

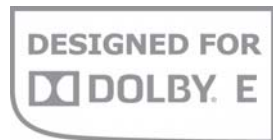


HES20

HD/SD embedded Dolby E alignment engine / frame synchronizer

A Synapse ® product

Synapse

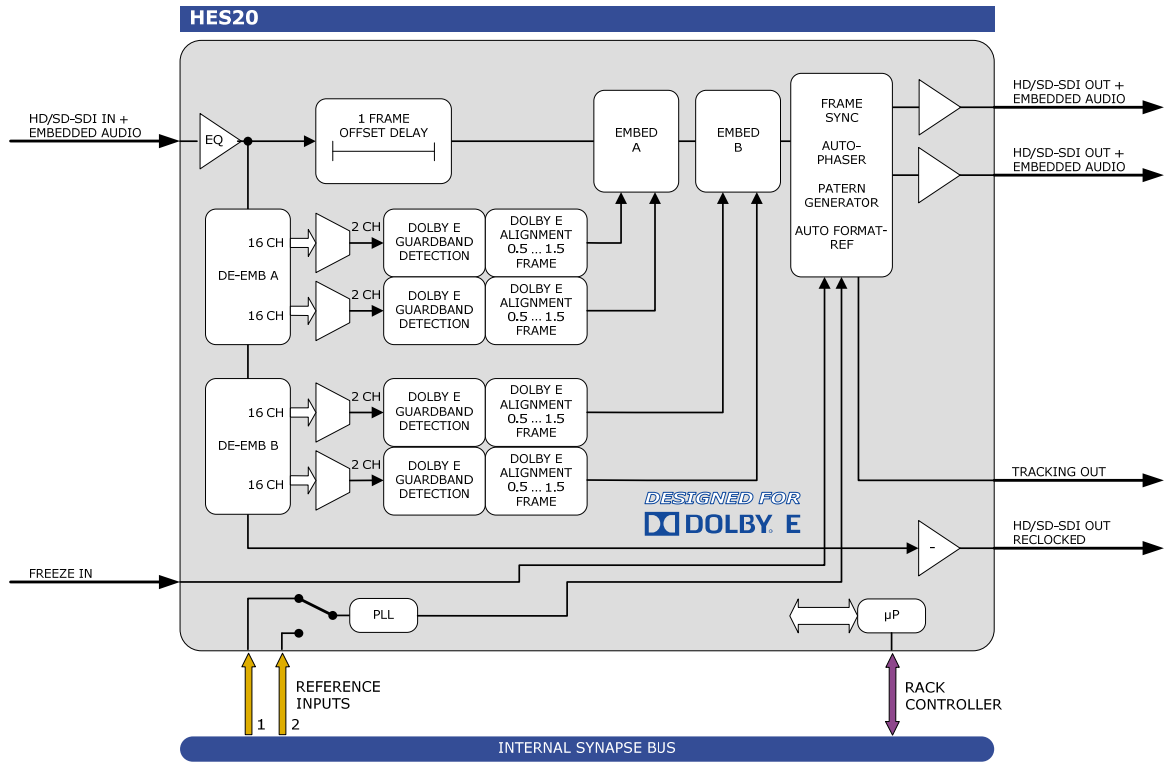


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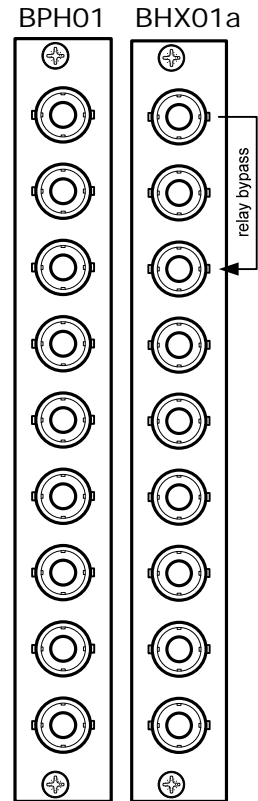
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Block schematic & I/O panel



- HD/SD-SDI INPUT (OPTIONAL FIBER INPUT)
- HD/SD-SDI RECLOCKED OUTPUT
- HD SDI PROCESSED OSD OUTPUT 1
- HD SDI PROCESSED OSD OUTPUT 2 (OPTIONAL FIBER OUTPUT)



Features

The HES20 is a Dolby-E aligner + frame synchronizer. The use of Dolby E in modern SD and HD SDI embedded infrastructures becomes more and more common. Dolby E has a guard-band that ideally sits exactly on top of the frame boundaries of the SDI video stream. Unfortunately this is not always the case. Individual audio and video propagation delay problems can cause a time shift of the Dolby E stream with respect to the SDI carrier, even when it is embedded. A common cause is an MPEG encoder – decoder configuration in a contribution environment. The shift in guard-band **removes** the feature within Dolby E to drop or rewrite a video-frame without audible clicks. Beside the compression this is one of the main reasons Dolby E is used.

The HES20 is the answer to this problem. The card automatically detects Dolby E and a possible offset of the guard band is measured. Any offset of up to +/- 0.5 Frame will be corrected automatically by delaying the Dolby E between 0.5 and 1.5 frame (The video part of the SDI stream is delayed by one frame as default). A free selection of four stereo pairs, out of the full embedded audio domain can be chosen. If a PCM channel is detected it will get an automatic offset delay of 1 Frame, equal to the video delay.

- Automatic Dolby E alignment of up to 4 embedded Dolby E streams
- Individual offset delay for each Dolby E track -10 to + 10 lines
- Automatic detection of Dolby E versus PCM
- Full functioning Frame synchronizer allows for a-synchronous operation
- Compatible with the following standards:
 - 1080i-59.94
 - 1080i-50
 - 1080p-30
 - 1080p-25
 - 1035i-59.94
 - 720p-60
 - 720p-50
 - SD525
 - SD625
- Synchronize, delay and free-run modes
- ATC transparency acc. RP188, RP196, RP215
- Locks to Bi-level, Tri-level sync or SDI input
- Offset H and V adjustment
 - Up to 2199 pixels H
 - Up to 1124 lines V
- Manual Freeze
- GPI Freeze
- OSD identity text
- I/O measurement propagation delay
- Built-in Proc-amp with individual controls for Y, Cr, Cb, Y-Black, Cb-Black, Cr-Black
- Line lock mode for better auto-phasing
- Audio format detection (e.g. AC3, Dolby E and PCM)
- 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

Applications

- Post MPEG transport embedded Dolby E alignment and synchronization
- Post server Dolby E alignment
- Contribution network embedded Dolby E alignment

Ordering information

Module:

- **HES20:** HD/SD embedded Dolby E alignment engine / Frame synchronizer

Standard I/O:

- **BPH01_HES20:** I/O panel for HES20

Relay bypass I/O:

- **BHX01a_HES20:** relay I/O panel for HES20

Fiber output:

- **BPH01T_FC/PC_HES20:** I/O panel for HES20 with fiber transmitter on FC/PC
- **BPH01T_SC_HES20:** I/O panel for HES20 with fiber transmitter on SC

Fiber inputs:

- **BPH01R_FC/PC_HES20:** I/O panel for HES20 with fiber receiver on FC/PC
- **BPH01R_SC_HES20:** I/O panel for HES20 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	9 Watts