



Synapse

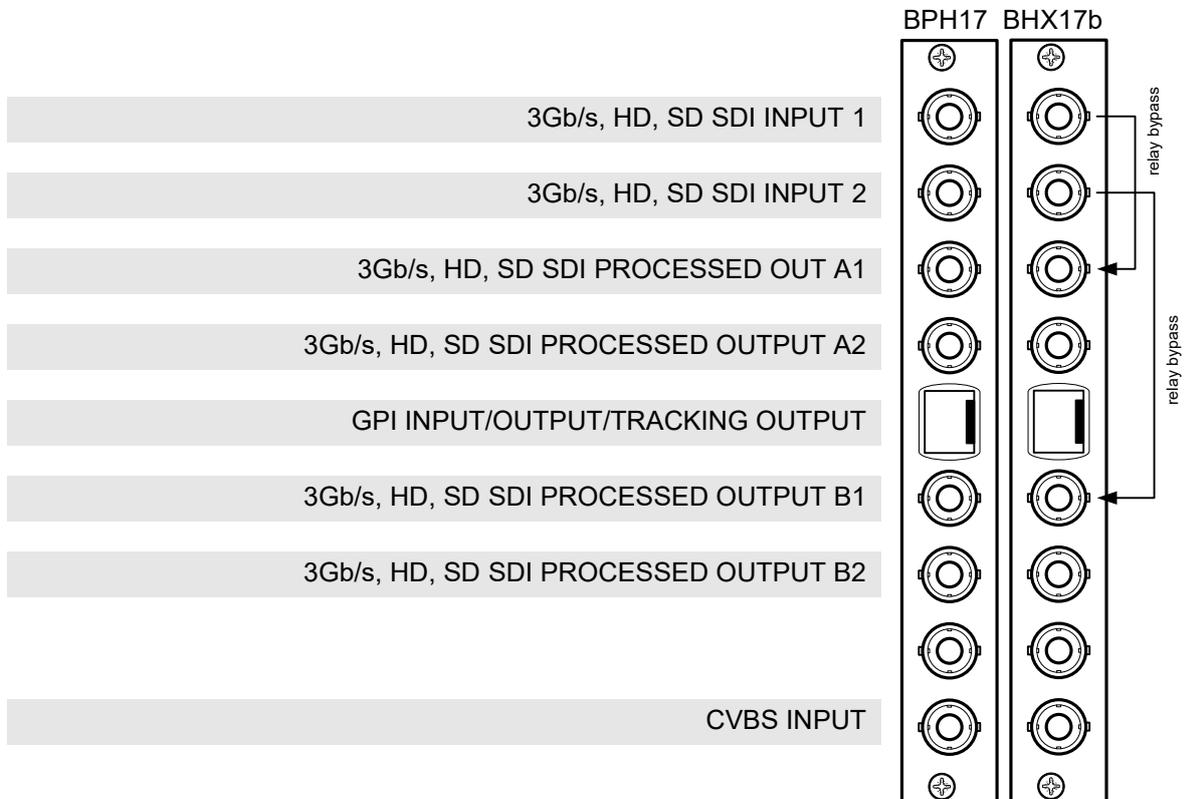
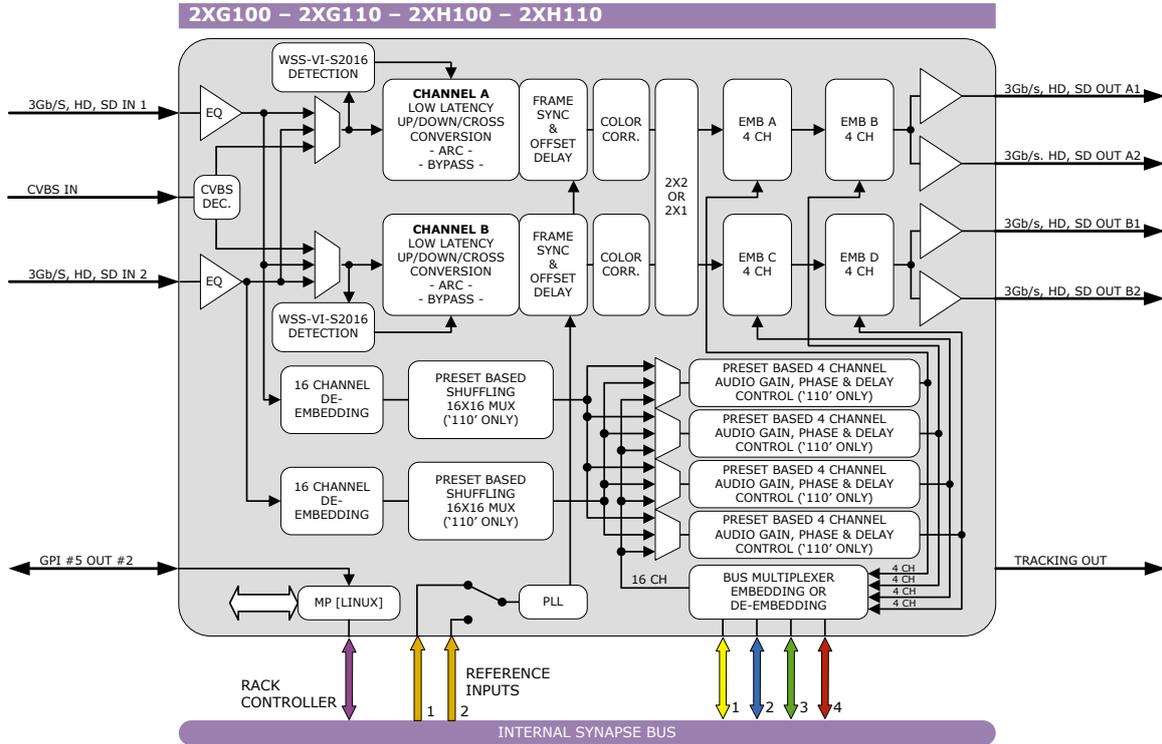
2XG100/110

Dual channel 3Gb/s, HD, SD up/down/cross converter and synchronizer with optional audio shuffler
A Synapse® product



Due to constant product research and development all specifications are subject to change without notice. EVS does not warrant or assume any legal liability or responsibility for the accuracy, completeness, availability and/or delivery of the products and/or services listed in this catalog. Copyright © 2021 EVS

Block schematic & I/O panel



Features

The 2XG100 is a dual channel high-quality up/down/cross converters. The optimized scaling and filter algorithms ensure crisp broadcast ready pictures from a native SD or HD source, by use of a 64 tap FIR filters. The cards allow you to simulcast 2 HD or 3Gb/s (2XG models only) signals from 2 native HD, SD or 1 CVBS and an SD infrastructure. The embedded audio is carried over to the HD or 3Gb/s domain. The appropriate aspect ratio can be applied by control of VI, WSS and GPI inputs by use of 8 presets per output that can store the aspect ratio conversions.

Beside a high quality up/down/cross converter, the 2XG110 is also a very powerful cross-input audio shuffler and proc-amp. With the 110 model you can de-embed 2x 8 channels out of any of the 16 embedded audio channels of both HD/SD inputs and shuffle these channels. This means you can combine embedded audio channels from input 1 and embedded audio channels from input 2 in your 3Gb/s, HD, SD outputs. The embedded audio is carried over to the HD or 3Gb/s domain.

The **2XG100/110** 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.
- Configurable output function (Straight, Crosses, A only or B only)
- 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	
- Two individual conversion paths. The inputs can be different standards SD or HD and unlocked to the single output format.
- 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 (1080i/p), 60 frames (720p) or 125 frames (SD) delay offset per channel
- 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/down/cross 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)
- Individual color corrector (RGB and total gain, RGB and total black) for video path A and B
- Transparent for 8 channels of embedded audio per channel
- Embedded domain cross input audio shuffling, gain and phase control (-110 only)
- Embedding and de-embedding through synapse bus
- Video proc-amp (Y and C control)
- Hue control for NTSC inputs
- Locks to Tri-level, Bi-level syncs and SDI input
- Timecode cross conversion
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18 frame and the Ethernet port (ACP)

Complementary cards:

- DAC20, DAC24, DAS24, DIO48, ADC20, ADC24, DIO24

Conversion abilities

The 2XG100/110 can handle the following conversions:

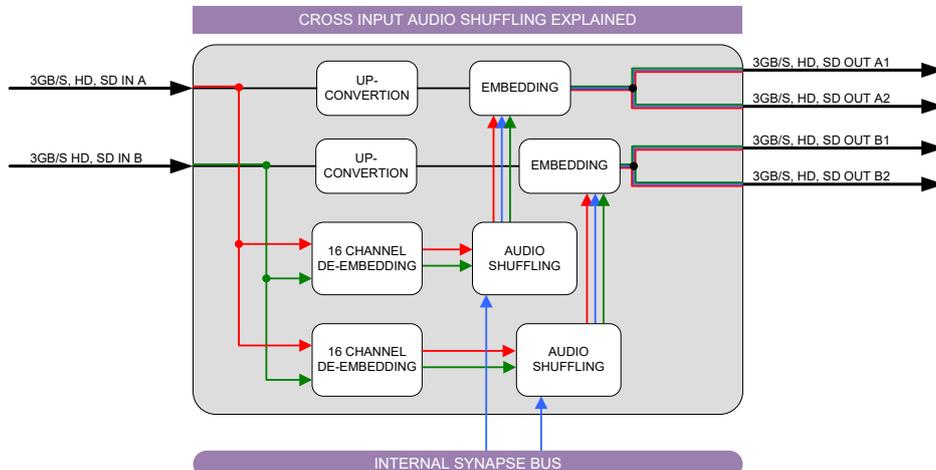
CONVERSION		Output										
		1080psf23.97	1080p23.97	1080p50	1080p59.94	1080i59.94	1080i50	720p59.94	720p50	720p23.98	480i59.94(525)	576i50(625)
SDI Input	1080psf23.97	x	x		x	x		x		x	x	
	1080p23.97		x		x	x		x		x	x	
	1080p50			x			x		x			x
	1080p59.94	x	x		x	x		x		x	x	
	1080i59.94	x	x		x	x		x		x	x	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

Applications

- Truck input synchronizer converter
- Infrastructure up/down/cross conversion
- Up-conversion with side-fill/curtain input

2XG110 only:

- Combining embedded audio channels of 2 inputs into 1 (see image below)



Ordering information

Module:

- **2XG100-I/O:** Dual channel 3Gb/s, HD, SD-SDI up/down/cross converter
- **2XG110-I/O:** Dual channel 3Gb/s, HD, SD-SDI up/down/cross converter with audio shuffler proc-amp

Standard I/O:

- **BPH17-PANEL:** I/O panel for 2XG100/110

Relay bypass I/O:

- **BHX17b-PANEL:** I/O panel for 2XG100/110 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)
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)
Minimum delay	1 field

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)
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