

# IQDMX31

## 3G/HD/SD-SDI De-embedder for 4 AES/EBU Audio Streams

The IQDMX31 provides 8 channel digital audio de-embedding for 3Gbps SDI, HD-SDI 1.5 Gbit/s or SD-SDI 270 Mbit/s signals. Audio processing features include gain, invert, delay and channel level routing, whilst a video proc. amp is also included in the feature set.

### Features

- 8 channel 3G/HD/SD-SDI de-embedder with 4 balanced or unbalanced AES outputs
- Handles up to 16 channels of embedded audio present on the incoming SDI stream
- Standards supported:
  - 3G-SDI to SMPTE 424M/425M level A & B compatible
  - HD-SDI to SMPTE292M/274M/296M
  - SD-SDI to SMPTE259M-C
- Channel level (Sub-frame) routing
- Audio proc-amp features including independent gain, invert, mute controls 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, delay and Dolby E header alignment
- Handles Dolby E and PCM audio present in the same group with detection and reporting
- 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
- Up to 9 frames of video delay and 2 seconds of audio delay
- Video controls including video gain and offset
- In-built test pattern generator and audio tone generator
- 2 SDI inputs and 2 active HD/SD-SDI outputs
- 16 x user memories, save/recall/rename
- RollCall control and monitoring compatible

### Why should you choose this module?

- Ideal as a general de-embedder for AES audio applications
- Video delay feature allows this module to be used where a Dolby E decoder, for example, is to be placed downstream of the AES outputs
- Full RollCall and SNMP compatibility allows easy integration with SAM, or third party, network management systems providing an all-inclusive monitoring and control solution
- Available as an SD/HD version with simple software upgrade path to 3G, providing a cost effective future proof solution

### Order codes



#### **IQDMX3147-1A3, IQDMX3147-1B3**

3G/HD/SD-SDI 8 channel AES De-embedder.  
2 outputs, 4 Unbalanced AES outputs.



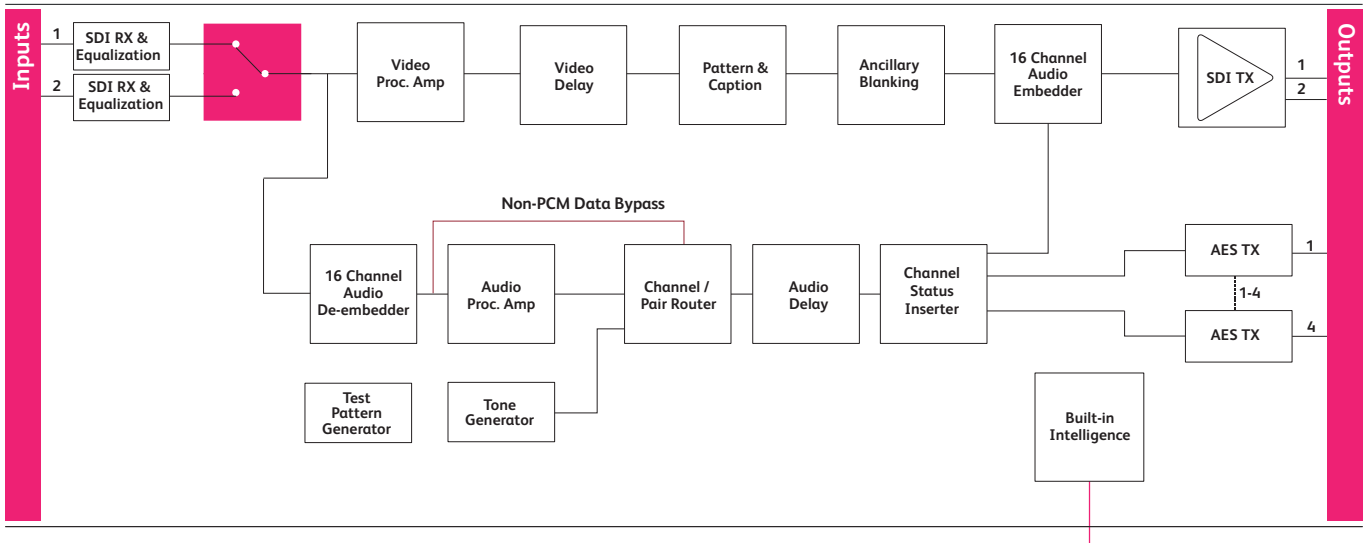
#### **IQDMX3149-1A3, IQDMX3149-1B3**

3G/HD/SD-SDI 8 channel AES De-embedder.  
2 outputs, 4 Balanced AES outputs.

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

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## 3G/HD/SD-SDI De-embedder for 4 AES/EBU Audio Streams



Block Diagram for IQDMX3149-1A3

Network Intelligence, Control & Monitoring

## Technical Specification

### Inputs & Outputs

#### Signal Inputs

SDI Inputs	2x
Input 1 Cable Length	Up to 70m Belden 1694A @ 3 Gbit/s Up to 160m Belden 1694A @ 1.5 Gbit/s >350m Belden 1694A @ 270 Mbit/s
Input 2 Cable Length	Up to 60m Belden 1694A @ 3 Gbit/s Up to 100m Belden 1694A @ 1.5 Gbit/s Up to 100m Belden 1694A @ 270 Mbit/s

#### Signal Outputs

SDI Outputs	x 2
Unbalanced digital audio	4 x AES/EBU, AC3, Dolby E (BNC)
Balanced digital audio	4 x AES/EBU, AC3, Dolby E (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)

### Controls

#### Video Controls

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
Video Delay Frames	0 - 9 F
VANC Data	Blank VANC
SD VANC Data	Line blanking (6 controls)
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 On	On/Off
Pattern Select	75% Color Bars, Black
Caption On	On/Off
Edit Caption	19 characters available

### Technical Specification cont...

#### 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

##### AES Assignment

AES 1 to 4 Source L / Non-PCM	Dis-embed 1_1 to 8_2, Tone, Silence
AES 1 to 4 Source R	Dis-embed 1_1 to 8_2, Tone, Silence
AES 1 to 4 Stereo	Link channel pairs
AES 1 to 4 Polarity L/R	On/Off
AES 1 to 4 Gain L/R	+12 dB to -72 dB in 0.1 dB steps
AES 1 to 4 Non-PCM	On/Off
Processed Audio Delay Control	
Course Manual Delay	Up to 1.75s in 5ms steps
Fine Manual Delay	+/- 0.25s in 0.5ms steps

##### Tone

Frequency L/R	100Hz to 10kHz in 100Hz steps
Channel Ident	On/Off
HANC Data	Blank HANC (Removes all HANC data. Note audio removed when embedders disabled)

##### Dolby-E

Dolby-E Auto Alignment	On/Off
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##### Audio Monitoring

Silence Detect	0 to -80dB in steps of 1dB
Signal Overload Detect	0 to -80dB in steps of 1dB
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, Input Present, Input1 Select, Input2 Select, Input Loss, Output525, 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) DolbyE, 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

#### 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)
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: 70us HD: 38us 3G-A: 19us 3G-B: 40us
Embedded audio handling.	HD - 24-bit synchronous 48 kHz to SMPTE 299M SD - 20-bit synchronous 48 kHz to SMPTE 272M-A
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	25 W D
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	AES3id, SMPTE 272M-A-1994, SMPTE 299M

#### Power Consumption

Module Power Consumption	9.5W Max (A Frames) 8.5 PR (B Frames)
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