

IQSYN11

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

The IQSYN11 provides frame synchronization for HD-SDI at 3Gbit/s or 1.5 Gbit/s, or SD-SDI 270 Mbit/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.

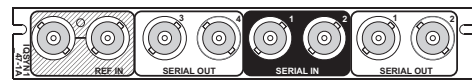
Features

- Dual channel 3G/HD/SD-SDI synchronizer providing two independent video path processing on one card with up to 3 frames of video delay per channel
- Standards supported:
 - 3G-SDI to SMPTE 424M/425M level A & B compatible
 - HD-SDI to SMPTE 292M/274M/296M
 - SD-SDI to SMPTE 259M-C
- Loop-through 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 direct 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 3 frames per channel
- Video proc. amp controls including video gain, offset and hue, including Y/C picture position adjustment
- In-built test pattern generator and audio tone generator
- 16 x user memories, save/recall/rename
- RollCall control and monitoring compatible

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 RollCall and SNMP compatibility allows easy integration with SAM, or third party, network management systems providing an all-inclusive monitoring and control solution

Order codes



IQSYN1147-1A3

3G/HD/SD-SDI Synchronizer. 2 inputs, 4 outputs, reference loop-through.

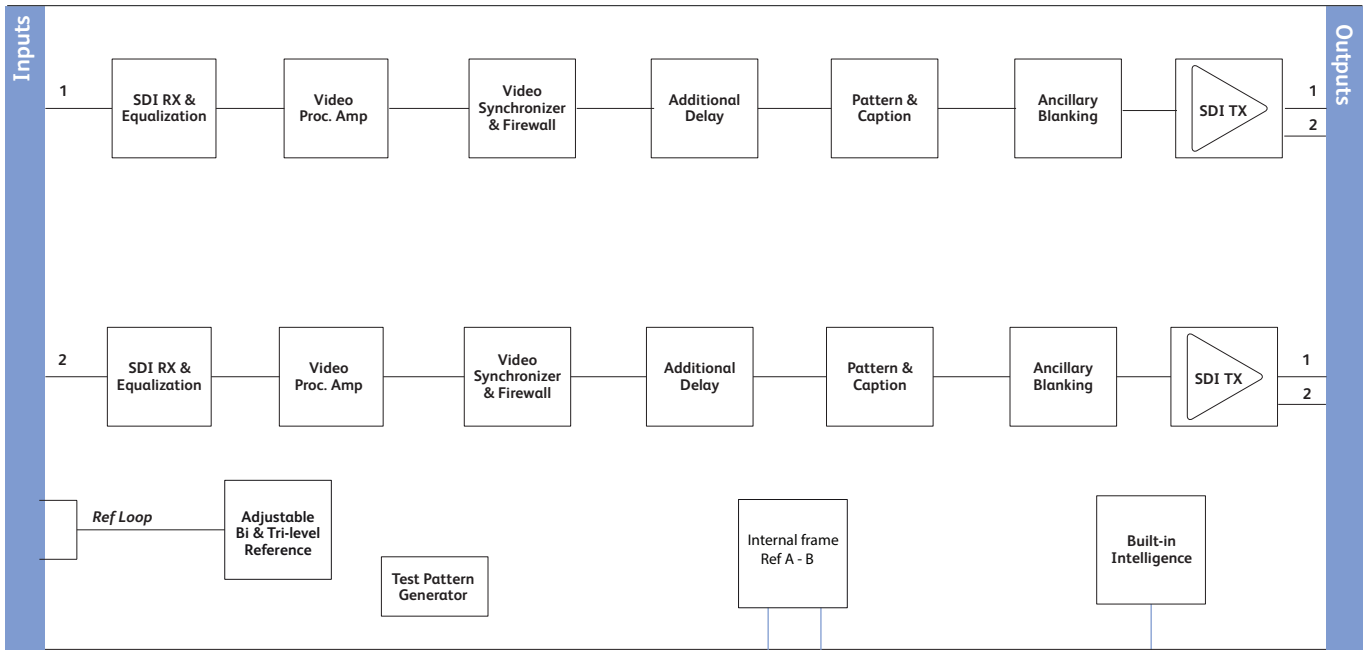
IQSYN1147-1B3

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 Frames / enclosures section.

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



Block Diagram for IQSYN1147-1A

IQH3B Chassis Reference Bus inputs

Network Intelligence, Control & Monitoring

Technical Specification

Inputs & Outputs

Signal Inputs

SDI Inputs	1 per Channel
Input 1 Cable Length	Up to 70m Belden 1694A @ 3 Gbit/s Up to 160m Belden 1694A @ 1.5 Gbit/s
Input 2 Cable Length	>350m Belden 1694A @ 270 Mbit/s Up to 60m Belden 1694A @ 3 Gbit/s Up to 100m Belden 1694A @ 1.5 Gbit/s Up to 200m Belden 1694A @ 270 Mbit/s
Analog Reference	1 x Analog Reference with passive loop-through Black (HD tri-level and SD bi-level) and Black Burst (SD bi-level) SD bi-level – RS170A HD Tri-level – SMPTE 240M, 274M and 296M

Signal Outputs

SDI Outputs	x 2 per Channel
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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)

Controls

Genlock & Video Delay

Genlock Mode	Free-run, Lock to Reference, Lock to input
Genlock H-Phase	$\pm 0.5H$ in pixel clock steps
Genlock V-Phase	$\pm 0.5F$ 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.)
ProcAmp Enable	On/Off
Black Level	± 100 mV in steps of 0.8 mV
Hue Adjust	$\pm 180^\circ$ in steps of 1°
Master Video Gain	± 6 dB in steps of 0.1 dB

Technical Specification cont...

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
HANC Data	Blank HANC Removes all HANC data. Note this includes removal of embedded audio
VANC Data	Blank VANC
Other Controls	
User Memories	16 x 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

Electrical	3Gbit/s SDI, SMPTE 424M 1.5Gbit/s HD-SDI, SMPTE 292M 270 Mbit/s SDI, SMPTE 259M-C / DVB-ASI
Connector / Format	BNC/ 75ohm panel jack on standard IQ connector panel
Return loss	>-15dB (270Mbit/s, 1.5Gbit/s) >-10dB (3Gbit/s)
Output Jitter	SD-SDI 0.2 UI (10Hz) / 0.2 UI (1KHz) 3G/HD-SDI 1.0 UI (10Hz) / 0.2 UI (100KHz)
Reference Source	External – HD Tri-Level / SD bi-level / Input Video syncs
Electrical	Black (HD tri-level and SD bi-level) and Black Burst (SD bi-level) SD bi-level – RS170A HD Tri-level – SMPTE 240M, 274M and 296M
Connector / Format	BNC/75 ohm 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: 67us HD: 28us 3G-A: 15us 3G-B: 25us
Typical delay (Input lock)	SD: 70us HD: 38us 3G-A: 19us 3G-B: 40us
Synchronizer Hysteresis Window	5 µs
Power Consumption	
Module Power Consumption	8.5W Max (A Frames) 8.5 PR (B Frames)