Synapse

GDR416

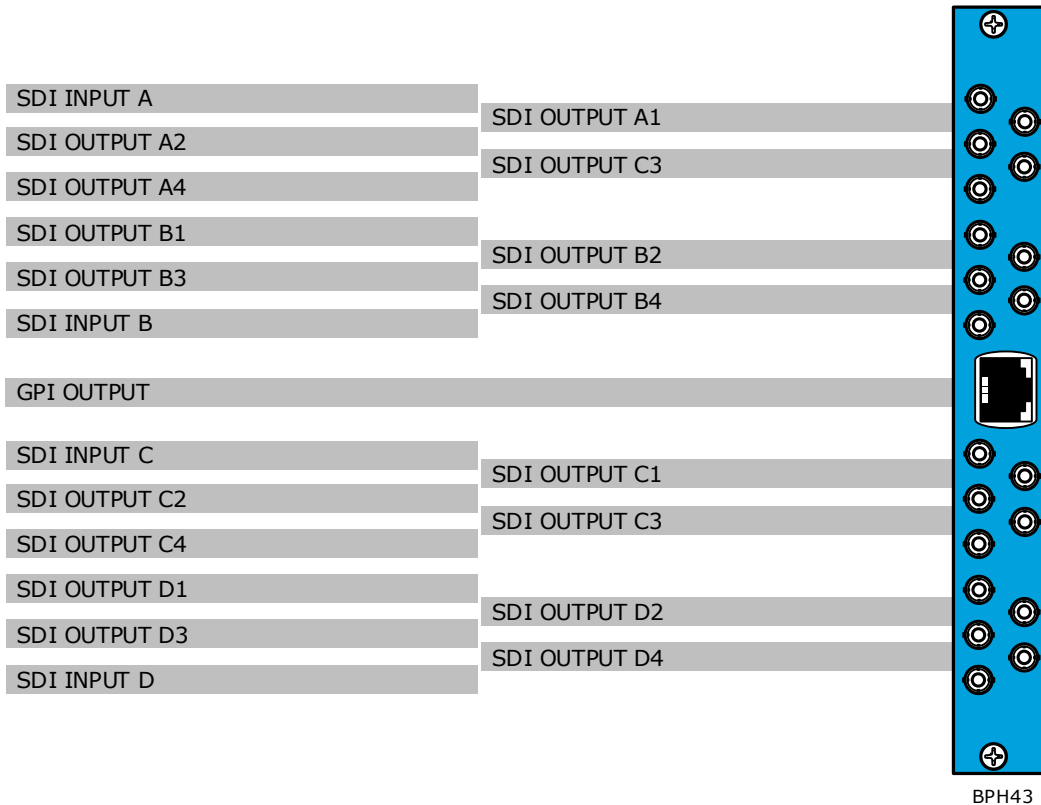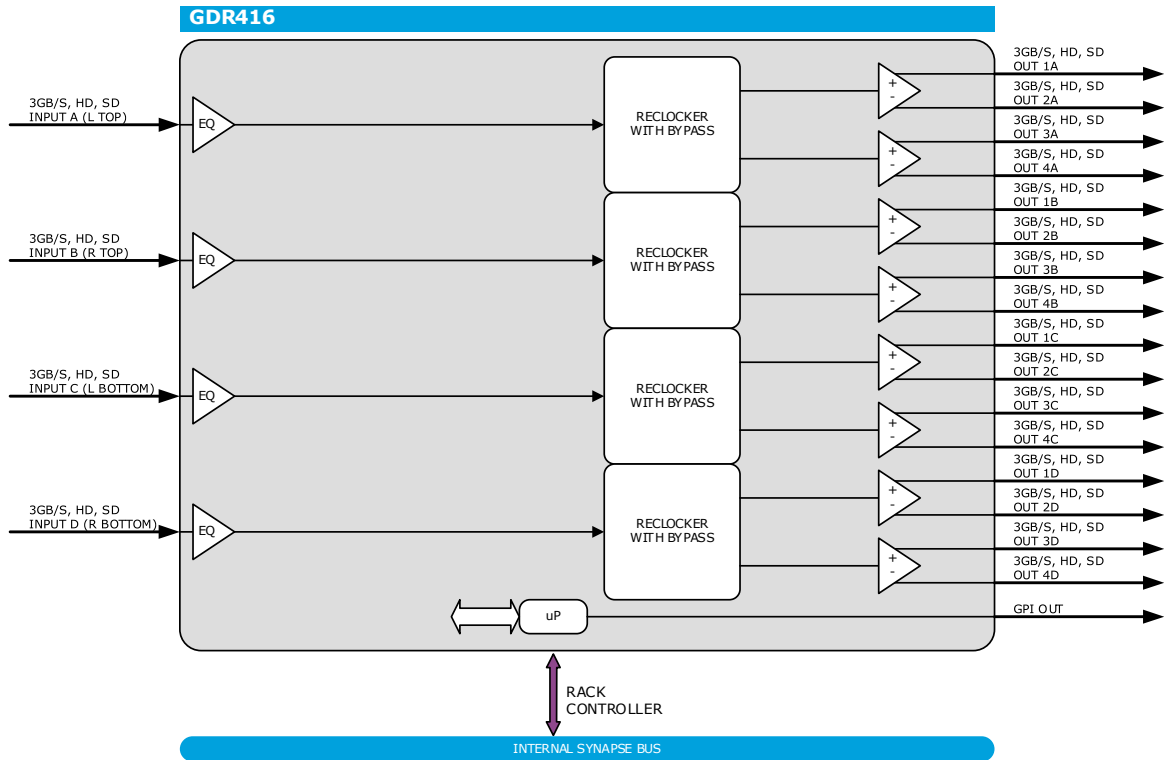**4K, 3Gb/s, HD and SD four input distribution amplifier with 4 reclocked outputs per channel**

A Synapse® product
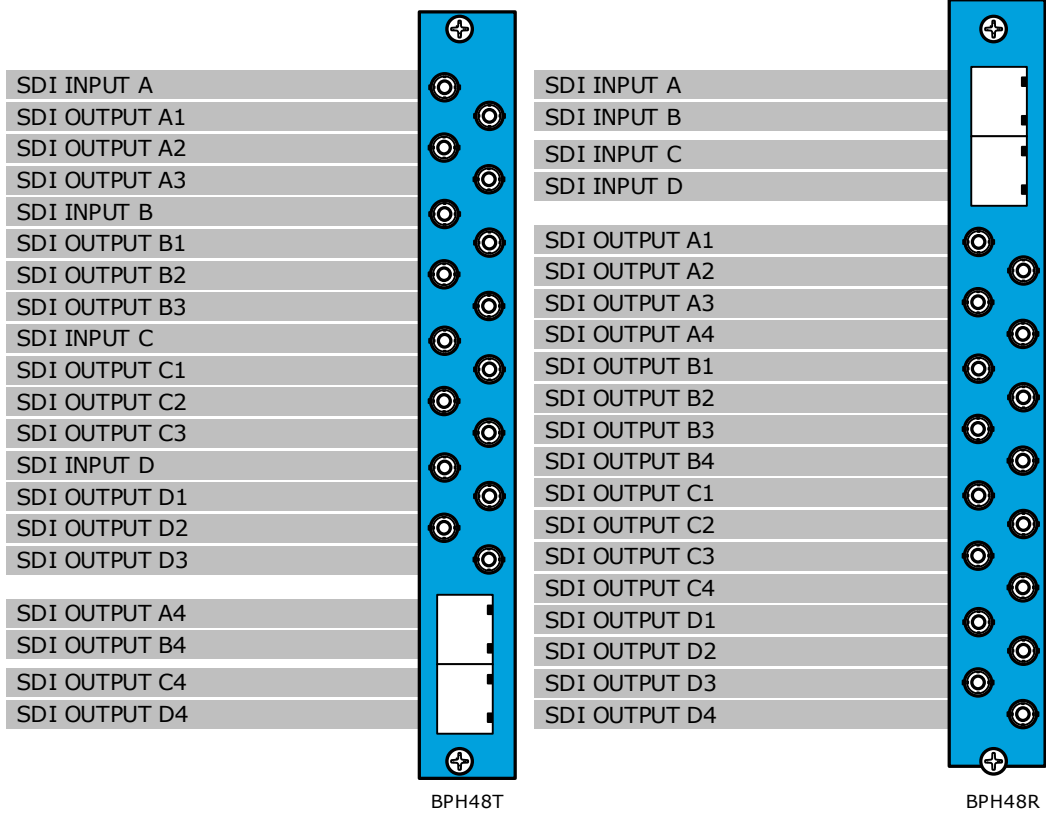
| SFP Flexible I/O | **4K** ULTRAHD 3840 x 2160 | **3** TRIPLE RATE Gb/s, HD, SD | DESIGNED FOR *ASI/DVB* |

Block Schematic & I/O panel

GDR416

3GB/S, HD, SD
INPUT A (L TOP)

3GB/S, HD, SD
INPUT B (R TOP)

3GB/S, HD, SD
INPUT C (L BOTTOM)

3GB/S, HD, SD
INPUT D (R BOTTOM)

EQ

RECLOCKER WITH BYPASS

RECLOCKER WITH BYPASS

RECLOCKER WITH BYPASS

RECLOCKER WITH BYPASS

uP

3GB/S, HD, SD OUT 1A
3GB/S, HD, SD OUT 2A
3GB/S, HD, SD OUT 3A
3GB/S, HD, SD OUT 4A
3GB/S, HD, SD OUT 1B
3GB/S, HD, SD OUT 2B
3GB/S, HD, SD OUT 3B
3GB/S, HD, SD OUT 4B
3GB/S, HD, SD OUT 1C
3GB/S, HD, SD OUT 2C
3GB/S, HD, SD OUT 3C
3GB/S, HD, SD OUT 4C
3GB/S, HD, SD OUT 1D
3GB/S, HD, SD OUT 2D
3GB/S, HD, SD OUT 3D
3GB/S, HD, SD OUT 4D
GPI OUT

RACK CONTROLLER

INTERNAL SYNAPSE BUS

SDI INPUT A

SDI OUTPUT A1

SDI OUTPUT A2

SDI OUTPUT C3

SDI OUTPUT A4

SDI OUTPUT B1

SDI OUTPUT B2

SDI OUTPUT B3

SDI OUTPUT B4

SDI INPUT B

GPI OUTPUT

SDI INPUT C

SDI OUTPUT C1

SDI OUTPUT C2

SDI OUTPUT C3

SDI OUTPUT C4

SDI OUTPUT D1

SDI OUTPUT D2

SDI OUTPUT D3

SDI OUTPUT D4

SDI INPUT D

BPH43

SDI INPUT A
SDI OUTPUT A1
SDI OUTPUT A2
SDI OUTPUT A3
SDI INPUT B
SDI OUTPUT B1
SDI OUTPUT B2
SDI OUTPUT B3
SDI INPUT C
SDI OUTPUT C1
SDI OUTPUT C2
SDI OUTPUT C3
SDI INPUT D
SDI OUTPUT D1
SDI OUTPUT D2
SDI OUTPUT D3

SDI OUTPUT A4
SDI OUTPUT B4
SDI OUTPUT C4
SDI OUTPUT D4

BPH48T

SDI INPUT A
SDI INPUT B
SDI INPUT C
SDI INPUT D

SDI OUTPUT A1
SDI OUTPUT A2
SDI OUTPUT A3
SDI OUTPUT A4
SDI OUTPUT B1
SDI OUTPUT B2
SDI OUTPUT B3
SDI OUTPUT B4
SDI OUTPUT C1
SDI OUTPUT C2
SDI OUTPUT C3
SDI OUTPUT C4
SDI OUTPUT D1
SDI OUTPUT D2
SDI OUTPUT D3
SDI OUTPUT D4

BPH48R

Features

The GDR416 is a four channel 3Gb/s, HD, SD SDI reclocking distribution amplifier.

- Quad channel DA with 16 outputs
- Conversions between SMPTE standards
- GPI controlled input swapping and status monitoring (BPH38)
  - GPO-0 = Carrier detect A
  - GPO-1 = Carrier detect B
  - GPO-2 = Carrier detect C
  - GPO-3 = Carrier detect D
- Compatible with:
  - SD SDI 270 Mbit/s (SMPTE 259M)
  - HD SDI 1485 Mbit/s (SMPTE 292M)
  - 3Gb/s SDI 2970 Mbit/s (SMPTE 424M)
  - ASI/DVB only on positive outputs
- Bypass function of the reclocker for non-standard frequencies
- Flexible choice of IO standards through use of SFP modules
  - Flexible output choice with BPH48T. 2x fiber, 2x CVBS, 2x SDI outputs or 1x HDMI output
  - Flexible input choice with BPH48R. Options; fiber, CVBS or SDI or HDMI input

Applications

- 4K generic wideband DA
- Quad channel generic wideband 3Gb/s DA
- E2O Electrical to Optical converter with BPH48T back panel
- O2E Optical to Electrical converter with BPH48R back panel

Ordering information

Module:
- **GDR416:** 3Gb/s, HD, SD-SDI quad reclocking distribution amplifiers

Standard I/O:
- **BPH43_GDR416:** I/O-panel for GDR416

Relay bypass I/O:
- **BHX43_GDR416:** I/O-panel for GDR416 with relay bypass

SFP I/O:
- **BPH48T_GDR416:** I/O-panel for GDR416 with SFP module output options
- **BPH48R_GDR416:** I/O-panel for GDR416 with SFP module input options

Specifications

Video Input

Standard	3Gb/s ,HD and SD SDI: SMPTE425-5/6, SMPTE424, SMPTE259M, SMPTE 292M
Number of Inputs	4
Connector	DIN1.0/2.3, BNC, Fiber LC
Equalization	Typical maximum equalized length of Belden 1694A cable: 120m at 2.97Gb/s, 120m at 1.485Gb/s, and 150m at 270Mb/s
Return Loss	> 15dB up to 3GHz

Serial Video Output

Number of Outputs	16 (configurable)
Connector	DIN1.0/2.3 and Fiber LC
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

GPI Output (BPH43)

Number of Outputs	4
Connector	RJ45
Type	>2.5 Volts High Level, <0.8V Low Level

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	<6 Watts