Synapse

GFS100-110

3Gb/s, HD, SD frame synchronizer with optional audio shuffler

A Synapse® product

3 TRIPLE RATE Gb/s, HD, SD

Powered by LINUX

MASTER Card

Block schematic & I/O panel

GFS100 – GFS110 - HFS100 - HFS110 – SFS100 – SFS110

3Gb/s, HD, SD INPUT 1

3Gb/s, HD, SD INPUT 2

3Gb/s, HD, SD OUTPUT 1

3Gb/s, HD, SD OUTPUT 2

GPI INPUT/OUTPUT

3Gb/s, HD, SD OUTPUT 3

3Gb/s, HD, SD OUTPUT 4

CVBS INPUT

BPH17   BHX17b
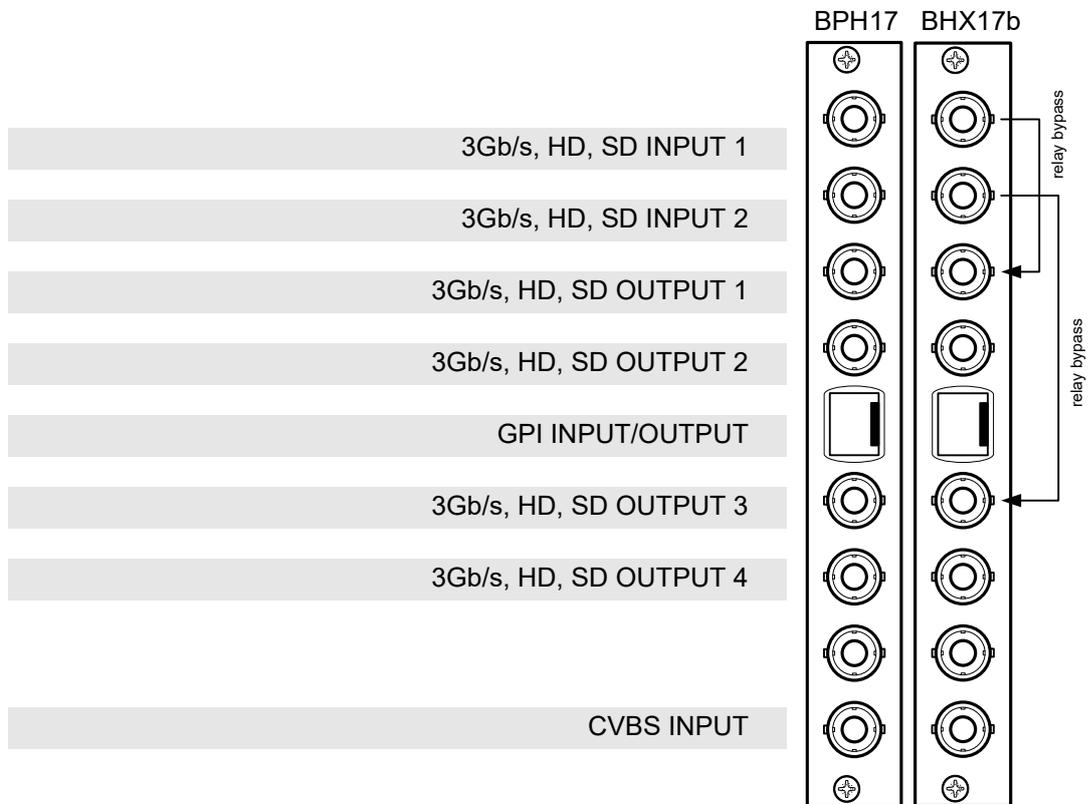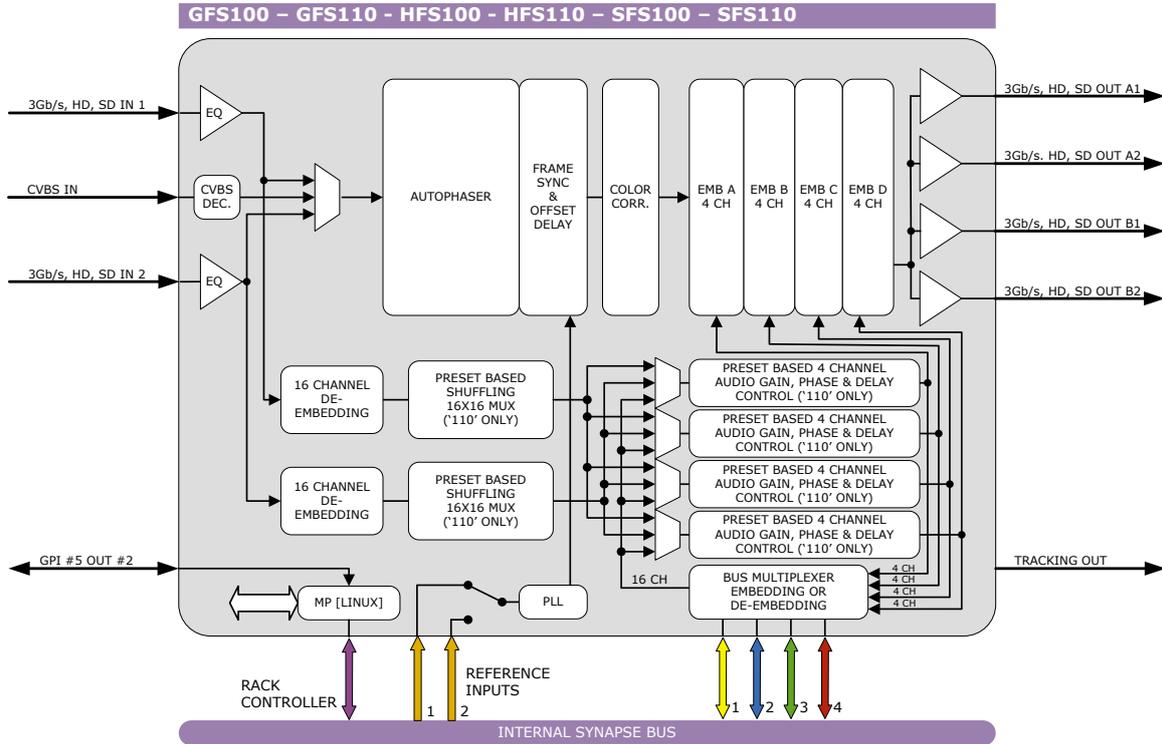
Features

The GFS100 and GFS110 are frame synchronizers with backup inputs and 16 channel audio transparency and color correcting capabilities. The powerful matrix multiplexer can feed audio from the embedded domain into the Synapse bus to an ADD-ON card like the DIO48. This matrix multiplexer also allows for audio to be inserted from the ADD-ON bus into the embedded domain of the GFS100/110. The GFS110 adds a full audio shuffler and audio proc-amp with gain and phase control.

The GFS100/110 is compatible with 270Mb/s, 1.5Gb/s and 3Gb/s for full 1080p/50 or 1080p/59.94 use.

- 3 inputs: 2 SDI and 1 composite.
- Compatible with the following input formats (auto selecting) (1080p only for GFS100/110):
    - 1080p/59.94
    - 1080p/50
    - 1080i/59.94
    - 1080i/50
    - 1080p/29.97
    - 1080p25
    - 1080p24
    - 1035i/59.94
    - 720p/59.94
    - 720p50
    - 720p30
    - 720p25
    - 720p24
    - SD525
    - SD625
- Frame sync with output phase control in Frames, Lines and pixels with respect to reference. Delay setting are stored per output format for a constant latency operation.
    - 30 Frames delay offset (per channel)
        - 1080i60
        - 1080i50
        - 1080p30
        - 1080p25
        - 1080p24
        - 1035i60
        - 1080p60
        - 1080p50
    - 60 Frames delay offset (per channel)
        - 720p60
        - 720p50
        - 720p30
        - 720p25
        - 720p24
    - 125 Frames delay offset (per channel)
        - SD525
        - SD625
- 5 GPI inputs assignable to different preset banks
    - Input selection
    - Audio shuffling, gain and phase (110 only)
- Transparent for 16 channels of embedded audio
- Embedded domain *cross input* audio shuffling, gain and phase control (GFS110 only)
- Embedding and de-embedding through synapse bus
- Video proc-amp (Y and C control)
- Color corrector (RGB and total gain, RGB and total black)
- Hue control for NTSC inputs
- Locks to Bi-level, Tri-level syncs or SDI input
- Full control and status monitoring through the front panel of the SFR08/SFR18 frame and the Ethernet port (ACP)

Complementary cards:

- DAC20, DAS24, DIO48, ADC20, ADC24, DIO24

Applications

- Transmission output frame synchronizer with backup input.
- General purpose post router autophaser.

Ordering information

Module:
- **GFS100-I/O:** 3Gb/s, HD, SD Frame synchronizer
- **GFS110-I/O:** 3Gb/s, HD, SD Frame synchronizer with audio shuffler proc-amp

Standard I/O:
- **BPH17-PANEL:** I/O-panel for G-H-SFS100/110

Relay bypass I/O:
- **BHX17b-PANEL:** I/O-panel for G-H-SFS100/110 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

CVBS Video Input

Standard	PAL (ITU624-4), NTSC (SMPTE 170M)
Encoding	12 bits
Number of Inputs	1
Impedance	75 Ohms
Return Loss	> 35dB up to 10MHz
Frequency Response	< ±0.25dB (100KHz to 4.2MHz)
Differential Gain	< ±0.5% typical
Differential Phase	< ±0.2° typical
Noise Floor	< -57dB RMS (black video, 15KHz to 5MHz)
C/L Gain	< ±0.5%
C/L Delay	< ±9ns
Minimum Delay	3 lines

Serial Video Output

Number of Outputs	4
Connector	BNC
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

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