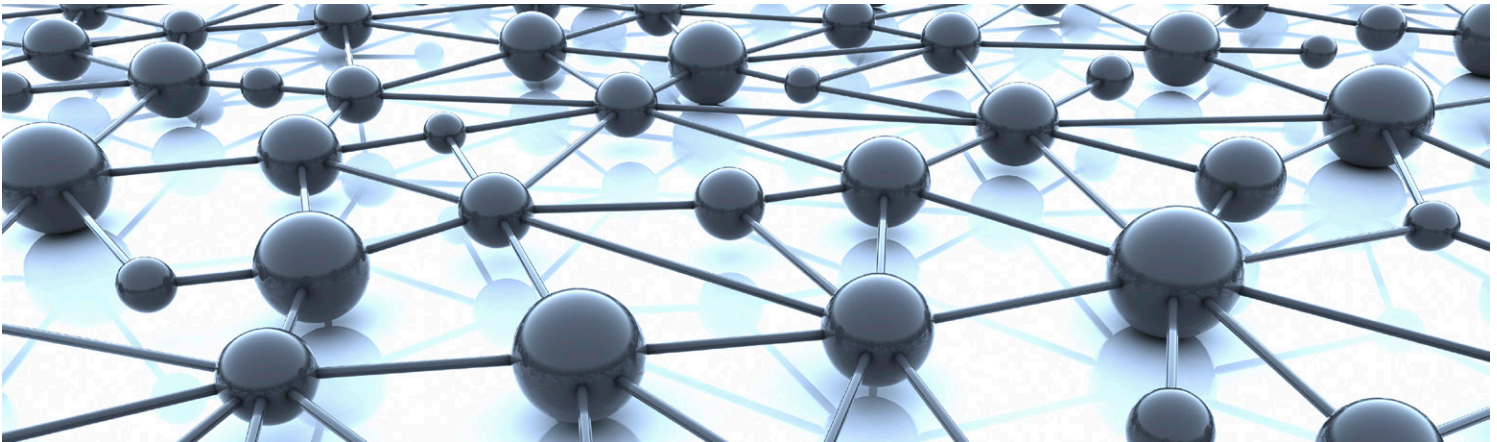


IQSYN50

3G/HD/SD-SDI Frame Synchronizer



Agile frame synchronization for 3G/HD/SD-SDI signals with 32-channel embedded audio handling.

The IQSYN50 from Grass Valley, a Belden Brand, provides frame synchronization for HD-SDI at 3 Gb/s or 1.5 Gb/s, or SD-SDI 270 Mb/s with 32-channel embedded audio handling. Including two SDI inputs, agile synchronization and audio firewall features

means the IQSYN50 is ideal for general incoming line applications. A video proc. amp provides complete control over the video levels and RGB gamut legalization, along with tracking audio delay to avoid disturbance around synchronizer wrap points.

KEY FEATURES

- 3G/HD/SD-SDI synchronizer with additional video delay up to 30 frames and auto change-over on signal loss conditions
 - Agile, router switching tolerant synchronizer operation with precision genlock adjustment allowing you to time any SDI signal to pixel accuracy with greater tolerance to mis-timed upstream SDI switching (up to ± 10 lines adjustable), ensuring disturbance-free picture output
 - Firewall for video and processed PCM audio to provide a continuous uninterrupted output
 - Reference input capable of detecting and referencing to a bi-level or tri-level signal and selection from either external input directly or from internal chassis reference bus
 - Connectivity: 2 SDI inputs, up to 4 SDI outputs, reference input, 8x GPI/O, relay bypass version with input 1 bypassed to output 1 on power loss or card removal
 - Standards supported:
 - 3G-SDI to SMPTE ST 424/425 level A & B compatible
 - HD-SDI to SMPTE ST 292/274/296
 - SD-SDI to SMPTE ST 259-C
 - Fiber to SMPTE ST 297-2006C
 - Able to pass all ancillary data with independent HANC and VANC blanking control (VANC blanking is input line selectable)
 - Card-edge LED status indicators and input loss detection — default output of black/pattern/freeze/mute, and input SDI CRC, EDH and ANC data checking and reporting
 - Video proc. amp controls including video gain, offset, hue, RGB gamut legalization and Y/C picture position adjustment
 - Processing for up to 32 channels (at 3G-SDI) of embedded audio present on the incoming SDI stream to remove audio disturbance around the synchronizer wrap and drop points, and provide tracking audio delay
 - Any group of embedded audio may be passed unchanged, processed or blanked, and handles Dolby E and PCM audio present in the same group
 - Built in test pattern generator, two caption generators and audio tone generator
 - 16x user memories, save/recall/rename, and up to 8 GPI/O ports
 - Full RollCall and SNMP compatibility, with up to 70 RollTrack destinations and triggers available for detected module states including: PCM/non-PCM audio, input loss/freeze and reference loss
- Options**
- Single mode fiber optic transmitter and receiver options — including SFP HDMI output version to provide a built-in local monitoring output — rear option

IQSYN50 3G/HD/SD-SDI Frame Synchronizer

SPECIFICATIONS

Inputs and Outputs

Video Standards Supported

1125 (1080)/50p (A & B), 1125 (1080)/59p (A & B), 1125 (1080)/60p (A & B), 1125 (1080)/25p, 1125 (1080)/24p, 750 (720)/50p, 750 (720)/59p, 750 (720)/60p, 750 (720)/30p, 750 (720)/23p, 750 (720)/24p, 750 (720)/25p, 750 (720)/29p, (1035)/29i, (1035)/30i, 1125 (1080)/25i, 1125 (1080)/29i, 1125 (1080)/23p, 1125 (1080)/23sF, 1125 (1080)/24sF, 625 (576)/25i, 525 (480)/29i

Signal Inputs

SDI inputs: 2x

Input 1 cable length:

- Up to 70m Belden 1694A @ 3 Gb/s
- Up to 160m Belden 1694A @ 1.5 Gb/s
- >350m Belden 1694A @ 270 Mb/s

Input 2 cable length:

- Up to 60m Belden 1694A @ 3 Gb/s
- Up to 100m Belden 1694A @ 1.5 Gb/s
- Up to 100m Belden 1694A @ 270 Mb/s

Analog reference:

- 1x analog reference black (HD tri-level and SD bi-level) and blackburst (SD bi-level), SD bi-level – RS170A
- HD tri-level – SMPTE ST 240, SMPTE ST 274 and SMPTE ST 296

Fiber Signal Input

Inputs:

- Up to 2
- Optical 3 Gb/s HD-SDI, 1.485 Gb/s HD-SDI or 270 Mb/s SD-SDI

Connector/format: LC singlemode

Standard: SMPTE ST 297-2006

Signal Outputs

SDI outputs: x4

Fiber Signal Output

Outputs:

- Up to 2
- Optical 3 Gb/s HD-SDI, 1.485 Gb/s HD-SDI or 270 Mb/s SD-SDI

Connector/format: LC singlemode

Standard: SMPTE ST 297-2006

Control Interface

GPI I/O: 8x closing contact via BNC

Controls

Indicators

- Power: O.K. (Green)
- CPU: Running (Green flashing)
- FPGA running: OK (Green flashing)
- Status: OK (Green), Warning (Yellow), Error (Red)
- Input 1: OK (Green), Fail (Red)
- Input 2: OK (Green), Fail (Red)
- Rx 1: OK (Green), Fail (Red)
- Rx 2: OK (Green), Fail (Red)

RollCall Controls

- Default video output type: Input, Mute, TPG (Pattern, Captions, Tone), Black
- Default video output standard: Last Known Good, 1125 (1080)/50p, 1125 (1080)/59p, 1125 (1080)/29i, 1125 (1080)/25i, 750 (720)/59p, 750 (720)/50p, 525 (480)/29i, 625 (576)/25i, Mute, Pattern
- Change-over parameters: No SDI lock, CRC (EDH) error
- Switch delay: Video 0s to 600s (reversion) and 0fr to 16384fr (trigger condition)

GPI/O program: TALLY any input state or warning or set as trigger

Pattern select: Color Bars, Black

Edit caption: 19 characters available, size and position adjustment

Reporting & logging: Input loss; input line standard; EDH error; audio & data presence, change-over status, main video output

PCM tone setup

Frequency L/R: 100 Hz to 10 kHz in 100 Hz steps

Channel ident: On/Off

Audio monitoring

Low-level detect: 0 to -80 dB in steps of 1 dB

Signal overload detect: 0 to -80 dB in steps of 1 dB

Other Controls

- User memories: 16x Save, Recall, Rename
- Memory naming: User configurable naming of memories 1 – 16
- Information window: Video input and output status, audio input status, rules status, network status
- RollTrack Index: Up to 70 RollTrack destinations
- RollTrack Sources: TBC
- Factory default: Resets all module settings to factory specified default values and clears memories
- Default settings: Resets all module settings to factory specified defaults but does not clear memories
- Restart: Software restart of the module
- Module information: Reports following module information: software version, serial number, build number, KOS version, firmware version, PCB version

General Specifications

Electrical: 3 Gb/s SDI, SMPTE ST 424, 1.5Gb/s HD-SDI, SMPTE ST 292, 270 Mb/s SDI, SMPTE ST 259-C

Connector/format: BNC/75Ω panel jack on standard IQ connector panel

Return loss:

- >-15 dB (270 Mb/s, 1.5 Gb/s)
- >-10 dB (3 Gb/s)

Output jitter:

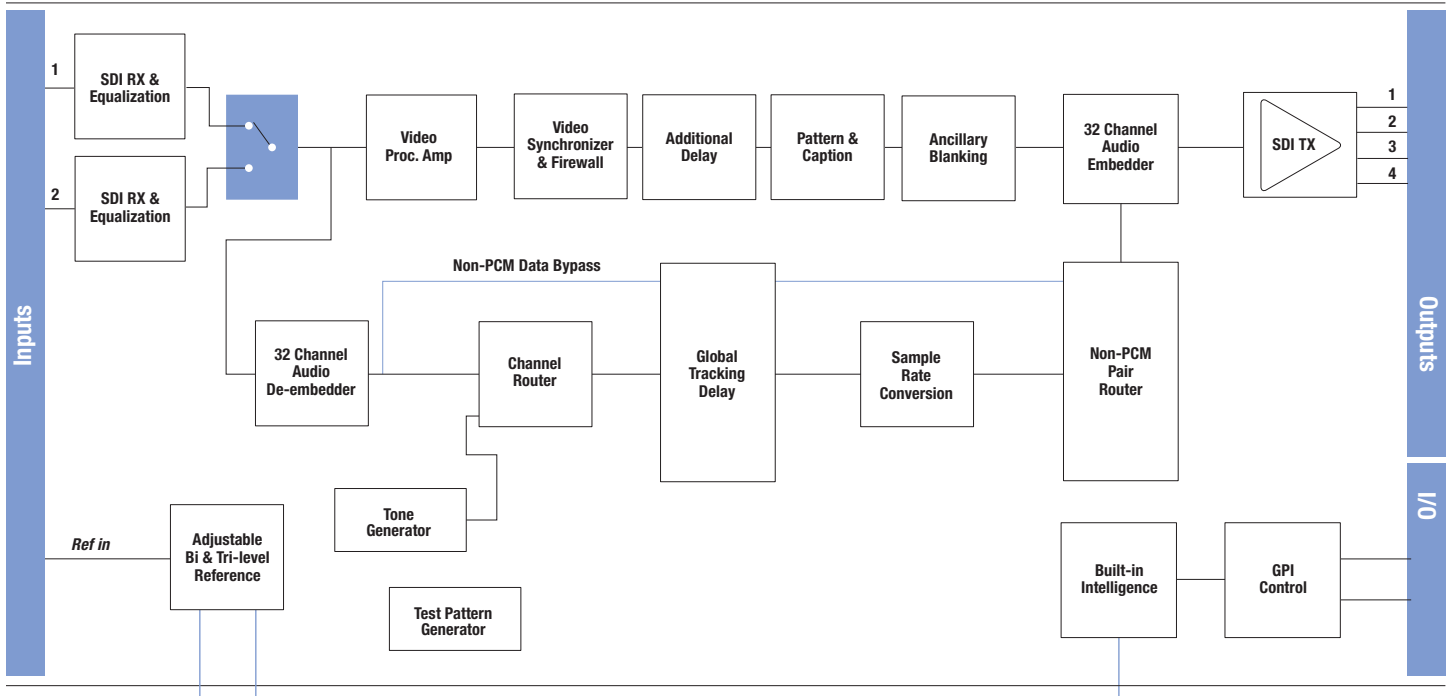
- SD-SDI 0.2 UI (10 Hz)/0.2 UI (1 kHz)
- 3G/HD-SDI 1.0 UI (10 Hz)/0.2 UI (100 kHz)

GPI I/O (x8) characteristics:

- Closing contact type with internal source
- Input threshold voltage: 1V, typical

Module power consumption:

- IQSYN5000-1B3 14.5PR Max.
- IQSYN5001-1B3 15PR Max.
- IQSYN5003-2B3 15PR Max.



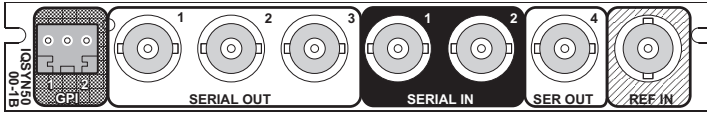
Block Diagram for IQSYN5003-2B3.

IQSYN50 3G/HD/SD-SDI Frame Synchronizer

ORDERING

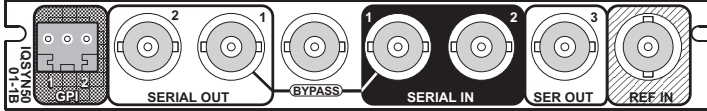
IQSYN5000-1B3

3G/HD/SD-SDI Synchronizer. 2 inputs, 4 outputs, External and internal frame reference selection, 2 GPI/Os.



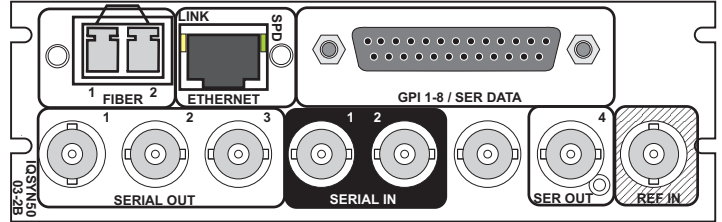
IQSYN5001-1B3

3G/HD/SD-SDI Synchronizer with relay input bypass. 2 inputs, 4 outputs, External and internal frame reference selection, 2 GPI/Os.



IQSYN5003-2B3

3G/HD/SD-SDI Synchronizer. 2 inputs, 4 outputs, External and internal frame reference selection, Fiber SFP Tx/Rx, Media biometric Ethernet port, 8 GPI/Os.



Fiber SFP Options

FC1-13T1	Single 1310 nm Tx
FC1-13T2	Dual 1310 nm Tx
FC1-15T1	Single 1550 nm Tx
FC1-15T2	Dual 1550 nm Tx
FC1-R1	Single Rx
FC1-R2	Dual Rx
FC1-13TR	Transceiver 1310 nm/Rx
FC1-HDBT2	HD-BNC Dual Tx
FC1-HDBR2	HD-BNC Dual Rx
FC1-HDMI2	HDMI Tx with 2m cable
CWDM Tx – Wavelengths available on request	

Note: Fiber SFP type must be ordered in addition to the module.

For more details on enclosure types please refer to IQ Modular Enclosures datasheet.



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