DATASHEET

IQSYN11

3G/HD/SD-SDI Dual-channel Frame Synchronizer

Dual independent video path processing on one card with agile synchronization ensuring disturbance-free picture outputs.

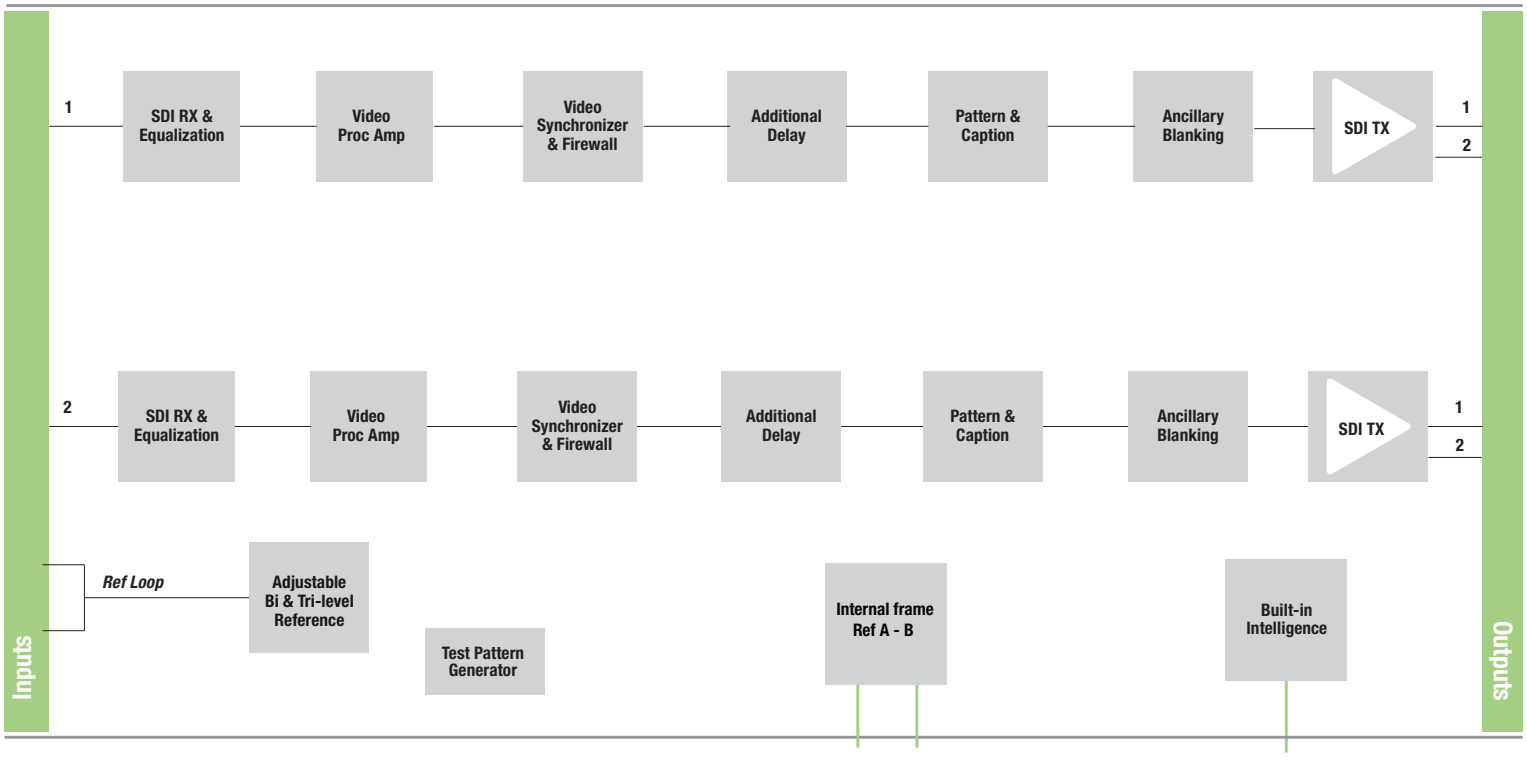
The IQSYN11 from Grass Valley provides frame synchronization for HD-SDI at 3 Gb/s or 1.5 Gb/s, or SD-SDI 270 Mb/s. Includes dual-channel independent SDI input processing functionality and agile synchronization. A video proc amp provides complete control over the video levels. The IQSYN11 is a space-efficient low-cost solution that includes core functionality.

Why should you choose this module?

- Agile video synchronization provides greater tolerance to mis-timed upstream SDI switching (up to ±5 lines), ensuring disturbance-free picture output
- Dual-channel, flexible handling of input loss — pass-through or switch to black/patterns/freeze — and integrated video controls make the IQSYN11 an ideal synchronizer for incoming lines applications
- Full GV Orbit compatibility provides an all-inclusive remote configuration, control and monitoring solution
- Comprehensive SNMP support allows easy integration with third-party Network Management Systems

KEY FEATURES

- Dual-channel 3G/HD/SD-SDI synchronizer providing two independent video processing paths on one card with up to three frames of video delay per channel
- 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
- Loop-though reference capable of detecting and referencing to a bi-level or tri-level signal and selection from either external input directly or from internal IQH3B chassis reference bus
- Select either external input reference directly or from internal IQH3B chassis reference bus
- Precision genlock adjustment allowing you to time any SDI signal accurately
- Agile, router switching tolerant synchronizer operation
- Able to pass all ancillary data with independent HANC and VANC blanking control
- Input loss detection — default output of black/pattern/freeze
- Edit function for static/animated caption overlay on video output
- Can be used as a video delay, up to three frames per channel
- Video proc amp controls including video gain, offset and hue, including Y/C picture position adjustment
- Built-in test pattern generator and audio tone generator
- 16x user memories, save/recall/rename
- GV Orbit control and monitoring compatible, with standard logging and reporting features



Block Diagram for IQSYN1147-1B

SPECIFICATIONS

Inputs & Outputs

Signal Inputs

SDI inputs: 1 per channel

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 200m Belden 1694A @ 270 Mb/s

Analog reference:

- 1x analog reference with passive loop-through
- Black (HD tri-level and SD bi-level) and blackburst (SD bi-level)
- SD bi-level – RS170A
- HD tri-level – SMPTE ST 240, 274 and 296

Signal Outputs

SDI outputs: 2x per channel

Controls

Indicators

Power: OK (Green)

CPU running: OK (Green flashing)

FPGA running: OK (Green flashing)

Status:

- OK (Green)
- Warning (Yellow)
- Error (Red)

Input 1: OK (Green)

Input 2: OK (Green)

Reference lock: OK or Cross-locking (Green), Std error (Green flashing)

Genlock & Video Delay

Genlock mode: Free-run, Lock to Reference, Lock to input

Genlock H-phase: ± 0.5H in pixel clock steps

Genlock V-phase: ± 0.5F in 1 line steps

Video H-delay: 0 – 1 Line in pixel clock steps

Video V-delay: 0 – 1 Frame in 1 line steps

Video delay frames: 0 – 3 F

Reference select mode:

- Module input reference or IQH3B
- Reference A or B

Video Controls (per channel)

Input standard: 1125(1080)/50P (A & B), 1125(1080)/59P (A & B), 1125(1080)/29i, 1125(1080)/25i, 750(720)/59P, 750(720)/50P, 525(480)/29i,625(576)/25i

Default video output type: Pattern, Freeze, Black

Default video output standard: Last Known Good, 1125(1080)/50P (A & B), 1125(1080)/59P (A & B), 1125(1080)/29i, 1125(1080)/25i, 750(720)/59P, 750(720)/50P, 525(480)/29i, 625(576)/25i

Input select: Input 1, Input 2

Manual freeze: On/Off

Freeze: Field/Frame

VANC data: Blank VANC

SD VANC data: Line blanking (23/336 in 625, 21,22, 283, 284 in 525)

HANC data: Blank HANC (Removes all HANC data)

Proc amp enable: On/Off

Black level: ±100 mV in steps of 0.8 mV

Hue adjust: ±180° in steps of 1°

Master video gain: ±6 dB in steps of 0.1 dB

Y-Gain: ±6 dB in steps of 0.1 dB

Cb/Cr Gain: ±6 dB in steps of 0.1 dB

Y/C timing:

- ±8 pixels in 2 pixel steps (SD)
- ±16 pixels in 2 pixel steps (HD/3G)

Picture position:

- ±8 pixels in 2 pixel steps (SD)
- ±16 pixels in 2 pixel steps (HD/3G)

Pattern on: On/Off

Pattern select: 75% Color Bars, Black

Caption On: On/Off

Edit caption: 19 characters available

Animated caption: Slow, medium, fast

Other Controls

User memories: 16x Save, Recall, Rename

Memory naming: User configurable naming of memories 1 – 16

Information window: Video Input Status, Reference Status

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

SPECIFICATIONS (CONT.)

General Specifications

Electrical:

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

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)

Reference source: External – HD tri-level / SD bi-level / input video syncs

Electrical:

- Black (HD tri-level and SD bi-level) and blackburst (SD bi-level)
- SD bi-level – RS170A
- HD tri-level – SMPTE ST 240, 274 and 296

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

Analog reference return loss:

- SD bi-level > 40 dB to 5.5 MHz
- HD tri-level > 35 dB to 30 MHz

Video standards:

- 1125(1080)/50p (A & B), 1125(1080)/59p (A & B)
- 750(720)/50p, 750(720)/59p
- 1125(1080)/25i, 1125(1080)/29i
- 625(576)/25i, 525(480)/29i

Minimum delay (reference lock or free run):

- SD: 67 µs
- HD: 28 µs
- 3G-A: 15 µs
- 3G-B: 25 µs

Typical delay (input lock):

- SD: 70 µs
- HD: 38 µs
- 3G-A: 19 µs
- 3G-B: 40 µs

Synchronizer hysteresis window: 5 µs

Power Consumption

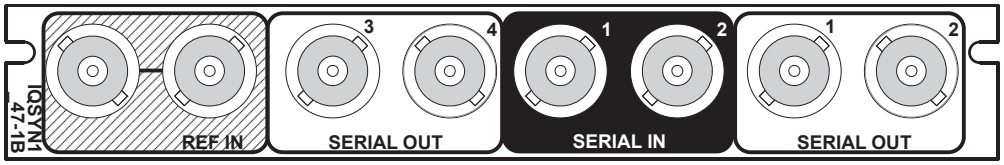
Module power consumption: 8.5 PR (B Frames)

ORDERING

IQSYN1147-1B3

3G/HD/SD-SDI Synchronizer. 2 inputs, 4 outputs, external loop-through and internal frame reference selection

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



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