



**HDS10**

**Premium quality HD to SD down converter with frame synchronizer**

**A Synapse® product**

*Synapse*

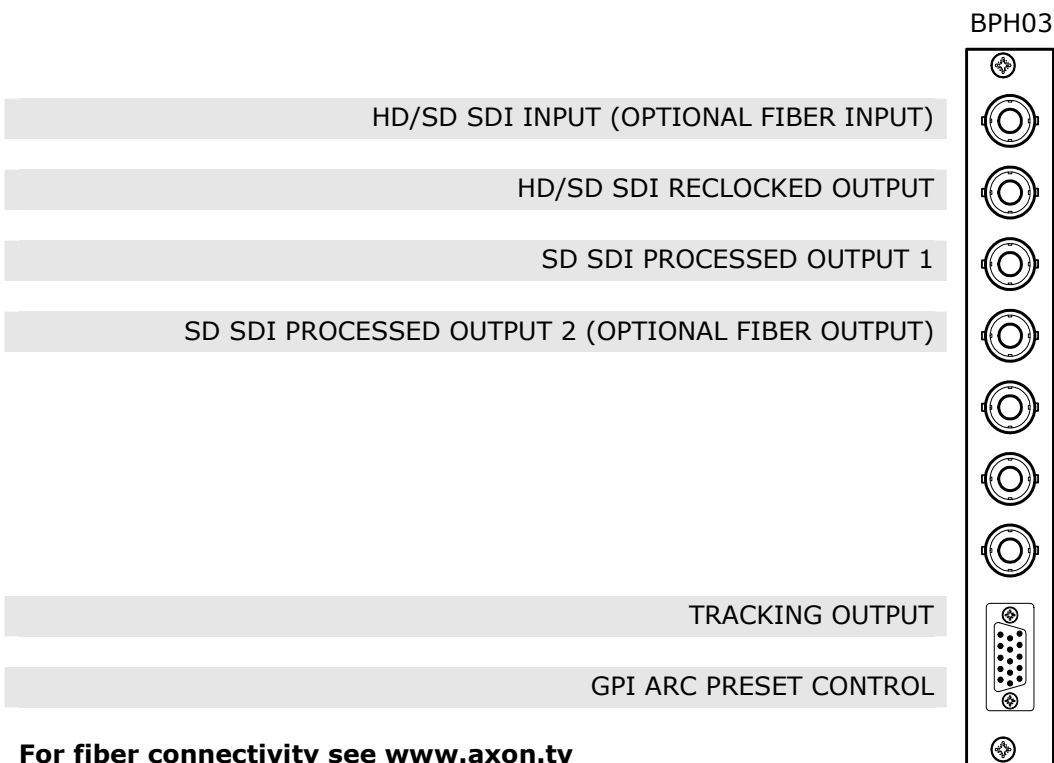
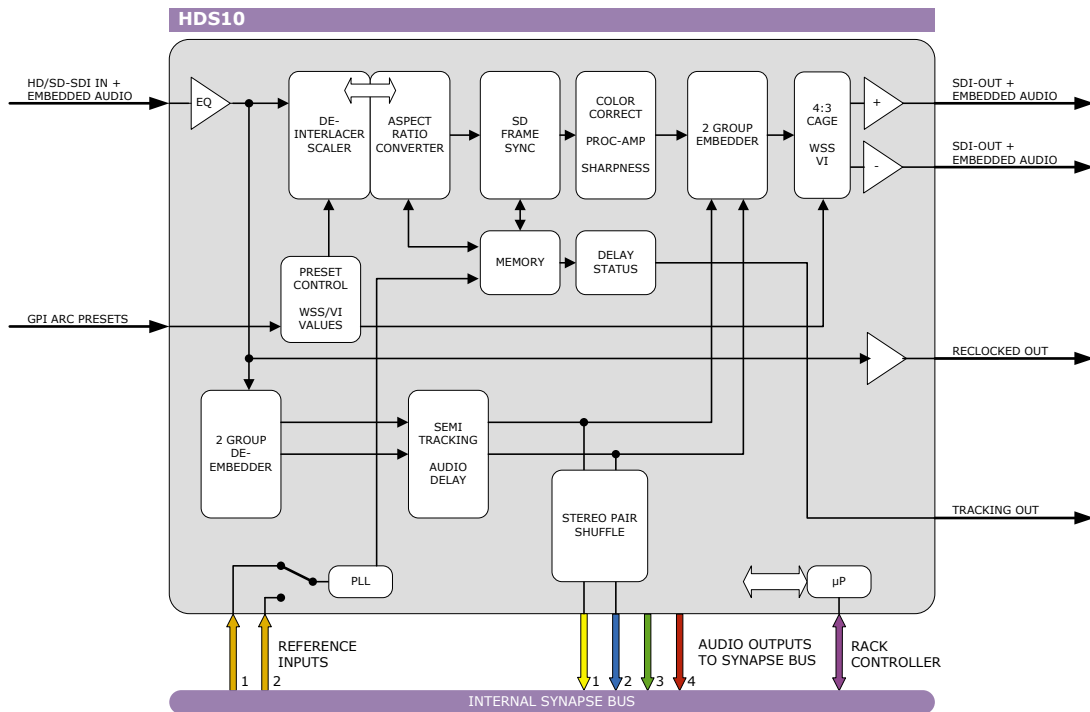


COPYRIGHT © 2008 AXON DIGITAL DESIGN BV

ALL RIGHTS RESERVED

NO PART OF THIS DOCUMENT MAY BE REPRODUCED IN ANY FORM  
WITHOUT THE PERMISSION OF AXON DIGITAL DESIGN BV.

### Block schematic & I/O panel



For fiber connectivity see [www.axon.tv](http://www.axon.tv)

## Features

---

The HDS10 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 HDS10 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 and the correct VI or WSS data can be added. When fed with an SD SDI signal the down converter goes in by-pass 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 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
- Proc-amp and color corrector
- 4:3 marker in anamorphic output
- Vi and WSS insertion (including WSS-ext with GPI)
- CC transparent
- Timecode transparent
- One reclocked output (active loop)
- 2 SD-SDI processed outputs
- Preset controlled ARC + WSS/VI inserter
- 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

## Conversion abilities

The HDS10 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:**

- **HDS10:** High-end HD to SD down converter with frame synchronizer

**Standard I/O:**

- **BPH03\_HDS10:** I/O panel for HDS10 with GPI inputs on sub-D

**Fiber outputs:**

- **BPH03T\_FC/PC\_HDS10:** I/O panel for HDS10 with fiber transmitter on FC/PC
- **BPH03T\_SC\_HDS10:** I/O panel for HDS10 with fiber transmitter on SC

**Fiber inputs:**

- **BPH03R\_FC/PC\_HDS10:** I/O panel for HDS10 with fiber receiver on FC/PC
- **BPH03R\_SC\_HDS10:** I/O panel for HDS10 with fiber receiver on SC

## Specifications

---

### HD/SD Serial Video Input

---

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

### SD Serial Video output

---

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

### Reference Video Input

---

<b>Standard</b>	PAL (ITU624-4), NTSC (SMPTE 170M) Tri-level sync
<b>Number of Inputs</b>	2 on SFR18, 2on SFR08, 1 on SFR04
<b>Connector</b>	BNC
<b>Signal Level</b>	1V nominal
<b>Impedance</b>	75 Ohms
<b>Return Loss</b>	> 25dB to 10MHz

### Miscellaneous

---

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

### Electrical

---

<b>Voltage</b>	+24V to +30V
<b>Power</b>	<9 Watts