

# IQBDDAS Digital Audio Distribution Amplifier



## Module Description

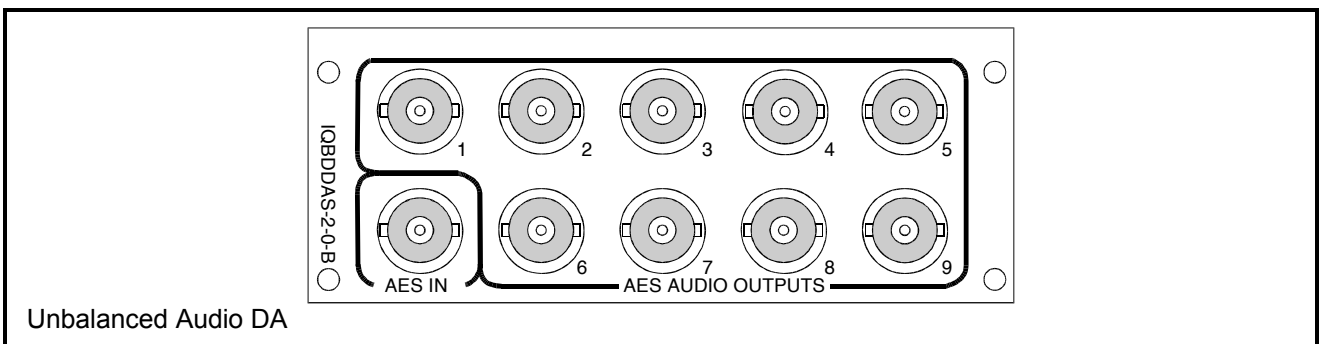
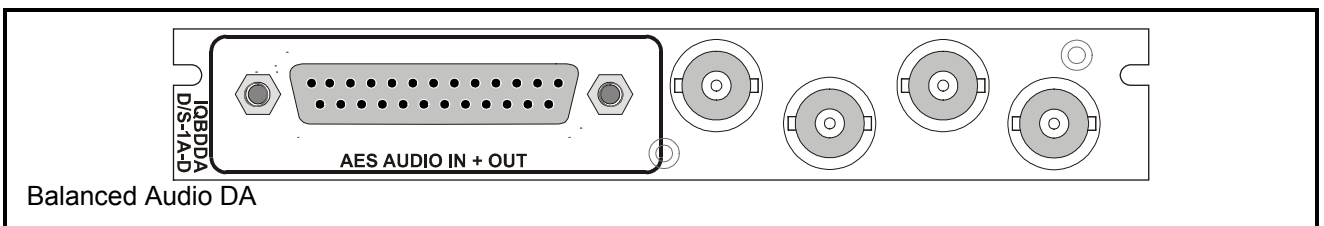
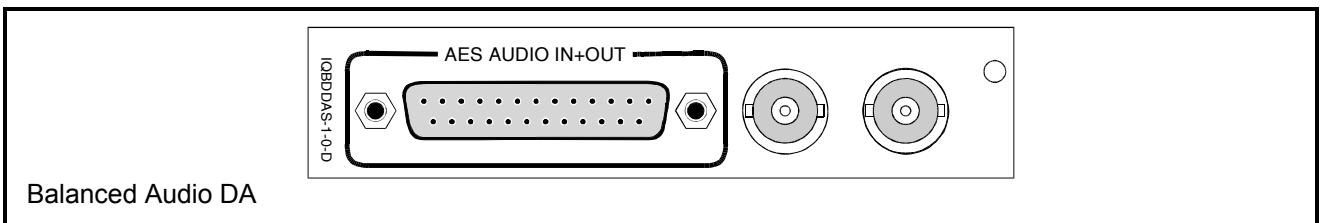
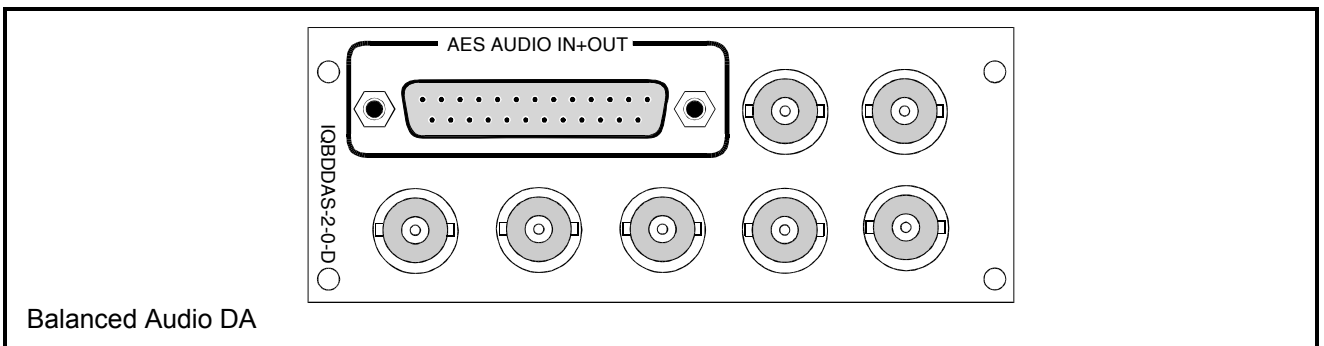
The IQBDDAS digital audio distribution amplifier can receive digital audio from either up to 150m of AES approved cable for balanced inputs or up to 500m of RG59B for unbalanced inputs. Up to 9 reclocked outputs are provided. Digital audio sample rates of 32, 44.1 and 48 kHz are automatically selected, however input sample rates between 25 and 55kHz may be applied.

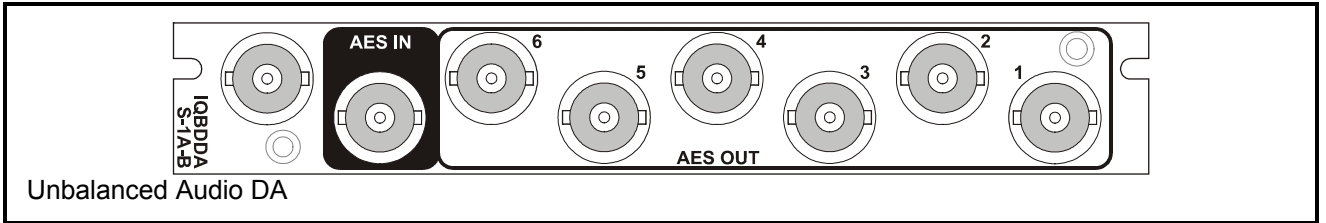
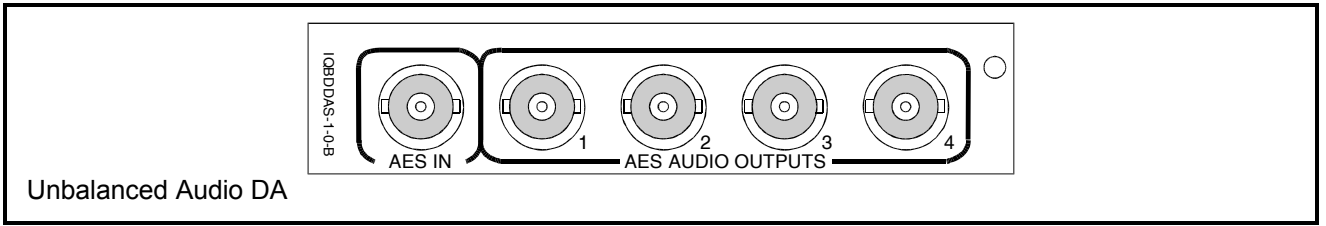
An optional stereo analogue output is available in place of 2 AES outputs for Balanced and 3 AES

outputs for Unbalanced. This employs a High Quality 20-Bit digital to analogue conversion and gives an adjustable output of +18 to +24dBu for Full Scale. With this option a card-edge stereo headphone jack is also provided with an independent volume control.

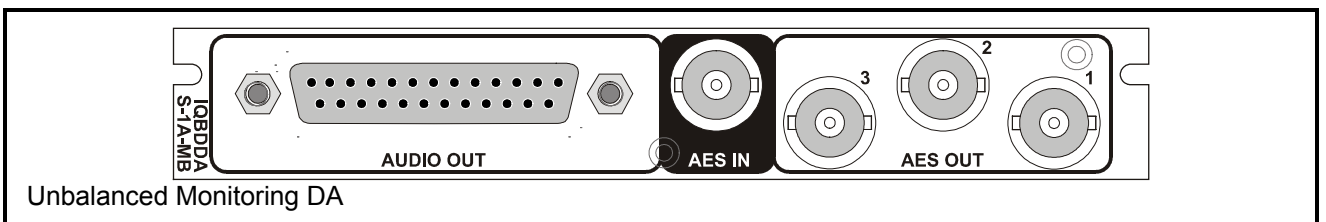
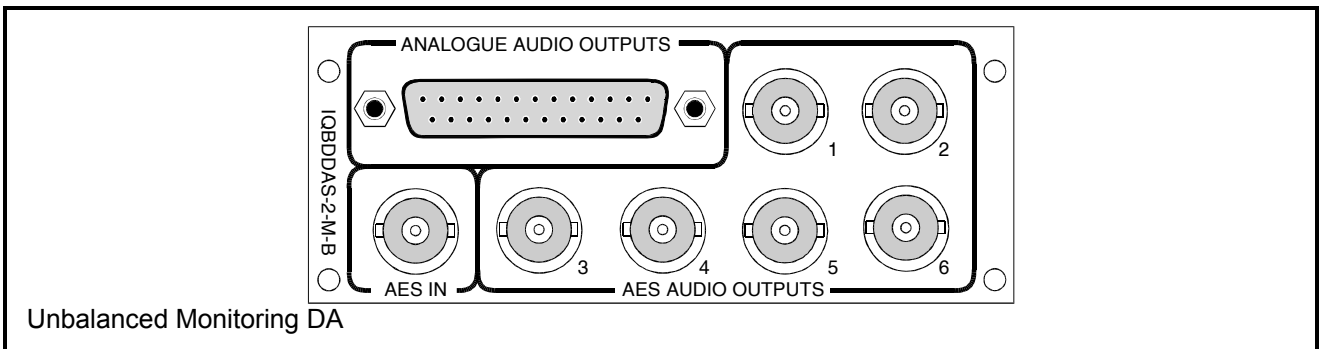
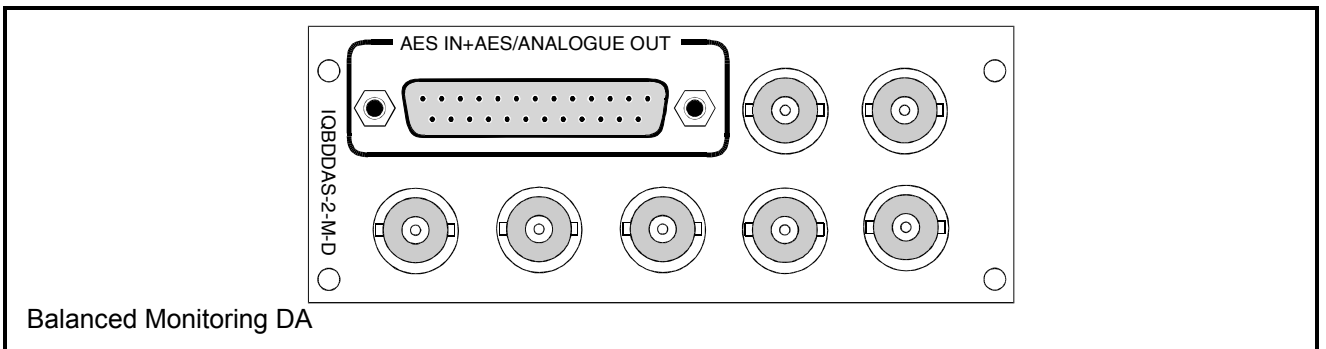
RollCall™ control provides remote input lock detection and sample rate reporting.

## REAR PANEL VIEWS (Audio DA Versions)





REAR PANEL VIEWS (Monitoring DA Versions)



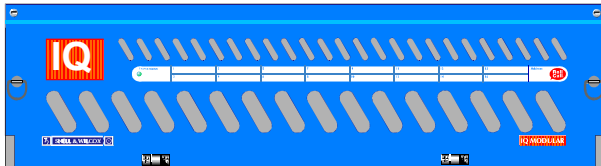
Versions of the module cards available are:

IQBDDAS-1-0-D	AES/EBU AUDIO DA	25 way 'D' connector	Single width module
IQBDDAS-1A-0-D	AES/EBU AUDIO DA	25 way 'D' connector	Single width module
IQBDDAS-2-0-D	AES/EBU AUDIO DA	25 way 'D' connector	Double width module
IQBDDAS-1-0-B	AES/EBU AUDIO DA	BNC connectors	Single width module
IQBDDAS-1A-0-B	AES/EBU AUDIO DA	BNC connectors	Single width module
IQBDDAS-2-0-B	AES/EBU AUDIO DA	BNC connectors	Double width module
IQBDDAS-2-M-D	AES/EBU MONITORING DA	25 way 'D' connector	Double width module
IQBDDAS-1A-M-B	AES/EBU MONITORING DA	BNC connectors	Single width module
IQBDDAS-2-M-B	AES/EBU MONITORING DA	BNC connectors	Double width module

**Note that there are two styles of rear panels available. They are not interchangeable between the two styles of enclosures. However, the cards may be fitted into any style of enclosure.**

**'A' Style Enclosure**

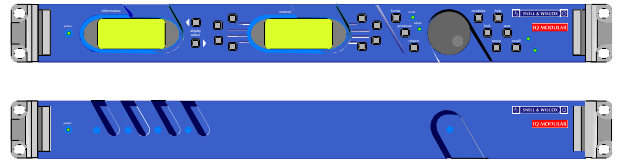
Rear panels **with** the suffix A may only be fitted into the 'A' style enclosure shown below.



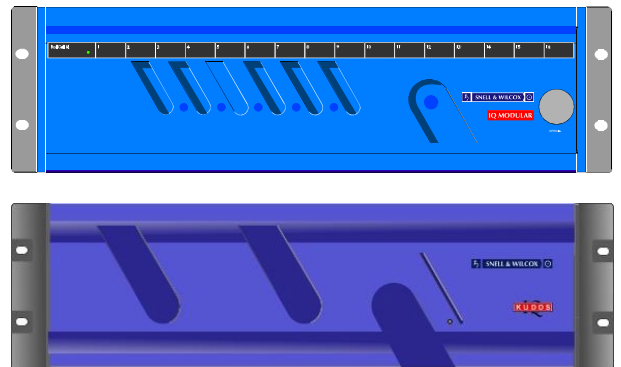
(Enclosure order codes IQH3A-E-O, IQH3A-E-P, IQH3A-N-O, IQH3A-N-P)

**'O' Style Enclosures**

Rear panels **without** the suffix A may only be fitted into the 'O' style enclosures shown below.

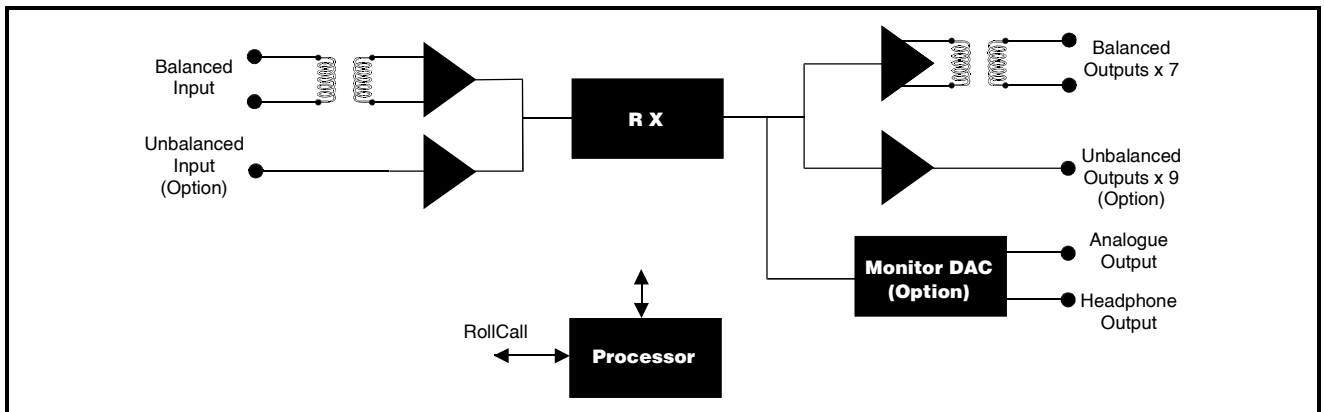


(Enclosure order codes IQH1S-RC-O, IQH1S-RC-AP, IQH1U-RC-O, IQH1U-RC-AP, Kudos Plus Products)



(Enclosure order codes IQH3N-O, IQH3N-P)

## BLOCK DIAGRAM



## Features

- Can receive digital audio from up to 150 m of AES cable (balanced inputs) or 500 m of RG59B or equivalent cable (unbalanced inputs)
- Automatic 32, 44.1 and 48 kHz operation
- 7 reclocked transformer coupled balanced outputs
- Optional 9(6,4) reclocked transformerless unbalanced outputs
- Unbalanced version is Dolby E compliant
- 1 transformer coupled balanced input
- Optional transformerless unbalanced input
- Optional monitor analog output and headphone output
- Channel status monitoring
- RollCall reporting of input lock

TECHNICAL PROFILE

Features

**Signal Inputs**

Digital Audio Input..... 2 Channels (1 Pair)  
Standards ..... AES3–1992

**Signal Outputs**

Digital Audio (Balanced)..... 7 (5 with Monitor output option) x  
Serial Digital  
Digital Audio (Unbalanced). Up to 9 (6 with Monitor output  
option) x Serial Digital  
Analog Audio ..... 1 x Stereo (option)  
Headphone (card edge) ..... 1 x Stereo via 3.5 mm jack (option)  
Standards ..... AES3–1992

Specification

Input Impedance ..... Balanced 110 Ohm  
Unbalanced 75 Ohm  
Sampling Frequency Range 25 – 55 kHz (50 kHz Max with  
monitor output option)  
Cable Length ..... Balanced, > 150 m of AES3 Cable  
Unbalanced, up to 500 m of RG59  
or Equivalent  
Output Impedance ..... Balanced 110 Ohm  
Unbalanced 75 Ohm  
Output Signal level..... Balanced 3 V pk to pk typical  
Unbalanced 1 V ±0.1 V pk to pk  
Analog Audio Output Level Level Adjustable +18 to +24 dBu  
for Full Scale  
Analog Output Impedance . 50 Ohm  
Analog THD+N at +18 dBu Better than –92 dB at 700 Hz,  
0 dBFS  
Analog THD+N at +24 dBu Better than –94 dB at 700 Hz,  
0 dBFS

Headphone Output Level ... 5 V pk to pk (max)  
Headphone THD+N @ 0 dB into 160 Ohms  
Better than 0.07% at 700 Hz,  
0 dBFS  
Headphone Impedance ..... 32 - 600 Ohms  
Headphone Jack Type ..... 3.5 mm Stereo Jack socket

**Performance**

Insertion Delay ..... < 600 ns  
Re-clocking Yes

**Power Consumption**

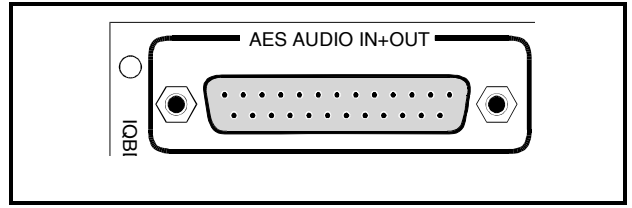
Module Power Consumption  
1.8W max (-0 version)  
4.4W max (-M version)

INPUTS AND OUTPUTS

(-D versions)

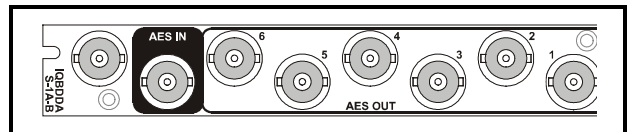
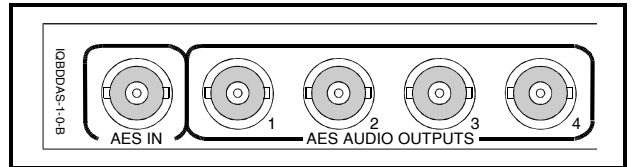
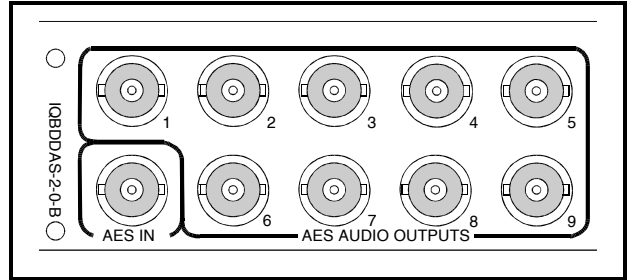
All AES input and output connections are made via this 25 way female D-type connector.

For connection data consult the tables on page 5.



(-B versions)

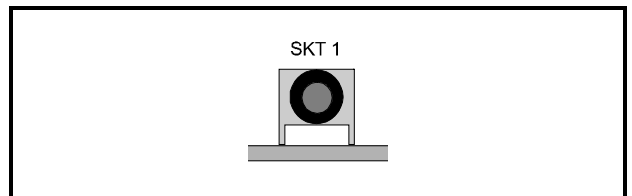
All AES input and output connections are made via these BNC connectors.



SKT1

This socket is a stereo headphone monitoring output suitable for headphones having an impedance of between 32 to 600 Ohms fitted with a 3.5 mm stereo plug.

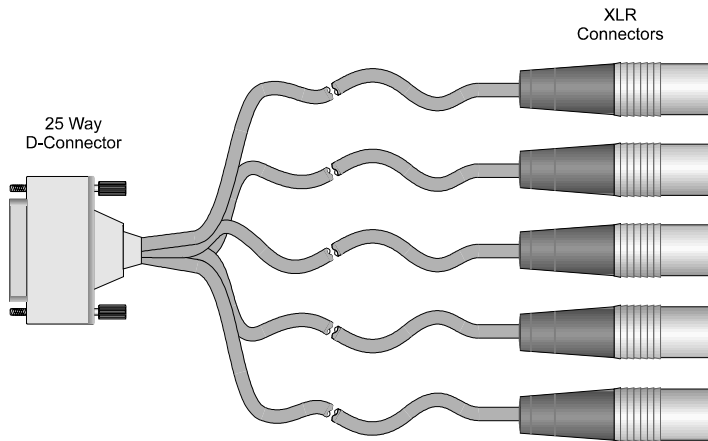
The volume may be adjusted via the menu system of the active front panel or by using the up/down push buttons on the card edge.



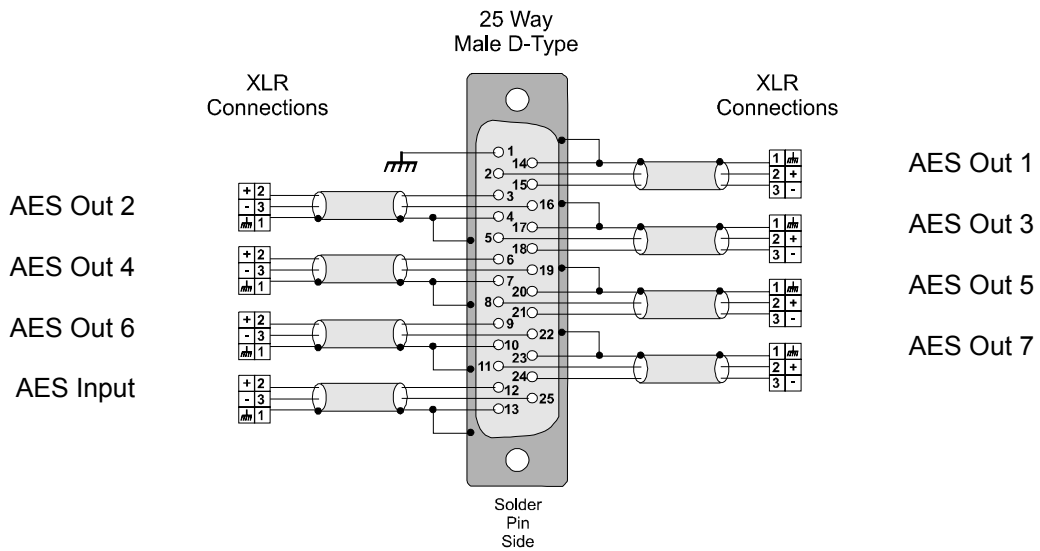
## Connection Details

25 Way D Connector Pin Number	Description –0-D AUDIO DA	Description –M-D MONITORING DA	Description -M-B MONITORING DA	Standard Pin Assignment
1				CHASSIS
14	AES OUT 1 Ground	AES OUT 1 Ground		GND1
2	AES OUT 1 +	AES OUT 1 +		1+
15	AES OUT 1 -	AES OUT 1 -		1-
3	AES OUT 2 +	AES OUT 2 +		2+
16	AES OUT 2 -	AES OUT 2 -		2-
4	AES OUT 2 Ground	AES OUT 2 Ground		GND2
17	AES OUT 3 Ground	AES OUT 3 Ground		GND3
5	AES OUT 3 +	AES OUT 3 +		3+
18	AES OUT 3 -	AES OUT 3 -		3-
6	AES OUT 4 +	Analog OUT R +	Analog OUT R +	4+
19	AES OUT 4 -	Analog OUT R -	Analog OUT R -	4-
7	AES OUT 4 Ground	Analog R Ground	Analog R Ground	GND4
20	AES OUT 5 Ground	Analog L Ground	Analog L Ground	GND5
8	AES OUT 5 +	Analog OUT L +	Analog OUT L +	5+
21	AES OUT 5 -	Analog OUT L -	Analog OUT L -	5-
9	AES OUT 6 +	AES OUT 4 +		6+
22	AES OUT 6 -	AES OUT 4 -		6-
10	AES OUT 6 Ground	AES OUT 4 Ground		GND6
23	AES OUT 7 Ground	AES OUT 5 Ground		GND7
11	AES OUT 7 +	AES OUT 5 +		7+
24	AES OUT 7 -	AES OUT 5 -		7-
12	AES IN+	AES IN +		8+
25	AES IN -	AES IN -		8-
13	AES IN Ground	AES IN Ground		GND8

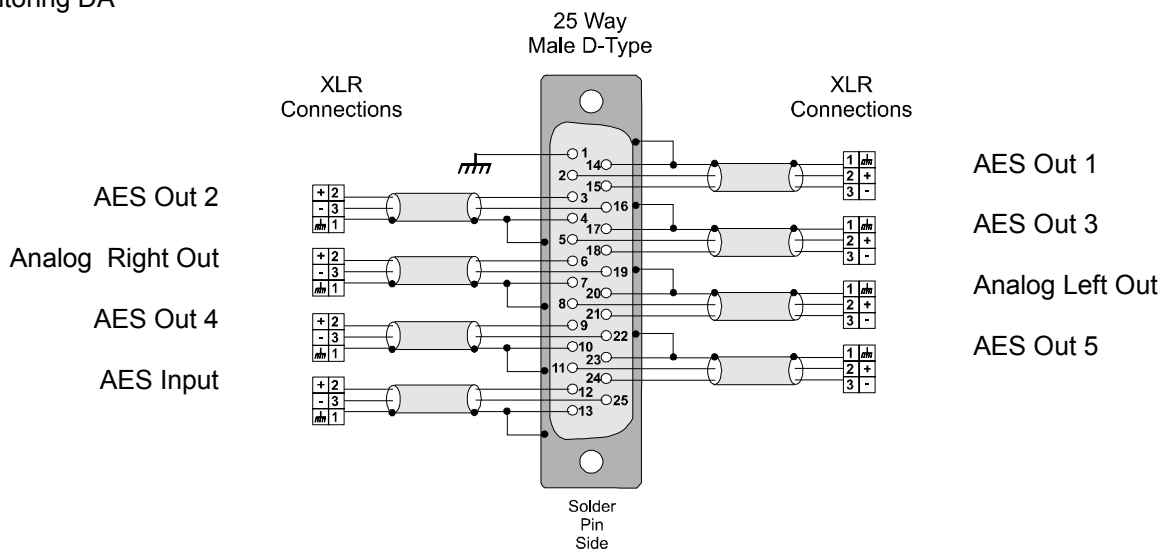
Example of Connection Details to XLR Connectors (-D versions)



Audio DA

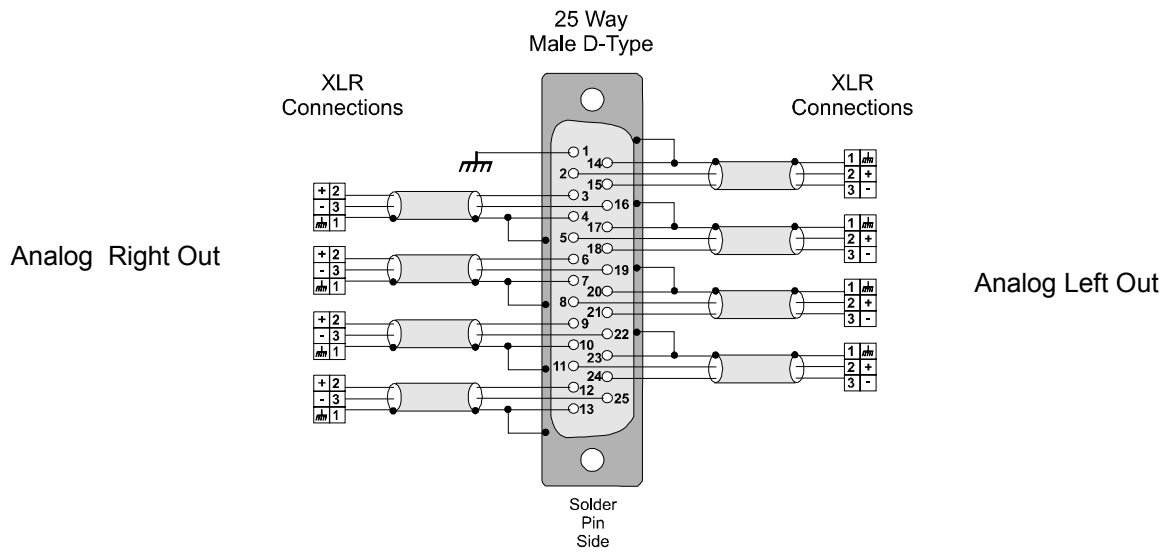


Monitoring DA

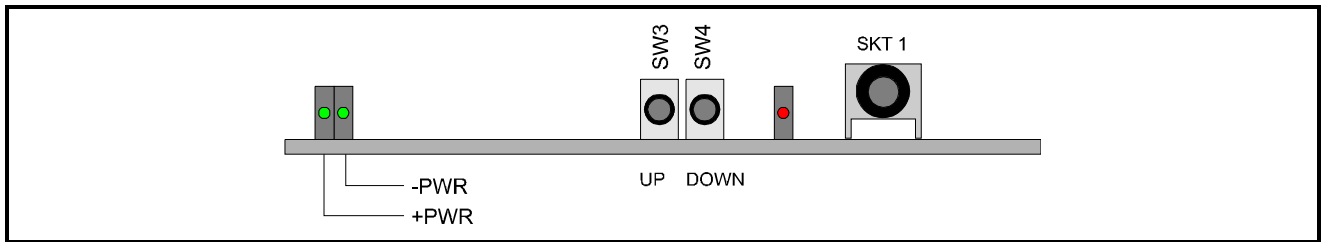




Monitoring DA –B version



CARD EDGE CONTROLS

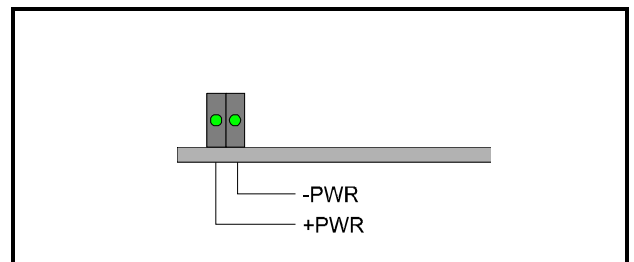


Adjustment of the settings of the **IQBDDAS** is available either via card edge controls and/or via a more comprehensive remote control system using RollCall™

LED INDICATORS

**Power**

These two indicators are illuminated when the positive and negative supplies are present.



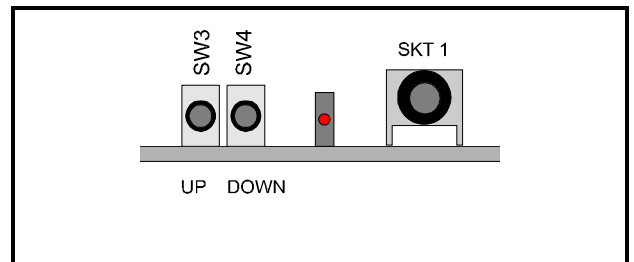
HEADPHONE MONITORING OPTION

**SW3 and SW4**

These push buttons allow the headphone (connected to SKT1) volume to be adjusted.

SW3 increases the volume and SW4 decreases the volume. Adjustment range is from -60dB to 0dB in steps of 1 dB (momentary pushes) or in steps of 2 dB if a button is held down continuously for more than 2 seconds.

To return to the default (preset) value of -12 dB both buttons should be pushed together.

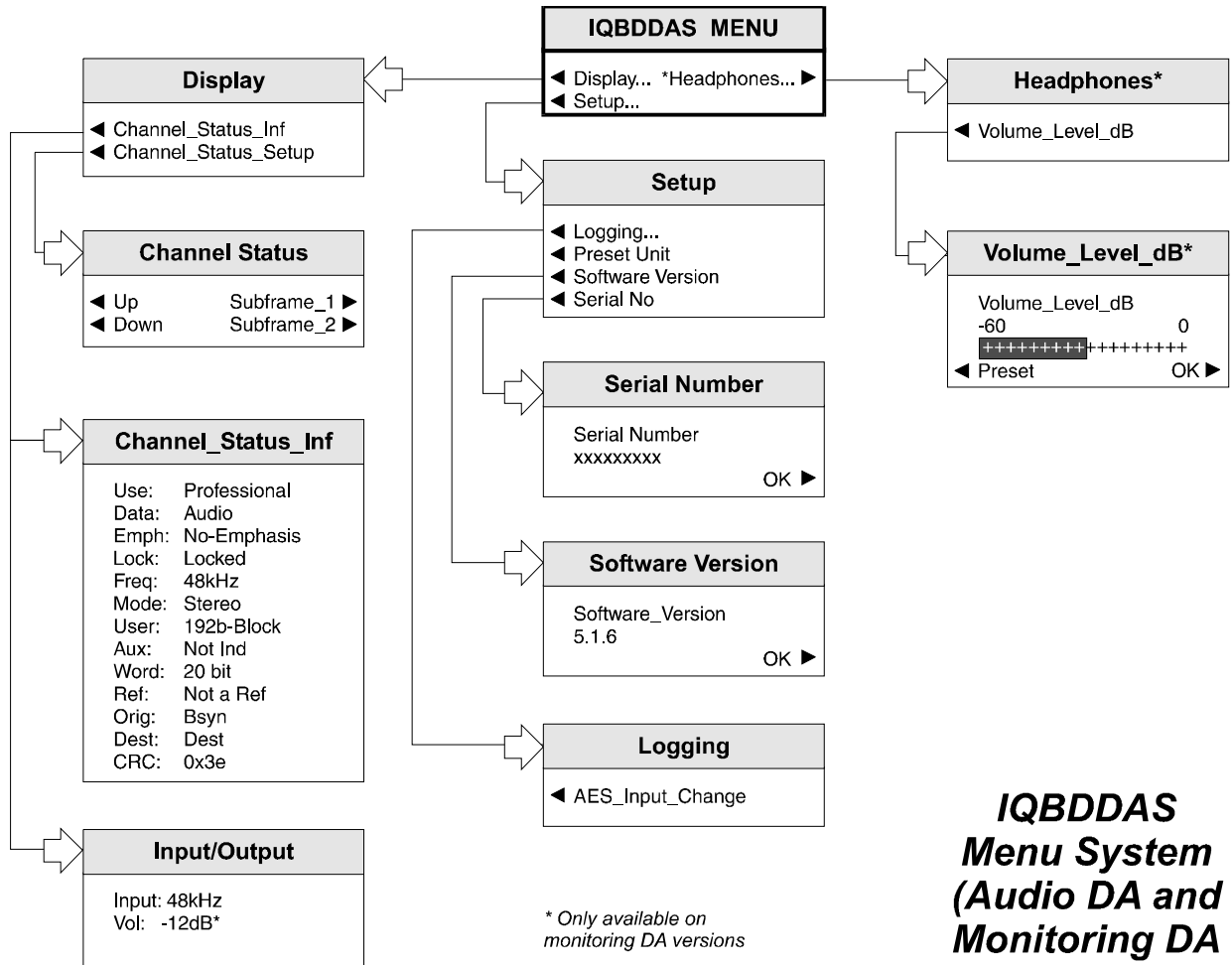


**Red LED**

This LED will become illuminated if input errors are detected.

Any of the following types of input errors will activate this LED:

- Input Lock
- Parity error
- Validity or Confidence error



***IQBDDAS  
Menu System  
(Audio DA and  
Monitoring DA***

OPERATION FROM AN ACTIVE CONTROL PANEL

The card may be operated with an active control panel via the RollCall™ network.

The menus available for this card are shown on page opposite and will appear in the Control display window.

Operational details for the remote control panel will be found in SECTION 1 of the Modular System Operator's Manual.

**MENU DETAILS**

(see IQBDDAS Menu System Opposite)

**MAIN MENU**

The main, or top level menu allows various sub-menus to be selected by pressing the button adjacent to the required text line.

Note that where a menu item is followed by three dots (...) this indicates that a further sub-menu may be selected.

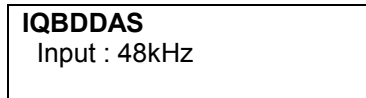
Whenever a menu item is selected the parameters of that selection will be displayed in the Information window of the front panel. Where the selection is purely a mode selection and does not enable a sub-menu, the text will become reversed (white-on-black) indicating that the mode is active. If the mode is not available for selection the text will remain normal.

**◀ DISPLAY**

This item allows information about the channel status to be seen.

**◀ Channel\_Status\_Inf**

If this item **is not selected** the input sampling rate will be displayed.

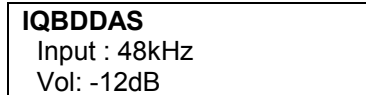


Note that if the input is locked but the sampling rate is not of the recognised standard then "??" will be displayed.

If no input has been detected "\*\*" will be displayed.

**Monitoring DA version**

Additional information will be displayed:



(Vol indicates the present headphone volume level)

If this item **is selected** it will display information about the channel status, examples of which are shown below:

- Use: Professional/ Consumer
- Data: Audio/Non-Audio
- Emph: No-Emphasis/Not Ind/50/15µs/CCIT J.17
- Lock: Locked/Unlocked
- Freq: 48kHz/44.1kHz/32kHz/Not Ind
- Mode: Stereo/Monaural/2-Channel/Pri/Sec/Not Ind
- User: HDLC/192b-Block/User/Not Ind
- Aux: Not Ind/TalkBack/Main Audio
- Word: 24/ bits/23 bits/22 bits/21 bits/20 bits/19 bits/18 bits/17 bits/16 bits
- Ref: Not a Ref/Grade 2/Grade 1
- Orig: Bsyn
- Dest: Dest
- CRC: 0x3e

**◀ Channel\_Status\_Setup**

Selecting this window will reveal a sub-menu which will allow the channel status information for the input sub-frames 1 and 2 to be viewed.



*Note that the Up and Down push button selections should be used for this function as the spinwheel will not be operational.*

**Headphones ▶**

(Monitoring DA only)

This item allows the volume level for the headphones (connected via the 3.5 mm socket on the card edge) to be adjusted.

**◀ Volume\_Level\_dB**

The spinwheel should be used to make the adjustment.

A bargraph type display indicates the volume level in dB; the numerical value will also be indicated.

The adjustment range is from -60 dB to 0 dB in steps of 1dB.

Preset value is -12dB.

**◀ SETUP**

This selection reveals a sub-menu that allows the following functions to be set up:

**◀ Logging**

If a logging device is attached to the RollCall™ network, information about various parameters will be reported to the logging device assigned in the Remote Control Interface system. (See Section 1, The RCIF Menu System)

The parameters that may be selected for logging are as follows:

- AES Input Change

**◀ Preset Unit**

Selecting this item sets all adjustment functions that include a preset facility, to their preset values. Note that this is a momentary action and the text will not become reversed

**◀ Software Version**

Selecting this item reveals a display showing the version of the software fitted in the module. Select OK to return to the System Menu.

**◀ Serial Number**

Selecting this item reveals a display showing the serial number of the module. Select OK to return to the System Menu.

