



# Synapse

## GMD100

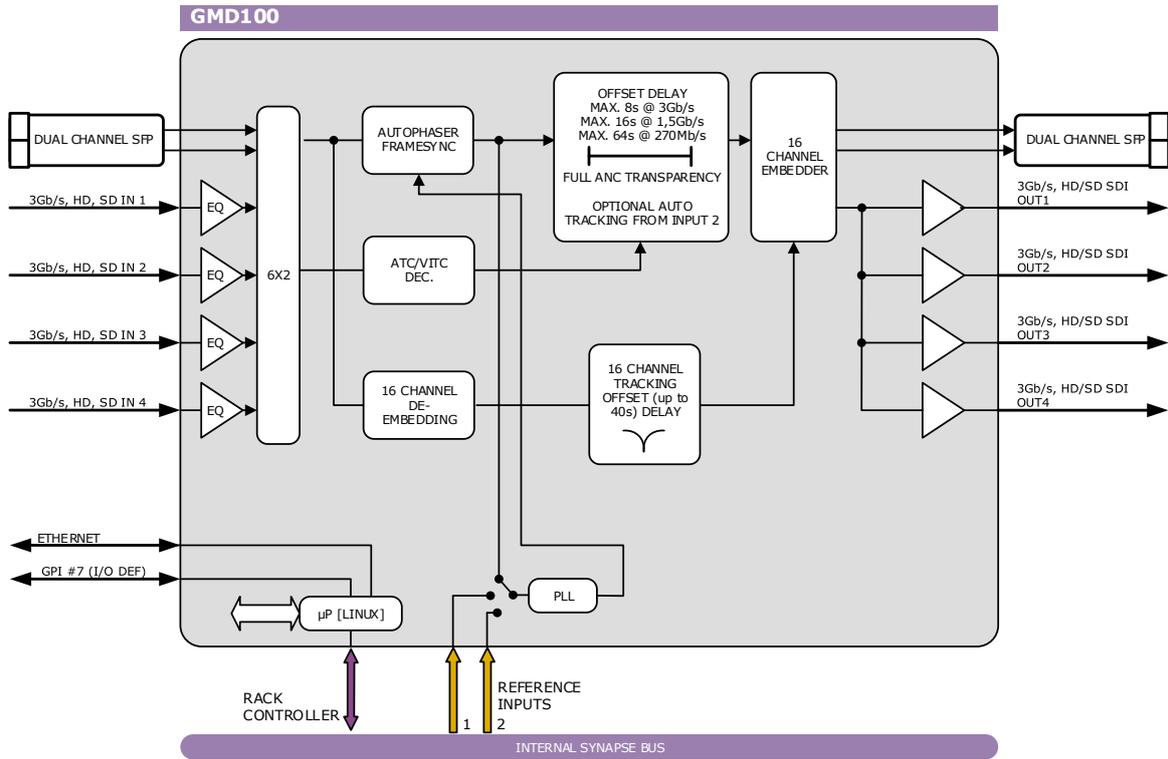
**3G, HD, SD SDI medium time delay unit with automatic tracking function**

A Synapse® product

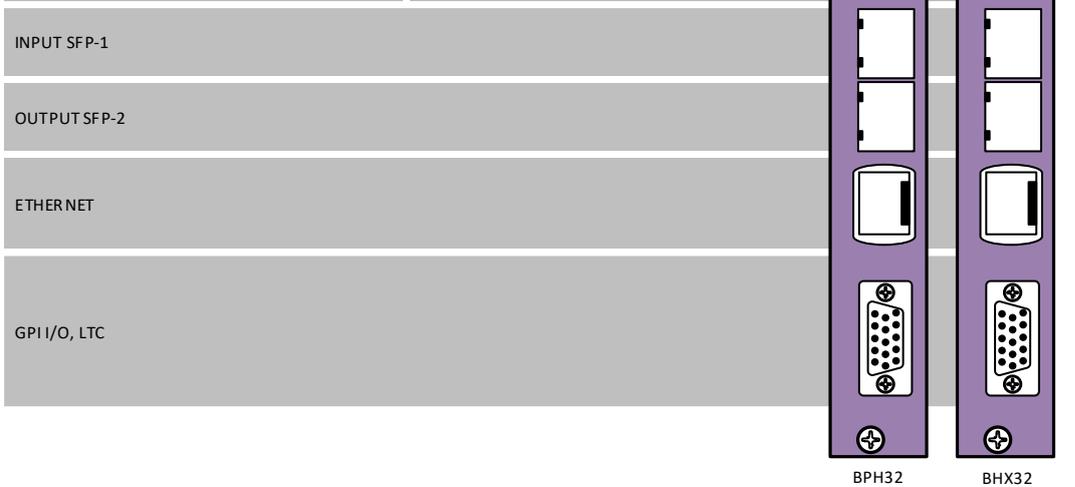


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# Block Schematic & I/O panel



3Gb/s, HD, SD SDI INPUT 1	3Gb/s, HD, SD SDI INPUT 2
3Gb/s, HD, SD SDI INPUT 3	3Gb/s, HD, SD SDI INPUT 4
3Gb/s, HD, SD SDI OUTPUT 1	3Gb/s, HD, SD SDI OUTPUT 2
3Gb/s, HD, SD SDI OUTPUT 3	3Gb/s, HD, SD SDI OUTPUT 4



## Features

The GMD100 is a medium time 3Gb/s, HD and SD-SDI uncompressed baseband video delay. It can store and delay SDI video. It can store and delay video with complete ANC data up to 8 seconds 3Gb/s and 16 seconds in HD and up to 64 seconds in SD. The separate audio delay can handle a delay up to 40 seconds.

One of the unique features is the capability of syncing a delay to the time code of the second input. An example use of this card is when a video feed is sent down two separate paths or networks, and the delay between the two is unknown. The card on each path would add the appropriate delay to its incoming video to ensure that the output was co-timed. This co-timed output can for example be fed into a backup switch and seamless switching with no time hops is achieved.

- Autophaser and Framesync
- Adjustable offset delay up to:

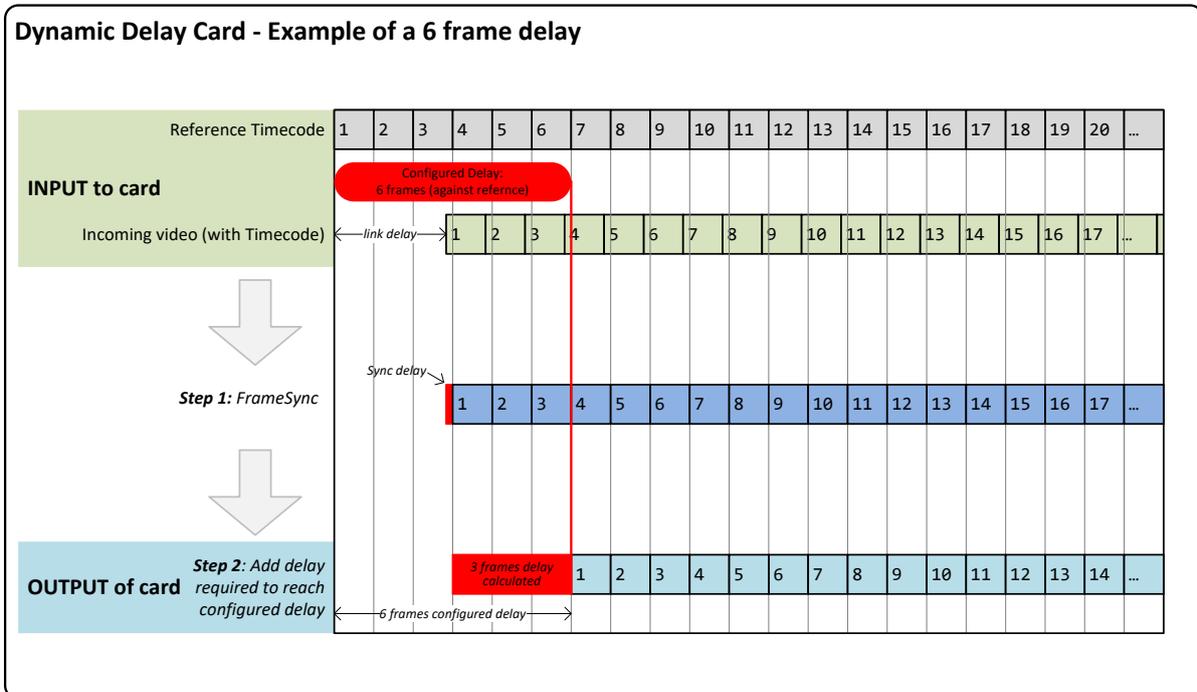
	# of frames	@50Hz	@59.94 Hz
1080p	484 frames	9.68 sec	8.07 sec
1080i	484 frames	19.36 sec	16.15 sec
720p	968 frames	19.36 sec	16.15 sec
SD	1936 frames	77.44 sec	64.60 sec

- Adjustment in frames, lines and pixels
- Tracking audio delay with offset adjustment (up to 40s)
- Adjustable full transparent delay mode for video, audio and ancillary data
- Individual audio selections feeding the embedder (shuffling)
- Locks
  - SDI input or reference
  - Aligns to a reference source of timecode ATC or VITC
    - Possibility to add an offset to incoming video to match the offset timecode
- Full control and status monitoring through the front panel of the SFR04/SFR08/SFR18
- frame and the Ethernet port (ACP)

## Explanation of the Dynamic Delay adjustment

The diagram below shows an example situation where the dynamic delay card is configured to ensure a 6 frame delay from the Reference Timecode.

1. The card will first sync the incoming video
2. It will then compare the number of frames by which the incoming video is delayed against the reference timecode. It will then delay the video by the correct number of frames to result in the configured delay value



The card will work in both SD, HD and 3Gb/s mode. The input reference signal may not be in the same video format as the input video signal (but would have the same framerate), however both signals will include a SMPTE 12M-2 ANC VITC time code (Time of Day).

For example, the reference time code may be SD, whereas the input video may be HD.

## Applications

- Dynamic delay compensation for main/backup redundant path applications.
- Timing correction in 3Gb/s, HD and SD virtual studios
- 'Late' embedded audio correction (lipsync)

## Ordering information

### Module:

- **GMD100-I/O:** 3G/HD/SD video delay (8-64 seconds)

### Standard I/O:

- **BPH32-PANEL:** I/O panel for GMD100
- **BHX32-PANEL:** I/O panel for GMD100 with relay bypass

## Specifications

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### Serial Video Input

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**Standard** SD,HD and 3Gb/s SDI: SMPTE 292M, SMPTE 259M, SMPTE424

**Number of Inputs** 6  
**Connector** DIN 1.0/2.3 or SFP  
**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

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**Standard** SD,HD and 3Gb/s SDI: SMPTE 292M, SMPTE 259M, SMPTE424

**Number of Outputs** 6  
**Signal Level** 800mV nominal  
**DC Offset** 0V  $\pm$ 0.5V  
**Rise and Fall Time** 135ps nominal  
**Overshoot** < 10% of amplitude  
**Return Loss** > 15dB up to 1.0Gb/s, > 10dB up to 1.5Gb/s  
**Wideband Jitter** < 0.2UI

### Miscellaneous

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**Weight** Approx. 450g  
**Operating Temperature** 0 °C to +50 °C  
**Dimensions** 137 x 296 x 20 mm (HxWxD)

### Electrical

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**Voltage** +24V to +30V  
**Power** <20 Watts