

IQBDAC-N 2 Channel Audio D to A Converter

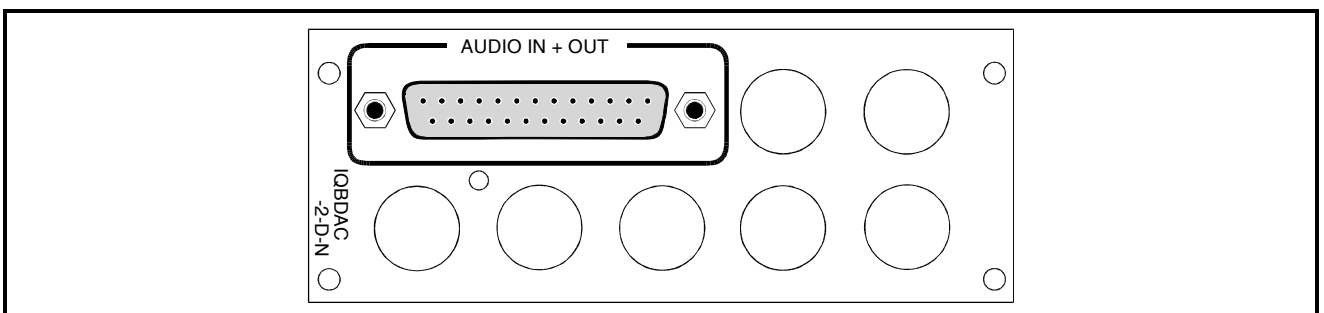
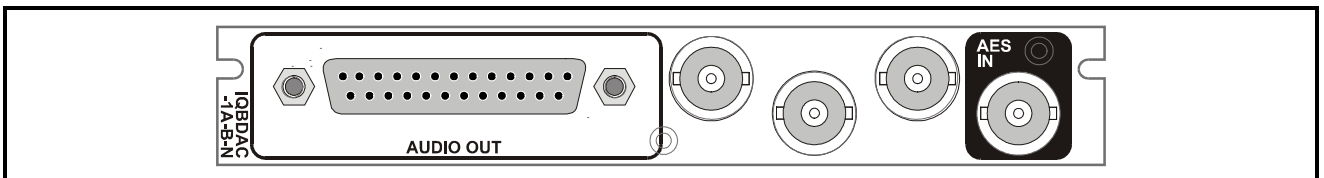
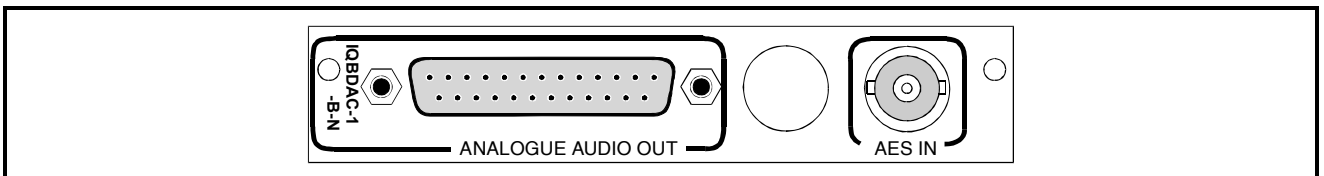
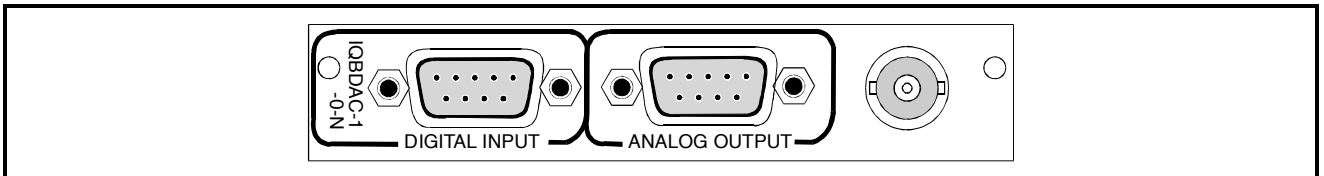
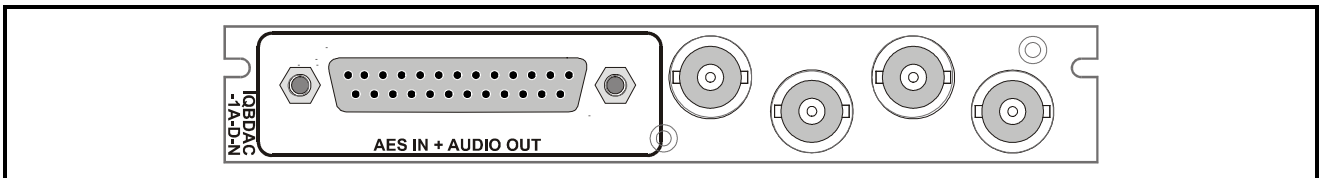
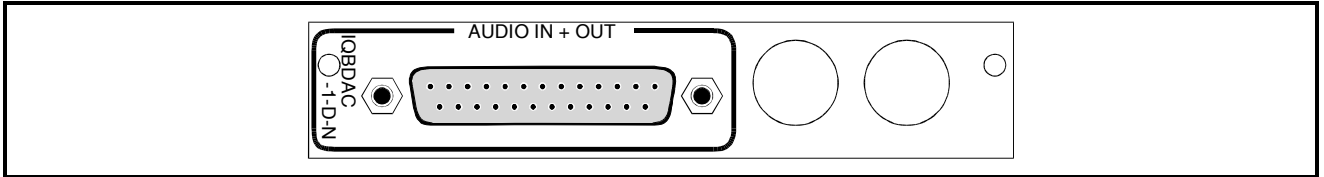


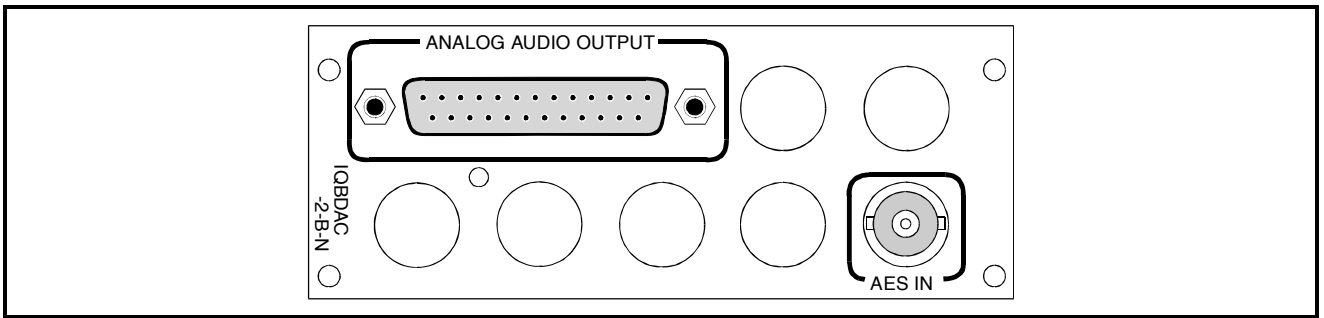
Module Description

The IQBDAC-N converts an AES/EBU audio stream into two analog channels with 20-bit resolution. A precision attenuator permits operation at +18, +21 or +24 dB (15, 18 or 21 dB –G

versions). Operation is at sample rates of 32 kHz, 44.1 kHz or 48 kHz and a dual crystal locked PLL ensures low clock jitter.

REAR PANEL VIEWS

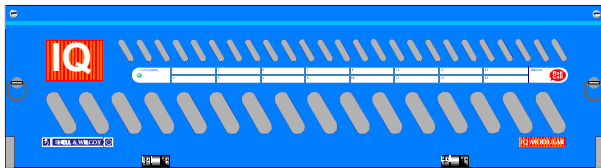




Note that there are two styles of rear panels available. They are not interchangeable between the two styles of enclosures. However, the cards may be fitted into any style of enclosure.

'A' Style Enclosure

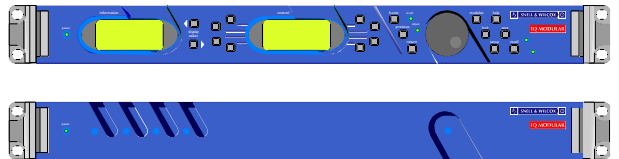
Rear panels **with** the suffix A may only be fitted into the 'A' style enclosure shown below.



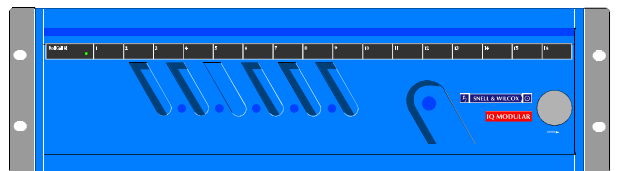
(Enclosure order codes IQH3A-E-0, IQH3A-E-P, IQH3A-0-0, IQH3A-0-P)

'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-0, IQH1S-RC-AP, IQH1U-RC-0, IQH1U-RC-AP, Kudos Plus Products)



(Enclosure order codes IQH3N-0, IQH3N-P)



(Enclosure order codes IQH3U-RC-0, IQH3U-RC-P)

This manual covers the following versions of the IQBDAC-N:

IQBDAC-1A-B-NG Audio DAC, BNC+BNC. (Special attenuator settings) Unbalanced. 2 outputs.

IQBDAC-1A-D-N Audio DAC, DB25. Balanced. 2 outputs.

IQBDAC-1A-N-G Audio DAC, DB25. (Special attenuator settings) Balanced. 2 outputs.

IQBDAC-1-0-N Audio DAC, DB9. Balanced. 1 output.

IQBDAC-1-0-N Audio DAC, DB9. Balanced. 1 output.

IQBDAC-1-B-N Audio DAC, BNC+BNC. Unbalanced. 2 outputs.

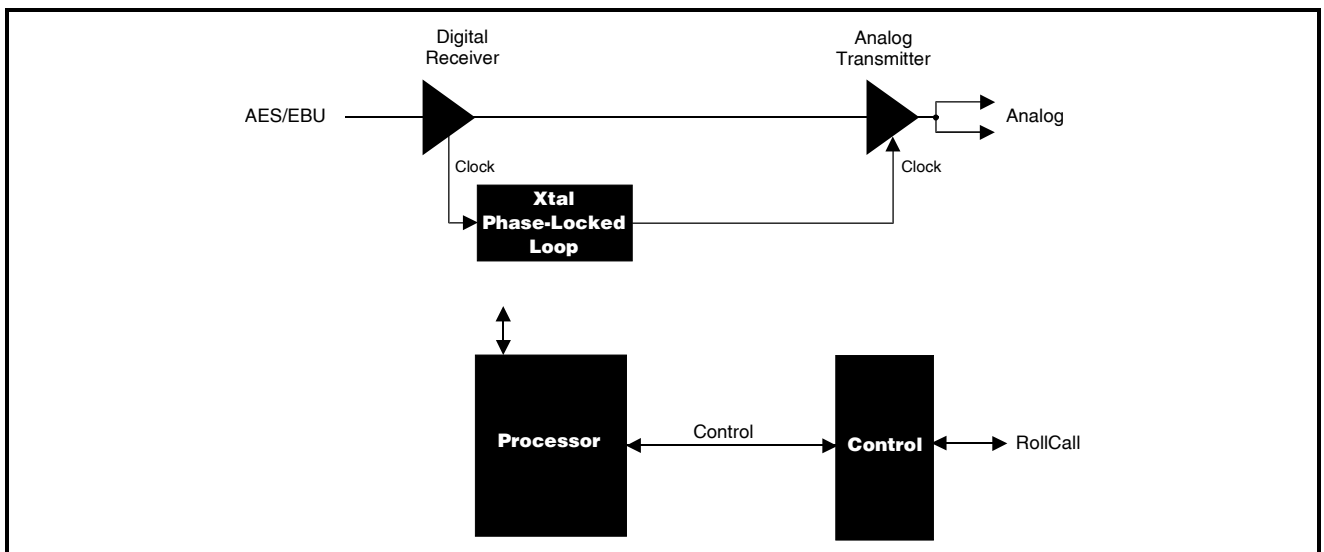
IQBDAC-1-B-NG Audio DAC, BNC+BNC. (Special attenuator settings) Unbalanced. 2 outputs.

IQBDAC-1-D-N Audio DAC, DB25. Balanced. 2 outputs.

IQBDAC-1-N-G Audio DAC, DB25. (Special attenuator settings) Balanced. 2 outputs.

Note: All balanced connections made via D type connectors
 All unbalanced connections made via BNC connectors
 All analog outputs are balanced

Block Diagram



Features

20-bit sampling resolution

- Operates at 32, 44.1 and 48 kHz
- Headroom set to +18 , +21 or +24 dBu
- Dual PLL design for low jitter
- Two (1st output repeated) stereo pair balanced outputs (25D rear only)
- Overflow indication
- RollCall control and monitoring

TECHNICAL PROFILE

Features**Signal Inputs**

Digital.....	2 Channels (1 Stereo Pair) 1 Balanced AES/EBU Channel (-D Versions) 1 Unbalanced (-B Versions) BNC
Standards	AES3-1992

Signal Outputs

Analog	2x2 Channels (2 Stereo Pair) 1 Channel (1 Stereo Pair - 0 Versions)
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Card Edge Controls (also available via RollCall)

Analog Attenuator	3 Ranges
Mute.....	On/Off

Functions Available via RollCall™ Only

Reporting and Logging	Digital Input Presence Digital Input Sample Rate Overflow
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Specifications

Digital Input (Balanced).....	Level 0.2 V to 7 V pk to pk into 110 ohms Cable length greater than 150 m (Using 110 ohm AES recommended cable)
Digital Input (Unbalanced)..	Cable length greater than 500 m of RG59 or equivalent
Headroom Ranges.....	18 dBu (8.8 V pk to pk) 21 dBu (12.3 V pk to pk) 24 dBu (17.5 V pk to pk)
Digital Path	32 kHz, 44.1 kHz and 48 kHz 20-bit
Analog Output Impedance .	50 ohms

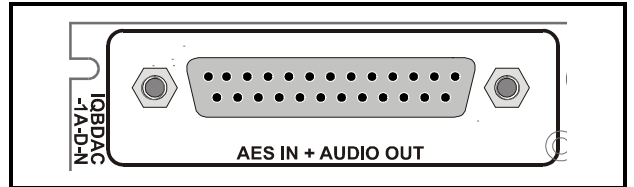
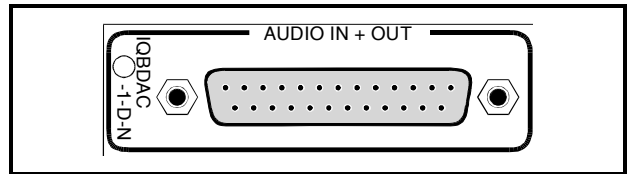
Total Harmonic Distortion+Noise	Less than 0.004% at 700 Hz and -1dBFs
Noise Floor.....	Better than -101 dBFs (20 Hz to 20 kHz)
Channel Amplitude Matching	Better than ±0.1 dBu
Output Level Accuracy	Better than ±0.15 dBu
Flatness	Better than +0.1 dBu to -0.2 dBu (20 Hz to 20 kHz with reference to 1 kHz)
Power Consumption	
Module Power Consumption	5.8 W max

INPUT AND OUTPUTS

-D Versions

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

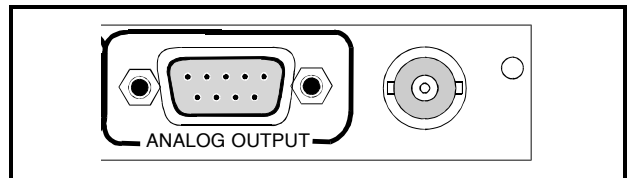
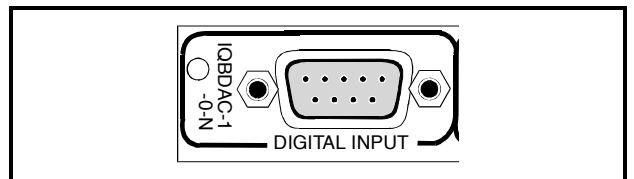
For connection data consult the tables on page 7.



-0 Versions

All digital and analogue input and output connections are made via 9 way female D-type connectors.

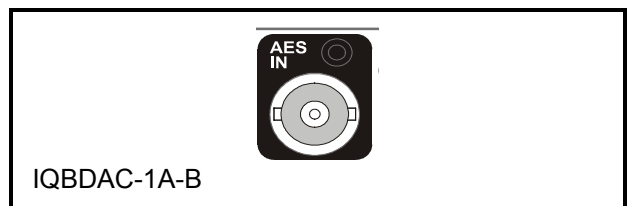
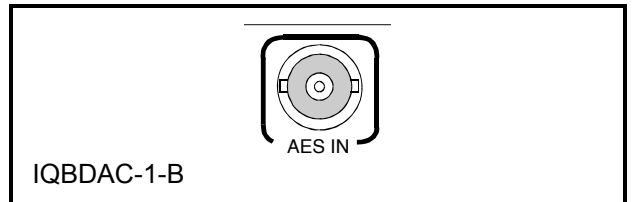
For connection data consult the tables on page 7.



Note that the BNC connector on this panel has no function.

-B Versions

This BNC connector accepts an unbalanced AES input.



Note that any other connectors on these modules have no function and connections should not be made to them.

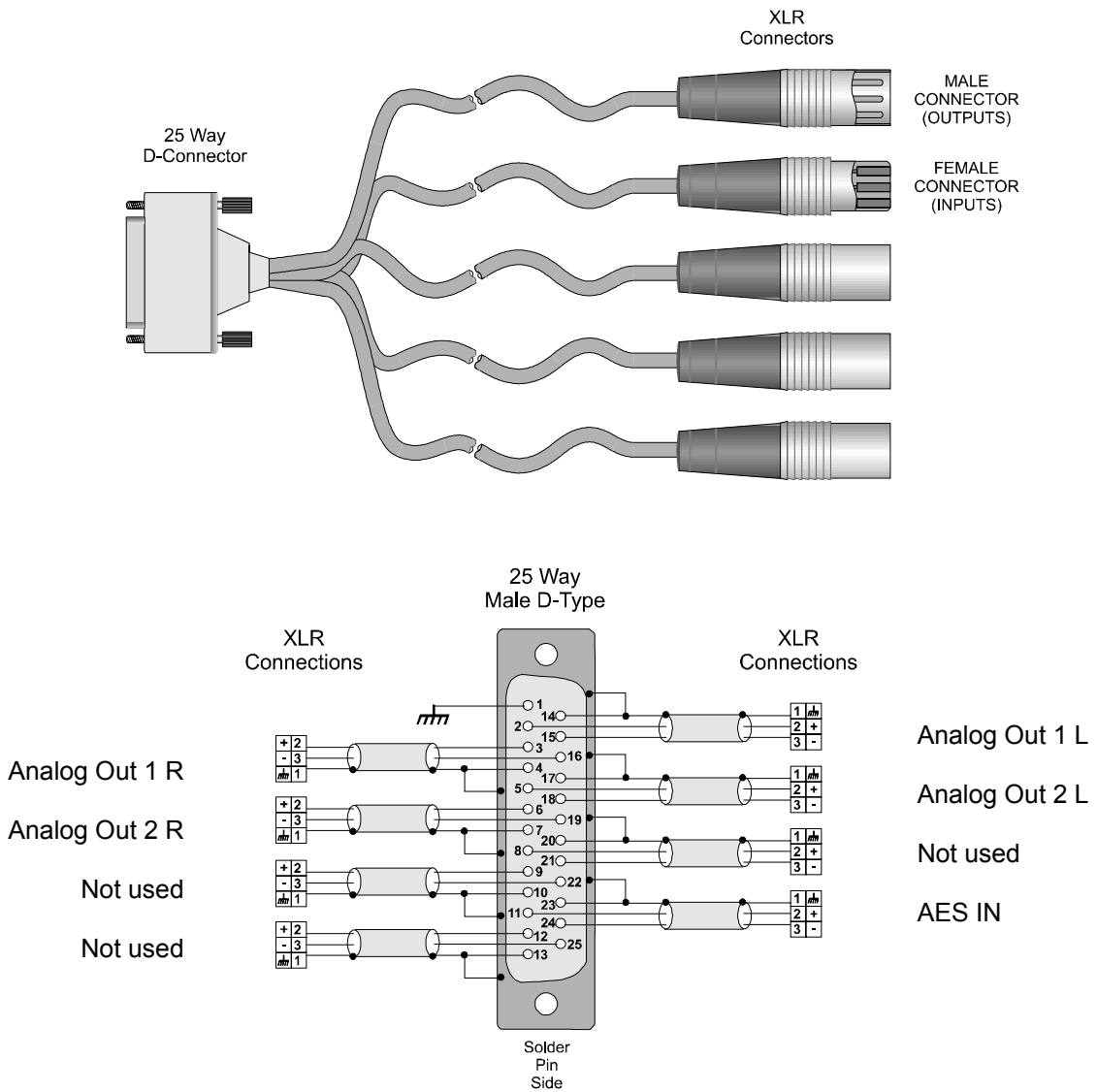
Connection Details

25 Way D Connector Pin Number	Description	Ribbon Cable Strand Number	Standard Pin Assignment
1		1	CHASSIS
14		2	GND1
2	ANALOG OUT 1 Left+	3	1+
15	ANALOG OUT 1 Left-	4	1-
3	ANALOG OUT 1 Right+	5	2+
16	ANALOG OUT 1 Right-	6	2-
4		7	GND2
17		8	GND3
5	ANALOG OUT 2 Left+	9	3+
18	ANALOG OUT 2 Left-	10	3-
6	ANALOG OUT 2 Right+	11	4+
19	ANALOG OUT 2 Right-	12	4-
7		13	GND4 (CH)
20		14	GND5
8		15	5+
21		16	5-
9		17	6+
22		18	6-
10		19	GND6
23		20	GND7
11	AES IN +	21	7+
24	AES IN -	22	7-
12		23	8+
25		24	8-
13		25	GND8

Note: When assembling cables connect pin 13 of the D-Type to pin 7 of the D-Type to ensure the signal ground and chassis ground are connected.

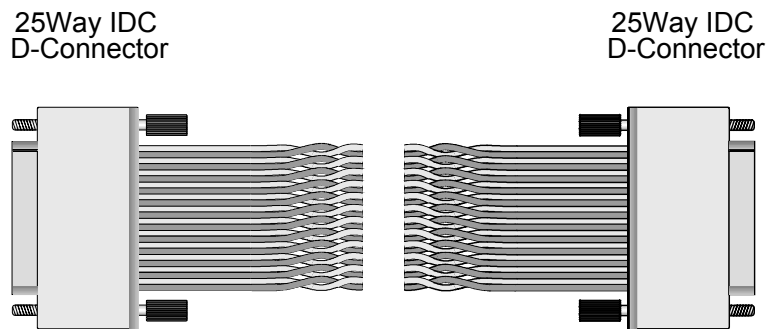
9 Way D Connector Pin Number	Description	Ribbon Cable Strand Number	Standard Pin Assignment
INPUT:			
1		1	CH
6	DIGITAL IN GND	2	GND1
2	AES IN +	3	1+
7	AES IN -	4	1-
3		5	2+
8		6	2-
4		7	GND2
9		8	CH
5		9	CH
OUTPUT:			
1		1	CH
6	ANALOG OUT 1 Left GND	2	GND1
2	ANALOG OUT 1 Left +	3	1+
7	ANALOG OUT 1 Left -	4	1-
3	ANALOG OUT 2 Right +	5	2+
8	ANALOG OUT 2 Right -	6	2-
4	ANALOG OUT 2 Right GND	7	GND2
9		8	CH
5		9	CH

Connection Details to XLR Connectors

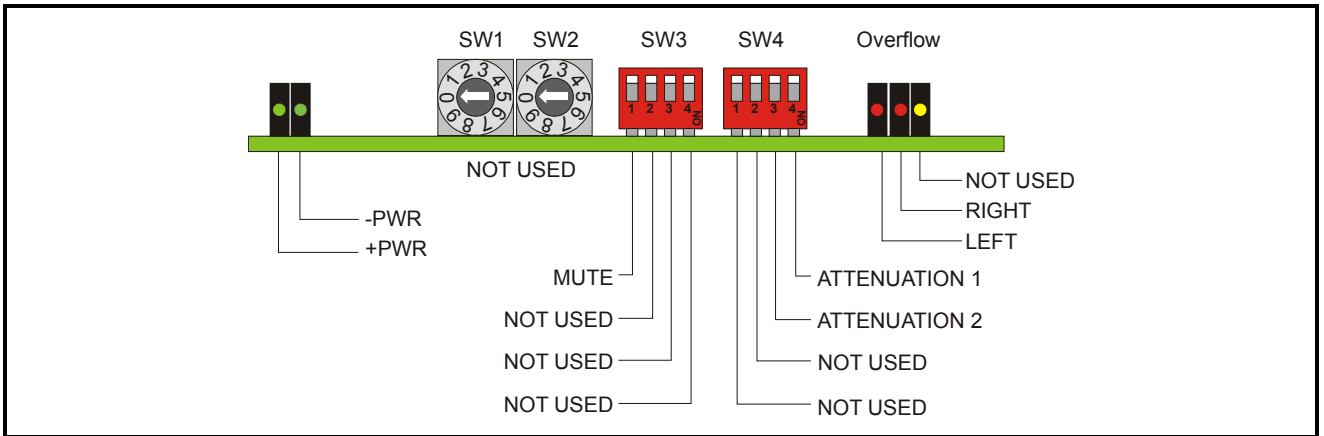


Note: When assembling cables connect pin 13 of the D-Type to pin 7 of the D-Type to ensure the signal ground and chassis ground are connected.

Connection Details via IDC connectors



CARD EDGE CONTROLS



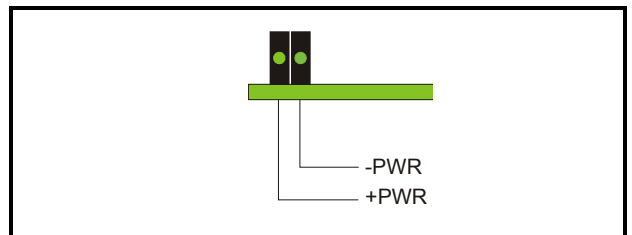
Adjustment of the settings of the **IQBDAC-N** is available either via card edge controls and/or via a more comprehensive remote control system using RollCall™

Note that the availability of some of the card edge controls will depend on the card version; see feature table for variations.

LED INDICATORS

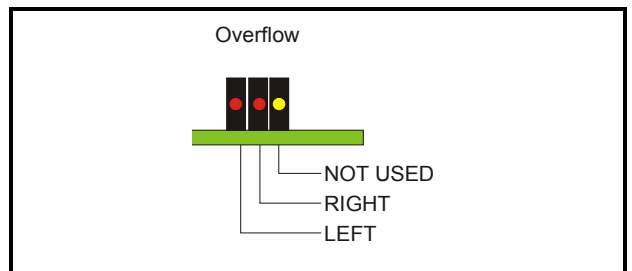
Power

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



Overflow

These three indicators are illuminated when the peak digital value is detected on the Right and Left channels.



SW3

Setting to the down (ON) position enables the function.

- Position 1 Enables the Mute function
- Position 2 Not used
- Position 3 Not used
- Position 4 Not used

SW4

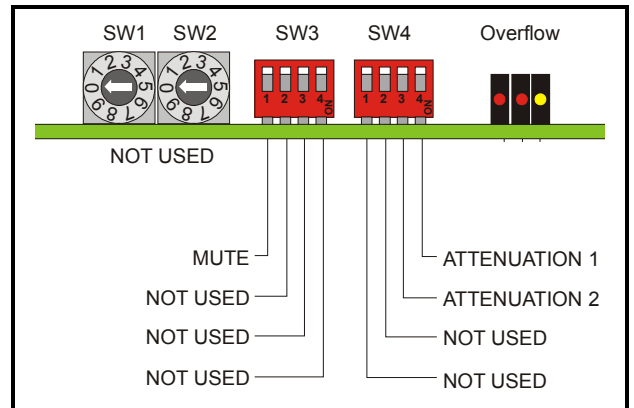
This switch will allow **Attenuation** settings to be made using positions 3 and 4.

Attenuation	Position 3	Position 4
18 dBu	ON	ON
21 dBu	ON	OFF
24 dBu	OFF	ON
18dBu	OFF	OFF

-G Versions Only

Attenuation	Position 3	Position 4
15 dBu	ON	ON
21 dBu	ON	OFF
21 dBu	OFF	ON
15dBu	OFF	OFF

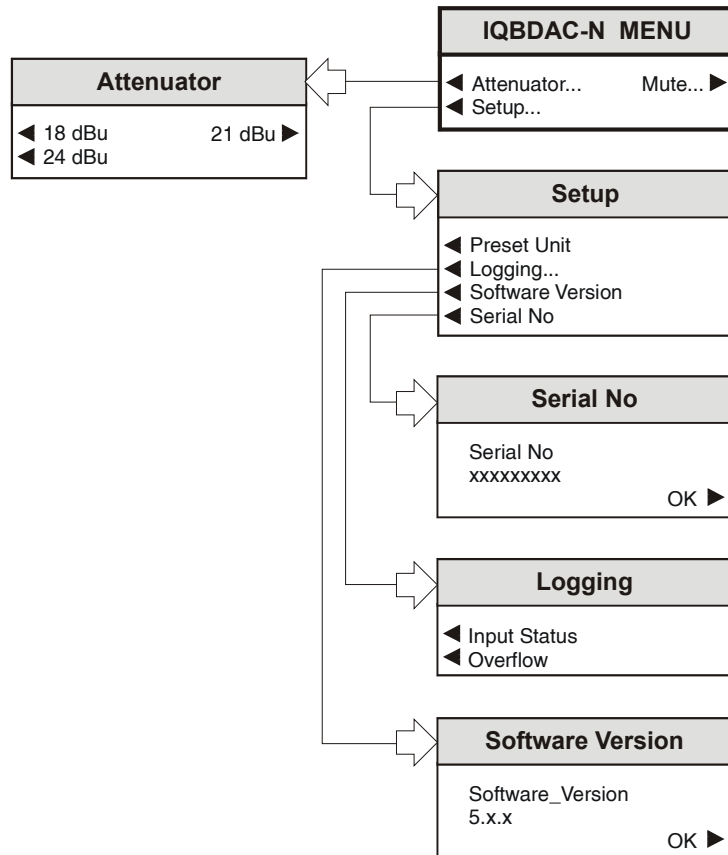
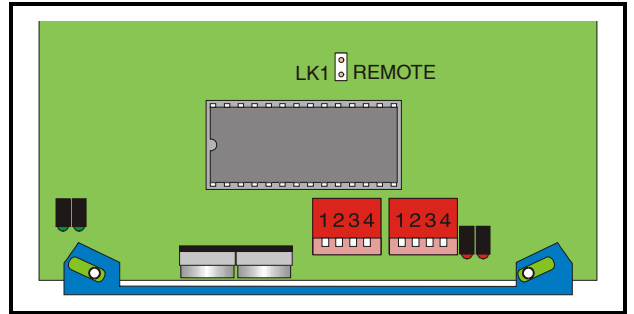
- Position 1 Not used
- Position 2 Not used



LK1 REMOTE

Note that the unit will respond to both local and remote control, one system overriding the settings of the other. For cards using the RollCall™ remote control system, activating SW3 and SW4 will override the remote control settings. The RollCall™ control panel will then follow these selections.

Note that in Mainframes where RollCall™ is not available the link LK1 (Remote) located near the front of the card, should be set to the OFF (unconnected) position. This ensures that when the unit is powered-up the factory default settings of parameters not available as card edge adjustments, are loaded. With the link in the ON (connected) position card will power-up with the last settings sent by the remote control panel.



***IQBDAC-N
Menu System***

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 the previous page and will appear in the Control display window.

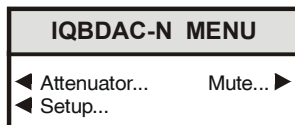
Operational details for the remote control panel will be found in SECTION 1 of the Modular System Operator's Manual.

MENU DETAILS

(see IQBDAC Menu System Drawing)

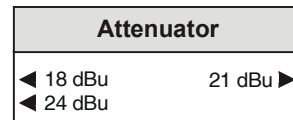
MAIN MENU

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.

◀ Attenuator

This sub-menu allows the headroom to be set to 18 dBu, 21 dBu and 24 dBu. Preset is to 18 dBu.

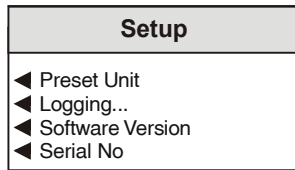
(15, 18 and 21dBu –G versions)

Mute ▶

The output signal will be muted when this toggle ON/OFF function is used.

◀ Setup

This selection reveals a sub-menu that allows various functions to be set.

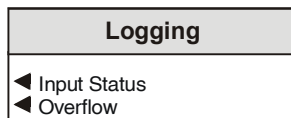


◀ Preset Unit

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

◀ 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.



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

- Input Status
- Overflow

◀ Software Version

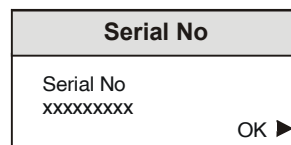
Selecting this item reveals a display showing the version of the software fitted in the module.



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.

RollCall Control Templates for the IQBDAC-N**Control**

This screen contains the main controls for the unit.

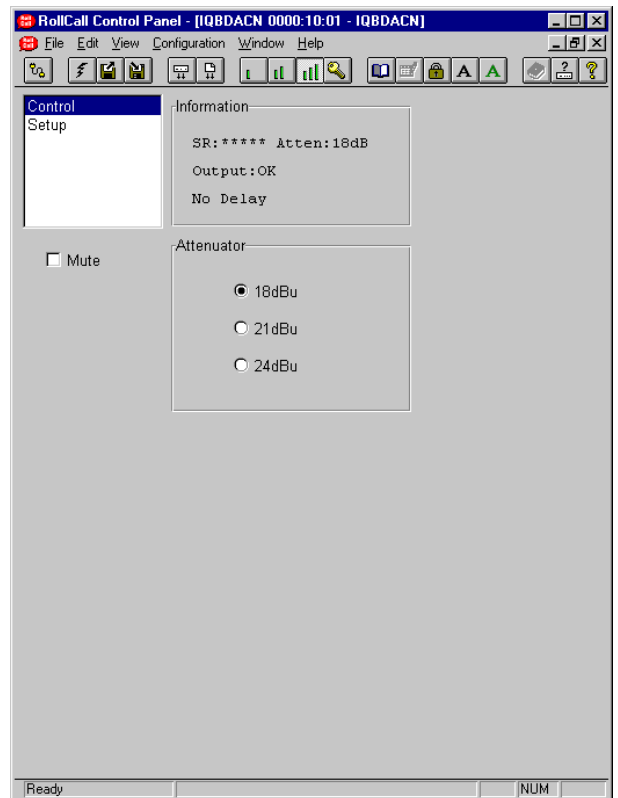
Mute

The output signal will be muted when this toggle function is used.

Attenuator

This item allows the headroom to be set to 18 dBu, 21 dBu and 24 dBu.

Preset is to 18 dBu.



Setup

Logging

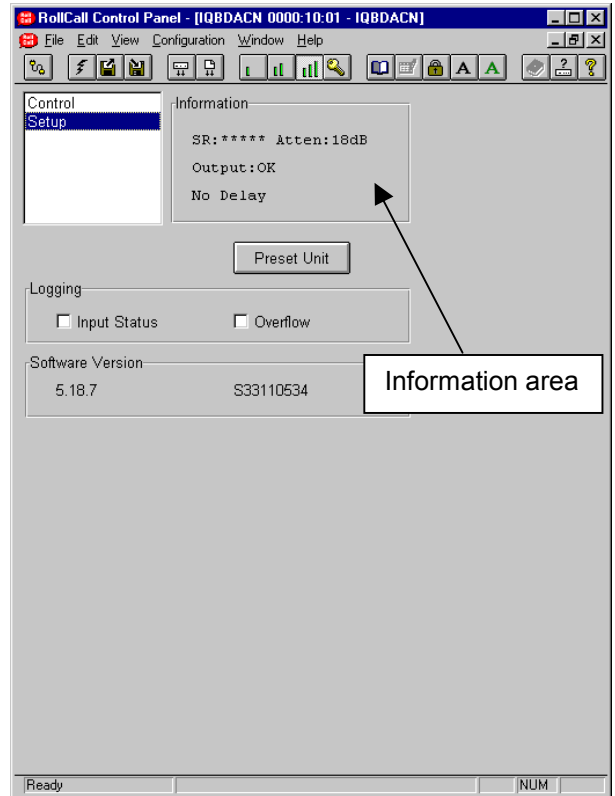
If a logging device is attached to the RollCall™ network, information about the selected item will be reported to the logging device assigned in the Remote Control Interface system.

Software Version

This item shows the version of the software fitted in the module followed by the serial number of the module.

Preset Unit

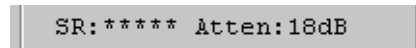
Selecting this item sets all adjustment functions that include a preset facility, to their preset values.



Information Area

This area shows the status of the unit in an abbreviated form.

The first line shows the internal sample rate (SR) and the selected value of attenuation.



The second line shows the state of the output.

