

IQEAS00

3G/HD/SD-SDI Embedded Audio Shuffler and Processor

Includes a video proc amp providing complete control over video levels, and audio processing features including Dolby E auto-alignment, audio delay, gain and invert.

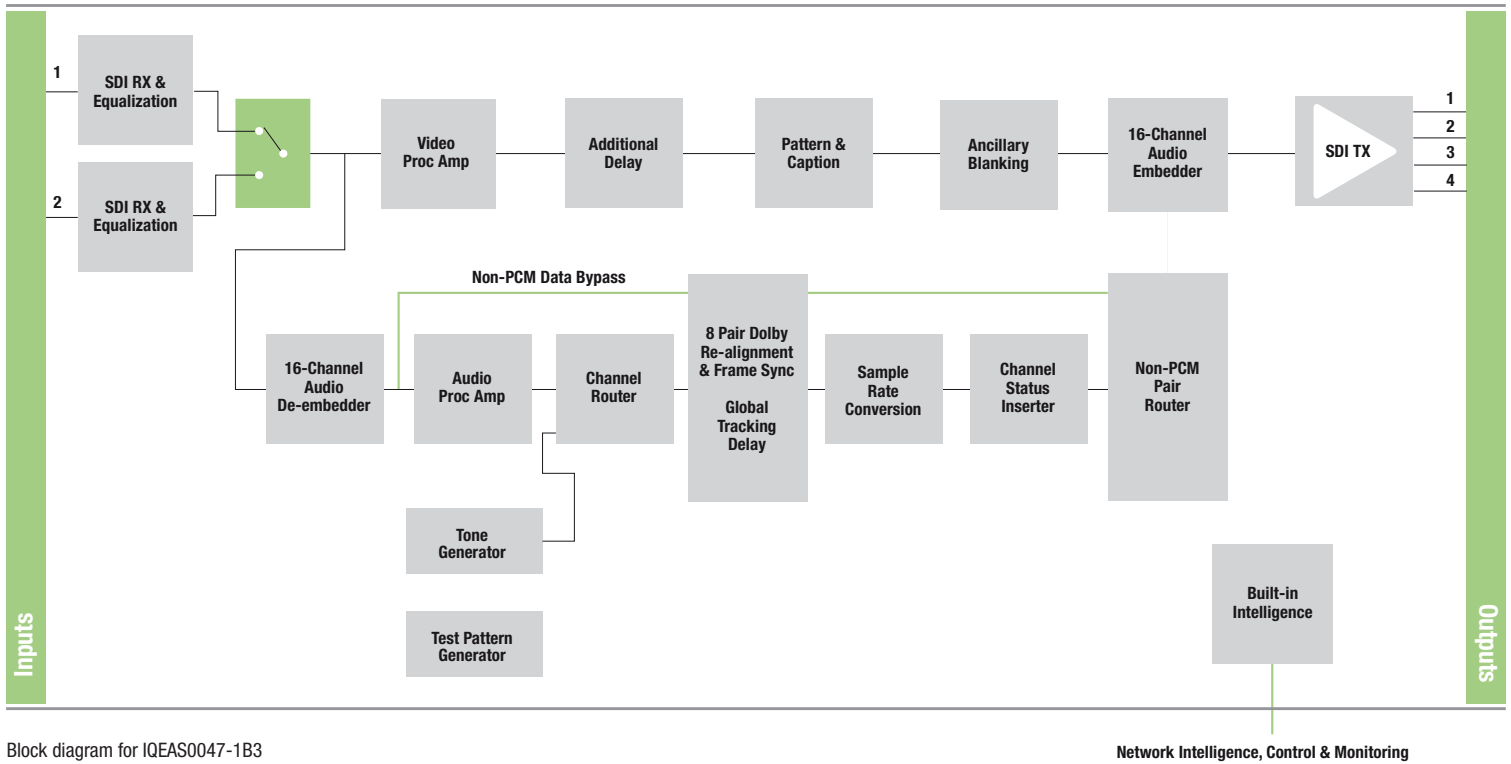
The IQEAS00 from Grass Valley provides embedded audio channel shuffling or HD-SDI at 3 Gb/s or 1.5 Gb/s, or SD-SDI 270 Mb/s with 16-channel embedded audio processing, including two SDI inputs with input format detection. The IQEAS00 also has a video proc amp providing complete control over video levels, and audio processing features including Dolby E auto-alignment, audio delay, gain and invert.

Why should you choose this module?

- Cost-effective module for shuffling incoming audio feeds to align with in-house channel mapping and provide everyday processing functions
- Full RollCall and SNMP compatibility allows easy integration with Grass Valley or third-party network management systems, providing an all-inclusive monitoring and control solution

KEY FEATURES

- 3G/HD/SD-SDI multiformat working with processing for 16 channels of embedded audio present on the incoming SDI stream
- 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
- Audio proc amp features including channel level (sub-frame) routing, adjustable delay, independent gain, invert and mute control
- Any group of embedded audio may be passed unchanged, processed or blanked
- Embedded Dolby E support — pair routing, delay and Dolby E header alignment
- Able to pass all ancillary data with independent HANC and VANC blanking control
- Input loss detection — default output of black/pattern/freeze
- Can be used as a video delay, up to 9 frames
- Video proc amp controls including video gain, offset and hue
- Built-in test pattern generator and audio tone generator
- 16x user memories, save/recall/rename
- RollCall control and monitoring compatible



Block diagram for IQEAS0047-1B3

Network Intelligence, Control & Monitoring

SPECIFICATIONS

Inputs & Outputs

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

Signal Outputs

SDI outputs: 4x

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)

Video Delay

- Video H-Delay 0 – 1: Line in pixel clock steps
- Video V-Delay 0 – 1: Frame in 1 line steps
- Video delay frames: 0 - 9 F

Video Controls

- Input standards:
 - 1125/1080p50 (A & B)
 - 1125/1080p59.94 (A & B)
 - 1125/1080i29.97, 1125/1080i25
 - 750/720p59.94, 750/720p50
 - 525/480i29.97, 625/576i25
- Default video output type: Pattern, Freeze, Black
- Default video output standards:
 - Last Known Good
 - 1125/1080p50 (A & B)
 - 1125/1080p59.94 (A & B)
 - 1125/1080i29.97, 1125/1080i25
 - 750/720p59.94, 750/720p50
 - 525/480i29.97, 625/576i25
- Video select: Input 1, Input 2
- Audio select: Video Input 1, Video Input 2, Follow Video
- 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. Note audio removed when embedders disabled)
- 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

Audio Controls

- Embedder assignment group 1 to 4 enable: On/Off
- Pair 1 to 8 source L/non-PCM: De-embed 1-16, Tone, Silence
- Pair 1 to 8 source R: De-embed 1-16, Tone, Silence
- Pair 1 to 8 stereo: Link channel pairs
- Pair 1 to 8 polarity L/R: On/Off
- Pair 1 to 8 gain L/R: +12 dB to -72 dB in 0.1 dB steps
- Pair 1 to 8 non-PCM: On/Off

Processed Audio Delay Control

- Course manual delay: Up to 1.75s in 5 ms steps
- Fine manual delay: ±0.25s in 0.5 ms steps
- Variable audio delay
- Control source: Internal, Manual

Dolby E

Dolby E auto alignment: On/Off

Tone

- Frequency L/R: 100 Hz to 10 kHz in 100 Hz steps
- Channel ident: On/Off
- HANC data: Blank HANC (removes all HANC data. Note audio removed when embedders disabled)

SPECIFICATIONS (CONT.)**Audio Monitoring**

Silence detect: 0 to -80 dB in steps of 1 dB
 Signal overload detect: 0 to -80 dB in steps of 1 dB
 Warning timer: 1 to 20 seconds in steps of 1 second

Other Controls

User memories: 16 x Save, Recall, Rename
 Memory naming: User-configurable naming of memories 1 – 16
 RollTrack sources: Unused, Video Delay (1&2), Audio Delay (1&2),
 Input Present (1&2), Input Loss (1&2), Input Select (1&2), Output
 Rate/Std, Output Freeze, Output Unfreeze, Output Pattern On,
 Output Pattern Off, Output Black On, Output Black Off, Output
 Caption On, Output Caption Off, Inp1 Embedded Audio (Pairs 1-8)
 PCM, Inp1 Embedded Audio (Pairs 1-8) Non-PCM, Inp1 Embedded
 Audio (Pairs 1-8) Loss, Inp1 Embedded Audio (Pairs 1-8) V Bit,
 Inp2 Embedded Audio (Pairs 1-8) PCM, Inp2 Embedded Audio
 (Pairs 1-8) Non-PCM, Inp2 Embedded Audio (Pairs 1-8) Loss, Inp2
 Embedded Audio (Pairs 1-8) V Bit.
 Information window: Video Input Status, Audio Input 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

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)
 Video standards:
 1125/1080p50 (A & B), 1125/1080p59.94 (A & B)
 750/720p50, 750/720p59.94
 1125/1080i25, 1125/1080i29.97
 625/576i29.97, 525/480i25
 Typical delay (input lock):
 SD: 70 μs
 HD: 38 μs
 3G-A: 19 μs
 3G-B: 40 μs

Embedded audio handling:

HD – 24-bit synchronous 48 kHz to SMPTE ST 299
 SD – 20-bit synchronous 48 kHz to SMPTE ST 272-A

Embedded audio delay:

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

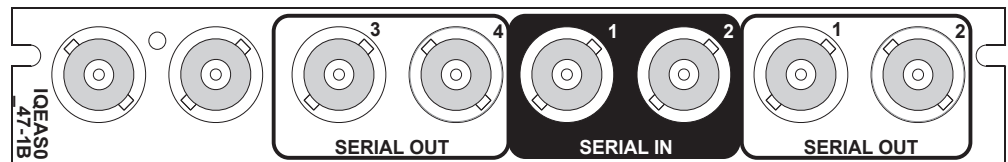
Power Consumption

Module power consumption: 8.5 PR (B Frames)

ORDERING**IQEAS0047-1B3**

3G/HD/SD-SDI embedded audio shuffler and processor. 2 inputs,
 4 outputs.

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



GVB-2-0777A-EN-DS



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