GDS010 – HDS010

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

A Synapse® product
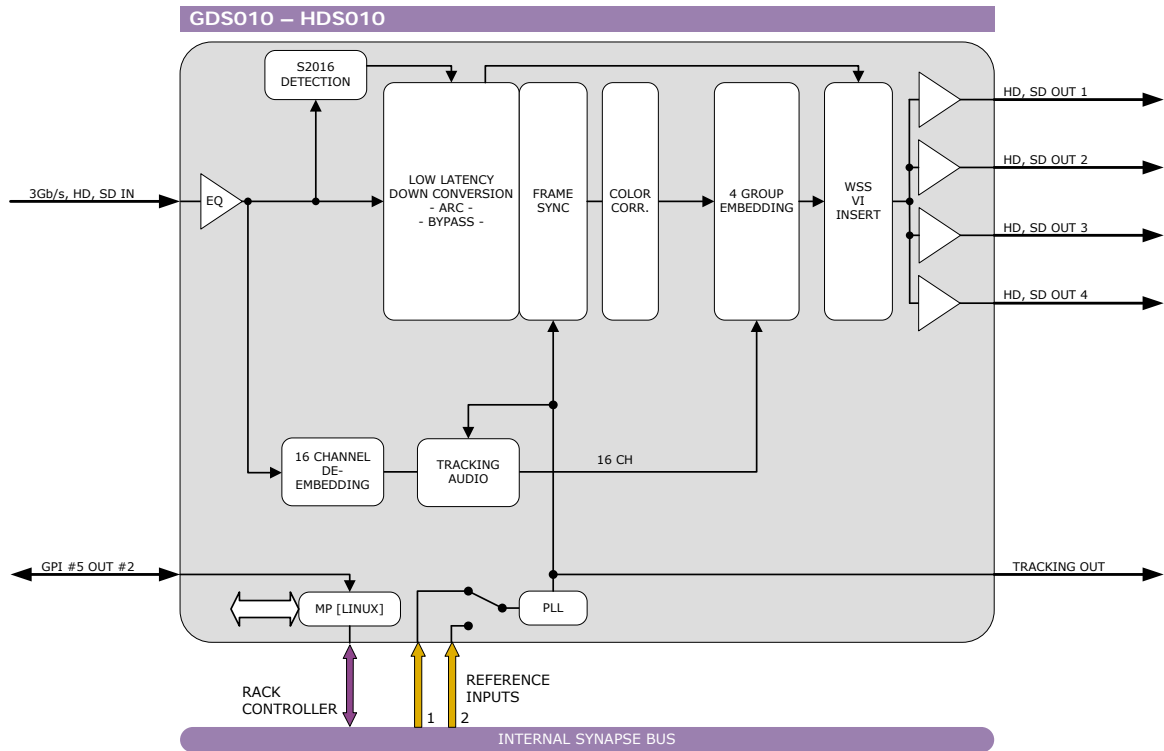
Block schematic & I/O panel

GDS010 – HDS010

S2016 DETECTION

3Gb/s, HD, SD IN

EQ

LOW LATENCY DOWN CONVERSION
- ARC -
- BYPASS -

FRAME SYNC

COLOR CORR.

4 GROUP EMBEDDING

WSS VI INSERT

HD, SD OUT 1
HD, SD OUT 2
HD, SD OUT 3
HD, SD OUT 4

16 CHANNEL DE-EMBEDDING

TRACKING AUDIO

16 CH

GPI #5 OUT #2

MP [LINUX]

PLL

TRACKING OUT

RACK CONTROLLER

REFERENCE INPUTS
1   2

INTERNAL SYNAPSE BUS

BPH17   BHX17b

3Gb/s, HD, SD INPUT 1 (OPTIONAL FIBER INPUT)

SD OUTPUT 1 (OPTIONAL FIBER OUTPUT)

SD OUTPUT 2

GPI INPUT/OUTPUT, TRACKING OUTPUT

SD OUTPUT 3

SD OUTPUT 4

relay bypass

relay bypass
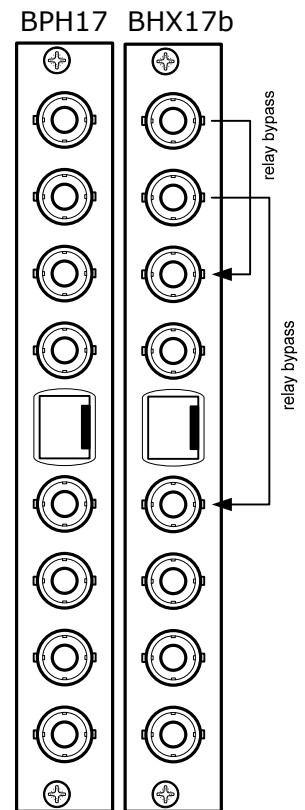
Features

The GDS010 and HDS010 are *low latency* down converters with 16 channel audio transparency. The powerful matrix multiplexer can feed audio from the embedded domain into the Synapse bus to an ADD-ON card like the DIO48.

The GDS010 is compatible with 270Mb/s, 1.5Gb/s and 3Gb/s for full 1080p/50 or 1080p/59.94 use. The HDS010 are compatible with SD-SDI (270Mb/s) and HD-SDI (1.5Gb/s) and can be future upgraded to 3Gb/s compatibility

- Low latency conversion process (as low as 1 field in controlled timing environment)
- Compatible with the following input formats (auto selecting):
  - 1080p/59.94 (2GS only)
  - 1080p/50 (2GS only)
  - 1080i/59.94
  - 1080i/50
  - 1080p/23.98
  - 1080psf/23.98
  - 720p/59.94
  - 720p/50
  - 720p/23.98
  - SD525
  - SD625
- Output standards (one standard can be chosen for both outputs simultaneously): SD525, SD625
- Frame sync with output phase control in Lines and pixels with respect to reference.
- ARC modes contain:
  - Anamorphic
  - Center Cut
  - V-Zoom
  - LBox-16:9
  - LBox-14:9
  - PBox-4:3
  - PBox-14:9
  - Variable H and V (50—200%)
- 16 Free individual programmable presets banks for:
  - Down converter ARC A and B
  - Transparent ARC A and B
  - VI/WSS/S2016 insertion A and B
  - Embedder shuffling/Gain/Phase (-110 only)
- 5 GPI inputs assignable to various preset banks
- ARC triggers by VI, WSS, WSSext and S2016 (AFD)
- Transparent for 16 channels of embedded audio
- Video proc-amp (Y and C control)
- Color corrector (RGB and total gain, RGB and total black)
- Hue control for NTSC inputs
- Locks to Bi-level syncs or SDI input
- OP47 to WST cross conversion
- Timecode cross conversion
- Auxiliary timecode input, allowing for 2 separate timecodes
- CC-708 to CC-608 conversion
- 6 Line Vertical Ancillary Blanking transparency in transparent mode
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18 frame and the Ethernet port (ACP)

Applications

Basic down conversion with transparent audio

Conversion abilities

The GDS-HDS010 can handle the following conversions:

CONVERSION	Output										
SDI Input	1080psf23.97	1080p23.97	1080p50*	1080p59.94*	1080i59.94	1080i50	720p59.94	720p50	720p23.98	480i59.94(525)	576i50(625)
1080psf23.97	x									x	
1080p23.97		x								x	
1080p50*			x								x
1080p59.94*				x						x	
1080i59.94					x					x	
1080i50						x					x
720p59.94							x			x	
720p50								x			x
720p23.98									x	x	
480i59.94(525)										x	
576i50(625)											x

* = GDS models only

Ordering information

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

Standard I/O:
- **BPH17_GDS010**: I/O-panel for GDS010

Relay bypass I/O:
- **BHX17b_GDS010**: I/O-panel for GDS010 with backup relay

Fiber outputs:
- **BPH17T_FC/PC_GDS010**: I/O panel for G-HDS010 with one fiber transmitter on FC/PC
- **BPH17T_SC_GDS010**: I/O panel for G-HDS010 with one fiber transmitter on SC

Fiber inputs:
- **BPH17R_FC/PC_GDS010**: I/O panel for G-HDS010 with one fiber receiver on FC/PC
- **BPH17R_SC_GDS010**: I/O panel for G-HDS010 with one fiber receiver on SC

* Upgradeable to 3Gb/s

Specifications

Serial Video Input

Standard	SD,HD and 3Gb/s SDI: SMPTE 292M, SMPTE 259M, SMPTE424
Number of Inputs	2
Connector	BNC
Equalization	Typical maximum equalized length of Belden 1694A cable: 90m at 2.97Gb/s, 120m at 1.485Gb/s, and 250m at 270Mb/s
Return Loss	> 15dB up to 1.5GHz

Serial Video Output

Number of Outputs	4
Connector	BNC
Signal Level	800mV nominal
DC Offset	0V ±0.5V
Rise/Fall Time	135ps nominal
Overshoot	< 10% of amplitude
Return Loss	> 15dB up to 1.5GHz (typ.) > 10dB up to 3GHz (typ.)
Wideband Jitter	< 0.2UI

Reference Input through RRC

Number of Inputs	2 on SFR18, 2 on SFR08 and 1 on SFR04
Bi-level	PAL Black Burst ITU624-4/SMPTE318, Composite NTSC SMPTE 170M 1Vp-p nominal, 75 Ohms terminated through loop

Miscellaneous

Weight	Approx. 450g
Operating Temperature	0 °C to +40 °C
Dimensions	137 x 296 x 20 mm (HxWxD)

Electrical

Voltage	+24V to +30V
Power	<17 Watts