IQDMX34

3G/HD/SD-SDI De-embedder for Eight Analog Audio Channels

The IQDMX34 is an 8-channel analog audio de-embedder for 3G/HD/SD-SDI signals with a full set of audio processing features including gain, delay, invert, mute and channel-level routing for selected audio channels. The addition of a video proc amp makes it ideal as a general de-embedder for analog audio monitoring applications.

The IQDMX34 from Grass Valley provides 8-channel analog audio de-embedding for 3 Gb/s SDI, HD-SDI 1.5 Gb/s or SD-SDI 270 Mb/s signals. Audio processing features include gain, invert and channel-level routing, while a video proc amp is also included in the feature set.

Why should you choose this module?

- Ideal as a general de-embedder for analog audio monitoring 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

- 3G/HD/SD-SDI de-embedder with 8 balanced analog outputs selectable from any of the 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
- Features include independent gain, invert, mute controls, channel-level (sub-frame) routing, and adjustable delay for selected audio channels

- Any group of embedded audio may be passed unchanged, processed or blanked
- Embedded Dolby E support — pair routing and delay
- Up to 9 frames of video delay and 2 seconds of audio delay
- Able to pass all ancillary data without corruption inc. VANC metadata
- Independent HANC and VANC blanking control
- Input loss detection — default output of black/pattern/ freeze

- Video controls including video gain and offset
- Built-in test pattern generator and audio tone generator
- 16x user memories, save/recall/rename
- GV Orbit control and monitoring compatible
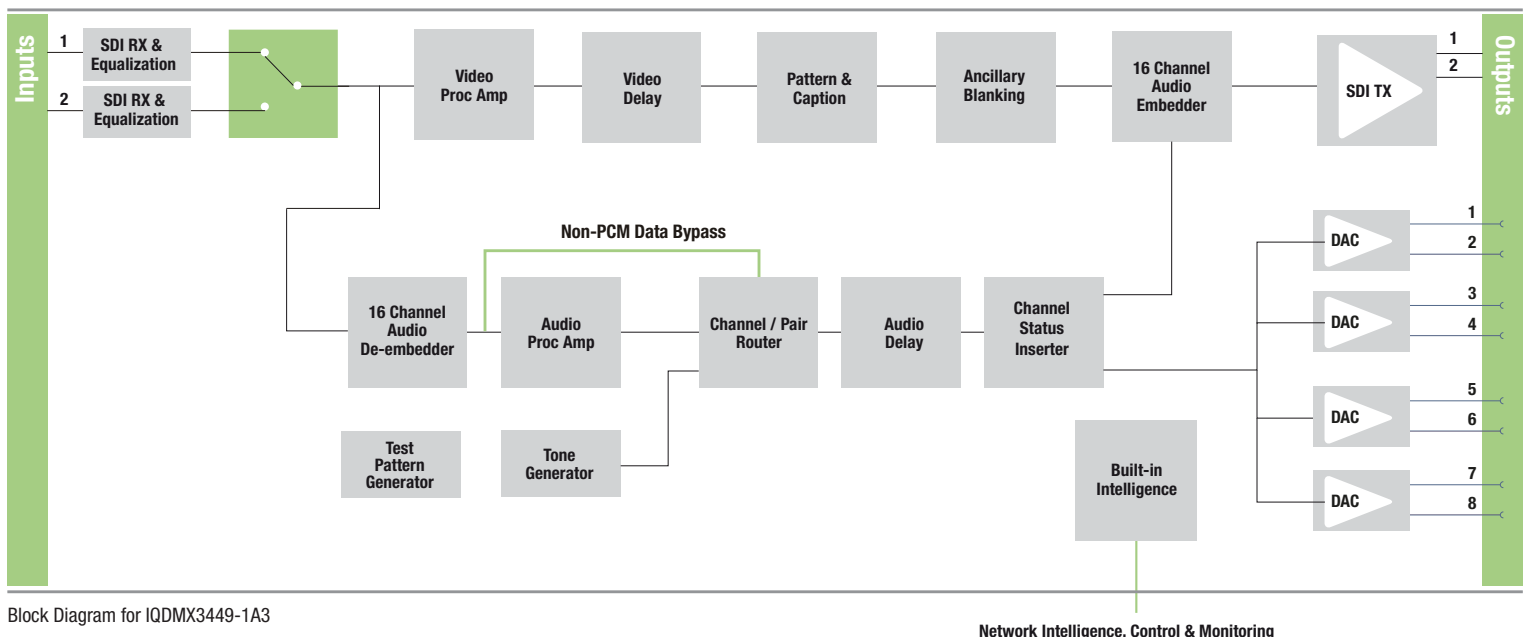
Block Diagram for IQDMX3449-1A3

SPECIFICATIONS

Inputs and 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: 2x

Audio Signal Outputs

Balanced analog audio outputs: 8 channels (25-way D-type)

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 Controls

Input standards:

    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

Video select: Input 1, Input 2

Audio select: Video Input 1, Video Input 2, Follow Video

Manual freeze: On/Off

Freeze: Field/Frame

Video delay frames: 0 - 9 F

VANC data: Blank VANC

SD VANC data: Line blanking (6 controls)

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: Dis-embed 1_1 to 8_2, Tone, Silence

Pair 1 to 8 source R: Dis-embed 1_1 to 8_2, 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

Analog Output Assignment

Channel 1 to 8 source: Dis-embed 1_1 to 8_2, Tone, Silence

Channel 1 to 8 stereo: Link channel pairs

Channel 1 to 8 polarity: On/Off

Channel 1 to 8 gain: +12 dB to -72 dB in 0.1 dB steps

Audio Setup Controls

Analog output level: +12 dBu to +24 dBu

Note: Output level specified at 0 dBFS line up level

Processed Audio Delay Control

Coarse manual delay: Up to 1.75s in 5 ms steps

Fine manual delay: ±0.25s in 0.5 ms steps

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)

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: 16x Save, Recall, Rename

Memory naming: User configurable naming of memories 1 – 16

RollTrack Sources: Unused, Video Delay, Input Present, Input 1 Select, Input 2 Select, Input Loss, Output 525, Output 625, Output 720p, Output 1080i, Output 1080p, Output Freeze, Output Unfreeze, Output Pattern on, Output pattern off, Output Caption on, Output Caption off, Disemb (Pairs 1-8) PCM, Disemb (Pairs 1-8) Data, Disemb (Pairs 1-8) Dolby E, Disemb (Pairs 1-8) V bit, Disemb (Pairs 1-8) Loss

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(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

Typical video delay:

    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

Analog Audio Outputs

Output level: Adjustable +12 dBu to +24 dBu

Output impedance: ~25Ω

Dynamic range: 114 dB typical

THD+N: -93 dB @ +23 dBu 800 Hz typical

Frequency response: 20 Hz-20 kHz +0.05 dB

Conversion: 24-bit sampling @ 48 kHz

Power Consumption

Module power consumption:

    9.5W (A Frames)

    9.5PR (B Frames)

ORDERING

IQDMX3449-1A3, IQDMX3449-1B3

3G/HD/SD-SDI 8-channel Analog Audio De-embedder. 2 SDI outputs, 8 balanced analog outputs

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

IQDMX3 449-1A   ANALOG AUDIO OUT   SER IN 1   SER IN 2   SERIAL OUT   1   2