



Synapse

HXT150

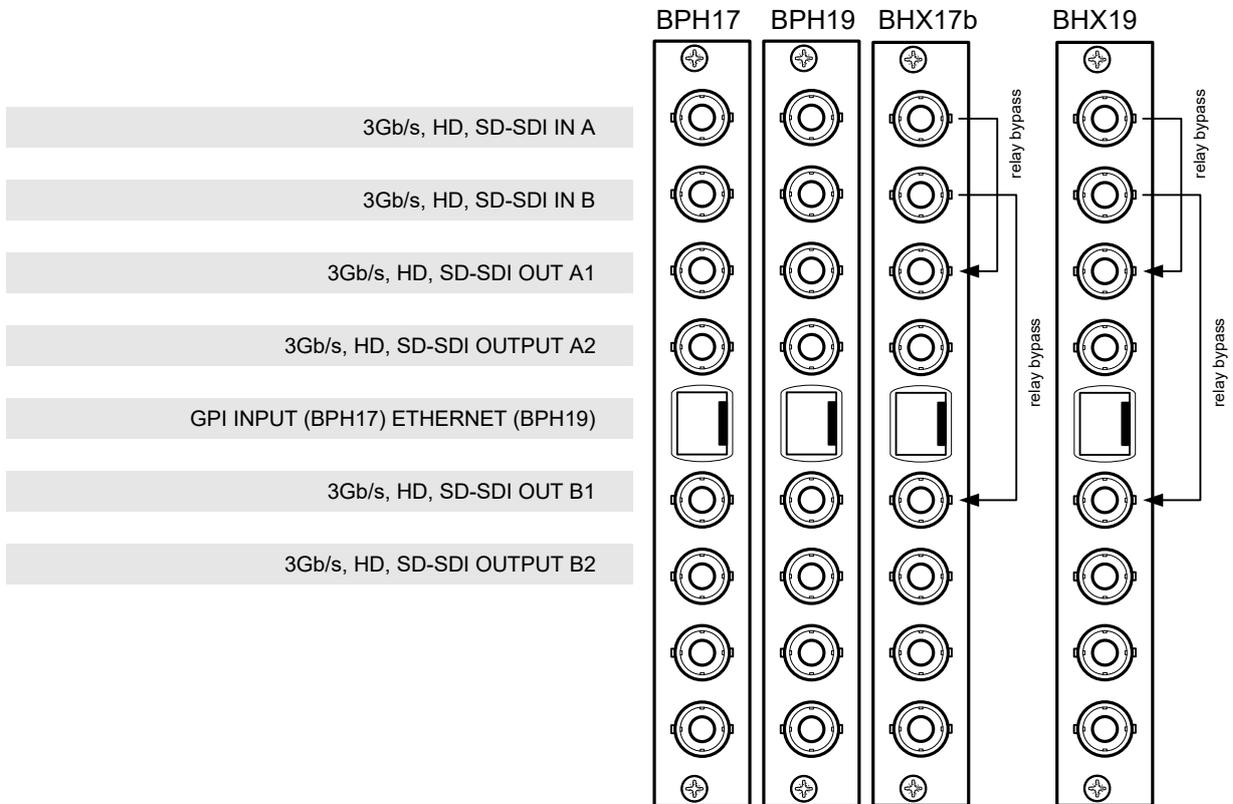
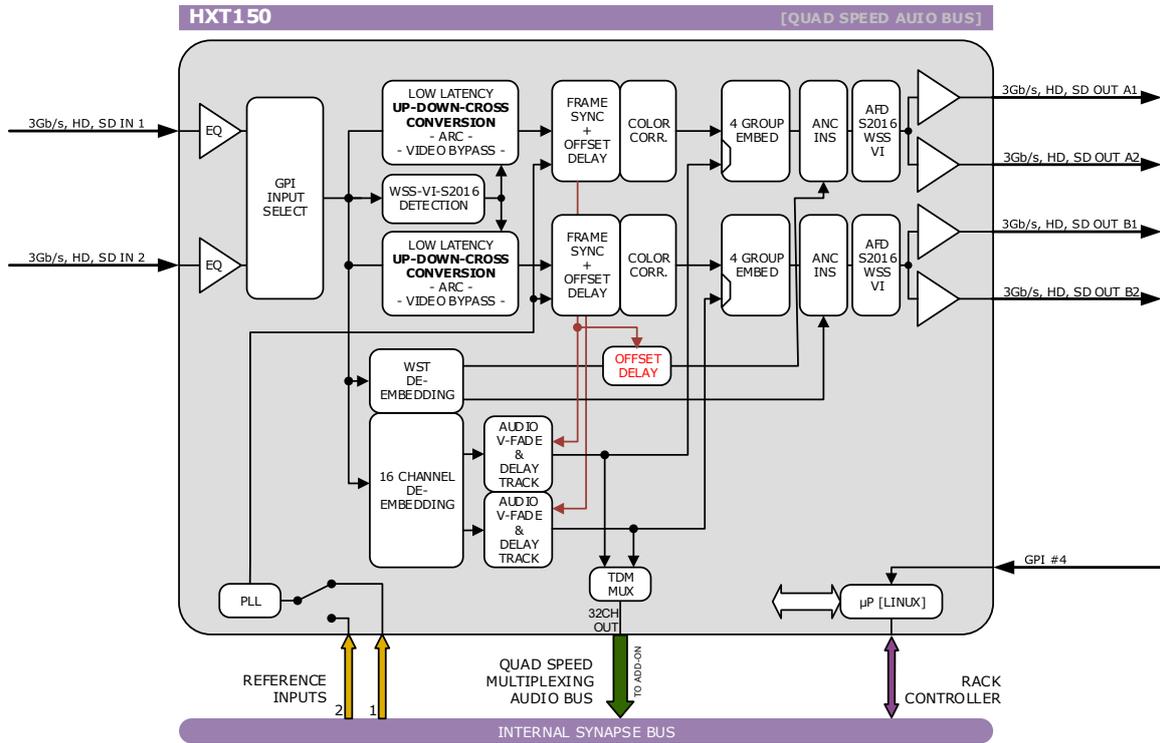
Dual, HD and SD input, frame synchronizer, up/down/cross converter, embedder, de-embedder with second channel offset delay (stat multiplex optimization)

A Synapse® product



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Block schematic & I/O panel



Features

The HXT150 dual output up/down/cross converter is a transmission tool optimized to have a second channel running on a medium long offset delay that will improve statistical multiplexing efficiency.

One application is that the SD output in both anamorphic and letterbox formats run on the same multiplexer and because of the SD 5 seconds offset delay will help with multiplexing

- HD, SD SDI input (auto selecting)
- Low latency conversion process
 - HD outputs
 - SD outputs (simultaneous anamorphic widescreen and pan-scan)
- Up-conversion from SD, 720p or 1080i (equal frame rate)
- Down conversion
- Cross conversion 720p to 1080i and vice versa
- Dual input backup function
 - Automatic by input carrier detection
 - Manual by direct control (ACP)
 - GPI
- 2 Frame synchronizers for the HD and SD domain with individual output timing control
 - One with an additional offset delay.
- Color correction in HD and SD domain (RGB and total gain, RGB and total black)
- H+V sharpness control in SD domain for crisp down converted picture quality
- 4 GPI inputs for ARC and Shuffle triggers
- Transparent for 16 channels of embedded audio both HD and SD path
- Quad speed audio bus OUT compatible
- De-embedding to Synapse bus with transparent input to output handling
- Video proc-amp (Y and C control)
- Hue control
- Compatible with:
 - 270 Mbit/s (SMPTE 259M) 50 and 59.94Hz
 - 1485 Mbit/s (SMPTE 292M) 50 and 59.94Hz
- AFD insertion in HD domain
- AFD, WSS, WSS-ext and VI insertion in SD domain
- I/O Delay measurement for both output domain
- Reporting of chosen input
- CRC status information for both inputs
- Locks to Bi-level, Tri-level syncs and SDI input
- OP47 to WST cross conversion and vice versa
- Timecode cross conversion
- CC-608 to CC-708 conversion and vice versa
- 6 Line Vertical Ancillary Blanking transparency in transparent mode
- Full control and status monitoring through the front panel of the SFR08/SFR18 frame and the Ethernet port (ACP)
- 16 channel embedder in both HD and SD domain

Applications

- OB van output card
- 2x1 HD protection switch with SD monitoring output
- Dual domain (HD & SD) production down converter with individual timing adjustment
- Dual SD output from an HD infrastructure in both Anamorphic and letterbox formats with a 5 second offset delay to smoothen statistical multiplexers

Ordering information

Module:

- **HXT150-I/O:** Single input dual output HD and SD, frame synchronizer, up/down/cross converter with second channel offset delay for Statistical Multiplex optimization.

Standard I/O:

- **BPH17-PANEL:** I/O panel for HXT150 with GPI connection

Relay bypass I/O:

- **BHX17-PANEL:** I/O panel for HXT150 with GPI connection with relay bypass

Specifications

Video Inputs

Standard	SD,HD and 3Gb/s SDI: SMPTE 292M, SMPTE 259M, SMPTE424
Equalization	Typical maximum equalized length of Belden 1694A cable: 70m at 2.97Gb/s, 140m at 1.485Gb/s, and 350m at 270Mb/s
Number of inputs	2 (auto or manual selection)
Return Loss	> 15dB up to 3GHz

HD Serial Video Outputs

Standard	SD,HD and 3Gb/s SDI: SMPTE 292M, SMPTE 259M, SMPTE424
Number of Outputs	2
Signal Level	800mV nominal
DC Offset	0V ±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

SD Serial Video outputs

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	135ps nominal
Overshoot	< 10% of amplitude
Return Loss	> 15dB up to 1.5GHz (typ) > 10dB up to 3GHz (typ)
Wideband Jitter	< 0.2UI
Video Delay	Minimum of 56 SD lines, maximum 1F +56 lines

Processing Delay

Minimum delay 50Hz	20ms
Minimum delay 60Hz	16ms
Delay when locked to 50Hz ref	Between 20 and 60ms
Delay when locked to 60Hz ref	Between 16 and 48ms

Reference Input through ERC

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	<11 Watts