Gb/s compatibility

- 2 SDI inputs
- Low latency conversion process (as low as 1 field in controlled timing environment)
- Compatible input (auto selecting) and output formats (1080p only for GDS100/110):
 - 1080p59.94 ■ 1080p25 ■ 720p25
 - 1080p50 ■ 1080p23.98 ■ 720p23.98
 - 1080i59.94 ■ 720p59.94 ■ SD525
 - 1080i50 ■ 720p50 ■ SD625
 - 1080p29.97 ■ 720p29.97

- Framesync with output phase control in frames, lines and pixels with respect to reference. Delay setting are stored per output format for a constant latency operation
- 30 Frames (1080i/p), 60 frames (720p) or 125 frames (SD) delay offset per channel
- 16 Free individual programmable presets banks for:
 - Down-converter ARC
 - Transparent ARC
 - VI/WSS/AFD insertion
 - Shuffling/gain/phase (110 only)
- 5 GPI inputs assignable to various preset banks
- All ARC modes contain:
 - Anamorphic ■ V-Zoom ■ PBox 4:3/14:9
 - Center Cut ■ LBox 16:9/14:9 ■ Variable H and V
- Color corrector (RGB and total gain, RGB and total black)
- Hue control for NTSC
- OP47 translation into WST-B
- Transparent for 16 channels of embedded audio
- Embedded domain cross input audio shuffling, gain and phase control (110 only)
- Embedding and de-embedding through synapse bus
- Locks to Tri-level, Bi-level or SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

- Complementary cards:**
- DAC20, DAC24, DAS24, DIO48, ADC20, ADC24, DIO24

Applications

- Transmission output down-conversion with back-up input

Ordering information

Module:

- **GDS100:** 3Gb/s, HD, SD down- converter
- **GDS110:** 3Gb/s, HD, SD down- converter with audio shuffler ProcAmp
- **HDS100:** HD, SD down-converter
- **HDS110:** HD, SD down-converter with audio shuffler ProcAmp

Standard I/O:

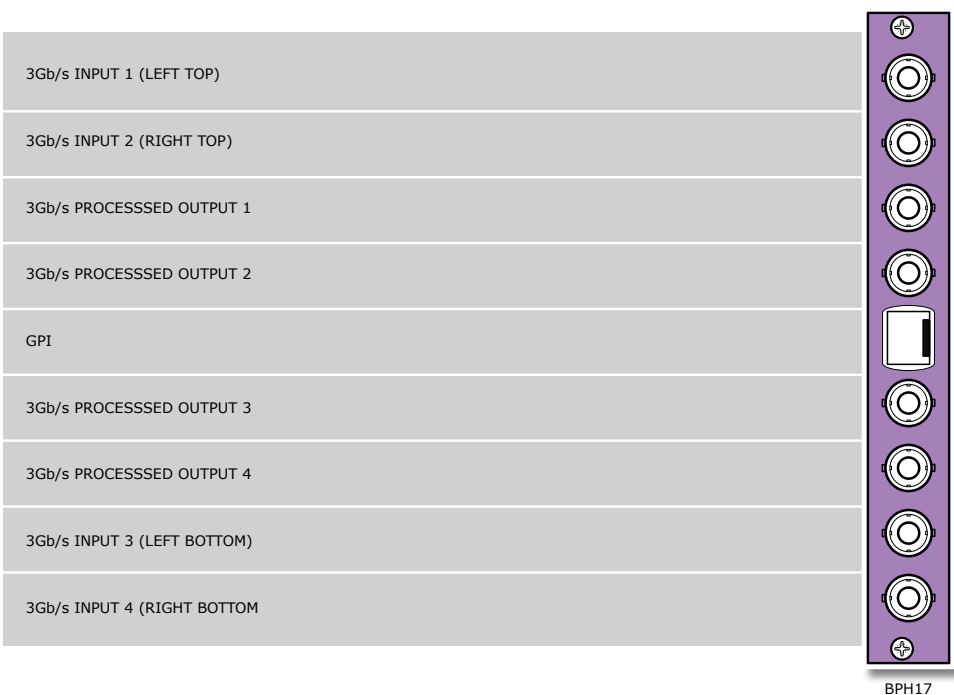
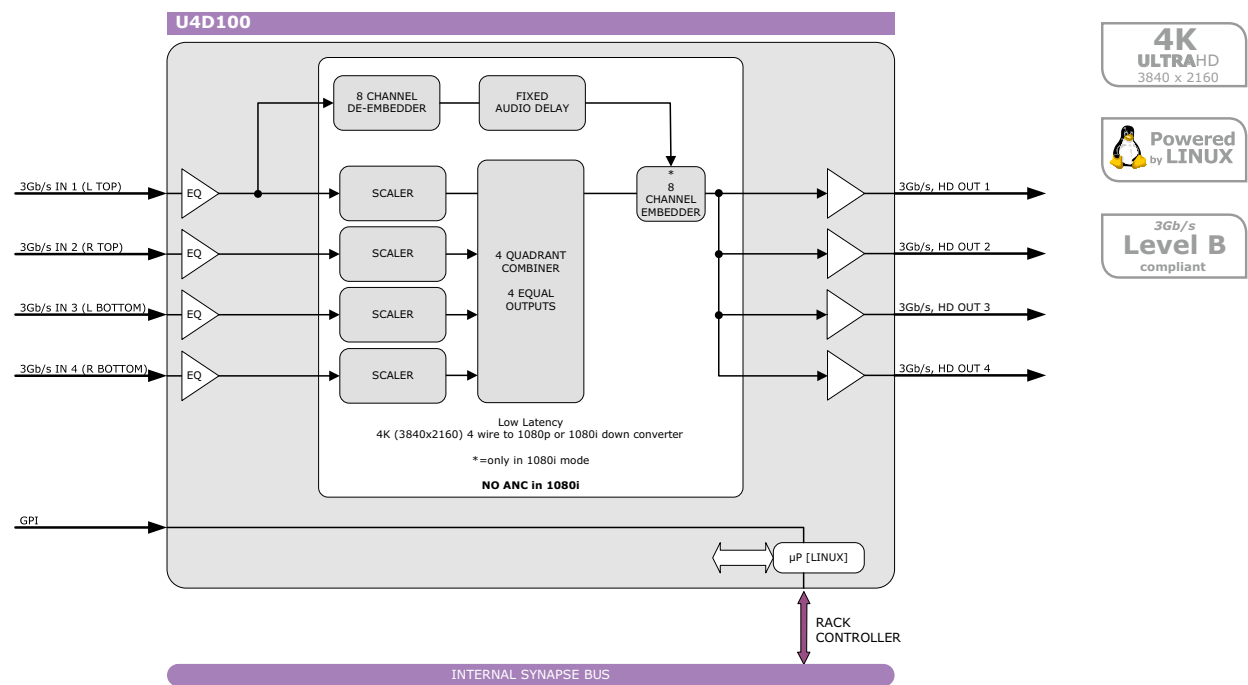
- **BPH17_GDSxxx:** I/O panel for G-HDSxxx

Relay bypass I/O:

- **BHX17b_GDSxxx:** I/O panel for G-HDSxxx with relay bypass

Specifications

visit www.evs.com



4K Ultra HD (3840 × 2160) 4 wire to 1080p or 1080i down converter

The U4D100 is a 4K (3840x2180), 4 wire, to 1080p down-converter. This low latency unit combines and filters the four quadrants into a 1080p (1920x1080) signal.

For the 1080p60 and 1080p50 standards the card is completely transparent for all the ANC data from input 1. For the other standards the card must be locked to input and is only transparent for 2 groups of audio.

- Four 1080p50/59.94 (level B compatible) inputs
- 4 outputs, equal signals (one 1080p50/59.94 output on all 4 outputs)
 - one 1080p50/59.94 signal on all 4 outputs (fully ANC transparent)
 - or one 1080i50/59.94 or 1080p25/29.97 signal on all 4 outputs with 4 groups of audio and no other ancilliary data (no ANC transparency!)
- Low latency (20ms @ 50Hz, 16.7ms @ 59.95Hz)
- 4K four wire (3840 x 2160)
- Compatible with 1080p50/59.94 inputs (auto selecting)
- Transparent for 16 channels of embedded audio
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- Down conversion from 4K production sets

Ordering information

Module:

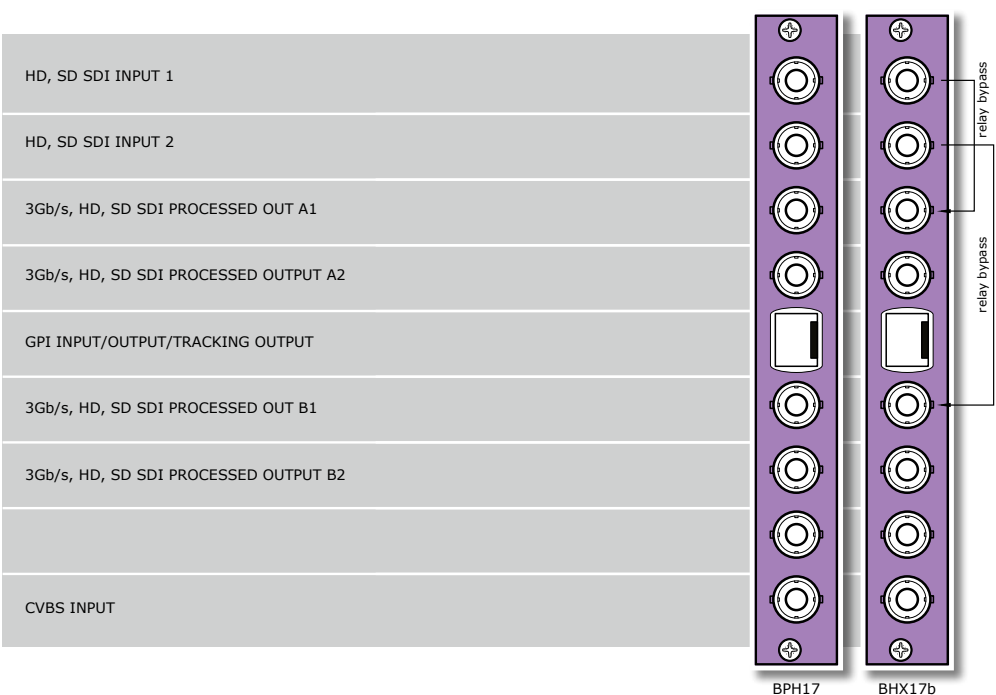
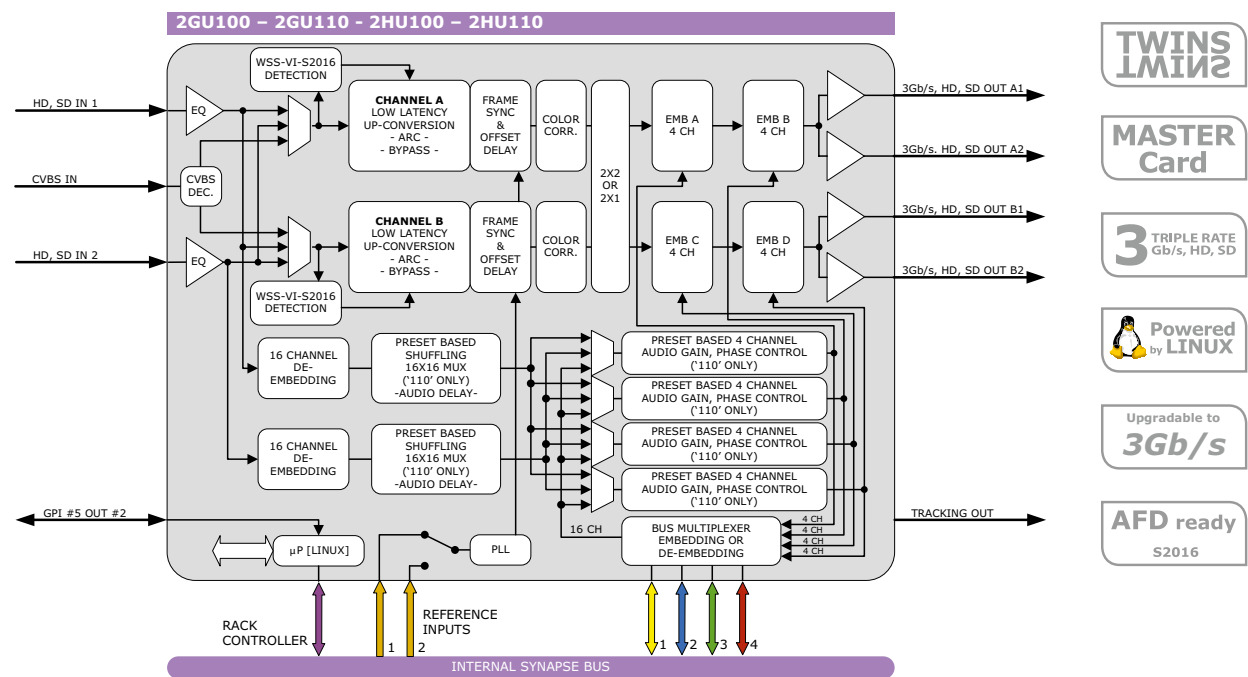
- **U4D100:** 4K Ultra HD (3840 x 2160) 4 wire to 1080p or 1080i down converter

Standard I/O:

- **BPH17_U4U100:** I/O panel for U4D100

Specifications

visit www.evs.com



Dual channel 3Gb/s, HD up-converter with color corrector and optional cross input audio shuffler

The 2GU100/110 and 2HU100/110 are dual channel high-quality up converters. The optimized scaling and filter algorithms ensure crisp broadcast ready pictures from a native SD or HD source, by use of a 64 tap FIR filters. The cards allow you to simulcast 2 HD or 3Gb/s signals from 2 native HD, SD or 1 CVBS and an SD infrastructure. The appropriate aspect ratio can be applied by control of VI, WSS and GPI inputs by use of 16 presets per output.

They are also very powerful cross-input audio shufflers and ProcAmps. With the 110 models you can de-embed 2x 8 channels out of any of the 16 embedded audio channels of both HD/SD inputs and shuffle these channels. This means you can combine embedded audio channels from input 1 and embedded audio channels from input 2 in your 3Gb/s (2GU), HD, SD outputs. The embedded audio is carried over to the HD or 3Gb/s domain.

The 2GU100/110 is compatible with SD, HD and 3Gb/s SDI (for full 1080p50 or 1080p59.94 use). The 2HU100/110 is compatible with SD and HD SDI and can be future upgraded to 3Gb/s compatibility

- 3 inputs: 2 SDI and 1 composite
- Configurable output mode (straight, crossed, A only, B only)
- Low latency conversion process: as low as 1 field in controlled timing environment
- 5 GPI inputs assignable to various preset banks
- ARC triggers by S2016 (AFD)
- Individual RGB color correctors for video channels A and B

- Compatible with the following input (auto selecting) and output formats (1080p50/60 only for 2GU100/110):
 - 1080p59.94 1080p25 720p25
 - 1080p50 1080p23.98 720p23.98
 - 1080i59.94 720p59.94 SD525
 - 1080i50 720p50 SD625
 - 1080p29.97 720p29.97
- One format can be chosen for both outputs simultaneously
- Framesync with output phase control in frames, lines and pixels with respect to reference. Delay setting are stored per output format for a constant latency operation
- 30 Frames (1080i/p), 60 frames (720p) or 125 frames (SD) delay offset per channel
- All ARC modes contain:
 - Anamorphic V-Zoom PBox 4:3/14:9
 - Center Cut LBox 16:9/14:9 Variable H and V
- 16 Free individual programmable presets banks for:
 - Up-converter ARC A and B
 - Transparent ARC A and B
 - AFD insertion A and B
 - Shuffling/gain/phase (110 only)
- Transparent for 8 channels of embedded audio per channel
- Embedded domain cross input audio shuffling, gain and phase control (110 only)
- Locks to Tri-level, Bi-level and SDI input
- Embedding and de-embedding through synapse bus
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

- Complementary cards:**
- DAC20, DAC24, DAS24, DIO48, ADC20, ADC24, DIO24

Applications

- High quality low latency up-conversion (with zero motion artifacts) for 2 channels
- Free running fill-in camera positions up-conversion and synchronization
- Combining embedded audio channels of 2 inputs into 1 (110 only)

Standard I/O:

- BPH17_2GUxxx:**
I/O panel for 2GU-2HUxxx

Relay bypass I/O:

- BHX17b_2GUxxx:**
I/O panel for 2GU-2HUxxx with relay bypass

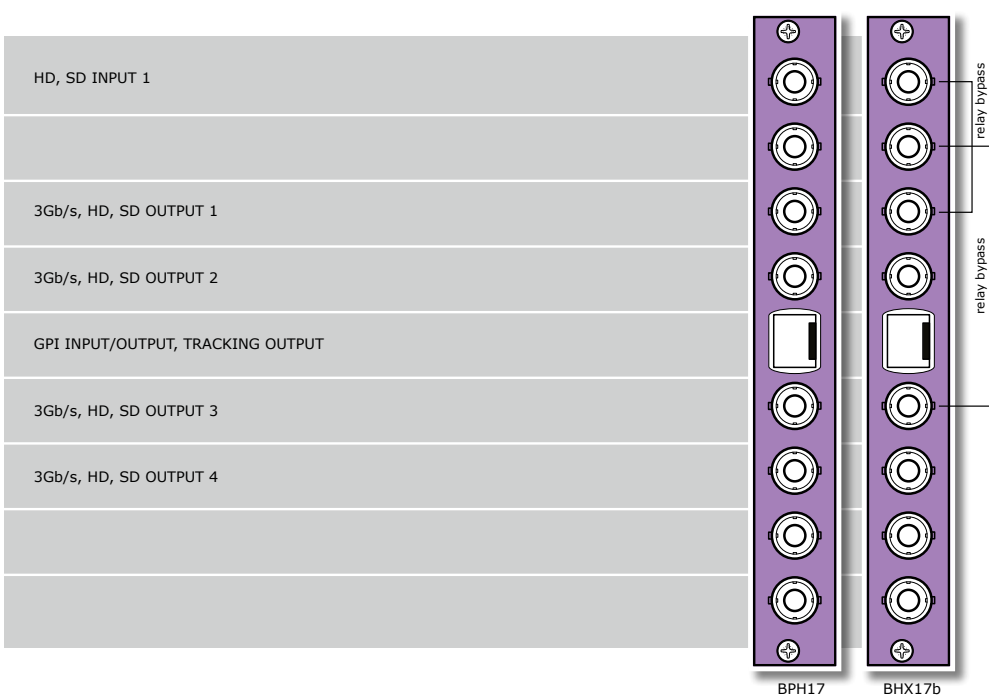
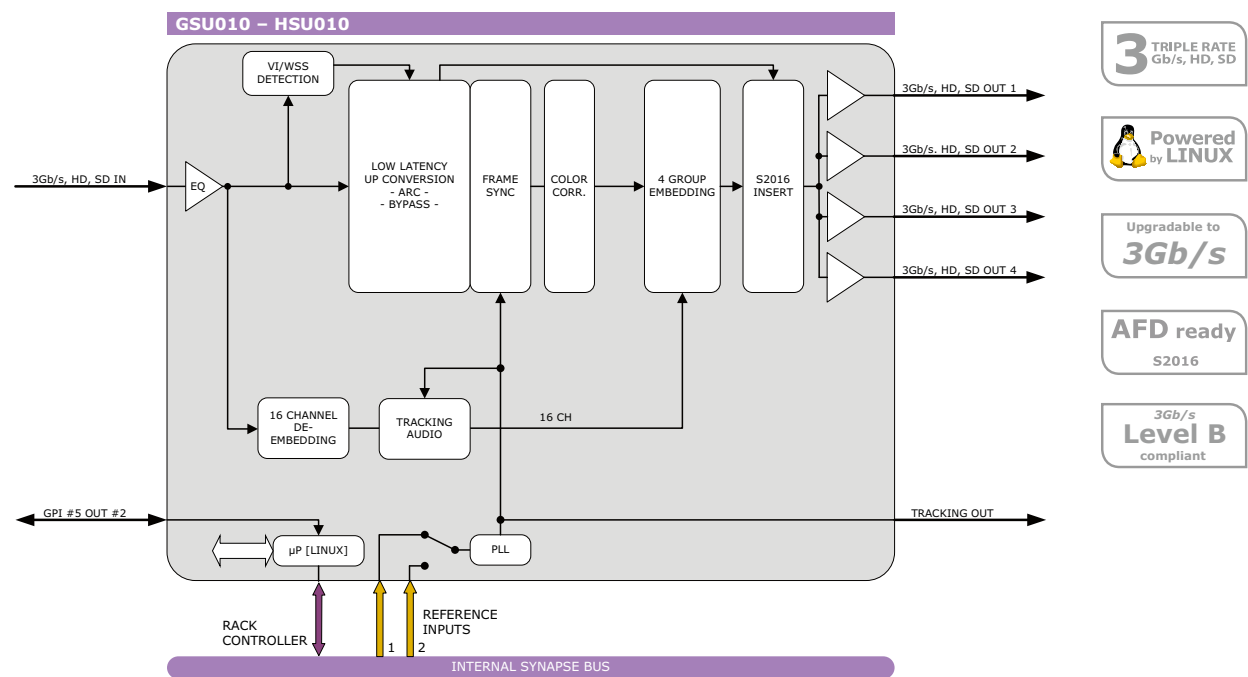
Specifications

visit www.evs.com

Ordering information

Modules

- 2GU100:** Dual channel 3Gb/s up-converter with color corrector
- 2GU110:** Dual channel 3Gb/s up-converter with color corrector with cross input audio shuffler
- 2HU100:** Dual channel HD up-converter with color corrector
- 2HU110:** Dual channel HD up-converter with color corrector with cross input audio shuffler



3Gb/s, HD, SD basic up-converter/synchronizer

The GSU010 and HSU010 are low latency up-converters with 16 channel audio transparency.

The GSU010 is compatible with SD, HD and 3Gb/s SDI (for full 1080p50 or 1080p59.94 use). The HDS010 is compatible with SD and HD SDI and can be future upgraded to 3Gb/s compatibility.

- Low latency conversion process (as low as 1 field in controlled timing environment)
- Compatible input (auto selecting) and output formats (1080p50/60 only for GSU010):
 - 1080p59.94 1080p25 720p25
 - 1080p50 1080p23.98 720p23.98
 - 1080i59.94 720p59.94 SD525
 - 1080i50 720p50 SD625
 - 1080p29.97 720p29.97
- Framesync with output phase control lines and pixels with respect to reference
- All ARC modes contain:
 - Anamorphic V-Zoom PBox 4:3/14:9
 - Center Cut LBox 16:9/14:9 Variable H and V
- 16 Free individual programmable presets banks for:
 - Up-converter ARC
 - Transparent ARC
 - S2016 insertion
- 5 GPI inputs assignable to various preset banks
 - Up-conversion ARC
 - Transparent ARC (when output is equal to input)
 - Insertion of AFD (S2016)
- ARC triggers by VI, WSS, WSSext and S2016 (AFD)
- Transparent for 16 channels of embedded audio
- Hue control for NTSC inputs
- WST-B translation into OP47
- Color corrector (RGB and total gain, RGB and total black)
- Locks to Bi-level syncs or SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- Basic up-conversion with transparent audio
- OB Van input up-converter/synchronizer
- Infrastructure up-converter

Ordering information

Module:

- GSU010:** 3Gb/s, HD, SD-SDI up-converter
- HSU010:** HD, SD-SDI up-converter

Standard I/O:

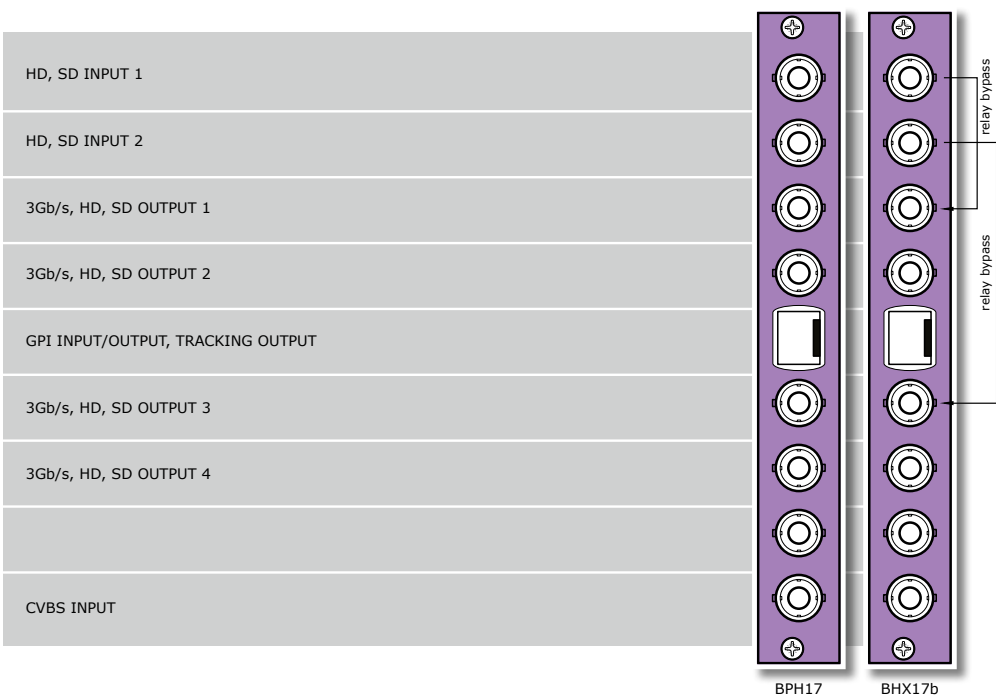
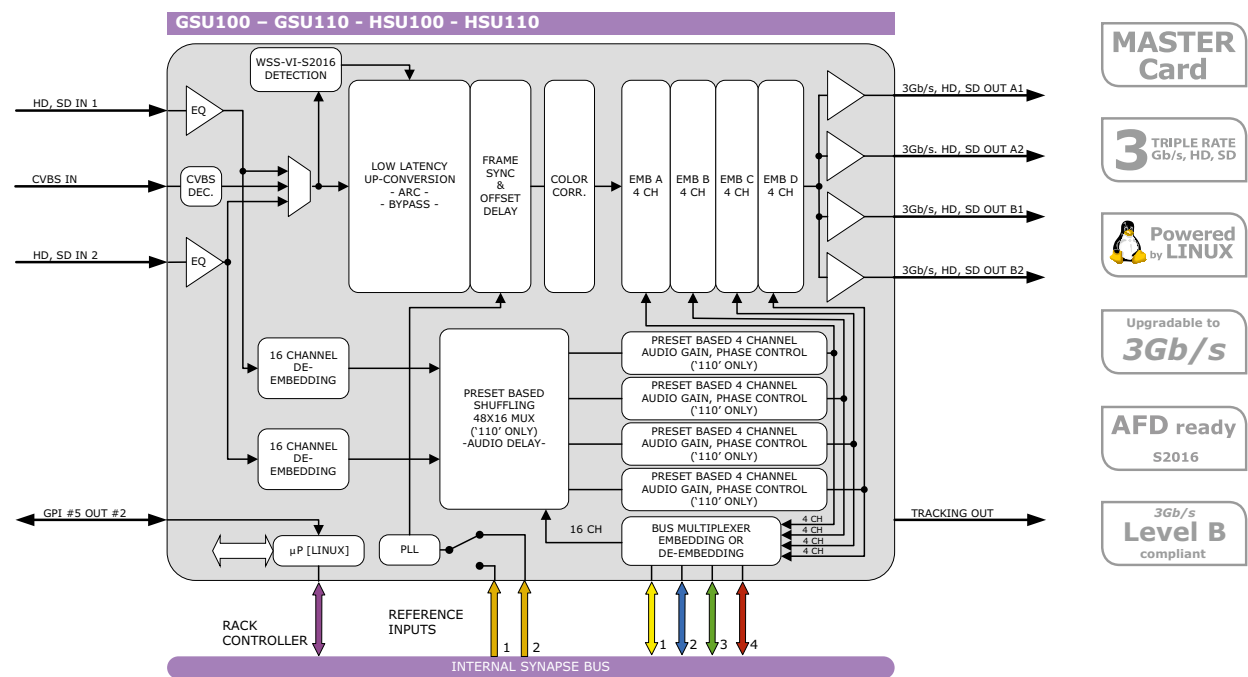
- BPH17_GSU010:** I/O panel for G-HSU010

Relay bypass I/O:

- BHX17b_GSU010:** I/O panel for G-HSU010 with relay bypass

Specifications

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3Gb/s, HD, SD UP-converter/synchronizer with optional cross input audio shuffler

The GSU100/110 and HSU100/110 are high-quality up converters. The optimized scaling and filter algorithms ensure crisp broadcast ready pictures from a native HD or SD source, by use of a 64 tap FIR filters. The appropriate aspect ratio can be applied by control of S2016 and GPI inputs by use of 16 presets per output that can store the aspect ratio conversions.

These are also very powerful cross-input audio shufflers and ProcAmps. With the 110 models you can de-embed 2x8 channels out of any of the 16 embedded audio channels of both HD and SD inputs and shuffle these channels. This means you can combine embedded audio from input 1 and from input 2 in your SD outputs. The embedded audio is carried over to the SD domain.

The GSU100/110 is compatible with SD, HD and 3Gb/s SDI (for full 1080p50 or 1080p59.94 use). The HSU100/110 is compatible with SD and HD SDI and can be future upgraded to 3Gb/s compatibility

- 3 input: 2 SDI and 1 composite
- Low latency conversion process (as low as 1 field in controlled timing environment)
- Compatible input (auto selecting) and output formats (1080p50/60 only for GSU100/110):
 - 1080p59.94 ■ 1080p25 ■ 720p25
 - 1080p50 ■ 1080p23.98 ■ 720p23.98
 - 1080i59.94 ■ 720p59.94 ■ SD525
 - 1080i50 ■ 720p50 ■ SD625
 - 1080p29.97 ■ 720p29.97

- Framesync with output phase control in frames, lines and pixels with respect to reference. Delay setting are stored per output format for a constant latency operation
- 30 Frames (1080i/p), 60 frames (720p) or 125 frames (SD) delay offset per channel
- 16 Free individual programmable presets banks for:
 - Up-converter ARC
 - Transparent ARC
 - S2016 (AFD) insertion
 - Shuffling/gain/phase (110 only)
- 5 GPI inputs assignable to various preset banks
- ARC triggers by VI, WSS, WSSext and S2016 (AFD)
- All ARC modes contain:
 - Anamorphic ■ V-Zoom ■ PBox 4:3/14:9
 - Center Cut ■ LBox 16:9/14:9 ■ Variable H and V
- Color corrector (RGB and total gain, RGB and total black)
- Hue control for NTSC inputs
- WST-B translation into OP47
- Transparent for 16 channels of embedded audio
- Embedded domain cross input audio shuffling, gain and phase control (110 only)
- Embedding and de-embedding through synapse bus
- Locks to Tri-level, Bi-level or SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

- Complementary cards:**
- DAC20, DAC24, DAS24, DIO48, ADC20, ADC24, DIO24

Applications

- OB Van input up-converter/synchronizer
- Infrastructure up-conversion

Ordering information

Module:

- **GSU100:** 3Gb/s, HD, SD SDI up-converter
- **GSU110:** 3Gb/s, HD, SD SDI up-converter with audio shuffler ProcAmp
- **HSU100:** HD, SD-SDI up-converter
- **HSU110:** HD, SD-SDI up-converter with audio shuffler ProcAmp

Standard I/O:

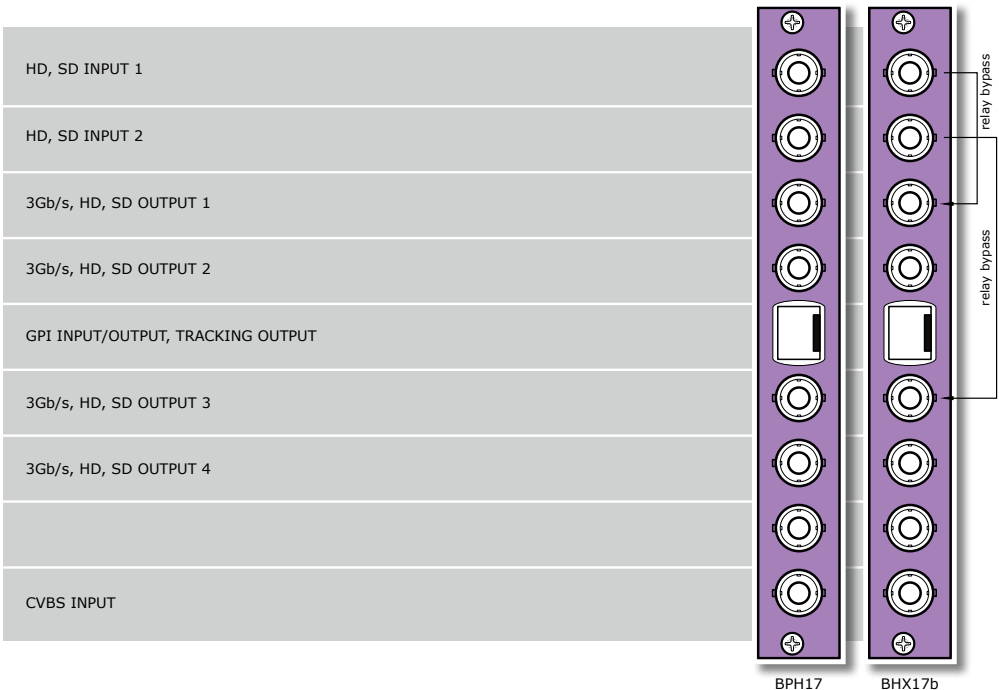
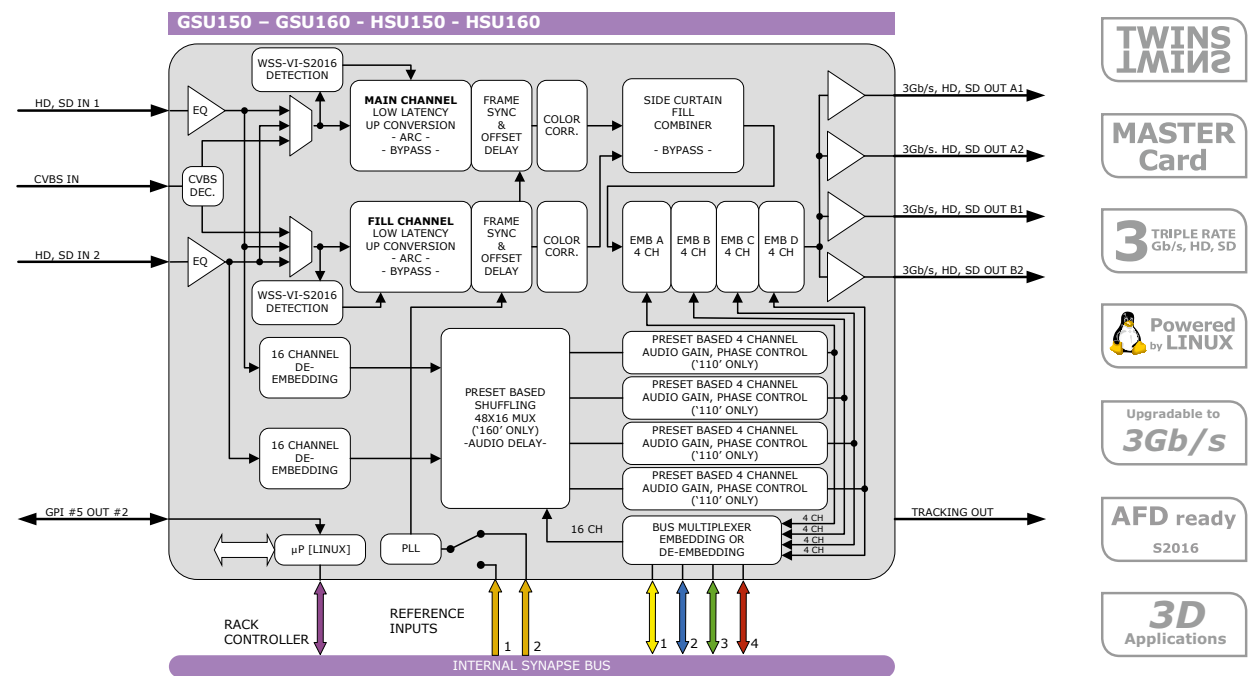
- **BPH17_GSUxxx:** I/O panel for G-HSUxxx

Relay bypass I/O:

- **BHX17b_GSUxxx:** I/O panel for G-HSUxxx with relay bypass

Specifications

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3Gb/s, HD, SD up-converter/synchronizer with side curtains and optional cross input audio shuffler

The GSU150/160 and HSU150/160 are high-quality up converters. The optimized scaling and filter algorithms ensure crisp broadcast ready pictures from a native HD or SD source, by use of a 64 tap FIR filters. The appropriate aspect ratio can be applied by control of S2016 and GPI inputs by use of 16 presets per output that can store the aspect ratio conversions.

Besides also being powerfull cross input audio shufflers and proc amps, the output stage of these cards can be configured in various ways. In straight and crossed mode the card acts as a dual channel (TWINS) card (audio transparency reduced to 8 channels). You can even mix/ lay-over input 1 and input 2 into one output feed with for instance a "side curtain" effect, a mix or side by side.

The GSU150/160 is compatible with SD, HD and 3Gb/s SDI (for full 1080p50 or 1080p59.94 use). The HSU150/160 is compatible with SD and HD SDI and can be future upgraded to 3Gb/s compatibility

- 3 input: 2 SDI and 1 composite
- Configurable output mode: straight, crossed, A only, B only, side curtains (adjustable), mix, or Side by Side (for 3D)
- Compatible input (auto selecting) and output formats (1080p50/60 only for GSU150/160):
 - 1080p59.94 ■ 1080p25 ■ 720p25
 - 1080p50 ■ 1080p23.98 ■ 720p23.98
 - 1080i59.94 ■ 720p59.94 ■ SD525
 - 1080i50 ■ 720p50 ■ SD625
 - 1080p29.97 ■ 720p29.97

- One standard can be chosen for both outputs simultaneously
- Framesync with output phase control in frames, lines and pixels with respect to reference. Delay setting are stored per output format for a constant latency operation
- 30 Frames (1080i/p), 60 frames (720p) or 125 frames (SD) delay offset per channel
- 16 Free individual programmable presets banks for:
 - Up-converter ARC
 - Transparent ARC
 - S2016 (AFD) insertion
 - Shuffling/gain/phase (160 only)
- 5 GPI inputs assignable to various preset banks
- ARC triggers by VI, WSS, WSSext and S2016 (AFD)
- All ARC modes contain:
 - Anamorphic ■ V-Zoom ■ PBox 4:3/14:9
 - Center Cut ■ LBox 16:9/14:9 ■ Variable H and V
- Individual RGB color corrector for channel A and B
- Hue control for NTSC inputs
- Transparent for 16 channels of embedded audio
- Embedded domain cross input audio shuffling, gain and phase control (160 only)
- Embedding and de-embedding through synapse bus
- Locks to Tri-level, Bi-level or SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

- Complementary cards:**
- DAC20, DAC24, DAS24, DIO48, ADC20, ADC24, DIO24

Applications

- OB Van input up-converter/synchronizer
- Infrastructure up-conversion
- Up-conversion with side-fill/curtain input

Specifications

visit www.evs.com

Ordering information

Module:

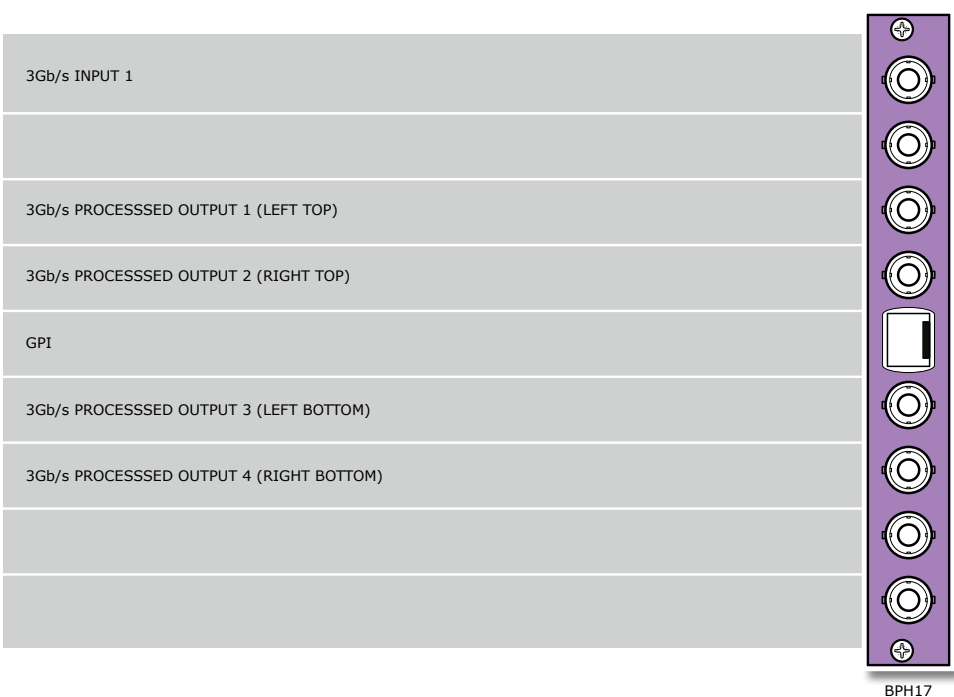
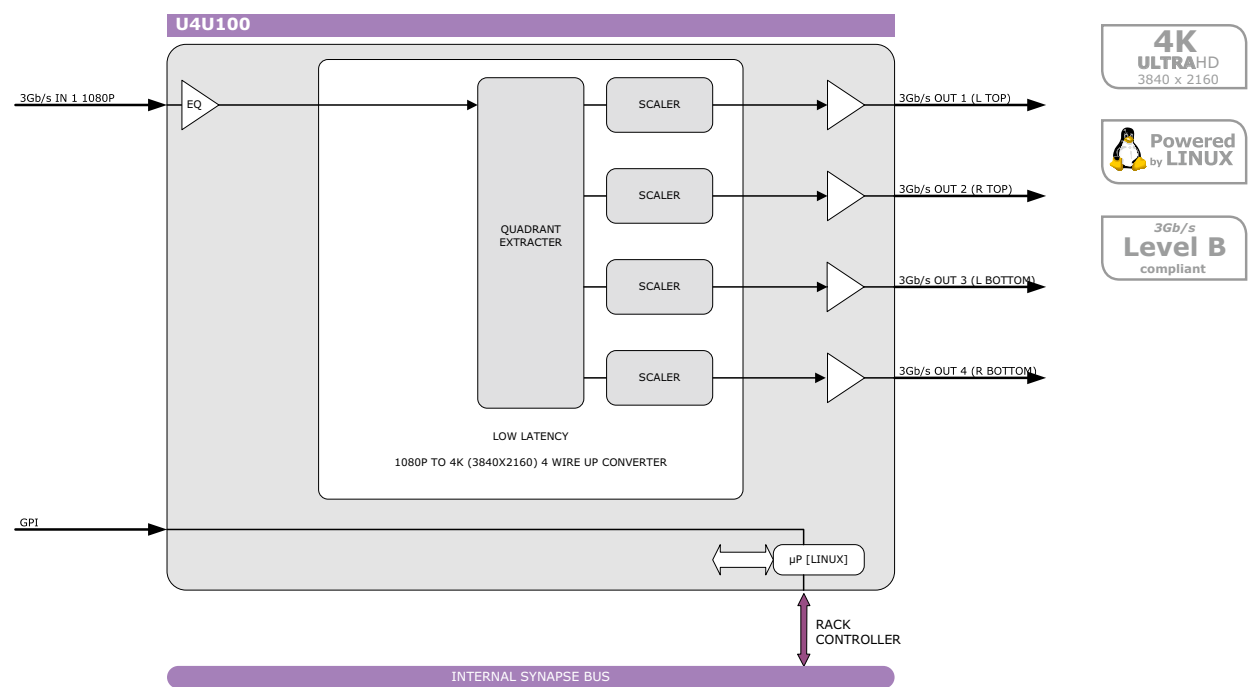
- **GSU150:** 3Gb/s, HD, SD SDI up-converter with side curtain
- **GSU160:** 3Gb/s, HD, SD-SDI up-converter with side curtains and audio shuffler ProcAmp
- **HSU150:** HD, SD-SDI up-converter with side curtain
- **HSU160:** HD, SD-SDI up-converter with side curtain and audio shuffler ProcAmp

Standard I/O:

- **BPH17_GSUxxx:** I/O panel for G-HSUxxx

Relay bypass I/O:

- **BHX17b_GSUxxx:** I/O panel for G-HSUxxx with relay bypass



1080P to 4K Ultra HD (3840 × 2160) 4 wire UP converter

The U4U100 is a 1080p to 4k (4 wire) ultra HD up-converter. The low latency unit extracts four quadrants out of a 1080p (1920x1080) and scales each individual part into to 4 full 1920x1080 pictures

- One 1080p 50/59.94 input (level B compatible)
- 4 outputs, one for each quadrant
- Low latency (20ms @ 50Hz, 16.7ms @ 59.95Hz)
- 4K four wire (3840 x 2160)
- Compatible with 1080p59.94 or 1080p50 inputs
- Transparent for 16 channels of embedded audio
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- Up conversion for 4K production sets

Ordering information

Module:

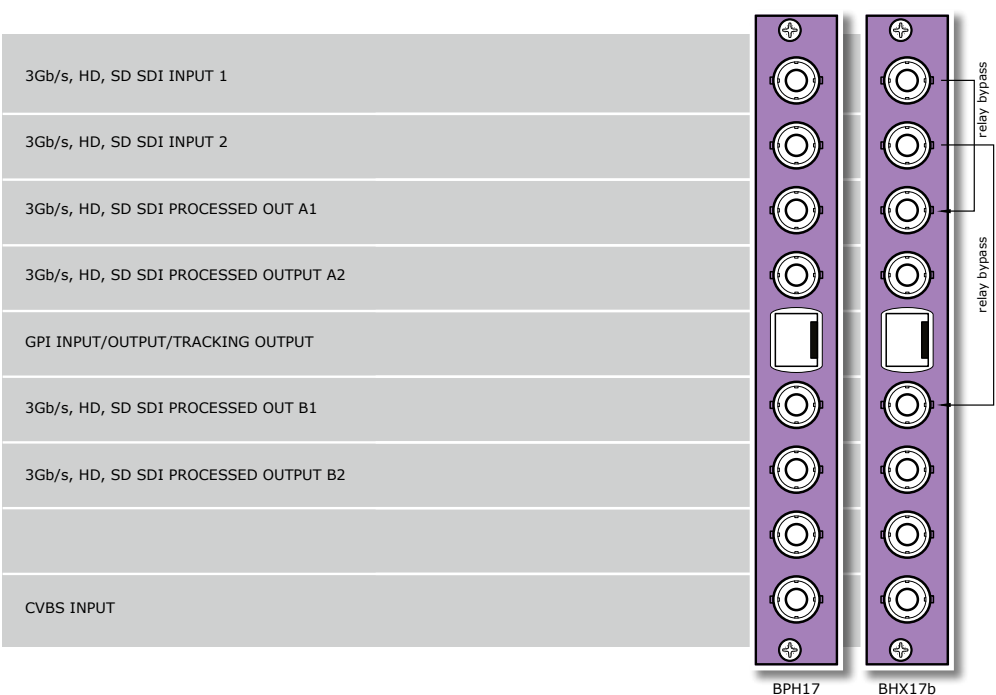
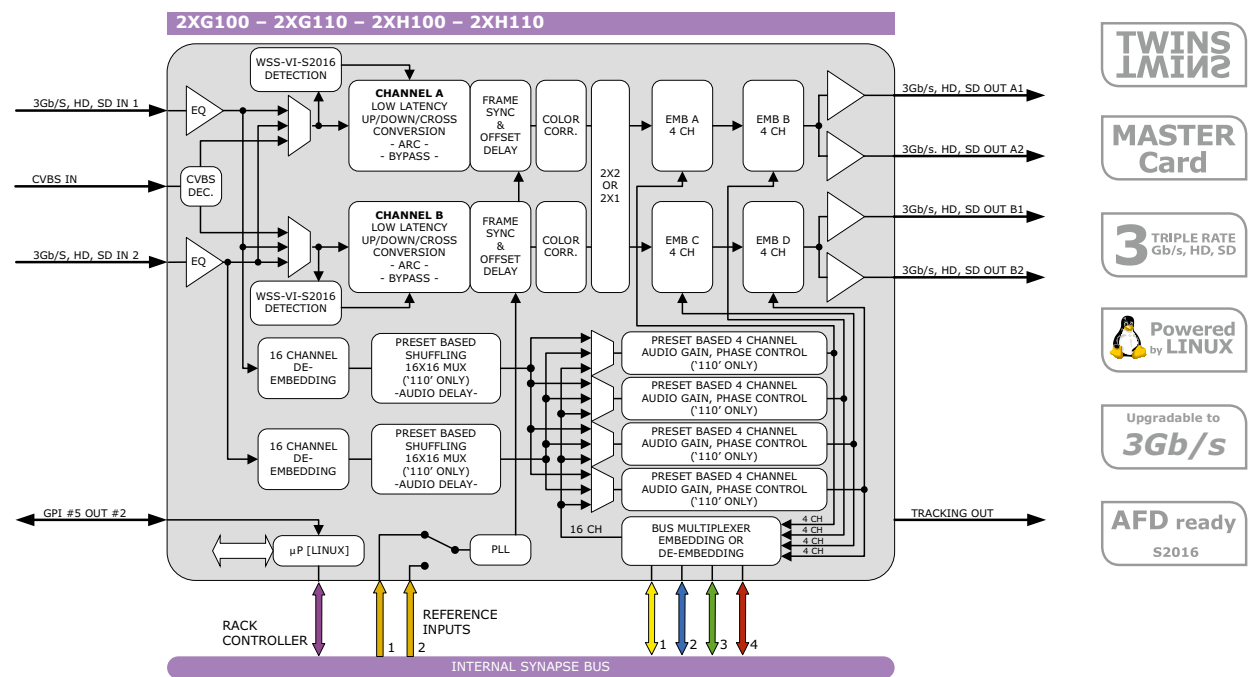
- **U4U100:** 1080p to 4K Ultra HD (3840 x 2160) 4 wire up converter

Standard I/O:

- **BPH17_U4U100:** I/O panel for U4U100

Specifications

visit www.evs.com



Dual channel 3Gb/s, HD, SD up/down/cross-converter and synchronizer with optional audio shuffler

The 2XG100/110 and 2XH100/110 are dual channel high-quality up/down/cross converters. The optimized scaling and filter algorithms ensure crisp broadcast ready pictures from a native SD or HD source, by use of a 64 tap FIR filters. The cards allow you to simulcast 2 HD or 3Gb/s (2XG models only) signals from 2 native HD, SD or 1 CVBS and an SD infrastructure.

They are also very powerful cross-input audio shufflers and ProcAmps. With the 110 models you can de-embed 2x 8 channels out of any of the 16 embedded audio channels of both SDI inputs and shuffle these channels. This means you can combine embedded audio channels from input 1 and embedded audio channels from input 2 in your 3Gb/s, HD, SD outputs.

The 2XG100/110 is compatible with SD, HD and 3Gb/s SDI (for full 1080p50 or 1080p59.94 use). The 2XH100/110 is compatible with SD and HD SDI and can be future upgraded to 3Gb/s compatibility

- 3 inputs: 2 SDI and 1 composite
- Configurable output mode (straight, crossed, A only, B only)
- Low latency conversion process: as low as 1 field in controlled timing environment
- 5 GPI inputs assignable to various preset banks
- ARC triggers by S2016 (AFD)
- Individual RGB color correctors for video channels A and B
- Transparent for 8 channels of embedded audio per channel
- Locks to Tri-level, Bi-level and SDI input

- Compatible with the following input (auto selecting) and output formats (1080p50/60 only for 2XG100/110):
 - 1080p59.94
 - 1080p50
 - 1080i59.94
 - 1080i50
 - 1080p29.97
 - 1080p25
 - 1080p23.98
 - 720p59.94
 - 720p50
 - 720p29.97
 - 720p23.98
 - SD525
 - SD625
- One format can be chosen for both outputs simultaneously
- Two individual conversion paths. The input can be different standard SD or HD, converted to one output format
- Framesync with output phase control in frames, lines and pixels with respect to reference. Delay setting are stored per output format for a constant latency operation
- 30 Frames (1080i/p), 60 frames (720p) or 125 frames (SD) delay offset per channel
- All ARC modes contain:
 - Anamorphic
 - Center Cut
 - V-Zoom
 - LBox 16:9/14:9
 - PBox 4:3/14:9
 - Variable H and V
- 16 Free individual programmable presets banks for:
 - Up/down/cross-converter ARC A and B
 - Transparent ARC A and B
 - VI/WSS/AFD insertion A and B
 - Shuffling/gain/phase (110 only)
- Embedded domain cross input audio shuffling, gain and phase control (110 only)
- Embedding and de-embedding through synapse bus
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Complementary cards:

- DAC20, DAC24, DAS24, DIO48, ADC20, ADC24, DIO24

Applications

- Truck input synchronizer converter
- Infrastructure up/down/cross-conversion
- Combining embedded audio channels of 2 inputs into 1 (110 only)

Relay bypass I/O:

- BHX17b_2XGxxx:** I/O panel for 2XG-2XHxxx with relay bypass

Specifications

visit www.evs.com

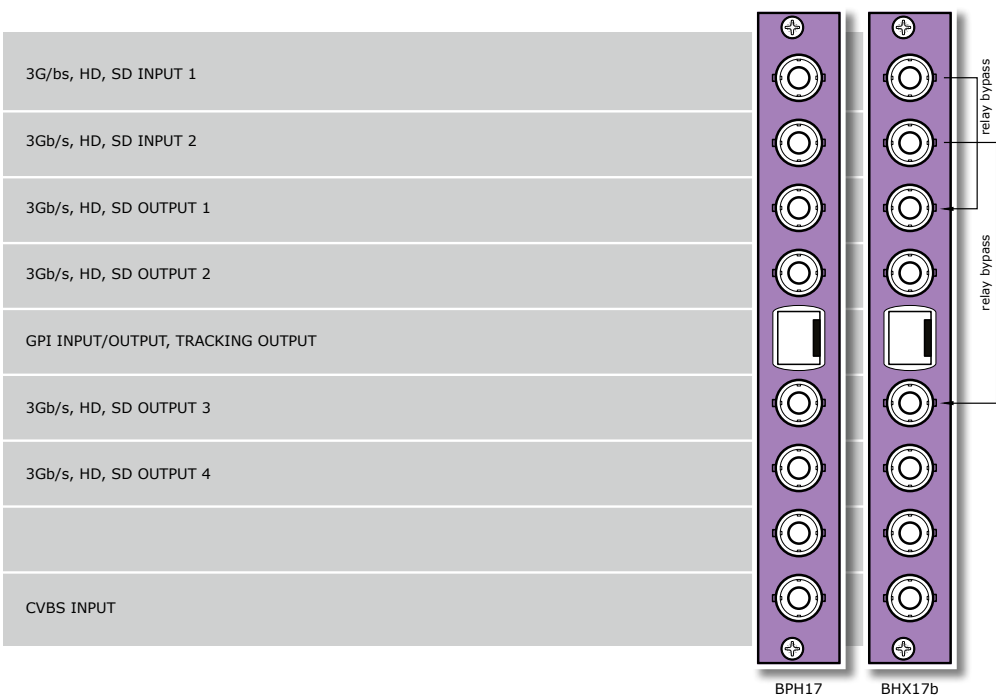
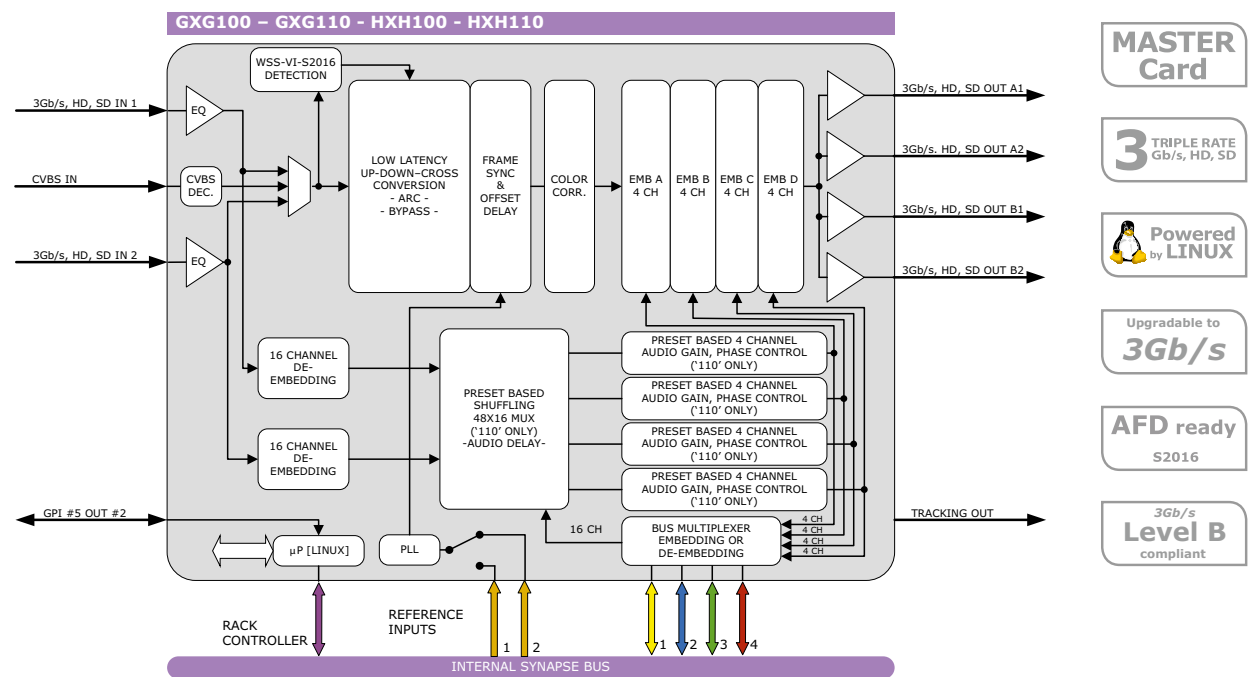
Ordering information

Modules

- 2XG100:** Dual channel 3Gb/s, HD, SD-SDI up/down/cross-converter
- 2XG110:** Dual channel 3Gb/s, HD, SD-SDI up/down/cross-converter with audio shuffler ProcAmp
- 2XH100:** Dual channel HD, SD-SDI up/down/cross-converter
- 2XH110:** Dual channel HD, SD-SDI up/down/cross-converter with audio shuffler ProcAmp

Standard I/O:

- BPH17_2XGxxx:** I/O panel for 2XG-2XHxxx



3Gb/s, HD, SD UP/down/cross-converter/synchronizer with optional cross input audio shuffler

The GXG100/110 and HXH100/110 are high-quality up/down/cross converters. The optimized scaling and filter algorithms ensure crisp broadcast ready pictures from a native HD or SD source, by use of a 64 tap FIR filters. The appropriate aspect ratio can be applied by control of S2016 and GPI inputs by use of 16 presets per output that can store the aspect ratio conversions.

These are also very powerful cross-input audio shufflers and ProcAmps. With the 110 models you can de-embed 2x8 channels out of any of the 16 embedded audio channels of both HD and SD inputs and shuffle these channels. This means you can combine embedded audio from input 1 and from input 2 in your SD outputs. The embedded audio is carried over to the SD domain.

The GXG100/110 is compatible with SD, HD and 3Gb/s SDI (for full 1080p50 or 1080p59.94 use). The HXH100/110 is compatible with SD and HD SDI and can be future upgraded to 3Gb/s compatibility

- 3 input: 2 SDI and 1 composite
- Low latency conversion process (as low as 1 field in controlled timing environment)
- Compatible input (auto selecting) and output formats (1080p50/60 only for GXG100/110):
 - 1080p59.94 1080p25 720p25
 - 1080p50 1080p23.98 720p23.98
 - 1080i59.94 720p59.94 SD525
 - 1080i50 720p50 SD625
 - 1080p29.97 720p29.97

- Framesync with output phase control in frames, lines and pixels with respect to reference. Delay setting are stored per output format for a constant latency operation
- 30 Frames (1080i/p), 60 frames (720p) or 125 frames (SD) delay offset per channel
- 16 Free individual programmable presets banks for:
 - Up/down/cross-converter ARC
 - Transparent ARC
 - WSS/VI/S2016 (AFD) insertion
 - Shuffling/gain/phase (110 only)
- 5 GPI inputs assignable to various preset banks
- ARC triggers by VI, WSS, WSSext and S2016 (AFD)
- All ARC modes contain:
 - Anamorphic V-Zoom PBox 4:3/14:9
 - Center Cut LBox 16:9/14:9 Variable H and V
- Color corrector (RGB and total gain, RGB and total black)
- Hue control for NTSC inputs
- OP47 translation into WST-B and vice versa
- Transparent for 16 channels of embedded audio
- Embedded domain cross input audio shuffling, gain and phase control (110 only)
- Embedding and de-embedding through synapse bus
- Locks to Tri-level, Bi-level or SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

- Complementary cards:**
- DAC20, DAC24, DAS24, DIO48, ADC20, ADC24, DIO24

Applications

- OB Van input up/down/cross-converter/synchronizer
- Infrastructure up/down/cross-conversion

Specifications

visit www.evs.com

Ordering information

Module:

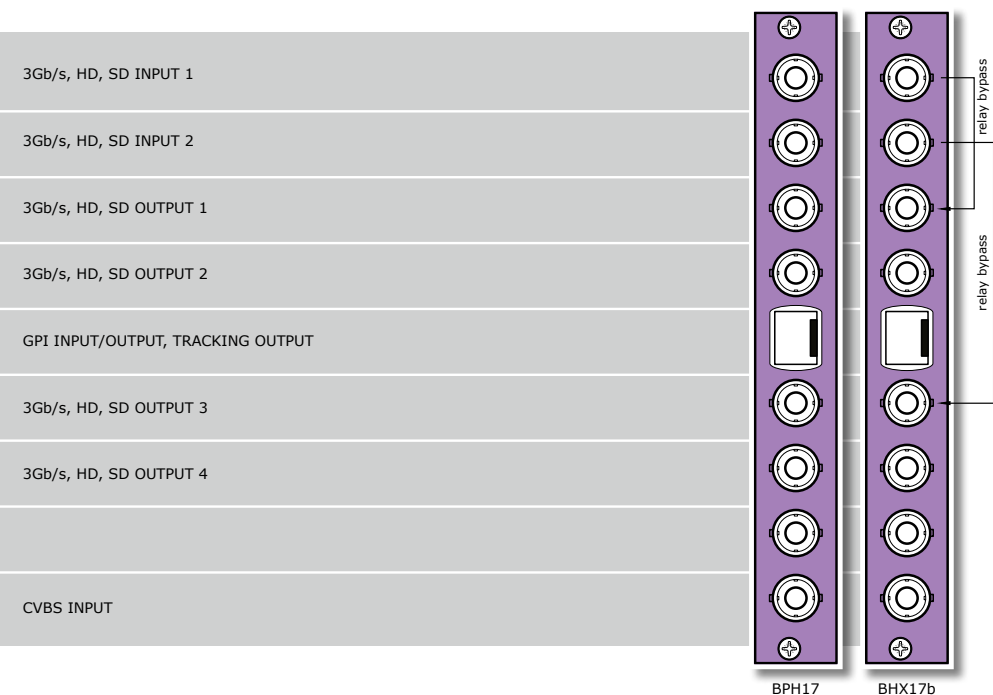
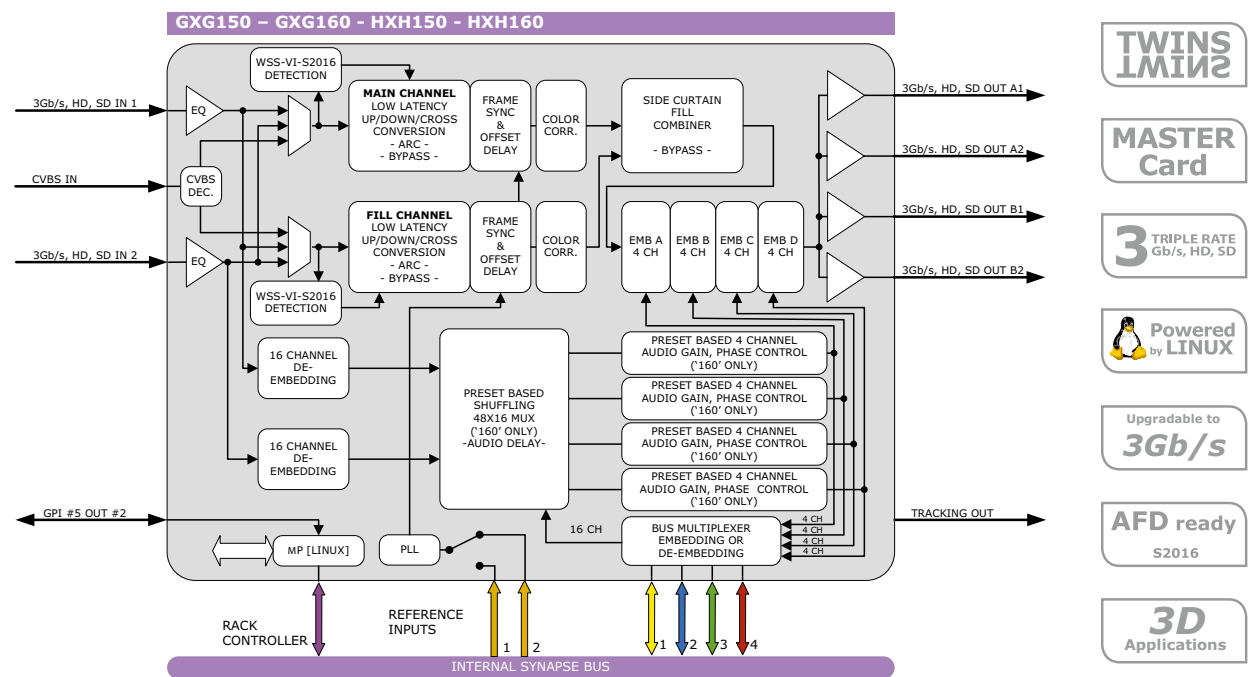
- GXG100:** 3Gb/s, HD, SD SDI up/down/cross-converter
- GXG110:** 3Gb/s, HD, SD SDI up/down/cross-converter with audio shuffler ProcAmp
- HXH100:** HD, SD-SDI up/down/cross-converter
- HXH110:** HD, SD-SDI up/down/cross-converter with audio shuffler ProcAmp

Standard I/O:

- BPH17_GXGxxx:** I/O panel for G-HXHxxx

Relay bypass I/O:

- BHX17b_GXGxxx:** I/O panel for G-HXHxxx with relay bypass



3Gb/s, HD, SD up/down/cross-converter/synchronizer with side curtains and optional audio shuffler

The GXG150/160 and HXH150/160 are high-quality up/down/cross converters. The optimized scaling and filter algorithms ensure crisp broadcast ready pictures from a native HD or SD source, by use of a 64 tap FIR filters. The appropriate aspect ratio can be applied by control of S2016 and GPI inputs by use of 16 presets per output that can store the aspect ratio conversions.

Besides also being powerfull cross input audio shufflers and proc amps, the output stage of these cards can be configured in various ways. In straight and crossed mode the card acts as a dual channel (TWINS) card (audio transparency reduced to 16 channels). You can even mix/lay-over input 1 and input 2 into one output feed with for instance a "side curtain" effect, a mix or side by side.

The GXG150/160 is compatible with SD, HD and 3Gb/s SDI (for full 1080p50 or 1080p59.94 use). The HXH150/160 is compatible with SD and HD SDI and can be future upgraded to 3Gb/s compatibility

- 3 input: 2 SDI and 1 composite
- Configurable output mode: straight, crossed, A only, B only, side curtains (adjustable), mix, or Side by Side (for 3D)
- Compatible input (auto selecting) and output formats (1080p50/60 only for GXG150/160):
 - 1080p59.94, 1080p25, 720p25
 - 1080p50, 1080p23.98, 720p23.98
 - 1080i59.94, 720p59.94, SD525
 - 1080i50, 720p50, SD625
 - 1080p29.97, 720p29.97

- One standard can be chosen for both outputs simultaneously
- Framesync with output phase control in frames, lines and pixels with respect to reference. Delay setting are stored per output format for a constant latency operation
- 30 Frames (1080i/p), 60 frames (720p) or 125 frames (SD) delay offset per channel
- 16 Free individual programmable presets banks for:
 - Up/down/cross-converter ARC
 - Transparent ARC
 - WSS/VI/S2016 (AFD) insertion
 - Shuffling/gain/phase (160 only)
- 5 GPI inputs assignable to various preset banks
- ARC triggers by VI, WSS, WSSext and S2016 (AFD)
- All ARC modes contain:
 - Anamorphic, V-Zoom, PBox 4:3/14:9
 - Center Cut, LBox 16:9/14:9, Variable H and V
- Individual RGB color corrector for channel A and B
- Hue control for NTSC inputs
- Transparent for 16 channels of embedded audio
- Embedded domain cross input audio shuffling, gain and phase control (160 only)
- Embedding and de-embedding through synapse bus
- Locks to Tri-level, Bi-level or SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Complementary cards:

- DAC20, DAC24, DAS24, DIO48, ADC20, ADC24, DIO24

Applications

- OB Van input up/down/cross-converter/synchronizer
- Infrastructure up/down/cross-conversion
- Up/down/cross-conversion with side-fill/curtain input

Ordering

information

Module:

- GXG150:** 3Gb/s, HD, SD SDI up/down/cross-converter with side curtain
- GXG160:** 3Gb/s, HD, SD-SDI up/down/cross-converter with side curtains and audio shuffler ProcAmp
- HXH150:** HD, SD-SDI up/down/cross-converter with side curtain
- HXH160:** HD, SD-SDI up/down/cross-converter with side curtain and audio shuffler ProcAmp

Standard I/O:

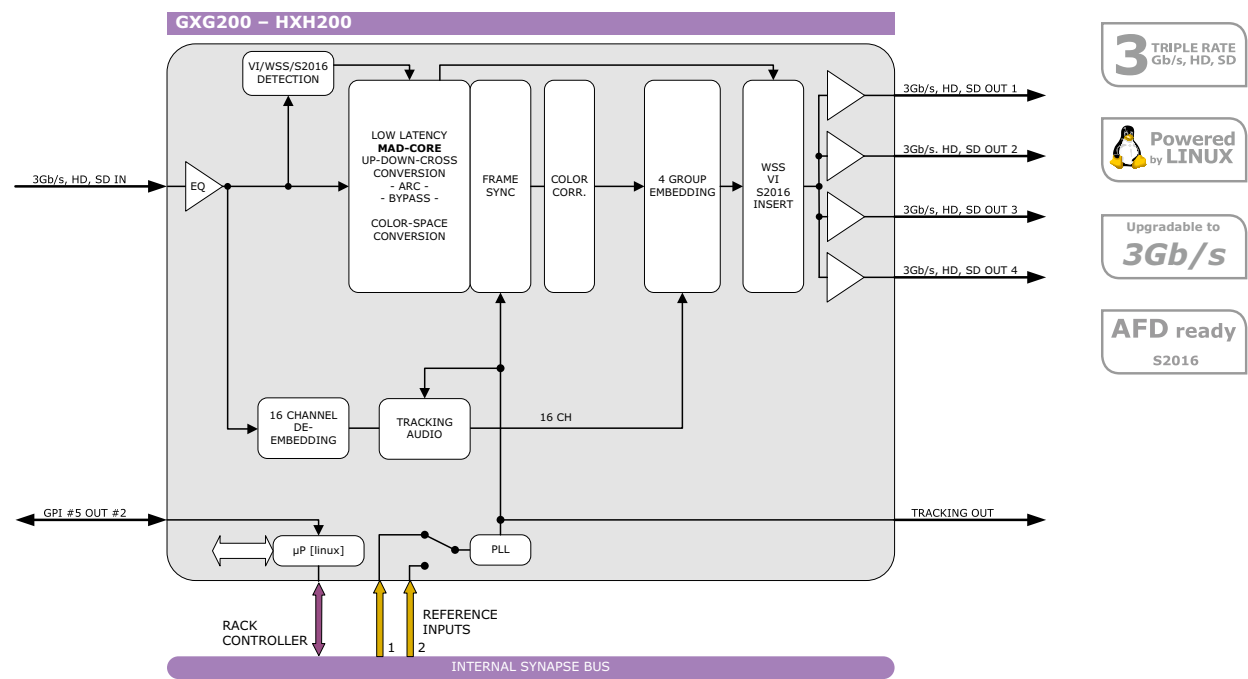
- BPH17_GXGxxx:** I/O panel for G-HXHxxx

Relay bypass I/O:

- BHX17b_GXGxxx:** I/O panel for G-HXHxxx with relay bypass

Specifications

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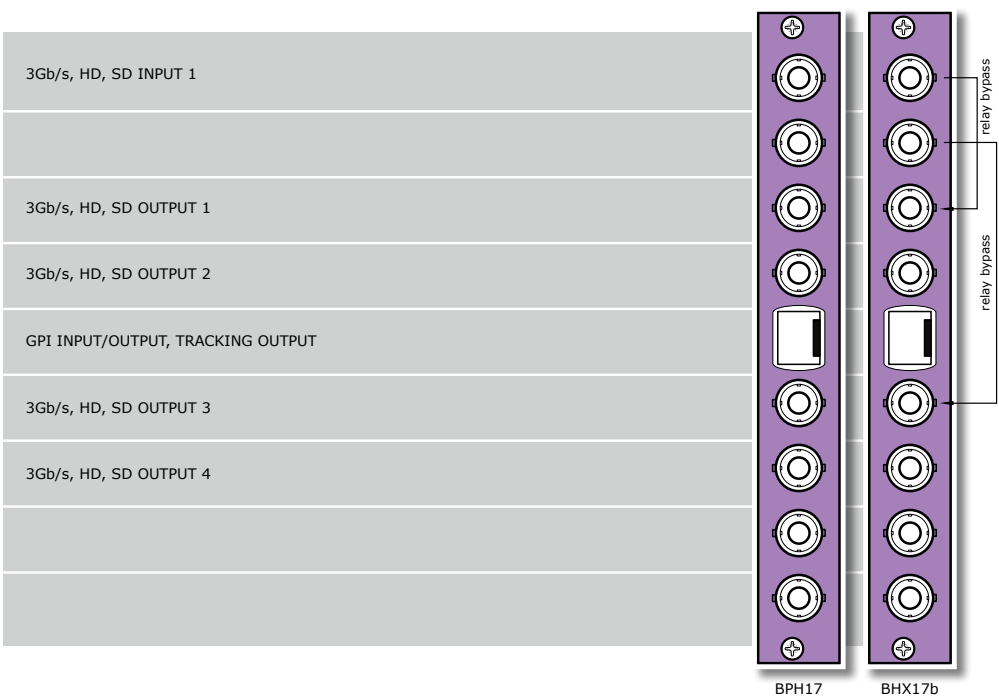


3 TRIPLE RATE
Gb/s, HD, SD

Powered
by LINUX

Upgradable to
3Gb/s

AFD ready
S2016



3Gb/s, HD, SD high quality up/down/cross-converter and frame synchronizer with MAD technology

The GXG200 and HXH200 are high-quality up/down/cross converters with EVS's propriety Motion Adaptive De-interlacing technology. This technology ensures fewer artifacts because of the selective combination of weaving and blending de-interlacing methods.

The optimized scaling and filter algorithms ensure crisp broadcast ready pictures from a native HD or SD source, by use of a 64 tap FIR filters. The appropriate aspect ratio can be applied by control of S2016 and GPI inputs by use of 16 presets per output that can store the aspect ratio conversions.

The GXG200 is compatible with SD, HD and 3Gb/s SDI (for full 1080p50 or 1080p59.94 use). The HXH200 is compatible with SD and HD SDI and can be future upgraded to 3Gb/s compatibility.

- Low latency 'MAD' conversion process (Motion Adaptive De-interlacing)
- Compatible input (auto selecting) and output formats (1080p50/60 only for GXG200):
 - 1080p59.94
 - 1080p50
 - 1080i59.94
 - 1080i50
 - 1080p29.97
 - 1080p25
 - 1080p23.98
 - 720p59.94
 - SD525
 - SD625
- Framesync with output phase control in frames, lines and pixels with respect to reference
- 16 Free individual programmable presets banks for:
 - Up/down/cross-converter ARC
 - Transparent ARC
 - VI/WSS insertion
 - S2016 (AFD) insertion
- 5 GPI inputs assignable to various preset banks
- ARC triggers by VI, WSS, WSSext and S2016 (AFD)
- All ARC modes contain:
 - Anamorphic
 - LBox 16:9/14:9
 - PBox 4:3/14:9
- RGB color corrector
- Transparent for 16 channels of embedded audio
- Locks to Tri-level, Bi-level or SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- General system input up/down/cross converter/synchronizer
- Infrastructure high quality up/down/cross-conversion

Ordering information

Module:

- GXG200:** 3Gb/s, HD, SD high quality up/down/cross converter and frame synchronizer with MAD technology
- HXH200:** HD, SD high quality up/down/cross converter and frame synchronizer with MAD technology

Standard I/O:

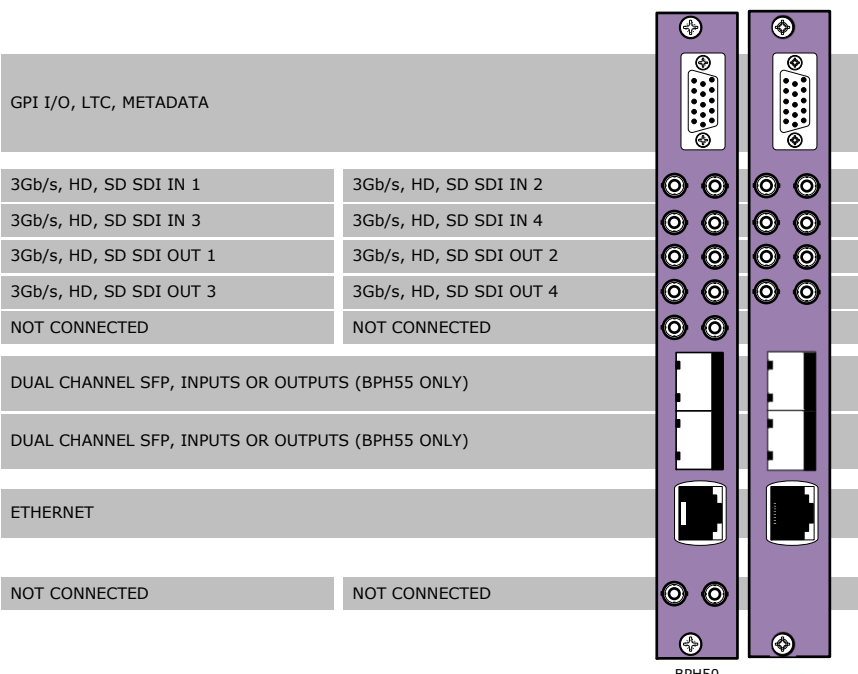
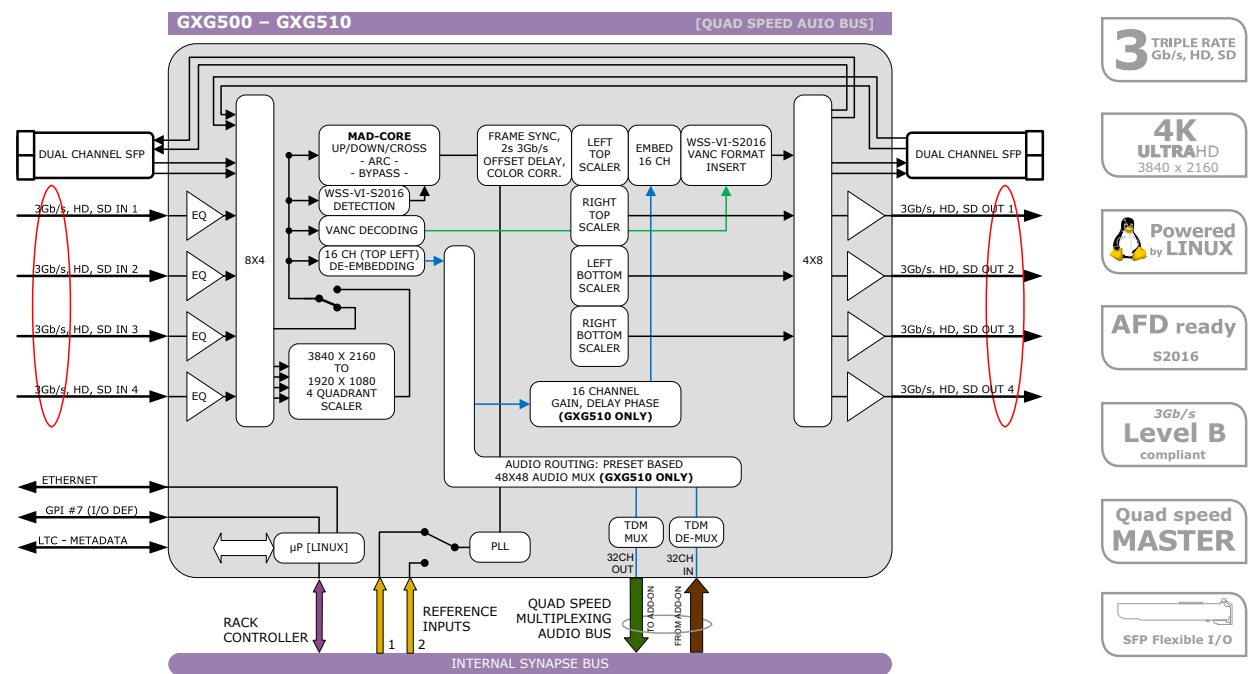
- BPH17_GXGxxx:** I/O panel for G-HXH200

Relay bypass I/O:

- BHX17b_GXGxxx:** I/O panel for G-HXH200 with relay bypass

Specifications

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High end 3Gb/s, HD, SD up/down/cross-converter and frame synchronizer with optional audio shuffler

The GXG500/510 is a high end up/down/cross converter. Based on EVS's Motion Optimized Quality De-interlacer (MOQD), and extensively computer optimized scaling and filter algorithms the new 500 series of up/down/cross converters ensure the absolute best quality video conversion from any standard to any standard within the same framerate. The card allows you to simulcast any output standard in any format from any source standard.

The embedded audio is carried over to the SD, HD or 3Gb/s domain. The appropriate aspect ratio can be applied by control of VI, WSS and GPI inputs by use of 16 presets per output that can store the aspect ratio conversions. The -510 models also have very powerful cross-input audio shufflers and proc-amps.

Beside being the industry highest quality up/down converter, the GXG500/510 also functions as a 4K 4-wire up and down converter.

- Industry highest quality de-interlacing algorithm using EVS's MOQD
- 4 x 3Gb/s SDI inputs (level B compliant)
- 4 x 3Gb/s SDI outputs, equal signals or 4K quadrants
- 4K four wire (3840 x 2160) compatible
- 10Gb/s Ethernet connection for future use
- Medium latency conversion process (2 frames)
- Quad Speed audio bus Embedding and de-embedding
- Video proc-amp (Y and C control), Color corrector (RGB gain and black) and Hue control

- Locks to Tri-level, Bi-level or SDI input 1 or 2
- Compatible with the following input (auto selecting) and output formats (only one output standard can be chosen for all outputs simultaneously): 1080p25/29.97/50/59.94, 1080i50/59.94, 720p50/59.94, SD625, SD525
- Frame sync with auto-phaser and control in Frames, Lines and pixels with respect to reference with a maximum of 25 frames delay offset per channel
- All ARC modes contain Anamorphic, Center Cut, V-Zoom, LBox-16:9, LBox-14:9, PBox-4:3, PBox-14:9 and Variable H and V (50-200%)
- 16 free individual programmable preset banks with settings for: Down-, Up- and, Cross Conversion, Pass through (with ARC function), Simultaneous VI, WSS and AFD (S2016) insertion and Embedder shuffling, gain, phase and delay
- Multiple GPI inputs/outputs with predefined modes
- ARC triggers by VI, WSS, WSS-ext and S2016 (AFD)
- Transparent for 16 channels of embedded audio
- Embedded domain 64x64 routing to and from the in/outputs and Quad Speed Audio Bus (510 only)
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Complementary cards:

- DIO88, DLA44/43/42/41, DAW77/88/99, DSF66, DDP24/94 or any Quad Speed Bus ADD-ON card

Applications

- High End Truck dual input frame synchronizer and anything to anything converter
- High End Infrastructure up/down/cross conversion
- High End transmission up/cross conversion
- High End 4K up/down converter

Specifications

visit www.evs.com

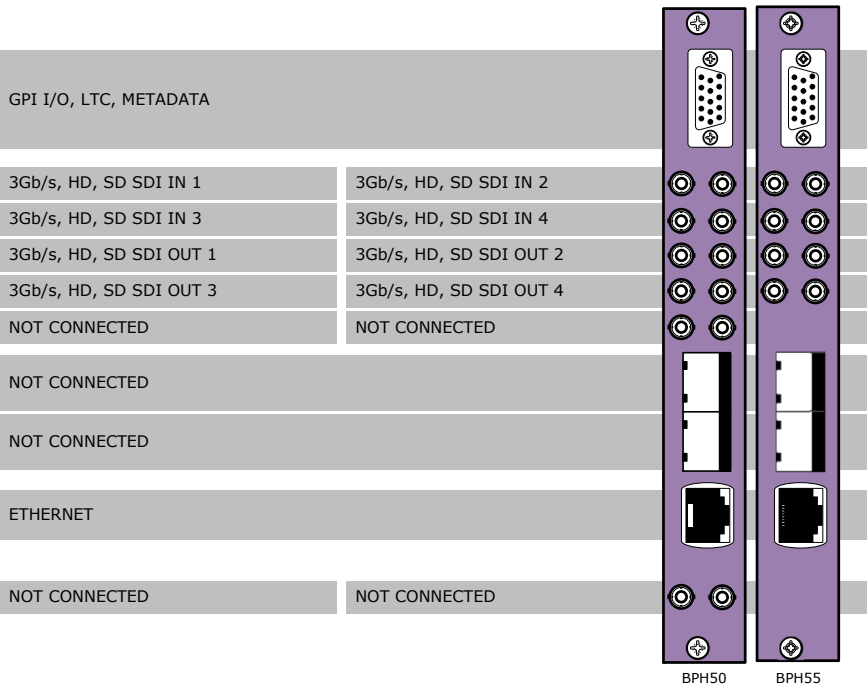
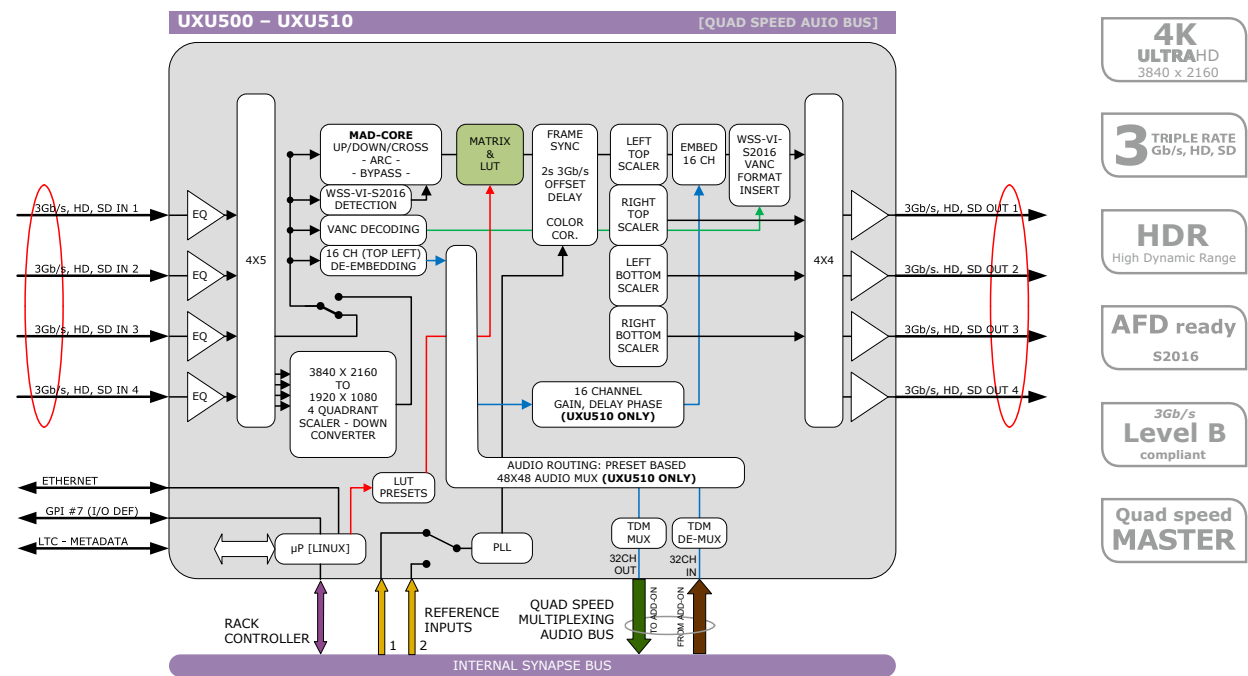
Ordering information

Module:

- **GXG500:** High end 3Gb/s, HD, SD up/down/cross converter and frame synchronizer
- **GXG510:** High end 3Gb/s, HD, SD up/down/cross converter and frame synchronizer with full audio shuffling

Standard I/O:

- **BPH50_GXG510:** I/O panel for GXG500-510
- **BPH55_GXG510:** I/O panel for GXG500-510 with 2 SFP cages



4K (UHD) format converter with LUT based color space and dynamic range converter

The UXU500/510 has all the features and functions of the GXG500/510.

The difference between the GXG500/510 and UXU500/510 is the addition of a LUT based color space and dynamic range conversion. The LUT can be stored on 16 presets and selected on the fly.

The module is compatible with standard LUT tables in either 1D or 3D formats.

- Fully features 4K (3840x2160) Ultra HD 4 wire, 3Gb/s, HD-SDI, SD-SDI up/down/cross converter
- LUT based color space and dynamic range conversion
- 16 LUT presets for standard LUT tables (.cube, .LUT, .TXT extensions)
- 1D LUT 10 bits 1024 RGB values (1024x3 rows)
- 3D LUT 10 bits 35937 RGB values (33x33x33)
- Side by side split screen mode with slider for evaluation of LUT values
- LUT bypass mode
- Compatible with ITU-R BT709 and ITU-R BT.2020 I/O (conversion matrix from YCrCb to RGB and back)
- Optional cross-input audio shuffler (UXU510)

Complementary cards:

- DIO88, DLA44/43/42/41, DAW77/88/99, DSF66, DDP24/94 or any Quad Speed Bus ADD-ON card

Applications

- LUT based color space and dynamic range conversion
- High End Truck dual input frame synchronizer and anything to anything converter
- High End Infrastructure up/down/cross conversion
- High End transmission up/cross conversion
- UHD (4k) up and down conversion from-and-to any supported video standard in the same frequency

Ordering information

Module:

- UXU500:** High end 3Gb/s, HD, SD up/down/cross converter with color space and dynamic range converter
- UXU510:** High end 3Gb/s, HD, SD up/down/cross converter with color space and dynamic range converter and with full audio shuffling

Standard I/O:

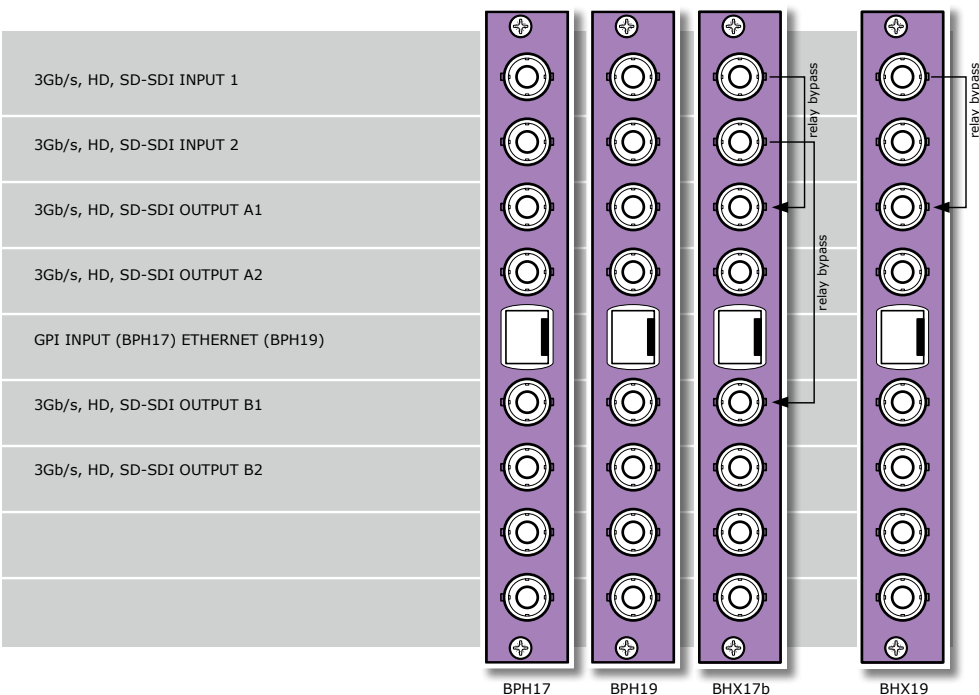
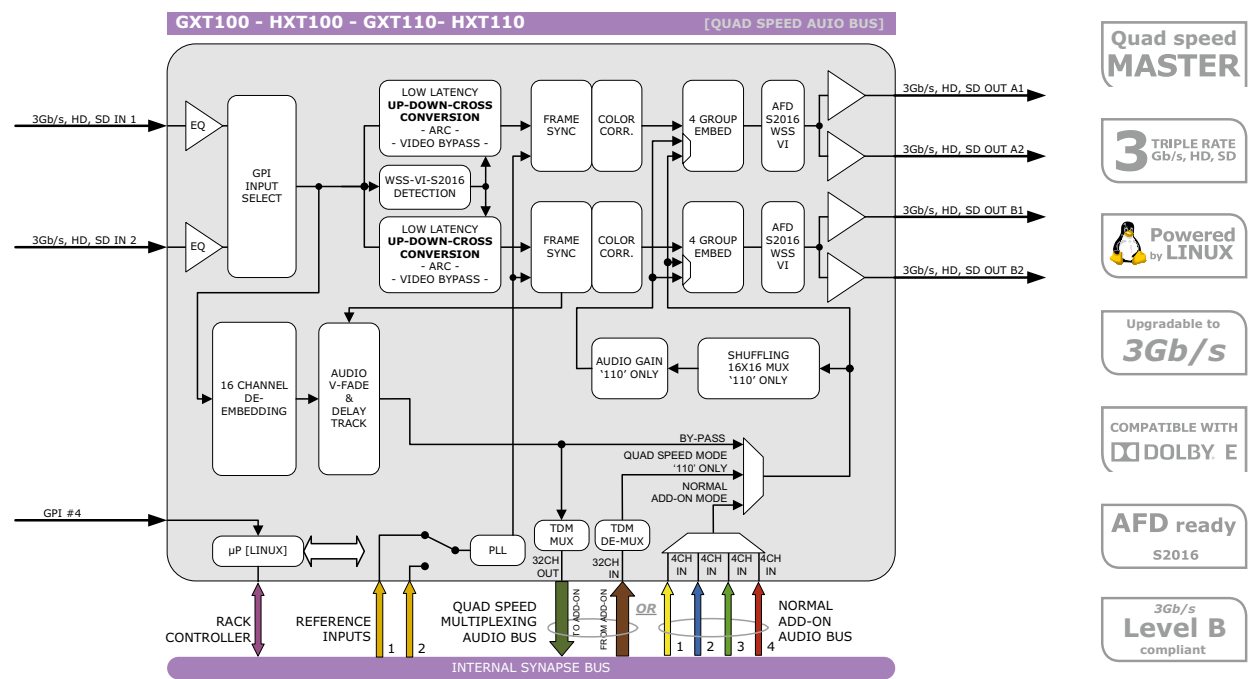
- BPH50_UXU510:** I/O panel for UXU500-510

Relay bypass I/O:

- BPH55_UXU510:** I/O panel for UXU500-510

Specifications

visit www.evs.com



3Gb/s, HD, SD frame synchronizer, transmission up/down/cross-converter and (de) embedder with optional cross input audio shuffler

The GXT-HXT100/110 are frame synchronizers and 16 channel embedders and de-embedders combined with high-quality up/down/cross-converting. The dual input capability can be used as an emergency bypass switch. The optimized scaling and filter algorithms ensure crisp broadcast ready pictures from a native HD source, by use of a 64-tap FIR filters. This card is designed as a transmission output module that enables simultaneous feeding of HD and SD (with embedded audio). ADD-ON cards can be used as audio in and output cards. All products can be up- or down graded with a software key.

- Dual 3Gb/s, HD, SD SDI input (auto selecting)
- Low latency conversion process
- Dual 3Gb/s, HD outputs
- Dual SD outputs (simultaneous anamorphic widescreen and pan-scan)
- Up-conversion from 720p or 1080i to 1080p (equal frame-rate)
- Down-conversion (including 1080p to SD-SDI)
- Cross-conversion 720p to 1080i and vice versa
- Dual input back-up function
- Automatic by input carrier detection
- Manual by direct control (ACP)
- GPI inputs for ARC triggers and preset selection
- 2 frame synchronizers for the 3Gb/s, HD and SD domain with individual output timing control
- Color correction in 3Gb/s, HD and SD domain (RGB and total gain, RGB and total black)
- H+V sharpness control in SD domain for crisp down converted picture quality

- 5 GPI inputs for ARC and Shuffle triggers
- Transparent for 16 channels of embedded audio both HD and SD path
- Embedded domain audio shuffling (110 models only)
- Quad Speed audio bus compatible
- Embedding through Synapse bus
- De-embedding to Synapse bus with transparent input to output handling
- Video ProcAmp (Y and C control) and Hue control
- Compatible with:
 - 270 Mbit/s (SMPTE 259M) 50 and 59.94Hz
 - 1485 Mbit/s (SMPTE 292M) 50 and 59.94Hz
 - 2970 Mbit/s (SMPTE 424M) 50 and 59.94Hz (GXT100/110 only)
- AFD insertion in HD domain
- AFD, WSS, WSS-ext and VI insertion in SD domain
- Timecode transparency and conversion
- OP47 translation into WST-B and vice versa
- I/O delay measurement for both output domain
- CRC status information for both inputs
- 6 selectable lines VBI transparency when not converting
- 16 channel embedder in both HD and SD domain
- Locks to Bi-level, Tri-level syncs and SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Complementary cards:

- DAC20, DAC24, DAS24, DIO48, ADC20, ADC24, DIO24, DLA44, DLA43

Applications

- OB Van output card with 16 channel embedding (in combination with 2 x DIO48)
- 2x1 HD protection switch with SD monitoring output
- Dual domain (HD & SD) production up/down/cross-converter with individual timing adjustment

Ordering information

Module:

- **GXT110:** 3Gb/s, HD, SD frame synchronizer, transmission up/down/cross-converter with (de)embedder and audio shuffler ProcAmp
- **HXT110:** HD, SD frame synchronizer, transmission up/down/cross-converter with (de)embedder and audio shuffler ProcAmp
- **GXT100:** 3Gb/s, HD, SD frame synchronizer and transmission up/down/cross-converter with (de)embedder

- **HXT100:** HD, SD frame synchronizer and transmission up/down/cross-converter with (de)embedder

Standard I/O:

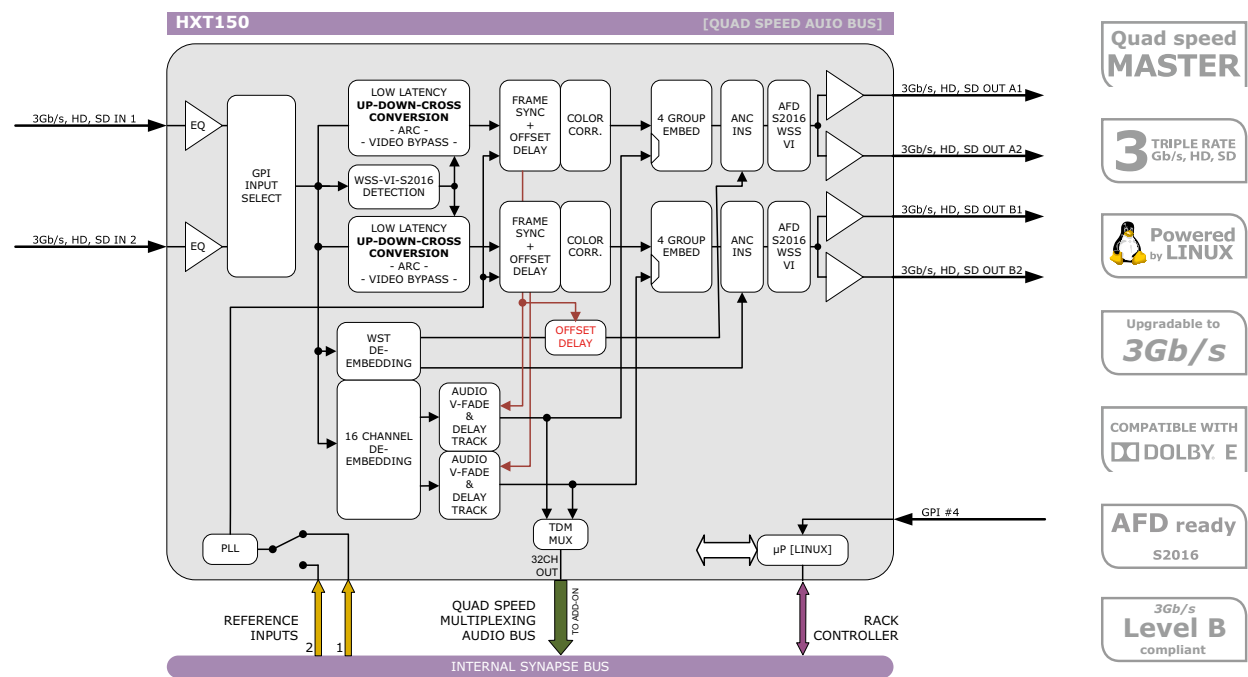
- **BPH17_GXT110:** I/O panel for G-HXTxxx with GPI connection
- **BPH19_GXT110:** I/O panel for G-HXTxxx with Ethernet connection

Relay bypass I/O:

- **BHX17_GXT110:** I/O panel for G-HXTxxx with GPI connection with relay bypass
- **BHX19_GXT110:** I/O panel for G-HXTxxx with Ethernet connection with relay bypass

Specifications

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Quad speed
MASTER

3 TRIPLE RATE
Gb/s, HD, SD

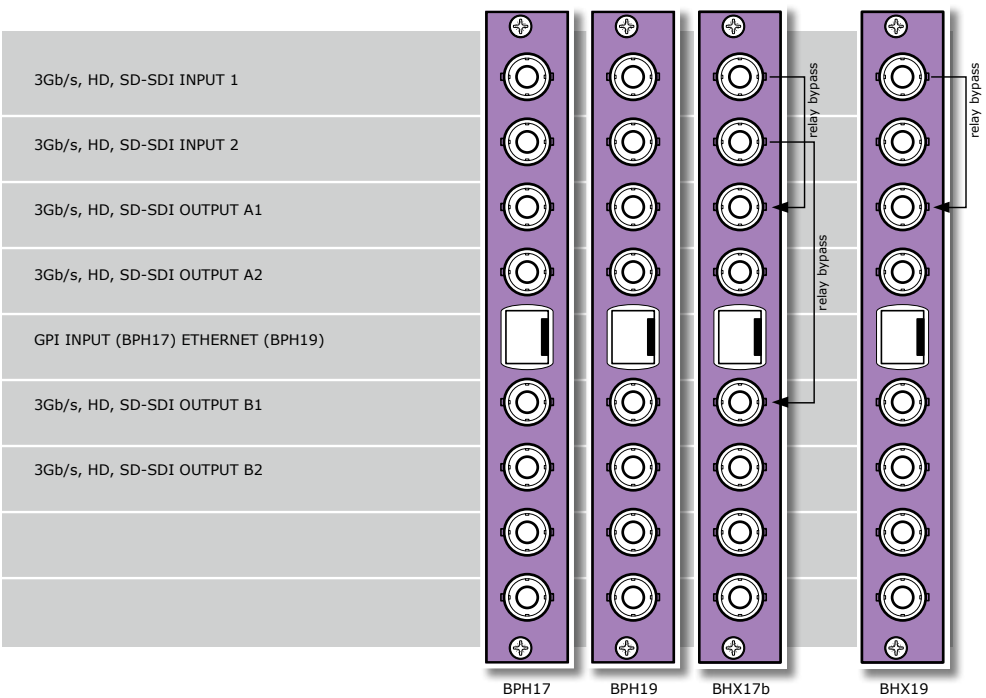
Powered
by LINUX

Upgradable to
3Gb/s

COMPATIBLE WITH
DOLBY E

AFD ready
S2016

3Gb/s
Level B
compliant



Dual HD and SD frame synchronizer, up/down/cross-converte and (de)embedder with second channel offset delay (stat multiplex optimization)

The HXT150 dual output up/down/cross converter is a transmission tool optimized to have a second channel running on a medium long offset delay that will improve statistical multiplexing efficiency.

One application is that the SD output in both anamorphic and letterbox formats run on the same multiplexer and because of the SD 5 seconds offset delay will help with multiplexing

- Dual HD, SD SDI input (auto selecting)
- Low latency conversion process
- 2x HD output
- 2x SD output (simultaneous anamorphic widescreen and pan-scan)
- Up-conversion from SD, 720p or 1080i
- Down-conversion
- Cross-conversion 720p to 1080i and vice versa
- Dual input back-up function (manual, auto or GPI control)
- GPI inputs for ARC triggers and shuffle triggers
- 2 frame synchronizers for the HD and SD domain with individual output timing control
 - one frame synchronizer with an additional offset delay
- Color correction in HD and SD domain (RGB and total gain, RGB and total black)
- H+V sharpness control in SD domain for crisp down converted picture quality
- 4 GPI inputs for ARC and Shuffle triggers
- Transparent for 16 channels of embedded audio both HD and SD path
- Quad Speed audio bus OUT compatible

- De-embedding to Synapse bus with transparent input to output handling
- Video ProcAmp (Y and C control) and Hue control
- Compatible with:
 - 270 Mbit/s (SMPTE 259M) 50 and 59.94Hz
 - 1485 Mbit/s (SMPTE 292M) 50 and 59.94Hz
- AFD insertion in HD domain
- AFD, WSS, WSS-ext and VI insertion in SD domain
- I/O delay measurement for both output domains
- Reporting of chosen input
- CRC status information for both inputs
- Locks to Bi-level, Tri-level syncs and SDI input
- OP47 to WST cross conversion and vice versa
- Timecode cross conversion
- CC-608 to CC-708 conversion and vice versa
- 6 selectable lines VBI transparency when not converting
- 16 channel embedder in both HD and SD domain
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- OB Van output card
- 2x1 HD protection switch with SD monitoring output
- Dual domain (HD & SD) production up/down/cross-converter with individual timing adjustment
- Dual SD output from an HD infrastructure in both Anamorphic as well ass Letterbox formats with a 5 second offset delay to smoothen statistical multiplexers

Ordering

information

Module:

- **HXT150:** Single input dual output HD and SD, frame synchronizer, up/down/cross converter with second channel offset delay for Statistical Multiplex optimization.

Standard I/O:

- **BPH17_HXT150:** I/O panel for HXT150 with GPI connection

■ BPH19_HXT150:

I/O panel for HXT150 with Ethernet connection

Relay bypass I/O:

■ BHX17_HXT150:

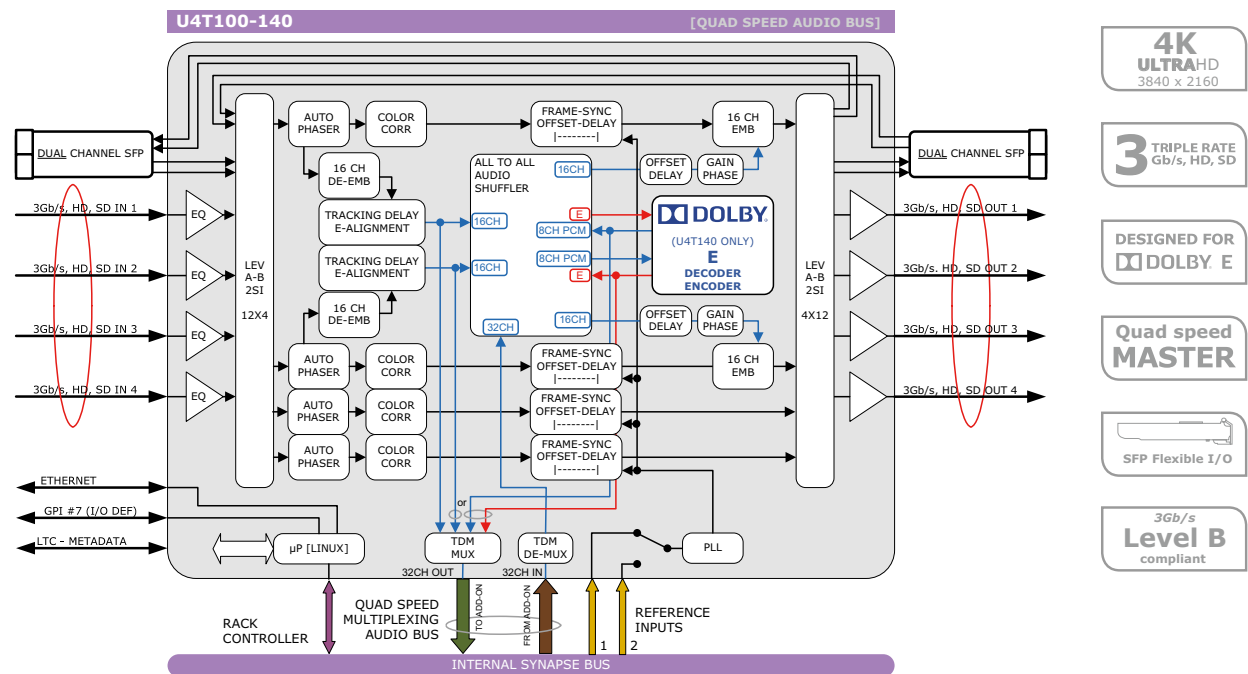
I/O panel for HXT150 with GPI connection with relay bypass

■ BHX19_HXT150:

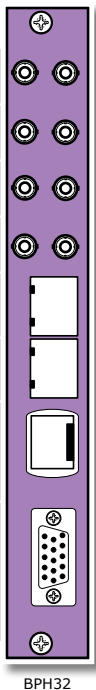
I/O panel for HXT150 with Ethernet connection with relay bypass

Specifications

visit www.evs.com



3Gb/s, HD, SD INPUT 1	3Gb/s, HD, SD INPUT 2
3Gb/s, HD, SD INPUT 3	3Gb/s, HD, SD INPUT 4
3Gb/s, HD, SD OUTPUT 1	3Gb/s, HD, SD, OUTPUT 2
3Gb/s, HD, SD OUTPUT 2	3Gb/s, HD, SD, OUTPUT 4
INPUT/OUTPUT SFP-1 (DUAL CHANNEL)	
INPUT/OUTPUT SFP-2 (DUAL CHANNEL)	
ETHERNET	
GPI I/O, LTC, METADATA	



BPH32

4K (3840×2160) Ultra HD 4 wire toolbox with optional Dolby E processing

The U4T100 and U4T140 are 4k (4 wire) production toolboxes that will ease the challenges of a 4 wire production setup where the left top corner (channel A) is used to carry VANC and HANC data like timecode and embedded audio. We also added a second quadrant audio de-embedder and embedder with full audio shuffling.

The I/O is capable of handling four times 1080p formatted as level A, level B or 2Si (two sample interleaved).The card can also be used with 1080i, 720p, SD and 1080psf 23.98.

The '140' has an extra Dolby E encoder and decoder on board and will be capable of handling these signals internally. A Quad Speed Audio bus can be used for additional Dolby E processing or other audio processing by using an ADD-ON card like the DEE28

- Extremely low intrinsic latency of 5 lines
- 4K 4 wire (3840 x 2160)
- 4 inputs with separate internal processing
- 4 input autophasers
- 4 Frame synchronizers and offset delay blocks controllable in two stages (left top and rest)
- 4 outputs
- RGB color correction of all 4 processing channels as one
- Level A,B and 2Si compliant
- Compatible with 1080p50/59.94, 1080psf23.98, 1080i50/59.94, 720p50/59.94 and SD625/525
- Transparent for 32 channels of embedded audio in first and second videoquadrant
- Full audio shuffling between all audio sources and destinations
 - Move audio from quadrant 1 to quadrant 2
 - All channels (embedded and coming from the bus) can be a source for the dolby processor
- 32 channel Quad Speed Audio bus connectivity (Quad Speed Bus outputs 17 to 32 are de-embedder 2 or the Dolby Channels)
- SFP sockets for fiber connectivity
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Complementary cards:

- DEE28 for extra Dolby E processing. Up to 3 extra cards for 4 Dolby E channels total.
- DIO88 for physical AES/EBU I/O
- All other Quad Speed Bus cards like DSF66 or DLAXx

Applications

- All 4K four wire challenges
- 4 wire synchronization and auto phasing
- Embedding and de-embedding in all UHD applications
- Encoding and decoding to and from Dolby E embedded data
- 4K color correction
- Level A to level B or to 2Si conversion in any direction

Specifications

visit www.evs.com

Ordering information

Module:

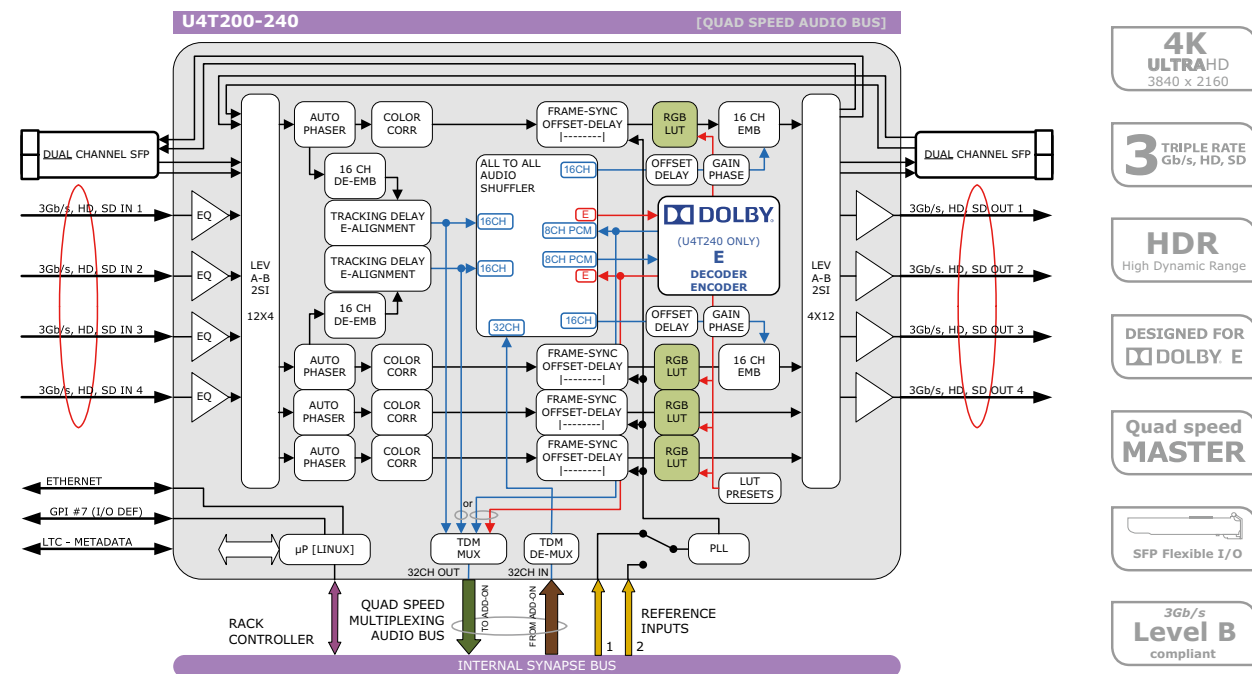
- **U4T100:** 4K (4 wire) toolbox
- **U4T140:** 4K (4 wire) toolbox with embedded Dolby processing

Standard I/O:

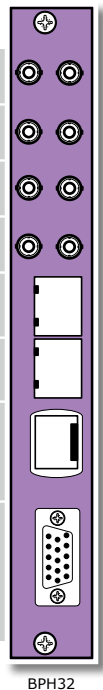
- **BPH32_U4T1x0:** I/O panel for U4T100 or U4T140

Relay bypass I/O:

- **BHX32_U4T1x0:** I/O panel for U4T100 or U4T140 with relay bypass



3Gb/s, HD, SD INPUT 1	3Gb/s, HD, SD INPUT 2
3Gb/s, HD, SD INPUT 3	3Gb/s, HD, SD INPUT 4
3Gb/s, HD, SD OUTPUT 1	3Gb/s, HD, SD, OUTPUT 2
3Gb/s, HD, SD OUTPUT 2	3Gb/s, HD, SD, OUTPUT 4
INPUT/OUTPUT SFP-1 (DUAL CHANNEL)	
INPUT/OUTPUT SFP-2 (DUAL CHANNEL)	
ETHERNET	
GPI I/O, LTC, METADATA	



4K (UHD) toolbox with LUT based color space and dynamic range converter and option Dolby E processing

The U4T200 and U4T240 have all the features and functions of the U4T100 and U4T140.

The difference between the U4T100/140 and U4T200/240 is the addition of a LUT based color space and dynamic range conversion. The LUT can be stored on 16 presets and selected on the fly.

The module is compatible with standard LUT tables in either 1D or 3D formats.

- Fully features 4K (3840x2160) Ultra HD 4 wire toolbox
- LUT based color space and dynamic range conversion
- 16 LUT presets for standard LUT tables (.cube, .LUT, TXT extensions)
- 1D LUT 10 bits 1024 RGB values (1024x3 rows)
- 3D LUT 10 bits 35937 RGB values (33x33x33)
- Side by side split screen mode with slider for evaluation of LUT values
- LUT bypass mode
- Compatible with ITU-R BT709 and ITU-R BT.2020 I/O (conversion matrix from YCrCb to RGB and back)
- Optional Dolby E encoder and decoder (U4T240)

Complementary cards:

- DEE28 for extra Dolby E processing. Up to 3 extra cards for 4 Dolby E channels total.
- DIO88 for physical AES/EBU I/O
- All other Quad Speed Bus cards like DSF66 or DLAXx
-

Applications

- LUT based color space and dynamic range conversion
- All 4K 4 wire challenges
- 4 wire synchronization and alignment
- Embedding and de-embedding in all UHD applications
- Encoding and decoding to and from Dolby E embedded data
- Color correction
- Level A to level B to 2Si conversion in any direction

Standard I/O:

- **BPH32_U4T2x0:** I/O panel for U4T200 or U4T240

Relay bypass I/O:

- **BHX32_U4T2x0:** I/O panel for U4T200 or U4T240 with relay bypass

Specifications

visit www.evs.com

Ordering information

Module:

- **U4T200:** 4K (4 wire) toolbox with color space and dynamic range converter
- **U4T240:** 4K (4 wire) toolbox with color space and dynamic range converter and with embedded Dolby processing

Low latency modular UHD and IP multiview system

When it comes to speed and flexibility, there is nothing on the market to compare with our new SynView, a powerful, modular multiviewer that can handle both 4K and any IP video format.

Featuring vastly improved specifications, the Synapse multiviewer is the industry’s only single field latency (20ms@50Hz and 16,7ms@59.94Hz) multiviewer system to offer external looping for an unlimited amount of input channels. Thanks to its modular architecture it can either be used as a stand-alone unit or it can be combined with over 300 different Synapse signal processing modules to provide a system that truly stands out from the competition.



Its unequalled low processing delay and start up time makes it ideal for a wide range of applications, from the smallest to the largest, including fast response production monitor walls; high resolution, high source count monitor walls and OB van preview monitoring and shading.

The system consists of 6 basic models. These versions can be mixed and matched to build a hybrid multiviewer with up to hundreds of inputs and 8x 1080p heads (on SDI) or two heads with UHD/4K resolution. Multiple connector panels are available to allow for different I/O configurations.

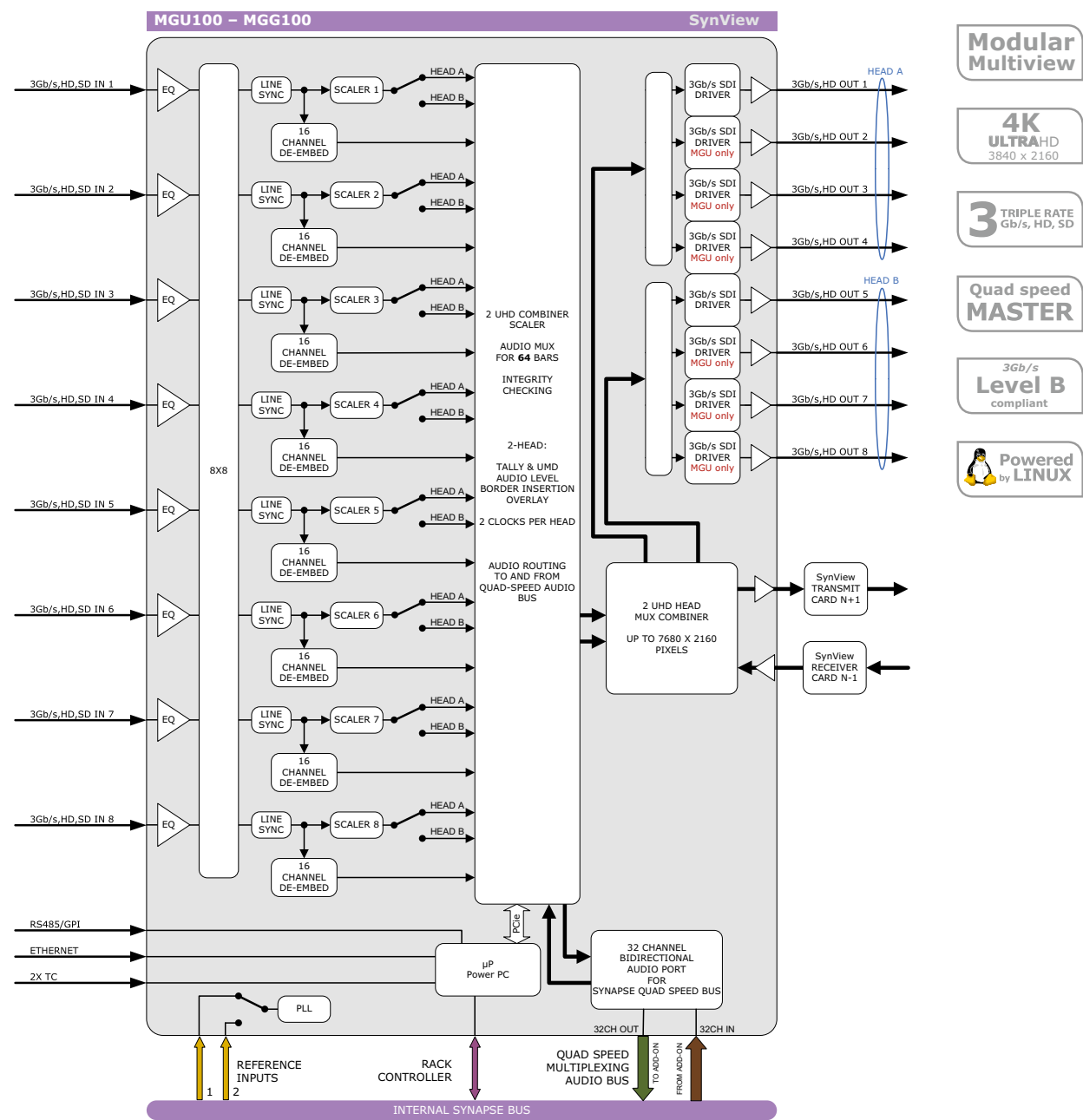
Key Features

- Linear expandable system in steps of 8 SDI input channels or networked channels
- UHD (4-wire), 3Gb/s, HD or SD SDI inputs
- 2x UHD or 8x HD outputs
- Unlimited amounts of inputs per dual UHD output configuration or per 8 3Gb/s SDI output configuration
- Multi card multiview systems can span multiple frames by use of mini SAS-HD cables
- Fast boot time: the only single field latency (20ms @50Hz, 16,7ms @59.94Hz) multiview system in the world
- Linear increase of cost (no penalty for a small systems)
- Linear increase of horse power
 - A single card has enough processing power to scale, position, de-embed, overlay and process 8 video channels. When you double the amount of inputs, you double the amount of processing power
 - A 128 channel system has 16 times the processing power of an 8 channel system
- A Synapse based modular system: can be combined with over 300 different available audio and video processing modules
- Each head can have its own customizable background
- Fonts can be changed by uploading .ttf or .otf files

audio metering, metadata, UMD and Tally

The Synapse Multiview system is designed to handle multiple individual audio metering and metadata overlays. It can also handle multiple individual selectable UMD and Tallies.





Modular Multiview

4K ULTRAHD 3840 x 2160

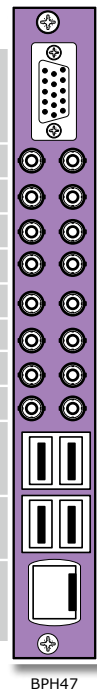
3 TRIPLE RATE Gb/s, HD, SD

Quad speed MASTER

3Gb/s Level B compliant

Powered by LINUX

GPI I/O, TSL, LTC INPUTS	
3Gb/s, HD, SD INPUT 1	3Gb/s, HD, SD INPUT 2
3Gb/s, HD, SD INPUT 3	3Gb/s, HD, SD INPUT 4
3Gb/s, HD, SD INPUT 5	3Gb/s, HD, SD INPUT 6
3Gb/s, HD, SD INPUT 7	3Gb/s, HD, SD INPUT 8
3Gb/s, HD, SD OUTPUT 1	3Gb/s, HD, SD OUTPUT 2
3Gb/s, HD, SD OUTPUT 3	3Gb/s, HD, SD OUTPUT 4
3Gb/s, HD, SD OUTPUT 5	3Gb/s, HD, SD OUTPUT 6
3Gb/s, HD, SD OUTPUT 7	3Gb/s, HD, SD OUTPUT 8
SYNVIEW LOOP INPUT	
SYNVIEW LOOP OUTPUT	
ETHERNET (CONTROL)	



BPH47

Main Features

- 8 inputs to two individual panel outputs or 8 SDI outputs (MGU100) or 2 SDI (up to 1080p) outputs (MGG100)
- Each input can be displayed on one head with an individual scale and position
- Low latency (20 ms for 50Hz, 17 ms for 59.94Hz)
- Full RGB domain (internal 20bit processing for scaling)
- Up to 2x 4k/UHD (2160p60) resolution on 2x 4-wire SDI (MGU100 only)
- Up to 8 3Gb/s SDI outputs
- Full variable scaling and positioning for all individual inputs
- All inputs are compatible with 1080p50/59.94, 1080p(sf)29.97/25/24, 1080i50/59.94, 720p59.94/50/29.97/25/24 and SD625/525 (mixing is allowed with different frame rates)
- 64 audio bars (per head) free assignable from 128 embedded sources and/or 32 sources via the Quad Speed Audio bus
- Three assignable regions in or under monitor: Input format, Static UMD and Dynamic UMD, VITC, ATC, LTC, Aspect Ratio
- Lock to input, reference or free running
- Masked or transparent audio bar graphics with AES/EBU, BBC or Nordic scale VU meters.
- Customizable color schemes for audio meters
- Two definable clocks per head; Analog, Digital or Combined
- Digital clock can be set to normal time, up counter or down counter
- Clocks can be assigned to VITC, ATC, LTC, NTP (Ethernet) or system
- UMD colors: gray, green, red and amber
- Border, UMD and tally brightness adjustments

- Automatic 4:3 and 16:9 modes through VI or WSS triggers (SD-SDI inputs)
- GPI control for Aspect ratio, Full screen modes and Tally
- Detect and display Freeze, black, silence, AFD, WSS, VI, CC and WST
- Locks to Bi-level, Tri-level syncs or SDI input
- Full control and status monitoring through the front panel of the SFR08/SFR18 frame and the Ethernet port (ACP)

Applications

- Small to extremely large monitoring walls
- Fast response production monitor walls with unequalled low processing delay and startup time
- High resolution high source count monitor walls
- OB van preview monitoring and shading

Ordering information

Module:

- MGU100: 8 x SDI input with 16 PIPs and dual UHD head
- MGG100: 8 x SDI input with 16 PIPs and dual HD head

Standard I/O:

- BPH47_MGXxxx: Multiviewer I/O-panel for SDI inputs

Specifications

visit www.evs.com

SDI multiview building block with 8 SDI inputs and up to 8 HD or 2 UHD (4K) SDI outputs with monitoring

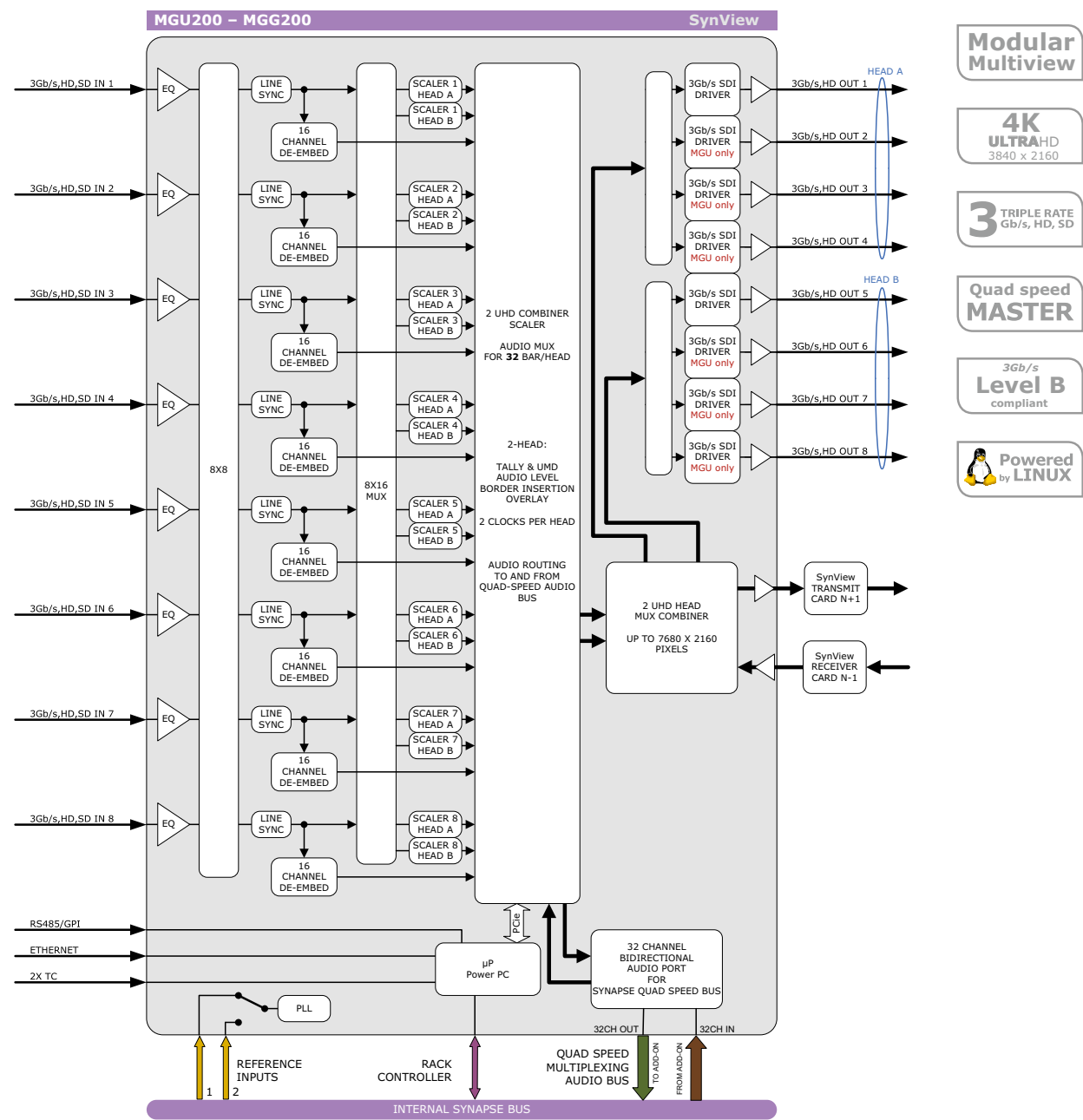
The MGU and MGG modules together form a modular multi-viewer. The system consists of 4 different models. These models can be mixed and matched to build a hybrid multiviewer with up to hundreds of inputs and 8 1080p heads (on SDI) or two heads with UHD/4K resolution.

Because of the external Daisy Chain mini SAS-HD connector you can build a multi viewer with, in theory, an unlimited amount of input channels as you can chain the cards even between frames. You can split the multiviewer into smaller chunks of cards, each block with its own set of PIPs (Picture In Pictures) and its own outputs. A MGU100 can also be

used stand alone as a dual quad split with 8 1080p pictures spread over 2 UHD screens (pixel mapping with no scaling)

The MGU/MGG100 has extra monitoring and detection capabilities compared to the MGU/MGG200. It can detect and display Freeze, black, silence, AFD, WSS, VI, CC and WST. In addition, it can also display up to 64 audio bars per head.

A four wire to HDMI 2.0 converter, ideally compatible with 2SI (or two sample interleaved), or Quadrants is needed to connect the SDI outputs to commercial HDMI2.0 screens.



GPI I/O, TSL, LTC INPUTS	
3Gb/s, HD, SD INPUT 1	3Gb/s, HD, SD INPUT 2
3Gb/s, HD, SD INPUT 3	3Gb/s, HD, SD INPUT 4
3Gb/s, HD, SD INPUT 5	3Gb/s, HD, SD INPUT 6
3Gb/s, HD, SD INPUT 7	3Gb/s, HD, SD INPUT 8
3Gb/s, HD, SD OUTPUT 1	3Gb/s, HD, SD OUTPUT 2
3Gb/s, HD, SD OUTPUT 3	3Gb/s, HD, SD OUTPUT 4
3Gb/s, HD, SD OUTPUT 5	3Gb/s, HD, SD OUTPUT 6
3Gb/s, HD, SD OUTPUT 7	3Gb/s, HD, SD OUTPUT 8
SYNVIEW LOOP INPUT	
SYNVIEW LOOP OUTPUT	
ETHERNET (CONTROL)	

BPH47

Main Features

- 8 inputs to two individual panel outputs or 8 SDI outputs (MGU200) or 2 SDI (up to 1080p) outputs (MGG200)
- Each input can be displayed on each head with an individual scale and position
- Low latency (20 ms for 50Hz, 17 ms for 59.94Hz)
- Full RGB domain (internal 20bit processing for scaling)
- Up to 2x 4k/UHD (2160p60) resolution on 2x 4-wire SDI (MGU200 only)
- Up to 8 3Gb/s SDI outputs
- Full variable scaling and positioning for all individual inputs
- All inputs are compatible with 1080p50/59.94, 1080p(sf)29.97/25/24, 1080i50/59.94, 720p59.94/50/29.97/25/24 and SD625/525 (mixing is allowed with different frame rates)
- 32 audio bars (per head) free assignable from 128 embedded sources and/or 32 sources via the Quad Speed Audio bus
- Three assignable regions in or under monitor: Input format, Static UMD and Dynamic UMD, VITC, ATC, LTC, Aspect Ratio
- Lock to input, reference or free running
- Masked or transparent audio bar graphics with AES/EBU, BBC or Nordic scale VU meters.
- Customizable color schemes for audio meters
- Two definable clocks per head; Analog, Digital or Combined
- Digital clock can be set to normal time, up counter or down counter
- Clocks can be assigned to VITC, ATC, LTC, NTP (Ethernet) or system
- UMD colors: gray, green, red and amber
- Border, UMD and tally brightness adjustments

- Automatic 4:3 and 16:9 modes through VI or WSS triggers (SD-SDI inputs)
- GPI control for Aspect ratio, Full screen modes and Tally
- Locks to Bi-level, Tri-level syncs or SDI input
- Full control and status monitoring through the front panel of the SFR08/SFR18 frame and the Ethernet port (ACP)

Applications

- Small to extremely large monitoring walls
- Fast response production monitor walls with unequalled low processing delay and startup time
- High resolution high source count monitor walls
- OB van preview monitoring and shading

Ordering information

Module:

- **MGU200:** 8 x SDI input with 16 PIPs and dual UHD head
- **MGG200:** 8 x SDI input with 16 PIPs and dual HD head
-

Standard I/O:

- **BPH47_MGXxxx:** Multiviewer I/O-panel for SDI inputs

Specifications

visit www.evs.com

SDI multiview building block with 8 SDI inputs and up to 8 HD or 2 UHD (4K) SDI outputs

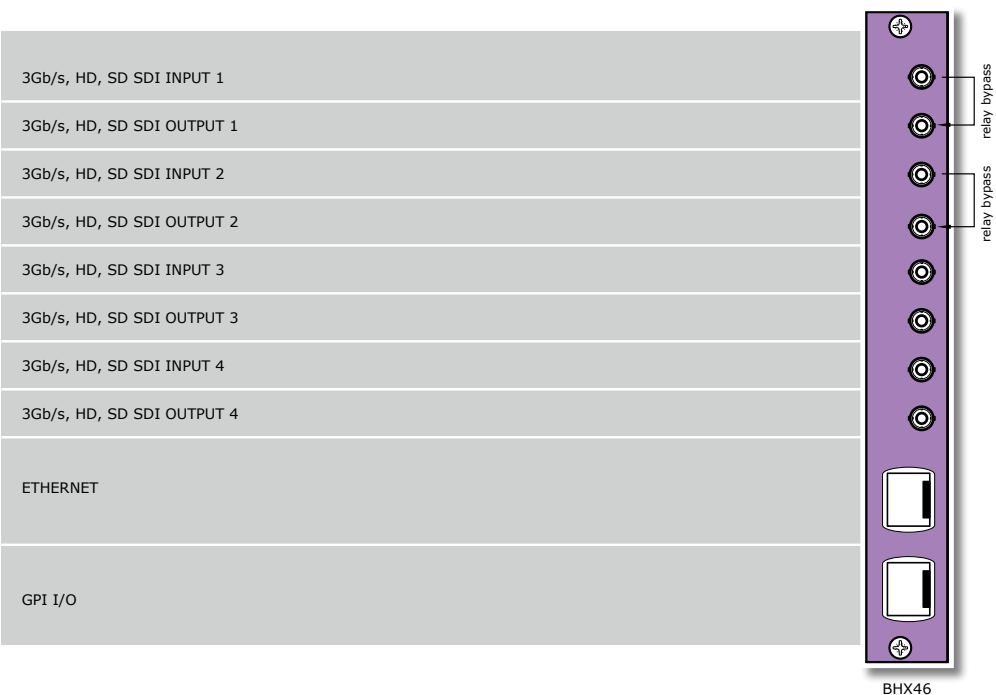
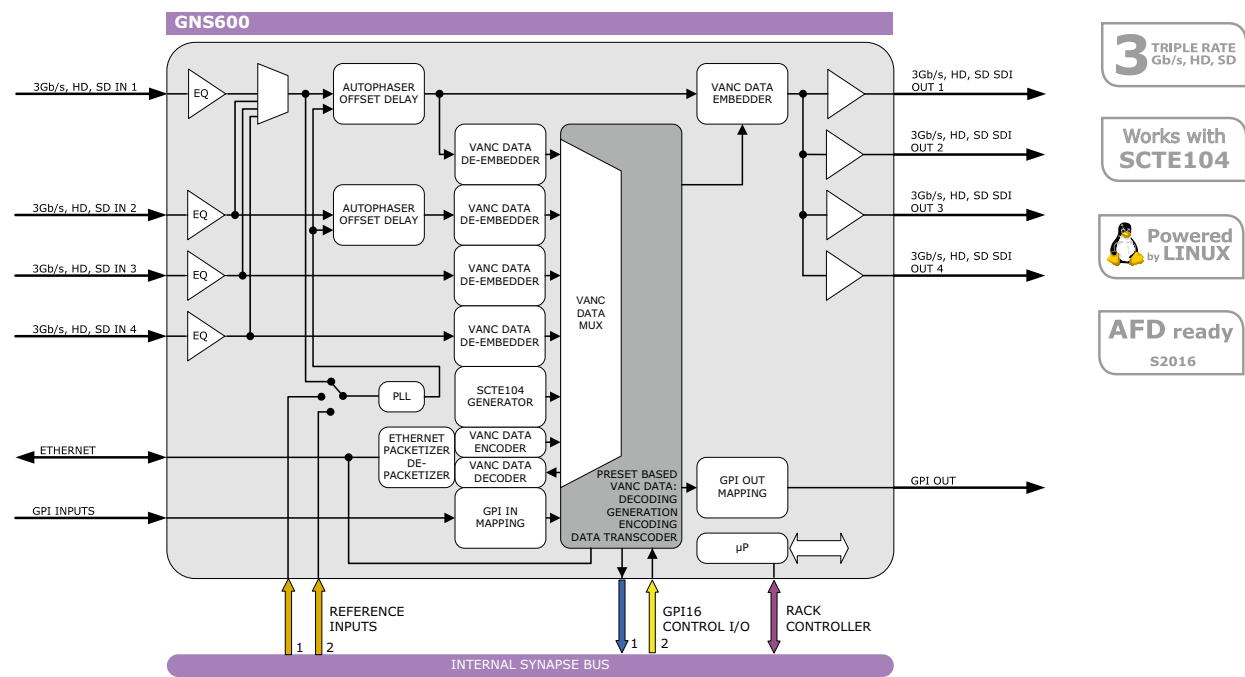
The MGU and MGG modules together form a modular multi-viewer. The system consists of 4 different models. These models can be mixed and matched to build a hybrid multiviewer with up to hundreds of inputs and 8 1080p heads (on SDI) or two heads with UHD/4K resolution.

Because of the external Daisy Chain mini SAS-HD connector you can build a multi viewer with, in theory, an unlimited amount of input channels as you can chain the cards even between frames. You can split the multiviewer into smaller chunks of cards, each block with its own set of PIPs (Picture In Pictures) and its own outputs. A MGU200 can also be used

stand alone as a dual quad split (or even oct split) with 8 1080p pictures spread over 2 UHD screens (pixel mapping with no scaling)

The MGU200 and MGG200 are 8 SDI input multiview building blocks with up to 8 outputs. These outputs can be grouped to 2x 4-wire UHD/4K outputs on the MGU200.

A four wire to HDMI 2.0 converter, ideally compatible with 2SI (or two sample interleaved), or Quadrants is needed to connect the SDI outputs to commercial HDMI2.0 screens.



SCTE104 VANC inserter, Ethernet data-bridge for 3G, HD and SD SDI Inputs and X31 Cue encoder/decoder

The GNS600 is a 3G, HD and SD SDI SCTE104 inserter with SDI inputs outputs. SCTE104 information present in the SDI signal can be transcoded and inserted into the main 3G, HD or SD SDI signal. The GNS600 can insert data from both the Ethernet and SDI domain into lines in SDI or insert a user defined cue on a preset base.

The GNS600 can insert or decode SMPTE-2010 packets containing SCTE104 Digital Program Insertion (DPI) messages to/ from VANC. Transcode between SCTE104 HD and SCTE104 SD data is also possible. The card will decode the SCTE104 DPI messages (contained on any or only user specified lines) and monitor for specific (user defined) content and trigger the appropriate GPO or pass the DPI message content to other control systems via Ethernet connection. Messages received as SCTE104 packets will be treated as status changes and may be logged by an external system.

The card will encode the cues received from local GPI, or via ACP as predefined (user configurable) SCTE104 DPI Operation messages packets. The card will also format information, received as Ethernet from external control systems, and inject this SCTE104 messages. Note: SCTE104 specifies availability of user defined operation names on ID C000-FFFF, these are supported on this card.

This data embedding is transparent to embedded audio that might be present in the SDI domain. The card has preset configurations and these can be recalled on the

reception of appropriate SCTE104 DPI messages, via local GPIs or manual control via ACP

Another function of this card is as standalone card that can insert or decode X31 cues into or from the vertical blanking. The card will decode the cues and pass the status to GPI.

- SCTE104 (HD) translation into SCTE104 (SD) bridging
- GPI triggered SCTE104 DPI or user defined message (preset based)
- GPI outputs triggered by SCTE104 DPI messages (preset based)
- 3x GPI input and 4 x bidirectional GPI/O (up to 7 inputs)
- 10 additional GPI inputs and 16 outputs with the bus controlled GPI16 ADD-ON card
- Ethernet controlled SCTE104 insertion (embedding of SMPTE2010)
- 4 processed outputs
- 32 Presets
- X31 cue encoding and decoding for 1080i/50 and SD625 formats
 - Inserts incoming cues generated on GPI's in WST-B (SD) or OP47 (HD)
 - Output of GPI's on GPI16 card
 - GPI inputs from HSI21 card
- Locks to SDI input, or external reference
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- All SCTE104 insertion applications like:
- Advertisement insertion
 - local news triggers
 - GPI transport
 - SCTE104 removal or transcoding

Ordering information

Modules:

- **GNS600:** SCTE104 VANC inserter, ethernet data bridge for 3G/bs, HD and SD SDI inputs and X31 Cue encoder/decoder

Relay bypass I/O:

- **BHX46_GNS600:** I/O panel for GNS600 with relay bypass

Specifications

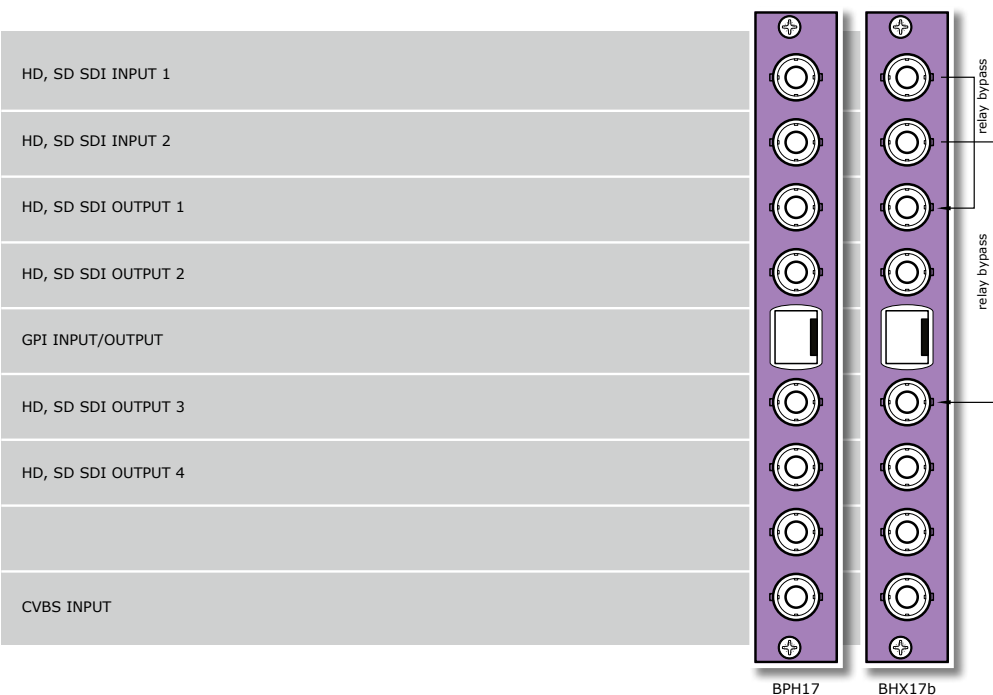
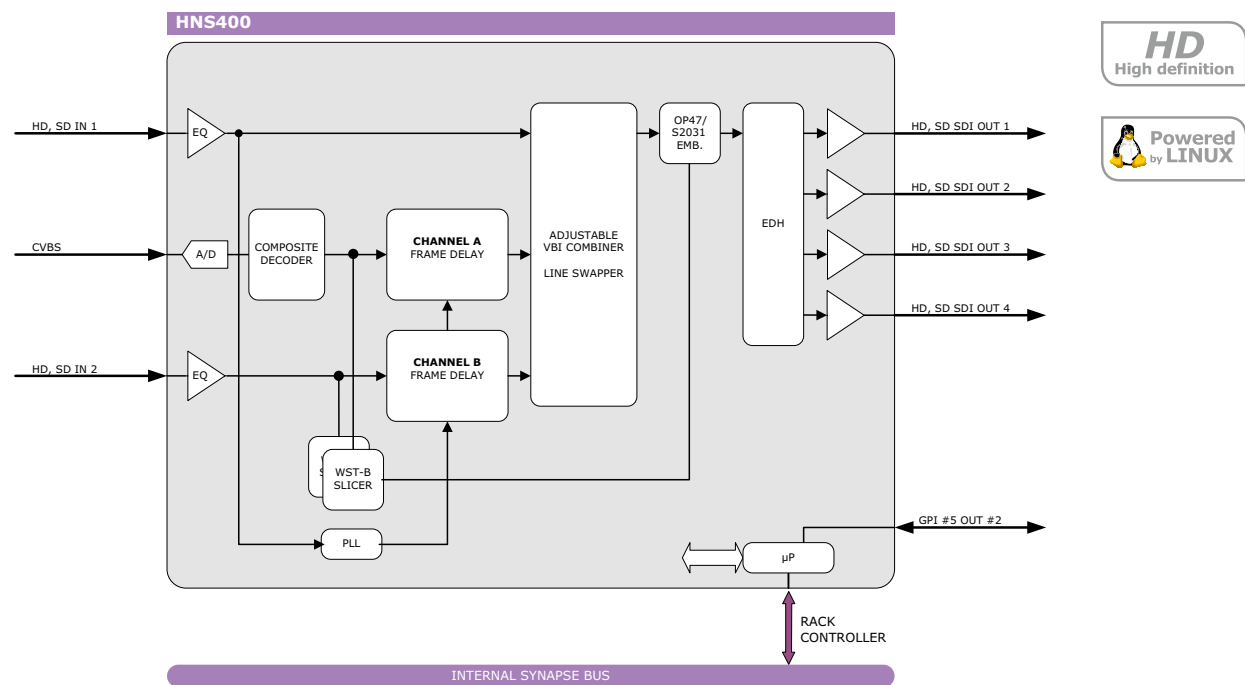
visit www.evs.com

Conversion abilities

		Output							
	Format	SD625	SD525	720p50	720p60	1080i50	1080i60	1080p50	1080p60
Input	SD625	bridge/ swap SCTE104 to/from		SCTE104 SD to HD		SCTE104 SD to HD		SCTE104 SD to HD	
	SD525		bridge/ swap SCTE104 to/from		SCTE104 SD to HD		SCTE104 SD to HD		SCTE104 SD to HD
	720p50	SCTE104 HD to SD		bridge/ swap SCTE104 to/from		bridge/ swap SCTE104 to/from		bridge/ swap SCTE104 to/from	
	720p60		SCTE104 HD to SD		bridge/ swap scte104 to/from		bridge/ swap SCTE104 to/from		bridge/ swap SCTE104 to/from
	1080i50	SCTE104 HD to SD		bridge/ swap SCTE104 to/from		bridge/ swap SCTE104 to/from		bridge/ swap SCTE104 to/from	
	1080i60		SCTE104 HD to SD		bridge/ swap SCTE104 to/from		bridge/ swap scte104 to/from		bridge/ swap SCTE104 to/from
	1080p50	SCTE104 HD to SD		bridge/ swap SCTE104 to/from		bridge/ swap SCTE104 to/from		bridge/ swap SCTE104 to/from	
	1080p60		SCTE104 HD to SD		bridge/ swap SCTE104 to/from		bridge/ swap SCTE104 to/from		bridge/ swap SCTE104 to/from

Notes:

- Input format = SDI input 2 and 3 format
- Output format = SDI ouput 1 format
- Empty cells represent 'No Operation'. Different frequencies cannot be mixed.



HD, SD, CVBS VBI/VANC line inserter/swapper/transcoder (data bridge)

The HNS400 is a HD and SD SDI VBI/VANC inserter with composite and SDI inputs and an HD, SD SDI outputs. VBI (for example Teletext) or VANC (OP47, S2031) information present in the composite or SDI signal can be transcoded and inserted into the main HD or SD SDI signal. The HNS400 can insert lines from both composite and SDI domain into lines in the SDI domain. For example, line 7 of the CVBS input can be inserted into line 335 of the SDI signal.

This line exchange is transparent to embedded audio that might be present in the SDI domain. For a complete overview of the insertion and bridging abilities of this card, please refer to www.evs.com.

- WST-B translation into OP47 or S2031
- Lines can be swapped, blanked or set transparent
- Built-in ProcAmp
- 4 processed outputs
- Locks to SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- Generic data bridge application where composite domain vertical blanking lines are inserted in the SDI domain

Ordering information

Modules:

- **HNS400:** VBI line inserter/swapper (data bridge)

Standard I/O:

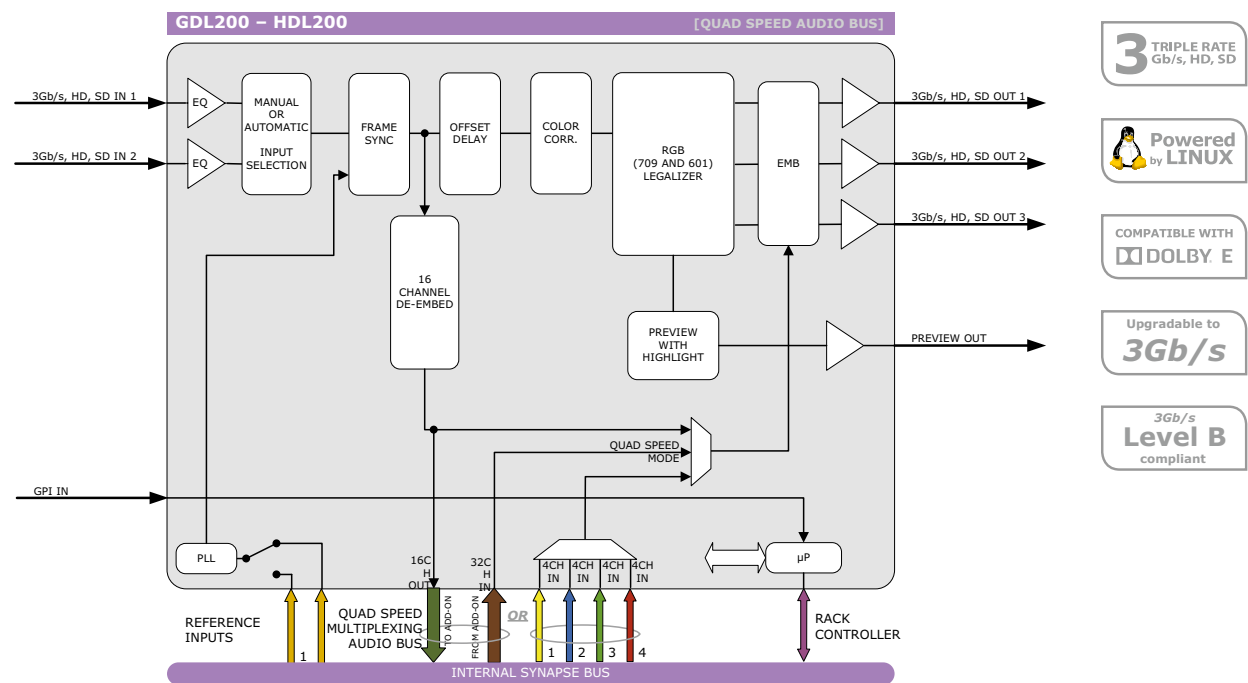
- **BPH17_HNS400:** I/O panel for HNS400

Relay bypass I/O:

- **BHX17b_HNS400:** I/O panel for HNS400 with relay bypass

Specifications

visit www.evs.com



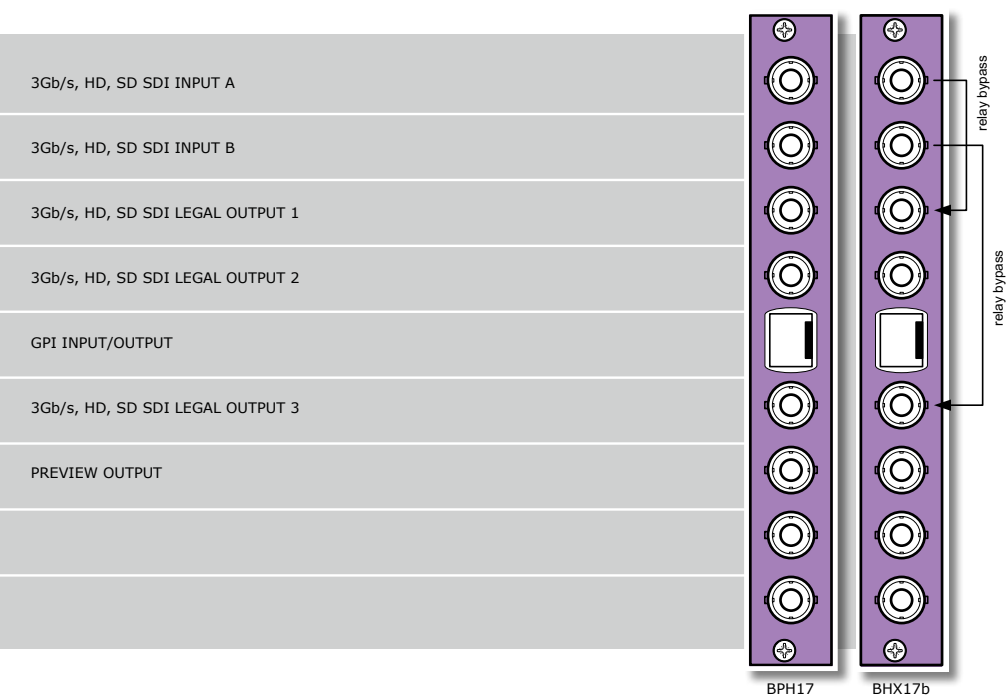
3 TRIPLE RATE
Gb/s, HD, SD

Powered
by LINUX

COMPATIBLE WITH
DOLBY E

Upgradable to
3Gb/s

3Gb/s
Level B
compliant



Dual input 3Gb/s and HD RGB legalizer and framesync with preview output and Quad Speed ADD-ON handling

The GDL/HDL200 are dual standard legalizers for digital signals with full framesync functionality. They legalize 3Gb/s, HD and SD SDI streams in the RGB domain within 709 color space (601 for SD).

The preview output with a highlight function that indicates the areas that are being processed. This card is also equipped with the Quad Speed audio bus which enables you to build a complete video and audio legalization ingest platform with the addition of a card of the DLA series.

- 2x 3Gb/s (Level A&B), HD or SD-SDI input (auto selecting)
- 2 input back-up functions:
 - Automatic by input carrier detection
 - Manual by direct control (ACP)
 - GPI
- Framesync/autophaser
- RGB legalization in either HD or 3Gb/s (709) or SD (601) domain
- HD is 16 channel (4 group) transparent
- Triple 3Gb/s (Level A&B), HD or SD output
- Preview output with highlighted legalization markers
- Color correction
- Compatible with the following standards:
 - 1080p 50/59.94
 - 1080i 50/59.94
 - 720p 50/59.94
 - 625/50
 - 525/59.94
- Reporting of chosen input
- CRC status information for both inputs
- Quad Speed audio bus and normal bus
- Locks to SDI input
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Complementary cards:

- DLA41, DLA42, DLA43, DLA44, DIO88, DBD18

Applications

- Ingest legalizing tool for video as well as audio together with a DLA44, DLA43, DLA42 or DLA41
- Transmission legalizer for 3Gb/s, (level A&B) HD or SD signals
- Transmission legalizer with automatic back-up switching
- Tape transfer legalizer

Ordering information

Modules:

- **GDL200:** Dual input 3Gb/s and HD RGB legalizer and framesync with preview output and Quad Speed ADD-ON handling
- **HDL200:** Dual input HD RGB legalizer and framesync with preview output and Quad Speed ADD-ON handling (upgradeable to 3Gb/s)

Standard I/O:

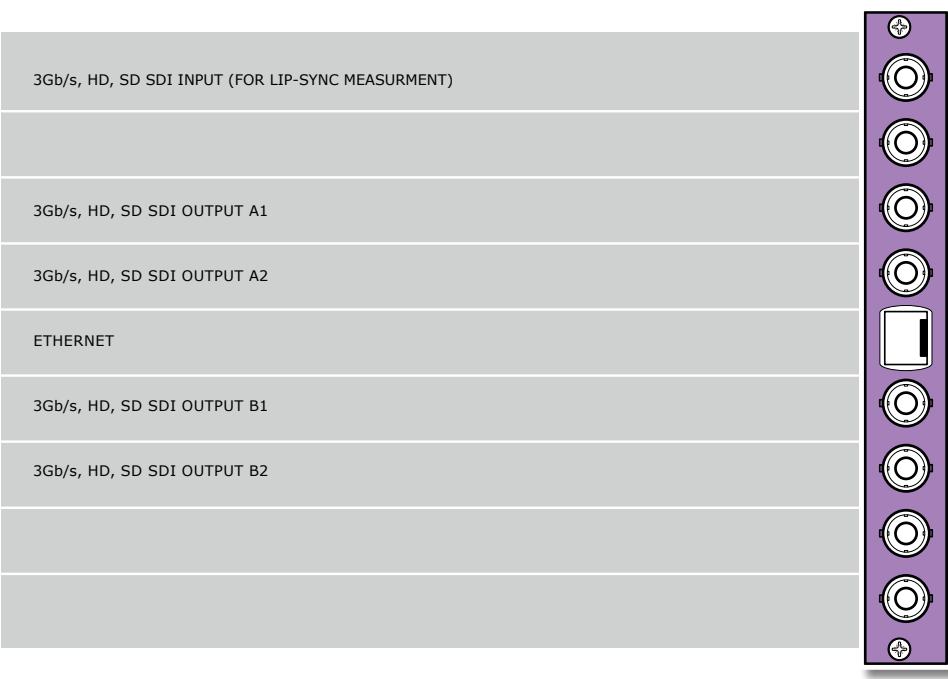
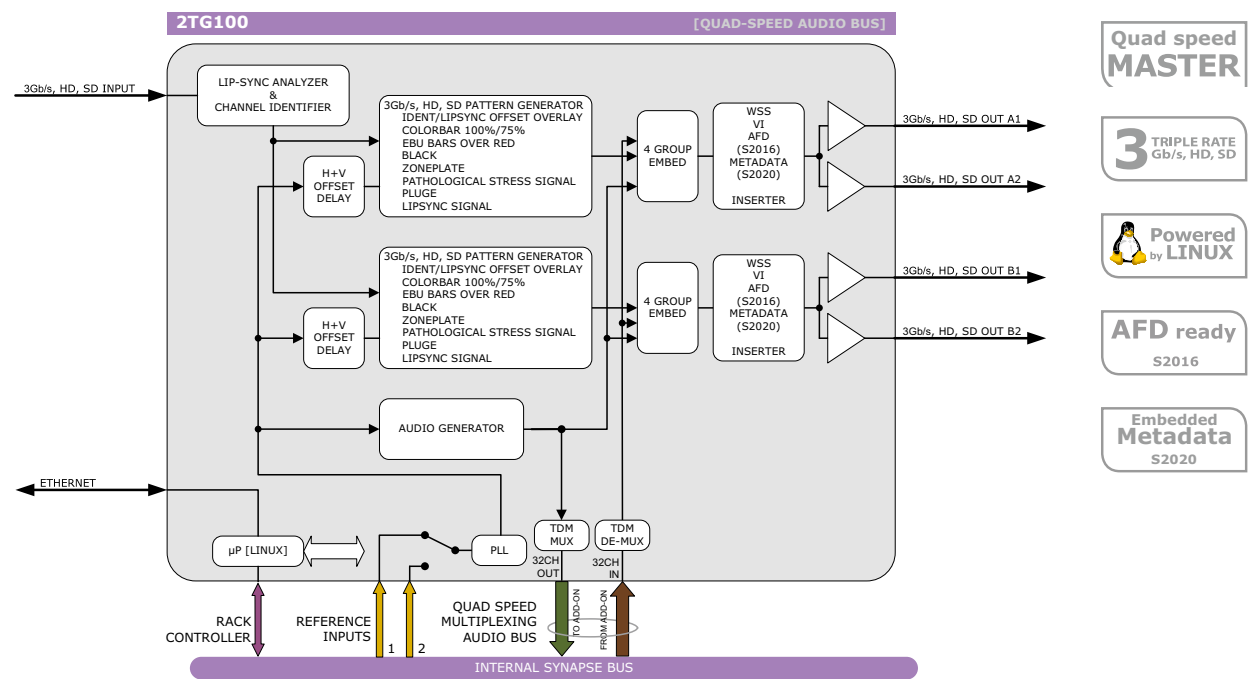
- **BPH17_GDL200:** I/O panel for GDL-HDL200

Relay bypass I/O:

- **BHX17b_GDL200:** I/O panel for GDL-HDL200 with relay bypass

Specifications

visit www.evs.com



Dual 3Gb/s, HD, SD test pattern generator with embedded audio signals, Lip-sync measurement and Quad Speed ADD-ON audio I/O

The 2TG100 is a dual channel test pattern generator. Locked to a black and burst or Tri-level sync it can generate 2 fully independent test patterns in either 3Gb/s, HD or SD. 16 test signals of embedded audio are also inserted. These audio signals can be sourced to the Quad Speed audio bus for discrete usage. External audio can also be inserted via the Quad Speed audio bus with for example a DIO88.

The 2TG100 also contains a Lip-Sync analyzer. A 3Gb/s capable SDI input is available to provide a measurement probe. In Cortex/Cerebrum, or as on-screen display overlay, the Lip-Sync offset is shown in milliseconds. The analyzer block also identifies channel swaps.

The fully individual outputs can handle any format in the same frequency. So 1080p50 and 1080i50 can be used simultaneously.

- 2 individual 3Gb/s, HD, SD SDI test patterns
 - Colorbar 100%
 - Colorbar 75%
 - Bars over red 100%
 - Bars over red 75%
 - Black
 - Zoneplate
 - Pathological stress signal
 - Pluge
 - Lip-Sync test signal Generation
- Individual offset delay with respect to reference in pixel increments up to one frame

- S2020 metadata generator
- VI/WSS/AFD(S2016) inserter
- Compatible output formats for each output (only one output frequency can be used at a time while locked to a reference)
 - 1080p59.94 ■ 1080p25 ■ 720p25
 - 1080p50 ■ 1080p23.98 ■ 720p23.98
 - 1080i59.94 ■ 720p59.94 ■ SD525
 - 1080i50 ■ 720p50 ■ SD625
 - 1080p29.97 ■ 720p29.97
- Lip-Sync Analyzer
- Channel swap identifier
- A 16 character text ident can be overlaid on each pattern
- The 16 character text ident can alternatively show the Lip-Sync offset
- 16 channel audio generator with adjustable gain and phase for embedded audio test patterns:
 - Sine 10Hz to 20KHz (with out without 6dB dip sequence)
 - Blits 5.1
 - Lip-Sync (combined with video marker)
 - Stepped Sweep
- External audio via the Synapse bus (normal or Quad Speed technology)

Complementary cards:

- DIO88

Applications

- Generic studio infrastructure test and ident generation
- Infrastructure Lip-sync measurement

Ordering information

Module:

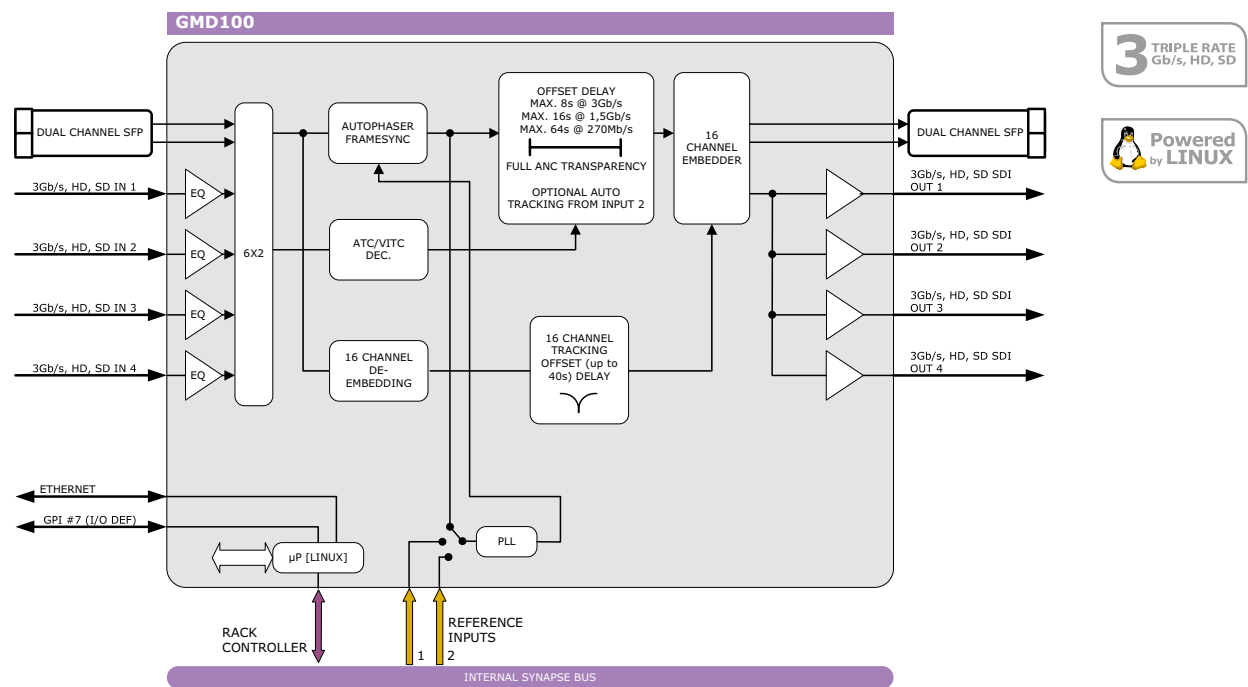
- **2TG100:** Dual 3Gb/s, HD and SD test pattern generator

Standard I/O:

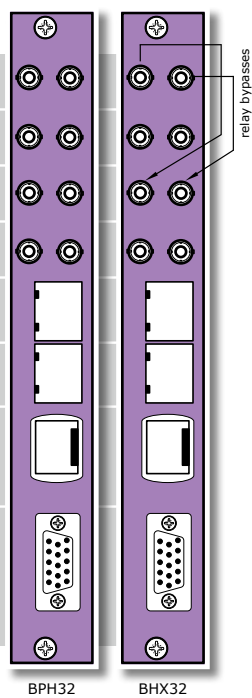
- **BPH19_2TG100:** I/O panel for 2TG100

Specifications

visit www.evs.com



3Gb/s, HD, SD INPUT 1	3Gb/s, HD, SD INPUT 2 FOR EMBEDDED TIMECODE
3Gb/s, HD, SD INPUT 3	3Gb/s, HD, SD INPUT 4
3Gb/s, HD, SD OUTPUT 1	3Gb/s, HD, SD, OUTPUT 2
3Gb/s, HD, SD OUTPUT 2	3Gb/s, HD, SD, OUTPUT 4
INPUT SFP-1 (DUAL CHANNEL)	
OUTPUT SFP-2 (DUAL CHANNEL)	
ETHERNET	
GPI I/O	



3Gb/s, HD, SD SDI medium time delay with automatic tracking function

The GMD100 is a medium time 3Gb/s, HD and SD-SDI uncompressed baseband video delay. It can store and delay SDI video. It can store and delay video with complete ANC data up to 8 seconds 3Gb/s and 16 seconds in HD and up to 64 seconds in SD. The separate audio delay can handle a delay up to 40 seconds.

One of the unique features is the capability of syncing a delay to the time code of the second input. An example use of this card is when a video feed is sent down two separate paths or networks, and the delay between the two is unknown. The card on each path would add the appropriate delay to its incoming video to ensure that the output was co-timed. This co-timed output can for example be fed into a backup switch and seamless switching with no time hops is achieved.

- Autophase and framesync
- Adjustable offset delay up to:
 - 1080p: 484 frames | 9.68s @ 50Hz | 8.07s @ 59.94Hz
 - 1080i: 484 frames | 19.36s @ 50Hz | 16.15s @ 59.94Hz
 - 720p: 968 frames | 19.36s @ 50Hz | 16.15s @ 59.94Hz
 - SD: 1936 frames | 77.44s @ 50Hz | 64.60s @ 59.94Hz
- Adjustment in frames, lines and pixels
- Tracking audio delay with offset adjustment up to 40s
- Adjustable full transparent delay mode for video, audio and ancillary data
- Individual audio selections feeding the embedder (shuffling)
- Locks to SDI input, reference or aligns to a reference source of ATC or VITC timecode
- Possible to add an offset to incoming video to match the offset ATC or VITC timecode
- Full transparent delay for video and audio
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- Dynamic delay compensation for main/backup redundant path applications.
- Timing correction in 3Gb/s, HD and SD virtual studios
- 'Late' embedded audio correction (lipsync)

Ordering

information

Modules:

- **GMD100:** 3Gb/s, HD, SD SDI medium time delay with automatic tracking function

Standard I/O:

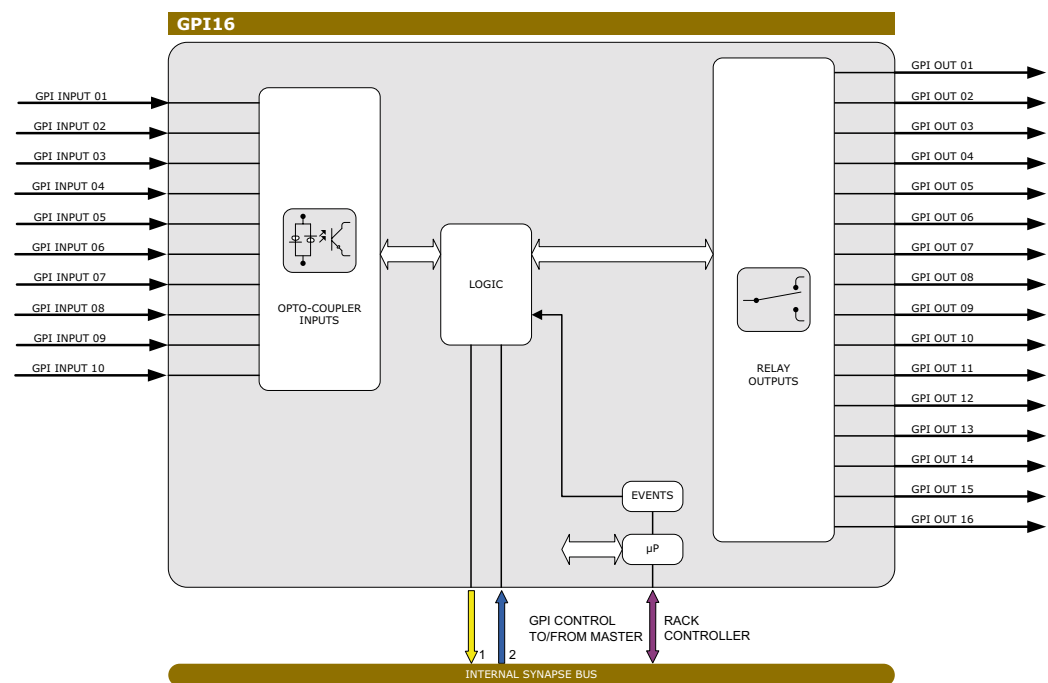
- **BPH32_GMD100:** I/O panel for GMD100

Relay bypass I/O:

- **BHX32_GMD100:** I/O panel for GMD100 with relay bypass

Specifications

visit www.evs.com



Universal GPI card with 10 GPI inputs and 16 GPI outputs

The GPI16 card is a universal Synapse GPI I/O (input/output) card. The card is capable of forcing GPI output triggering based on events that are generated by cards located in the same rack. (E.g. An alarm/event generated by any specific card in frame. This alarm/event is put on the bus. The GPI16 card will monitor the internal bus for events and close a relay in case of an event). The GPI16 can also be used as a slave card for Synapse functions. In these applications it is possible to control functions directly in to a MASTER, e.g. GPI based channel selection of the 8x1 switcher SDX08.

- 10 GPI inputs (opto coupled)
- 16 GPI outputs (change-over contacts by electromechanical relays)
- Frame surveillance mode where card events can be mapped to GPI outputs
- Slave mode where GPI in and outputs are mapped directly to card status and settings (VWI10, ARC20/21/22, CCR10)
- Frame mode where the card detect events from other cards in the same frame
- Latching and non-latching GPI inputs
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Complementary cards:

- VWI10, CCR10, ARC20/21/22

Applications

- GPI alarm monitoring of Synapse events
- GPI to SNMP conversion
- Where a third party GPI/O only product is integrated via the GPI16 into the Synapse network and/or SNMP system
- GPI to Synapse triggers (with ARC, VWI or SDX cards)

Ordering

information

Module:

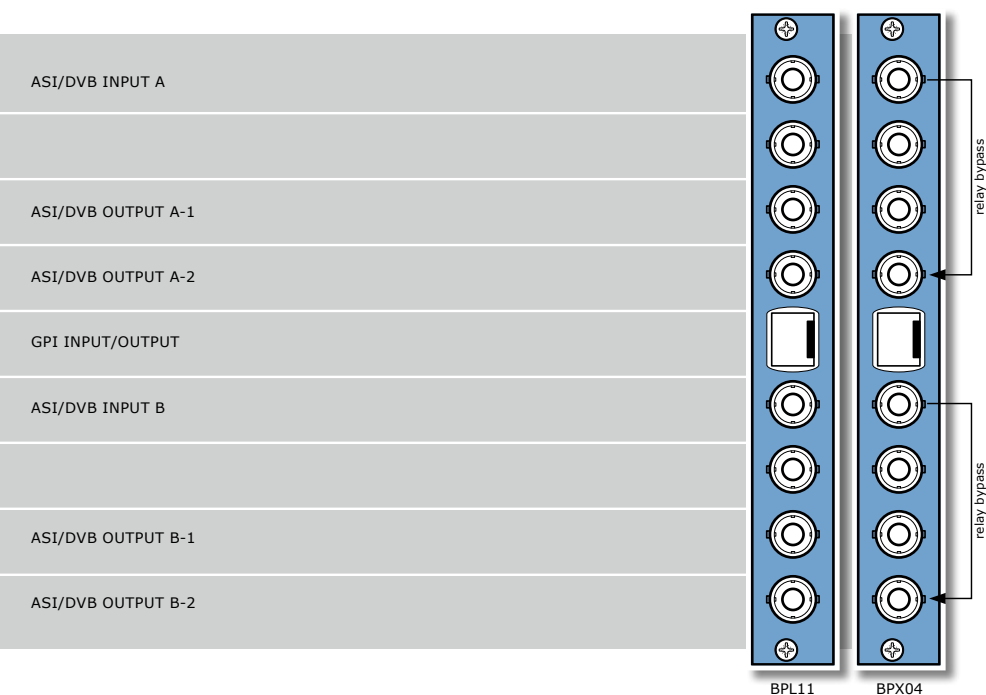
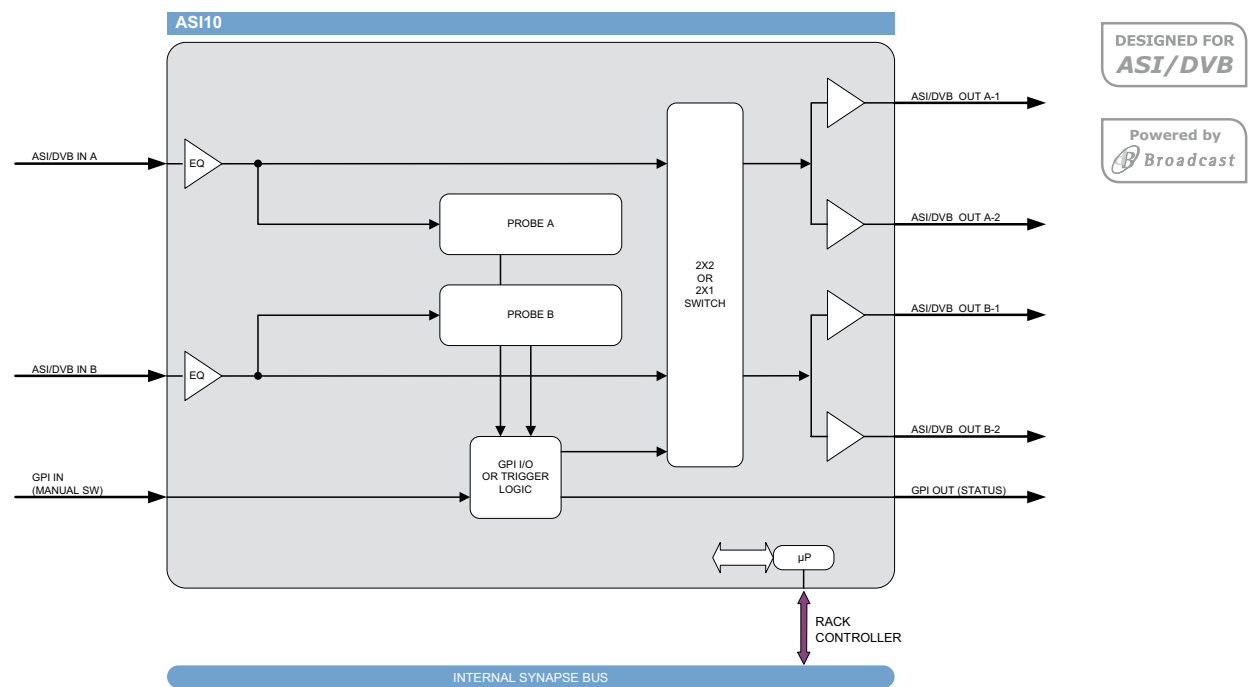
- **GPI16:** Universal GPI card with 10 GPI inputs and 16 GPI outputs

Standard I/O:

- **BPL06_GPI16:** I/O panel for GPI16

Specifications

visit www.evs.com



Dual channel ASI/DVB monitor with 2x2 output switch and dual fan-out per channel

The ASI10 is a dual channel ASI/DVB integrity checker with a 2x2 output switch. Each output has a dual fan-out for distribution of the signal

- 2x2 or 2x1 (4 outputs) mode
- Monitor ASI/DVB streams and triggering of corresponding alarms. These can be used to trigger a switch-over:
 - Loss of Transport Stream sync bytes
 - No Transport Stream
 - Transport Stream-rate
 - Data-rate
 - Null packets / Active data ratio
 - Number of PIDs in the stream
- Monitoring only
 - ASI data link mode (Empty, Byte, Packet, Burst)
 - 188/204/Indeterminate mode
 - Total number of unique PIDs per second
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- Generic ASI/DVB integrity monitoring and back-up switching

Ordering information

Module:

- **ASI10:** Dual channel ASI/DVB monitor with 2x2 output switch

Standard I/O:

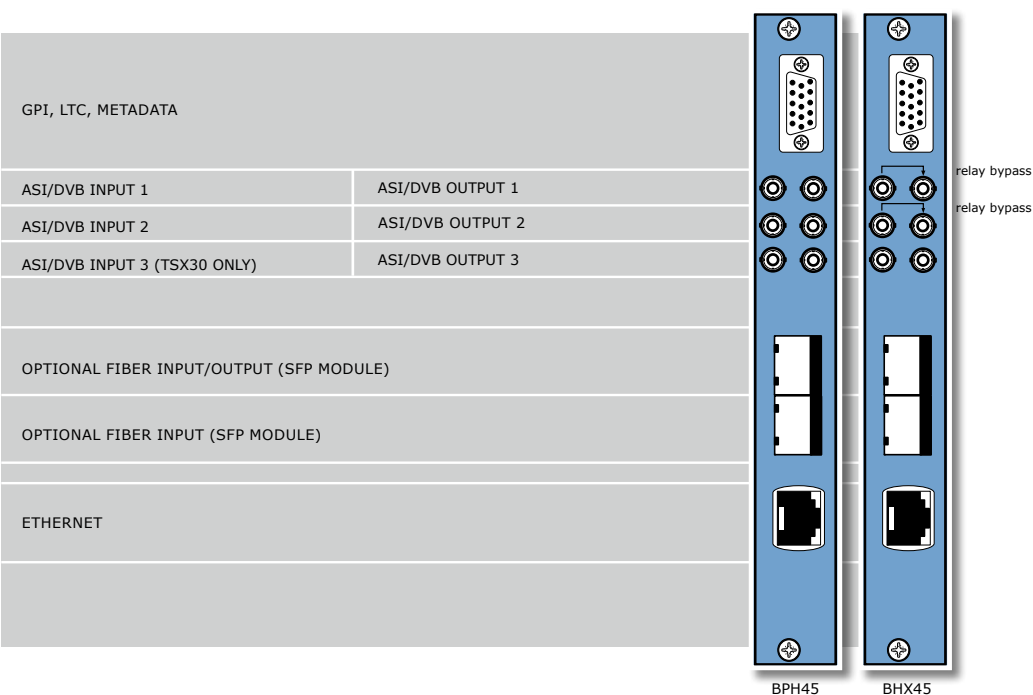
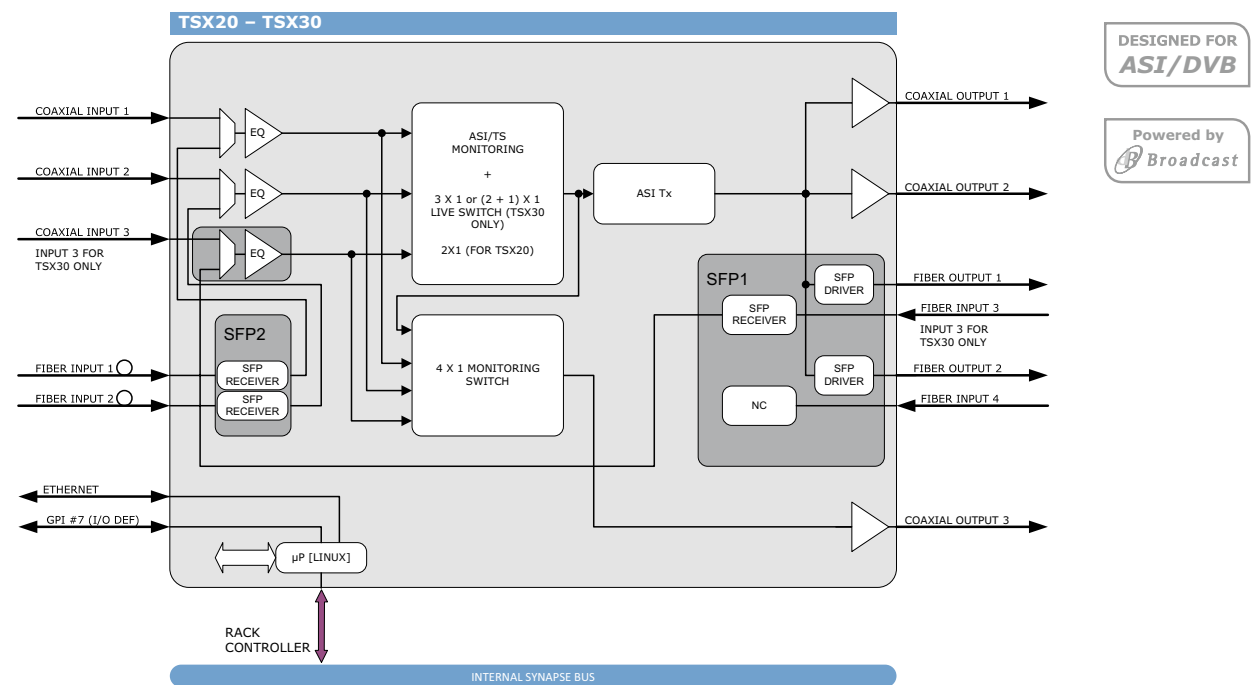
- **BPL11_ASI10:** I/O panel for ASI10

Relay bypass I/O:

- **BPX04_ASI10:** I/O panel for ASI10 with relay bypass

Specifications

visit www.evs.com



Triple/Dual channel enhanced ASI/DVB monitor

The TSX30 is a triple channel TS/ASI integrity checker with a configurable auto output switch and the TSX20 is a dual input version. The hardware can be fitted with 2 SFP modules that can be used as fiber in and/or outputs. Depending on the modules up to 3 fiber inputs or 2 fiber outputs can be enabled. A combination of 2 fiber inputs and 2 fiber outputs are also possible.

A TSX20 can be software-upgraded to a TSX30

- ASI coaxial Transport Stream I/O
- 3 inputs with 3 analysis cores : configurable as 2+1 or a symmetrical 3 input (TSX30 only)
- 2 inputs symmetrical for the TSX20
- Up to 3 Fiber inputs: SFP2 is always configured as in, SFP1 can be used as dual out or single in
- 3 outputs and optional up to 2 fiber outputs (optional)
- Near-seamless switching between all inputs, preserving TS sync
- On-chip auto-switching and/or external control
- ASI Datalink monitoring with history - byte modes & periodicity
- TS Monitoring with 188/204 modes, rates & customizable alarms
- 64 fully configurable table detection tests
- 64 configurable PID detection tests in 4 upper distance groups
- Optional null TS output on loss of all 3 inputs
- TS and Network Id tests & indication
- Sync_byte_error reporting
- Transport_error_indicator reporting

- Monitor ASI/DVB streams and triggering of corresponding alarms.
- These events can be used to trigger a switch over:
 - Loss of Transport Stream sync bytes
 - No Transport Stream
 - Transport Stream-rate
 - Data-rate
 - Loss of an expected PID from user definable list of 64 PIDs
 - Loss of an expected table from user definable list of 64 tables
- These items can be monitored:
 - Null packets / Active data ratio
 - ASI data link mode
 - 188/204 mode
 - Number of PIDs in the stream
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- Generic ASI/DVB integrity monitoring and backup switching
- Autonomous automatic A/B switching
- Redundancy switching at play out centers, head-ends and encoding/multiplexing systems
- Input monitoring and switching at DVB-T and DVB-T2 Transmitter sites

Ordering information

Module:

- **TSX20:** Dual channel enhanced ASI/DVB monitor with configurable output
- **TSX30:** Triple channel enhanced ASI/DVB monitor with configurable output

Standard I/O:

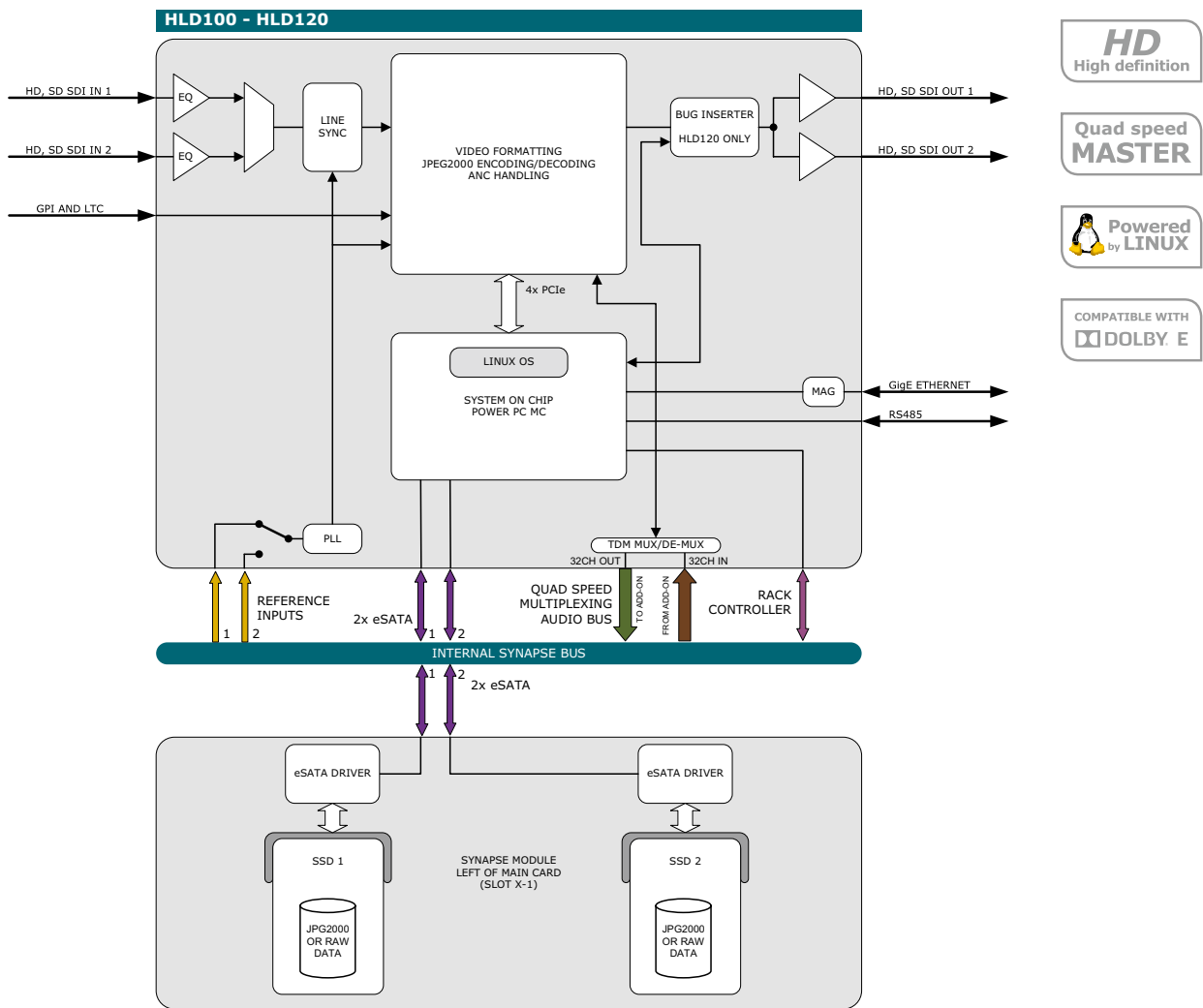
- **BPH45_TSx0:** I/O panel for TSX20-30

Relay bypass I/O:

- **BHX45_TSx0:** I/O panel for TSX20-30 with relay bypass

Specifications

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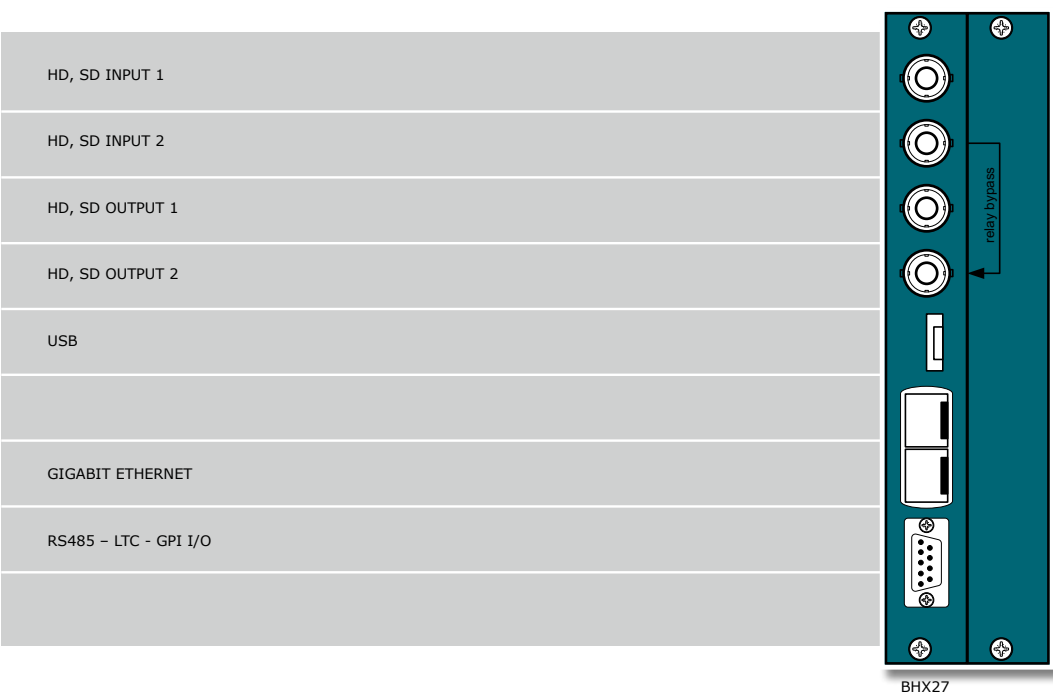


HD
High definition

Quad speed
MASTER

Powered
by LINUX

COMPATIBLE WITH
DOLBY E



Solid state drive based HD-SDI long time delay unit with optional bug inserter

The HLD100 is a long time delay which can delay SD and HD SDI video. It can store and delay up to 6 hours of SDI material depending on the size of disks, bitrates and ANC data. The HLD100 uses high quality JPEG2000 compression for HD video to ensure visual lossless transparency. SD video is stored and delayed as raw data. The HLD120 adds a bug inserter for channel ident applications or as an emergency overlay with full frame capability.

The use of SSD disks makes this unit extremely reliable and it will provide low maintenance.* The delay length is depending on the used size of the SSD disks and the compression rate, giving increased capacity at low cost in upcoming years.

Compared to competitive server based solutions the HLD100 can be considered as very green. The power consumption of this dual slot device is approximately 40W. This is a 10 fold saving of a comparable server based unit

which draws >350W average saving a significant amount of money due to the low operating power and accompanying air conditioning. The hardware of the long time delays is fully 3Gb/s SDI capable ensuring future proof investment for later planned updates into 3Gb/s.

MTBF of disks is dependent on storage capacity and brand (type). Twice the storage than needed means theoretical twice the lifecycle as this is coupled to the amount of write cycles, not read cycles.

* Lifetime depends on the type of disks and use case.

features

- Capable of delaying video up to 6 hours depending on bitrates, ANC data and disk space
- Compression (HD or SD) or RAW delay (SD only)
- JPG2000 compression for HD and SD video formats
 - Selectable bitrates up to 200 Mbit/s
- RAW ANC data storage (HANC, VANC or both)

Compatible with:

- 270 Mbit/s (SMPTE 259M) 50 and 59.94Hz
- 1485 Mbit/s (SMPTE 292M) 50 and 59.94Hz
- Logo insertion for channel ident or emergency overlay (HLD120 only)
- Full control and status monitoring through the front panel of the frame and the Ethernet port

Applications

- +1 hour film channels (up to +6 hours)
- Time zone compensation

ordering information

Module:

- HLD100:** Solid state drive based HD, SD-SDI long time delay

Standard I/O:

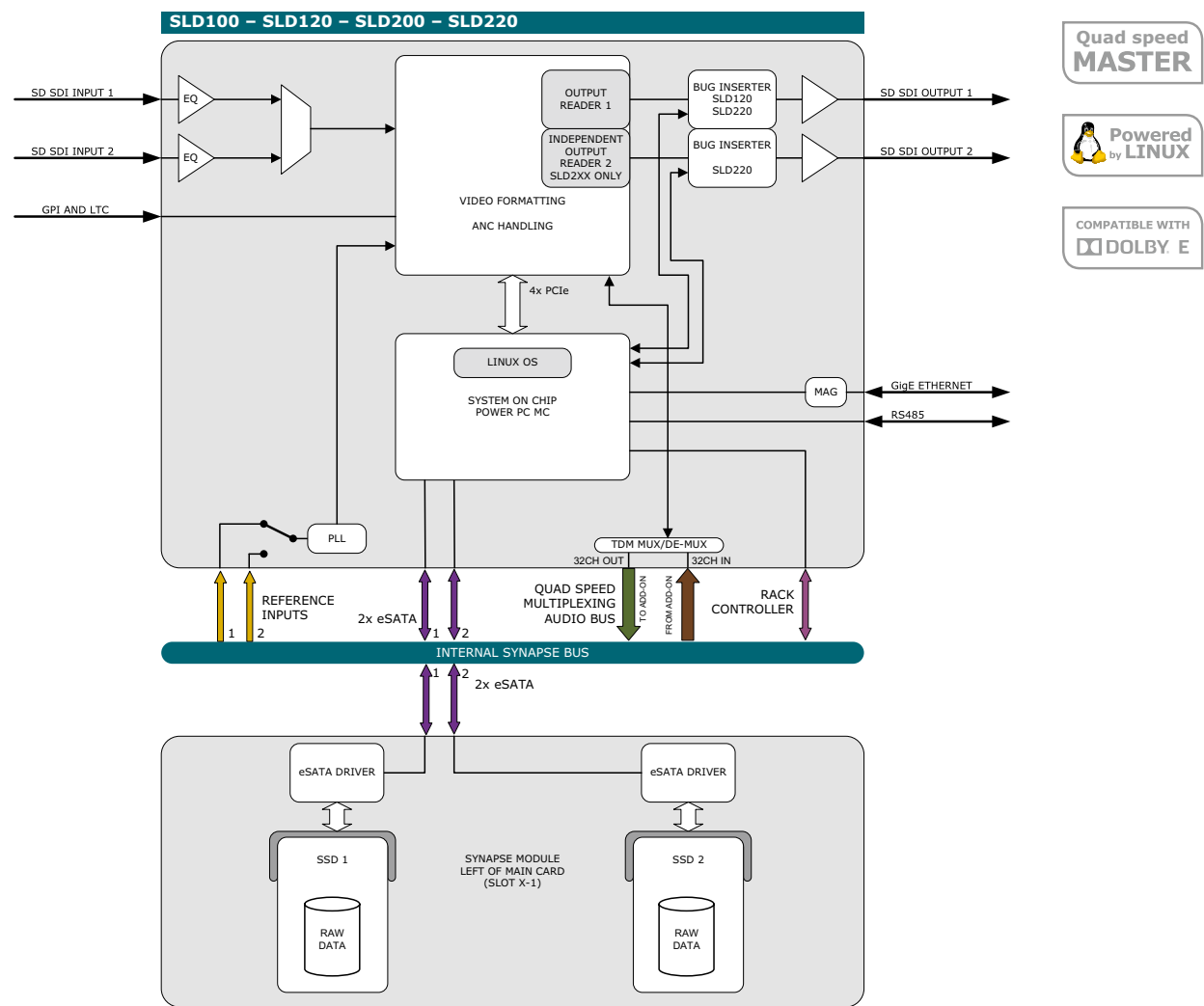
- BHX27_HLD1x0:** I/O panel for HDL1x0 (including blind panel) with relay bypass for I/O 2

Specifications

visit www.evs.com

Capacity calculations

	Bitrate	2x 100 GB disks				2x 200GB disks				2x 400GB disks			
		Full frame	Strip V-ANC	Strip H-ANC	Active picture	Full frame	Strip V-ANC	Strip H-ANC	Active picture	Full frame	Strip V-ANC	Strip H-ANC	Active picture
HD	100 Mb/s	2 hr	2.4 hr	3.3 hr	4.4 hr	4 hr	4.8 hr	6.6 hr	8.8 hr	8 hr	9.6 hr	13.2 hr	17.6 hr
	125 Mb/s	1.8 hr	2.1 hr	2.8 hr	3.5 hr	3.6 hr	4.2 hr	5.6 hr	7 hr	7.2 hr	8.4 hr	11.2 hr	14 hr
	150 Mb/s	1.7 hr	1.9 hr	2.4 hr	2.9 hr	3.4 hr	3.8 hr	4.8 hr	5.8 hr	6.8 hr	7.6 hr	9.6 hr	11.6 hr
	200 Mb/s	1.4 hr	1.5 hr	1.9 hr	2.2 hr	2.8 hr	3 hr	3.8 hr	4.4 hr	5.6 hr	6 hr	7.2 hr	8.8 hr
SD	50 Mb/s	4 hr	4.6 hr	6.9 hr	8.8 hr	8 hr	9.2 hr	13.8 hr	17.6 hr	16 hr	18.4 hr	27.6 hr	35.2 hr
	75 Mb/s	3.3 hr	3.7 hr	5 hr	5.8 hr	6.6 hr	7.4 hr	10 hr	11.6 hr	13.2 hr	14.8 hr	20 hr	23.2 hr



SLD100 - SLD120
SLD200 - SLD220

SLD100 - SLD120
SLD200 - SLD220

Solid state drive based SD-SDI long time delay unit with optional second output and bug inserter

The SLD100/200 family are long time SD-SDI uncompressed baseband video delays. They can store and delay SD material, including all blanking, as RAW data.

The SLD100 has one delayed output, the SLD200 has 2 delayed outputs individually adjustable as for instance +1 hour and +2 hour. The SLDx20 adds a bug inserter for channel ident applications but also as an emergency overlay with its full frame capability.

These long time delays can store and delay up to 6 hours of SDI material (with 2x 400GB drives) depending on the size of disks, bitrates and ANC data.

The use of SSD disks makes this unit extremely reliable, low power and it will provide low maintenance.* The delay length is depending on the used size of the SSD disks giving increased capacity at low cost in upcoming years.

MTBF of disks is dependent on storage capacity and brand (type). Twice the storage than needed means theoretical twice the lifecycle as this is coupled to the amount of write cycles, not read cycles.

Compared to competitive server based solutions the SLD family can be considered as very GREEN. The power consumption of this dual slot device is approximately 40W. This is a 10 fold saving of a comparable server based unit that draws > 350W average saving a significant amount of money due to the low operating power and accompanying air conditioning.

The hardware of the long time delays is fully 3Gb/s and HD-SDI capable ensuring future proof investment for later planned updates into 3Gb/s and HD.

* Lifetime depends on the type of disks and use case.

features

- SLD100 = basic single channel delay unit
- SLD120 = as SLD100 with additional bug inserter
- SLD200 = dual output delay unit (fully independent outputs with independent delay settings)
- SLD220 = as SLD200 with two additional bug inserters
- Capable of delaying video up to 6 hours depending on bitrates, ANC data and disk space
- Two preset banks per bug inserter (SLD120/220 only)
 - Memory for 16 bugs and 4 full screen stills, independent per output (two keyers)
- Compression or RAW delay
- Compatible with 270 Mbit/s (SMPTE 259M) 50 and 59.94Hz
- Full control and status monitoring through the front panel of the frame and the Ethernet port (ACP)

Applications

- +1 hour film channels (up to +6 hours)
- +1 and +2 hour film channels from one source
- Time zone compensation

ordering information

Module:

- **SLD100:** Solid state drive based SD-SDI long time delay
- **SLD120:** Solid state drive based SD-SDI long time delay with bug inserter
- **SLD200:** Solid state drive based dual output SD-SDI long time delay
- **SLD220:** Solid state drive based dual output SD-SDI long time delay with 2 bug inserters

Standard I/O:

- **BHX27_SLDxxx:** I/O panel for SLDxxx (including blind panel) with relay bypass for I/O 2

Specifications

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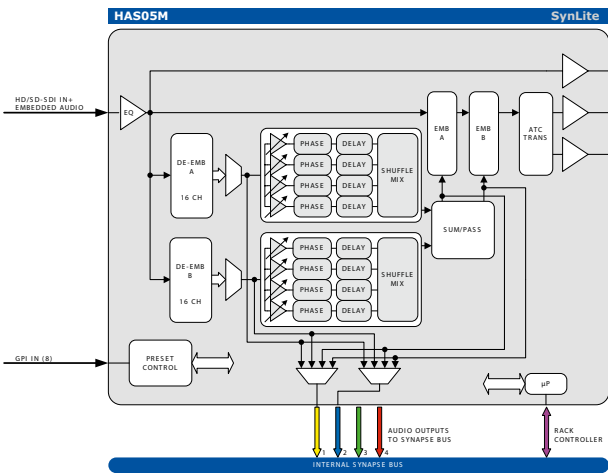
Cost-effective solutions for straight forward systems

Despite new capabilities and functionality, there will always be applications where these options and features could result in an over engineered solution. More straightforward and easily affordable modules may be better suited to the application’s requirements.

To address that need, EVS provides a series of modules for basic functions like frame synchronization, embedding, de-embedding, up- and down conversion. Based on the same robust and high quality design as the other Synapse modules, these modules are ready for heavy-duty use.

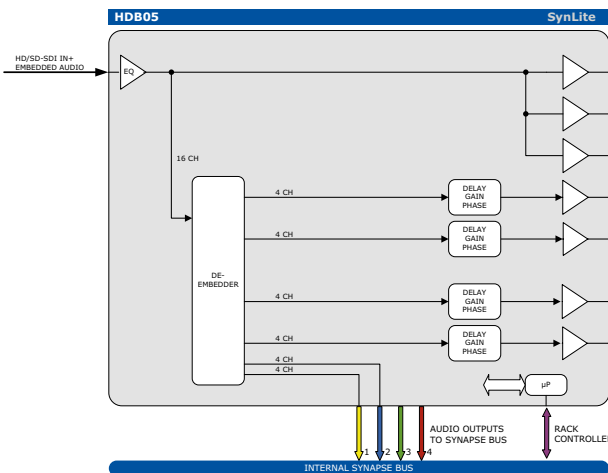
Importantly, these modules come at a very attractive price. They are fully compatible with all Synapse and Cortex products and can be mixed with all other modules from the Synapse range.

HAS05M - HD and SD 8 channel embedded audio processing card



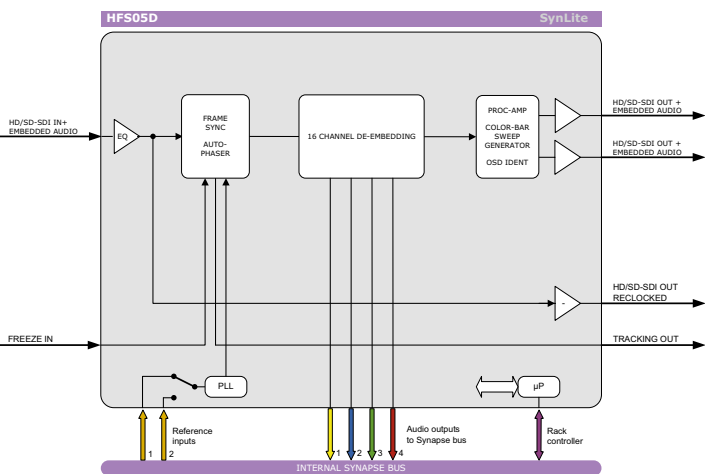
The HAS05M is an 8 channel, 2 group, preset based HD/SD-SDI embedded audio shuffler/mixer. It puts full audio control power in to the hands of an HD-SDI embedded signal user. Individual gain, phase and delay control for each channel are part of this card. The preset based control makes it ideal for repeated corrections or standard channel swapping occasions in a multi lingual environment. If dynamic control is required the card still performs the tasks, as every preset is remotely controllable by a third party control protocol or our dedicated control panels. **The HAS05M can be reprogrammed as an HAS05S without additional costs.**

HAS05S - HD and SD 16 channel embedded audio shuffler



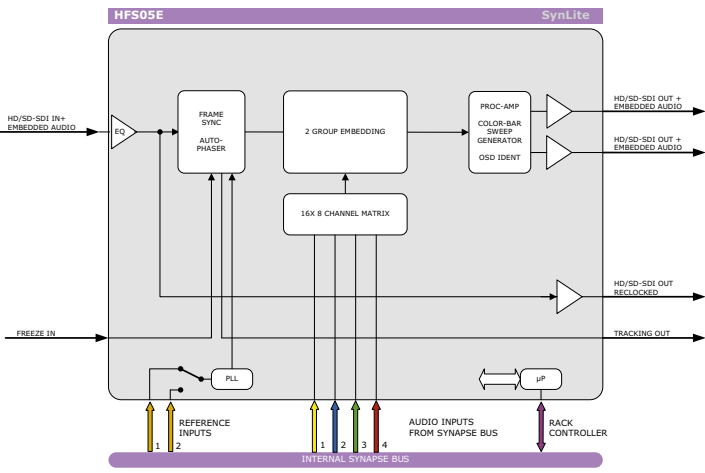
The HAS05S is a 16 channel, 4 group, preset based HD/SD-SDI embedded audio shuffler. The preset based control of this card makes it ideal for repeated corrections or standard channel swapping occasions in a multi lingual environment (combined with Dolby E). If dynamic control is required the card can still perform this task as every preset is remote controllable by a third party control protocol or our dedicated control panels. **The HAS05S can be reprogrammed as an HAS05M without additional costs.**

HFS05D - HD and SD Frame synchronizer with audio de-embedding



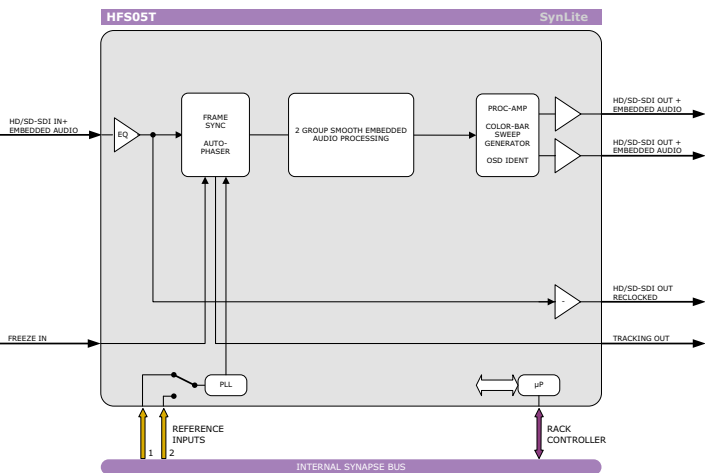
The HFS05D is an HD/SD frame synchronizer/video delay/autophaser/ProcAmp module. In addition, the it contains a 4 group de-embedder. The sync function can be used to sync a non-synchronous signal or to provide a compensating delay. The card is totally transparent to data contained within the blanking. The video reference is connected through the central genlock input of the frame and is compatible with bi- and tri-level sync. The line sync function corrects timing errors (hops) that occur due to a switching router. In addition the card can be used as a delay, giving up to 1135 lines of delay. A video reference is not required in this case as the output clock frequency is derived from the input video clock. **The HFS05D can be reprogrammed as an HFS05E or HFS05T without additional costs.**

HFS05E - HD and SD Frame synchronizer with audio embedding



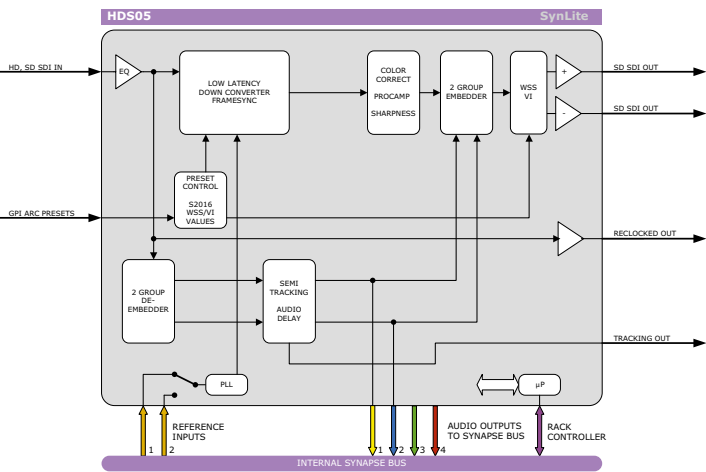
The HFS05E is an HD/SD frame synchronizer/video delay/autophaser/ProcAmp module. In addition, it contains a 2 group embedder. The sync function can be used to sync a non-synchronous signal or to provide a compensating delay. The card is fully transparent to data carried in the blanking. The video reference is connected through the central genlock input of the frame and is compatible with a bi- and tri-level sync. The line sync function corrects timing errors (hops) that occur due to a switching router. In addition the card can be used as a delay, giving up to 1 frame delay. A video reference is not required in this case, as the output clock frequency is derived from the input video clock. **The HFS05E can be reprogrammed as an HFS05D or HFS05T without additional costs.**

HFS05T - HD and SD preset based audio de-embedder



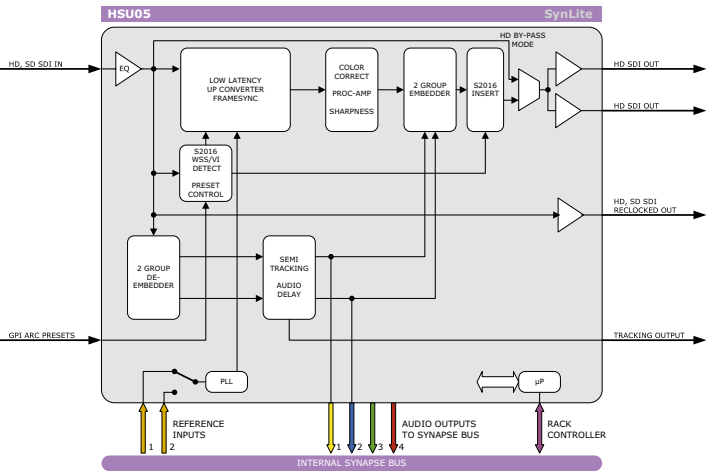
The HFS05T is an HD/SD frame synchronizer/video delay/autophaser/ProcAmp module. In synchronizer mode, it has smart audio handling for 2 embedded audio groups. The sync function can be used to synca non-synchronous signal or to provide compensating delay. It is fully transparent to data carried in the blanking. The video reference is connected through the central ref input of the frame and is compatible with bi- and tri-level sync. The line sync function corrects timing errors (hops). In addition the HFS05T can be used as a delay, giving up to 1 frame delay. A video reference is not required in this case as the output clock frequency is derived from the input video clock. **The HFS05T can be reprogrammed as an HFS05E or HFS05D without additional costs.**

HDS05 - HD to SD Down converter with Framesync



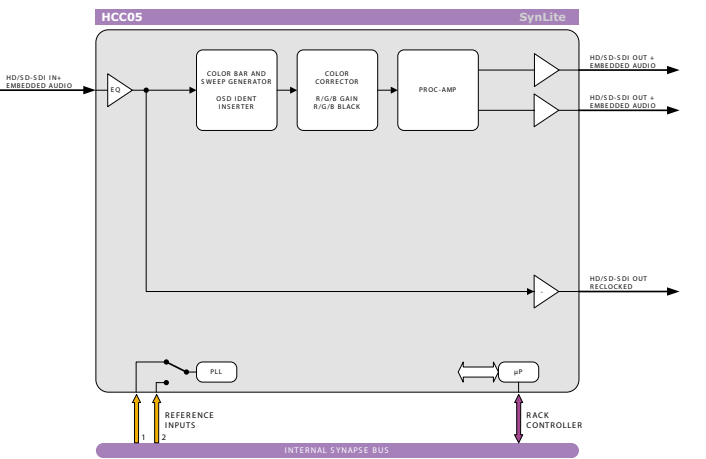
The HDS05 is a premium quality down converter. The optimized scaling and filter algorithms ensure crisp broadcast ready pictures from a native HD source, by use of a 64 tap FIR filters. The HDS05 will allow you to simulcast SD signals from a native HD infrastructure. The embedded audio is carried over to the SD domain; the appropriate aspect ratio can be applied or detected by S2016 and the correct VI or WSS data can be added. When fed with an SD SDI signal the down converter goes in to a bypass mode with a functional frame synchronizer. **The HDS05 can be reprogrammed as an HSU05 without additional costs.**

HSU05 - SD to HD up converter with color corrector



The HSU05 is high quality up converter. The optimized scaling and filter algorithms ensure crisp broadcast ready pictures from a native SD source, by use of a 64 tap FIR filters and 601-709 color space conversion. The HSU05 will allow you to simulcast HD signals from a native SD infrastructure. The embedded audio is carried over to the HD domain. The appropriate aspect ratio can be applied by control of S2016, VI, WSS and GPI inputs by use of 16 presets that can store the aspect ratio conversions. **The HSU05 can be reprogrammed as an HDS05 without additional costs.**

HCC05 - HD/SD YC and RGB color corrector



The HCC05 is an HD SDI color corrector with black level adjustment and built in color bar and sweep generator. The card has 2 processed outputs and 1 relocked output and allows you to adjust individual or combined RGB gain and black levels and YCbCr gain and black levels. The card includes a ProcAmp and an OSD ident inserter.

Overview of available SFP modules, compatible with backpanels with SFP cages



Fiber modules

- **SFP_FIBER_T2:** Dual 3Gb/s, HD, SD fiber transmitter on LC (1310 nm)
- **SFP_FIBER_R2:** Dual 3Gb/s, HD, SD fiber receiver on LC (1260-1620 nm)
- **SFP_FIBER_R:** Single 3Gb/s, HD, SD fiber receiver on LC (1260-1620 nm)
- **SFP_CWDM_1590:** CWDM 1590 & 1610 nm fiber module on LC
- **SFP_CWDM_1550:** CWDM 1550 & 1570 nm fiber module on LC
- **SFP_CWDM_1510:** CWDM 1510 & 1530 nm fiber module on LC
- **SFP_CWDM_1470:** CWDM 1470 & 1490 nm fiber module on LC
- **SFP_CWDM_1390:** CWDM 1390 & 1410 nm fiber module on LC
- **SFP_CWDM_1350:** CWDM 1350 & 1370 nm fiber module on LC
- **SFP_CWDM_1310:** CWDM 1310 & 1330 nm fiber module on LC
- **SFP_CWDM_1270:** CWDM 1270 & 1290 nm fiber module on LC



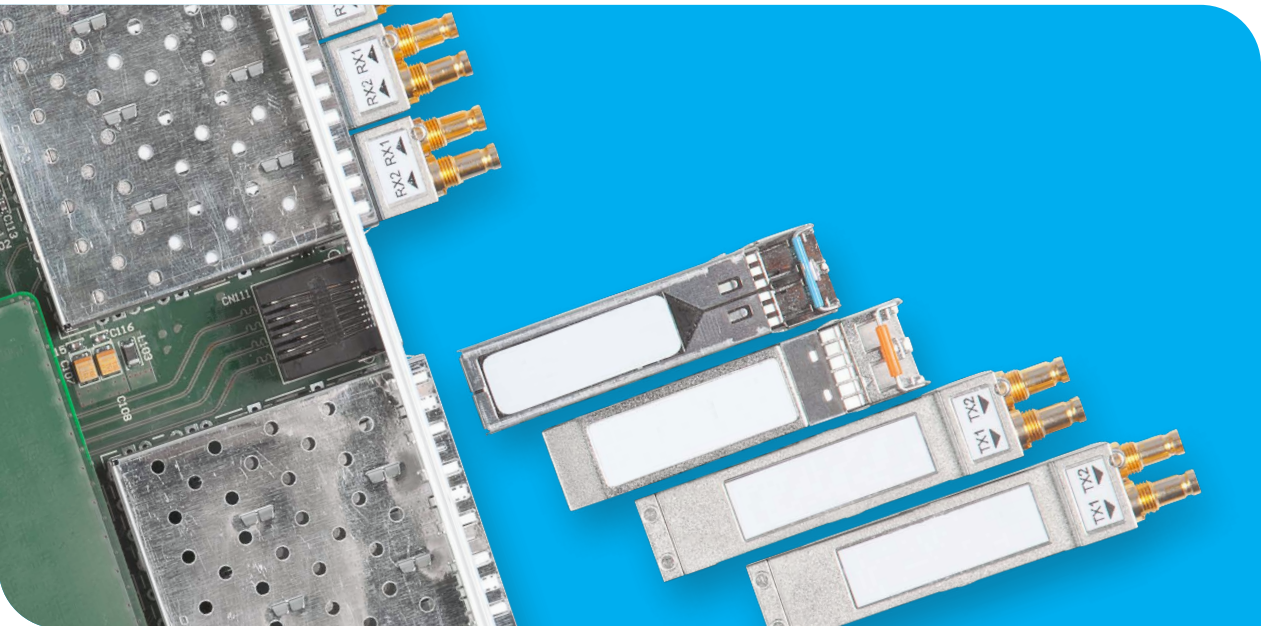
DIN 1.0/2.3 modules

- **SFP_CVBS_T2:** Dual CVBS transmitter
- **SFP_CVBS_R2:** Dual CVBS receiver
- **SFP_SDI_T2:** Dual 3Gb/s, HD, SD SDI long range transmitter
- **SFP_SDI_R2:** Dual 3Gb, HD, SD SDI medium range receiver



HDMI modules

- **SFP_HDMI_T:** HDMI transmitter
- **SFP_HDMI_R:** HDMI receiver



Frames	ERC108-118	Enhanced rack controller for SFR08 and SFR18 with optional SNMP agent 19" rack frames: 4, 8 and 18 slots	12
	ERS108-118		
	SFR08 - SFR18		
			14
Analog audio distribution	AAD08	Dual channel 1 to 8 analog audio distribution amplifier	16
Analog video distribution	CDV07	Analog video (black burst / Tri-level) distribution amplifier (Word Clock DA for high impedance circuits)	18
	CDV08	Analog video distribution amplifier with cable equalizer	20
	CDV29	Reference (black burst / Tri-level) distribution amplifier with 9 outputs and Synapse reference inputs	22
Audio A/D conversion	ADC44-ADC48	4 or 8 channel 24-bit audio A/D converter with analog and AES/EBU inputs	24
Audio D/A conversion	DAC44-DAC48	4 or 8 channel 24 bit audio D/A converter with analog and AES/EBU outputs	26
Embedding	GEB400-440-800-840-880	3Gb/s, HD, SD basic analog and/or digital audio embedder	28
	HEB400-440-800-840-880		
	GEB500-550-900-950-990		
	HEB500-550-900-950-990		
De-embedding	GDB400-440-800-840-880	3Gb/s, HD, SD enhanced analog and/or digital audio embedder with 'TWINS' function	30
	HDB400-440-800-840-880		
	GDB500-550-900-950-990		
	HDB500-550-900-950-990		
Re-embedding	GRB100 - HRB100	3Gb/s, HD, SD dual SDI embedded domain shuffler and re-embedder with S2020 insertion	36
	GRB550-590-950-990		
	HRB550-590-950-990		
Embedded audio processing	GAD100 - HAD100 - SAD100	3Gb/s, HD, SD embedded domain audio description and voice-over processor	40
	GJA420-440-840-880	3Gb/s, HD, SD embedded domain Loudness controller based on Jünger Audio algorithms	42
	HJA420-440-840-880		
	GMA100-110-120-130-140	Dual 3Gb/s, HD, SD embedded domain shuffler with MADI I/O and analog of digital audio I/O	44
	HMA100-110-120-130-140	3Gb/s, HD, SD, analog or AES/EBU audio re-embedder with audio shuffler and framesync	46
	GRF050~990 - HRF050~990	HD, SD 8 channel 2-group embedded audio processing card (legacy)	194
	HAS05M	HD, SD 16 channel 4-group embedded audio shuffler card with presets (legacy)	194
	HAS05S	HD, SD embedded audio compressor/limiter	48
	HCL10		
Dolby® processing	DBD28	Multi format Dolby stream decoder with Voice Over module	50
	DEE28	Multi format Dolby stream decoder and Dolby E encoder with Voice Over module	52
	DDP24	Multi channel Dolby Digital (plus), Dolby HE AAC 5.1 and Dolby Pulse 2.0 encoder	54
	DDP94	Multi channel Dolby Digital (plus), Dolby HE AAC 5.1 and Dolby Pulse 2.0 encoder with E decoder	56
Embedded Dolby® processing	GED100 - HED100	3Gb/s, HD, SD embedded domain Dolby E to Dolby Digital (plus) transcoder + audio shuffler	58
	GED130 - HED130	3Gb/s, HD, SD embedded domain Dolby E to Dolby Digital (plus) transcoder with audio shuffler and audio description processor	60
	GEE200-230 - HEE200-230	3Gb/s, HD, SD embedded domain Dolby E/D/D+ decoder to Dolby E encoder with optional audio description	62
			64
	GPD100 - HPD100	3Gb/s, HD, SD embedded domain PCM to Dolby Digital (plus) encoder with audio shuffler	64
	GPD130 - HPD130	3Gb/s, HD, SD embedded domain PCM + AD to Dolby Digital (plus) encoder with audio shuffler and audio description processor	66

Audio processing	2AI48	Dual AES/EBU back-up switcher with integrity checking	68
	ADL24	Analog audio tracking delay with offset	70
	ADP24	Audio description and Voice Over processing card	72
	DAS24	4 channel (2 x AES/EBU) digital audio mixing and shuffle module	74
	DIO24	4 channel digital audio sample rate converter, tracking (and offset) delay - ADD-ON card	76
	DIO48	8 channel digital audio (192kHz) sample rate converter, tracking (and offset) delay - ADD-ON card	78
	DIO88	Universal triple mode, 16 channel I/O card for Quad Speed ADD-ON applications	80
	DSF66	Dual digital audio upmixer and downmixer based on SoundField® algorithms	82
	DVO48	Voice Over card with Quad Speed ADD-ON bus	84
Digital audio distribution	DAD08	Digital (AES/EBU) audio distribution amplifier with transformer coupled outputs	86
	DAD26	Dual channel digital (AES/EBU) audio distribution amplifier with 2x2 and 2x1 function	88
	DWC08-18	Word Clock distribution amplifier with optional video reference locked Word Clock generator	90
Digital video distribution and fiber	BFM88 - BFM89	CWDM 8 to 16 channel optical multiplexer/de-multiplexer	92
	GDR108	3Gb/s, HD, SD 1 to 8 distribution amplifier with reclocked outputs (ASI/DVB compatible)	94
	GDR216	3Gb/s, HD, SD dual input distribution amplifier with 16 reclocked outputs (ASI/DVB compatible)	96
	GDR416	4K, 12Gb/s, 3Gb/s, HD and SD 4 input distribution amplifier with 4 reclocked outputs per channel	98
	SDR108	SD 1 to 8 distribution amplifier with reclocked outputs (ASI/DVB compatible)	100
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	GDV100 - HDV100	Monitoring distribution amplifier with down converted SD or analog video outputs and 16 channel audio de-embedder	106
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Frame synchronizers	2GF100-110 - 2HF100-110	Dual channel 3Gb/s, HD, SD frame synchronizer with optional audio shuffler	108
	2SF100-110		
	GFS010 - HFS010 - SFS010		
	GFS100-110 - HFS100-110	3Gb/s, HD, SD basic frame synchronizer	110
	SFS100-110	3Gb/s, HD, SD frame synchronizer with optional audio shuffler	112
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Integrity checking and probing	2GM100 - 2HM100	Dual channel VANC data (eg: OP47, SCTE104, TC, S2020 and S2016) analyzer for OSD applications	114
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Graphics insertion and keying	GDK100 - HDK100 - SDK100	Dual background input 3Gb/s, HD, SD downstream keyer	122
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	GDS100-110 - HDS100-110	3Gb/s, HD, SD down-converter/synchronizer with optional audio shuffler	134
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	U4D100	4K Ultra HD (3840 x 2160) 4 wire to 1080p down converter	136
Format conversion - up	2GU100-110 - 2HU100-110	Dual channel 3Gb/s, HD up-converter with color corrector and optional cross input audio shuffler	138
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Format conversion - up/down/cross	2XG100-110 - 2XH100-110	Dual channel 3Gb/s, HD, SD up/down/cross-converter/synchronizer with optional audio shuffler	148
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