

IQORX00

Single mode Fiber Optic Receiver for HD/SD-SDI Signals

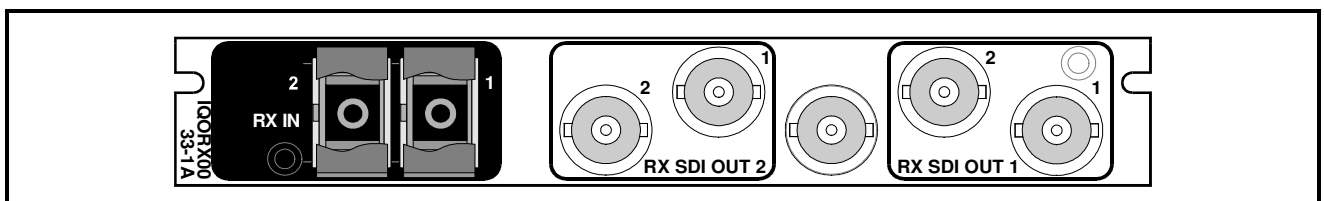
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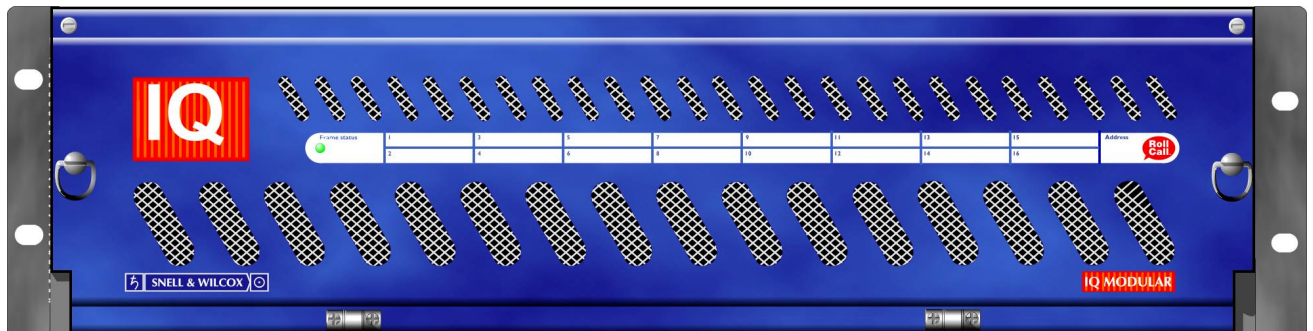
Module Description

The IQORX00 is a single/dual channel fiber optic receiver for HD/SD-SDI signals. The unit can be configured to receive up to two single mode fiber optic sources, and will produce two electrical outputs of each source. Four electrical outputs can be provided when configured as a single channel receiver.

Rear Panel View



Note that these modules can 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)

Versions of the module cards available are:

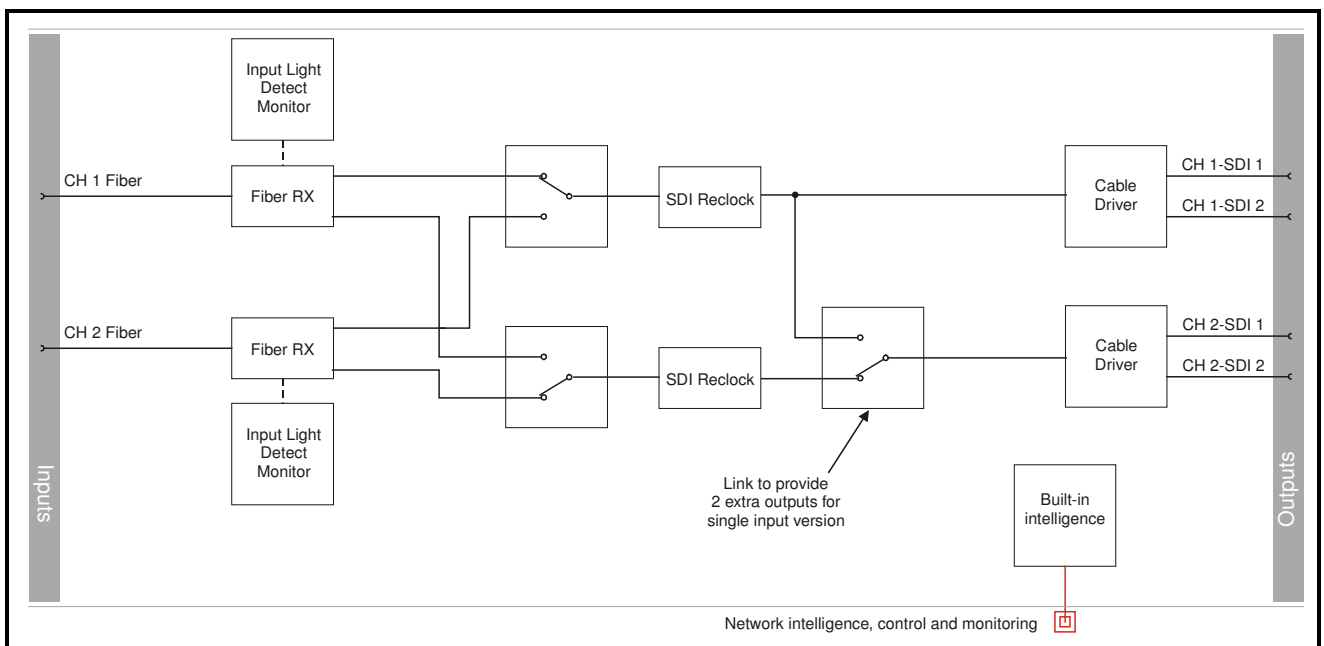
IQORX0033-1A + 1 x IQHRX00 submodule - Single mode fiber optic receiver for HD/SD-SDI. 1 x optical input, 2 x HD/SD-SDI outputs.

IQORX0033-1A + 2 x IQHRX00 submodule - Single mode fiber optic receiver for HD/SD-SDI. 2 x optical inputs, 2x2 x HD/SD-SDI outputs.

IQORX0033-1A + 2 x IQSRX00 submodule - Single mode fiber optic receiver for SD-SDI. 2 x optical inputs, 2x2 x SD-SDI outputs.

IQORX0033-1A + 1 x IQSRX00 submodule - Single mode fiber optic receiver for SD-SDI. 1 x optical input, 2 x SD-SDI outputs.

Block Diagram



Product Comparison

Main Module	Submodule Slot 1	Submodule Slot 2	Description	Ordering Information
IQORX0033-1A	IQHRX00 - HD/SD	None Fitted	Single HD/SD Fiber Receiver	IQORX0033-1A + IQHRX00
		IQHRX00 - HD/SD	Dual HD/SD Fiber Receiver	IQORX0033-1A + IQHRX00 + IQHRX00

Features

- Single mode fiber optic receiver for HD/SD-SDI and DVB ASI Signals
- Input wavelength range 1200-1600 nm
- 2 HD/SD-SDI outputs for each input in accordance with SMPTE292M, SMPTE259M and DVB ASI
- Reclocking for 1.5 Gbit/s HD-SDI and 270 Mbit/s SDI signals, or asynchronous operation for other frequencies (input range 3 Mbit/s to 1.5 Gbit/s, suitable for AES up to HD-SDI rates)
- Input channel routing – each input can be routed to the other channels output

Technical Profile

Signal Inputs

Optical 1.485 Gbit/s HD-SDI or 270 Mbit/s SD-SDI
 (asynchronous operation available
 at other frequencies)
 Connector / Format.....SC/PC singlemode panel uniter
 InputsUp to 2

Signal Outputs

Electrical 1.485 Gbit/s HD-SDI or 270 Mbit/s SD-SDI
 (asynchronous operation available
 at other frequencies)
 Connector / Format.....BNC 75 ohm panel jack
 Conforms to:.....SMPTE 292M (HD)
 SMPTE 259M-C (SD)
 DVB/ASI (output 1 of each channel
 only)
 Outputs.....1 input – 4 outputs
 2 inputs – 2 x 2 outputs

Card Edge Controls (also available via RollCall)

None

Functions Available via RollCall™ Only

Routing.....Optical 1-CH1
 Optical 1-CH2
 Optical 2-CH1
 Optical 2-CH2
 ModeHD/SD
 ReclockerOn/Off
 LoggingOutput Standard, Output CRC/EDH
 error, Input Light Detect Status,
 Output Routing Status

Indicators

General

Power OK (green)..... Power supplies present
 CPU OK (green) CPU operating correctly

Each Channel

Error (red)..... Board or signal path error e.g. CRC
 errors
 Warning (yellow)..... User warning e.g. Video outputs
 have been swapped
 OK (green)..... Board and signal path OK
 Light detect (green)..... Light detected at Input

Specifications

Input wavelength rangeMin. 1200 nm
 Max. 1600 nm
 Optical power input range...< -3 dBm
 > - 20 dBm
 Detector damage threshold +3.5 dBm

Power Consumption

Module Power Consumption
 Single Rx 6 W max
 Dual Rx 8 W max

Installation

Warnings (when operating)

1. Laser light can be damaging to the eyes. Optical fibers and Uniteres should be handled with great care.
2. This card is designed for use with Class 1 laser systems only. Ensure that all inputs do NOT exceed Class 1 as doing so will impair the safety of the system and may result in damage to the equipment.
3. Active fibers should not be handled unless their source can be positively identified as not exceeding Class 1 limits.

Important: Do not disturb or handle the optical fibers on the card.



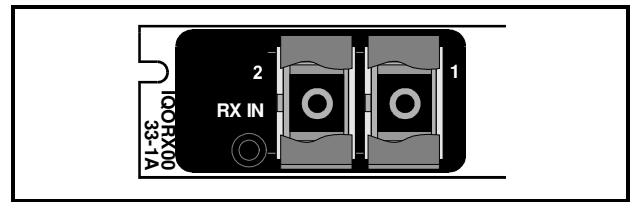
Notes...

1. Optical uniteres have shutters to prevent the ingress of dust. These shutters should only be opened when connecting optical fibers.
2. The ends of optical fibers should be cleaned with a liquid fiber cleaner, using a cotton bud, to ensure that there is no dust present, before they are plugged in (the uniter is polarised).
3. Observe the warning about not viewing live optical sources.

INPUT CONNECTIONS

RX IN 1 and RX IN 2

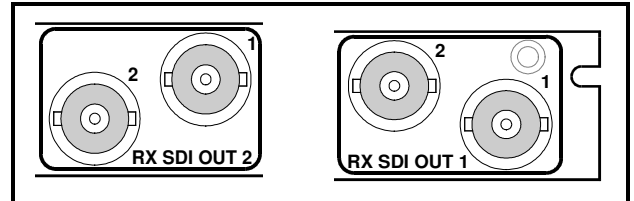
These are the channel 1 and channel 2 optical inputs to the unit that are made via SC Connectors with Shutters.



OUTPUT CONNECTIONS

RX SDI OUT 1

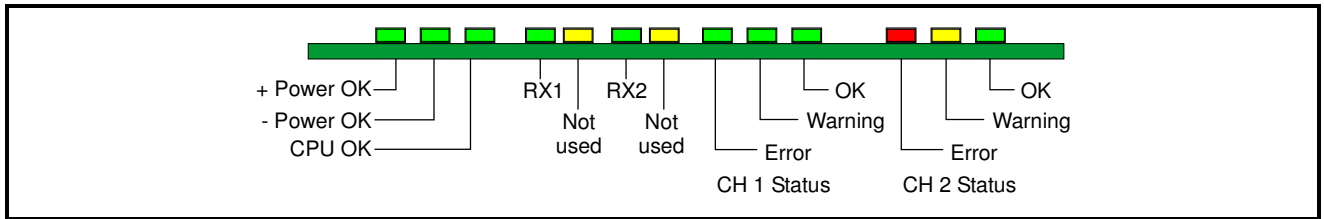
These are the two Serial Digital outputs for channel 1 of the unit via BNC connectors for 75 Ohms.

**RX SDI OUT 2**

These are the two Serial Digital outputs for channel 2 of the unit via a BNC connector for 75 Ohms.

For single channel receiver modules these outputs are also available.

CARD EDGE INDICATORS



LED INDICATORS

+Power and -Power

When illuminated these LED's indicate that the positive and negative supplies are present.

CPU OK

This LED will flash to indicate that the CPU is running.

RX 1 and RX 2 (Green)

This provides information about the received optical signal.

It will be illuminated if the input power is greater than -25 dBm.

It will not be illuminated in the received input power is less than -25 dBm.

Note that the input power can drop to approximately -23 dBm before the signal cannot be recovered error free.

CH1 and CH 2 Status**Error (Red)**

When illuminated indicates that CRC/EDH errors are being detected in one or both of the output SDI streams. It also becomes illuminated when the output is lost.

Warning (Yellow)

When illuminated indicates that one of the output signals is **not** being re-clocked i.e. in wideband mode. It also becomes illuminated if the inputs are swapped.

OK (Green)

When illuminated this will indicate that the module is operating correctly.

RollCall PC Control Panel Screens

Input Select

This allows the SDI input signals be selected and configured.

Note that input channel routing is only available for dual channel modules.

Output 1 and Output 2

This allows the input signal for Outputs 1 and 2 to be selected. Default is to Input 1 selected for Output 1 and Input 2 selected for Output 2.

Input 1 Select

When selected the signal at RX In 1 will be processed.

Input 2 Select

When selected the signal at RX In 2 will be processed.

Wideband (Not on SD versions)

When selected the reclocking feature of the particular output will be turned off to enable wideband signals to be passed through the unit.

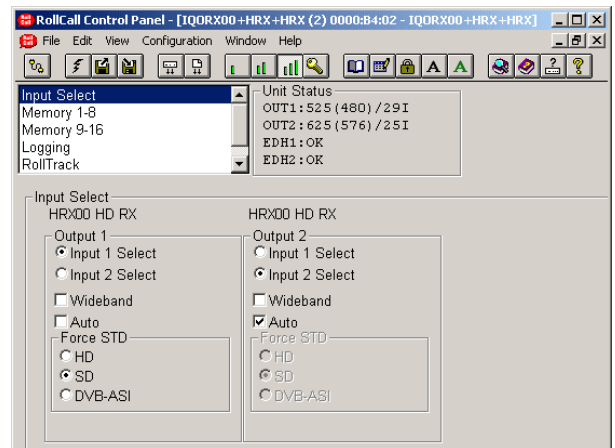
Default is unselected.

Auto (Default Setting) (Not on SD versions)

When selected the unit will automatically detect the standard of the selected input signal.



Force STD


This forces the unit to process the selected input signal as SD, HD or DVB-AS.



Memory 1-8 and 9-16

This function allows a number of particular setups of the unit to be saved and recalled. There are 16 memory locations available.

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

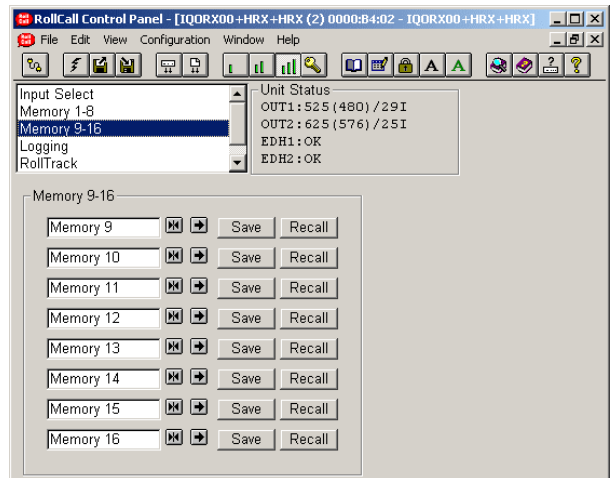
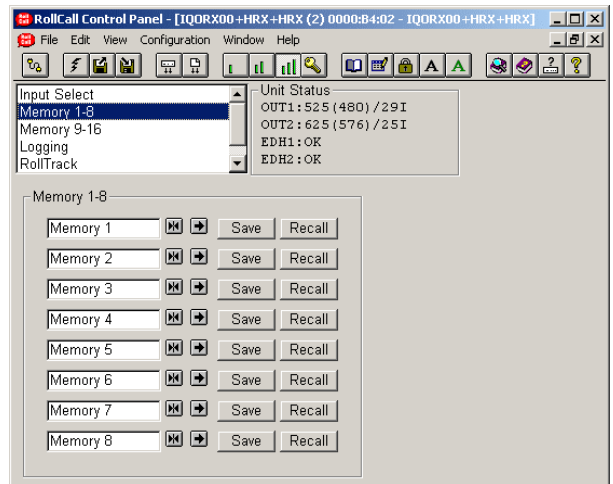
Selecting Preset  will return the text to the default name.



This function allows the settings of all items to be saved at the memory location.



This function allows the settings saved at the memory location to be recalled. When this button is grayed out it indicates that the memory location is empty and therefore cannot be recalled. This will occur when the memory is cleared.

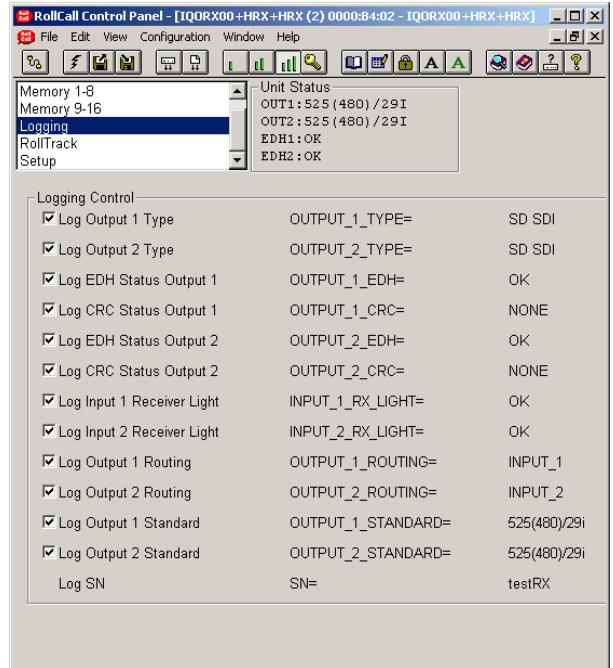


Logging

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.



RollTrack

This function allows information to be sent, via the RollCall™ network, to other compatible units connected on the same network.

For more detailed information, see the RollTrack section (Appendix) at the end of this manual.

RollTrack Index

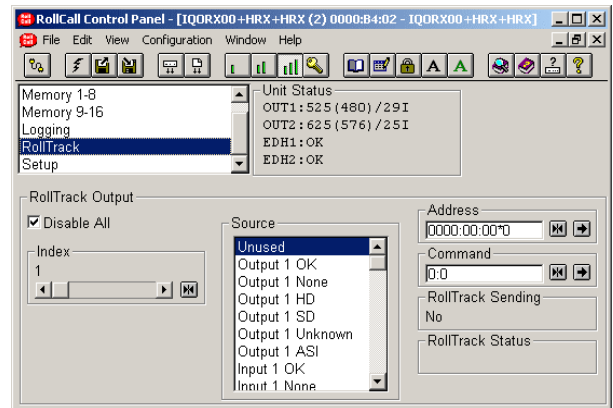
This item allows up to 16 destinations to be selected.

RollTrack Source

This allows the source of information that triggers the transmission of data to be selected.

Where applicable options are:


Unused	
Output 1 OK	Output 2 OK
Output 1 None	Output 2 None
Output 1 HD	Output 2 HD
Output 1 SD	Output 2 SD
Output 1 Unknown	Output 2 Unknown
Output 1 ASI	Output 2 ASI
OP1 1125(1035)/30i	OP2 1125(1035)/30i
OP1 1125(1035)/29i	OP2 1125(1035)/29i
OP1 1125(1080)/30i	OP2 1125(1080)/30i
OP1 1125(1080)/29i	OP2 1125(1080)/29i
OP1 1125(1080)/25i	OP2 1125(1080)/25i
OP1 1125(1080)/30p	OP2 1125(1080)/30p
OP1 1125(1080)/29p	OP2 1125(1080)/29p
OP1 1125(1080)/25p	OP2 1125(1080)/25p
OP1 1125(1080)/24p	OP2 1125(1080)/24p
OP1 1125(1080)/23p	OP2 1125(1080)/23p
OP1 750(720)/60p	OP2 750(720)/60p
OP1 750(720)/59p	OP2 750(720)/59p
OP1 525(480)/29i	OP2 525(480)/29i
OP1 625(576)/25i	OP2 625(576)/25i
OP1 1125(1080)/24sF	OP2 1125(1080)/24sF
OP1 1125(1080)/23sF	OP2 1125(1080)/23sF
OP1 750(720)/50p	OP2 750(720)/50p
OP1 750(720)/30p	OP2 750(720)/30p
OP1 750(720)/29p	OP2 750(720)/29p
OP1 750(720)/25p	OP2 750(720)/25p
OP1 750(720)/24p	OP2 750(720)/24p
OP1 750(720)/23p	OP2 750(720)/23p



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

Network Address

This item allows the address of the selected 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) unit.

The third set (01) is the slot number in the unit

The Fourth Set (99)

Each RollCall unit has a unique identification embedded in the units' software. In this example 99 represents an IQBAXR, 142 would represent an IQDAMDD, 255 a TBS100D etc. Inserting this number in the RollTrack address ensures that only the correct type of unit (in this example an IQBAXR) will respond to the RollTrack command; any other unit will ignore the command.

If this number were set to 00 **any type** of unit at this location would respond to the RollTrack command, possibly causing unpredictable results.

RollTrack (continued)**RollTrack Command**

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.

Disable All

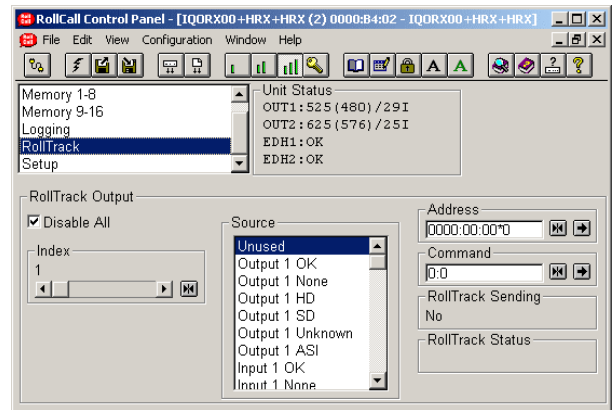
When this item is checked all RollTrack items will be disabled.

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.

Setup

This screen provides basic information about the module.

Product

This will show the name of the module and the options fitted.

Software version

This item shows the version of the software fitted in the module.

Serial

This item shows the serial number 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.

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.

Daughter Card 1 and 2

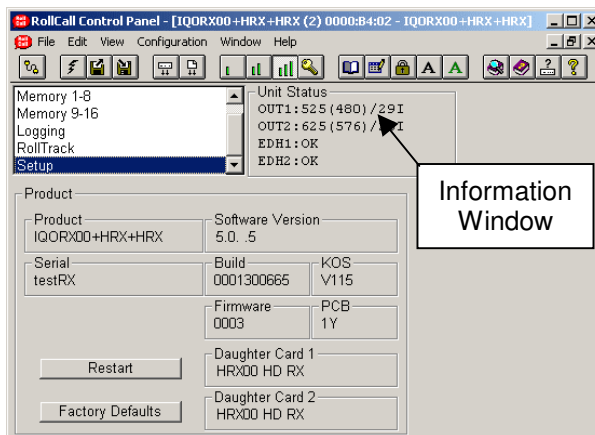
This will display details of the daughter cards fitted.



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



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



Information Window

The Information Window

This will show the status of the unit on four lines of text.

Line 1 and 2

This displays the status of the two SDI output channels.

It may show:

- OUT1/2:None** No output standard or in wideband mode
- OUT1/2: 525(480)/29i** The operating standard

Line 3 and 4

This 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:

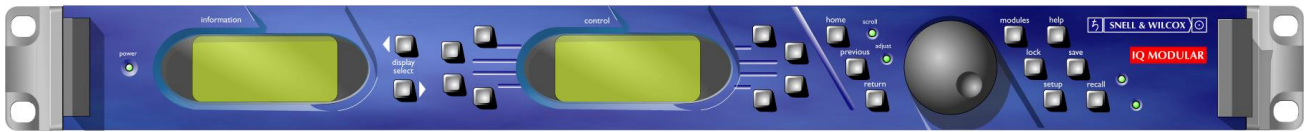
- CRC: OK** No CRC errors found on the input signal
- CRC: FAIL** CRC errors have been found on the input signal
- CRC: NONE** The unit is not locked to the input signal

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

Operation from an Active Control Panel

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



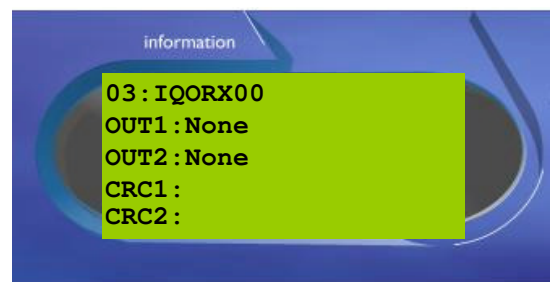
All operational parameters and selections are made using a system of menus displayed in two LCD windows.

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 14.

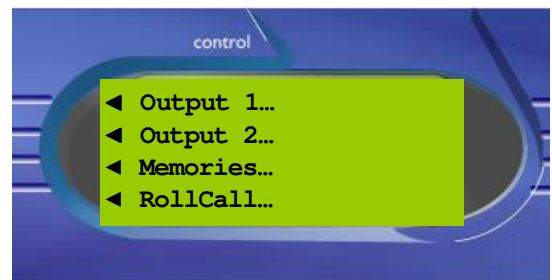


Control Window

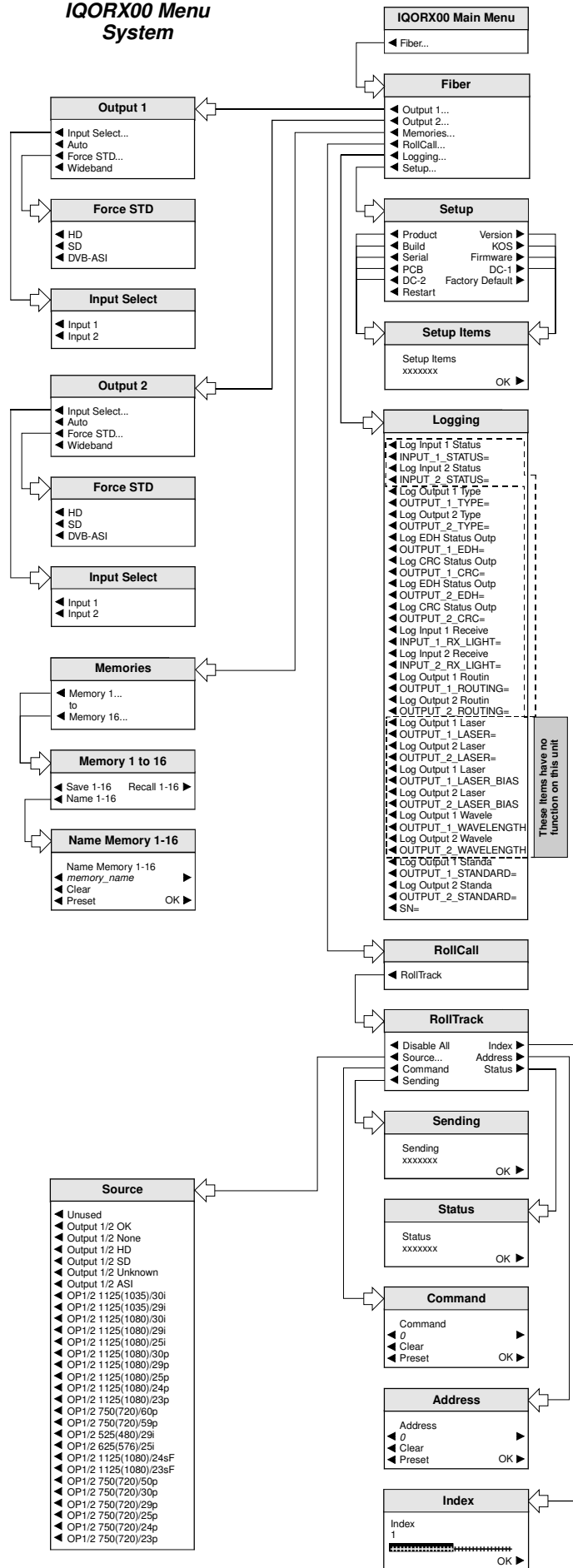
The **Control** window displays all Selection Menus and sub-menus.

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

The menu structure is detailed in the following pages.



IQORX00 Menu System



MENU DETAILS

(see IQORX00 Menu System on the 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

Note that this top level menu will only appear with early versions of front panel software.

IQORX00 Main Menu
◀ Fiber...

With later versions of software the top level menu will be as shown below.

Fiber

This menu allows the outputs to be selected/configured and other settings setup.

Note that input channel routing is only available for dual channel modules.

Fiber
◀ Output 1...
◀ Output 2...
◀ Memories...
◀ RollCall...
◀ Logging...
◀ Setup...

Output 1 and 2

These menus allow the two outputs to be configured.

Output 1	Output 2
◀ Input Select...	◀ Input Select...
◀ Auto	◀ Auto
◀ Force STD...	◀ Force STD...
◀ Wideband	◀ Wideband

Input Select

This allows the input signal for Outputs 1 and 2 to be selected. Default is to Input 1 selected for output 1 and Input 2 selected for output 2.

Input Select
◀ Input 1
◀ Input 2

Input 1

When selected the signal at SDI In 1 will be processed.

Input 2

When selected the signal at SDI In 2 will be processed.

Auto (Default Setting) (Not on SD versions)

When selected the unit will automatically detect the standard of the selected input signal.

Force STD

Force STD
◀ HD
◀ SD
◀ DVB-ASI

This forces the unit to process the selected input signal as SD, HD or DVB-AS.

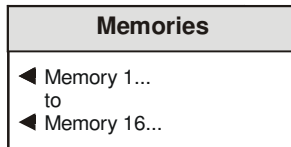
Wideband (Not on SD versions)

When selected the reclocking feature of the particular output will be turned off to enable wideband signals to be passed through the unit.

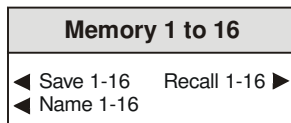
Memories

This function allows a number of particular setups of the IQORX00 to be saved and recalled. There are 16 memory locations available.

This item allows any of the 16 memory locations to be selected.



Memory 1 to 16



When a memory location has been selected this item allows it to be saved, recalled or renamed.

Save 1-16

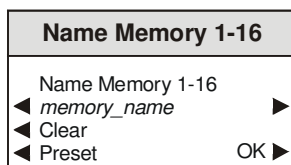
When selected the current settings will be saved at this location.

Recall 1-16

When selected the settings will be recalled from this location and applied to the unit.

Name 1-16

The selected memory location may be renamed with this function.



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.

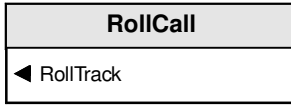
The **Clear** function blanks the selected character.

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

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

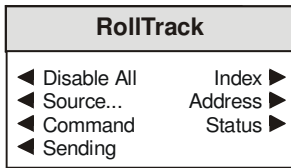
RollCall

This allows the RollCall functions to be set up.



RollTrack

This function allows information to be sent, via the RollCall™ network, to other compatible units connected on the same network.

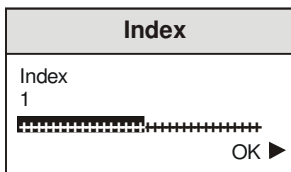


Disable All

When selected this will disable all the RollTracks being generated from this unit.

Index

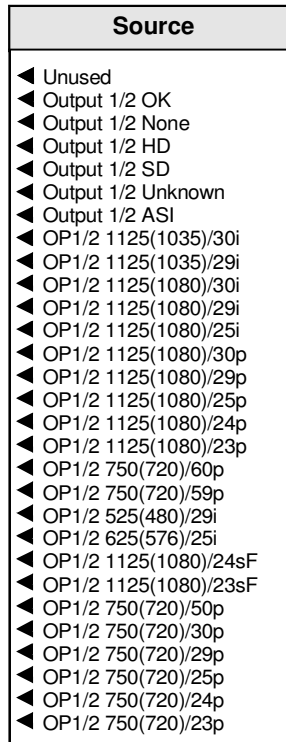
There are 16 (1 to 16) RollTrack destinations available.



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

Source

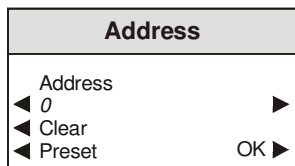
This selects the source of information that triggers the transmission of the RollTrack data.



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

Address

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



To edit the text the buttons adjacent to the upper text line in the menu are used to select the character position in the text and the spinwheel used to select the character.

(The right ► and left buttons select the cursor position and the spinwheel selects the character; the clear button sets the text line to all zeros and the OK button accepts the network address)

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) unit.

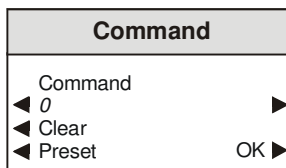
The third set (01) is the slot number in the unit

The Fourth Set (99)

Each RollCall unit has a unique identification embedded in the units' software. In this example 99 represents an IQBAXR, 142 would represent an IQDAMDD, 255 a TBS100D etc. Inserting this number in the RollTrack address ensures that only the correct type of unit (in this example an IQBAXR) will respond to the RollTrack command; any other unit will ignore the command.

If this number was set to 00 **any type** of unit at this location would respond to the RollTrack command, possibly causing unpredictable results.

Command



The full **RollTrack** command has two sets of numbers

For example: 84:156

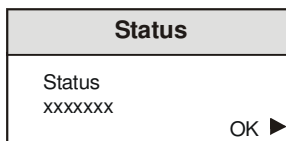
The first set (84) is the **RollTrack** command number.

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.

Status

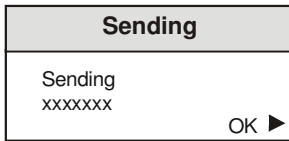
This item will show the status of the currently selected RollTrack index.



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 Rolltrack message has not been correctly acknowledged at the destination unit. This could be because the destination unit is not of the type specified.

Sending



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

This may show:

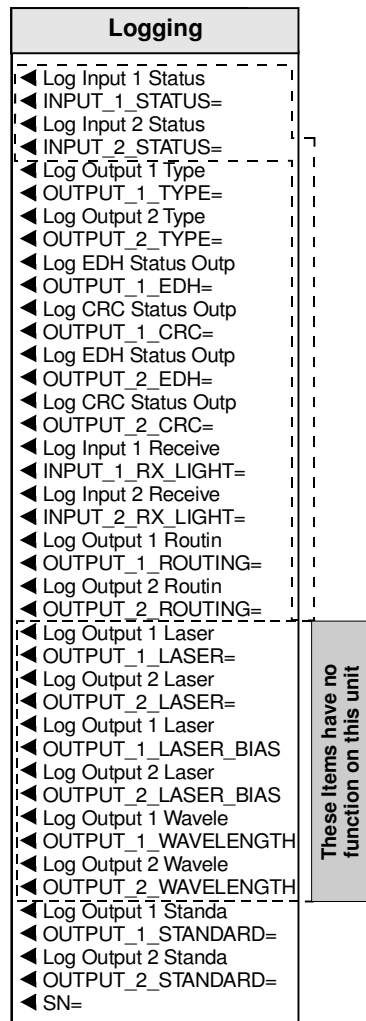
- String A string value is always being sent.
- Number A number value is always being sent.
- No The message is not being sent.
- Yes The message is being sent.
- Internal Type Error Inconsistent behavior; please contact your local Snell & Wilcox agent.

Logging

Information about various parameters can be made available to a logging device that is attached to the RollCall™ network by selecting the appropriate Log xxxxx item.

More than one item may be selected from the list.

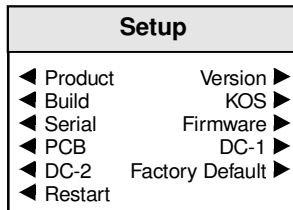
Note that some items have no function on this unit.



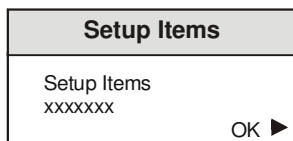
Selecting the text associated with the Log xxxxx item will display the status of the item.

Setup

This item provides information about the unit.



Information about a selected item will appear in the window.



Select OK to return to the Setup Menu.

Product

This shows the name of the unit.

Version

This shows the software release identification.

Build

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

KOS

This shows the version of the operating system.

Serial

This will show the serial number of the unit.

Firmware

This shows the version of the firmware system

PCB

This shows the PCB revision number.

DC-1 and DC-2

This will display details of the daughter cards.

Factory Default

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

Restart

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

Manual Revision Record

Date	Version No.	Issue No.	Change	Comments
7-Nov-05	1	1		First issue released