



The IQMUX01 and IQMUX11 are 4 x AES/EBU stream multiplexers with advanced embedded audio handling. Ideal as a general digital ingest module where any digital audio source signal can be catered for, even combinations of embedded and external digital audio. All audio manipulation is at the channel-level suiting discreet surround and multi-lingual use. Its audio firewall capability ensures errors or interruptions in the input signal are not passed through to the output. In addition to its tracking audio delay, it also has a bulk audio delay feature. To complete the delay flexibility, it has a built-in video delay that can be used to adjust to match external audio processing delays, such as that from a Dolby E encoder. A dual SDI input allows the unit to take signals from either of two paths. This can be used for handling main and redundant feeds, or it can be used with a composite decoder such as the IQDEC00 to provide analog and digital alternative inputs. The second input also allows split operation, with video taken from one input and embedded audio from the other.

As a further function, this module can be used to provide separate audio and video routing in an embedded SDI environment. In this way, two levels of an SDI router feed separately the video and audio to a single destination. In this case however, the normal mode of operation can be supplemented by a small AES router allowing a few destinations at a time to have a mix capability between multiple audio sources.

IQMUX01/11

4/8 Channel AES Multiplexer and Audio Processor

Does this module suit your application?

- Handles 2/4 AES streams or any eight embedded input channels to total eight output channels
- Handles up to 24 bit embedded audio present on the incoming SDI stream or AES inputs, and embeds/de-embeds to 20 bits
- Combine AES and embedded source channels
- Channel-level (Sub-frame) routing
- 4 off 4 channel assignable audio mixers
- Flexible audio delay including per pair fixed delay, common fixed delay and tracking delay
- Firewall for processed PCM audio to provide a continuous output
- Variable audio delay of up to 0.5s which seamlessly tracks the video delay or external RollTrack / GPI inputs
- Video proc. amp (gain, saturation, black level)
- Up to 3 frames of video delay
- RollCall control and monitoring compatible

Why should you choose this module?

- Provides a multiplexing solution for 2/4 streams of AES or non-PCM audio
- Allows the use of mixed AES and embedded audio where both must be accommodated or combinations may be required
- A complete AV solution for incoming lines with audio firewall, proc. amp, audio shuffling and delay

Order codes for IQH3A/1A enclosures

IQMUX0315-1A

SDI and 4 channel AES multiplexer with extended video delay. Balanced AES connection. 1 SDI input, 2 AES inputs, 2 SDI outputs.

IQMUX1315-1A

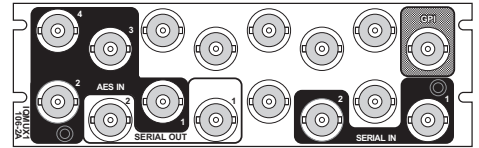
SDI and 8 channel AES multiplexer with extended video delay. Balanced AES connection. 1 SDI input, 4 AES inputs, 2 SDI outputs.

IQMUX0101-1A

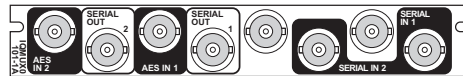
SDI and 4 channel AES multiplexer with extended video delay. Unbalanced AES connection. 2 SDI inputs, 2 AES inputs, 2 SDI outputs.



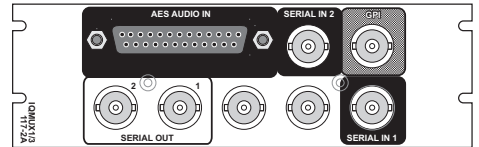
IQMUX0315-1A



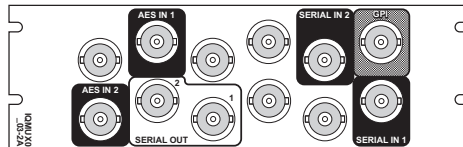
IQMUX1106-2A



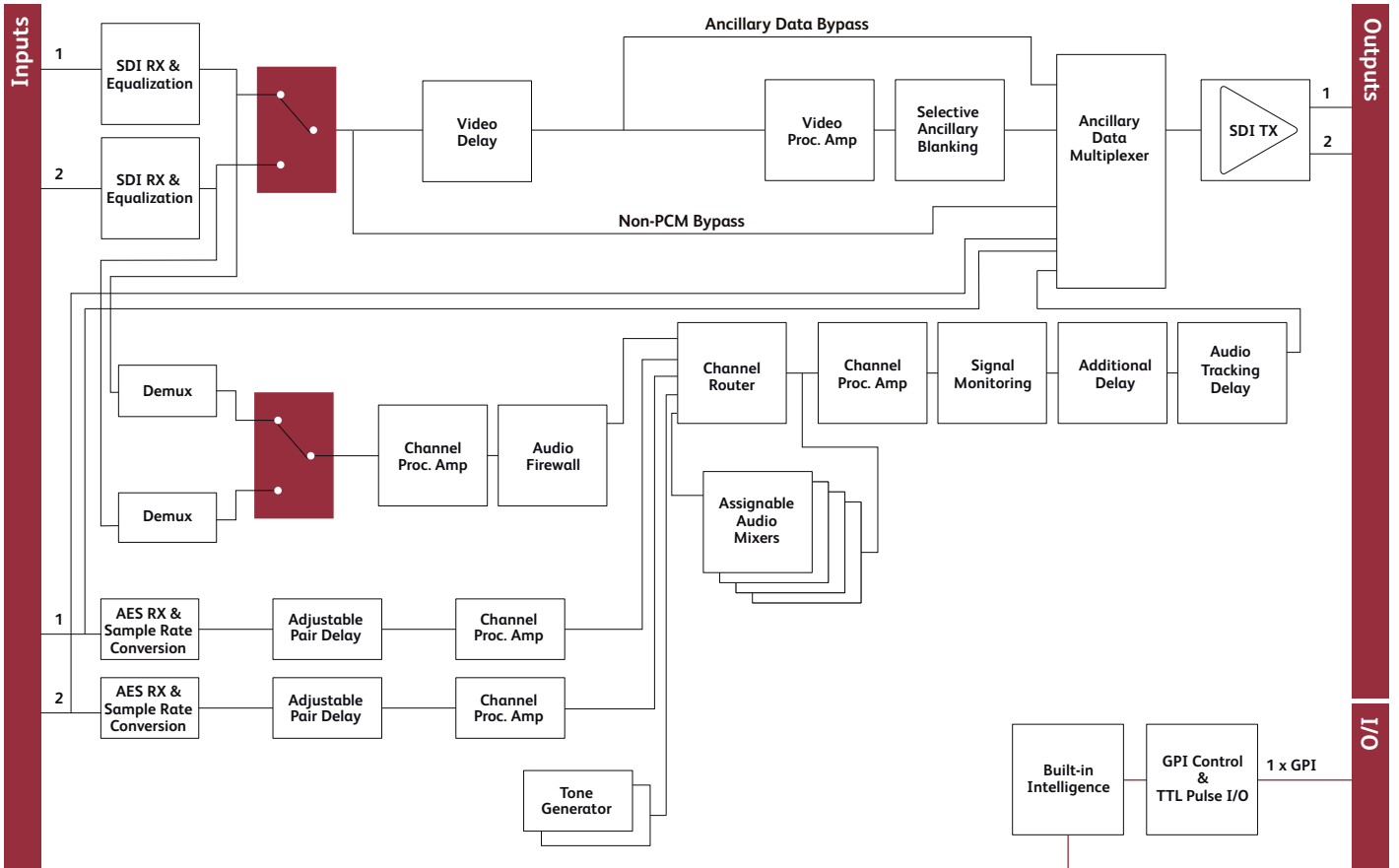
IQMUX0101-1A



IQMUX0317-2A



IQMUX0103-2A



Block Diagram for IQMUX0103-2A



Technical Specification

Inputs and Outputs

Signal Inputs

Digital video	2 x SDI (BNC) (1 x SDI – single width versions)
Unbalanced digital audio	2/4 x AES/EBU, AC3, Dolby E (BNC)
Balanced digital audio	2/4 x AES/EBU, AC3, Dolby E (25 Way D-Type)
Standards	SMPTE 259M-C-1997, SMPTE 272M-A-1994, AES3-1992

Signal Outputs

Digital video	SDI x 2
Standards	SMPTE 259M-C-1997, SMPTE 272M-A-1994

Control Interface

GPI	1 x Closing contact I/O interface (BNC)
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Card Edge and RollCall Controls

Card Edge Controls

NONE

Card Edge Indicators

SDI input loss	Loss = Off, Good = Green
SDI input error	Yellow = Unused input not at current operating standard
AES input present	1 x LED per pair
CPU running / power	One green LED, flashing = OK

RollCall Functions

Audio Controls

Audio extraction select	SDI input 1/2/Follow Video Control
Set headroom	4 to 24 dB in 1 dB steps
Set audio detector thresholds	High and low levels, time delay
External input audio delay	Up to 1.5s additional delay in 1 ms steps
Input side control proc. - audio gain and polarity	Independent Gain, Mute, Polarity control over de embedded and input channels. +18 dB to -18 dB in 0.1 dB steps
Channel routing	Output channels routed from AES pairs 1 to 4, test tone and silence, SDI 8 embedded channels from any group
Output side control proc. - gain and polarity	Independent Gain, Mute, and Polarity control over embedded output channels. +18 dB to -18 dB in 0.1 dB steps
Global delay offset	Up to +1.5s in 1 ms steps, common to all processed audio
Variable audio delay control source	Up to 0.5s from RollTrack + GPI
Tone frequency, amplitude and ident	2 channel tone generator. 100 Hz to 10 kHz in 100 Hz steps

Tone Setup

Frequency	100 Hz to 10 kHz in 100 Hz steps
Channel ident	0.5s interruption every 2s

Video Controls

Select primary input	1/2
Black level	±100 mV in 0.8 mV steps
Y/C timing	±592 ns in 148 ns steps
Picture position	±592 ns in 148 ns steps
Luminance gain	±6 dB
Chrominance gain	±6 dB
Video horizontal delay	+1 Line in 37 ns steps
Video vertical delay	+1 Frame in 1 line steps
Video delay frames	0 to +2 frames

Other Controls

Pass vertical data	On/Off (lines selectable 7/11 to 23/21 and 320/274 to 335/283)
Preset unit	Returns all settings to default
Pattern select	100%/75% Bars, Multiburst, Black, Animated Bars
User memories	Name, clear, save and read 8 user memories
Default video output	Pattern / freeze/ run through Silence
Default audio output	Silence
Caption output	On/Off (default and pattern output only)
Caption generator	Programmable up to 19 characters
GPI/O set-up	May be attached to any memory function/polarity

Reporting (* also Logged)

EDH (for selected input)	*Presence, *Error-Time, *Error-Seconds
No SDI	*No input present
Input ancillary error	ANC error, ANC error-seconds
Input error	Unused input not at current operating standard
Report embedded	
Audio data	Report audio data pairs on input and output SDI
Audio silence, high level, Low level, overflow	For processed audio channels only

RollTrack Input

Delay	Audio delay – Fixed, RollTrack + Fixed
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RollTrack Output

Delay	Current video / audio delay
Input state	Selected Input: Input Present, Input Missing, Standard 525, Standard 625 Input 1: Input Present, Input Missing, Standard 525, Standard 625 Input 2: Input Present, Input Missing, Standard 525, Standard 625 GPI 1 Low, High, Inactive
Embedded audio state	De-embed 1-8 Lost/Present
External AES audio state	1-2 Lost/present

Order codes for IQH3A/1A enclosures cont...

IQMUX0103-2A

SDI and 4 channel AES multiplexer with extended video delay. Unbalanced AES connection. 2 SDI inputs, 2 AES inputs, 2 SDI outputs, 1 GPI.

IQMUX1106-2A

SDI and 8 channel AES multiplexer with extended video delay. Unbalanced AES connection. 2 SDI inputs, 4 AES inputs, 2 SDI outputs, 1 GPI.

IQMUX0317-2A

SDI and 4 channel AES multiplexer with extended video delay. Balanced AES connection. 2 SDI inputs, 2 AES inputs, 2 SDI outputs, 1 GPI.

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



Technical Specification cont...

Specifications

Video internal processing	4:2:2 with 10 bit data paths
Serial input return loss	Better than 15 dB to 270 MHz
Maximum input cable length	>200 m (PSF1/2 or equiv. cable)
Serial output level	800 mV \pm 5%
Output overshoot	<70 mV
Output return loss	Better than 15 dB to 270 MHz
Output jitter	<0.2 UI (with 10 Hz High pass filter selected on 601 monitor)
Minimum delay	6 μ s
Delay (delay mode)	6 μ s - 3 Frames + 5.5 μ s
THD+N	<-117 dB @ 700 Hz (24 bits) AES to AES

Digital Audio Input (Balanced)

Connector / format	25 W D
Sample frequency	25 – 96 kHz (48 kHz for Reference)
Input cable length	>150 m of AES3 cable
Impedance	110 Ohms

Digital Audio Input (Unbalanced)

Connector / format	BNC
Sample frequency	25 – 96 kHz (48 kHz for Reference)
Input cable length	>500 m of RG59 cable
Impedance	75 Ohms
Output sampling	48 kHz frame locked to 48 kHz AES/EBU Reference in AES lock mode

Power Consumption

Module power consumption	7.5 W max
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