

IQOTX00

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



Class 1
Laser Product

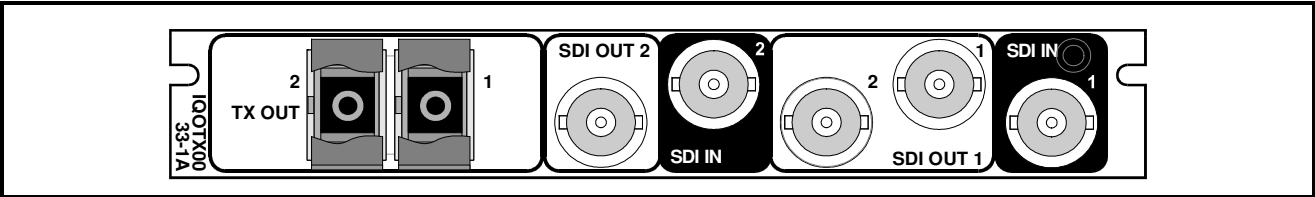
Table of Contents

Module Description	2	Operation from an Active Control Panel	15
Rear Panel View	2	MAIN MENU	17
Block Diagram.....	3	Output 1 and 2.....	17
Product Comparison.....	4	Memories.....	18
Features.....	4	RollCall	19
Technical Profile	5	Logging.....	21
Installation.....	6	Setup	22
Warnings	6	Manual Revision Record.....	23
INPUT CONNECTIONS	7		
SDI In 1 and 2.....	7		
OUTPUT CONNECTIONS	7		
SDI OUT 1.....	7		
SDI OUT 2.....	7		
TX Out 1 and TX Out 2.....	7		
CARD EDGE INDICATORS	8		
RollCall PC Control Panel Screens	9		
Input Select.....	9		
Memory 1-8 and 9-16	10		
Logging.....	11		
RollTrack	12		
Setup	14		

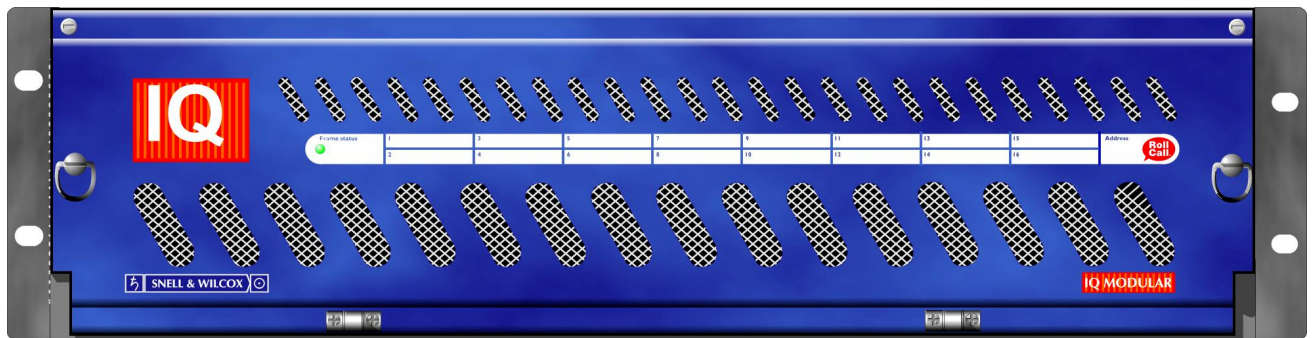
Module Description

The IQOTX00 is a single/dual channel fiber optic transmitter for HD/SD-SDI signals. The unit can be configured to handle up to two HD/SD-SDI sources, and will produce a single mode fiber optic output of each source.

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:

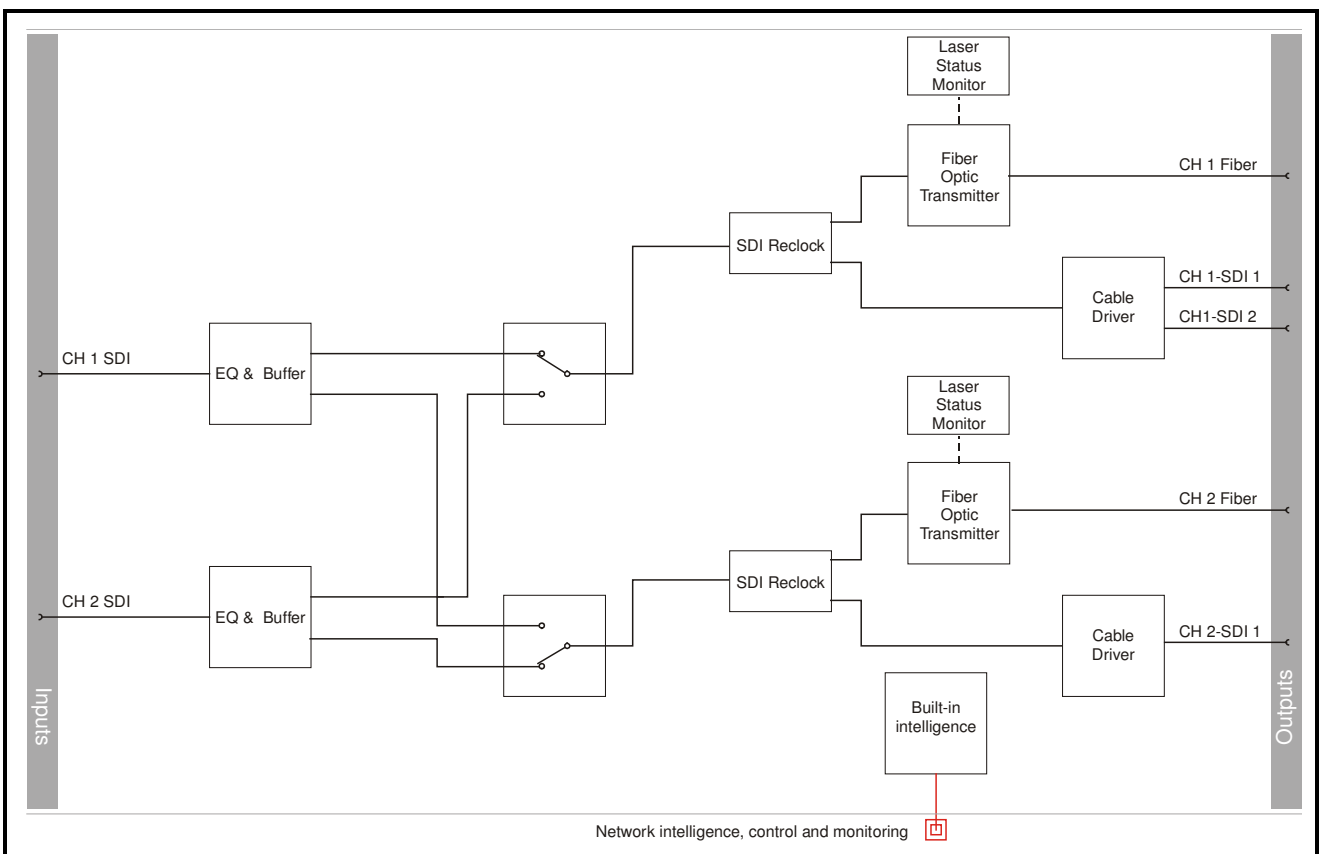
IQOTX0033-1A + 1 x IQHTX00 submodule - Single mode fiber optic Transmitter for HD/SD-SDI. 1 x HD/SD-SDI input, 1 x optical output, additional HD/SD-SDI reclocked outputs.

IQOTX0033-1A + 2 x IQHTX00 submodule - Single mode fiber optic Transmitter for HD/SD-SDI. 2 x HD/SD-SDI inputs, 2 x 1 optical outputs, additional HD/SD-SDI reclocked outputs.

IQOTX0033-1A + 2 x IQSTX00 submodule - Single mode fiber optic Transmitter for SD-SDI. 2 x SD-SDI inputs, 2 x 1 optical outputs, additional SD-SDI reclocked outputs.

IQOTX0033-1A + 1 x IQSTX00 submodule - Single mode fiber optic Transmitter for SD-SDI. 1 x SD-SDI input, 1 x optical output, additional SD-SDI reclocked outputs.

Block Diagram



Product Comparison

Main Module	Submodule Slot 1	Submodule Slot 2	Description	Ordering Information
IQOTX0033-1A	IQHTX00 - 1310 nm HD/SD	None Fitted	Single HD/SD Fiber Transmitter (1310 nm)	IQOTX0033-1A + IQHTX00
		IQHTX00 - 1310 nm HD/SD	Dual HD/SD Fiber Transmitter (1310 nm)	IQOTX0033-1A + IQHTX00 + IQHTX00
		IQHTX01 - 1550 nm HD/SD	Dual HD/SD Fiber Transmitter (1310/1550 nm)	IQOTX0033-1A + IQHTX00 + IQHTX01
	IQHTX01 - 1550 nm HD/SD	None Fitted	Single HD/SD Fiber Transmitter (1550 nm)	IQOTX0033-1A + IQHTX01
		IQHTX01 - 1550 nm HD/SD	Dual HD/SD Fiber Transmitter (1550 nm)	IQOTX0033-1A + IQHTX01 + IQHTX01
	IQSTX00 - 1310 nm SD	None Fitted	Single SD Fiber Transmitter (1310 nm)	IQOTX0033-1A + IQSTX00
		IQSTX00 - 1310 nm SD	Dual SD Fiber Transmitter (1310 nm)	IQOTX0033-1A + IQSTX00 + IQSTX00
		IQSTX01 - 1550 nm SD	Dual SD Fiber Transmitter (1310/1550 nm)	IQOTX0033-1A + IQSTX00 + IQSTX01
	IQSTX01 - 1550 nm SD	None Fitted	Single SD Fiber Transmitter (1550 nm)	IQOTX0033-1A + IQSTX01
		IQSTX01 - 1550 nm SD	Dual SD Fiber Transmitter (1550 nm)	IQOTX0033-1A + IQSTX01 + IQSTX01

Features

- Single mode fiber optic Transmitter for HD/SD-SDI and DVB ASI Signals
- Output wavelengths of 1310 or 1550 nm
- Active loop-through 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

Electrical 1.485 Gbit/s HD-SDI or 270 Mbit/s SD-SDI
 (asynchronous operation available at other frequencies)
 Connector / FormatBNC/ 75 ohm panel jack
 Conforms to:.....SMPTE 292M (HD)
 SMPTE 259M-C (SD)
 InputsUp to 2
 Input Cable Length140 m (HD) 350 m (SD) with
 Belden 1694A

Signal Outputs

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

Outputs..... 1 per Channel

Electrical 1.485Gbit/s HD-SDI or 270 Mbit/s SD-SDI
 (asynchronous operation available at other frequencies)
 Connector / Format..... BNC/ 75 ohm panel jack
 (Reclocked active loop through)
 Outputs..... 2 reclocked active loop through for
 CH1 SDI Input
 1 reclocked active loop through for
 CH2 SDI Input
 Conforms to:..... SMPTE 292M (HD)
 SMPTE 259M-C (SD)
 DVB/ASI (output 1 of each channel only)

Card Edge Controls (also available via RollCall)

None

Functions Available via RollCall™ Only

RoutingCH1-Optical 1
 CH1-Optical 2
 CH2-Optical 1
 CH2-Optical 2
 ModeHD/SD
 ReclockerOn/Off
 Laser DisableOn/Off
 LoggingInput Status, Output CRC/EDH
 error, Laser bias alarm, Optical
 Output Status, Output Routing
 Status, Output Standard

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
 Laser bias high/disabled (Yellow)
 Laser bias high due to high temp,
 device aging or laser output
 disabled

Specifications

1310 nm Tx

Back reflection tolerance<-25 dB
 Wavelength1310 nm
 Spectral width (FWHM)>3 nm
 Output power-3 dBm (approx)
 Extinction ratio.....>5:1
 Transmission distance.....>30 Km

1550 nm Tx

Back reflection tolerance ... <-35 dB
 Wavelength 1550 nm
 Spectral width (FWHM)..... >1 nm
 Output power 0 dBm (approx)
 Extinction ratio..... >5:1
 Transmission distance..... >30 Km

Power Consumption

Module Power Consumption
 Single Tx 6 W max
 Dual Tx 8.5 W max

Installation

Warnings

All laser transmitters used in this product are Class 1 in accordance with EN60825-1 as well as 21CFR 1040.10 and 1040.11.

Class 1
Laser Product

1. **Laser light can be damaging to the eyes. Optical fibers and Uniteris should be handled with great care.**
2. **The IQOTX00 is a Class 1 laser system.**
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



Notes...

1. Optical uniteris 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

SDI In 1 and 2

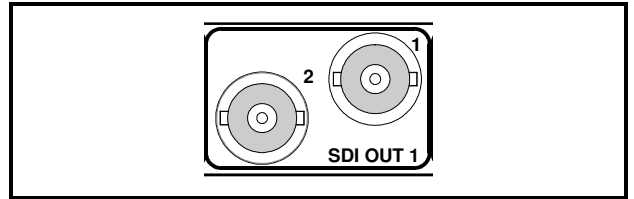
These are the two inputs of SDI for each of the two channels via BNC connectors that terminate in 75 Ohms.



OUTPUT CONNECTIONS

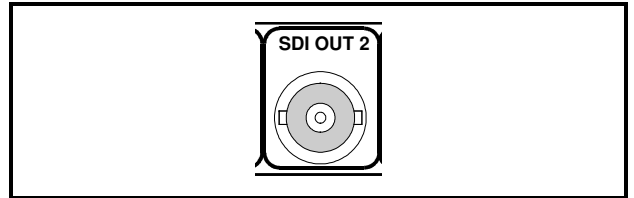
SDI OUT 1

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



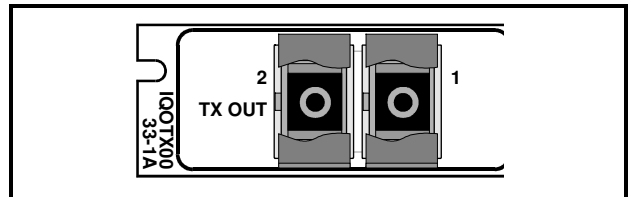
SDI OUT 2

This is the Serial Digital output for channel 2 of the unit via a BNC connector for 75 Ohms.

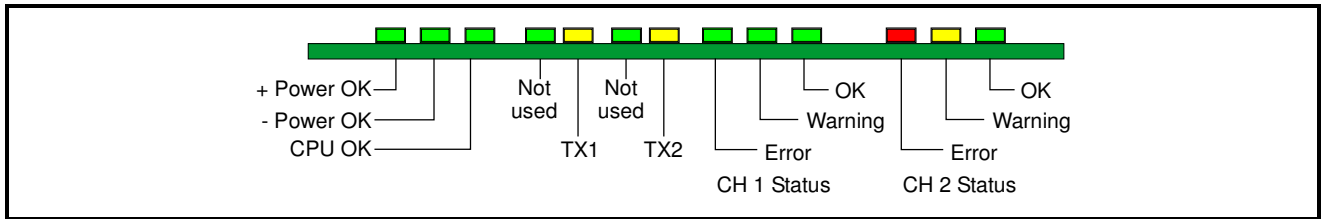


TX Out 1 and TX Out 2

These are the optical outputs of channel 1 and channel 2 made via SC Connectors with Shutters.



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.

TX 1 and TX 2 (Yellow)

This provides information about the optical output signal.

Under normal operating conditions it will not be illuminated.

It will be illuminated if:

- The laser has been disabled.
- or
- The laser alarm has been activated. If this occurs repeatedly please contact Snell & Wilcox Customer Care.

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 available for single and 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 SDI In 1 will be processed.

Input 2 Select

When selected the signal at SDI 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)

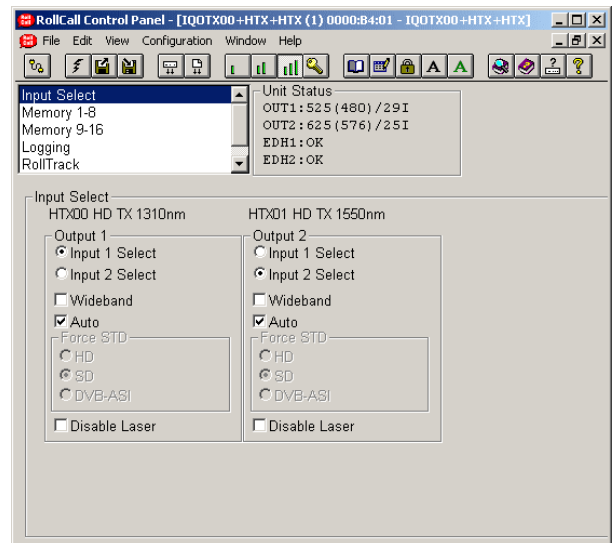
When selected the unit will automatically detect the standard of the selected input signal.

Force STD

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



Disable Laser


When checked the Laser for that output will be disabled.



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).

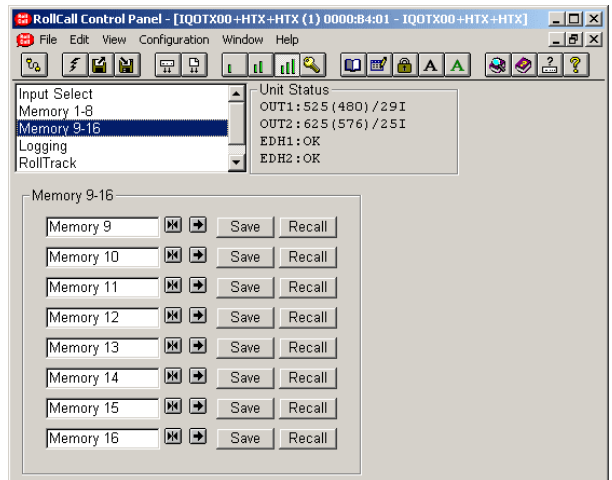
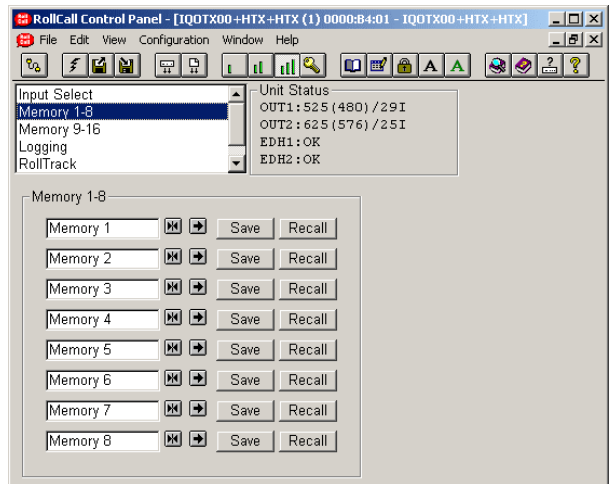
Selecting Preset  will return the text to the default name.



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.

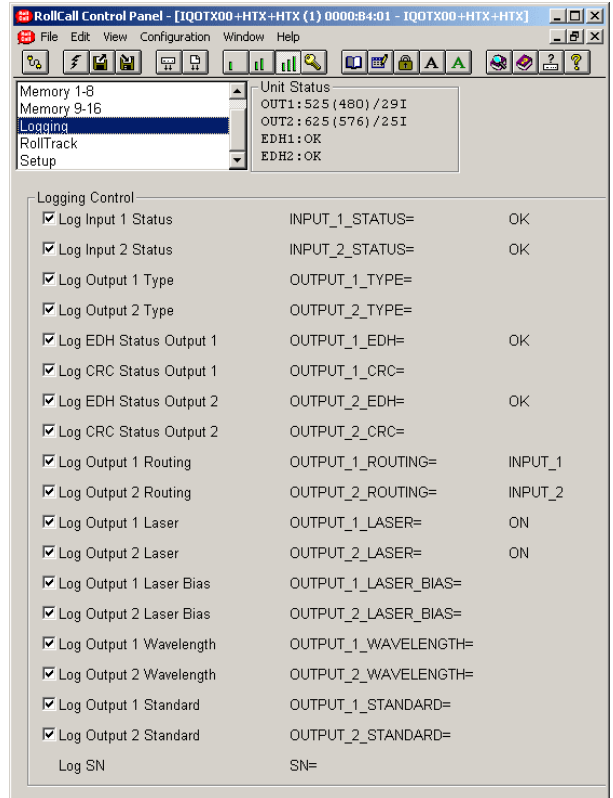


Logging

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

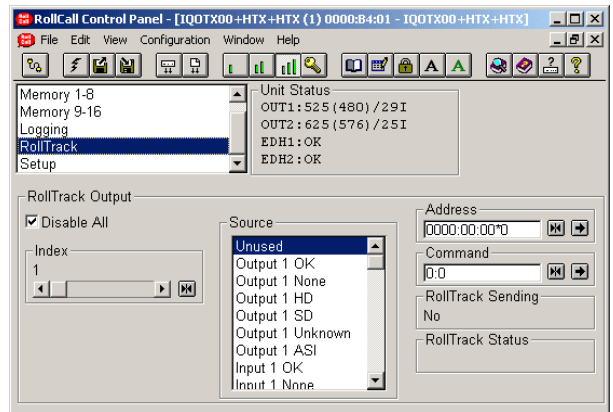
This item allows up to 16 destinations to be selected.

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
Input 1 OK	Input 2 OK
Input 1 None	Input 2 None
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

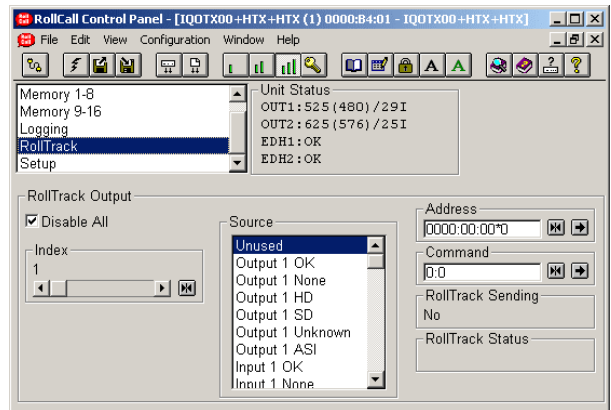
When this item is checked all RollTrack items will be disabled.

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

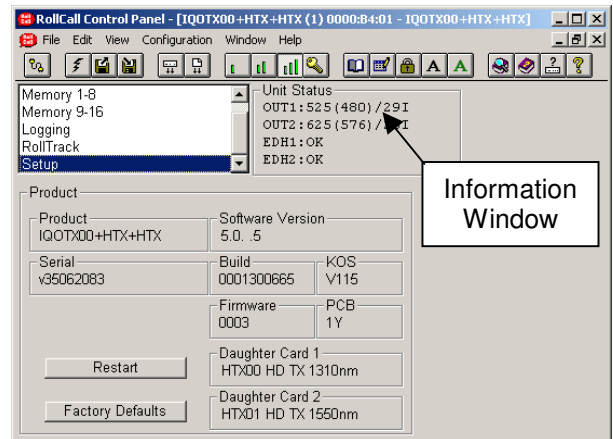
This will display details of the daughter cards fitted.



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.



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 optical outputs. 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:

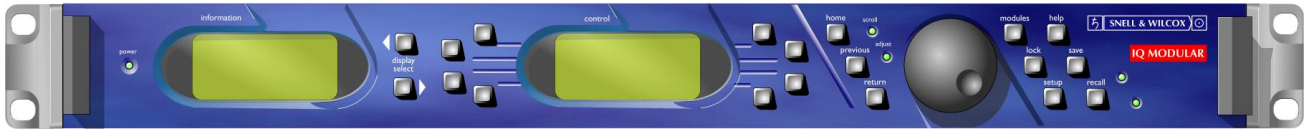
EDH: OK No EDH or SDI errors found on the input signal

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.



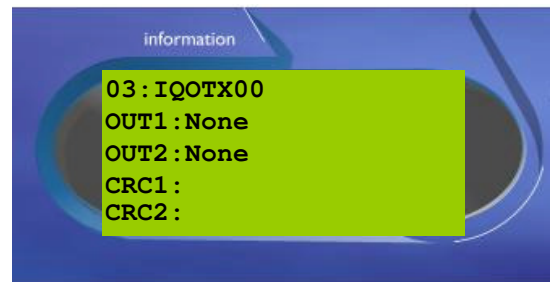
All operational parameters and selections are made using a system of menus displayed in two LCD windows.

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 15.

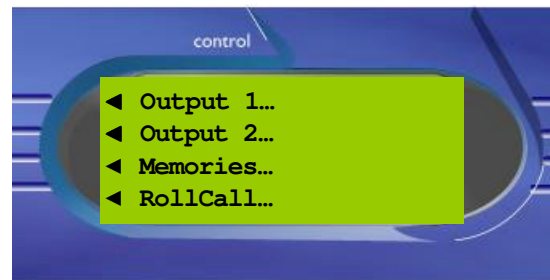


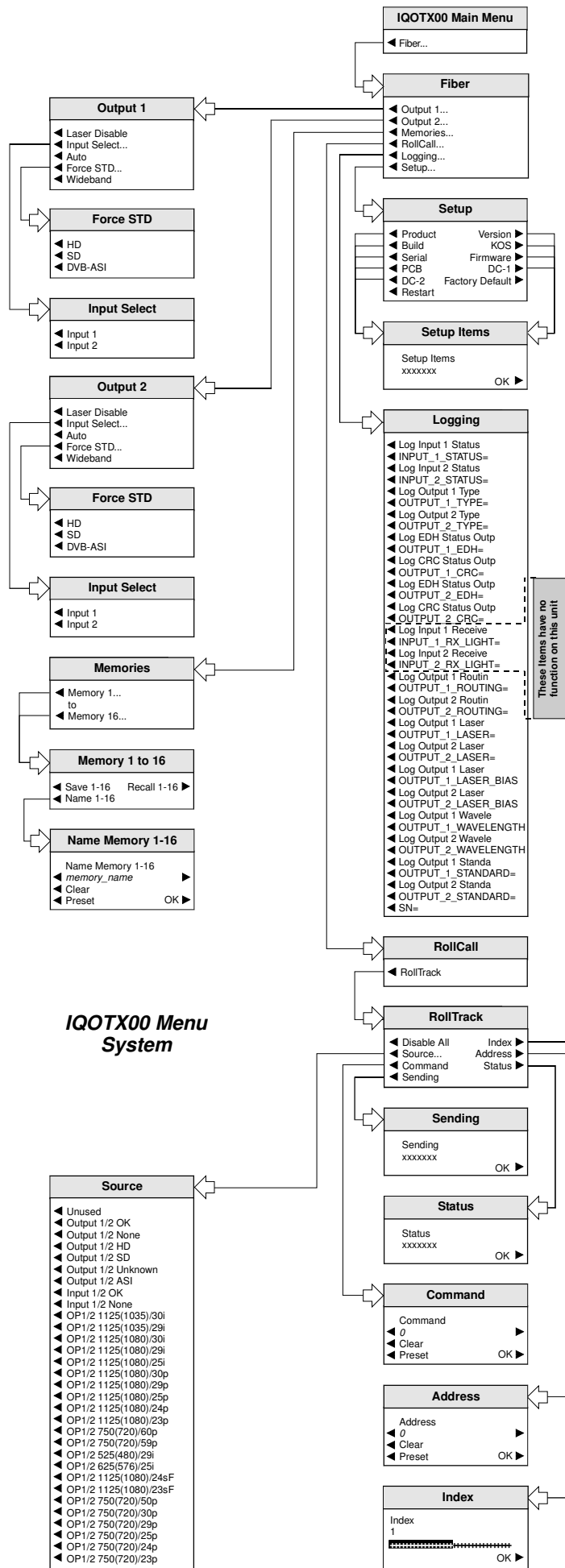
Control Window

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.





MENU DETAILS

(see IQOTX00 Menu System on the previous pages)

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.

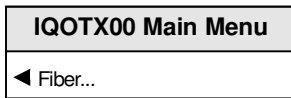
Note that where a menu item is followed by three dots (...) this indicates that a further sub-menu may be selected.

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

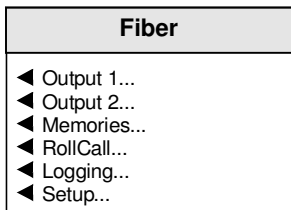
Note that this top level menu will only appear with early versions of front panel software.



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

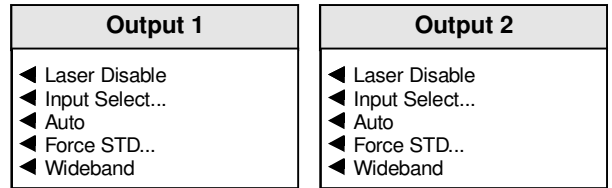
Fiber

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



Output 1 and 2

These menus allow the two outputs to be configured.

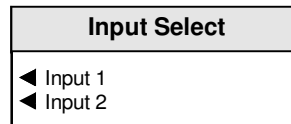


Laser Disable

When checked the Laser for that output will be disabled.

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 1

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

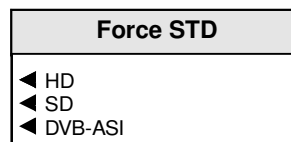
Input 2

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



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

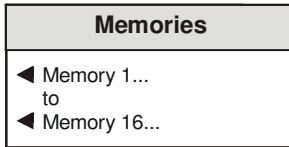
Wideband (Not on SD versions)

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

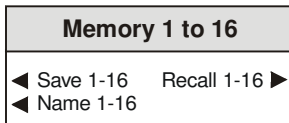
Memories

This function allows a number of particular setups of the IQOTX00 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

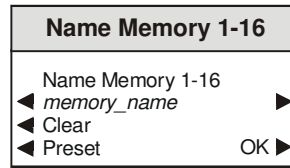
When selected the current settings will be saved at this location.

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.

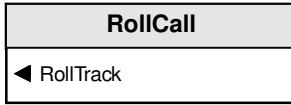
The **Clear** function blanks the selected character.

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

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

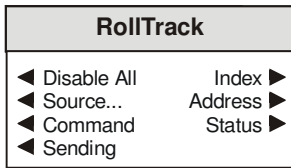
RollCall

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.

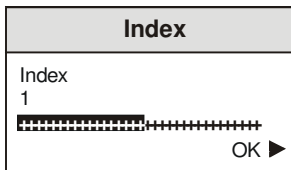


Disable All

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

Index

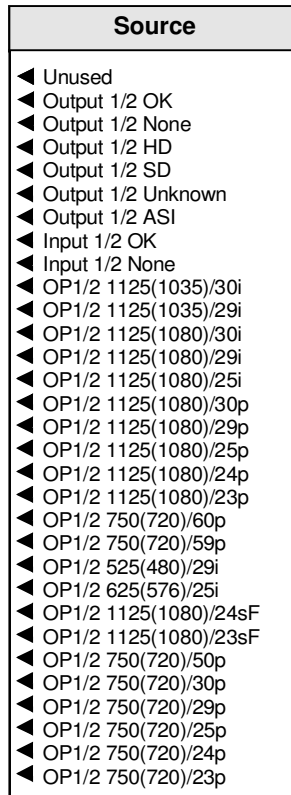
There are 16 (1 to 16) RollTrack destinations available.



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

Source

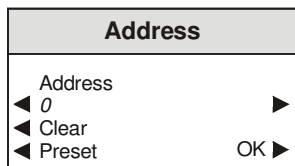
This selects the source of information that triggers the transmission of the RollTrack data.



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.

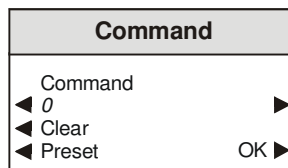
The third set (01) is the slot number in the unit

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

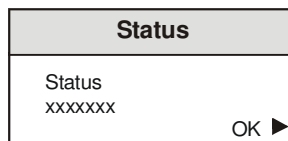
The first set (84) is the **RollTrack** command number.

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

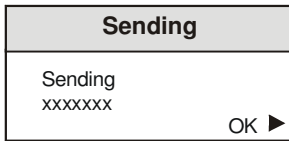
This item will show the status of the currently selected RollTrack index.



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:

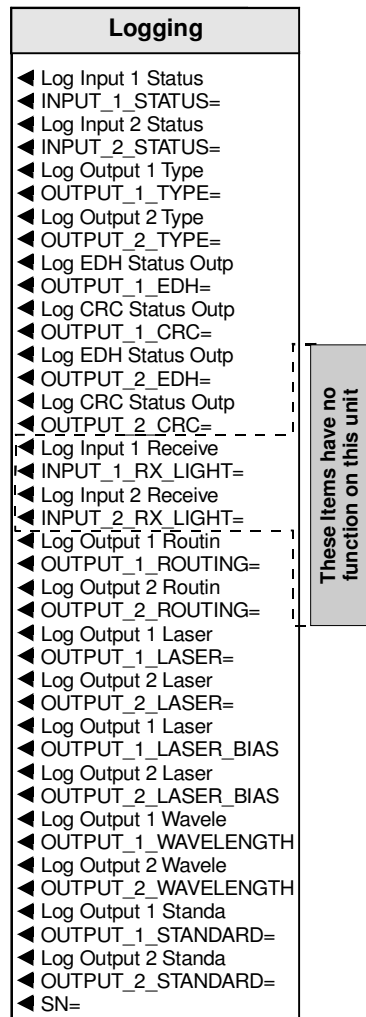
- String A string value is always being sent.
- Number A number value is always being sent.
- No The message is not being sent.
- Yes The message is being sent.
- Internal Inconsistent behavior; please contact
Type Error your local Snell & Wilcox agent.

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.

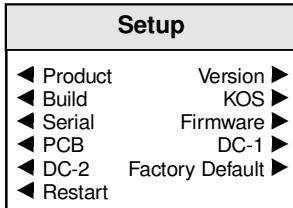
Note that some items have no function on this unit.



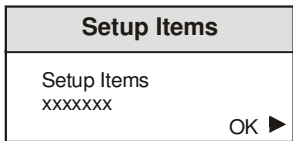
Selecting the text associated with the Log xxxxx item will display the status of the item.

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.

