



2HS10

**Dual channel high-end HD-SDI to SD-SDI /composite
down converter with de-embedding function**

A Synapse® product

Synapse

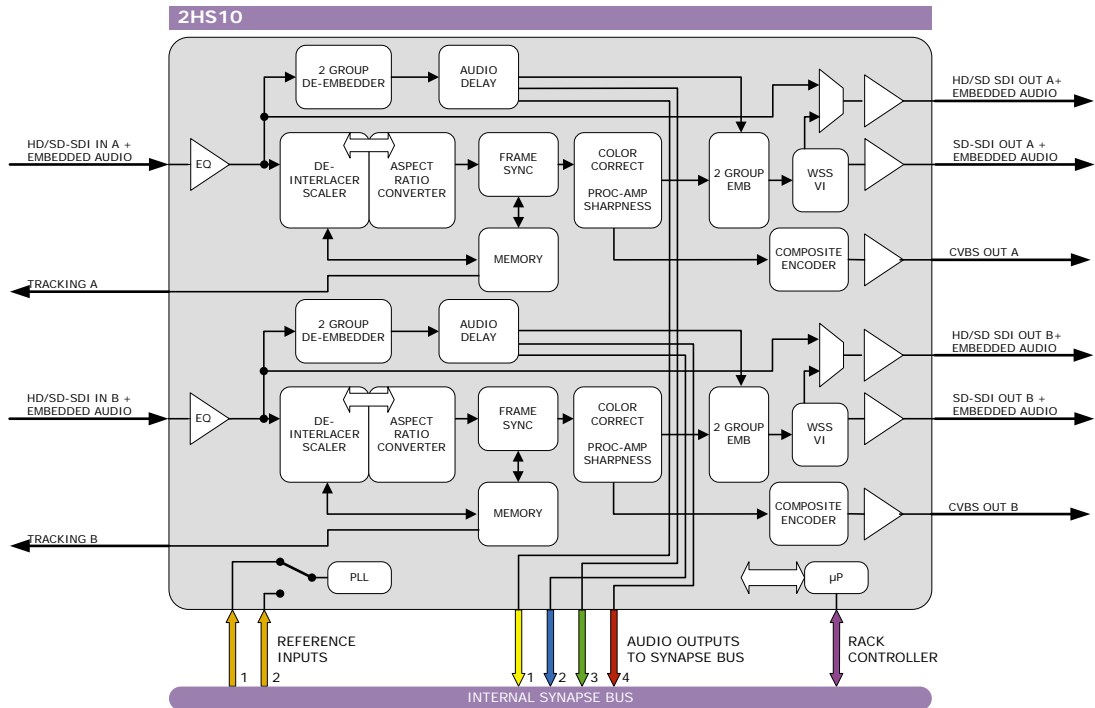


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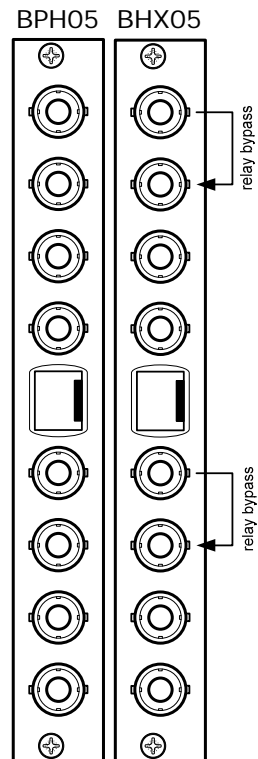
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Block schematic & I/O panel



- HD/SD SDI INPUT A (OPTIONAL FIBER INPUT)
- HD/SD SDI OUTPUT A (OPTIONAL FIBER OUTPUT)
- SD-SDI OUTPUT A
- CVBS OUTPUT A
- TRACKING OUTPUT
- HD/SD SDI INPUT B (OPTIONAL FIBER INPUT)
- HD/SD SDI OUTPUT B (OPTIONAL FIBER OUTPUT)
- SD-SDI OUTPUT B
- CVBS OUTPUT B

For fiber connectivity see www.axon.tv



Features

The 2HS10 is a dual channel ultra high-quality down converter. The optimized scaling and filter algorithms ensure crisp broadcast ready pictures from a native HD source, by the use of a 64 tap FIR filters. The 2HS10 will allow you to simulcast SD signals from a native HD infrastructure. The embedded audio is carried over into the SD domain; the appropriate aspect ratio can be applied and the correct VI or WSS data can be added. Each channel has a composite monitoring output. Each channel has a 2 group de-embedder which lets you de-embed audio to the Synapse bus.

- 2 independent channels, these have to be the same format
- Frame-synchronizer on SD outputs with control of H and V delay
- HD-SDI or SD-SDI input (auto selecting)
- 1080i or 720p 50 to 625/50
- 1080i or 720p 59.94 to 525/59.94
- 1080p or 720p 25 to 625/50
- 1080p or 720p 29.97 to 525/59.94
- 1080p or 720p 23.98 to 525/59.94
- Correct color space conversion (709-601)
- 3 outputs per channel
 - 1 HD/SD selectable output
 - 1 SD output
 - 1 CVBS output
- Built-in ARC for 4:3 pan-scan, 14:9, 16:9 letterbox and anamorphic output formats
- Built-in color corrector
- H+V sharpness control (picture enhancements)
- Proc-amp and color corrector
- De-embeds 8 channels of audio to the Synapse internal bus
- Fully independent WSS and VI insertion
- 4:3 Safe area generator on SD-SDI output
- I/O delay measurement
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18 frame and the Ethernet port (ACP)
- Optional 2 fiber inputs (replacing 2 SDI inputs) or 2 fiber outputs (replacing 2 SDI outputs) on I/O panel

Conversion abilities

The 2HS10 card is able to convert the following video formats:

Conversion		Output							
		1080i50	1080i59.94	720p50	720p59.94	576i50(625)	480i59.94(525)	576i50(PAL)	480i59.94(NTSC)
SDI Input 1 or 2	1080i50	x				x		x	
	1080i59.94		x				x		x
	720p50			x		x		x	
	720p59.94				x		x		x
	576i50(625)					x		x	
	480i59.94(525)						x		x

Applications

- Broadcast quality down conversion with monitoring function
- Generic (monitoring) down conversion
- Down conversion with analog or digital audio embedding (requires an additional ADD-ON card such as the DIO24)
- High density applications as in OB-Trucks

Ordering information

Module:

- **2HS10:** Dual channel high-end HD-SDI to SD-SDI / composite down converter with de-embedding function

Standard I/O:

- **BPH05_2HS10:** I/O-panel for 2HS10
- **BHX05_2HS10:** I/O-panel with relay bypass for 2HS10

Fiber outputs:

- **BPH05T2_FC/PC_2HS10:** I/O-panel for 2HS10 with 2 fiber transmitter on FC/PC
- **BPH05T2_SC_2HS10:** I/O-panel for 2HS10 with 2 fiber transmitter on SC

Fiber inputs:

- **BPH05R2_FC/PC_2HS10:** I/O-panel for 2HS10 with 2 fiber receiver on FC/PC
 - **BPH05R2_SC_2HS10:** I/O-panel for 2HS10 with 2 fiber receiver on SC
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Specifications

HD/SD Serial Video Input

Standard	625/50 or 525/59.94 SMPTE 259M-C (270Mb/s) with SMPTE 272M embedded audio SMPTE 292M (1.5Gb/s), SMPTE 260M, SMPTE 274M, SMPTE 296M, SMPTE 349M 1080i/59.94, 1080i/50, 720p/59.94, 720p/50
Number of Inputs	2 (1 per channel)
Equalization	Automatic to 100m @ 1.5Gb/s with Belden 1694A or equivalent cable.
Return Loss	> 15dB up to 1.5GHz

HD/SD Serial Video Output

Standard	625/50 or 525/59.94 SMPTE 259M-C (270Mb/s) with SMPTE 272M embedded audio SMPTE 292M (1.5Gb/s), SMPTE 260M, SMPTE 274M, SMPTE 296M, SMPTE 349M 1080i/59.94, 1080i/50, 720p/59.94, 720p/50
Number of Outputs	2 (1 per channel)
Signal Level	800mV nominal
DC Offset	0V \pm 0.5V
Rise and Fall Time	200ps nominal for HD, 750ps nominal for SD
Overshoot	< 10% of amplitude
Return Loss	> 15dB up to 1.0Gb/s, > 10dB up to 1.5Gb/s

SD Serial Video output

Standard	625/50 or 525/59.94 SMPTE 259M-C (270Mb/s) with SMPTE 272M embedded audio
Number of Outputs	2 (1 per channel)
Signal Level	800mV nominal
DC Offset	0V \pm 0.5V
Rise/Fall Time	800ps nominal
Overshoot	< 10% of amplitude
Return Loss	> 15dB up to 270MHz
Return Loss	> 15dB at 270Mb/s
Wideband Jitter	< 0.2UI
Video Delay	minimum of 56 SD lines, maximum 1F +56 lines

Analog Video Output

Standard	PAL (ITU624-4) or NTSC (SMPTE 170M)
Number of Outputs	2 (1 per channel)
Connector	BNC
Signal Level	1V nominal
Impedance	75 Ohms
Return Loss	> 35dB to 10MHz
Frequency Response	0.5dB to 4.5 MHz
Differential Gain	< 0.6%
Differential Phase	< 0.7°
SNR	> 75dB

Miscellaneous

Weight	Approx. 250g
Operating Temperature	0 °C to +50 °C
Dimensions	137 x 296 x 20 mm (HxWxD)

Electrical

Voltage	+24V to +30V
Power	<12 Watts