



# Synapse

## HFS05D

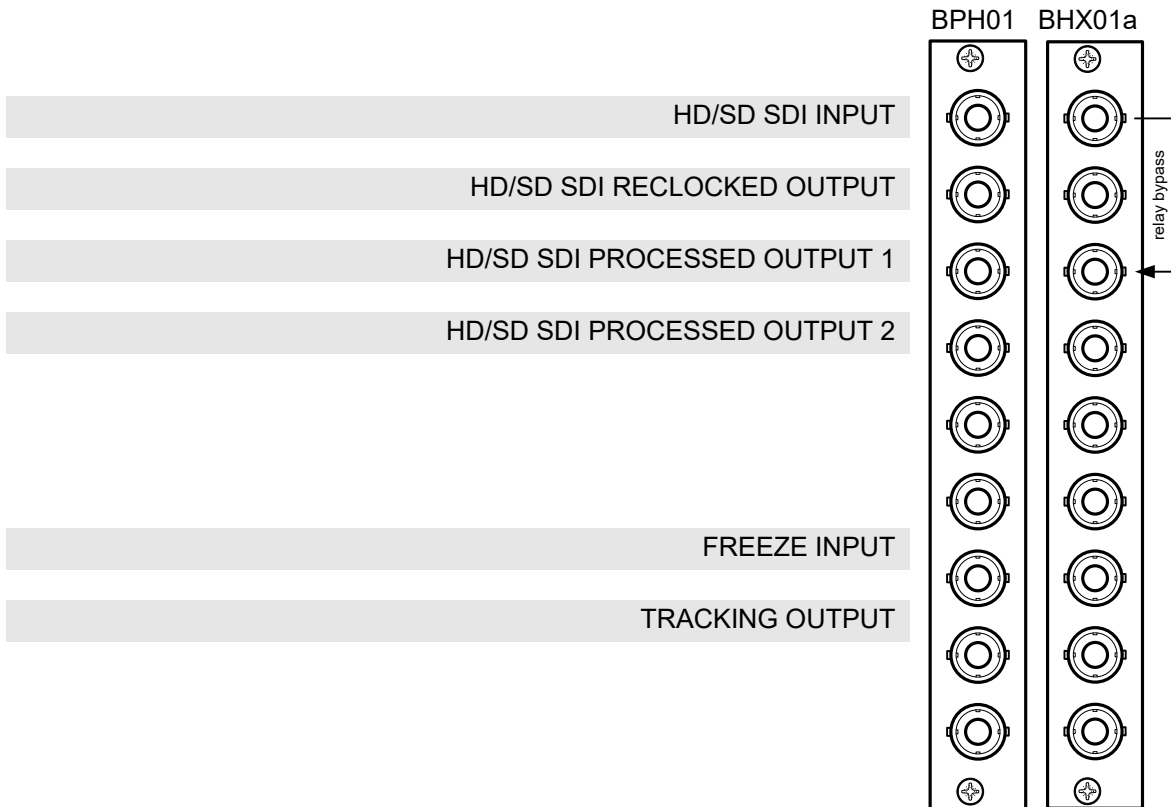
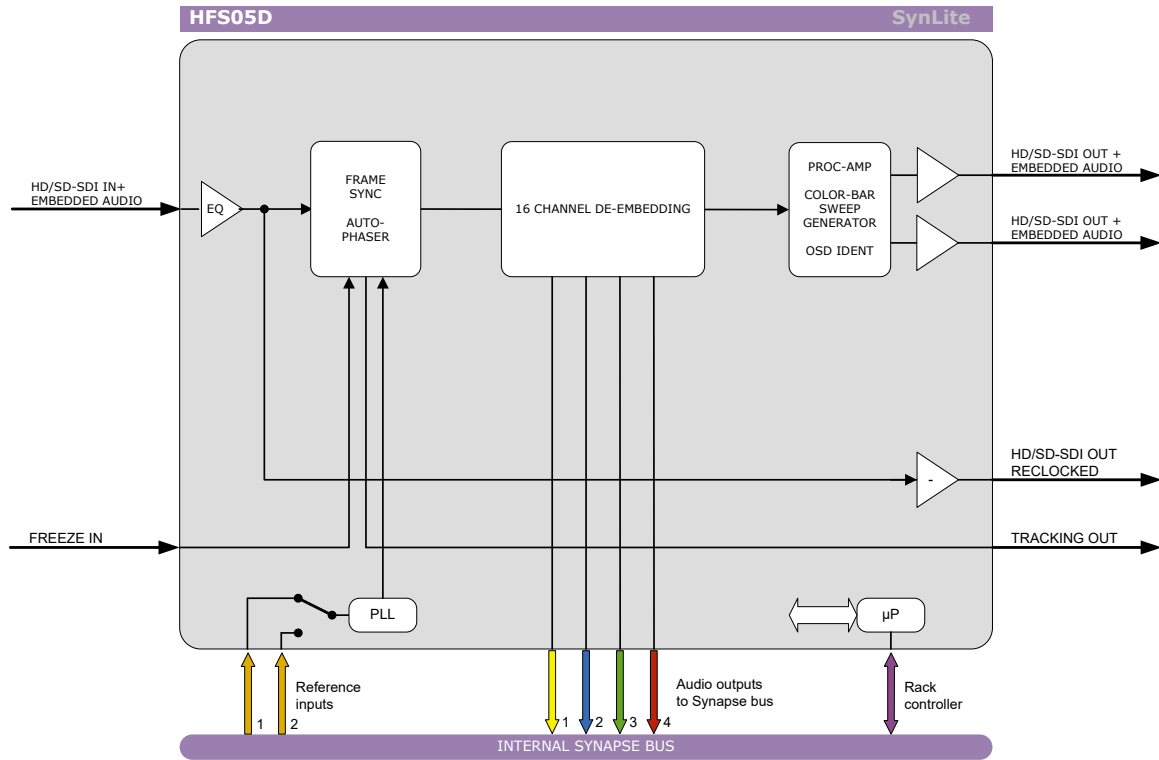
**HD/SD frame synchronizer with audio de-embedding of 16 channels**

A Synapse® product



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Block schematic & I/O panel



## Features

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The HFS05D is an HD/SD frame synchronizer/video delay/autophaser module, video ProcAmp. In addition, the HFS05D has a 4 group de-embedder function. The synchronizer function can be used to synchronize a non-synchronous signal or to compensate a delay. The HFS05D has total transparent blanking, both horizontally and vertically. The video reference is connected through the central genlock input of the SFR18, SFR08 or SFR04 frames and is compatible with bi-level and tri-level sync. The line synchronizer function corrects timing errors (hops) that occur due to switching in a router. In addition, the HFS05D can be used as a delay line, giving up to 1135 lines of delay. A video reference is not required in this case as the output clock frequency is derived from the input video clock. The HFS05D can be reprogrammed as an HFS05E or HFS05T without additional costs.

- HD-SDI and SD-SDI compatible
- Formats:
  - 1080i/50/59.94
  - 1035i/59.94
  - 720p/50/59.94/
  - 1080p(sf)/23.98/25/29.97
- Built-in ProcAmp
- 16 channels of audio de-embedding with Synapse ADD-ON Card
- Audio processing pass through, processed or mute
- Bi-level, Tri-level sync compatible
- Tracking output
- Freeze input
- On loss of input:
  - Freeze
  - Black
  - Green
  - Gray
- One reclocked output
- Two processed outputs
- I/O delay measurement
- Switch positioning measurement (in autophase mode)
- H and V delay offset adjustment with respect to input or reference
- Separate delay settings for 1080, 720p and SD SDI
- ANC blanking of H, V or H+V
- Test pattern (color bar/sweep)
- OSD ident label with maximum 10 characters (for set-up purposes)
- Locks to Bi-level or Tri-level syncs
- Full control and status monitoring through the front panel of the SFR08/SFR18 frame and the Ethernet port (ACP)

Complementary cards:

- DAC20, DAC24, ADL24, DAS24, DIO48

## Applications

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- Free running external video synchronization with tracking de-embedding function
- Post router line synchronization or autophasing
- Video timing adjustment for virtual studios
- Jitter killer

## Ordering information

### Module:

- **HFS05D:** HD/SD frame synchronizer with audio de-embedding of 16-channels

### Standard I/O:

- **BPH01\_HFS05D:** I/O panel for HFS05D

### Relay bypass I/O:

- **BHX01a\_HFS05D:** relay I/O panel for HFS05D

## 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 100m @ 1.5Gb/s with Belden 1694A or equivalent cable.
<b>Return Loss</b>	> 15dB up to 1.5GHz

### HD Serial Video Output

<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>Signal Level</b>	800mV nominal
<b>DC Offset</b>	0V $\pm$ 0.5V
<b>Rise and Fall Time</b>	200ps nominal for HD, 750ps nominal for SD
<b>Overshoot</b>	< 10% of amplitude
<b>Return Loss</b>	> 15dB up to 1.0Gb/s, > 10dB up to 1.5Gb/s
<b>Wideband Jitter</b>	< 0.2UI

### Reference Input through ERC

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

### 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>	7 Watts