



HDS05

Premium quality HD to SD down converter with frame synchronizer

A Synapse® product

Synapse

SynLite

MASTER
Card

HD
High definition

COMPATIBLE WITH
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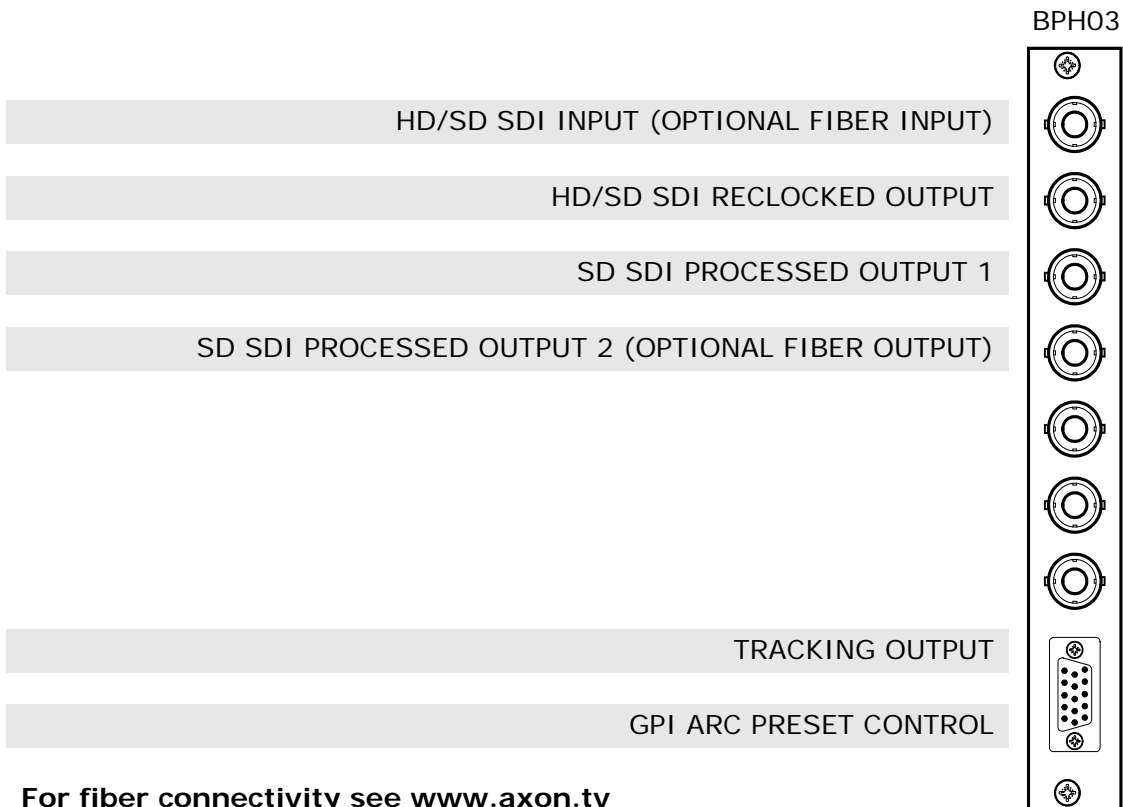
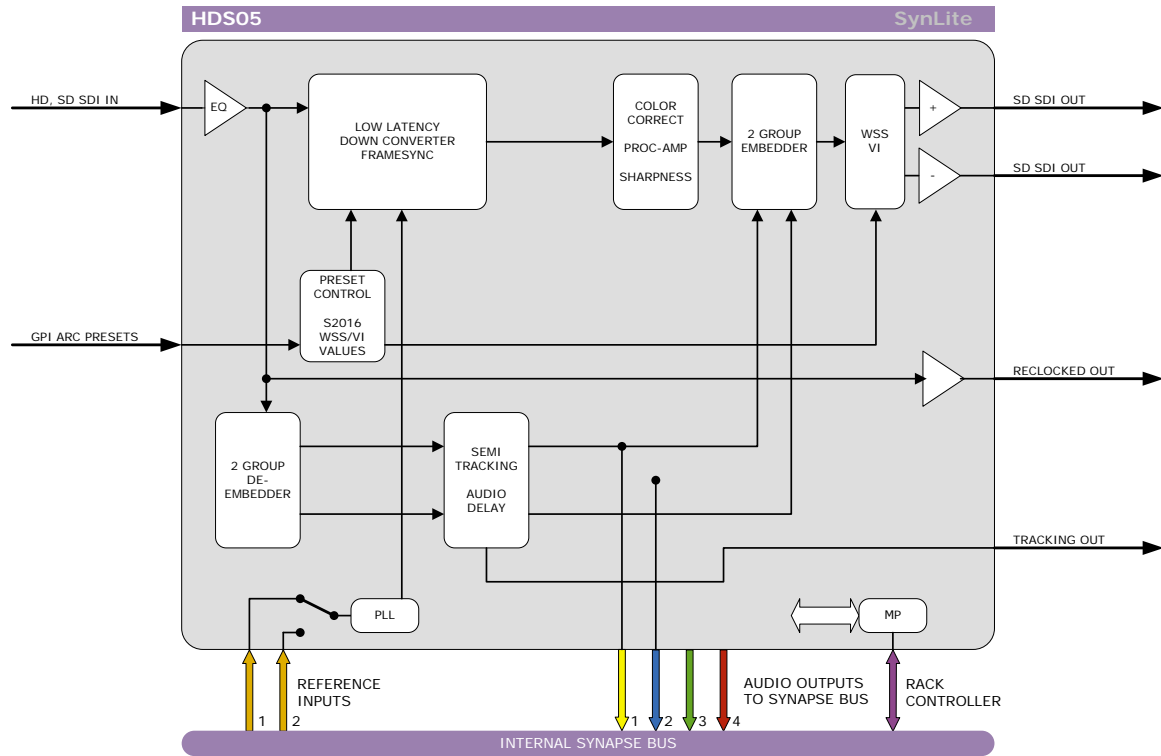
AFD ready
S2016

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Block schematic & I/O panel



For fiber connectivity see www.axon.tv

Features

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 bypass mode with a functional frame synchronizer.

- HD or SD 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(sf) or 720p 23.98 to 525/59.94
- Correct color space conversion (709-601)
- Output aspect ratio:
 - Anamorphic
 - Letterbox 16:9
 - Letterbox 14:9
 - Pan & Scan
- Adjustment of H position in pan & scan mode (+/- 64 pixel)
- Low latency mode with 54 SD lines delay
- Adjustable H and V delay with respect to input or reference
- 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
- Sharpness / enhancement for a perfect crisp SD image
- Coring adjustment
- ProcAmp and color corrector
- 4:3 marker in anamorphic output
- S2016 detection and VI and WSS insertion (including WSS-ext with GPI)
- CC transparent
- One reclocked output (active loop)
- 2 SD-SDI processed outputs
- Locks to Bi-level, Tri-level sync or SDI input
- Preset controlled ARC + WSS/VI inserter can be addressed manually, by GPI or S2016 (AFD)
- Optional 1 fiber input (replacing 1 SDI input) or 1 fiber output (replacing 1 SDI output) on I/O panel

Complementary cards:

- DAC20, DAC24, DAS24, DIO48, DIO24

Conversion abilities

The HDS05 can handle the following conversions:

CONVERSION		Output											
		1080p29.97	1080p25	1080p23.97	1035i59.97	1080i59.94	1080i50	720p59.94	720p50	720p29.97	720p25	720p23.98	480i59.94(525)
Input	1080p29.97											x	
	1080p25												x
	1080p23.97											x	
	1035i59.97											x	
	1080i59.94											x	
	1080i50												x
	720p59.94											x	
	720p50												x
	720p29.97												x
	720p25												x
	720p23.98											x	
	480i59.94(525)											x	
	576i50(625)												x

Applications

- Transmission output down conversion
- Post production down conversion
- OB Van and production down conversion
- Ingest down conversion

Ordering information

Module:

- **HDS05:** High-end HD to SD down converter with frame synchronizer

Standard I/O:

- **BPH03_HDS05:** I/O panel for HDS05 with GPI inputs on sub-D

Fiber outputs:

- **BPH03T_FC/PC_HDS05:** I/O panel for HDS05 with fiber transmitter on FC/PC
- **BPH03T_SC_HDS05:** I/O panel for HDS05 with fiber transmitter on SC

Fiber inputs:

- **BPH03R_FC/PC_HDS05:** I/O panel for HDS05 with fiber receiver on FC/PC
- **BPH03R_SC_HDS05:** I/O panel for HDS05 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

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
Signal Level	800mV nominal
DC Offset	0V ±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
Audio Delay	Delayed and re-embedded in time with the output picture

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