

The IQDBE02 provides an integrated Dolby D encoding and remultiplexing solution for HD-SDI 1.5 Gbit/s or SD-SDI 270 Mbit/s signals. As well as providing multiplexing or demultiplexing for up to 16 PCM audio channels, eight AES/EBU streams, it can demultiplex multi-channel PCM audio and encode as Dolby D data to output as AES or re-multiplex into the video stream. Additional Dolby features include automatic Dolby E alignment with the video signal, and metadata input from RS485 to steer the encoder. Other audio processing features include PCM tracking audio delay, gain, phase invert, mixing, channel level routing and Dolby pair routing. Video features include proc. amp controls and up to 11 frames of delay.

IQDBE02/03

HD/SD-SDI 16 Channel AES/EBU Remultiplexer with Dolby D Encoder

Does this module suit your application?

- Encode multi-channel audio to Dolby D compressed audio and either output to AES or remultiplex into the HD/SD-SDI stream
- Associated Dolby metadata can be accommodated via RS485 input
- Multiplex unbalanced or balanced AES audio onto HD/SD-SDI video streams with channel-level control
- Demultiplex existing audio channels and output them to unbalanced or balanced AES
- Standards supported:
HD-SDI to SMPTE292M/274M/296M
SD-SDI to SMPTE259M-C
- Channel-level control allows up to 16 individual embedded audio channels to be swapped-over or swapped out
- 4 off 4 channel assignable audio mixers
- Audio proc-amp and delay
- Audio delay channels include selectable fixed delay and tracking delays selectable for any pair
- Tracking audio delay which seamlessly tracks the video delay or external RollTrack inputs
- Dolby E support – pair routing and automatic re-alignment and synchronization to the video frame boundary
- Any group of embedded audio may be passed unchanged if not selected for processing
- Video delay feature, up to 11 frames
- Video controls including video gain and offset
- 16 x user memories
- Independent horizontal and vertical ancillary data blanking
- Input SDI, CRC, EDH and ANC data checking and reporting
- In-built test pattern generator
- Input loss detection – input pass through or black/pattern/freeze
- Naming of audio output channels for easy identification

Why should you choose this module?

- Powerful audio processing module to encode multi-channel audio into Dolby D for content distribution or transmission
- Metadata input allows the encoder to repurpose any previously coded audio signals correctly
- Adjustable video delay to match Dolby D encoder delay
- Suitable for synchronous or asynchronous multiplexing and demultiplexing applications using AES audio
- Suitable for multi-lingual audio applications thanks to channel-level control and up to sixteen channel operation

Order codes for IQH3A/1A enclosures .

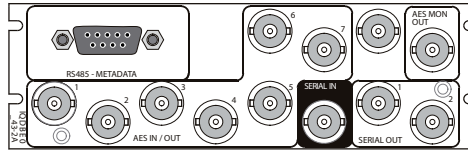
IQDBE0243-2A

HD/SD-SDI 16 Channel remultiplexer with Dolby D encoder. 2 HD/SD-SDI outputs, 8 AES/EBU unbalanced configurable input/outputs, 1 AES/EBU unbalanced monitor output, Dolby E Metadata input

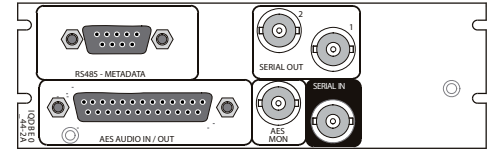
IQDBE0344-2A

HD/SD-SDI 16 Channel remultiplexer with Dolby D encoder. 2 HD/SD-SDI outputs, 8 AES/EBU balanced configurable input/outputs, 1 AES/EBU unbalanced monitor output, Dolby E Metadata input

For more details on enclosure types please refer to datasheet IQH3A.



IQDBE0243-2A



IQDBE0344-2A

Technical Specification

Inputs & Outputs

Video Signal Inputs

Digital Video 1 x Serial Digital Input
Electrical 1.5 Gbit/s HD-SDI, SMPTE 292M, SMPTE 299M
270 Mbit/s SDI, SMPTE 259M-C

Connector / Format BNC / 75 ohm panel jack on standard S&W connector panel

Input Cable Length Up to 140 m Belden 1694A @ 1.5 Gbit/s
Up to 350 m Belden 1694A @ 270 Mbit/s

Return loss > -15 dB

Video Signal Outputs

Digital Video 2 x Serial Digital Outputs
Electrical 1.5 Gbit/s HD-SDI, SMPTE 292M
270 Mbit/s SDI, SMPTE 259M-C

Connector / Format BNC / 75 ohm panel jack on standard S&W connector panel

Audio Signal Inputs/Outputs

Unbalanced AES/EBU AES Audio I/O (software selectable)
7 Unbalanced

AES Audio Monitor Output 1 Unbalanced
Connector / Format BNC / 75 ohm panel jack

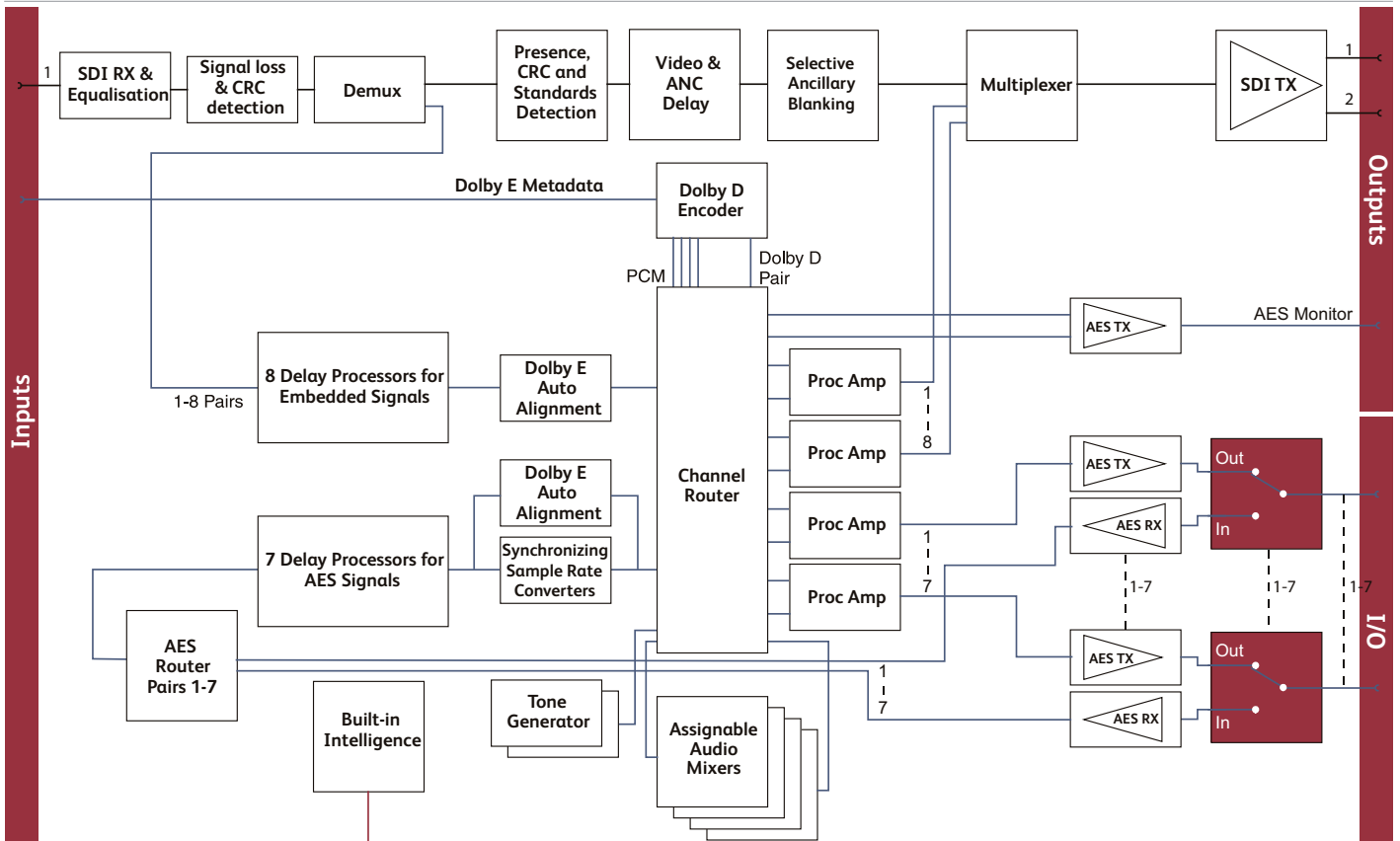
Balanced AES/EBU

AES Audio I/O (software selectable)
7 Balanced
Connector / Format 25 Way D-Type / 110 ohm panel mounted

AES Audio Monitor Output 1 Unbalanced
Connector / Format BNC / 75 ohm panel jack

RS422 Metadata

Connector 9 Way D-Type panel mounted



Network intelligence, control and monitoring

Technical Specification cont...

Controls

Indicators

Power	OK (Green)
CPU	OK (Green flashing)
FPGA	OK (Orange flashing)
Status	OK (Green)
	Warning (Orange)
	Error (Red)
Lock	OK (Green)
SDI Error	Error (Red)

RollCall Features

Audio Controls

Embedded Audio Types	PCM (to AES3)/ Data (SMPTE 337M inc. Dolby E)/ Mixed (Passes any channel status information present)
Channel routing	Output channels routed from Dolby E encoder, AES inputs 1 to 7, SDI 16 embedded channels from any group, test tone and silence
Embedder Priority	Normal distribution/Audio Prioritized
Embedded Group	Pass/Blank/Embed
Channel Status handling and checking	
Dolby D Encoder routing	channels routed from AES inputs 1 to 7, SDI 16 embedded channels from any group
Output side control proc.	- gain and polarity Independent Gain, Mute, & Polarity control over embedded output channels. +12 dB to 66 dB in 0.1 dB steps

Channel 1 Delay sources

Coarse Manual delay 1 & 2	Up to ± 0.25 ms in 5 μ s steps, common to any selected pairs.
Fine Manual delay 1 & 2	Up to ± 0.25 ms in 5 μ s steps, common to any selected pairs.
Dolby E delay (alignment) Auto/Manual	
Variable audio delay control source	Up to 0.5 s from RollTrack + Video Delay

Channel 2 Delay sources

Coarse Manual delay 1 & 2	
Fine Manual delay 1 & 2	Up to +0.25 ms in 5 μ s steps, common to any selected pairs.
Dolby E delay (alignment) Auto/Manual	
Variable audio delay control source	Up to 0.5 s from RollTrack + Video Delay

Tone Setup:

Frequency	1 kHz, 2 kHz, 4 kHz, mute @ -20 dBFS or -18 dBFS
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Video Controls

Output Standard	Select, Follow Input
Standards List	Select video standards for automatic follow
Black Level	± 200 mV in steps of 1 mV
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.
Pattern Select	Black, 100% Color Bars, 75%

Blank Ancillary Data	Color Bars, SMPTE Bars, Tartan Bars, Pluge Ramp, H Sweep, Pulse & Bar, Burst Blank All, Blank HANC, Pass All, Pass when Output Standard equals Input Standard
VBI Line Blank	Individual lines for each video standard
Dolby E Auto Line selection	Define Dolby E embed line for each video standard
Manual Freeze	On/Off
Freeze	Field/Frame
Video Channel Control	Y On/Off, C On/Off
Default Video Output	Pattern / freeze/ black / run through

Metadata Controls

Metadata Source	Internal/External
Reversion Mode	Last used (Valid)/Internal
DD stream number	0-6
Bitsream format	32 bit, 16 bit Ch1, 16 bit Ch 2
Encoder Latency	150ms to 300ms
Data Rate	Auto, 224kbps to 640kbps

Other Controls

User Memories	16 x Save / Recall / Rename
Input/Output Names	User configurable naming of the input and output AES/ EBU, embedded audio and mixer channels

RollCall Features

Logging	Video Status Emb(eded) Audio Status O/P Audio Status O/P Audio Level Status O/P Dolby E Status AES Input Status AES Output Status Embedded audio output status, level & type (pairs 1-8) Embedded Dolby E output timing status (pairs 1-8) Dolby Encoder Status Misc
RollTrack Controls	Source, Address, Command, Status, Sending.
RollTrack Sources	Unused, Video Delay, Input Present, Input Loss, Output Freeze, Output Unfreeze, Embedded Audio (Pairs 1-8) AES Audio (Pairs 1-7)



Technical Specification cont...

Specifications

Video Standards

750(720)/59p, 750(720)/50p,
1125(1080)/29i, 1125(1080)/25i
525(480)/29i, 625(576)/25i

Horizontal Timing 0 to 1 output line in steps of
1 pixel.

Delay Adjustment Horizontal and Vertical
timing

Vertical Timing 0 to 1 output frame in steps
of 1 line.

Minimum Delay HD – 15 μ s
SD – 42 μ s

Video Delay HD - 1120 pixels to 11 Frames
+ 820 pixels
SD - 570 pixels to 11 Frames +
420 pixels

Internal audio processing
32 channels @ 24-bit

Embedded audio
handling HD - 24-bit synchronous 48
kHz to SMPTE 299M
SD - 20-bit synchronous 48
kHz to SMPTE 272M-A

Audio Resolution Inputs: 32 kHz/ 44.1
kHz/48 kHz synchronous
or asynchronous to video
stream. Outputs: 48kHz
synchronous to the video
stream. Up to 24 bit, (20
MSBs embedded in SD-SDI
stream).

Audio Delay Minimum: 0.75 ms for data
signals and embedded input
pairs; 3 ms for AES pairs
Maximum 2.5 s

Power Consumption

Module Power
Consumption 18W Max