

IQBADCN 2 Channel Audio A to D Converter without delay

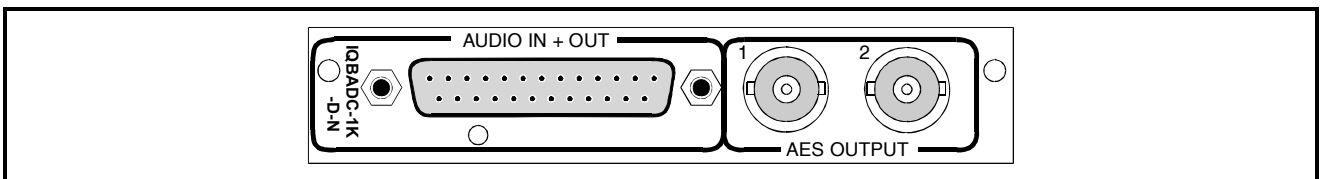
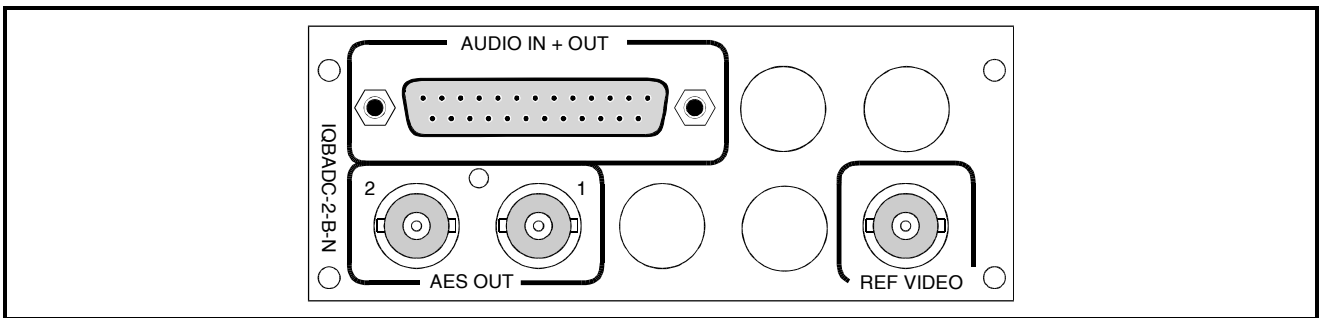
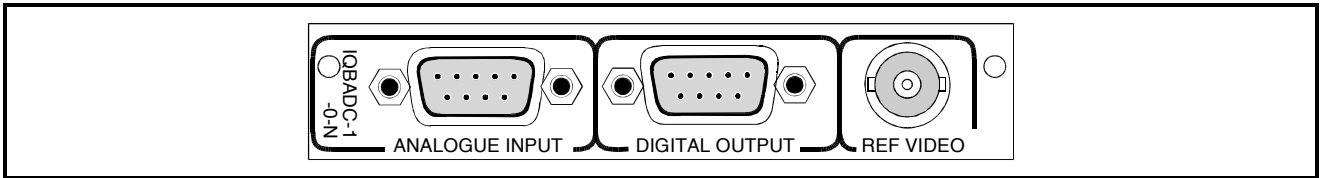
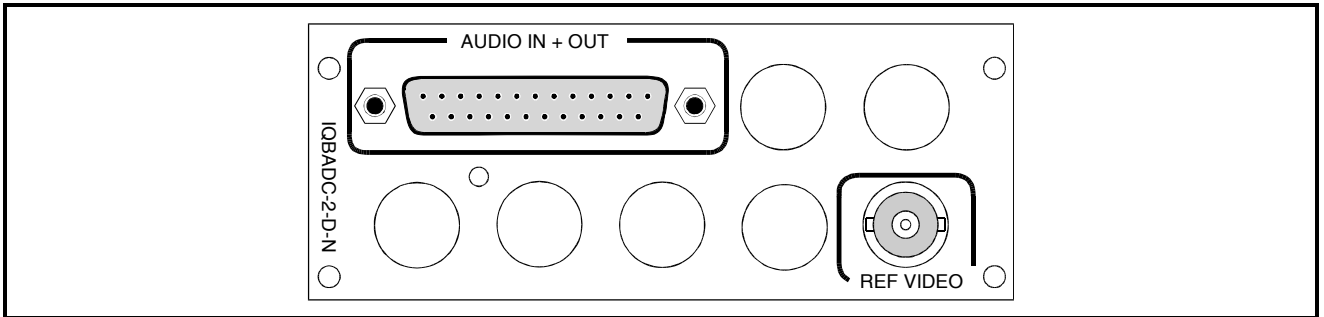
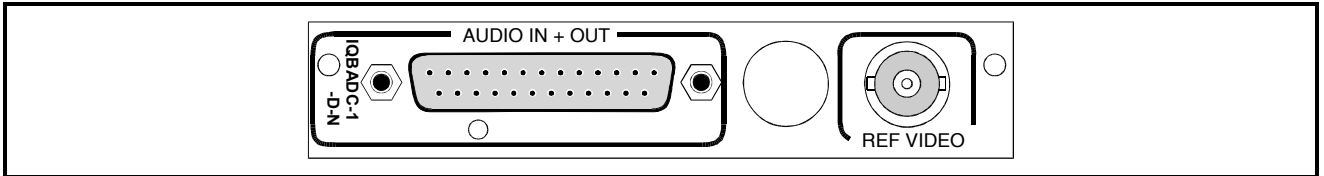


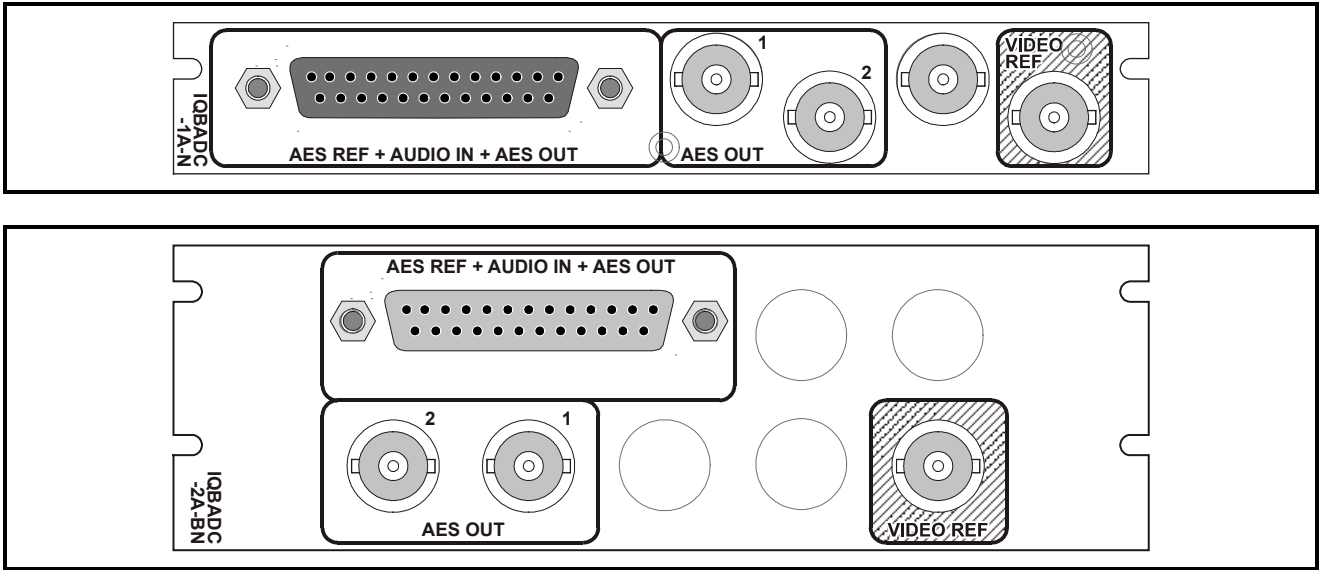
Module Description

The IQBADC-N converts two analog channels into an AES/EBU audio stream with 20-bit resolution. The unit operates at 32 kHz, 44.1 kHz or 48 kHz.

The 48 kHz sample clock may be precision locked using a dual PLL to an AES/EBU reference, or video black.

REAR PANEL VIEWS

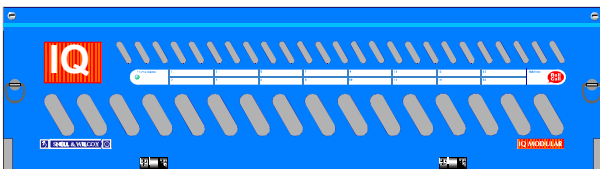




Note that there are two styles of rear panels available. They are not interchangeable between the two styles of enclosures. However, the cards may be fitted into any style of enclosure.

'A' Style Enclosure

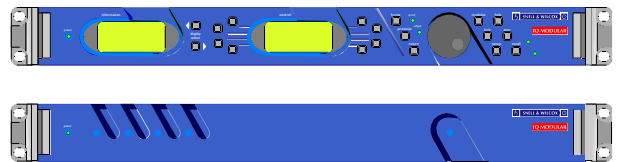
Rear panels **with** the suffix A may only be fitted into the 'A' style enclosure shown below.



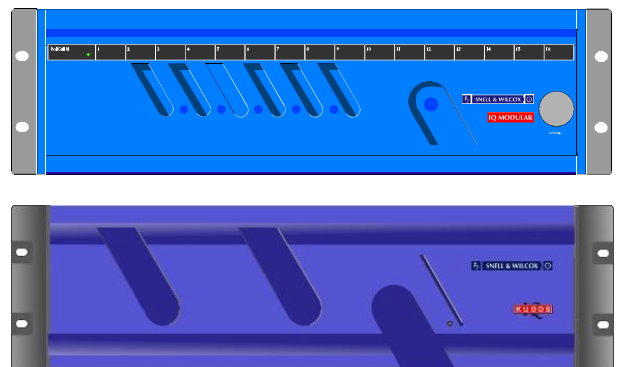
(Enclosure order codes IQH3A-E-O, IQH3A-E-P, IQH3A-N-O, IQH3A-N-P)

'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)



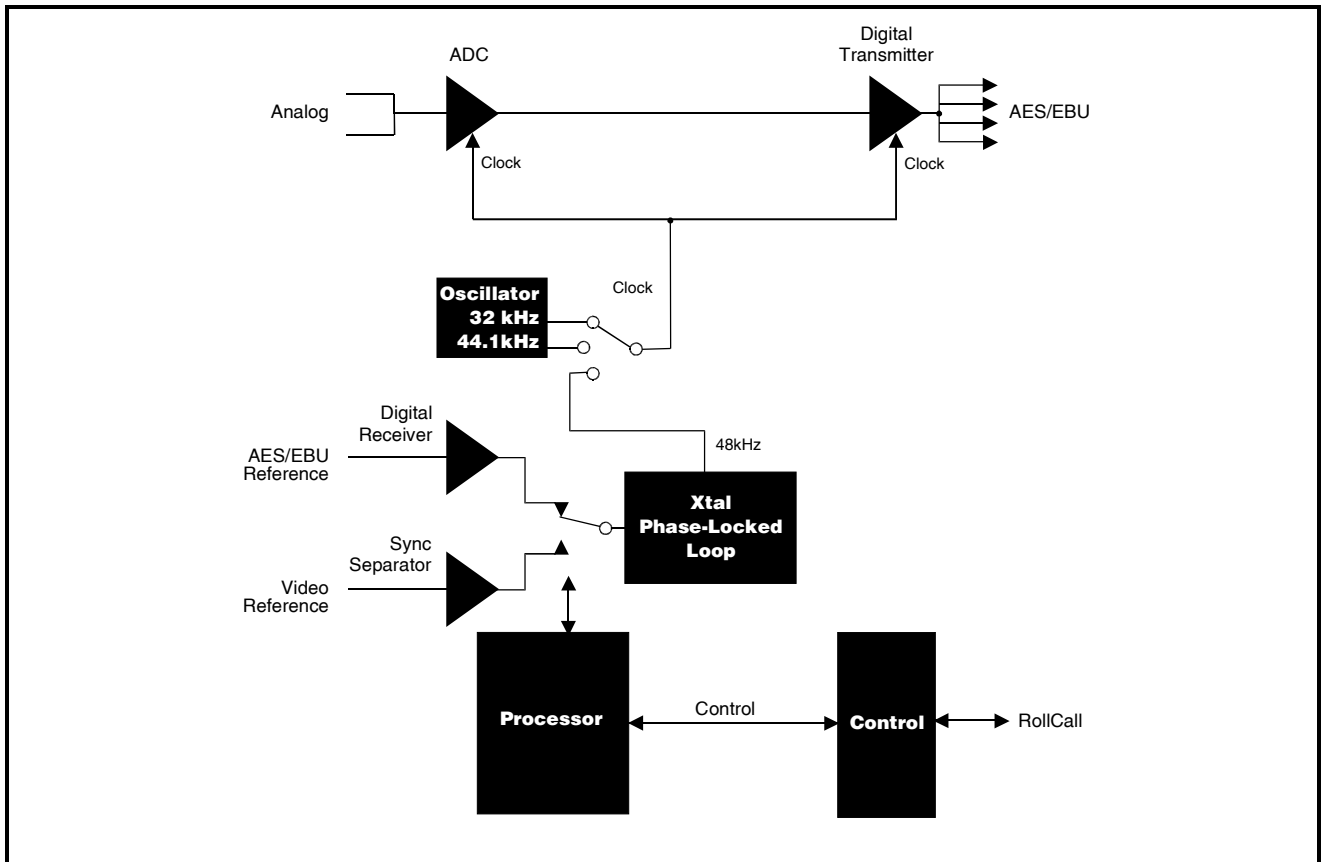
(Enclosure order codes IQH3N-O, IQH3N-P)

Versions of the module cards available are:

Order Code	Input via		Outputs via			Delay Input	Headroom Settings	Width
	9 way	25 way	9 way	25 way	BNC			
IQBADC-1-0	1		1			YES	18, 21 and 24 dB	Single
IQBADC-1-0-N	1		1			NO	18, 21 and 24 dB	Single
IQBADC-1-D		1		4		YES	18, 21 and 24 dB	Single
IQBADC-1-D-N		1		4		NO	18, 21 and 24 dB	Single
IQBADC-1-G		1		4		YES	15, 18 and 21 dB	Single
IQBADC-1-N-G		1		4		NO	15, 18 and 21 dB	Single
IQBADC-1A		1		2	2	YES	18, 21 and 24 dB	Single
IQBADC-1A-B		1		2	2	YES	18, 21 and 24 dB	Single
IQBADC-1A-BN		1		2	2	NO	18, 21 and 24 dB	Single
IQBADC-1A-D		1		4		YES	18, 21 and 24 dB	Single
IQBADC-1A-G		1		4		YES	15, 18 and 21 dB	Single
IQBADC-1A-N		1		2	2	NO	18, 21 and 24 dB	Single
IQBADC-1A-N-G		1		2	2	NO	15, 18 and 21 dB	Single
IQBADC-1K-B-N		1		2	2	NO	18, 21 and 24 dB	Single
IQBADC-1K-D		1		4		YES	18, 21 and 24 dB	Single
IQBADC-1K-D-N		1		4		NO	18, 21 and 24 dB	Single
IQBADC-1K-N-G		1		4		NO	15, 18 and 21 dB	Single
IQBADC-2-B		1		2	2	YES	18, 21 and 24 dB	Double
IQBADC-2-B-G		1		2	2	NO	15, 18 and 21 dB	Double
IQBADC-2-B-N		1		2	2	NO	18, 21 and 24 dB	Double
IQBADC-2-B-NG		1		2	2	NO	15, 18 and 21 dB	Double
IQBADC-2-D		1		4		YES	18, 21 and 24 dB	Double
IQBADC-2-D-N		1		4		NO	18, 21 and 24 dB	Double
IQBADC-2-G		1		4		YES	15, 18 and 21 dB	Double
IQBADC-2-N-G		1		4		NO	15, 18 and 21 dB	Double
IQBADC-2A-B		1		4		YES	18, 21 and 24 dB	Double
IQBADC-2A-BN		1		2	2	NO	18, 21 and 24 dB	Double

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

BLOCK DIAGRAM



Features

- 20-bit sampling resolution
- Headroom set to +18 dBu, +21 dBu or +24 dBu
- Operates at 32, 44.1 and 48 kHz
- Sampling can be free-running, or locked to a video or an AES/EBU reference
- Four balanced AES/EBU outputs (25D rear only)
- Overflow indication
- RollCall control and monitoring

TECHNICAL PROFILE

Features**Signal Inputs**

Analog 2 Channels (1 Pair)
 Analog Reference Composite Video/Black Burst
 Digital Reference 48 kHz AES/ EBU

Signal Outputs

Digital..... 1 x Balanced AES/EBU output
 -0 Versions (9 way D)
 4 x Balanced AES/EBU outputs
 -D Versions (25 way D)
 2 x Balanced, 2 x Unbalanced
 ES/EBU outputs –B & –1A
 Versions
 (25 way D and BNC)

Specifications

Analog Input Level 3 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)
 Analog Input Impedance 10 k ohms
 Analog Reference Input Level
 Composite Video/Black Burst at
 standard level ± 6 dB
 Analog Reference Input Standard
 625/525 line
 Digital Reference Input Standard
 AES/EBU at 48 kHz only
 Digital Reference Input Level
 0.2 V to 7 V pk to pk into 110 ohms
 Digital Output Level (Balanced)
 Greater than 3 V pk to pk into
 110 ohms
 Digital Output level (Unbalanced)
 1 V pk to pk typical into 75 ohms
 Digital Path 32 kHz, 44.1 kHz and 48 kHz 20-bit
 Total Harmonic Distortion+Noise
 Less than 0.002% at 700 Hz and
 -1dBfs

Standards AES3–1992
 Card Edge Controls (also available via RollCall)
 Sample Rate 48 k, 46.1 k, 32 k
 Analog Attenuator 18, 21, 24 dBu
 Reference Select Free run AES/EBU or Video
 PAL/NTSC Autoselected
 Mute..... On/Off
 Functions Available via RollCall™ Only
 Reporting and Logging Reference Input Presence
 Digital Ref. Input Sample Rate
 Overflow

Total Harmonic Distortion+Noise
 Less than 0.002% at 700 Hz and
 -28 dBfs
 Noise Floor..... Better than -107 dBfs (20 Hz to
 20 kHz)
 Channel Separation Better than -100 dBfs at 10 kHz
 Flatness Better than +0.1 dBu to -0.3 dBu
 (20 Hz to 20 kHz with reference to
 1 kHz)
 Insertion Delay Less than 0.5 ms
 Output Level Accuracy better than ± 0.6 dBu
 Channel Amplitude Matching
 better than ± 0.05 dBu
 Digital Reference Input..... +2 Hz to -1 Hz
 Sampling..... 48 kHz, 44.1 kHz and 32 kHz free
 running or clock locked to either
 AES/EBU or Video reference

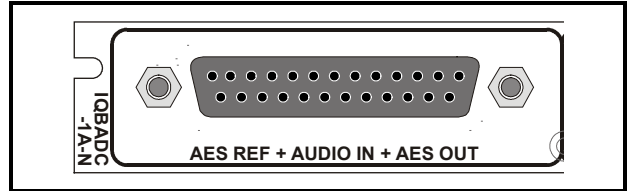
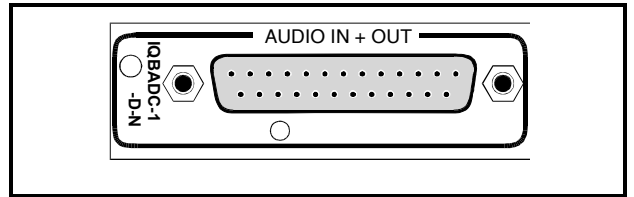
Power Consumption

Module Power Consumption
 4.8 W max

INPUTS AND OUTPUTS

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

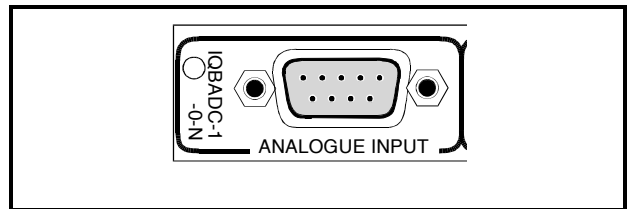
For connection data consult the tables on page 7.



Analog Input

All analog inputs are made via this 9 way female D-type connector (-1-0 version only)

For connection data consult the tables on page 7.



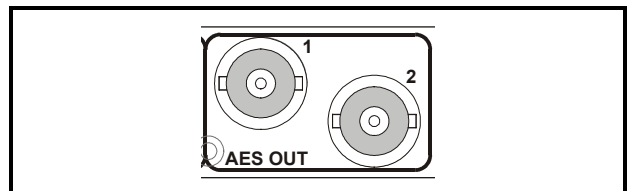
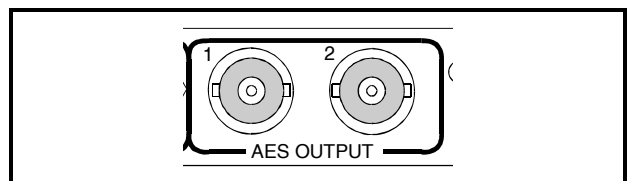
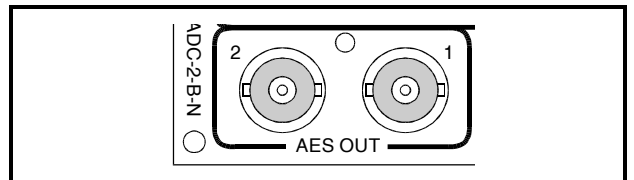
Reference Input

A standard analog video or black burst reference signal may be connected to this BNC connector. The signal is terminated internally at 75 Ohms.



AES Outputs (-2 versions)

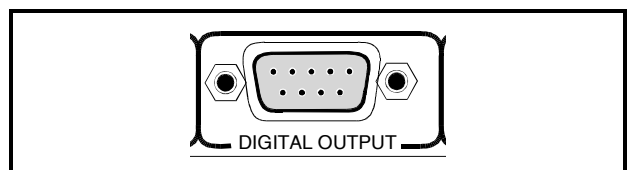
Two unbalanced AES outputs are available from these BNC connectors.



Digital Output (-1-0-N version)

All digital outputs are made via this 9 way female D-type connector.

For connection data consult the tables on page 7.

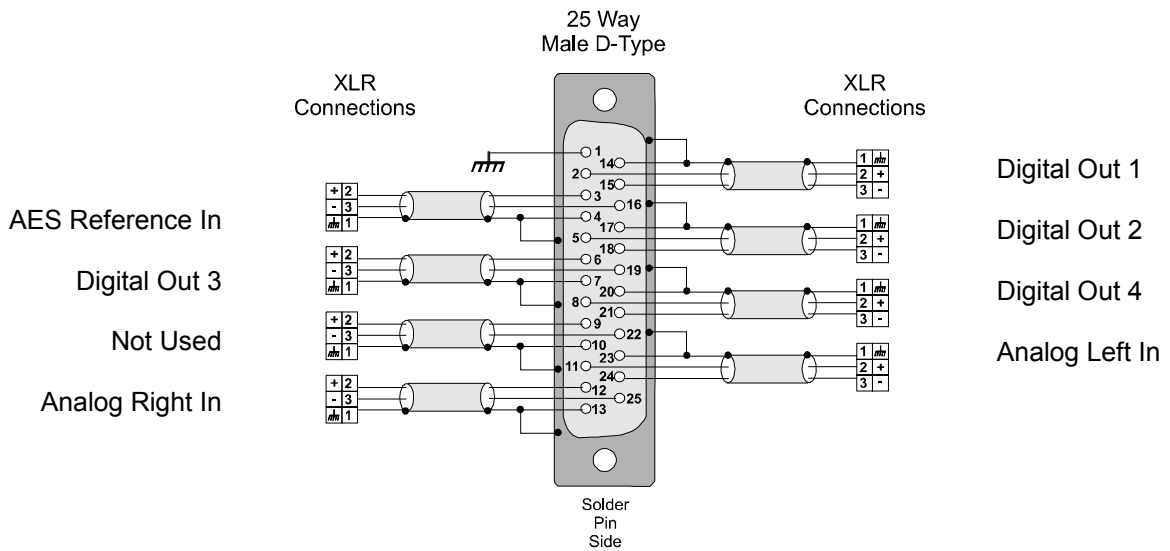
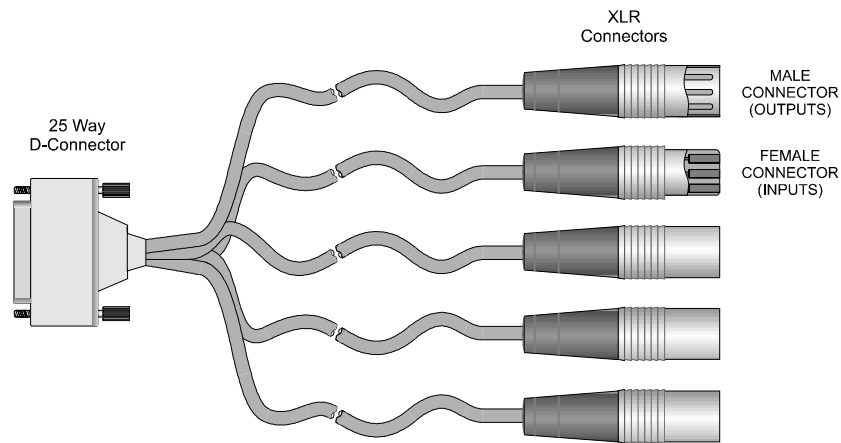


Connection Details

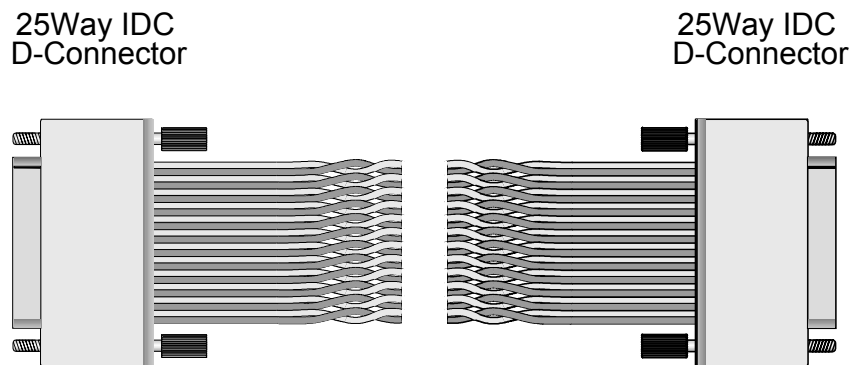
25 Way D Connector Pin Number	Description	Ribbon Cable Strand Number	Standard Pin Assignment
1		1	CHASSIS
14		2	GND1
2	AES OUT 1 +	3	1+
15	AES OUT 1 -	4	1-
3	AES REF IN+	5	2+
16	AES REF IN -	6	2-
4		7	GND2
17		8	GND3
5	AES OUT 2 +	9	3+
18	AES OUT 2 -	10	3-
6	AES OUT 3 +	11	4+
19	AES OUT 3 -	12	4-
7	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

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

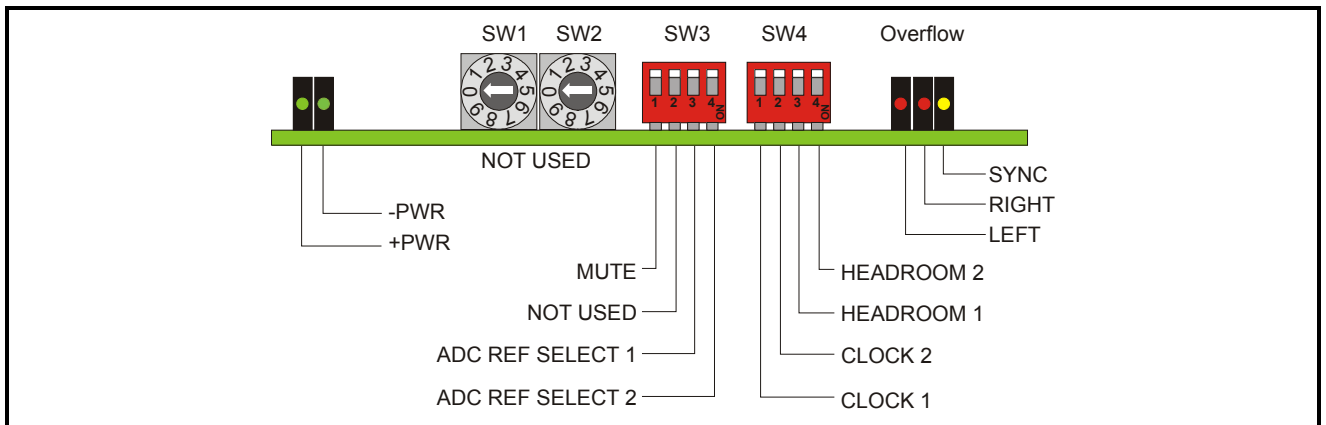
Connection Details to XLR Connectors



Connection Details via IDC connectors



CARD EDGE CONTROLS



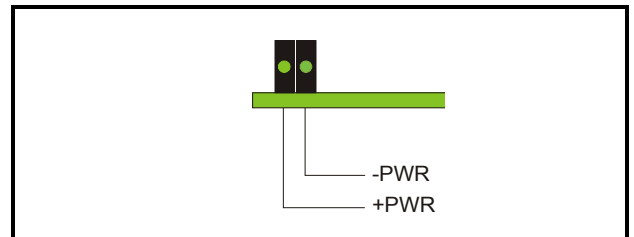
Adjustment of the settings of the **IQBAD-N** is available either via card edge controls and/or via a more comprehensive remote control system using RollCall™

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

LED INDICATORS

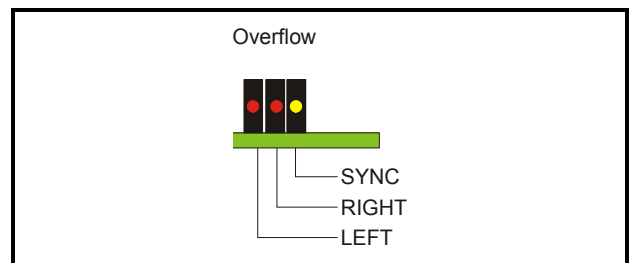
Power

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



Overflow

Two indicators are illuminated when bit overflow is detected on the Right and Left channels.



Sync

This indicator will become illuminated if no video reference is detected.
(Not applicable to AES reference)

SW3

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

- Position 1 Enables the Mute function
- Position 2 Not used
- Positions 3 & 4 ADC Reference Select (see below where 1 = ON)

ADC Reference	Pos 3	Pos 4
Internal	0	0
Video	1	0
AES/EBU	0	1
Internal	1	1

SW4

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

- Positions 1 & 2 Clock Rate Select (see below where 1 = ON)

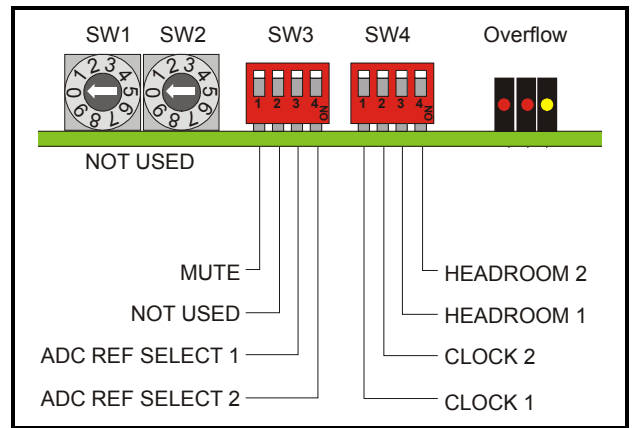
Clock Rate	Pos 1	Pos 2
48 kHz	0	0
44.1 kHz	1	0
32 kHz	0	1
48 kHz	1	1

- Positions 3 & 4 Headroom Select (see below where 1 = ON)

Headroom	Pos 3	Pos 4
18 dBu	0	0
21 dBu	1	0
24 dBu	0	1
18 dBu	1	1

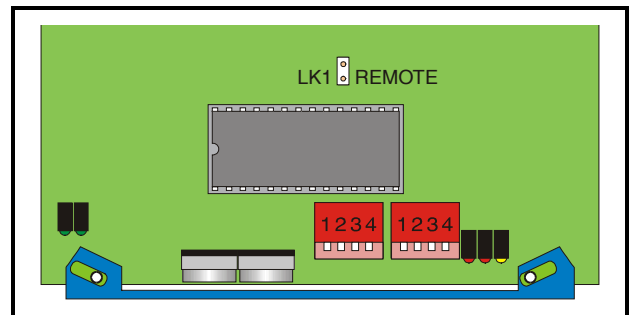
Channel Status

Currently the AES "...standard implementation.." is adopted. Status bytes 0 to 2 are configured to AES specifications. The standard implementation provides a fundamental level of implementation that is sufficient for general applications in professional audio or broadcasting.

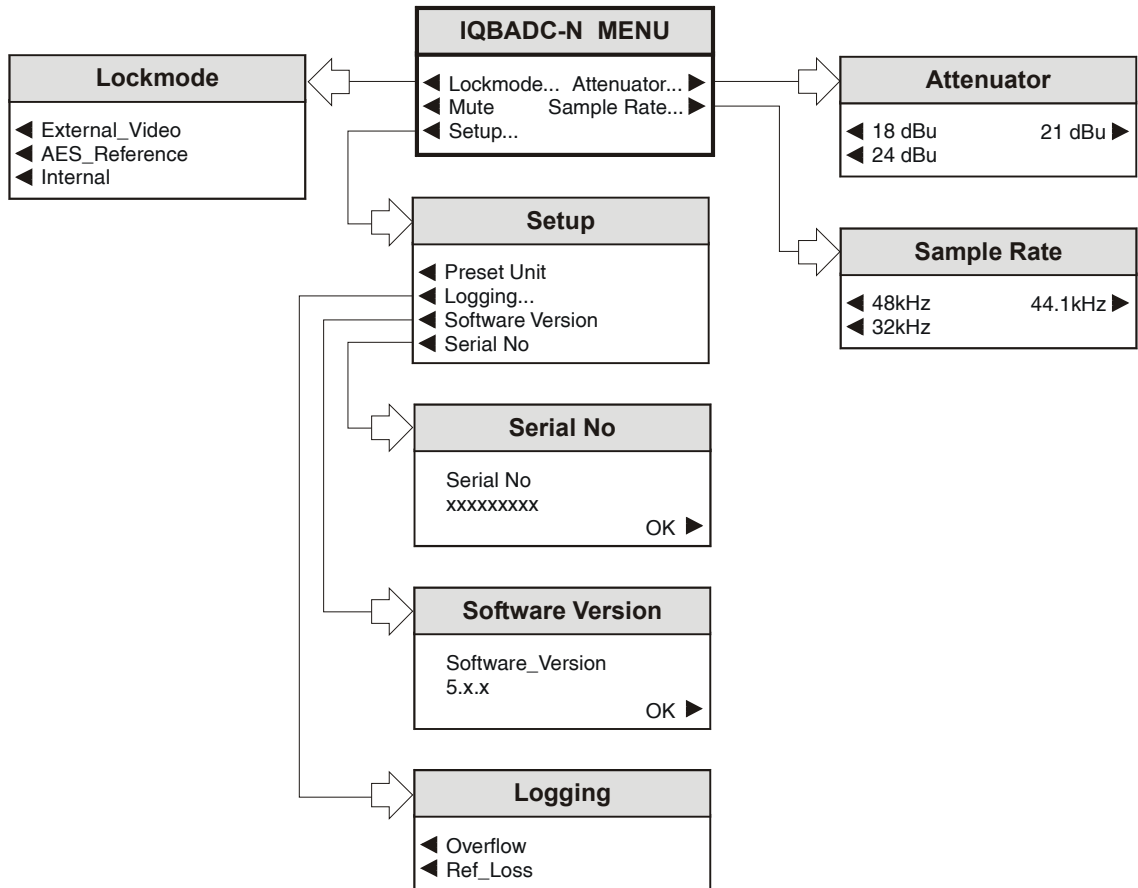


LK1 REMOTE

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 CPU at 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.



***IQBADC-N
Menu System***

OPERATION FROM AN ACTIVE CONTROL PANEL

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

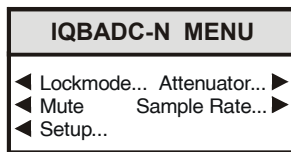
The menus available for this card are shown on the previous page and will appear in the Control display window.

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

MENU DETAILS

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.

◀ Lockmode

This selection reveals a sub-menu that allows the standard and mode of the locking source to be set.

Lockmode	
◀ External_Video	
◀ AES_Reference	
◀ Internal	

Selections are:

- External Video (via Ref Video BNC input)
- AES Reference (via D connector)
- Internal (not locked to any external source)

Attenuator ▶

Attenuator	
◀ 18 dBu	21 dBu ▶
◀ 24 dBu	

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

◀ Mute

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

Sample Rate ▶

Sampling rates of 48 kHz, 44.1 kHz or 32 kHz may be selected from this menu.

Sample Rate	
◀ 48kHz	44.1kHz ▶
◀ 32kHz	

Note that the external lock function is disabled if the 32 kHz or 44.1 kHz rates are selected.

◀ Setup

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

Setup	
◀ Preset Unit	
◀ Logging...	
◀ Software Version	
◀ Serial No	

◀ 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

Logging	
◀ Overflow	
◀ Ref_Loss	

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:

- Overflow
- Reference Loss

◀ Software Version

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

Software Version	
Software_Version	
5.x.x	OK ▶

Select OK to return to the Setup Menu.

◀ Serial No

Selecting this item reveals a display showing the serial number of the module.

Serial No	
Serial No	
xxxxxxxx	OK ▶

Select OK to return to the Setup Menu.

RollCall PC Control Panel Screens for the IQBADC-N

Control

This screen contains the main controls for the unit.

Mute

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

Lock Mode

This item allows the standard and mode of the locking source to be set.

Selections are:

- Video (via Ref Video BNC input)
- AES (via D connector)
- Internal (not locked to any external source)

Attenuator

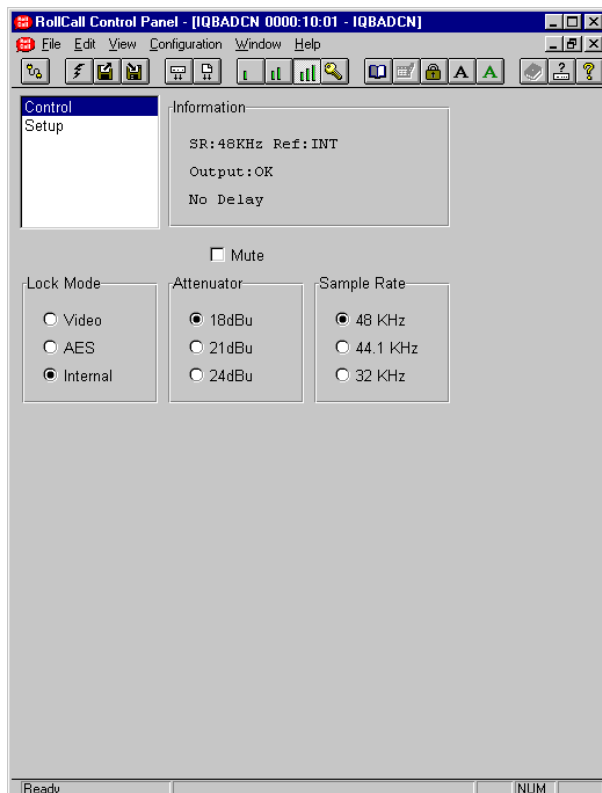
This item allows the headroom to be set to 18 dBu, 21 dBu and 24 dBu.

Preset is to 18 dBu.

Sample Rate

Sampling rates of 48 kHz, 44.1 kHz or 32 kHz may be selected from this menu.

Note that the external lock function is disabled if the 32 kHz or 44.1 kHz rates are selected.



Setup

Logging

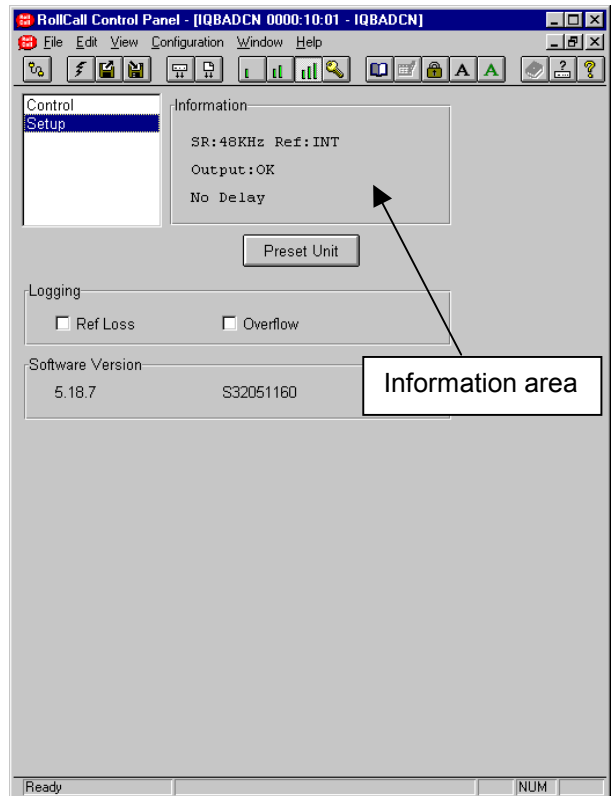
If a logging device is attached to the RollCall™ network, information about the selected item will be reported to the logging device assigned in the Remote Control Interface system.

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 lock mode.

SR:48KHz Ref:INT

The second line shows the state of the output.

Output:OK

The third line will always show No Delay.

No Delay

Manual Revision Record

Date	Version No.	Issue No.	Change	Comments
101198	1	1	For N version only	New manual issued
010403	1	2	Power consumption added to techspec	New manual issued
120104	1	3	For BAIF card + templates added Versions table amended.	New manual issued