



Synapse

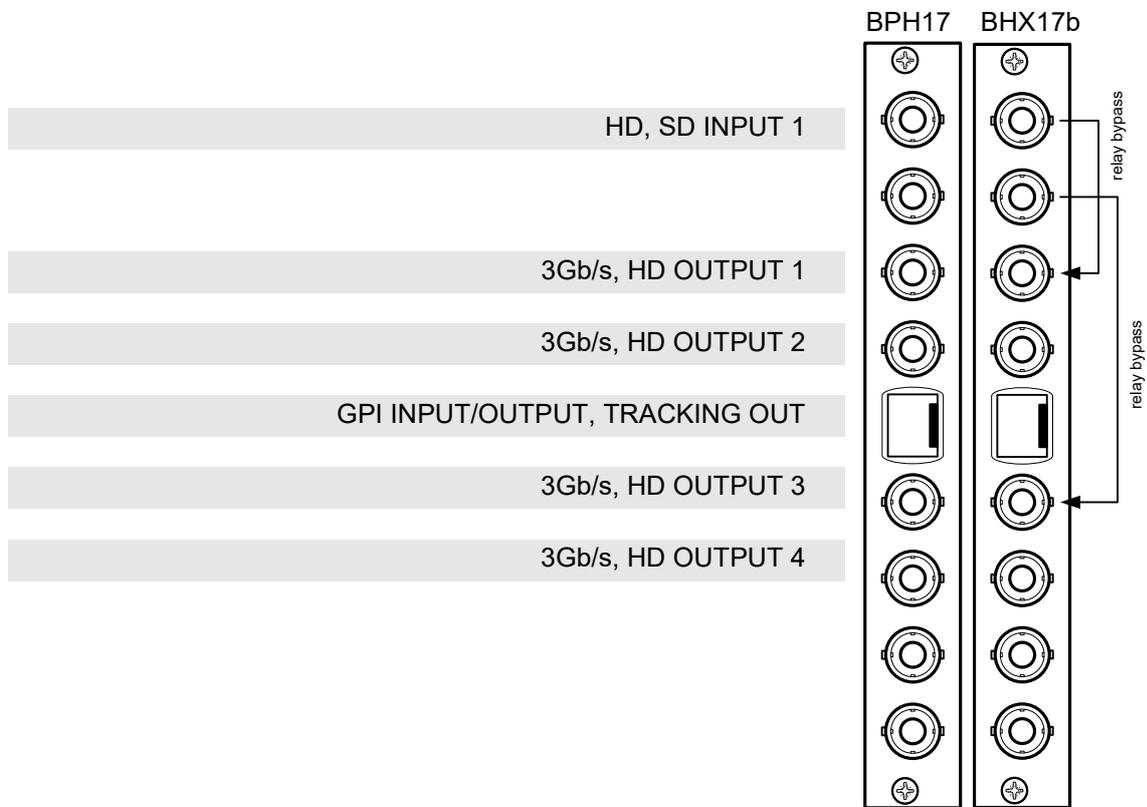
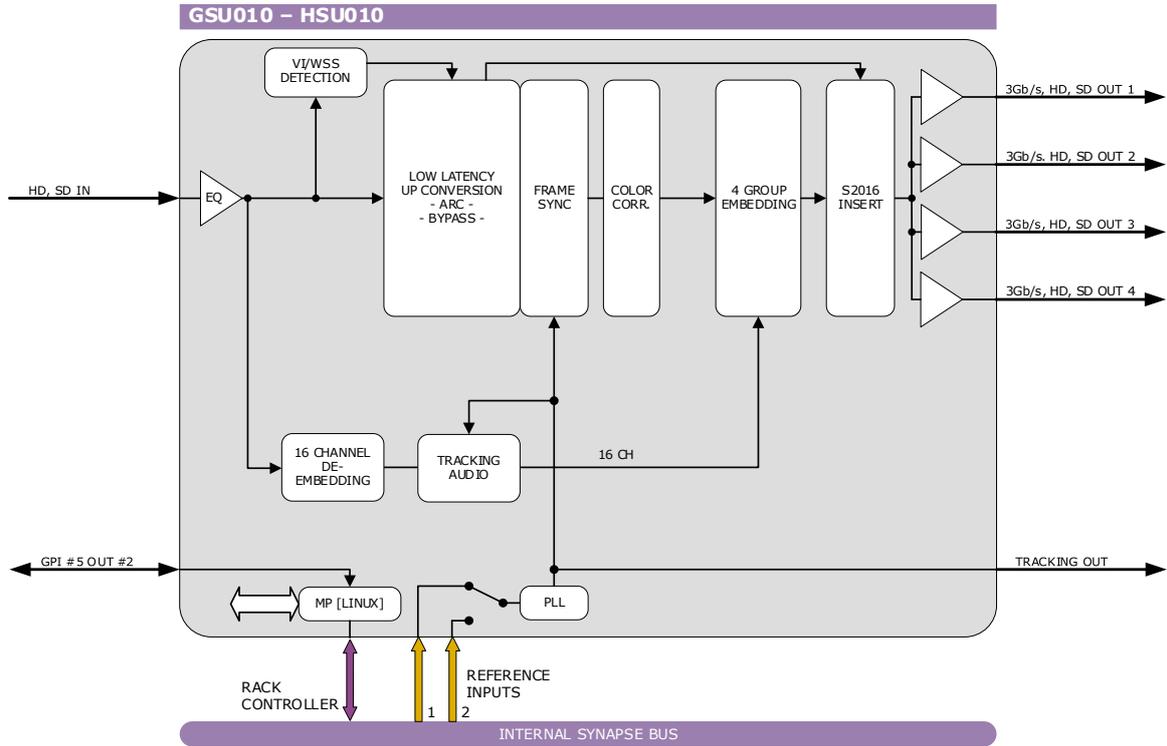
GSU010

3Gb/s, HD, SD basic up converter/synchronizer
A Synapse® product



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Block schematic & I/O panel



Features

The GSU010 is a *low latency* up-converters with 16 channel audio transparency.

The GSU010 is compatible with 270Mb/s, 1.5Gb/s and 3Gb/s for full 1080p/50 or 1080p/59.94 use.

- Low latency conversion process (as low as 1 field in controlled timing environment)
- Compatible with the following input and output formats (auto selecting). One standard can be chosen for both outputs simultaneously:

| | |
|--------------------------|--------------|
| ▪ 1080p/59.94 (2GU only) | ▪ 720p/59.94 |
| ▪ 1080p/50 (2GU only) | ▪ 720p/50 |
| ▪ 1080i/59.94 | ▪ 720p/23.98 |
| ▪ 1080i/50 | ▪ SD525 |
| ▪ 1080p/23.98 | ▪ SD625 |
| ▪ 1080psf/23.98 | |
- Frame sync with output phase control in Lines and pixels with respect to reference.
- ARC modes contain:

| | |
|--------------|------------------------------|
| ▪ Anamorphic | ▪ LBox-14:9 |
| ▪ Center Cut | ▪ PBox-4:3 |
| ▪ V-Zoom | ▪ PBox-14:9 |
| ▪ LBox-16:9 | ▪ Variable H and V (50—200%) |
- 16 Free individual programmable presets banks for:
 - Up converter ARC A and B
 - Transparent ARC A and B
 - VI/WSS/S2016 insertion A and B
 - Embedder shuffling/Gain/Phase (-110 only)
- 5 GPI inputs assignable to various preset banks
- ARC triggers by VI, WSS, WSSext and S2016 (AFD)
- Color corrector (RGB and total gain, RGB and total black)
- Transparent for 16 channels of embedded audio
- Video proc-amp (Y and C control)
- Hue control for NTSC inputs
- Locks to Tri-level, Bi-level or SDI input
- WST to OP47 cross conversion
- Timecode cross conversion
- Auxiliary timecode input, allowing for 2 separate timecodes
- CC-608 to CC-708 conversion
- 6 Line Vertical Ancillary Blanking transparency in transparent mode
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18 frame and the Ethernet port (ACP)

Applications

- Truck input up converter/synchronizer
- Infra structure up/down/cross conversion

Conversion abilities

The GSU010 can handle the following conversions:

| CONVERSION | | Output | | | | | | | | | | |
|------------|----------------|--------------|------------|---------|------------|------------|---------|-----------|--------|-----------|----------------|-------------|
| | | 1080psf23.97 | 1080p23.97 | 1080p50 | 1080p59.94 | 1080i59.94 | 1080i50 | 720p59.94 | 720p50 | 720p23.98 | 480i59.94(525) | 576i50(625) |
| SDI Input | 1080psf23.97 | x | | | | | | | | | | |
| | 1080p23.97 | | x | | | | | | | | | |
| | 1080p50 | | | x | | | | | | | | |
| | 1080p59.94 | | | | x | | | | | | | |
| | 1080i59.94 | | | | | x | | | | | | |
| | 1080i50 | | | | | | x | | | | | |
| | 720p59.94 | | | | | | | x | | | | |
| | 720p50 | | | | | | | | x | | | |
| | 720p23.98 | | | | | | | | | x | | |
| | 480i59.94(525) | x | x | | | x | | x | | x | x | |
| | 576i50(625) | | | x | | | x | | x | | | x |

Ordering information

Module:

- **GSU010-I/O:** 3Gb/s, HD, SD-SDI up converter

Standard I/O:

- **BPH17-PANEL:** I/O-panel for G-HSU010

Relay bypass I/O:

- **BHX17b-PANEL:** I/O-panel for G-HSU010 with relay bypass

Specifications

Serial Video Input

| | |
|-------------------------|---|
| Standard | SD,HD and 3Gb/s SDI: SMPTE 292M, SMPTE 259M, SMPTE424 |
| Number of Inputs | 2 |
| Connector | BNC |
| Equalization | Typical maximum equalized length of Belden 1694A cable: 90m at 2.97Gb/s, 120m at 1.485Gb/s, and 250m at 270Mb/s |
| Return Loss | > 15dB up to 1.5GHz |

Serial Video Output

| | |
|--------------------------|--|
| Number of Outputs | 4 |
| Connector | BNC |
| Signal Level | 800mV nominal |
| DC Offset | 0V \pm 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 |

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. 450g |
| Operating Temperature | 0 °C to +40 °C |
| Dimensions | 137 x 296 x 20 mm (HxWxD) |

Electrical

| | |
|----------------|--------------|
| Voltage | +24V to +30V |
| Power | <17 Watts |