IQORX30 / IQORX31

Single Mode Fiber Optic Receivers for 3G/HD/SD-SDI Signals

Operator's Manual

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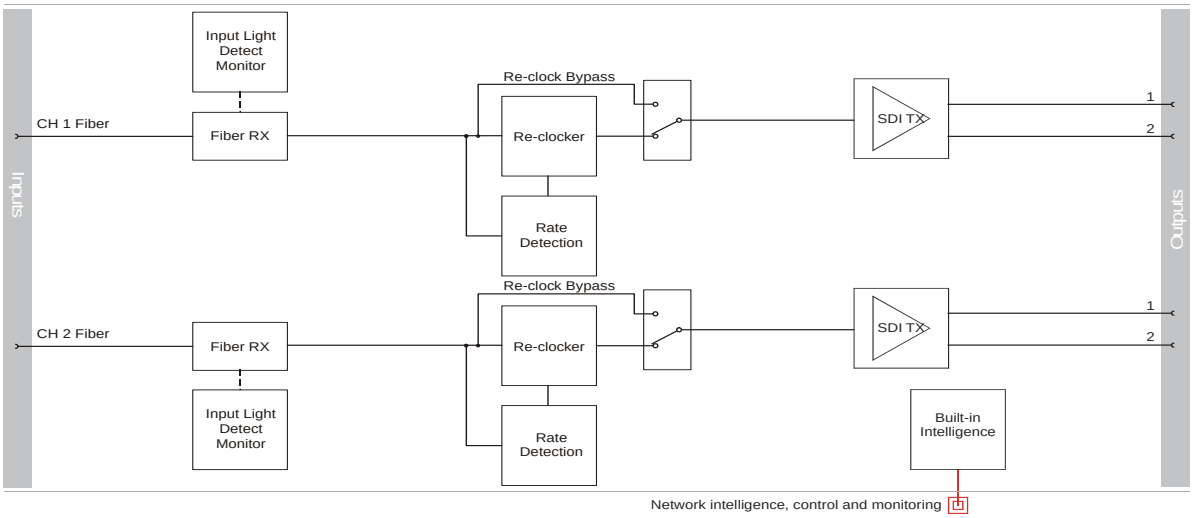
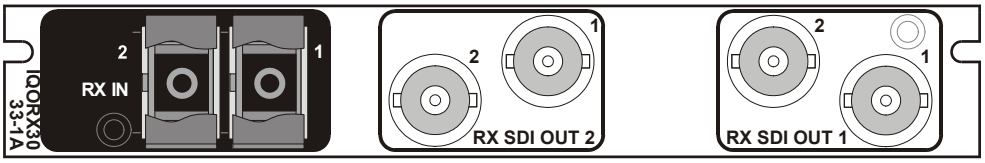
Module Description

The IQORX30 and IQORX31 are single mode fiber optic receivers for 3G/HD/SD-SDI signals. The IQORX30 is a dual channel version and the IQORX31 is a single channel version. The unit can 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 ordered as a single channel receiver. Suitable for applications where 3G/HD-SDI signals need to be transported over long distances within a facility or between sites, optical links remove the distance constraints of copper cabling at high frequency data rates such as 3Gbit/s.

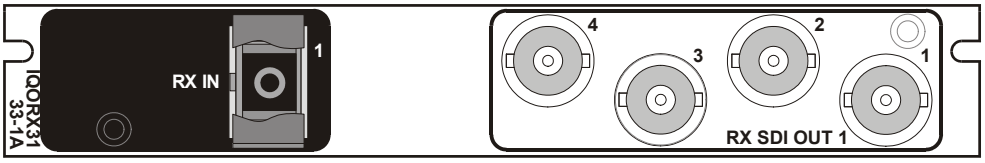


Rear Panel Views

IQORX30 Rear Panel View



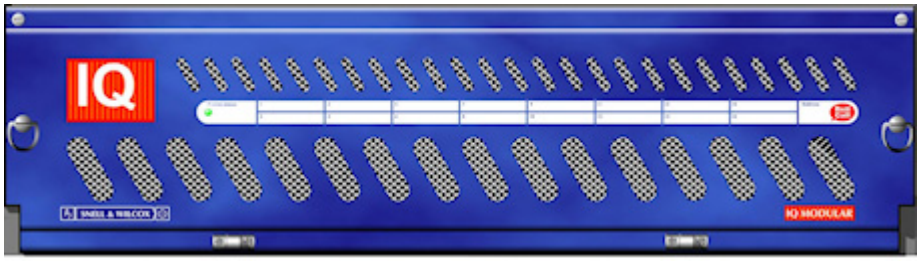
IQORX31 Rear Panel View



These modules can only be fitted into 'A' style enclosures as 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

Order Codes

IQORX30	*IQORX3056-1A* Dual channel single mode fiber optic receiver for HD/SD-SDI. 2 x optical inputs, 2 x HD/SD-SDI outputs per channel *IQORX3056-1A3* Dual channel single mode fiber optic receiver for 3G/HD/SD-SDI. 2 x optical inputs, 2 x 3G/HD/SD-SDI outputs per channel *IQORX30-3G* Upgrade for IQORX30 Dual channel single mode fiber optic receiver to operate with 3Gbps signals
IQORX31	*IQORX3158-1A* Single mode fiber optic receiver for HD/SD-SDI. 1 x optical input, 4 x HD/SD-SDI outputs *IQORX3158-1A3* Single mode fiber optic receiver for 3G/HD/SD-SDI. 1 x optical input, 4 x 3G/HD/SD-SDI outputs *IQORX31-3G* Upgrade for IQORX31 Single mode fiber optic receiver to operate with 3Gbps signals

Feature Summary

- Single mode fiber optic receiver for 3G/HD/SD-SDI and DVB ASI Signals
- Input wavelength range 1260-1620 nm
- 2 x 3G/HD/SD-SDI outputs for each input in accordance with SMPTE424M, SMPTE292M, SMPTE259M and DVB ASI
- Reclocking for 3 Gbit/s, 1.5 Gbit/s HD-SDI and 270 Mbit/s SDI signals, or asynchronous operation for other frequencies (input range 50 Mbit/s to 3 Gbit/s)
- Single or dual channel versions available

Technical Profile

IQORX30 / IQORX31 Technical Profile

Inputs and Outputs	
Signal Inputs	
Optical	3 GBit/s HD-SDI, 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
Standard	SMPTE 297-2006
Inputs	Up to 2

Signal Outputs

Electrical	3 GBit/s HD-SDI, 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 424M (HD level A) SMPTE 292M (HD) SMPTE 259M-C (SD) DVB/ASI (output 1 of each channel only)
Outputs	1 input - 4 outputs 2 inputs - 1 x 2, 1 x 2 outputs

Controls

Card Edge Controls (also available via RollCall)

None

Functions Available via RollCall Only

Mode	Auto/3G/HD/SD
Reclocker	On/Off
Input Status	Present, Loss/Unknown, Data Rate
Logging	Input 1 (2) Type Input 1 (2) Data Rate Input 1 (2) Present Input 1 (2) Error Input 1 (2) Loss Input 1 (2) Light Detect Status Input 1 (2) Link Length (Km)? Input 1 (2) Rx Power High Warning Input 1 (2) Rx Power Low Warning Input 1 (2) Rx Power Measurement
RollTrack Controls	On/Off, Index, Source, Address, Command, Status, Sending
RollTrack Outputs	Unused Input 1 (2) Present Input 1 (2) Rate Unknown Input 1 (2) Loss Input 1 (2) 3G Input 1 (2) HD Input 1 (2) SD Input 1 (2) light Detected Input 1 (2) Rx Power High Warning Input 1 (2) Rx Power Low Warning

Indicators

Power	OK (Green)
CPU	OK (Green flashing)
Input 1 (2)	OK (Green), Bypass (Orange), Loss (Red)

Specifications	
Input wavelength range	Min, 1260nm Max 1620nm
Optical power input range	> -3 dBm < -18 dBm
Detector damage threshold	+3.5 dBm
Module Power Consumption	Single Rx 3.5W max Dual Rx 3.5W max

Warnings

- All lasers used in this product are Class 1, in accordance with EN60825-1 as well as 21CFR 1040.10 and 1040.11
- Laser light can be damaging to the eyes. Optical fibers and uniters should be handled with great care.
- The IQORX30 and IQORX31 are designed for use with Class 1 laser systems only. Ensure that all outputs do **not** exceed Class 1 as doing so will impair the safety of the system and may result in damage to the equipment.
- Active fibers should not be handled unless their source can positively be identified as not exceeding Class 1 limits.

Notes

Note:

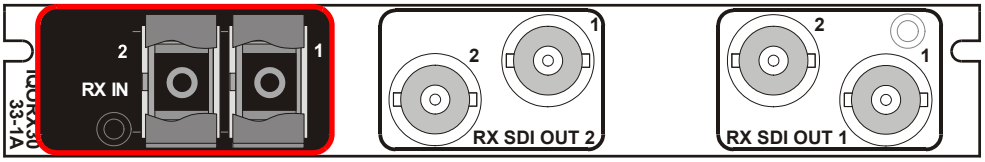
- Optical uniters have shutters to prevent the ingress of dust. These shutters should only be opened when connecting optical fibers.
- The ends of optical fibers should be cleaned with a liquid fiber cleaner, using a cotton bud, to ensure that there is no dust present before they are plugged in (the uniter is polarized).
- Do not disturb or handle the optical fibers.

Connections

IQORX30 Connections

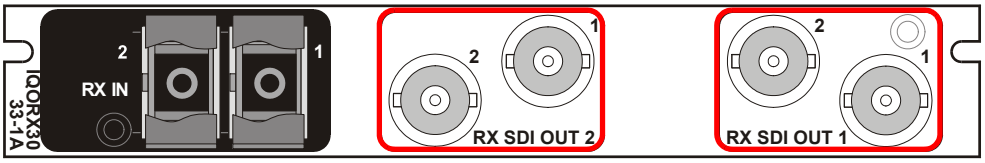
Inputs

Optical input to the module is made via two SC/PC singlemode panel uniters.



Outputs

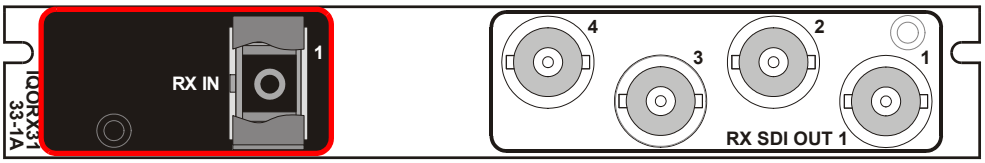
Electrical output from the module is made via BNC 75 ohm panel jack connectors, two outputs for each input. Output 1 of each channel is DVB/ASI compatible.



IQORX31 Connections

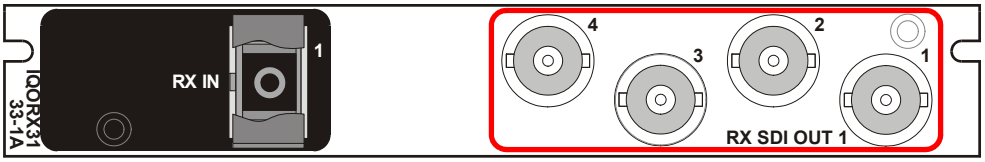
Input

Optical input to the module is made via one SC/PC singlemode panel uniter.



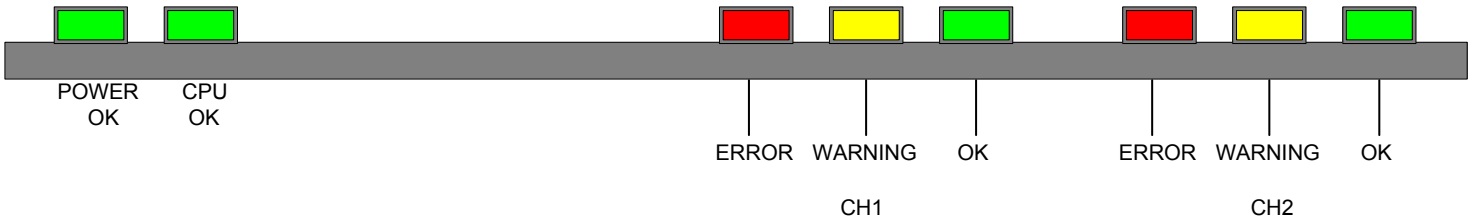
Outputs

Electrical output from the module is made via four BNC 75 ohm panel jack connectors. Outputs 1 and 3 are DVB/ASI compatible.

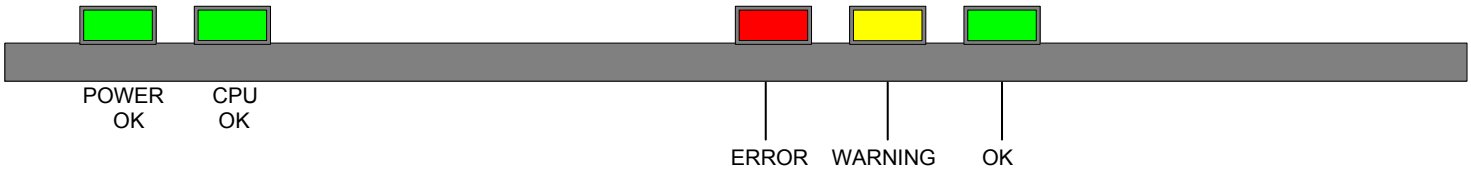


Card Edge Controls

IQORX30



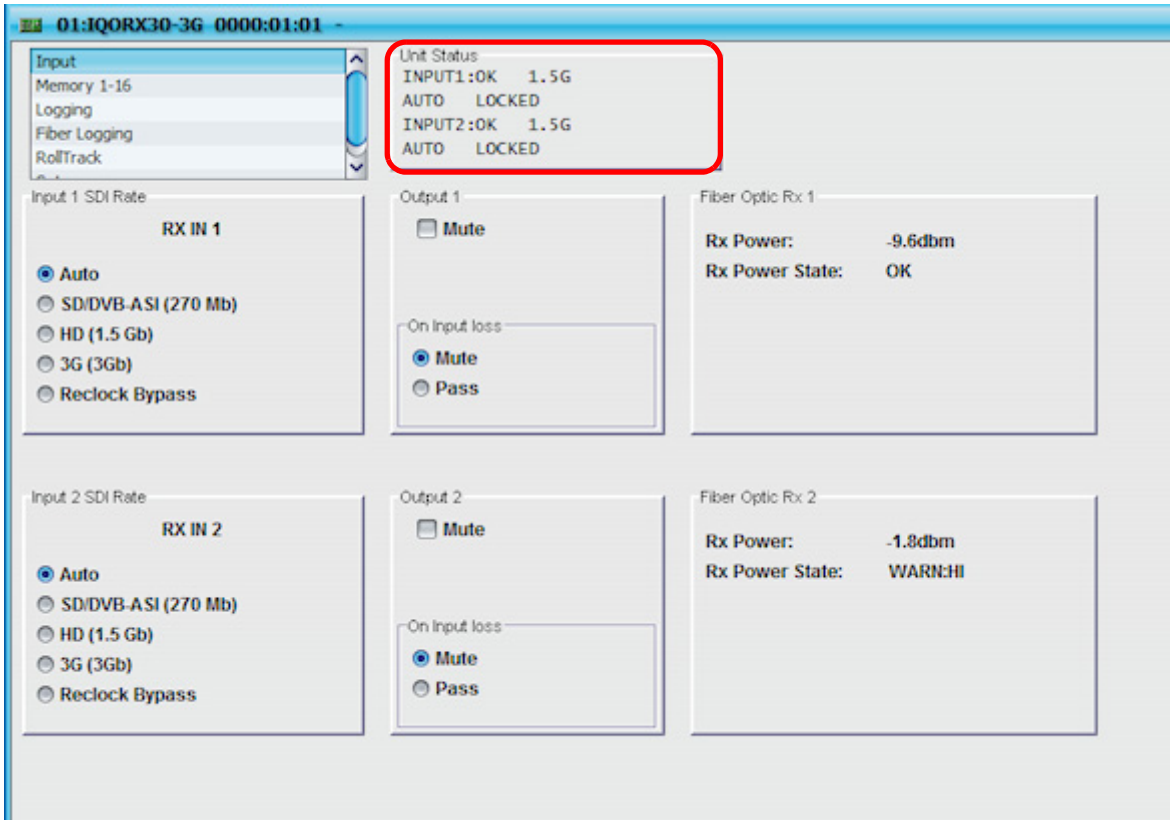
IQORX31



Controlling the IQORX30/31 from the RollCall Control Panel

Unit Status

Information about the status of the unit is displayed in the Unit Status section on each RollCall Control Panel screen.

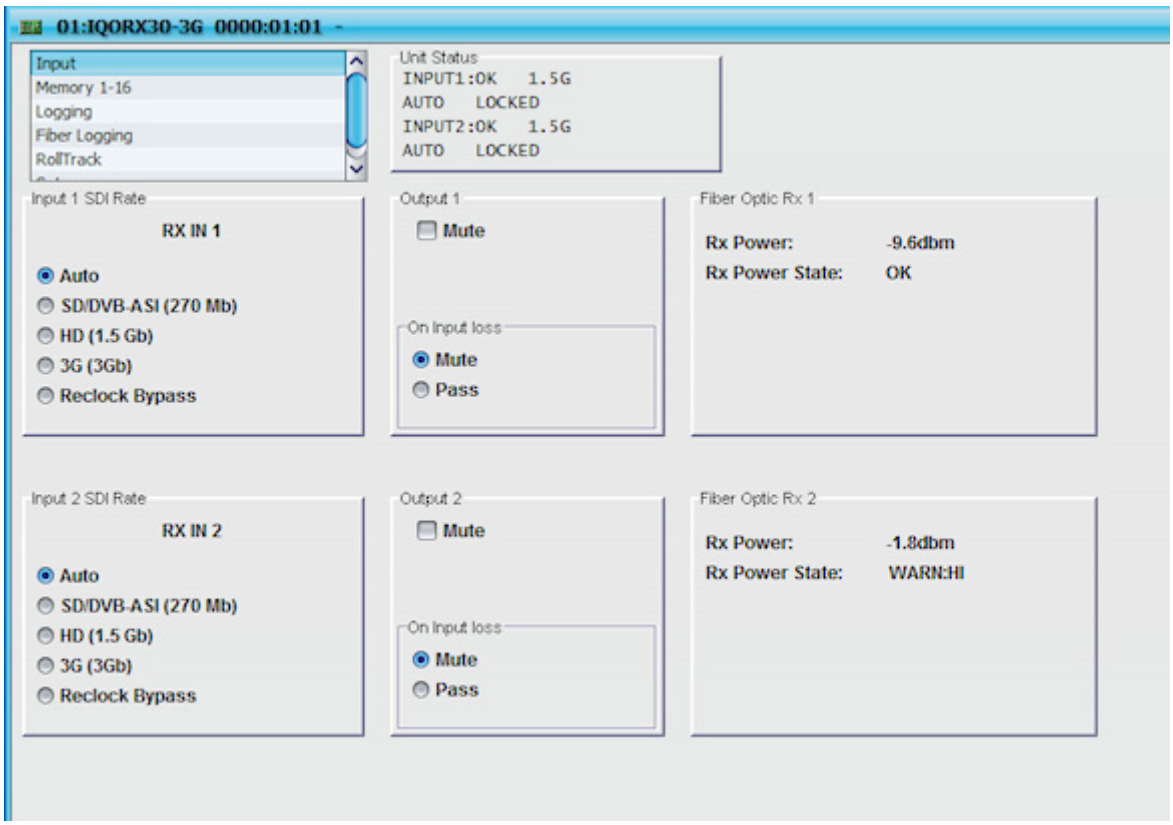


The first two lines of the Unit Status display the input status, detected rate, and input selection method for Input 1.

The third and fourth lines of the Unit Status display the same information for Input 2.

Input

The input screen enables the type of input signal to be selected.



Input 1 SDI Rate (RX IN 1)

- **Auto:** When selected, the unit will automatically detect and reclock any valid input signal, and the detected rate will be displayed in the Unit Status.

  If anything else is detected, the output will not be reclocked. If the **On Input Loss / Mute** option is selected, the output will be muted; or, if the **On Input Loss / Pass** option is selected, the output will be passed through.

- **SD/DVB-ASI (270 Mb):** When selected, the unit will reclock only SD/DVB-ASI (270 Mb) signals.

  When selected, the **On Input Loss** controls are greyed out and are inactive. If any other standard is applied to the unit, the output will be muted.

- **HD (1.5 Gb):** When selected, the unit will reclock only HD (1.5 Gb) signals.

  When selected, the **On Input Loss** controls are greyed out and are inactive. If any other standard is applied to the unit, the output will be muted.

- **3G (3 Gb):** When selected, the unit will reclock only 3G (3 Gb) signals.

  When selected, the **On Input Loss** controls are greyed out and are inactive. If any other standard is applied to the unit, the output will be muted.

- **Reclock Bypass:** When selected, the unit will not reclock the input signal. If a supported rate is detected, the Unit Status will display the detected rate, otherwise, *** will be displayed.

  If the **On Input Loss / Mute** option is selected, the output will be muted whenever a recognized rate is not detected; or, if the **On Input Loss / Pass** option is selected, any signal standard, frequency, etc… will pass through.

Output 1

- **Mute:** When selected, this option applies a mute on Output 1.

- **On Input loss / Mute:** When selected, if the Input signal is lost, the output signal will be muted.
- **On Input loss / Pass:** When selected, if the input signal is lost, it will be passed unchanged.

Input 2 SDI Rate and Output 2 (IQORX30 only)

These options are the same as the Input 1 SDI Rate and Output 1 options but are applied to Input 2 and Output 2.

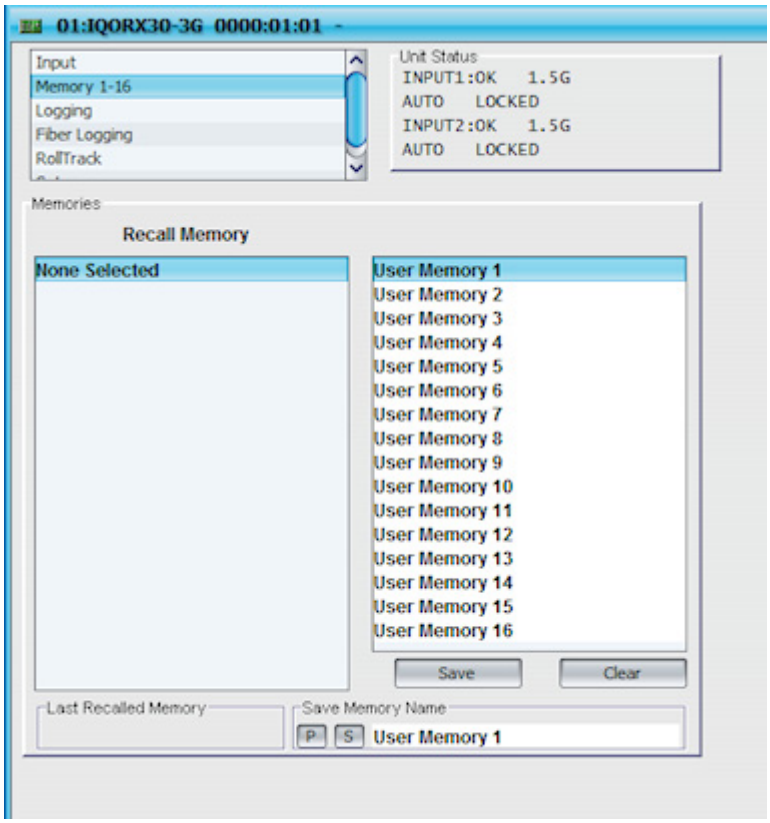
Fiber Optic Rx 1 / Rx 2

This section displays information power and state information about Rx Inputs 1 and 2.

Memory 1-16

Use the Memory function to save up to 16 setups to be recalled later.

Default memory names can be changed to provide more meaningful descriptions.



To save settings:

- In the **Save Memory** column, select a memory location, and then click **Save**. The current settings are saved and the memory appears in the **Recall Memory** column.

To change a memory name:

- In the **Save Memory Name** field, type the new memory name, and then click **S**. To return the memory to its default value, click the preset button (**P**).

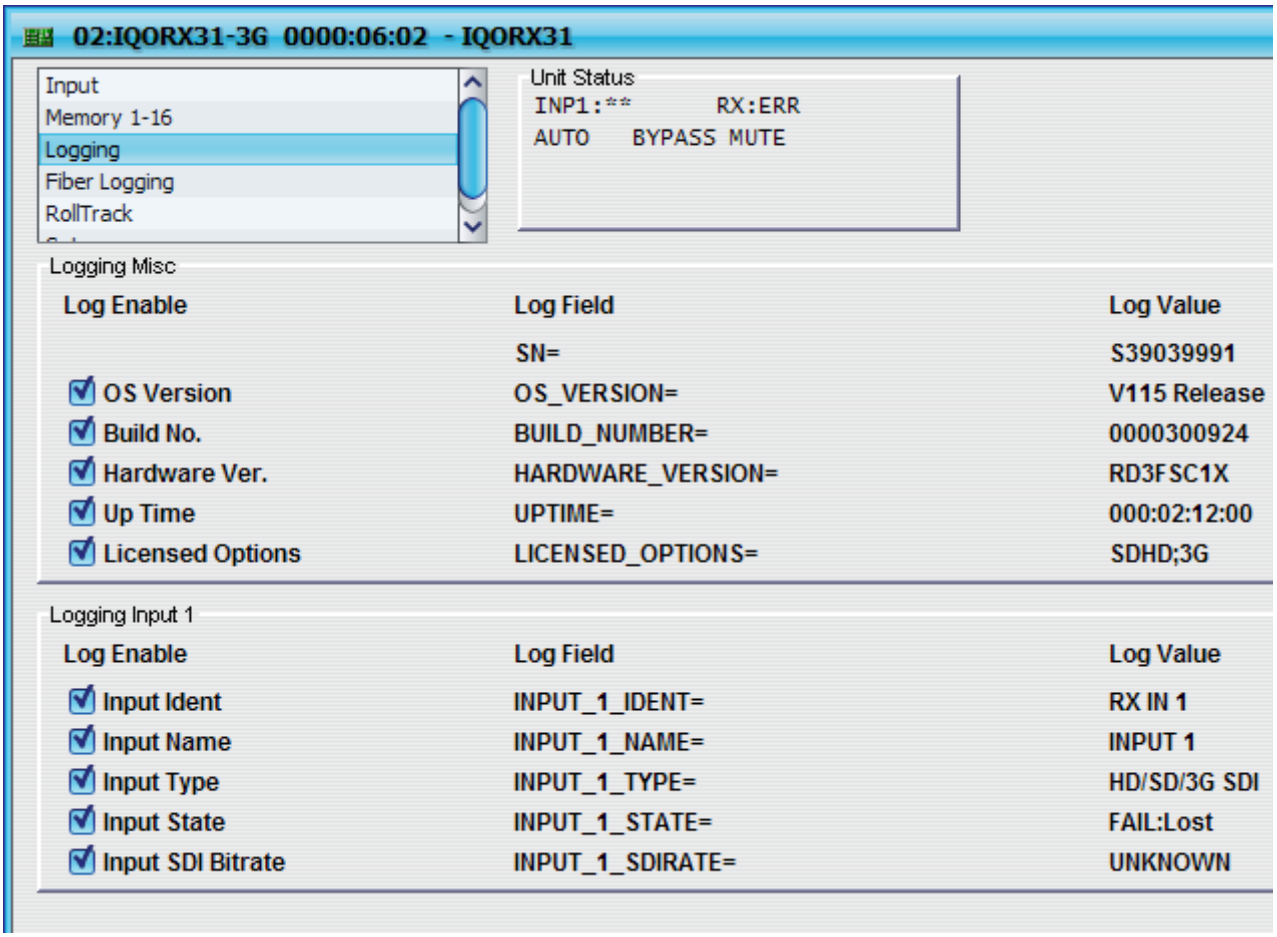
Use the **Recall Memory** function to recall the settings saved in a memory location. **Last Recalled Memory** displays the most recently recalled memory. An asterisk displayed next to the name shown in the Last Recalled Memory field indicates that one or more controls have been changed since the memory was recalled.

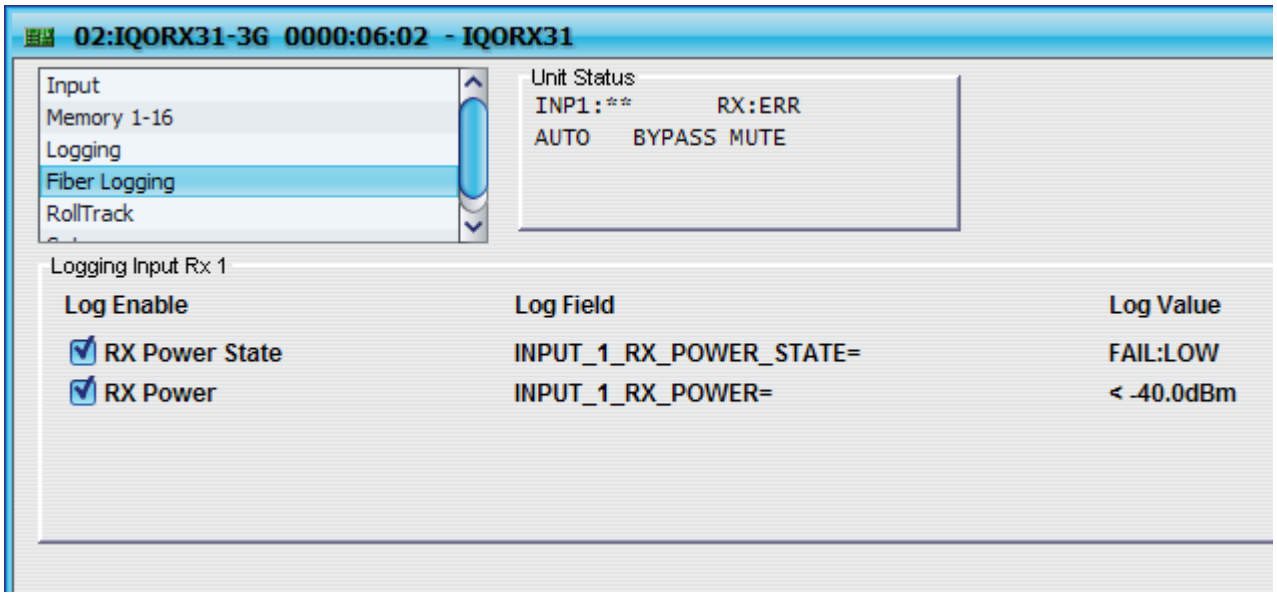
To recall a memory:

- In the **Recall Memory** column, select the memory to recall. The recalled settings will be applied and the memory name will appear in the **Last Recalled Memory** section.

Logging

Information about several parameters can be made available to a logging device that is connected to the RollCall network.





Each logging screen comprises three columns:

- **Log Enable**: Select the check boxes that correspond to the parameters for which log information should be collected.
- **Log Field**: Displays the name of the logging field.
- **Log Value**: Displays the current log value.

RollCall Log Fields

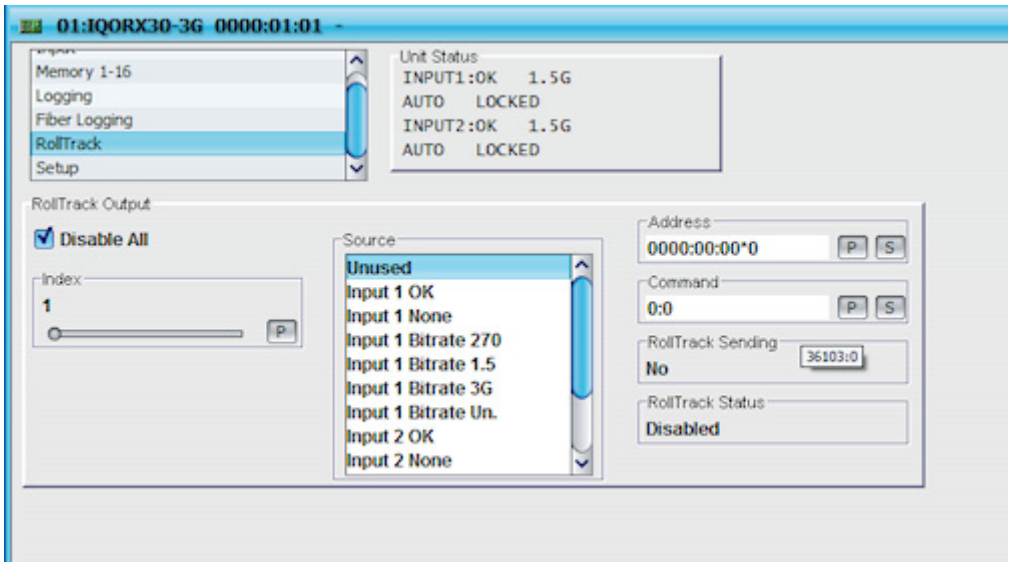
Log Field	Log Value
SN=	<Serial number>
OS_VERSION=	<Operating system version>
BUILD_NUMBER=	<Software build number>
HARDWARE_VERSION=	<Hardware version number>
UPTIME=	<Time since last restart>
LICENSED_OPTIONS=	<Current licensed options>
INPUT_*N*_IDENT=	<Input ident>
INPUT_*N*_NAME=	<Input name>
INPUT_*N*_TYPE=	<Input type>
INPUT_*N*_STATE=	OK, WARN, FAIL
INPUT_*N*_SDIRATE=	<Input bitrate>
INPUT_*N*_RX_POWER_STATE=	OK, WARN:HI, WARN:LO, FAIL
INPUT_*N*_RX_POWER=	<Rx power measurement>

RollTrack

The RollTrack settings allow information to be sent, by means of the RollCall network, to other compatible units on the same network.

Use the settings on the **RollTrack** screen to:

- Enable or disable the RollTrack functions.
- Configure up to 16 RollTrack outputs.
- Specify the conditions that trigger RollTrack data transmission.
- Set RollTrack destinations.
- Specify the RollTrack commands to be sent.



RollTrack Sources

The RollTrack Source specifies the source of the information that triggers the transmission of data.

RollTrack Addresses

The full RollTrack Address comprises four sets of numbers. For example, 0000:10:01*99.

The first set, 0000 in the example, is the network segment code number.

The second set, 10 in the example, identifies the (enclosure/mainframe) unit.

The third set, 01 in the example, identifies the slot number in the unit.

The fourth set, 99 in the example, The RollCall ID of the unit. This is a user-configured number that uniquely identifies the destination unit in a multi-unit system. This ensures that only the correct unit responds to commands. If it is set to anything other than 00 only that type of unit will respond to RollTrack commands. If left at 00, an incorrectly fitted unit may respond inappropriately.

RollTrack Commands

Each RollTrack command comprises two sets of numbers, for example, 33039:3.

The first set, 33039 in the example, is the RollTrack command number, which identifies the command.

The second set, 3 in the example, is the value that is sent with the command.

Using RollTracks

To enable or disable RollTrack functions:

- To enable the RollTrack functions, clear the **Disable All** check box.
- To disable RollTrack functions, select the **Disable All** check box.

To configure a RollTrack action:

1. Select the **Index** number. This identifies the RollTrack action being configured. Up to 16 RollTrack actions can be created.
2. From the **Source** list, select the source of the information that will trigger RollTrack transmission.
3. Enter the RollTrack **Address** and click **S**. To return the address to its default value, click the preset button (**P**).
4. Enter the RollTrack **Command** and click **S**. To return the value to its default, click the preset button (**P**).

Viewing RollTrack Information

RollTrack Sending and **RollTrack Status** display information about the status of RollTracks.

RollTrack Sending displays the information when the unit is actively sending a RollTrack command:

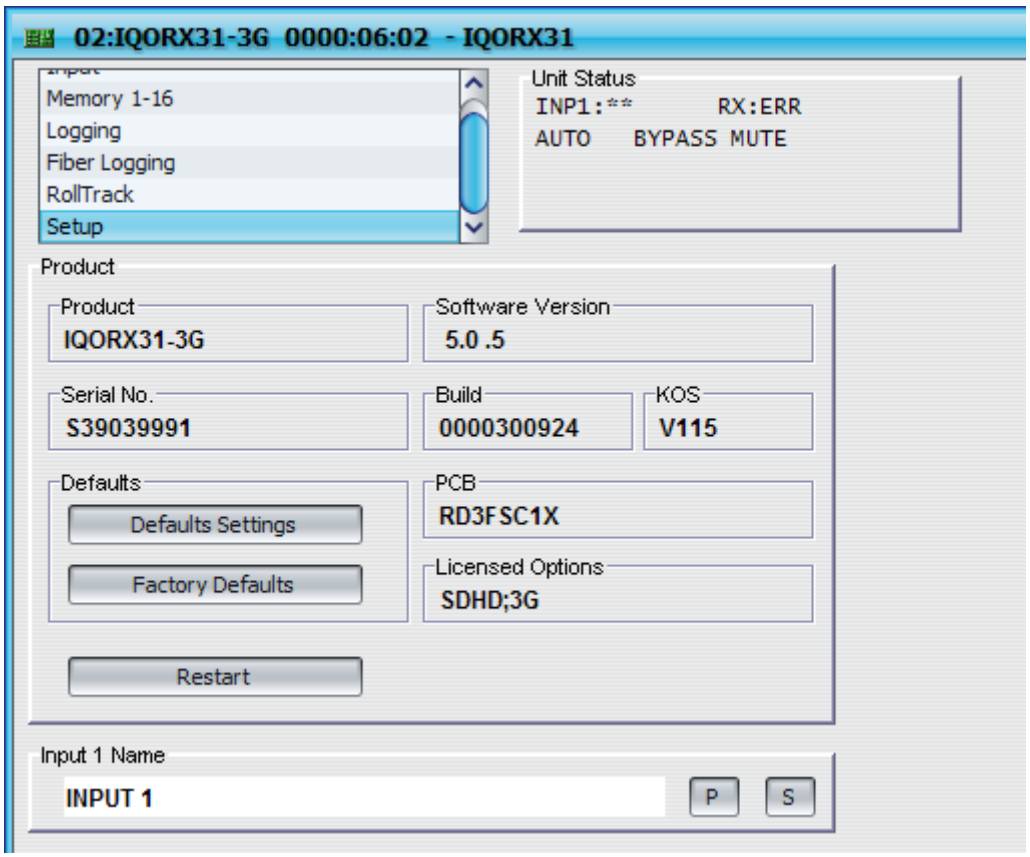
- **No**: The command is not being sent.
- **Yes**: The command is being sent.

RollTrack Status displays the status of the currently selected RollTrack Index:

- **OK**: RollTrack message sent and received OK.
- **Unknown**: RollTrack message has been sent but has not yet completed.
- **Timeout**: RollTrack message sent, but acknowledgement not received. This could be because the destination unit is not at the specified location.
- **Bad**: RollTrack message has not been sent correctly, acknowledged at the destination unit. This could be because the destination unit is not of the type specified.
- **Disabled**: RollTrack sending is disabled.

Setup

The **Setup** screen displays basic information about the unit. Use the functions on the screen to restart the unit, return all settings to their factory defaults, and to change the names of the inputs.



On the **Setup** screen, the following information is displayed:

- **Product:** This displays the name of the module.
- **Software Version:** This displays the currently installed software version number.
- **Serial No:** This displays the unit's serial number.
- **Build:** This displays the factory build number. This number identifies all parameters of the unit.
- **KOS:** This displays the operating system version number.
- **PCB:** This displays the PCB revision number.
- **Licensed Options:** This displays the unit's currently licensed options.

To reboot the unit, simulating a power-up/power-down cycle, click **Restart**.

To reset all of the unit's settings to their factory defaults, click **Factory Defaults**. Note that this option will clear user memories.

To reset the unit's settings to their factory defaults, leaving user memories intact, click **Default Settings**.

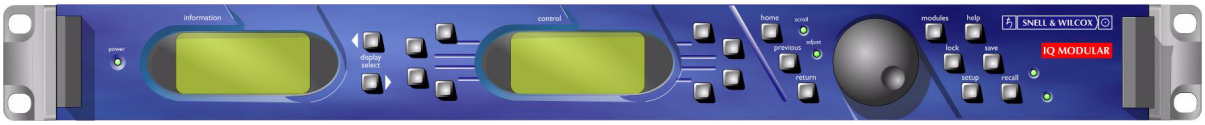
Note: *Resetting the unit to its **factory defaults** will also clear all the saved memory settings*

Input 1 Name and Input 2 Name
These are the input names displayed in logging. To change the name of Input 1 or Input 2, type the name in the text field and click **S**. To return the name to its factory default, click **P**.

Operation from an Active Control Panel

The module can be operated from an active control panel via the RollCall™ network.

All operational parameters and selections described in the previous section are made using a system of menus displayed in the two LCD windows – the Information window and the Control window.



Information Window

The information window contains four lines of text indicating the current state of the unit.

Control Window

The Control window displays all selection menus and sub-menus.

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.

Manual Revision Record

Date	Version	Issue	Change	Comments
01/05/09	1	1		First Issue.