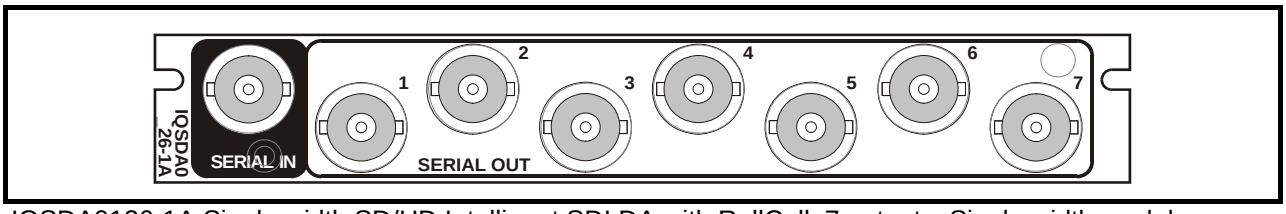
Intelligent Reclocking High Performance HD-SDI/SD-SDI Distribution Amplifier

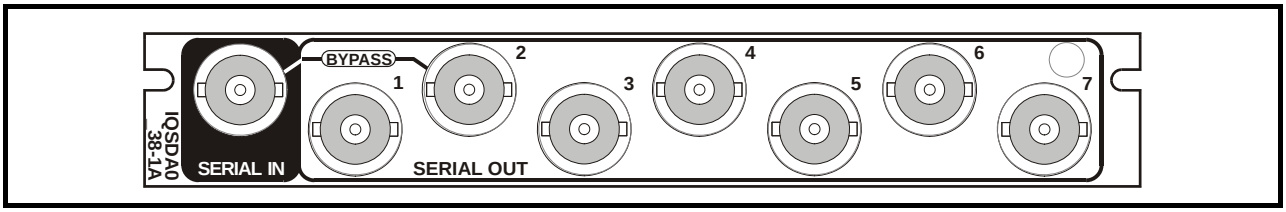
Module Description

The IQSDA01 provides up to seven re-clocked outputs for HD-SDI 1.5 Gbit/s or 270 Mbit/s SD-SDI signals, four re-clocked outputs for DVB-ASI signals, or even non re-clocking distribution of wide-band signals. Its 140m HD input equalization performance makes it the most capable HD-SDI DA available. This extra performance means that the systems designer will not need to resort to thicker cable with its added costs, weight and installation hassle. This distribution amplifier also achieves industry-leading density with over 37 re-clocked outputs per rack unit.

Rear Panel Views



IQSDA0126-1A Single width SD/HD Intelligent SDI DA with RollCall. 7 outputs. Single width module.

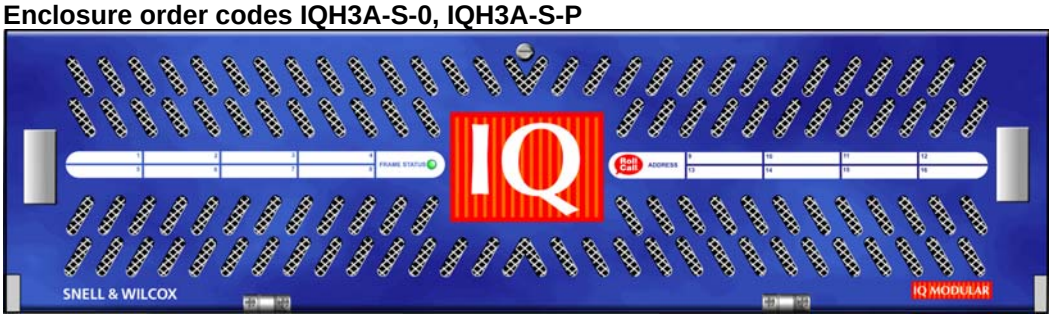


IQSDA0138-1A Intelligent reclocking high-performance distribution amplifier with RollCall and relay input bypass. 7 outputs. Single width module.

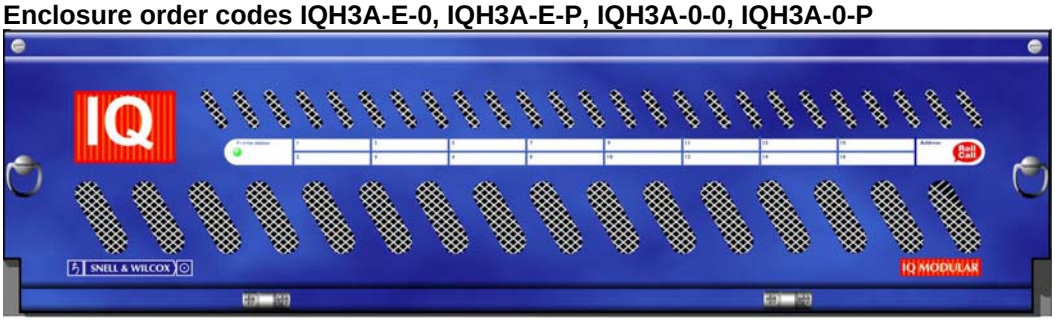
The relay bypass exists between the Serial Input and Output 2 only. In the event of module removal, power failure, or certain types of module failure, the signal from Serial In to Output 2 will be able to bypass the module.

Note that this module can only be fitted into the 'A' Style Enclosure shown below.

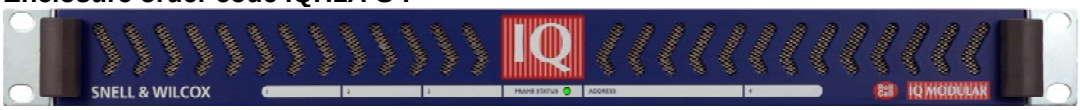
Enclosure order codes IQH3A-S-0, IQH3A-S-P



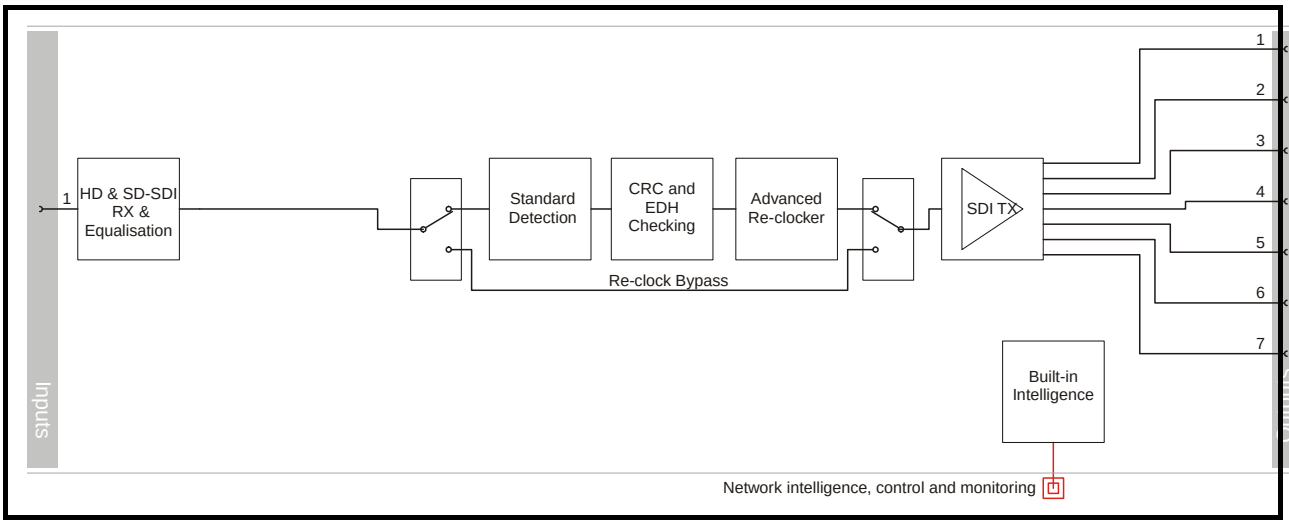
Enclosure order codes IQH3A-E-0, IQH3A-E-P, IQH3A-0-0, IQH3A-0-P



Enclosure order code IQH1A-S-P



Block Diagram



Features

- Intelligent HD-SDI and SD-SDI/DVB-ASI re-clocking distribution amplifier
- Will distribute DVB-ASI (outputs 1, 3, 5, 7) and other wide-band signals
- Equalizes up to 140 m at 1.5 Gbit/s and up to 350 m at 270 Mbit/s of Belden 1694A cable
- Standards supported:
- HD-SDI to SMPTE292M
- SD-SDI to SMPTE259M-C
- DVB-ASI
- RollCall monitoring allows all signal paths to be managed
- Extremely compact – up to 16 channels and 112 outputs in 3RU - for use where space is at a premium
- 16 user configurable memories

Technical Profile

Inputs & Outputs

Signal Input

Electrical ..... 1.5Gbit/s HD-SDI, SMPTE 292M
270 Mbit/s SDI, SMPTE 259M-C / DVB-ASI

Connector / Format..... BNC/ 75ohm panel jack on standard S&W connector panel

Input Cable Length ..... Up to 140m Belden 1694A @ 1.5 Gbit/s
(40m input cable length and 35m output cable length, relay bypass version. Belden 1694A @ 1.5 Gbit/s)
Up to 350m Belden 1694A @ 270 Mbit/s

Note: Specified cable lengths are a guide only. Exact cable length performance will depend on the quality of the cable used, the SDI video rate and the system setup. It is advisable not to cascade modules using the relay rear version although it may be possible if the interconnecting cable lengths are kept to an absolute minimum.

Return loss..... > -15dB

Relay bypass versions

Input Return Loss: ..... > -8dB (When not in BYPASS mode)

Output Return Loss: ..... > -8dB (When not in BYPASS mode)

Signal Outputs

Electrical ..... 1.5 Gbit/s HD-SDI, SMPTE 292M
270 Mbit/s SDI, SMPTE 259M-C / DVB-ASI

Connector / Format..... BNC/ 75ohm panel jack on standard S&W connector panel

HD / SD-SDI Outputs..... 1, 2, 3, 4, 5, 6, 7

DVB-ASI Outputs..... 1, 3, 5, 7

Return loss..... > -15dB

Controls

Indicators

Power ..... OK

CPU..... OK

Status ..... OK (Green)
Warning (Yellow)
Error (Red)

RollCall Functions

Auto/Manual

SD/HD

Reclock

DVB-ASI

Input Status ..... Present, Loss, Standard

Logging..... Input Status
Input Standard
CRC/EDH

RollTrack Controls ..... On/Off, Index, Source, Address, Command, Status, Sending.

RollTrack Outputs..... Unused
Input OK
Input None
Input HD
Input SD
Input Unknown
Input ASI
Input Standards

User Memories ..... 16 x Save / Recall / Rename

Specifications

Power Consumption

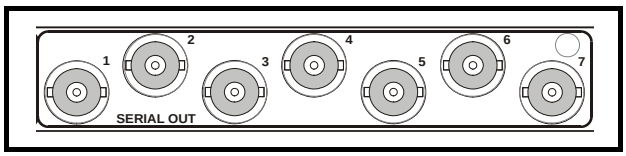
Module Power Consumption
3 W max
3.5 W max – Relay Bypass Version

INPUTS

Serial Digital Video Input

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

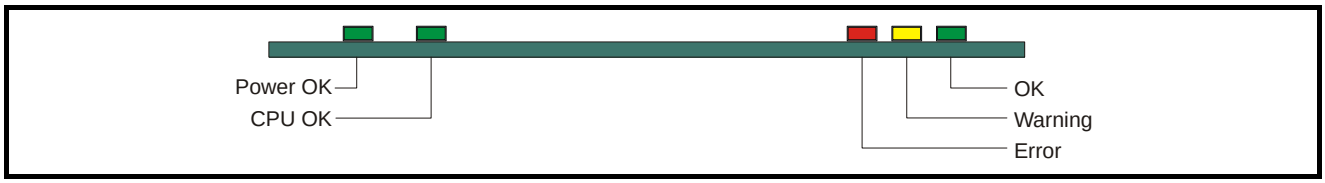
OUTPUTS



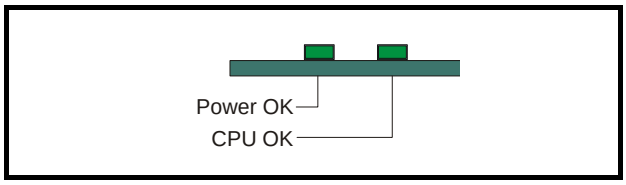
Serial Digital Video Outputs

These are the 7 Serial Digital outputs of the unit via BNC connectors for 75 Ohms.

CARD EDGE CONTROLS (IQSDA01)



LED INDICATORS

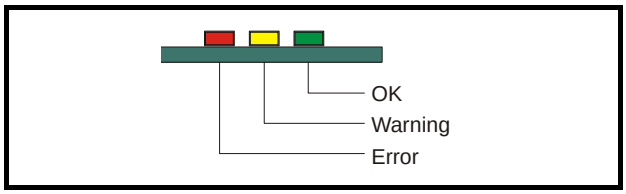


Power OK

This indicator is illuminated when the positive supply is present.

CPU OK

This LED will flash to indicate that the CPU is running



Error

This will only become illuminated when CRC/EDH errors are being detected

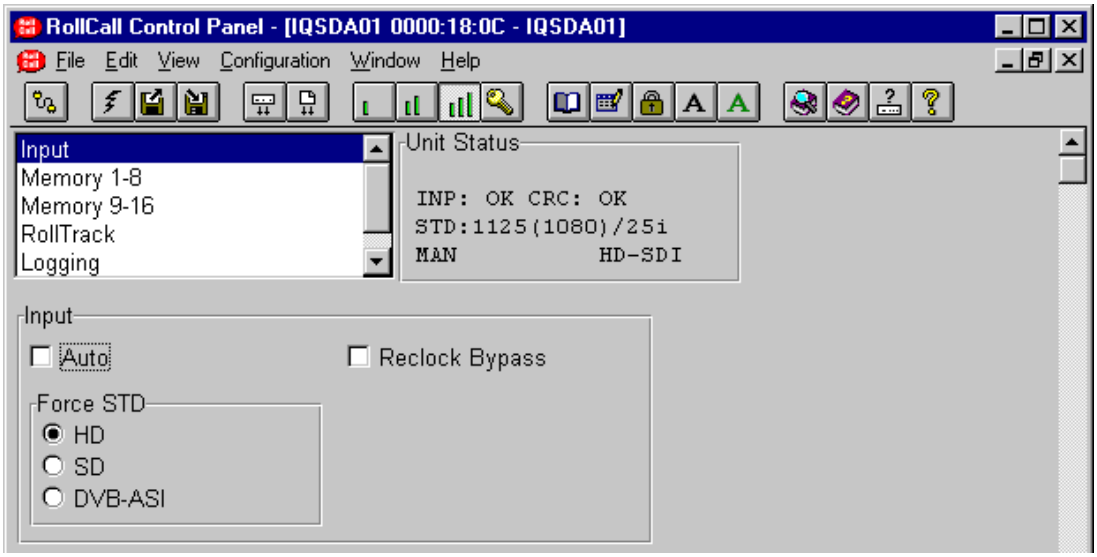
Warning

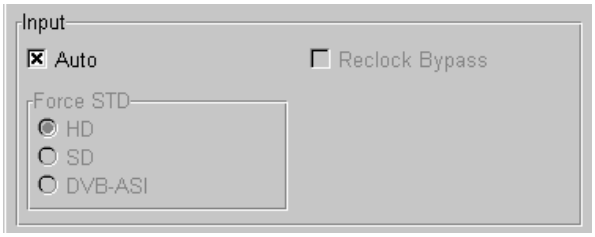
When illuminated this will indicate that the input signal is **not** being reclocked – i.e. in reclock bypass mode.

OK

When illuminated this will indicate that the module is locked to the input signal.

Input





Input

This item allows the type of input signal to be selected.

Auto

When **Auto** is selected the unit will automatically reclock a valid HD-SDI, SD-SDI or DVB-ASI input signal.

If non-valid SDI input signals are detected the non-reclocking mode (reclock bypass) will automatically be enabled (wide-band mode).

Note that when Auto is selected the Force STD and Reclock Bypass options are grayed out and are therefore not selectable.

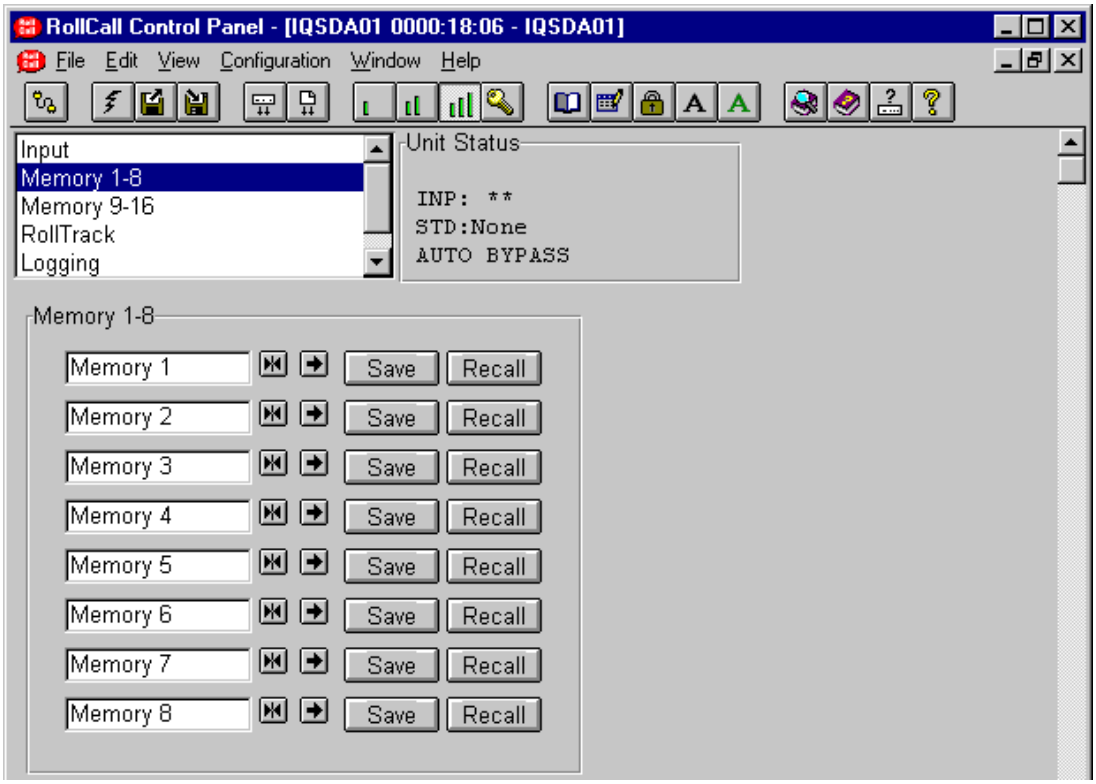
Force STD (Standard)

This item allows the unit to only lock to the selected input signal standard. (HD, SD or DVB ASI)

Reclock Bypass

When checked the unit will not reclock the input signal; when unchecked the unit will reclock the input signal.

Memory



Save (Memory 1 - 8 and 9 - 16)

This item will store the settings in the selected memory location.

Recall (Memory 1 - 8 and 9 - 16)

This item will recall the settings from the selected memory location.

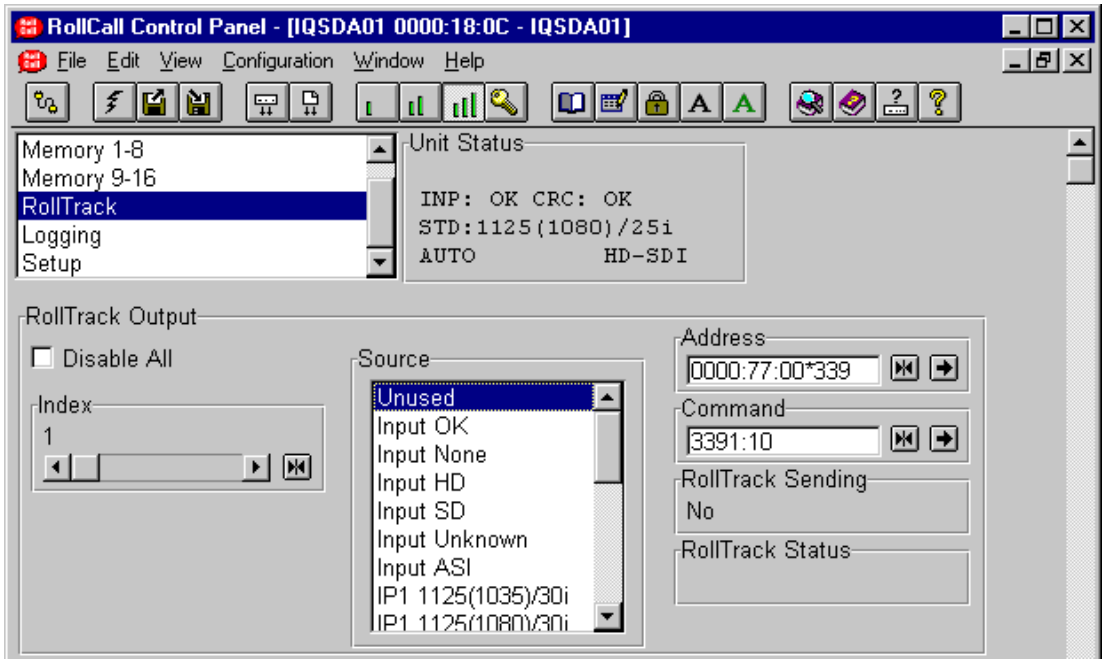
Memory 1 - 8 and 9 - 16

The memory location name may be renamed.

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 (Memory 1-8).

RollTrack



This function allows information about the status of the module to be communicated to other RollTrack compatible units connected to the network. This message can then be used to cause another unit to perform a specific action. For example, it can be used to control the switching of a router or changeover module on loss of input.

Disable All

When this item is checked all RollTrack items will be disabled.

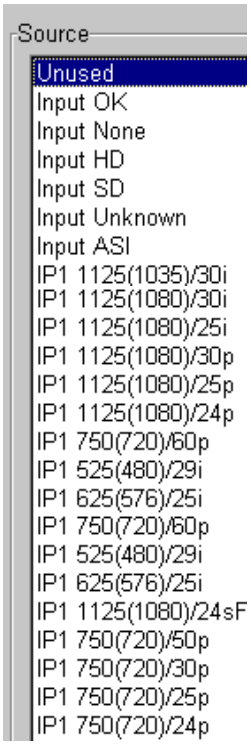
Index

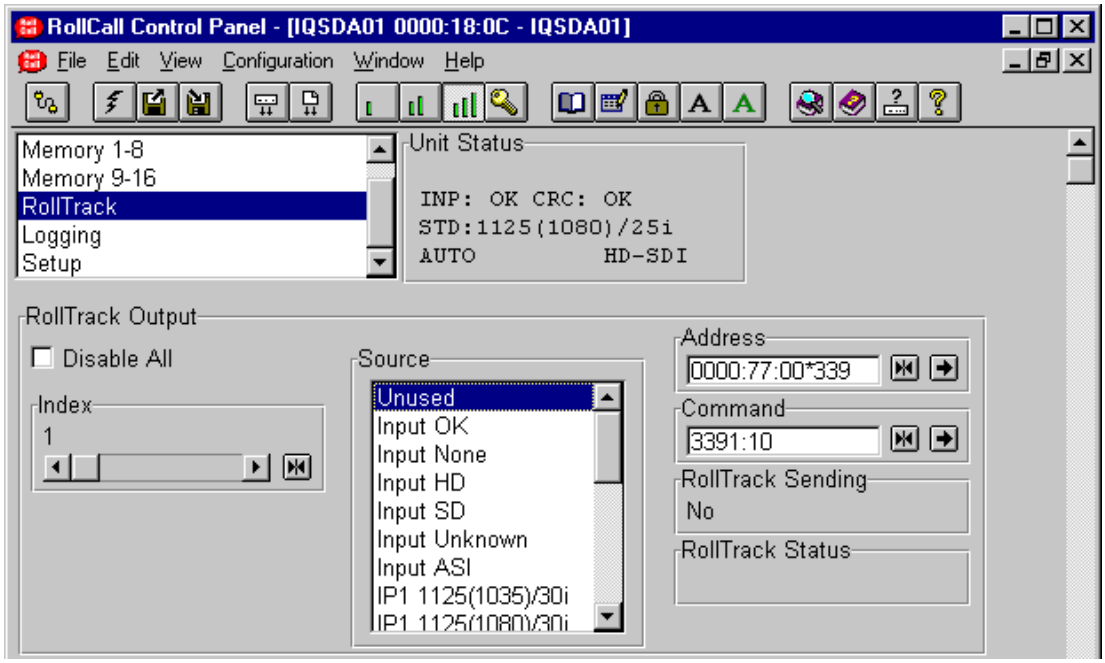
There are 16 (1 to 16) RollTrack destinations available. This item is used to select which RollTrack Index is set up using the RollTrack Source, RollTrack Address and RollTrack Command functions.

Source

This selects the source of information that triggers the transmission of the RollTrack data.

The options are shown in the picture below.





The destination for the information is set by the network code address as follows:

Address:ID

This item allows the address of the destination unit to be set.

To change the address, type the new destination in the text area and then select (return)

(Preset) returns to the default destination

The full **RollTrack** address has four sets of numbers. For example: 0000:10:01*99

The first set (0000) is the network segment code number.

The second set (10) is the number identifying the enclosure/mainframe.

The third set (01) is the slot number in the enclosure.

The fourth set (99) specifies which type of unit will respond to the command. For example setting to 158 will ensure only an IQDRT8 will respond. This feature can be used to protect against a different type of unit responding incorrectly.
Setting to 00 allows any type of unit to respond to the command.

For a list of unit IDs, please contact your local Snell & Wilcox agent.

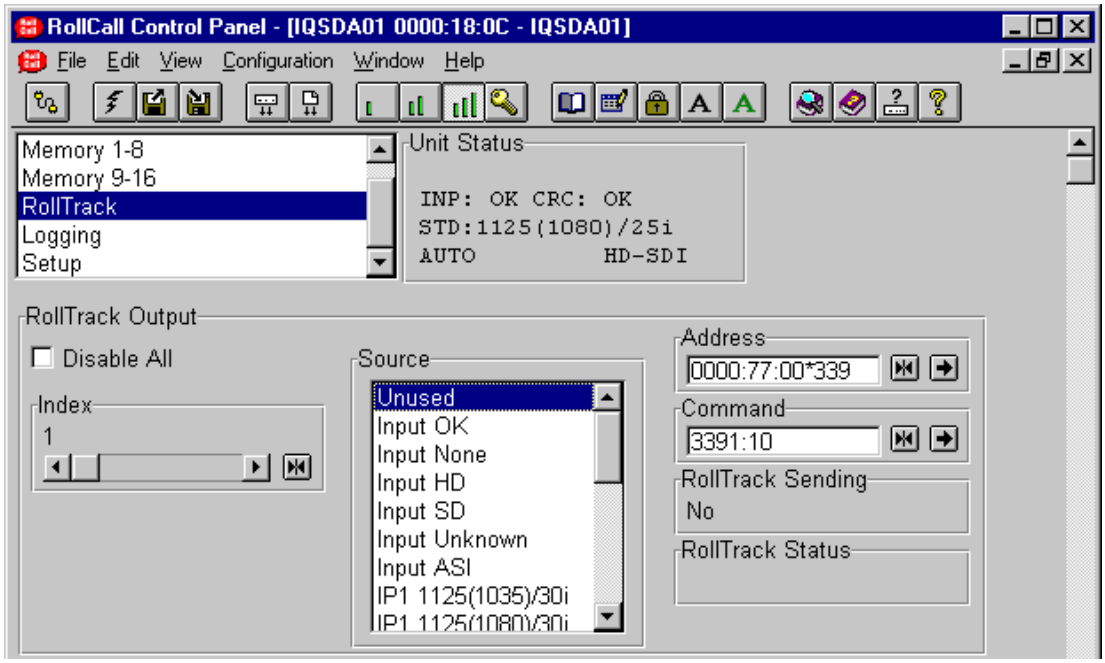
Command Value

The full **RollTrack** command has two sets of numbers. For example: 84:156

The first set (84) is the **RollTrack** command number.

The second set (156) is the value sent with the **RollTrack** command number.

For details of the RollCall command values for specific units please contact your local Snell & Wilcox agent.



RollTrack Sending

This item shows when the unit is actively sending the RollTrack command.

This may show:

String	A string value is always being sent.
Number	A number value is always being sent.
No	The message is not being sent.
Yes	The message is being sent.
Internal Type Error	Inconsistent behavior; please contact your local Snell & Wilcox agent.

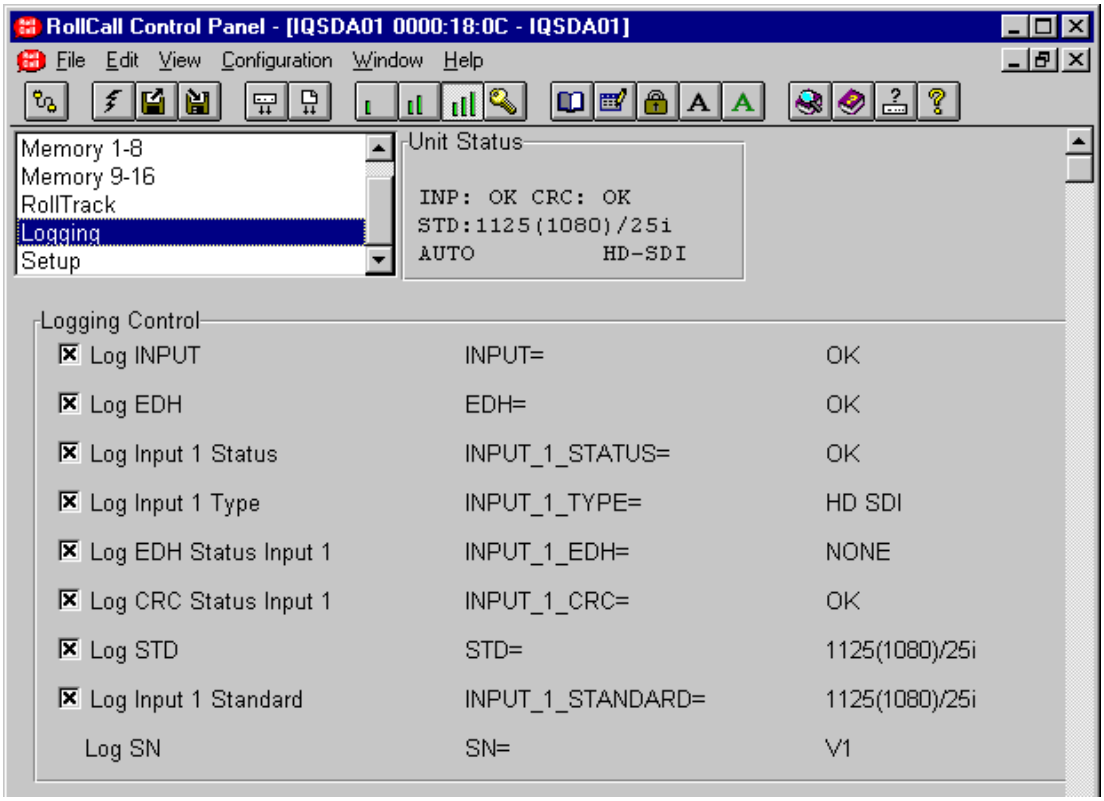
RollTrack Status

This item will show the status of the currently selected RollTrack index.

This may show:

OK	RollTrack message sent and received OK.
Unknown	Rolltrack message has been sent but it has not yet completed.
Timeout	RollTrack message sent but acknowledgement not received. This could be because the destination unit is not at the location specified.
Error	This indicates a broken RollCall state.
Bad	This indicates a broken RollCall packet.

Logging



Information about various parameters can be made available to a logging device that is attached to the RollCall™ network by checking the appropriate box.

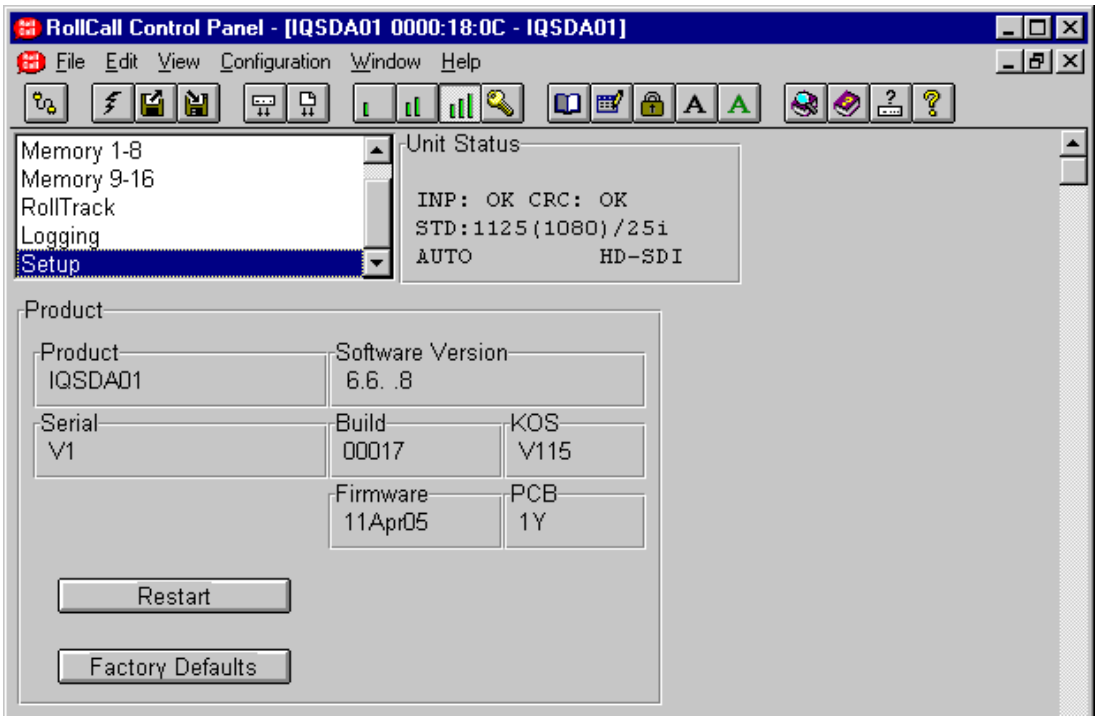
The status is shown to the right of the item.

Any of the items may be selected from the list.

ROLLCALL LOG FIELDS

Log Field	Log Value	Description
INPUT=	OK ERR LOST	Valid input signal Invalid input signal Input signal lost
EDH=	NONE FAIL OK RESET	The unit is not locked to the input signal EDH errors have been found on the input signal No EDH errors found on the input signal EDH statistics have been reset
INPUT_1_STATUS=	OK FAIL WARN	 Lost Error
INPUT_1_TYPE=	NONE UNKNOWN HD SDI SD SDI ASI	
INPUT_1_EDH=	NONE OK WARN	SD EDH not present SD EDH present OK SD EDH present Error
INPUT_1_CRC=	NONE OK WARN WARN	 No CRC CRC Error
STD=	UNKNOWN STDERR 525 625	Input signal standard not recognized or no signal Not a selected input standard Input standard 525 Input standard 625
INPUT_1_STANDARD=	OK ERR LOST	Valid input signal Invalid input signal Input signal lost
SN=		Serial Number

Setup



Product

This will show the name of the module.

Serial

This item will show the serial number of the unit.

This will reboot the unit simulating a power-down power-up cycle restoring power-up settings.

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

IMPORTANT NOTICE
This function will also clear all the saved memory settings and return them to the factory values.

Software Version

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

Build

This will indicate the factory build number. This number defines all parameters of the unit (software versions, build level etc.) for identification purposes.

Firmware

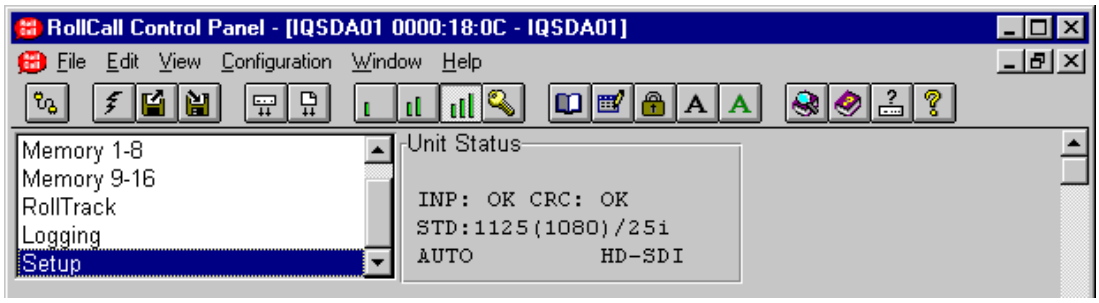
This shows the version of the firmware system

KOS

This shows the version of the operating system.

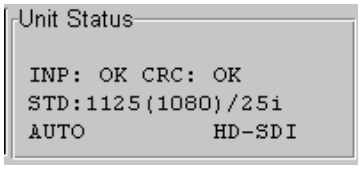
PCB

This shows the PCB revision number.



Unit Status

This area will display information about the status of the unit.



The first item of the first line will show the status of the input. It may show:

INP: OK	The unit is locked to the input signal.
INP: **	The unit is not locked to the input signal.

The second item of the first line will show either any detected Cyclic Redundancy Checksum (CRC) errors for HD-SDI signals or show any detected EDH errors for SD-SDI signals.

For HD-SDI signals it may show:

CRC: OK	No CRC errors found on the input signal
CRC: FAIL	CRC errors have been found on the input signal
CRC: NONE	The unit is not locked to the input signal

For SD-SDI signals it may show:

EDH: OK	No EDH or SDI errors found on the input signal
EDH: FAIL	EDH errors have been found on the input signal
EDH: NONE	The unit is not locked to the input signal

The second line will show the detected video standard.

STD:1125(1080)/30i This shows the detected video standard.

Note that the frame rate will be reported as the nearest whole number.
For example 59.94 Hz will be reported as 60 Hz and 23.98 Hz will be reported as 24 Hz.

Also 1.4835 Gbps standards will be reported the same as 1.485 Gbps standards.
For example 1125(1080)/29i will be reported as 1125(1080)/30i.

STD: UNKNOWN	Otherwise it will show unknown.

The first item of the third line will show the input signal select mode.

MAN	Manual mode selected.
AUTO	Auto mode selected.

The second item of the third line will show the type of input signal detected.

It may show:

HD-SDI

Or

SD-SDI

Or

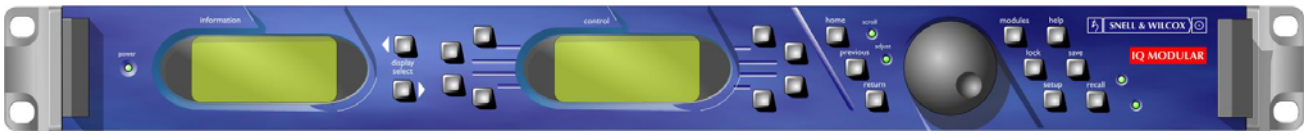
DVB-ASI

Or

BYPASS	If the signal is not recognized the unit will enter the Bypass mode.

Operation from an Active Control Panel

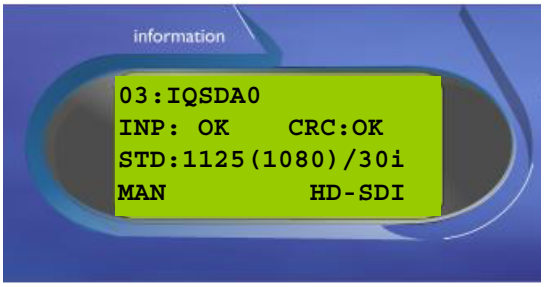
The card may be operated from an active control panel via the RollCall™ network.



All operational parameters and selections are made using a system of menus displayed in two LCD windows.
Operational details for the remote control panel can be found in the Modular System Operator's Manual.

Information Window

The Information window has four lines of text indicating the current state of the unit.



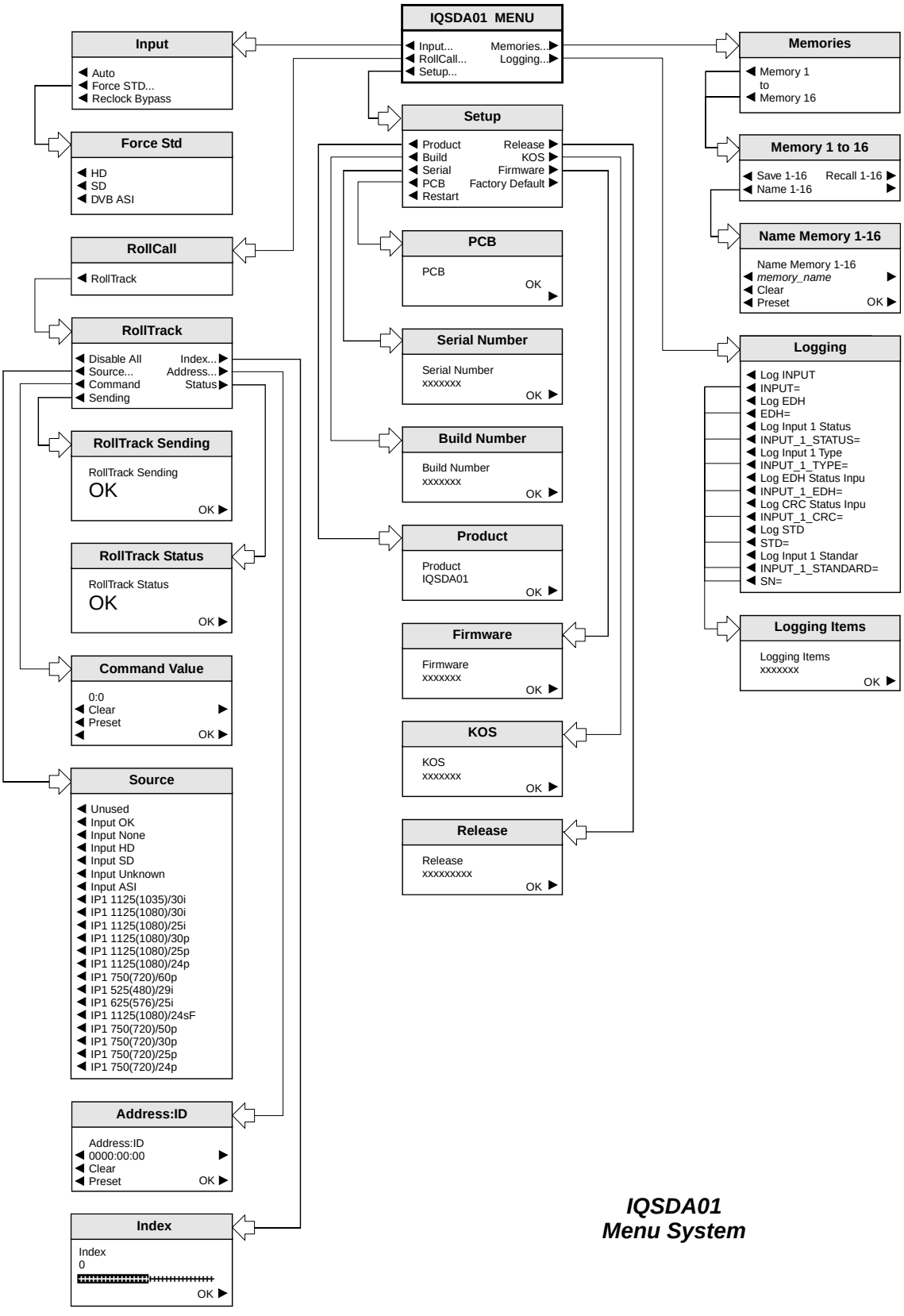
For details of the abbreviations used please see page 10.

Control Window

The **Control** window displays all Selection Menus and sub-menus.

The selection is made by pressing the button adjacent to the required item.

The menu structure is detailed in the following pages.



IQSDA01
Menu System

MENU DETAILS
(see IQSDA01 Menu System on previous page)

MAIN MENU

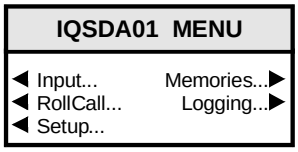
The main or top level menu allows various sub-menus to be selected by pressing the button adjacent to the required text line.

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.

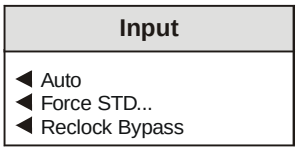
Also refer to the block diagram on page 3 for more information.

MAIN MENU



◀ Input

This item allows the type of input signal to be selected.

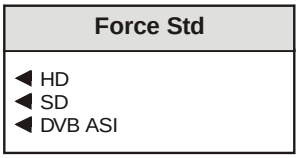


◀ Auto

When **Auto** is selected the unit will automatically accept a valid HD, SD or DVB-ASI input signal.

Note that when Auto is selected the Force STD and Reclock Bypass options are not selectable.

◀ Force STD… (Standard)

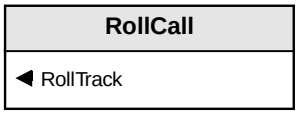


This item allows the unit to only lock to the selected input signal standard. (HD, SD or DVB ASI)

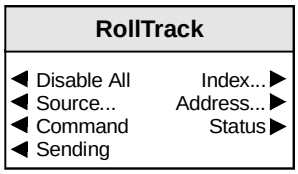
◀ Reclock Bypass

When checked the unit will not reclock the input signal; when unchecked the unit will reclock the input signal.

◄ RollCall...



This reveals the RollTrack menu



This function allows information about the status of the module to be communicated to other RollTrack compatible units connected to the network. This message can then be used to cause another unit to perform a specific action. For example, it can be used to control the switching of a router or changeover module on loss of input.

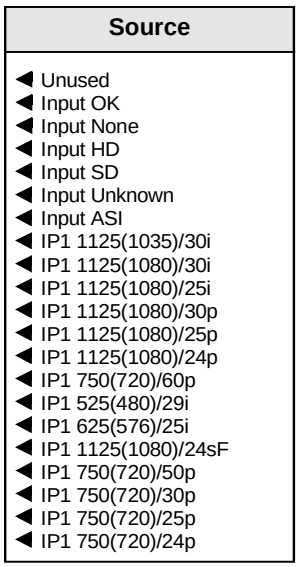
◄ Disable All

When this item is checked all RollTrack items will be disabled.

◄ Source

This selects the source of information that triggers the transmission of the RollTrack data.

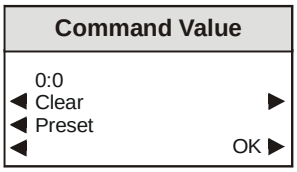
Index ►



Items may be selected from the list.

The destination for the information is set by the network code address as follows:

◄ Command (Value)



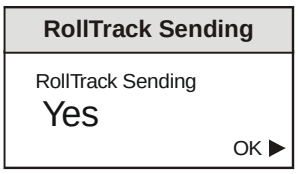
The full **RollTrack** command has two sets of numbers. For example: 84:156

The first set (84) is the **RollTrack** command number.

The second set (156) is the value sent with the **RollTrack** command number.
For details of the RollCall command values for specific units please contact your local Snell & Wilcox agent.

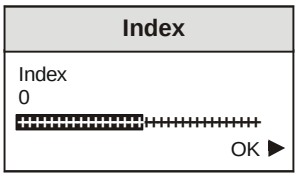
◄ (RollTrack) Sending

This will show whether or not RollTrack is sending messages.



It may show either Yes or No.

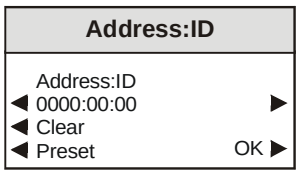
There are 16 (1 to 16) RollTrack destinations available.



This item is used to select which RollTrack Index is set up using the RollTrack Source, RollTrack Address and RollTrack Command functions.

Address:ID ►

This item allows the address of the destination unit to be set.



To edit the address, use the left ◄ and right ► buttons to change the position of the cursor, and the spin wheel to select the character.

The ◄ **Clear** function blanks the selected character.

The ◄ **Preset** function loads the default address.

O.K. ► saves the memory name text and returns to the main menu.

The full **RollTrack** address has four sets of numbers. For example: 0000:10:01*99

The first set (0000) is the network segment code number.

The second set (10) is the number identifying the enclosure/mainframe.

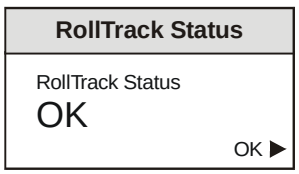
The third set (01) is the slot number in the enclosure.

The fourth set (99) specifies which type of unit will respond to the command. For example setting to 158 will ensure only an IQDRT8 will respond. This feature can be used to protect against a different type of unit responding incorrectly.
Setting to 00 allows any type of unit to respond to the command.

For a list of unit IDs, please contact your local Snell & Wilcox agent.

Status ►

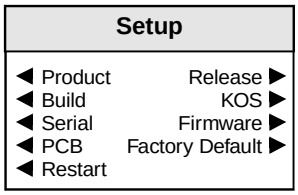
This item displays the status of the RollTrack system.



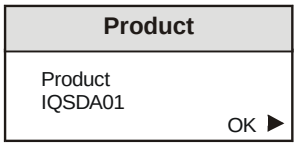
It can show OK, Bad, Unknown, Timeout or Error.

◄ Setup...

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

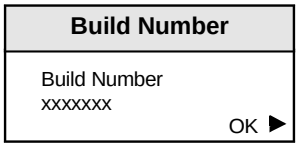


◄ Product



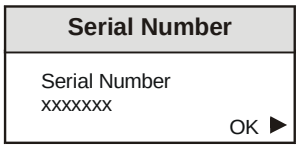
This will show the name of the module.

◄ Build



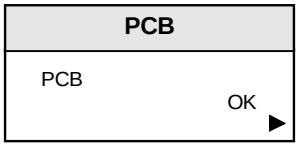
This will indicate the factory build number. This number defines all parameters of the unit (software versions, build level etc.) for identification purposes.

◄ Serial (Number)



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

◄ PCB

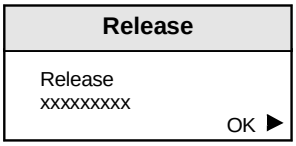


This shows the PCB revision number.

◄ Restart

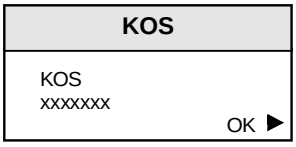
This function allows the unit to reboot and all power-up settings to be enabled.
This is an easier method than switching the mains power off and on.

Release ►



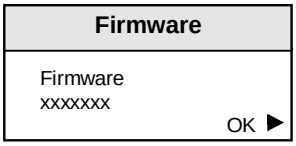
This item reveals a display showing the version of the software fitted in the module. Select OK to return to the Setup Menu.

KOS ►



This shows the version of the operating system.

Firmware ►



This shows the version of the firmware system

Factory Default ►

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

IMPORTANT NOTICE
This function will also clear all the saved memory settings and return them to the factory values.

Note that this is a momentary action and the text will not become reversed.

Memories... ►

This function allows the settings of the unit to be saved and recalled. There are 8 memory locations available.

Memories
◄ Memory 1 to ◄ Memory 16

Selecting a memory location reveals the memory display. From this menu settings can be saved and recalled. The memory location can also be renamed.

◄ Memory 1-16

Memory 1 to 16	
◄ Save 1-16	Recall 1-16 ►
◄ Name 1-16	►

◄ Save 1-16

Selecting save stores the current unit settings in the memory location.

◄ Recall 1-16

Selecting recall applies the settings stored in the memory location to the unit.

◄ Name 1-16

This selection allows renaming of the memory location.

Name Memory 1-16	
Name Memory 1-16	
◄ *memory_name*	►
◄ Clear	
◄ Preset	OK ►

To edit the memory name, use the left ◄ and right ► buttons to change the position of the cursor, and the spin wheel to select the character.

The **◄ Clear** function blanks the selected character.

The **◄ Preset** function loads the default text, for example, **Memory 1.**

O.K. ► saves the memory name text and returns to the main menu.

Logging... ►

◄ 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.

Logging
◄ Log INPUT
◄ INPUT=
◄ Log EDH
◄ EDH=
◄ Log Input 1 Status
◄ INPUT_1_STATUS=
◄ Log Input 1 Type
◄ INPUT_1_TYPE=
◄ Log EDH Status Inpu
◄ INPUT_1_EDH=
◄ Log CRC Status Inpu
◄ INPUT_1_CRC=
◄ Log STD
◄ STD=
◄ Log Input 1 Standar
◄ INPUT_1_STANDARD=
◄ SN=

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

Logging Items
Logging Items xxxxxxx OK ►

Preset Unit is nothing selected.

Manual Revision Record

Date	Version No.	Issue No.	Change	Comments
080104	1	1		First issue released
101108	1	2	Added Relay Input Bypass	New issue