

# IQDEAR Embedded Audio Processor

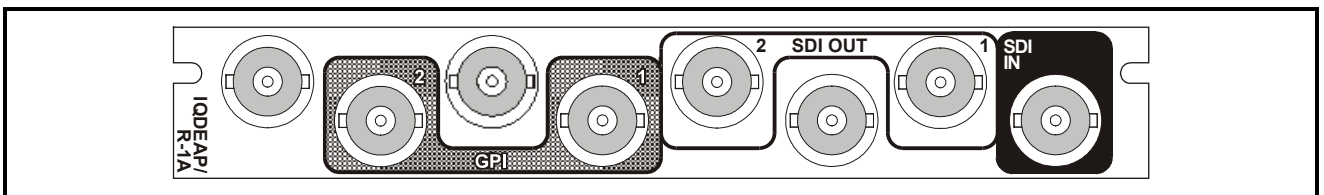
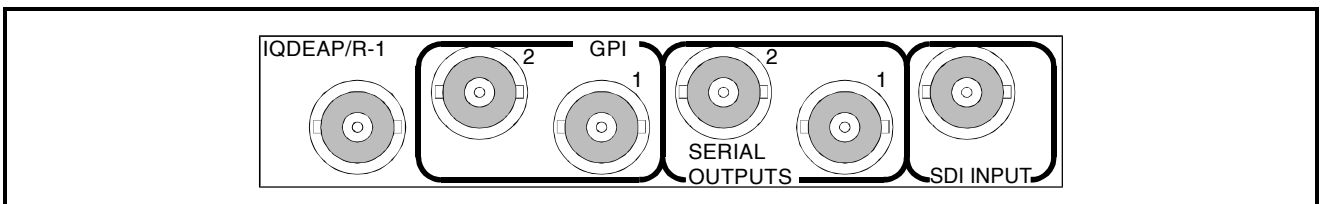


## Module Description

The IQDEAR is designed for the repair and re-distribution of two pairs of embedded audio, with tolerance of SDI corruption and invalid or damaged audio distributions. By re-distributing the embedded audio prior to a downstream SDI router,

audio glitch problems associated with switching DigiBeta streams can be reduced. In the absence of input audio the DEAR processing chains will continue to embed streams into the output SDI. The data, including the Channel Status information, will be zeroed.

## REAR PANEL VIEWS



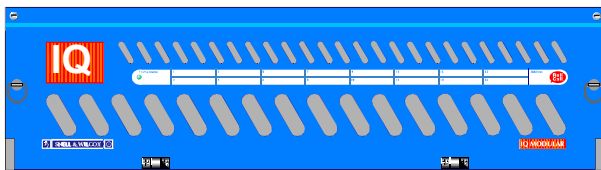
Versions of the module cards available are:

IQDEAR-1	Embedded Audio Processor with 2 x GPI	Single width module
IQDEAR-1A	Embedded Audio Processor with 2 x GPI	Single 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**

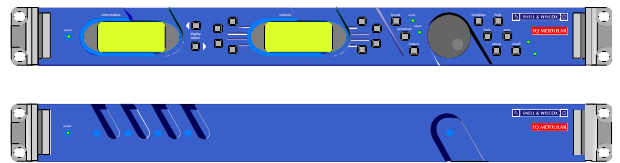
Rear panels **with** the suffix A may only be fitted into the 'A' style enclosure shown below.



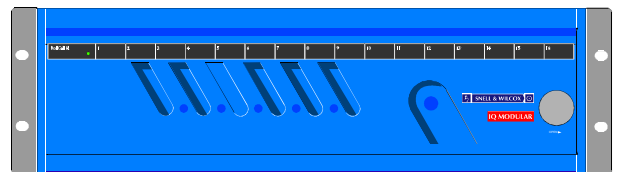
(Enclosure order codes IQH3A-E-O, IQH3A-E-P, IQH3A-N-O, IQH3A-N-P)

**'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)

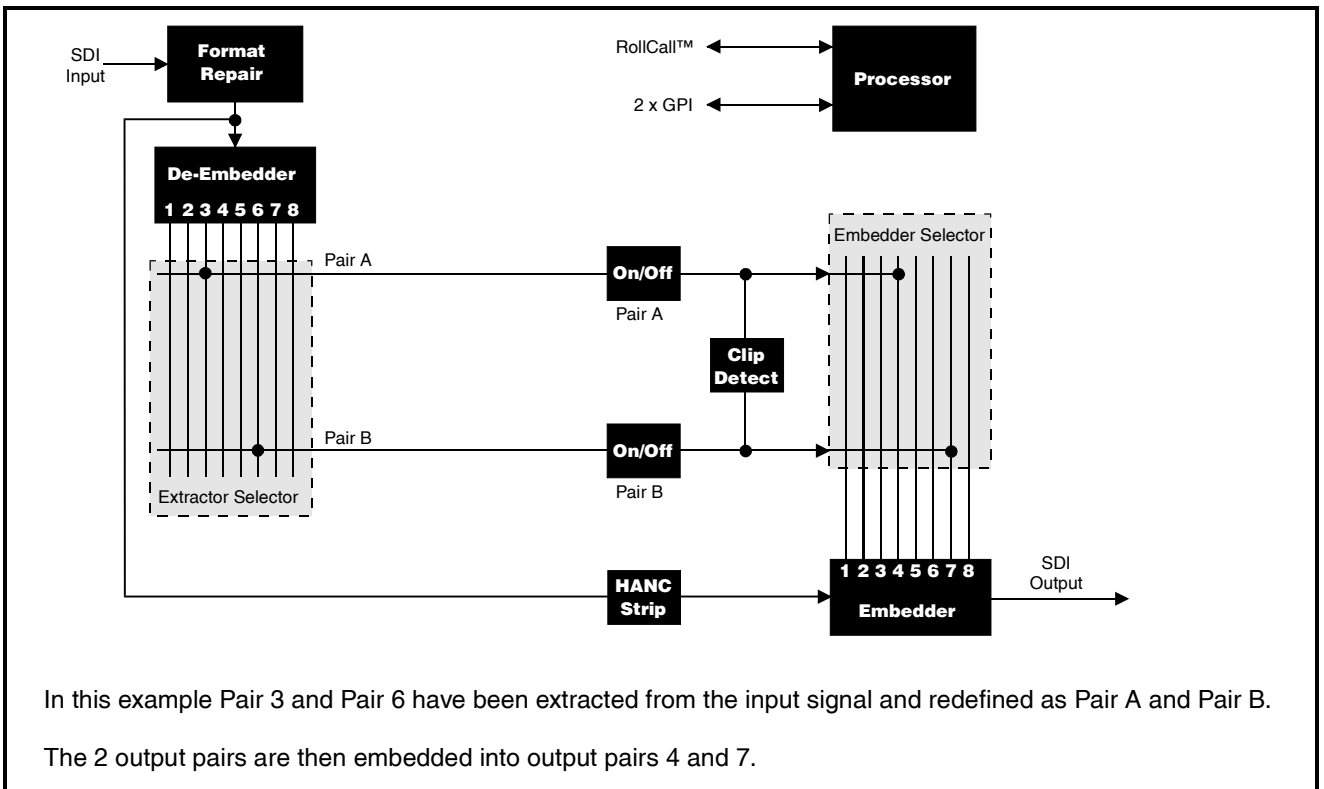


(Enclosure order codes IQH3N-O, IQH3N-P)



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

BLOCK DIAGRAM



## Features

Repairs low-level damage on the SDI input signal.

- Re-distributes embedded audio to avoid SDI switching problems.
- Audio pair extraction from any (1-8) source address.
- Audio pair re-embedding to any (1-8) destination address.
- Embeds silence on loss of source audio
- EDH monitoring and Insertion.
- Automatic 525 and 625 line operation.
- RollCall control and monitoring.

# Technical Profile

## Features

### Signal Inputs

Digital Video..... 1 x Serial Digital  
 GPI ..... 2 x BNC  
 Standards ..... SMPTE 259M-C-1997, SMPTE  
 272M-A-1994, SMPTE 291M-1998

### Signal Outputs

Digital Video..... 2 x Serial Digital  
 Standards ..... SMPTE 259M-C-1997, SMPTE  
 272M-A-1994, SMPTE 291M-1998

### Card Edge Controls

EDH Reset..... Reset EDH and ANC error history  
 LEDs

## Specifications

Serial Input Return Loss..... Better than 15 dB to 270 MHz  
 Maximum Input Cable length  
 Up to 200 m (PSF1/2 or equiv.  
 cable)

Serial Output Return Loss.. Better than 15 dB to 270 MHz

### Indicators

EDH Error History ..... 3 LEDs - Presence/Minute/Hour  
 No D1..... Lack of SDI D1 Input  
 ANC Error ..... Checksum Errors in Input  
 Embedded Ancillary Data

### Functions Available via RollCall™ Only

Report Embedded Audio Data  
 Report Audio Data Pairs on Input  
 & Output SDI  
 Report EDH Error History .. Report history.  
 Line Standard Reporting .... Report 525 or 625

Audio Delay..... 0.5 ms  
 Video Delay..... 1.2 μs

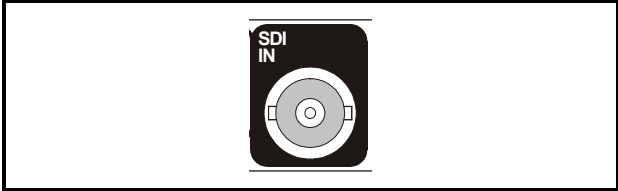
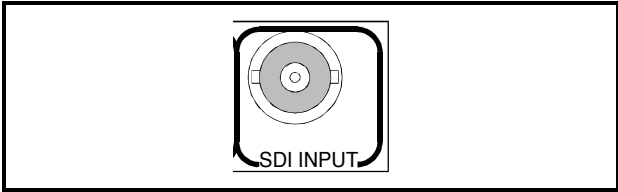
### Power Consumption

Module Power Consumption  
 6.7 W max

INPUTS

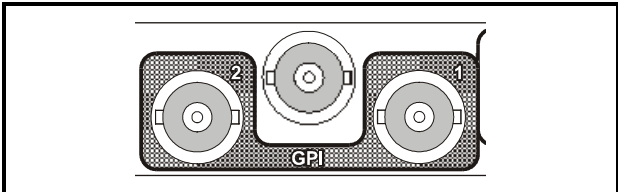
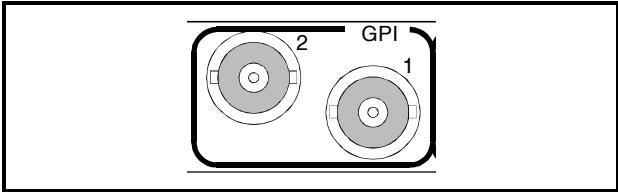
Serial Digital Video Input

The serial digital input to the unit is made via this BNC connector which terminates in 75 Ohms.



GPI INPUTS

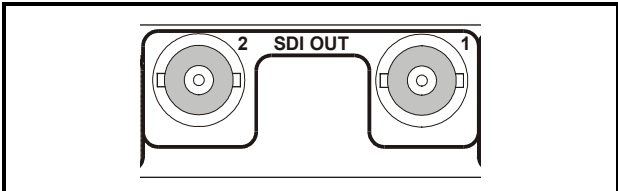
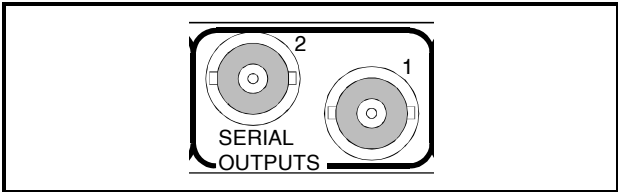
These two GPI connectors are used for accepting GPI information (from mechanical switch contacts, relay contacts etc.)



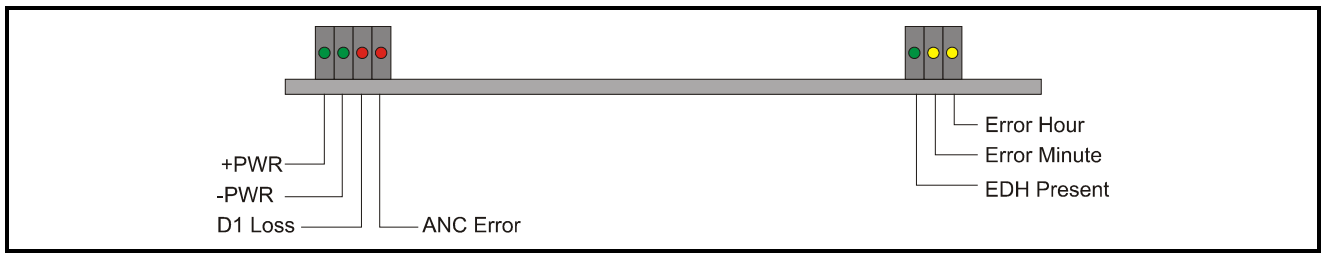
OUTPUTS

Serial Digital Video Outputs

These are the two isolated Serial Digital outputs of the unit via BNC connectors for 75 Ohms.



CARD EDGE CONTROLS



LED INDICATORS

Power

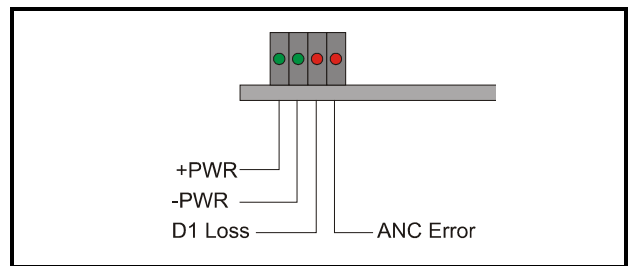
These two PWR indicators are illuminated when the positive and negative supplies are present.

D1 (Serial Video) Loss

This LED will become illuminated when there is no 4:2:2 input.

ANC ERROR

This LED will become illuminated for a short interval each time a checksum error is detected in the input embedded ancillary data packets.



**RollCall Control via a PC**

*For full details please see the operator's manual for the IQSPCR, RollCall™ Software Installation Guide & Operational Overview*

IQSPCR is a PC application that runs under Windows 3.1x or 95. It allows full remote control of RollCall for this and other compatible units.

**SOFTWARE INSTALLATION GUIDE**

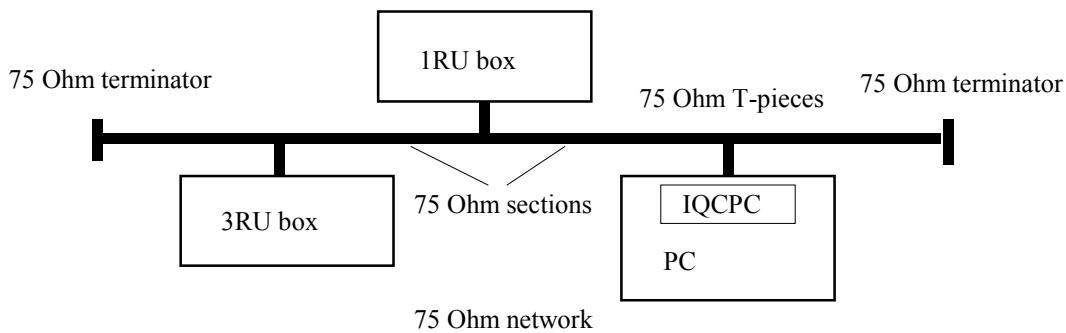
**System Requirements**

The minimum requirement for installing the RollCall software is:  
 RollCall PC Control Software (IQSPCR).  
 IQ Modular 1RU or 3RU rack with Gateway card installed.  
 PC running Microsoft Windows 3.1x or Windows '95 .  
 Either a RollCall PC card (IQPC) or a RS232 to RS422 9 way converter fitted to the PC.

Connecting the hardware:

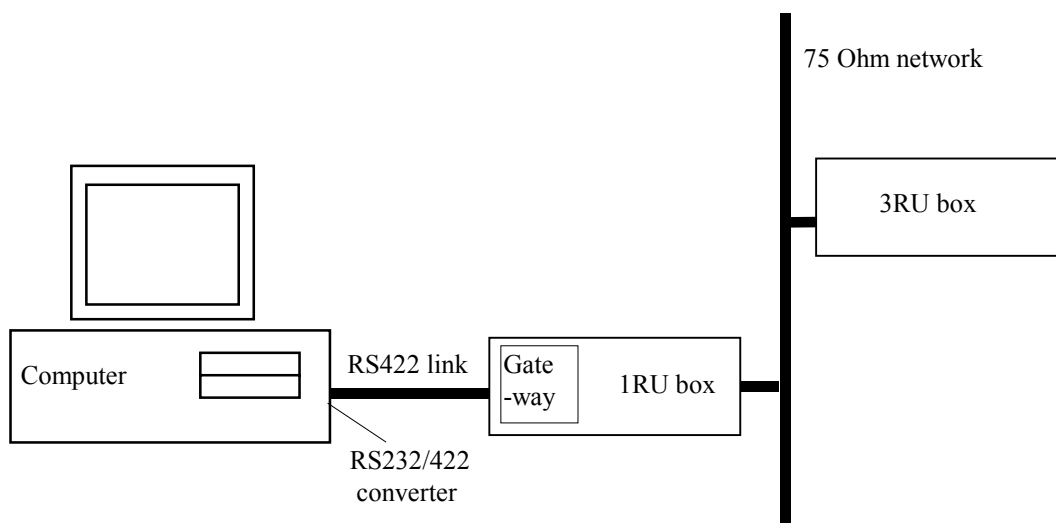
There are two choices for connecting the PC to the Modular IQ System:

1. 75 Ohm co-axial cable BNC for box-to-box connections running at 2.5 Mbs.



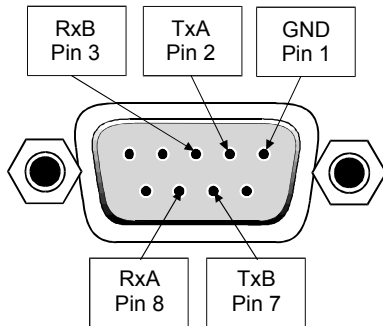
Each unit is physically joined via a T-piece connector. Each T-piece is connected by 75 Ohm co-ax cable to create a section. Each section of cable can be up to 400m. Each end of the network is terminated by a 75 Ohm terminator.

2. RS422 running at 38.4 kbs asynchronous:



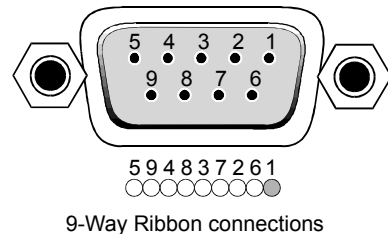
Connect the RS232/RS422 converter to COM1 or COM2 of the PC and connect this via RS422 cable to the 9 pin 'D' on the IQ modular unit. This interface is specifically designed for third party connections into the system. This allows PC's or any other serial device access to any of the units within the system. Every active 1RU or 3RU box has one of these ports.

**Physical Interface - RollCall RS422**



N.B. Connector is a socket, viewed from mating face. Equivalently, this is a plug, viewed from the rear, cable face.

For reference, the A signal is at 0V at line idle, and the B signal at 5V.



**Standard Connections**

9-way Connector	FUNCTION
1	Frame Ground
2	Transmit A (Tx-)
3	Receive B (Rx+)
4	Receive Common
5	[No connection]
6	Transmit Common
7	Transmit B (Tx+)
8	Receive A (Rx-)
9	Frame Ground

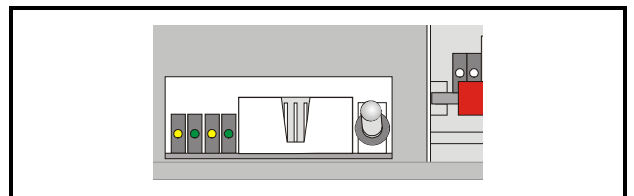
N.B. The D connector on the Gateway card could also be configured as RS485.

Selection of the interface format is by a switch on the card.

Note that RS485 interconnections should be pin to pin and only be used for Snell & Wilcox RollNet applications.

DOWN i.e. towards the PCB selects RS422

UP i.e. away from the PCB selects RS485



Switch set to RS485

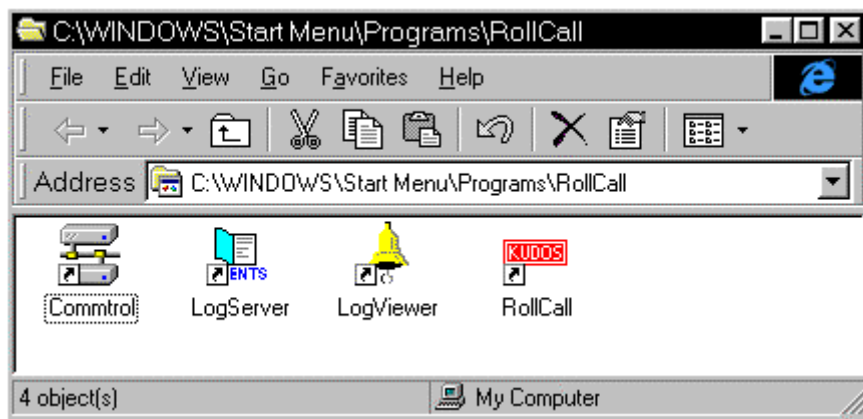


## Software Installation

Run SETUP.EXE from the installation diskette to install the suite of Rollcall programs. Product code IQSPCR contains the Rollcall Remote Control (rollcall.exe) and communications driver (commtrol.exe) programs. Product code IQSPCD contains the Rollcall Remote Control (rollcall.exe), communications driver (commtrol.exe), logserver (rolllog.exe) and logviewer (rollview.exe) programs.

On startup, the setup program prompts for an installation directory. The default installation directory is C:\ROLLCALL. The set-up procedure will copy all the necessary files to this directory. Set-up will also create a Windows Group called RollCall.

Depending on the product code of the diskette, Either two icons (RollCall and Commtrol for IQSPCR) or four icons (RollCall, Commtrol, LogServer and LogViewer for IQSPCD) will appear in the group.



## Overview

### ROLLCALL.EXE:

This program allows control of RollCall compatible units. (IQ Modules, Supervisor, other S&W units with RollCall gateway). Each unit has a 'control template' window for control of that device. The user can configure the program for USER, ENGINEER or SUPERVISOR access levels with password protection. It can install "template" files from new units automatically or by user request.

### ROLLLOG.EXE:

This is the Log Server application that collects logging information from units on the network. Keeps a running log file of every event received. Writes a current status file for configured units and allows the LogViewer program to display the information.

### ROLLVIEW.EXE:

This program displays the current status file written by ROLLLOG.EXE in a tabulated form. Coloured conditions highlight warning and failure states. Can be configured for network access for remote monitoring using share information from the LogServer program.

### COMMTROL.EXE:

This program is called automatically by ROLLCALL.EXE or ROLLLOG.EXE and normally runs minimized. Usually, there is no need to run this program by itself. This program provides the basic communications with the PC card, serial comms ports or TCP/IP protocols. It also has monitoring facilities for data analysis.

**For more details see the operator's manual for the IQSPCR Section 3**

**RollCall Control Templates for the IQDEAR**  
*(Also refer to the block diagram on page 3)*

**Routing**

**Pair A**

**Extractor A**

This allows one of the 8 pairs to be selected for extraction.

**Embedder A**

This allows one of the 8 pairs to be selected for embedding of Pair A. Off may also be selected.

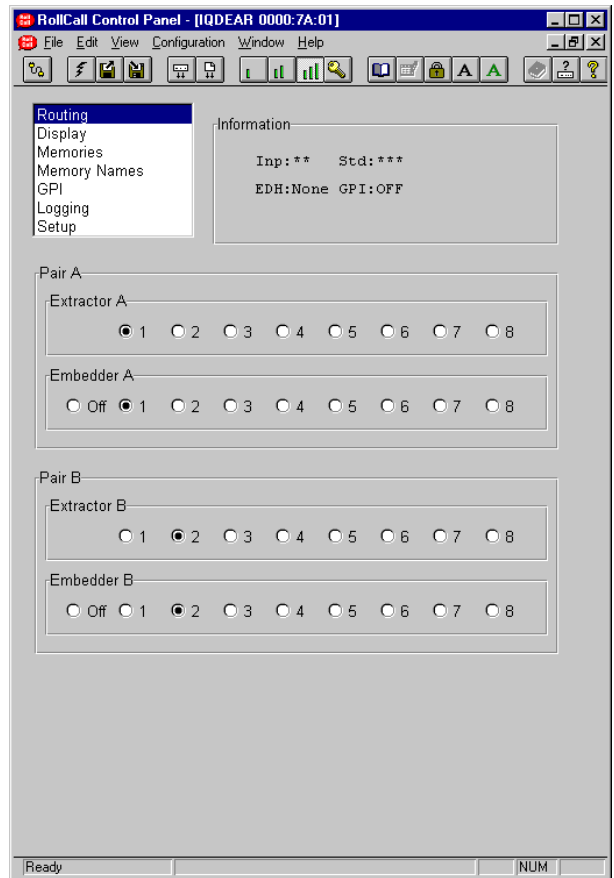
**Pair B**

**Extractor B**

This allows one of the 8 pairs to be selected for extraction.

**Embedder B**

This allows one of the 8 pairs to be selected for embedding of Pair B. Off may also be selected.



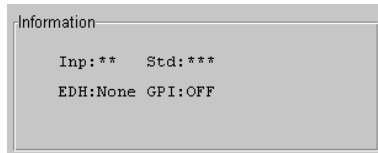
**Display**

This allows information about the selected item to be displayed in the Information area.

**Display Information**

This item allows various status functions to be selected.

**Status**



This will show basic details of the operational status of the unit.

The Inp: (Input Status) item uses the following abbreviations:

- = No valid input present
- OK = Valid input present

The Std: (Input Line Standard) item uses the following abbreviations:

- \*\*\* = Standard is not recognized
- 625 = Input line standard is 625
- 525 = Input line standard is 525

Other intuitive messages may appear in the lower left area of the display, for example, GPI:OFF, indicating that the GPI function is set to OFF.

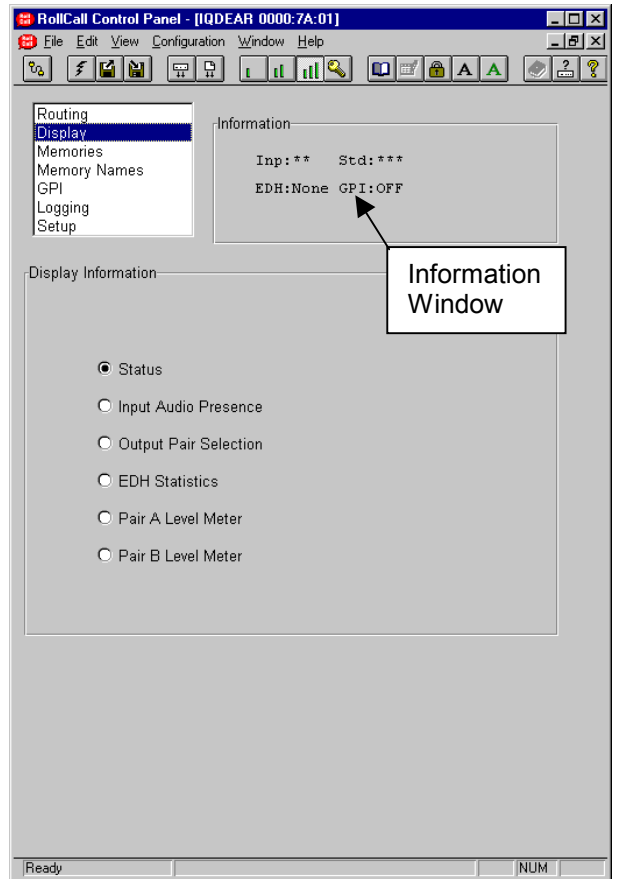
**Input Audio Presence**



This function shows information about the presence of the input SDI Embedded Audio pairs.

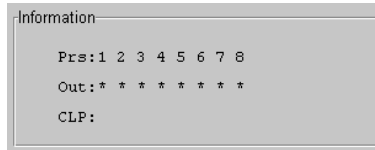
The SDI: item uses the following abbreviations:

- P = Pair is present
- \* = Nothing present



**Display (cont)**

**Output Pair Selection**



This function will present information about the selected output pairs 1 to 8.

The Out: item uses the following abbreviations for each pair:

- P = Pair is present
- \* = Nothing present

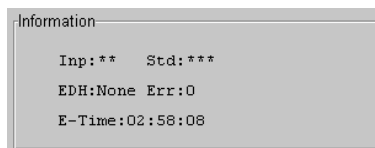
CLP:

This function indicates that the output signal has been clipped at 0dBFS.

The CLP: item uses the following abbreviations:

- L = Left
- R = Right
- B = Both (Left and right)

**EDH Statistics**

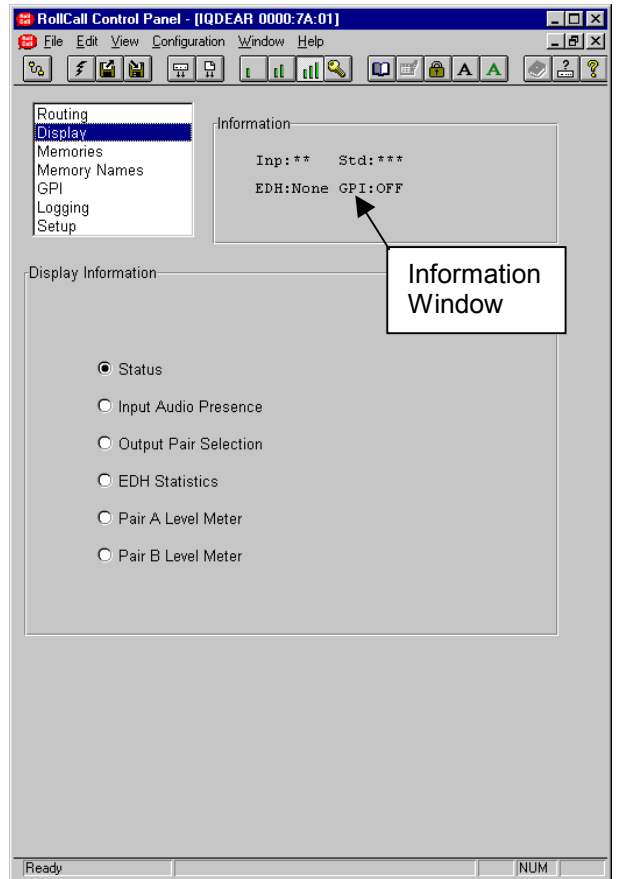


This function will display the state of the input error detection handler including the presence of errors, the number of errors and the error time.

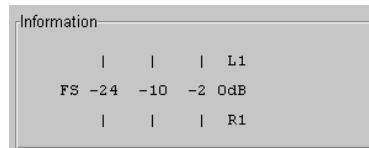
The EDH: item uses the following abbreviations:

Abbreviations used in the EDH: item is as follows:

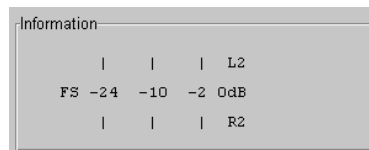
- None: No EDH information present.
- OK: No EDH errors.
- Err: This is the number of errors since EDH was reset.
- E-Time: This is time since EDH was reset  
00:00:00 in Hours:Minutes:Seconds



**Pair A Level Meter**



**Pair B Level Meter**



This function will display the right and left signal levels for Pair A and Pair B in dBFS.

**Memories**

**Recall from Memories**

This function allows 8 different settings of all items to be recalled from the 8 memory locations as saved in the **Save to Memories** function.

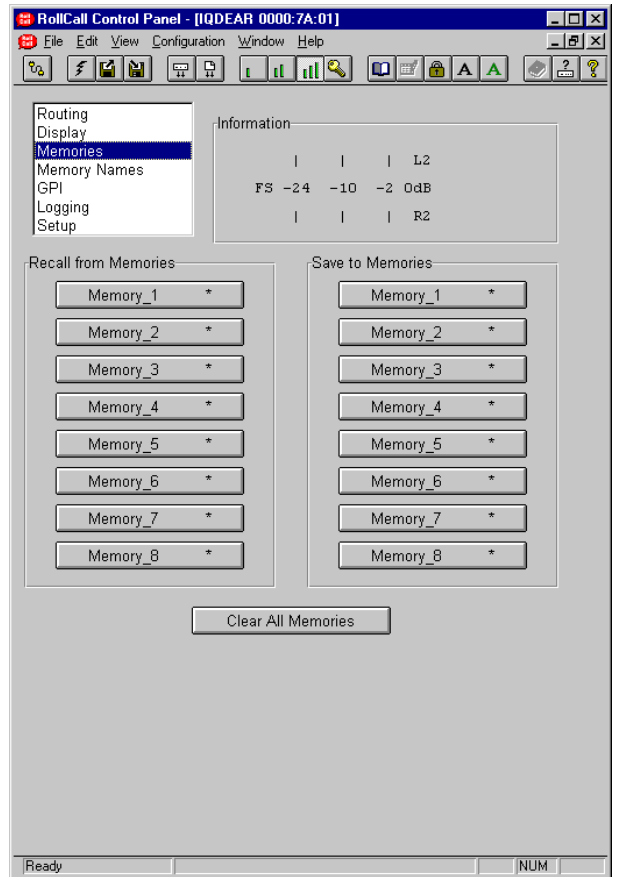
**Save to Memories**

This function allows the settings of all items to be saved. Up to 8 different set-ups may be saved in the 8 memory locations

*Note that if a memory location already contains saved data, an asterisk \* will appear to the right of the memory location number.*

**Clear All Memories**


This item allows all memory locations to be cleared and returned to their default (preset) settings.




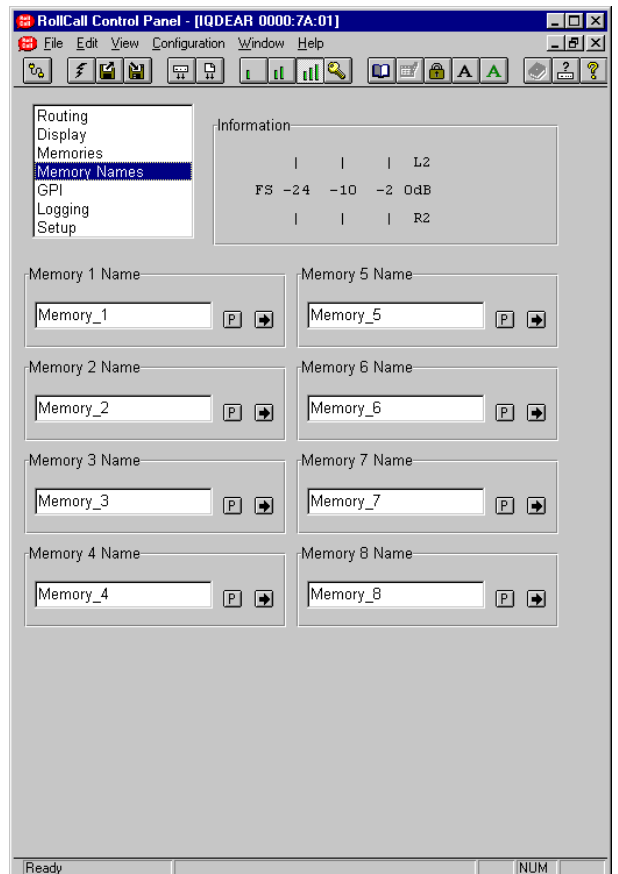
**Memory Names**

**Memory 1 to 8 name**

This function allows the name of a memory location to be changed.

To change the memory name, type the new name in the text area and then select  (return).

Selecting Preset  will return the text to the default name.



**GPI**

There are two independent GPI inputs on the rear of the IQDEAR.

These two inputs may be configured to recall any of the 8 memory settings or may be turned OFF.

**GPI 1 and GPI 2**

The scroll bar allows each of the memory locations to be selected and (GPI) OFF.

The function will be activated when the GPI input receives a transition from open to closed.

**Notes**

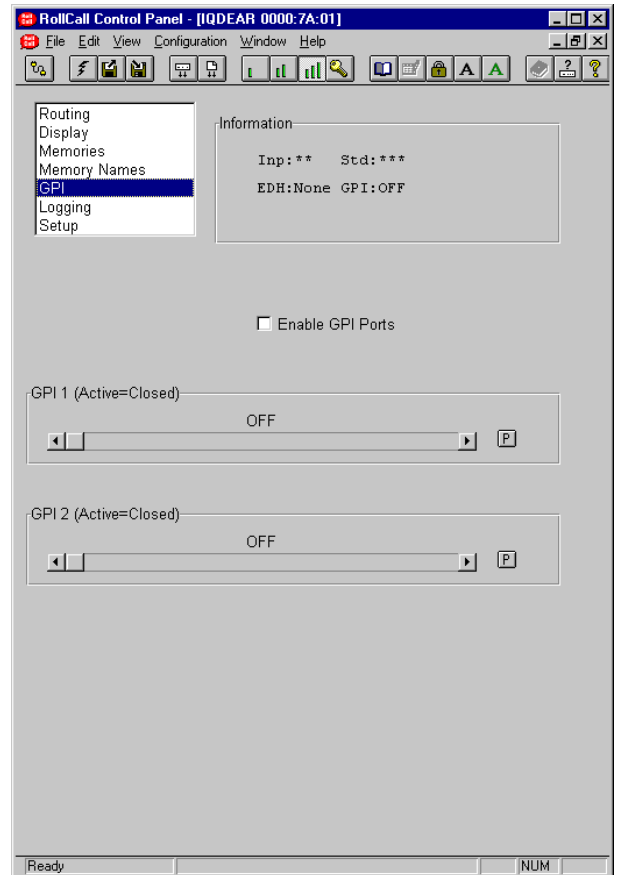
*If both inputs are activated at the same time GPI 1 will have priority.*

*If the enable GPI Ports function is checked when the GPI is active (closed) no action will occur. The input must receive a transition from open to closed to operate.*

**Enable GPI Ports**

When this box is checked both GPI functions will become active.

Preset for each of the GPI modes is to OFF; the unit will then have no response to the GPI inputs.



### 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.

Checking the boxes will allow that information to be made available for logging.

Preset is nothing enabled.



**Setup**

**Preset Unit**

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

**Reset EDH Stats**

The input 4:2:2 stream is continuously monitored for EDH errors. Enabling this function will reset all EDH statistics.

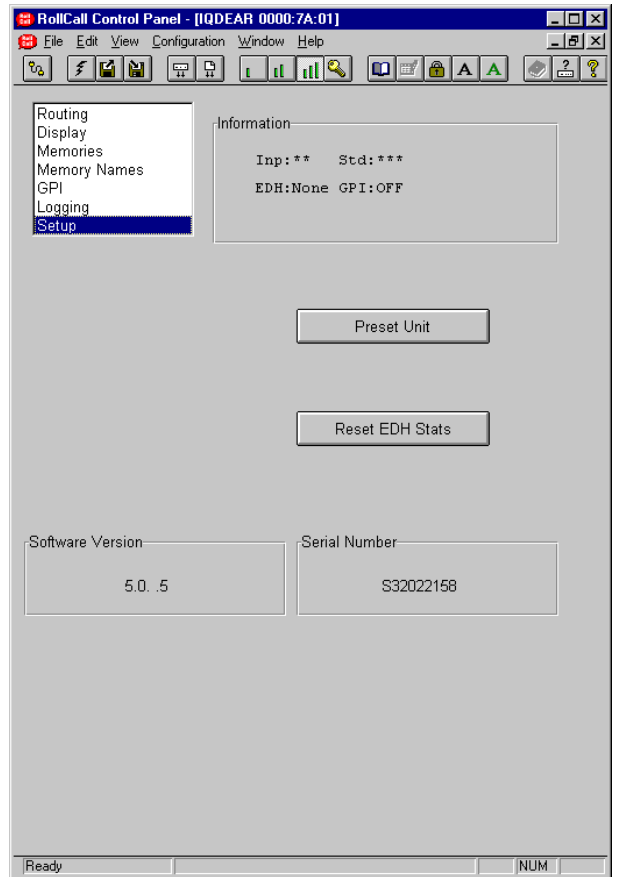
A regenerated EDH packet is inserted on the output 4:2:2 stream.

**Software Version**

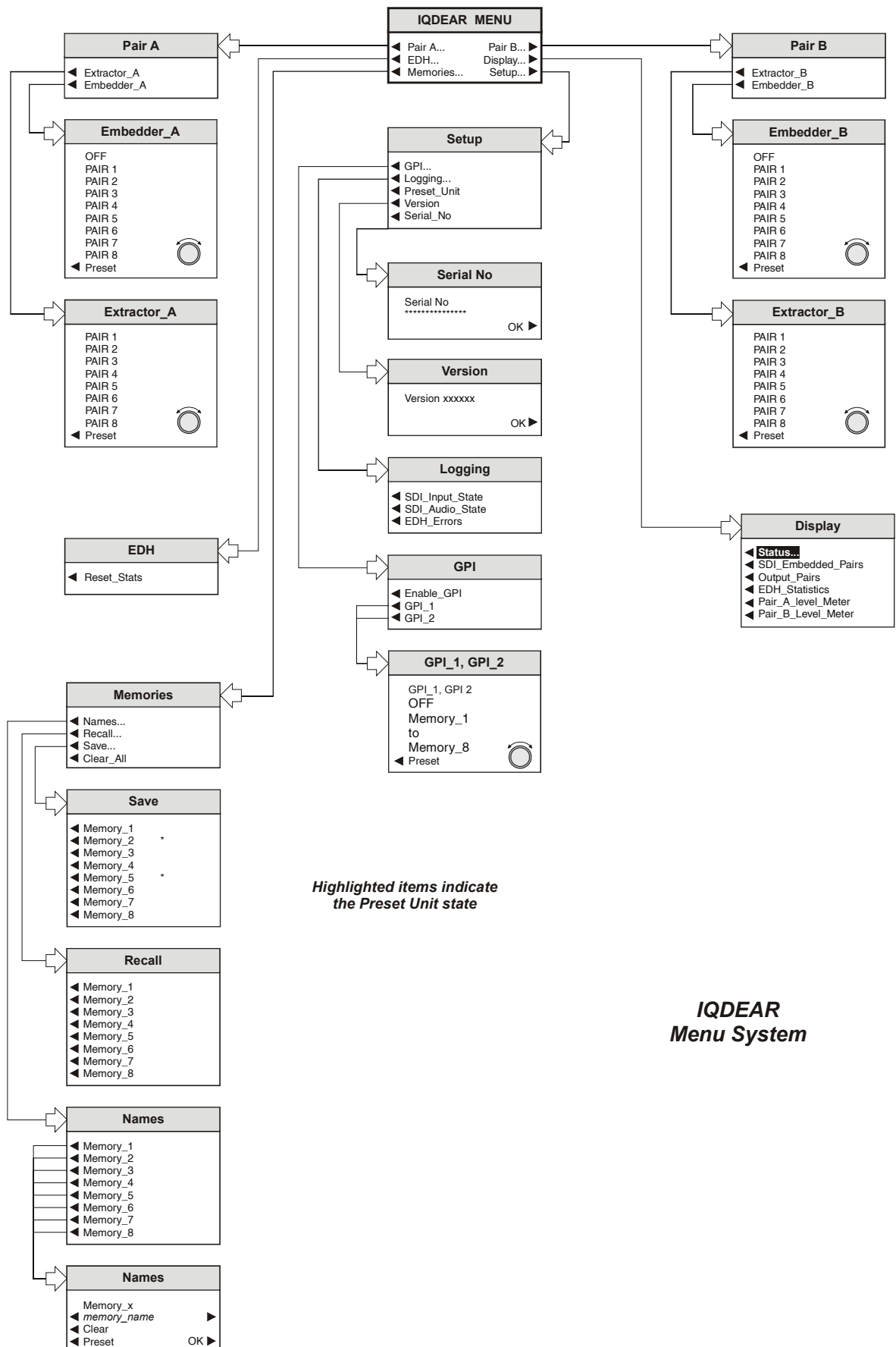
This item will display the version number of the software fitted to the unit.

**Serial Number**

This item will show the serial number of the unit.







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 IQDEAR Menu System on previous page)

**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.

Also refer to the block diagram on page 3 for more information.

**MAIN MENU**

IQDEAR MENU	
◀ Pair A...	Pair B... ▶
◀ EDH...	Display... ▶
◀ Memories...	Setup... ▶

◀ **Pair\_A and Pair\_B**

Pair A	Pair B
◀ Extractor_A	◀ Extractor_B
◀ Embedder_A	◀ Embedder_B

◀ **Extractor A and B**

This allows one of the 8 channels to be selected for extraction from Pair A and Pair B.

Extractor_A	Extractor_B
PAIR 1	PAIR 1
PAIR 2	PAIR 2
PAIR 3	PAIR 3
PAIR 4	PAIR 4
PAIR 5	PAIR 5
PAIR 6	PAIR 6
PAIR 7	PAIR 7
PAIR 8	PAIR 8
◀ Preset	◀ Preset

◀ **Embedder A and B**

This allows one of the 8 channels to be selected for embedding of Pair A or Pair B. Off may also be selected.

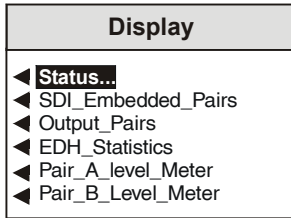
Embedder_A	Embedder_B
OFF	OFF
PAIR 1	PAIR 1
PAIR 2	PAIR 2
PAIR 3	PAIR 3
PAIR 4	PAIR 4
PAIR 5	PAIR 5
PAIR 6	PAIR 6
PAIR 7	PAIR 7
PAIR 8	PAIR 8
◀ Preset	◀ Preset

When Preset Unit is selected the assignments are as follows:

Extractor A	to	Pair 1
Embedder A	to	Pair 1
Extractor B	to	Pair 2
Embedder B	to	Pair 2

◀ **Display...**

This menu allows information about the selected item to be displayed in the Information LCD window.



◀ **Status**

This will show basic details of the operational status of the unit.

The Inp: (Input Status) item uses the following abbreviations:

\*\* = No valid input present  
OK = Valid input present

The Std: (Input Line Standard) item uses the following abbreviations:

\*\*\* = Standard is not recognized  
625 = Input line standard is 625  
525 = Input line standard is 525

Other intuitive messages may appear in the lower left area of the display, for example, GPI:OFF, indicating that the GPI function is set to OFF.

◀ **SDI\_Embedded\_Pairs**

This function shows information about the presence of the input SDI Embedded Audio pairs.

The SDI: item uses the following abbreviations:

P = Pair is present  
\* = Nothing present

◀ **Output\_Pairs**

This function will present information about the selected output pairs 1 to 8.

The Out: item uses the following abbreviations for each pair:

P = Pair is present  
\* = Nothing present  
1 = Bus 1 embedded in the pair  
2 = Bus 2 embedded in the pair

CLP:

This function indicates that the output signal has clipped at 0dBFS.

The CLP: item uses the following abbreviations:

L = Left  
R = Right  
B = Both (Left and right)

◀ **EDH\_Statistics**

This function will display the state of the input error detection handler including the presence of errors, the number of errors and the error time.

Abbreviations used in the EDH: item is as follows:

None: No EDH information present.  
OK: No EDH errors.

Err: This is the number of errors since EDH was reset.

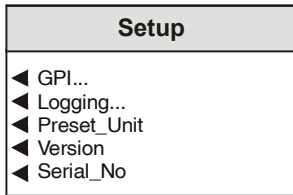
E-Time: This is time since EDH was reset  
00:00:00 in Hours:Minutes:Seconds

◀ **Pair A and Pair B Level Meter**

This function will display the right and left signal levels for Pair A or Pair B in dBFS.

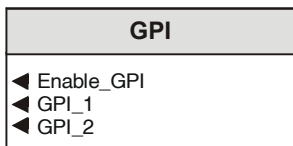
◀ Setup...

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



◀ GPI

This item allows the GPI inputs to be configured.



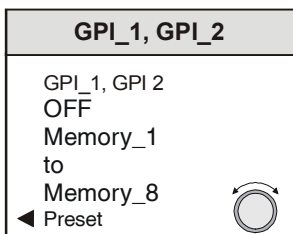
◀ Enable\_GPI

When selected this will make both GPI functions active.

◀ GPI\_1 and GPI\_2.

There are two GPI inputs on the rear of the IQDEAR.

These two inputs may be configured to recall any of the 8 memory settings or may be turned OFF.



The spinwheel allows each of the memory locations to be selected and (GPI) OFF.

The function will be activated when the GPI input receives a transition from open to closed.

Notes

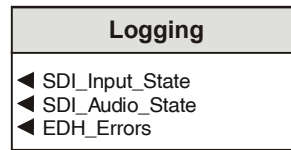
*If both inputs are activated at the same time GPI 1 will have priority.*

*If the Enable GPI function is checked when the GPI is active (closed) no action will occur.*

*The input must receive a transition from open to closed to operate.*

Preset for each of the GPI modes is to OFF; the unit will then have no response to the GPI inputs.

◀ 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.

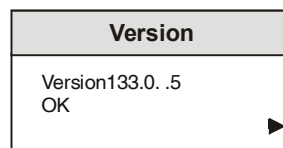
Selecting an item will allow that information to be made available for logging.

Preset Unit is nothing enabled.

◀ Preset\_Unit

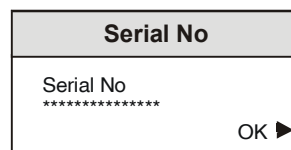
Selecting this item sets all adjustment functions that include a preset facility, to their preset values. Note that this is a momentary action and the text will not become reversed

◀ Version



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

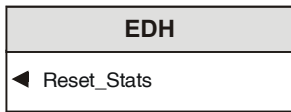
◀ Serial No.



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

**EDH ▶**

The input 4:2:2 stream is continuously monitored for EDH errors.

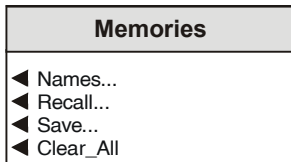


**◀ Reset\_Stats**

Data will be reset and a regenerated EDH packet is inserted on the output 4:2:2 stream.

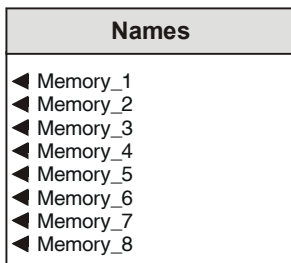
**Memories... ▶**

This function reveals a sub-menu that allows 8 different settings of all items to be recalled from the 8 memory locations as saved in the Save function.

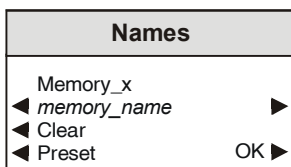


**◀ Names**

This allows a memory location to be selected and the name changed.



**◀ Memory\_1 to 8**



To compile/edit the text the right ▶ and left ◀ buttons adjacent to the upper text line in the menu should be used to select the character position in the text and the spinwheel used to select the character.

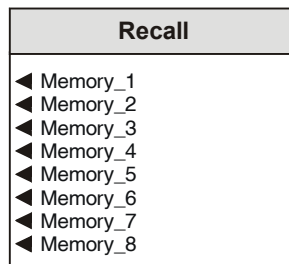
The **◀ Clear** function blanks out the selected character.

The **◀ Preset** function loads the default text, for example **Memory\_1**.

**O.K. ▶** saves the text and returns to the main menu.

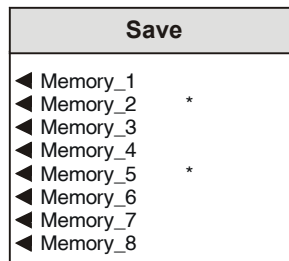
**◀ Recall**

This function reveals a sub-menu that allows 8 different settings of all items to be recalled from the 8 memory locations as saved in the **Save** function.



**◀ Save**

This function reveals a sub-menu that allows the settings of all items to be saved. Up to 8 different set-ups may be saved in the 8 memory locations



*Note that if a memory location already contains saved data, an asterisk \* will appear to the right of the memory location number.*

**◀ Clear\_All**

This selection allows all memory locations to be cleared and returned to their default (preset) settings.

