



HSU05

HD up-converter with color corrector

A Synapse® product

Synapse

SynLite

**MASTER
Card**

HD
High definition

COMPATIBLE WITH
 **DOLBY. E**

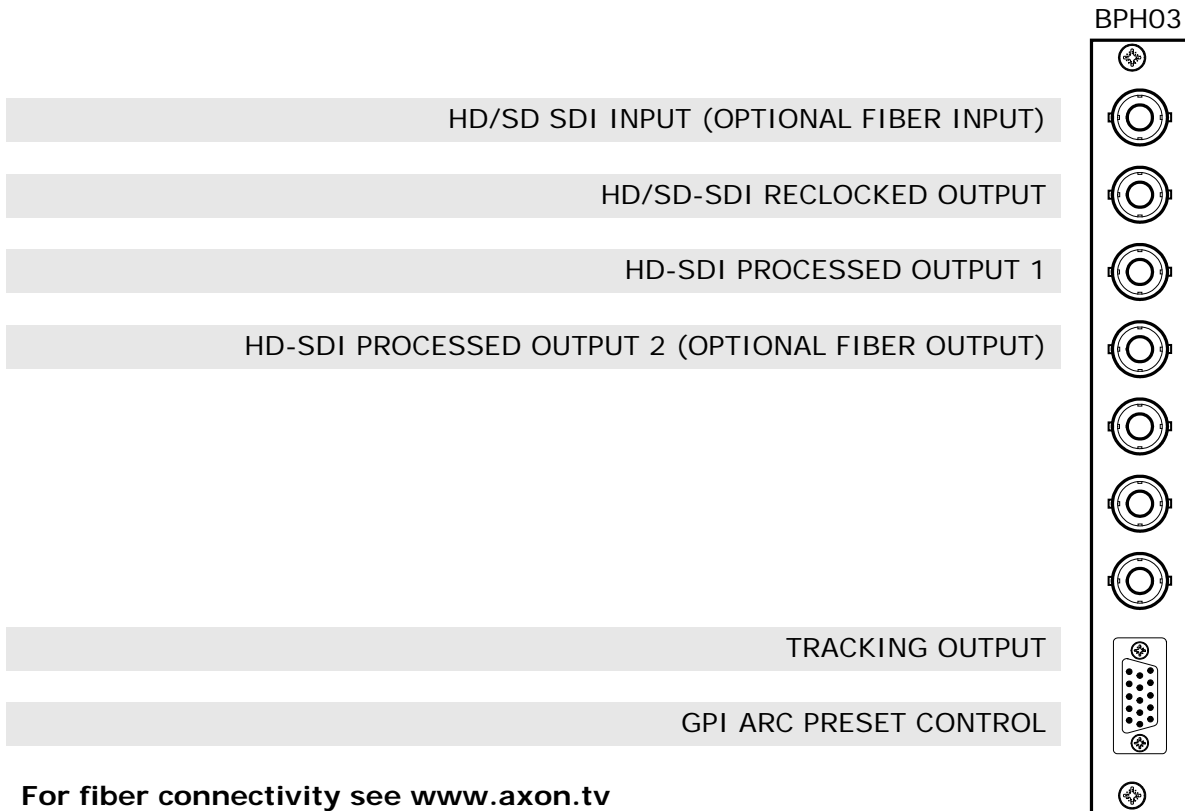
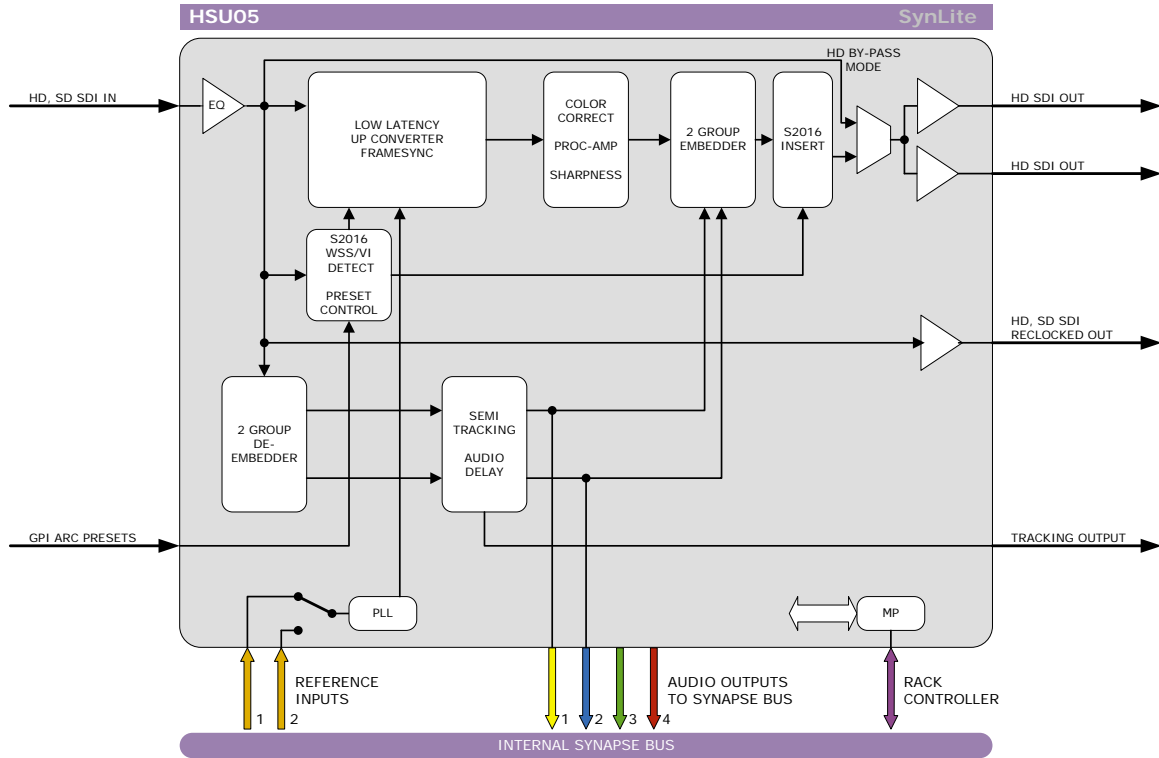
AFD ready
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Block schematic & I/O panel



For fiber connectivity see www.axon.tv

Features

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. 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.

- HD or SD input (auto bypass mode with no processing)
- 625/50 to 1080i/50 or 720p/50
- 525/59.94 to 1080i/59.94 or 720p/59.94
- 625/50 to 1080p/25 or 720p/25
- 525/59.94 to 1080p/29.97 or 720p 29.97
- Single field (low latency) and 3 field de-interlacing
- Sharpness control for crisp image quality
- Low latency mode with 54 SD lines delay
- Adjustable H and V delay with respect to input or reference
- Color corrector
- Aspect ratio control:
 - Embedded WSS
 - Embedded WSS-ext
 - Embedded VI
 - GPI (BPH03)
- 16 presets for aspect ratio conversion
 - Anamorphic (16F16 to 16F16)
 - Pillarbox (12F12 to 12P16)
 - Pillarbox 14:9 (12F12 to 14P16)
 - Inverse pan-scan (12F12 to 16F16)
- V position control between -128 and + 127 lines (for inverse pan-scan/zoom mode)
- Jump to preset or hold at loss of WSS or VI control
- 2 group audio transparency (selectable)
- 2 group de-embedding to Synapse ADD-ON Card
- Semi tracking audio delay in 1ms intervals
- Audio delay offset adjustment up to 1000 ms
- Correct color space conversion(601-709)
- VITC transparency with selectable line selection and duplication
- CC transparent
- One reclocked output (active loop)
- 2 HD-SDI processed outputs (active loop in HD by-pass mode)
- Built-in ARC for 4:3 and 14:9 pillar box and inverse pan scan output formats
- Locks to Bi-level, Tri-level sync and SDI input
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18 frame and the Ethernet port (ACP)
- Optional 1 fiber input (replacing 1 SDI input) or 1 fiber output (replacing 1 SDI output) on I/O panel

Complementary cards:

- DAC20, DAC24, ADL24, DAS24, DIO48, DLA44, DLA43

Conversion abilities

The HSU05 can handle the following conversions:

CONVERSION		Output					
		1080i59.94	1080i50	720p59.94	720p50	480i59.94 (525)	576i50 (625)
Input	1080i59.94	X*					
	1080i50		X*				
	720p59.94			X*			
	720p50				X*		
	480i59.94 (525)	x		x		X	
	576i50(625)		x		x		X

* = HD bypass mode

Applications

- High quality low latency up conversion (with zero motion artifacts)
- Free running fill-in camera positions up-conversion and synchronization

Ordering information

Module:

- **HSU05:** HD up-converter with color corrector

Standard I/O:

- **BPH03_HSU05:** I/O panel for HSU05

Fiber outputs:

- **BPH03T_FC/PC_HSU05:** I/O panel for HSU05 with fiber transmitter on FC/PC
- **BPH03T_SC_HSU05:** I/O panel for HSU05 with fiber transmitter on SC

Fiber inputs:

- **BPH03R_FC/PC_HSU05:** I/O panel for HSU05 with fiber receiver on FC/PC
- **BPH03R_SC_HSU05:** I/O panel for HSU05 with fiber receiver on SC

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
Equalization	Automatic to 150m @ 1.5Gb/s with Belden 1694A or equivalent cable.
Return Loss	> 15dB up to 1.5GHz

HD Serial Video Output

Standard	SMPTE 292M (1.5Gb/s), SMPTE 260M, SMPTE 274M, SMPTE 296M, SMPTE 349M 1080i/59.94, 1080i/50, 720p/59.94, 720p/50
Signal Level	800mV nominal
DC Offset	0V ±0.5V
Rise and Fall Time	200ps nominal for HD
Overshoot	< 10% of amplitude
Return Loss	> 15dB up to 1.0Gb/s, > 10dB up to 1.5Gb/s
Wideband Jitter	< 0.2UI

Reference Input through RRC

Number of Inputs	2 on SFR18, 2 on SFR08 and 1 on SFR04
Tri-level	SMPTE274M, SMPTE296M 600 mVp-p nominal, 75 Ohms terminated through loop
Bi-level	PAL Black Burst ITU624-4/SMPTE318, Composite NTSC SMPTE 170M 1Vp-p nominal, 75 Ohms terminated through loop

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	<9 Watts