IQDLY20/21

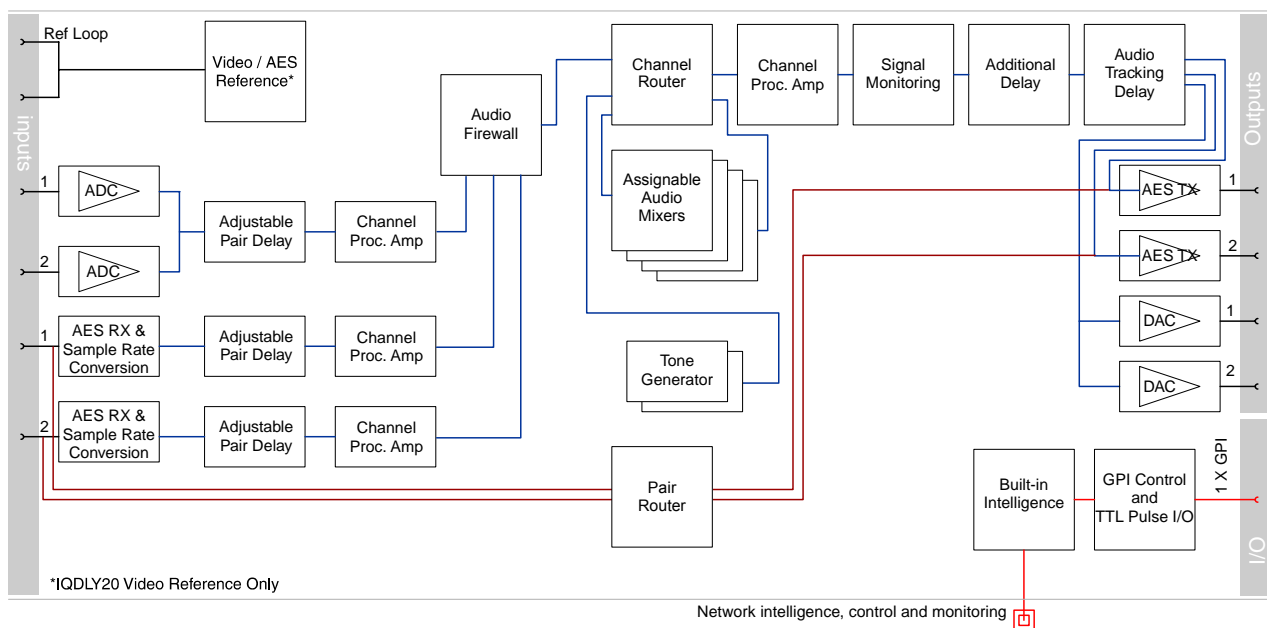## AES and Analog Audio Delay and Shuffler Module

The IQDLY20/21 provides two channels of analog audio and four channels of AES audio with up to 3 seconds of preset delay, and 0.5 seconds of tracking audio delay. The availability of both analog and AES inputs and outputs also enables it to be used as a two-channel audio ADC and DAC.

Does this module suit your application?

- 2 x balanced analog audio paths
- 2 x balanced or unbalanced AES paths
- Synchronizes AES/analog inputs
- Proc. amp control of audio channels
- Flexible preset and tracking delay
- Channel-level shuffling
- 4 off assignable 4 input mixers
- References to video or AES signals (IQDLY20 video reference only)
- Professional standard 48kHz operation, sample rate converts non-48kHz signals
- Firewall for processed PCM audio to provide a continuous output regardless of input
- Passes non-PCM AES signals including Dolby E
- Pair-level Dolby E routing Operates at 48 kHz
- 20-bit sampling resolution

Why should you choose this module?

- A complete AES/analog delay solution in one module
- Firewall function makes this an ideal first unit in a signal chain
- Channel-level manipulation and mixing allows detailed control of audio material
- Tracking capability allows the audio to follow a video synchronizer
- Suitable for use as a 2 channel audio ADC and DAC with delay and processing
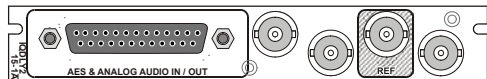- Separate per pair and global user adjustable delays

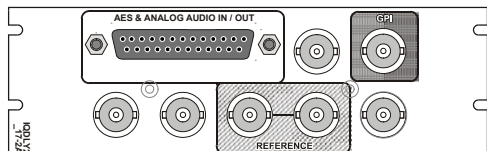
Block diagram for IQDLY2117-2A shown

IQDLY20/21

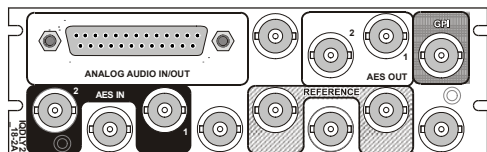## AES and Analog Audio Delay and Shuffler Module

Order codes for IQH3A/1A enclosures

IQDLY2115-1A AES and Analog Audio Delay. Balanced Audio connection via 25 way D type. 2 Analog inputs, 2 AES inputs, 2 Analog outputs, 2 AES outputs

IQDLY2117-2A AES and Analog Audio Delay. Balanced Audio connection via 25 way D type. 2 Analog inputs, 2 AES inputs, 2 Analog outputs, 2 AES outputs and 1 x GPI

IQDLY2018-2A AES and Analog Audio Delay. Balanced Audio connection via 25 way D type, Unbalanced AES connection via BNC. 2 Analog inputs, 2 AES inputs, 2 Analog outputs, 2 AES outputs and 1 x GPI

Order codes for other enclosures

IQDLY2114-1 AES and Analog Audio Delay. Balanced Audio connection via 25 way D type. 2 Analog inputs, 2 AES inputs, 2 Analog outputs, 2 AES outputs
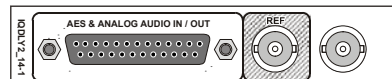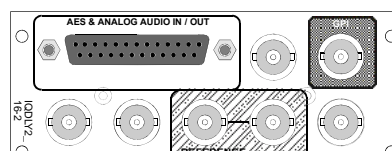

IQDLY2116-2 AES and Analog Audio Delay. Balanced Audio connection via 25 way D type. 2 Analog inputs, 2 AES inputs, 2 Analog outputs, 2 AES outputs and 1 x GPI

For more details on enclosure types please refer to the Frames/Enclosures section

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Inputs & Outputs

Signal Inputs

Unbalanced digital audio ..... 2 x AES/EBU, AC3, Dolby E (BNC)

Balanced digital audio .... 2 x AES/EBU, AC3, Dolby E (25 Way D-Type)

Analog................................. 2 Channels (1 Stereo Pair)

Reference............................ IQDLY21: Composite video / AES/EBU (BNC)
IQDLY20: Composite video (BNC)

Signal Outputs

Unbalanced digital audio ..... 2 x AES/EBU, AC3, Dolby E (BNC)

Balanced digital audio .... 2 x AES/EBU, AC3, Dolby E (25 Way D-Type)

Analog................................. 2 Channels (1 Stereo Pair)

Control Interface

GPI...................................... 1x Closing contact I/O interface (BNC)

Card Edge & RollCall Controls

Card Edge Controls

NONE

Card Edge Indicators

AES Input Present .... 1 x LED per pair

Reference Present

CPU running / Power........... One green LED, flashing = OK

RollCall Functions

Audio Controls

Set line up level .... +20 to –20 dBu in 1 dB steps

Set headroom .... 4 to 24 dB in 1 dB steps

Set audio detector thresholds
High and low levels, time delay

Input audio delay .... Up to 1.5 s additional delay in 1 ms steps

Input side control proc. - audio gain and polarity
Independent Gain, Mute, Polarity control input channels. +18 dB to –18 dB in 0.1 dB steps.

Channel routing .... Output channels routed from Analog inputs 1-2, AES pairs 1 to 4, test tone and silence

Output side control proc. - gain and polarity
Independent Gain, Mute, & Polarity control over output channels. +18 dB to –18 dB in 0.1 dB steps.

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AES and Analog Audio Delay and Shuffler Module

Global delay offset .... up to +1.5 s in 1 ms steps, common to all processed audio.

Variable audio delay control source
Up to 0.5 s from RollTrack + GPI

Tone frequency, amplitude & Ident
2-channel tone generator. 100 Hz to 15 kHz in 100 Hz steps.

Tone Setup:

Frequency .... 100 Hz to 15 kHz in 100 Hz steps

Channel Ident .... 0.5 s interruption every 2 s

Other Controls

User Memories .... Name, clear, save and read 8 user memories

Default Audio Output .... Silence

GPI/O set-up .... May be attached to any memory function/polarity

Reporting (* also Logged)

Audio Silence, High Level, Low Level, Overflow
For processed audio channels only

Audio Delay Setup

Delay .... Audio delay - Fixed, RollTrack + fixed, GPI + Fixed

RollTrack Output

Delay .... Current audio delay

Reference state .... Present, Error, Loss

External Audio state .... Pair present

AES 1-2 .... Loss, Present

GPI .... Low, High, Inactive

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Specifications

Noise Floor .... Better than -100 dBFs (20 Hz to 20 kHz)

Channel Amplitude Matching
Better than ±0.15 dBu

Output Level Accuracy .... Better than ±0.2 dBu

Flatness .... Better than +0.1 dBu to -0.3 dBu (20 Hz to 20 kHz with reference to 1 kHz)

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

Digital Audio Output (Balanced)

Connector/Format .... 25 W D

Level .... 3 V p-p typical into 110 Ohms

Digital Audio Output (Unbalanced)

Connector/Format .... BNC

Analog to Digital audio

Analog Input Impedance ...... 10 k Ohms

Frequency Response .... 20 Hz to 20 kHz (+/- 0.1 dB)

Distortion (THD+N) .... Better than -90 dB, 1kHz@ -1 dBFS

Dynamic range .... > 106 dB

Audio delay .... Equal to video delay + adjustable offset

Digital to Analog audio

Analog Output Impedance
50 Ohms

Frequency Response .... 20 Hz to 20 kHz (+/- 0.1 dB)

Distortion (THD+N) .... Better than -92 dB at 23 dBu, 1kHz@ -1 dBFS

Dynamic range .... > 106 dB

Power Consumption

Module Power Consumption
9.5 W