



HFS05E

**HD/SD frame synchronizer with audio
embedding for 2 groups**

A Synapse® product

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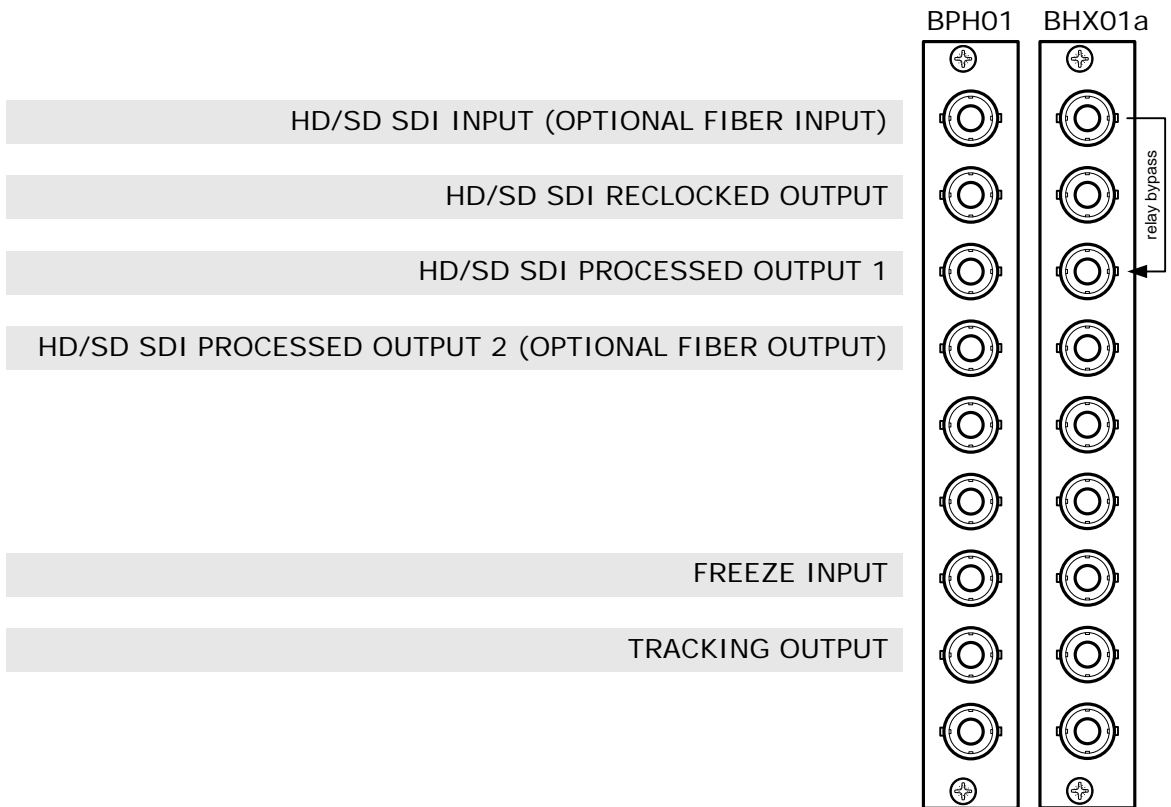
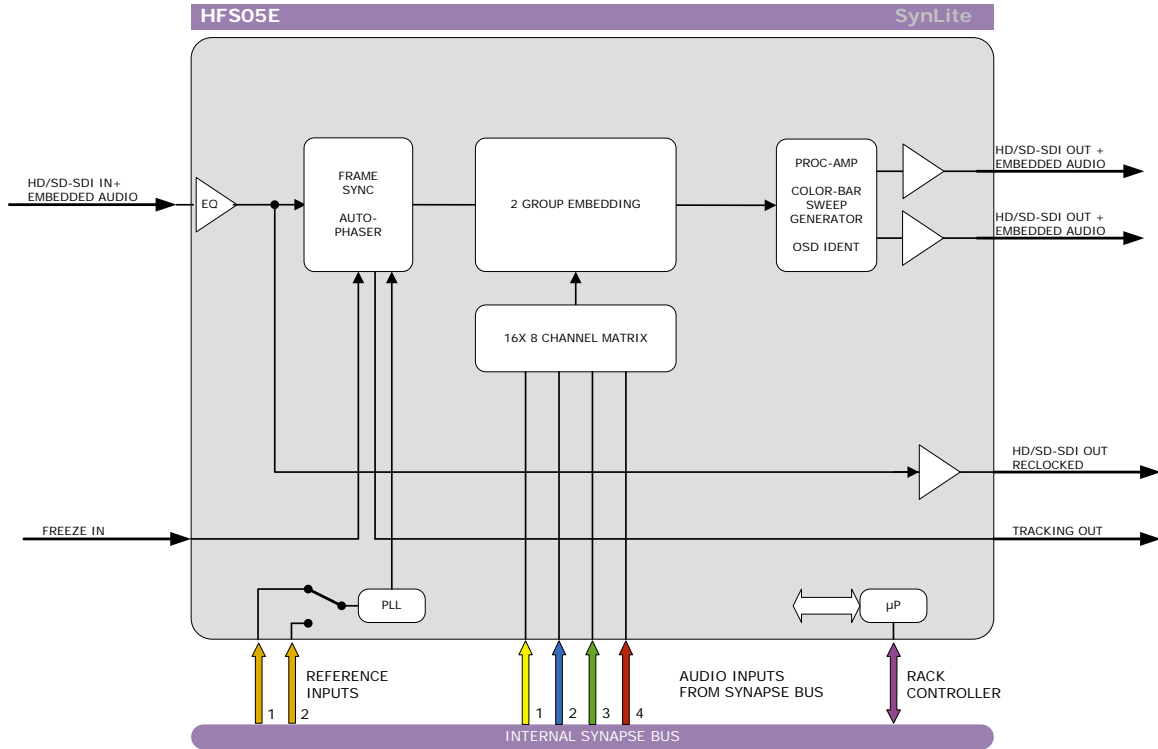
HD
High definition

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Block schematic & I/O panel



Features

The HFS05E is an HD/SD frame synchronizer/video delay/autophaser module, video proc amp. In addition, the HFS05E has a 2 group embedding function. The synchronizer function can be used to synchronize a non-synchronous signal or to compensate a delay. The HFS05E has full 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 a 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 HFS05E can be used as a delay line, giving up to 1 frame 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 HFS05D 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
- 2 groups of audio 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 auto phase mode)
- H and V delay offset adjustment with respect to input or reference
- ANC blanking of H, V or H+V
- Separate delay settings for 1080/720p and SD SDI
- 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 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:

- ADC20, ADC24, ADL24, DIO24, DIO48, DLA44, DLA43

Applications

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

Ordering information

Module:

- **HFS05E:** HD/SD frame synchronizer with audio embedding for 2 groups

Standard I/O:

- **BPH01_HFS05E:** I/O panel for HFS05E

Relay bypass I/O:

- **BHX01a_HFS05E:** relay I/O panel for HFS05E

Fiber outputs:

- **BPH01T_FC/PC_HFS05E:** I/O panel for HFS05E with fiber transmitter on FC/PC
- **BPH01T_SC_HFS05E:** I/O panel for HFS05E with fiber transmitter on SC

Fiber inputs:

- **BPH01R_FC/PC_HFS05E:** I/O panel for HFS05E with fiber receiver on FC/PC
- **BPH01R_SC_HFS05E:** I/O panel for HFS05E 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 100m @ 1.5Gb/s with Belden 1694A or equivalent cable.
Return Loss	> 15dB up to 1.5GHz

HD 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
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
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	7 Watts