

IQHCO31

3G/HD/SD-SDI Synchronized Signal Protection Module

The IQHCO31 provides back up protection for SDI signal paths with a clean switching feature. Based on input monitoring detection of signal errors an automatic change-over to a back up feed can be initiated on error state detection. A powerful rules engine is available to provide logical conditions for auto-switching, whilst GPI (or RollTrack) inputs can force the unit to switch independent of signal state. Additional features include monitoring of the unselected input for video and audio signal confidence with group selectable AES audio monitoring.

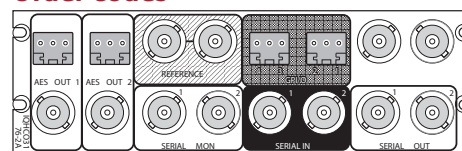
Features

- 3Gbps SDI, HD-SDI and SD-SDI operation
- Auto change-over from either input on pre-defined error conditions with user definable change-over delay
- Input signal monitoring including SDI lock, EDH/CRC error, embedded audio loss and standard mismatch
- Agile frame synchronizer per input with independently adjustable 3 frames of video delay and Proc. amp controls
- Loop-through reference capable of detecting and referencing to a bi-level or tri-level signal
- Selectable SDI and AES monitoring outputs enable either input to be monitored independent of the main signal selection
- Embedded Dolby E support - Handles Dolby E, or data, and PCM audio present in the same group
- In-built test pattern generator and AES audio tone generator
- 16 x user memories, save/recall/rename
- RollCall monitoring allows all signal paths to be managed

Why should you choose this module?

- Ideal for multi-format workflows where signal redundancy is an essential requirement
- Flexible control interfacing including fully automatic, RollCall and GPI operation
- RollCall integration ensures real time alarm reporting of potential failure conditions

Order codes



IQHCO3176-2A

IQHCO3176-2A

HD/SD-SDI synchronized signal protection module. 2 inputs, ref loop, 2 main outputs, 2 monitoring outputs, 2 AES outputs, 4 GPI/O

IQHCO3176-2A3

Adds 3G-SDI operation



IQHCO3147-1A

IQHCO3147-1A

HD/SD-SDI synchronized signal protection module. 2 inputs, ref input, 2 main outputs, 2 monitoring outputs, 2 GPI/O

IQHCO3147-1A3

Adds 3G-SDI operation

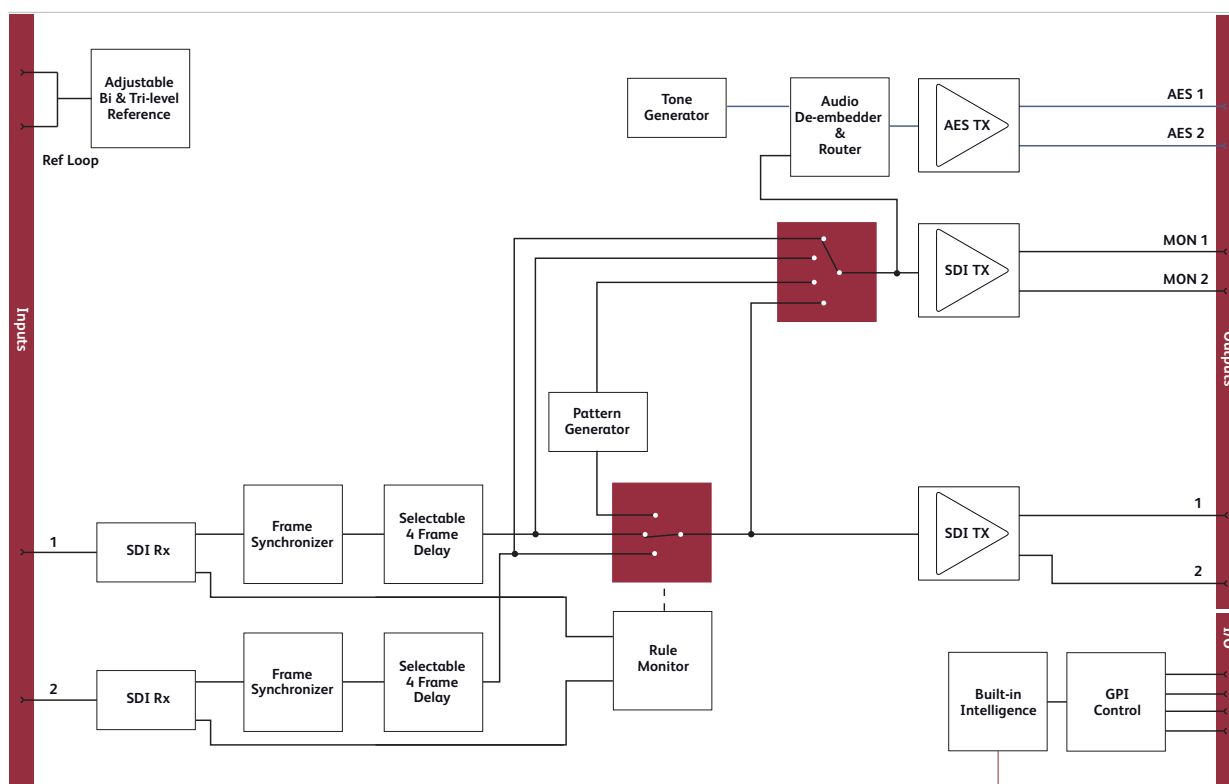
IQHCO31-3G

Upgrade for IQHCO31 HD/SD-SDI synchronized signal protection module to operate with 3Gbps signals

For more details on enclosure types please refer to Frames and Hardware section.

IQHC031

3G/HD/SD-SDI Synchronized Signal Protection Module



Block Diagram for IQHC03176-2A

Technical Specification

Inputs and Outputs

Signal Inputs

Primary switch	2 x SDI via BNC connectors
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

Primary switch	2 x SDI via BNC connector
Monitoring switch	2 x SDI via BNC connector
AES audio	2 x AES/EBU (BNC & ST)

Control Interface

GPI I/O	4 x closing contact via Screw Terminal connectors
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Controls

Indicators

Power O.K.	
CPU Running	
Input Loss 1	
Input Loss 2	
Reference lock	OK or Cross-locking (Green), Std error (Green flashing)

RollCall Controls

Genlock Mode	Free-run, Lock to Reference
Genlock H-Phase	± 0.5H in pixel clock steps
Genlock V-Phase	± 0.5F in 1 line steps
Video Delay Frames	0 - 3 F
Input Standard	1125(1080)/50P, 1125(1080)/59P, 1125(1080)/29i, 1125(1080)/25i, 750(720)/59P, 750(720)/50P, 525(480)/29i, 625(576)/25i

Default Video Output Type

Pattern, Black, Freeze

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
Main Output switch	Rules selection, Master input, Backup input, Pattern, Caption
Monitor Output switch	Follow Main, Master input, Backup input, Pattern, Caption
Switch rules	Logical combinations of warnings, GPI and RollTrack triggers
Change-over Parameters	No SDI Lock, Standard mismatch, CRC (EDH) Error, Embedded audio loss, embedded audio quiet, audio overload, pair type detection (Dolby E, Data, PCM)
Switch delay	Video 0.1 to 10 s from trigger condition(s) Audio 0 to 120s from trigger condition(s) Audio type 0 to 10s from trigger condition(s)
Internal Rules Preset Priorities	Master, Backup, None
GPI Rules Preset Priorities	Master, Backup, None
RollTrack Rules Preset Priorities	Master, Backup, None
AES output Pair select	Any pair from video monitor output Groups 1-4, Tone, silence
Embedded group Enable	Master Group 1-4 select Backup Group 1-4 select
Audio delay sources	Internal, manual, RollTrack
Audio delay	Course 0-1.75s in 5ms steps Fine +/- 250ms in 0.5ms steps
GPI/O program	TALLY any input state or warning or set as trigger
Manual Freeze	On/Off
Freeze	Field/Frame

IQHC031

3G/HD/SD-SDI Synchronized Signal Protection Module

Technical Specification

Controls

VANC Data	Blank VANC
SD VANC Data	Line blanking (6 controls)
HANC Data	Blank HANC (Removes all HANC data, including audio)
ProcAmp 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 Select	Color Bars, Black
Edit Caption	19 characters available
Reporting & Logging	Input Loss; Input Line Standard; EDH error; Audio & data presence, change over status, reference logging, main video output

AES Tone Setup

Frequency L/R	100Hz to 10kHz in 100Hz steps
Channel Ident	On/Off

Audio Monitoring

Silence Detect	0 to -80dB in steps of 1dB
Signal Overload Detect	0 to -80dB in steps of 1dB

Other Controls

User Memories	16 x Save, Recall, Rename
Memory Naming	User configurable naming of memories 1 – 16
Information Window	Video Input Status, Audio Input Status, Reference status, Rules status
RollTrack Index	Up to 70 RollTrack destinations
RollTrack Sources	Unused, Video Delay, Audio delay, Main output selection, Backup output selection, Input Std, Reference OK & Loss
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
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 Tr-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

GPI I/O (x4) Characteristics

Closing Contact Type	with Internal Source
Input Threshold Voltage	1 V typical

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

Synchronizer Hysteresis Window

5 s

Embedded Audio Delay

Minimum (PCM)	2 ms
Maximum (non-PCM)	
SD:	67us
HD:	28us
3G-A:	15us
3G-B:	25us

Digital Audio Output (Balanced)

Connector/Format	Screw Terminal (ST)
Level	3 V p-p typical into 110 Ohms
Standard	AES3, SMPTE 272M A-1994, SMPTE 299M

Digital Audio Output (Unbalanced)

Connector/Format	BNC
Level	1 V p-p typical into 75 Ohms
Standard	AES3-1992, SMPTE 272M A-1994, SMPTE 299M

Power Consumption

Module Power Consumption	TBA
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