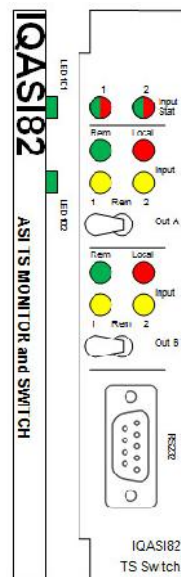


IQASI82

DUAL ASI TRANSPORT STREAM MONITOR & SWITCH



Handbook

Version 1, Revision 1



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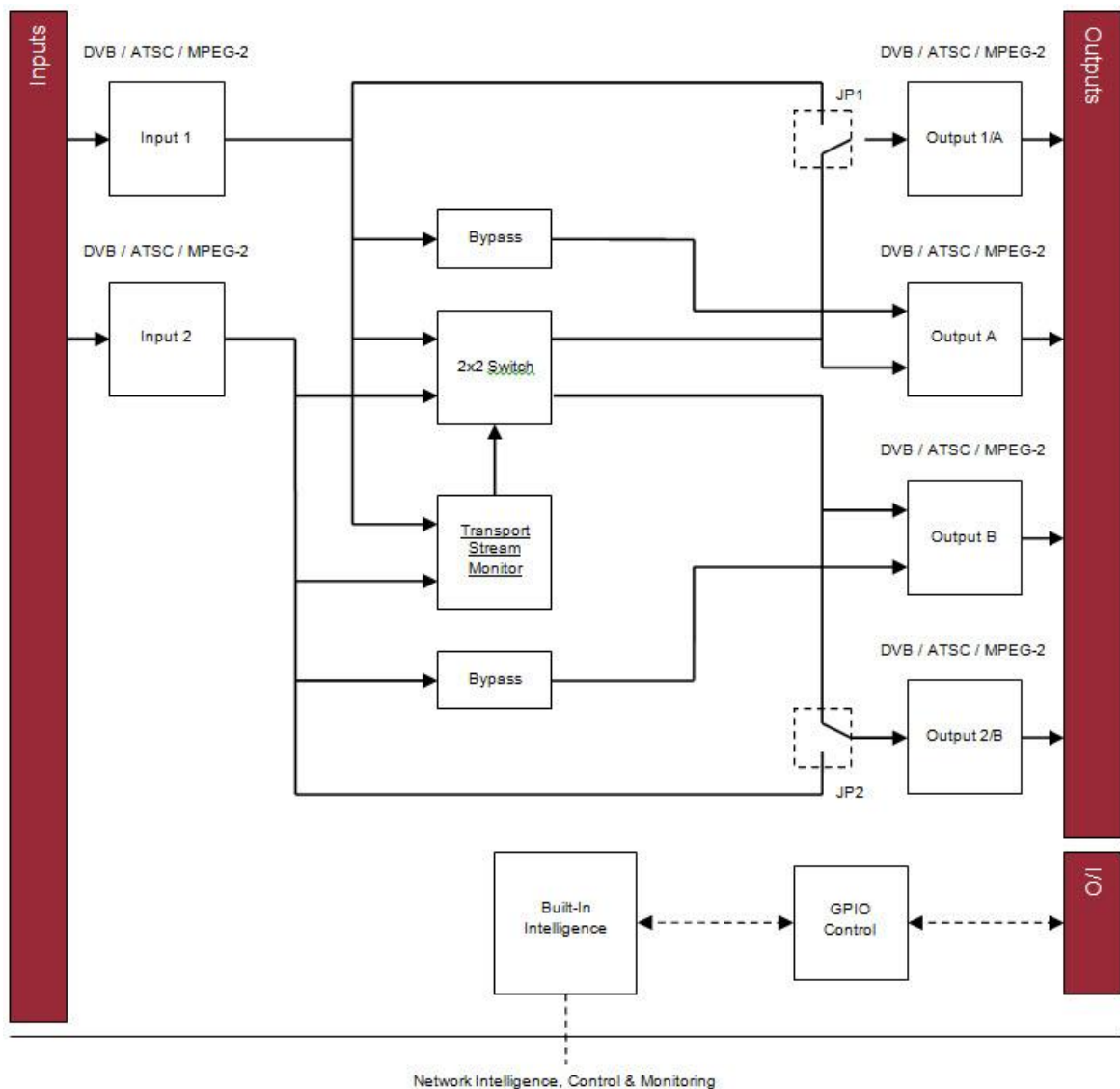
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Introduction

Module Description

The IQASI82 is a dual ASI Transport Stream (TS) monitor with a 2x2 near-seamless switch designed for the simultaneous monitoring of two DVB, ATSC or MPEG-2 Transport Streams with near-seamless changeover.



IQASI82 Overview

Control of the ASI module can be performed from various interfaces including front panel switches, GPIO lines, on-board serial interfaces or Snell RollCall. A bypass function built into the module caters for emergency (non-seamless) switching in the event of power failure.

Feature Summary

The IQASI82 Dual ASI Transport Stream Monitor & Switch provides the following features:

- DVB, ATSC and MPEG-2 Transport Streams support
- Simultaneous monitoring of two ASI streams
- Transport stream monitoring and user selectable alarms, including:
 - Catastrophic failures such as no TS, loss of synchronisation or low signal level
 - Basic TR 101290 checks such as monitoring the Program Association Table (PAT)
 - User defined maximum and minimum data rates for each Transport Stream
 - Monitoring PIDs from a customer specified list up to a maximum of 64 (32 per input)
- Multiple switching methods, including:
 - Near-seamless and non-seamless switching
 - Manual, or Automatic switching
- RollCall monitoring allows all signal paths to be managed remotely

Order Codes

The following product order codes are covered by this manual:

IQASI82 ASI transport stream monitor and switch, 2ASI inputs, 4 ASI outputs, 12 GPIs, 1 RS232 port, 2 relay ports in two frame-specific versions as follows:

IQASI8200-2A Dual ASI Transport Stream Monitor & Switch for Snell 'A' frames

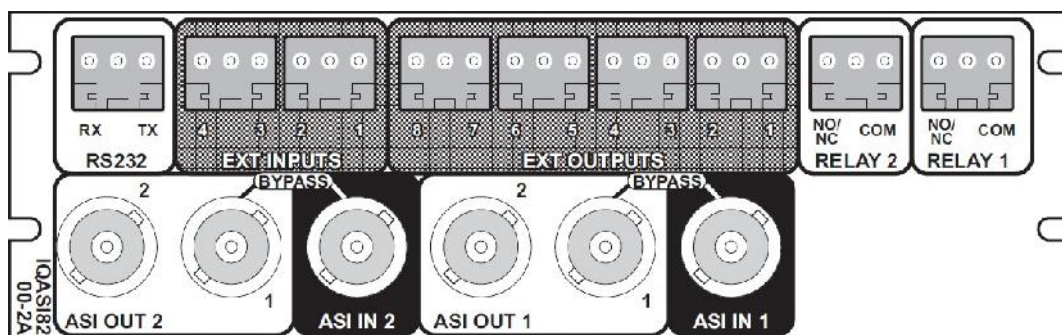
IQASI8200-2B Dual ASI Transport Stream Monitor & Switch for Snell 'B' frames



Although IQ modules are interchangeable between enclosures, their rear panels are enclosure specific. Modules with 'A' order codes can only be fitted into A-style enclosures. Modules with 'B' order codes can be fitted into either A or B style enclosures.

Rear Panels and Enclosures

The following shows the IQASI8200-2A rear panel:



The IQASI82 modules can only be fitted in the following enclosures:



An IQH3B enclosure accepts modules with either “A” or “B” order codes. An IQH3A or IQH1A enclosure accepts modules with “A” order codes only.

B-style Enclosures

QH3B-S-0, IQH3B-S-P



The IQH3B enclosure provides two internal analogue reference inputs. These inputs are applicable to modules with “B” order codes only.

A-style Enclosures

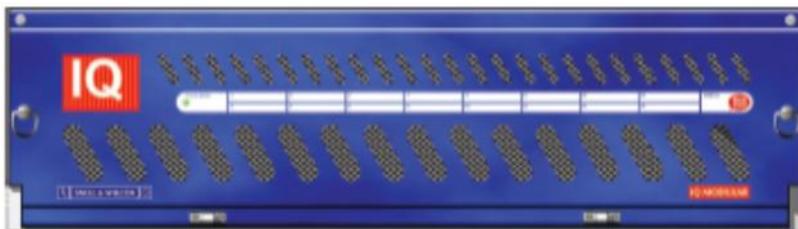
QH1A-S-P



QH3A-S-0, IQH3A-S-P



QH3A-E-0, IQH3A-E-P, IQH3A-0-P



QH1A-S-P



General safety summary

Every care has been taken in the design, manufacture, assembly and testing of this product to obviate health and safety risks to personnel and to prevent fire or other hazards. However, please review the following safety precautions for continued protection.

Product inspection. On receipt of the unit, open the box and verify that the unit and all accessory items included. Save the shipping carton and packing materials in case it becomes necessary to return the unit to dB Broadcast for service or repair.

Suspected damage or failure. Do not operate the product. Have it inspected by qualified service personnel or contact dB Broadcast or an authorised distributor.

No user serviceable parts. Return to dB Broadcast or an authorized distributor for repair.

General use. This product must only be used as specified in this manual. Failure to follow any ratings or directions for use may impair the protection provided.



Caution statements identify conditions or practices that could result in damage to this product or other property.

Cuts and abrasions. When handling the equipment, guard against cuts or abrasions from sharp edges or components.

Take anti-static precautions. Since this unit contains exposed PCB and electronic components, ensure proper anti-static precautions are observed when handling this equipment.

Provide proper ventilation. To prevent product overheating, provide proper ventilation.

Operating environment. The unit is for indoor use in a fixed rack. See the [Specification](#) chapter for further environmental, physical, certification and safety information.

Do not operate in wet or damp conditions.

Do not operate in an explosive atmosphere.

Power See the [Specification](#) chapter. All ratings must be observed.

Toxic content. Unwanted or obsolete components must be disposed of safely as some may release toxic vapours if incinerated.

Lithium battery

A lithium battery may be located in this product to provide back up for the real-time clock. In normal operation battery life is in excess of 5 years. If the real-time clock becomes erratic when cycling the power, the battery may need replacing. Replacement should only be performed by a 'skilled and competent technician', or by returning to dB Broadcast for repair.



Danger of explosion if battery is incorrectly replaced.

In case of difficulty. Please refer to dB Broadcast.

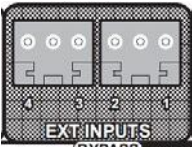
Installation

Connections

This section applies to both the IQASI8200-1A and IQASI8200-1B frame variants.

External Control Inputs

Four external opto-coupled control inputs are provided using screw terminals.

Ext Input	Function	Rear Connector View	
1	Switch A to 1		A ground is present on the screw terminal's centre pin.
2	Switch A to 2		
3	Switch B to 1		
4	Switch B to 2		

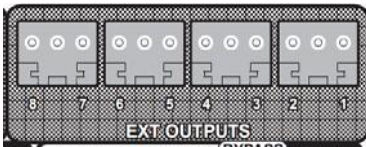
Ext Input signals are fitted with internal pull-up resistors and use a LOW voltage for signal TRUE. They are opto-coupled and can be shorted to ground. There is a minimum hold time of the order of 10ms. Inputs must be asserted for at least this time to guarantee acceptance; transients shorter than this will be ignored.



If both 'Switch to 1' and 'Switch to 2' control inputs are asserted for an output, the controller will implement 'Switch to 2'.

External Control Outputs

Eight outputs are provided using screw terminals.

Ext Output	Rear Connector View	
1 to 8		A ground is present on the screw terminal's centre pin.
GND		

Ext output signals are active low using a LOW voltage for signal TRUE and are configured as open collector (sink) with the emitter referenced to ground. When an external pull-up is connected and the output is set to true, a low voltage signal will be present.

External outputs are updated synchronously every second, so that alarms or commands are effectively held for a one second. It follows that status outputs may declare a new route up to a second after the event has occurred and that some momentary events are not recorded.

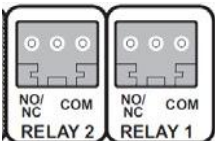


Events that generate commands that change state and then revert back within the one second update hold period are not reported at the output.

Monitoring outputs represent a summary of errors, which occurred during that time. Switch status outputs represent the current status at the update time.

Relay Outputs

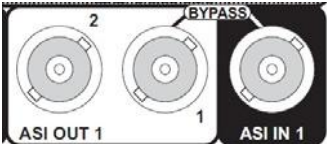
Screw terminal connectors are provided for the relay outputs using screw terminals.

Relay Outputs	Rear Connector View	
NO/NC		<p>The screw terminal centre pin is connected to ground. One of two identical channels is detailed here.</p>
Com		
Ground		

The interface can be configured as Normally Open (NO) or Normally Closed (NC) using jumpers on the main board.

ASI Inputs and Outputs

The ASI input Transport Streams are routed to the main ASI outputs under control of the integrated 2x2 TS switch.

ASI I/O	Rear Connector View	
ASI IN		<p>One of two identical channels is detailed here.</p>
Out A (Bypass)		
Out 1/A		

Jumpers on the main board, described later, dictate the signals presented to the auxiliary interface (OUT 1/A), provided for interfacing to additional monitoring devices.


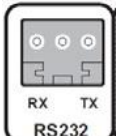
This ASI IN / OUT A 'BYPASS' feature is for emergency (non-seamless) switching in the event of power failure and is a specific feature of this module. On other IQ modules a hot swap capability or 'bypass' feature may be provided by its rear connector; guaranteeing connectivity between connectors paired with the 'BYPASS' label when a module is removed.



This power fail 'BYPASS' feature is provided by the module and not the rear interface.

RS232 Serial Interface

This is provided at the rear using screw terminals and as a 9 pin DIN socket on the front panel.

RS232 I/O	Front View	Rear View	
RX, Pin 3 Front			<p>The centre pin at the rear connector is the reference ground.</p>
TX, Pin 2 Front			
GND, Pin 5 Front			

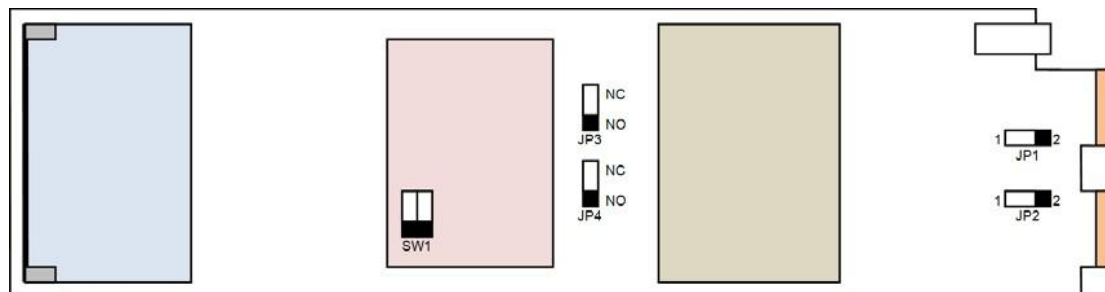
The Baud rate is set by slider 2 on DIL switch S1 on the microcontroller sub-board can be 9600 or 38400, 8 data bits, 1 stop bit, no parity and XON/OFF flow control. This affects both the rear and front panel ports. It must be set to 38400.



Do not alter this setting from 38400 as it will prevent RollCall from working.

Hardware Configuration

The illustrations below show the module itself and a simplified diagram showing the location of configuration jumpers / switches.



Jumper Settings

Jumper	Description
JP 1	1 – Out 1/A set to Input 1 2 – Out 1/A set to Output A
JP 2	1 – Out 2/B set to Input 2 2 – Out 2/B set to Output B
JP 3	NO – Relay Output 1 is connected as NO NC – Relay Output 1 is connected as NC
JP 4	NO – Relay Output 2 is connected as NO NC – Relay Output 2 is connected as NC

Switch Settings

Switch	Description
SW1-1	Program / run mod This should be set to run (Down)
SW1-2	Serial Baud Rate This should be set to 38K (38400) (Up)

Operation

There are several methods of controlling the module:

- Using the front panel switches
- Using General Purpose Inputs / Outputs (GPIO)
- Connecting directly to the card with its own serial interface
- Via RollCall
- Using the on-board controller

This allows the card to be deployed in many different ways. The control methods are arbitrated using control modes.

Control Modes

Each method uses different control modes which have a fixed order of precedence:

Priority	Mode	Description
Highest	Local	Front panel switching
	Remote External	GPIO switching
	Remote Serial	Front / rear / serial port & RollCall switching
Lowest	Auto	On-chip controller

In most circumstances, the device will be connected to operate in one control mode only, leaving the other modes available for occasional use. Control modes are assigned per output. This means Output A can be under local control whilst Output B remains in Auto.

Example

Control Example	Normal Operation	Maintenance Mode
1	Auto	Local
2	Remote Serial	Local
3	Remote Ext	Local
4	Auto	Remote Serial

Local Mode

Local mode is for forcing an output manually to one input source or the other. Typically it is used for isolation of part of the system to perform on-site maintenance. The control mode LEDs operate with immediate effect, that is, there is no 1s delay.

Remote Ext Mode

Remote Ext mode is for driving the switch using the GPI interface at the rear of the module.

GPI control can only be entered when local mode is off and a valid forcing signal is present at the rear interface. These forcing signals are level based and need to be present for the duration that the switch needs to be forced.

Remote Serial Mode

This is a shared interface between the front and rear serial ports as well as RollCall. Only one can be used at a time.

This manual describes the use of the RollCall interface only.

Auto Mode

Auto mode is the default used when no other control modes are in force. It can be enabled or disabled. When disabled the module behaves as if it were in the auto off-state. When active, control is conceded to the on-board controller.



Since the control loop when in Auto mode is local to the card, near-seamless switching is possible. This is not possible using external control.

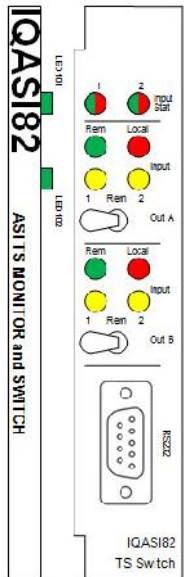
Changing Control Mode

To change to a control with higher priority than that set, simply issue command over the appropriate interface to override it. To change to a control to one with a lower priority than that set, then the higher precedence command must be cancelled.

- To cancel local mode, return the front panel switch to its central position
- To cancel remote ext mode, allow the switching inputs to float high or pull them up externally
- To cancel the remote serial mode, select the Auto control on the RollCall interface

Front Panel (Local Mode)

The following section describes the Front Panel and its operation. The illustration below shows the front panel and its interface.

Front Panel	Indicator	Description
	Input Stat 1 / 2	Green = T/S Status good Red = T/S Status fail
	Rem	Green = Remote control active
	Local	Red = Local control active
	Input 1 / 2	Yellow = Shows the selected input
	LED101	Green = Power good
	LED102	Green flashing = Processor running

Independent local control for each output is provided for using the respective toggle switch mounted on the front panel. The control for each is identical:

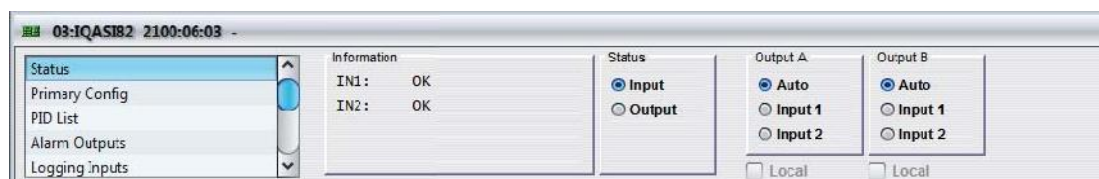
Switch Position	Description
Left	Output A / B is forced to Input 1
Central	Remote control is used
Right	Output A / B is forced to Input 2

RollCall Control Panel

RollCall is a control and monitoring system for products complying with the Snell RollCall protocol. It can also monitor third party equipment via SNMP, serial or GPI interfaces.

Information and Source Select Sub-panels

I/O information and output source select sub-panels at the top centre and top right are present on each menu selected from the scroll box at the top left.

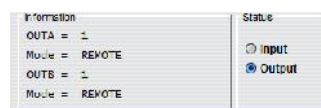


I/O Information Sub-panel

The Information sub-panel displays the status of video inputs and outputs. Select either **Input** or **Output** in the **Status** sub-panel to the immediate right of the **Information** sub-panel to control what it shows.



Input status for IN1 and IN2



Output status for OUT A/B

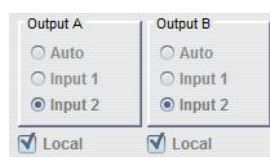
When Output is selected, the Information Window displays output status information for output A and output B. They show the input source selected for the respective output, and its control mode. The control mode shows whether the output has been switched automatically or has been forced.

Control Mode	Description
Local	The output is being forced by the front panel switch
Remote	The output is being forced via the serial interface, or via RollCall
External	Switching is being forced externally by a parallel input (GPI)
Auto	The output is switched based on a decision made by the module

See [Control Modes](#) on page 14 for more information.

Output Source Select Sub-panels

The **Output A** and **B** sub-panels allow the respective output to be forced to the selected input.



The Local check box is greyed out when either the front panel switch or the GPI is in use.

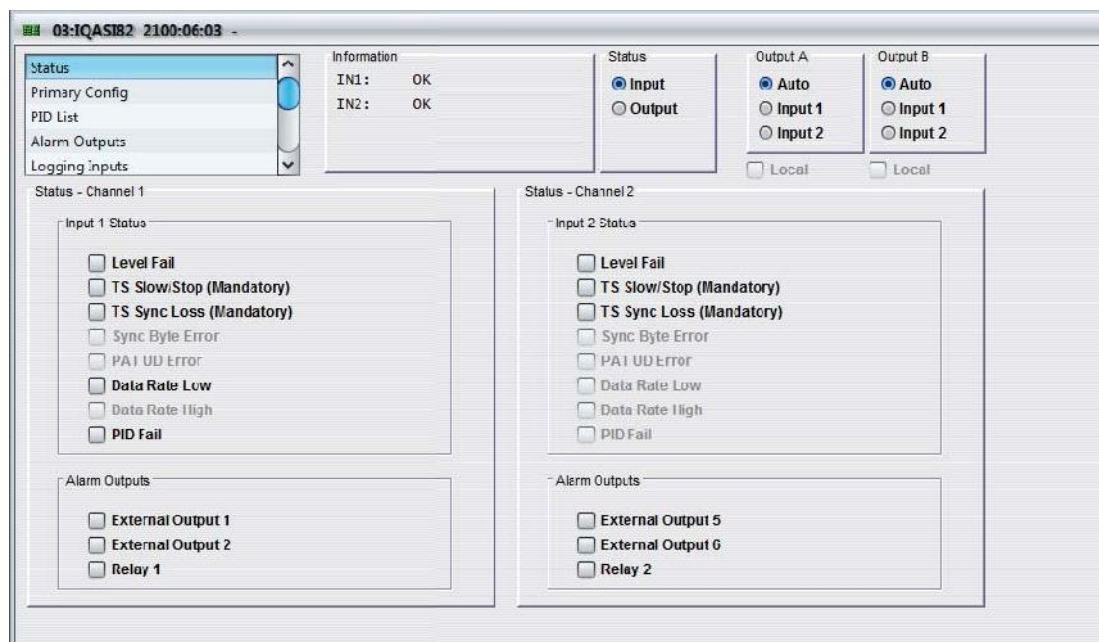
Control is only possible if the current mode is **Auto** or **Remote** serial. Selecting 1 or 2 will automatically set the current mode to Remote serial. Setting the mode to Auto allows the controller to arbitrate which input source to use.



Near-seamless switching is only possible in Auto.

Status

The status menu provides an overall view of Input, Output and Alarm status.

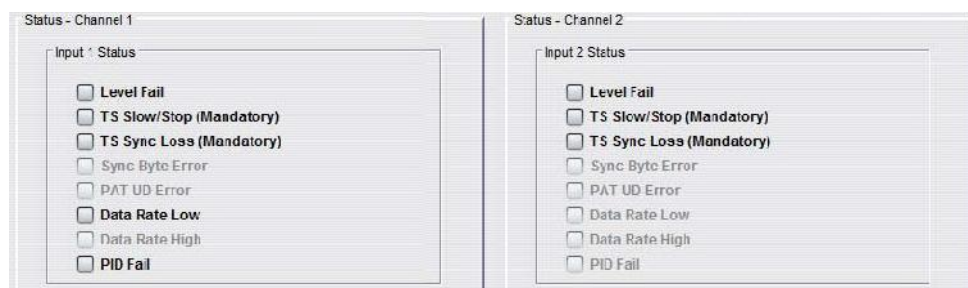


On each menu there is a menu select scroll box on the top left and I/O Information and Output Source Select sub-panels at the top centre and top right which are always present on each selected menu. The body of each menu displays items relevant for the selected menu.

This section deals with the main **Status** menu (highlighted in blue in the menu select scroll box).

Input Status

There are two Input Status panels, one for each input.



They indicate the status of the input sub-alarms. Any of the status alarms each input will cause the respective Input Stat LED on the front panel to turn Red. If no error condition is present the respective Input Stat LED will be lit Green.

Understanding Status Alarms

Disabled alarms are shown greyed out and enabled alarms are bolded. Ticked alarms show that the alarm 'trigger' condition is present. An alarm must be enabled with the trigger condition present for it to sound or be asserted.

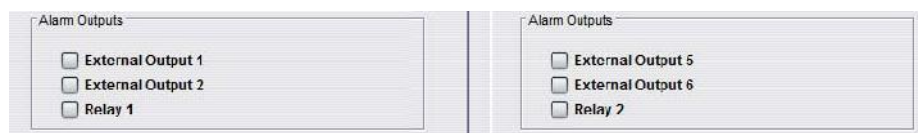


Although alarm status indicators may look like clickable 'check boxes', they are not controls. Refer to [TS Status Alarms](#) on page 20 in the [Primary Configuration](#) topic for alarm trigger conditions and to enable and disable non-mandatory alarms.

Priority	Alarm	Description
Ticked & greyed out	Not asserted	The alarm condition is present, but the alarm is disabled
Unticked & greyed out	Not asserted	Alarm condition is absent and the alarm is disabled
Ticked, highlighted blue and bolded	Asserted	Alarm is enabled, the condition is present, and therefore the alarm is asserted or 'sounding'
Unticked and bolded	Not asserted	Alarm is enabled but the condition is not present, and so the alarm is 'silent' or not asserted

Alarm Output

These panels indicate the status of the sub-alarm driven GPIO for their respective source.

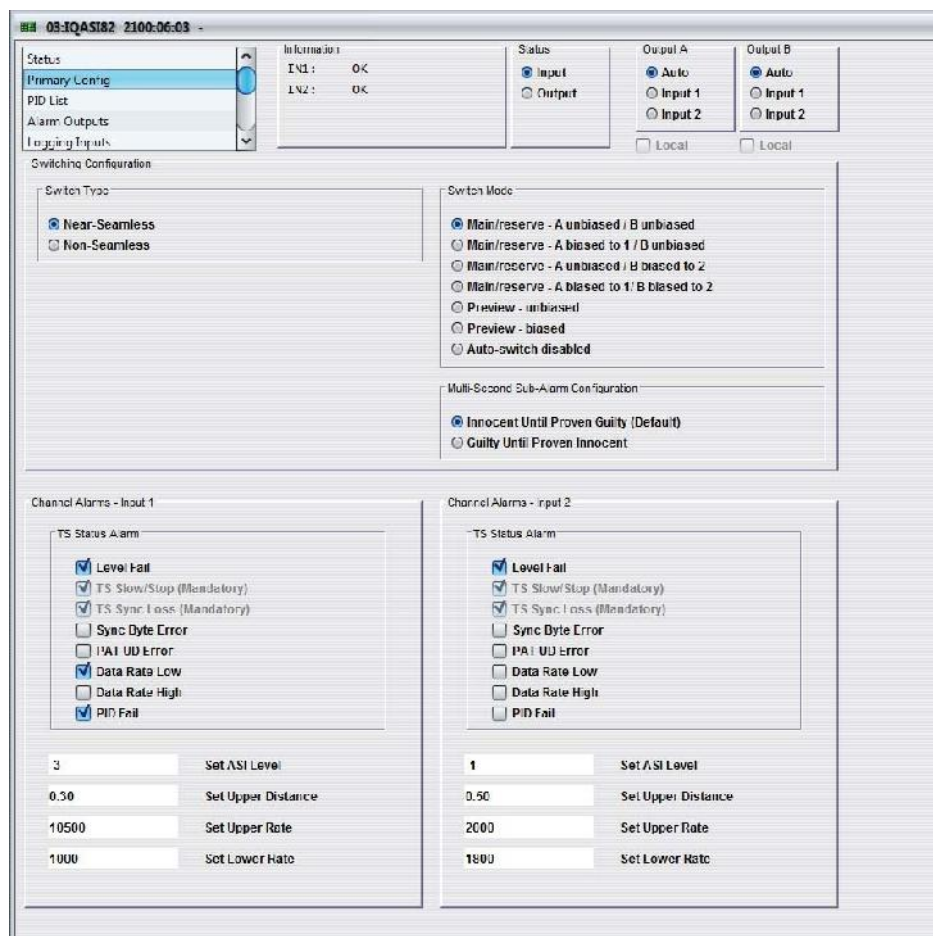


As before, a combination of check box tick and greying out indicate whether a fail condition is present or not. If the alarm output is selected then the associated GPO will be forced high to indicate that an error exists.

Alarm	Description
External Output 1/2	Indicates whether the respective output is being driven due to an error condition
External Output 5/6	Indicates whether the respective output is being driven due to an error condition
Relay 1/2	Indicates whether the respective relay is being driven due to an error condition

Primary Configuration

The **Primary Config** menu is used to set the IQASI82's main configuration parameters.



Switch Type

This control sets the switch type.



Switch Type	Description
Near-seamless	Near-seamless attempts to prevent TS sync losses by preserving the packet structure during automatic and manual switching.
Non-seamless	Non-seamless is provided for downstream systems that require a switch transition; 2 corrupted bytes are guaranteed at the switching point.



Near seamless may help when switching radically different streams if a TS_sync_loss provides the quickest route to a clean reset of downstream equipment.



The service disruption experienced when switching non-identical streams depends on the nature of the input streams and the decoder employed, though in general the more closely related the streams the smoother the switching.

Switch Mode

This control sets the switch mode.

Switch Mode	Description
Main/reserve	In the event of a failure, the outputs are routed to the good input. When Main/reserve is selected there is no A-B dependency. The 2x2 switch can be configured to be biased or unbiased. If set to biased the output is switched away from the failed input if the other input is healthy, and then back again if the preferred input comes good. If set unbiased the number of switches made is minimised by not preferring one input over the other.
Preview	In the event of a failure the inputs are routed so that output used for transmission continues to receive a good signal. Output A is the transmission output and Output B the monitoring output. Output B will always be the opposite input to Output A if Output B is set to auto.
Auto Switch Disabled	Disables auto-switching

Multi Second Sub Alarm Configuration

The Multi-Second Sub-Alarm Configuration controls are used for setting the initial condition for the PID and PAT UD Error alarms as it is not possible to complete these tests within the first analysis period. This controls sets whether the condition is good or bad.

Setting	Description
Innocent Until Proven Guilty (IUPG)	Initial condition = good
Guilty Until Proven Innocent (GUPI)	Initial condition = bad



For most systems IUPG is the best setting; however, if the system is likely to exhibit TS_sync_loss failures where the elementary streams are known to recover slowly and the user wishes to use the module on its biased setting, selecting GUPI will improve the response to this error by preventing the switch from returning to the preferred input until it has completely recovered.

Input Channel Alarms

Each input has its own channel alarm configuration panel. The controls for each are identical but apply only to the respective input.

Channel Alarms - Input 1

TS Status Alarm

- ☒ Level Fail
- ☒ TS Slow/Stop (Mandatory)
- ☒ TS Sync Loss (Mandatory)
- ☒ Sync Byte Error
- ☒ PAT UD Error
- ☒ Data Rate Low
- ☒ Data Rate High
- ☒ PID Fail

-2 Set ASI Level

2.00 Set Upper Distance

2 Set Upper Rate

2 Set Lower Rate

Switch Mode	Description
Set ASI Level	Sets ASI level. If the value is out of range it will revert to the previous good value. The minus sign (-) must be entered. The Level Fail alarm, if enabled, will sound if the ASI signal falls below this threshold. This value is in the range of -1 to -12, in step of 1.
Set Upper Distance	Sets the maximum time allowed between packets carrying Program Association data before the PAT UD Error alarm (if enabled) is sounded. This value is in the range of 0.01 to 30.00, in steps of 0.01.
Set Upper Rate	Sets the upper data rate threshold. The Data Rate High alarm, if enabled, will sound if the TS packet count is above the threshold. This value is in the range of 1 to 65535, in step of 1.
Set Lower Rate	Sets the lower data rate threshold. The Data Rate Low alarm, if enabled, will sound if the TS packet count falls below this threshold. This value is in the range of 1 to 65535, in step of 1.

TS Status Alarms

The TS Status Alarms appear in the Status screen, but are configured, enabled or disabled here.

The image shows two side-by-side configuration windows for 'Channel Alarms - Input 1' and 'Channel Alarms - Input 2'. Each window contains a 'TS Status Alarm' section with a list of alarms and their status (checked or unchecked). Below this list are four input fields with labels: 'Set ASI Level', 'Set Upper Distance', 'Set Upper Rate', and 'Set Lower Rate'.

Alarm	Input 1 Status	Input 2 Status
Level Fail	Checked	Checked
TS Slow/Stop (Mandatory)	Checked	Checked
TS Sync Loss (Mandatory)	Checked	Checked
Sync Byte Error	Unchecked	Unchecked
PAT UD Error	Unchecked	Unchecked
Data Rate Low	Checked	Unchecked
Data Rate High	Unchecked	Unchecked
PID Fail	Checked	Unchecked

Below the alarm list, the configuration fields are as follows:

Field	Input 1 Value	Input 2 Value
Set ASI Level	-3	-1
Set Upper Distance	0.30	0.50
Set Upper Rate	10500	2000
Set Lower Rate	1000	1800

To enable or disable the non-mandatory alarms click the appropriate check box for the respective alarm to place a tick in its box.

Any of the alarms detailed below will cause the respective Input Stat LED on the front panel to turn red. If no error condition is present, the respective Input Stat LED is green.

Priority	Description
Level Fail	The minimum sensitivity for an ASI receiver should be 200mVpp; see Appendix reference [2] . This represents 12dB attenuation from the standard output level. This alarm is sounded if the ASI signal falls below the user adjustable threshold (default is -12dB)
TS Slow/Stop (Mandatory)	The alarm will sound if a correct sync byte is not received after 0.4s.
TS Sync Loss (Mandatory)	This is the standard loss of Transport Stream Alarm; see Appendix reference [5] . Five consecutive correct bytes must be achieved before the alarm is cancelled.
Sync Byte Error	Any corrupt sync byte will trigger this alarm; see Appendix reference [5] .
PAT UD Error	This is as the first part of the PAT_error_2a as defined in; Appendix reference [5] . The check is performed at a user defined interval. The default value is 0.5s.
Data Rate Low	All TS packets apart from null packets are counted as data. This alarm is sounded if the 1s averaged packet count fails below the user defined level.
Data Rate High	All TS packets apart from null packets are counted as data. This alarm is sounded if the 1s averaged packet count is above the user defined level
PID Fail	This alarm is set if any of the user defined PIDs are missing for a given period. This distance threshold can be in the range of 0 to 30s in steps of 10ms. Up to 32 unique PIDs can be defined for each input.

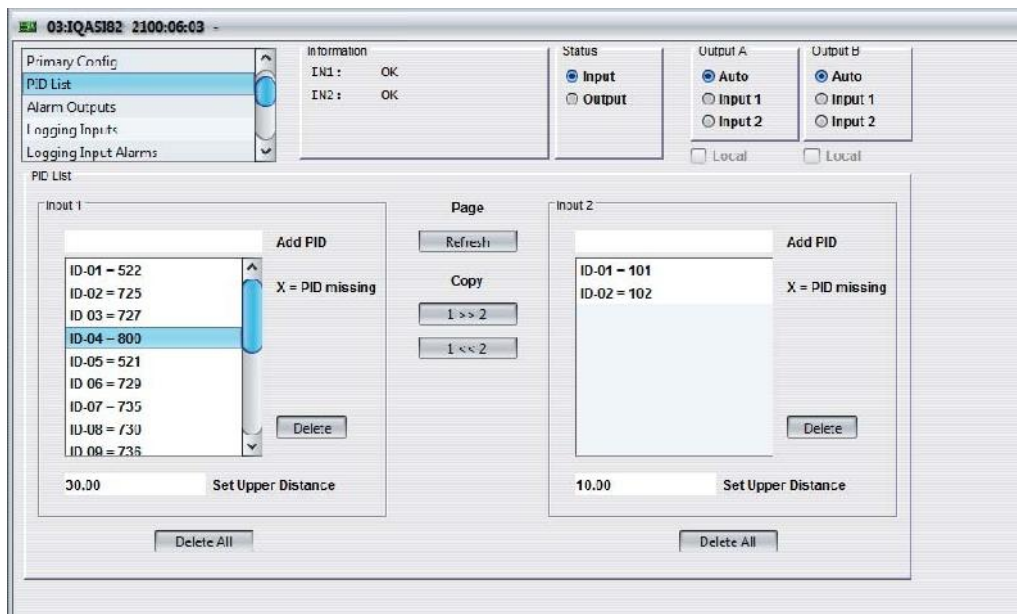


TS_sync_loss – A healthy Transport Stream can arrive over ASI which nevertheless contains violations of the “2 ASI K28.5’s before each sync byte” rule as stated in [Appendix Ref \[2\]](#).

See also Serial Commands in the [Set Commands](#) topic.

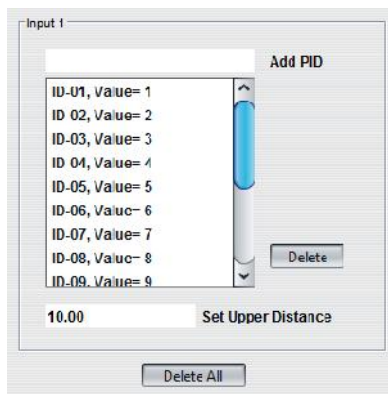
PID List

The **PID List** menu is used for PID monitoring and management.



Input Controls

Each input has its own channel PID list configuration panel. The controls for each are identical but only apply to their respective input.



Control	Description
Add PID	This field is used for entering a PID to monitor. Enter the value and press return. If the PID is in range and not already listed it will be added to the end of the list. This value is in the range of 1 to 8191, in steps of 1
Delete	To delete a specific PID, select the item from the list and click Delete
Delete All	Deletes all PIDs for the associated input.
Set Upper Distance	Sets the Upper Distance allowed between occurrences of a PID in the transmission stream. When enabled, the PID fail alarm is sounded if the upper distance threshold is exceeded. This value is in the range of 0.01 to 30.00, in steps of 0.01s. If an out of range value is entered the value will revert to its previous good value.

Page

The PID lists are refreshed on demand, rather than being polled periodically to minimise network traffic. The list is refreshed when adding/removing a PID, as well as when copying the list. There are occasions however where the display may not have updated because of the delays associated with committing the change to internal memories. The **Refresh** button under **Page** manually refreshes the display.

Page	Description
Refresh	Refreshes the display. An indication of this is that the PID list should always be contiguous.

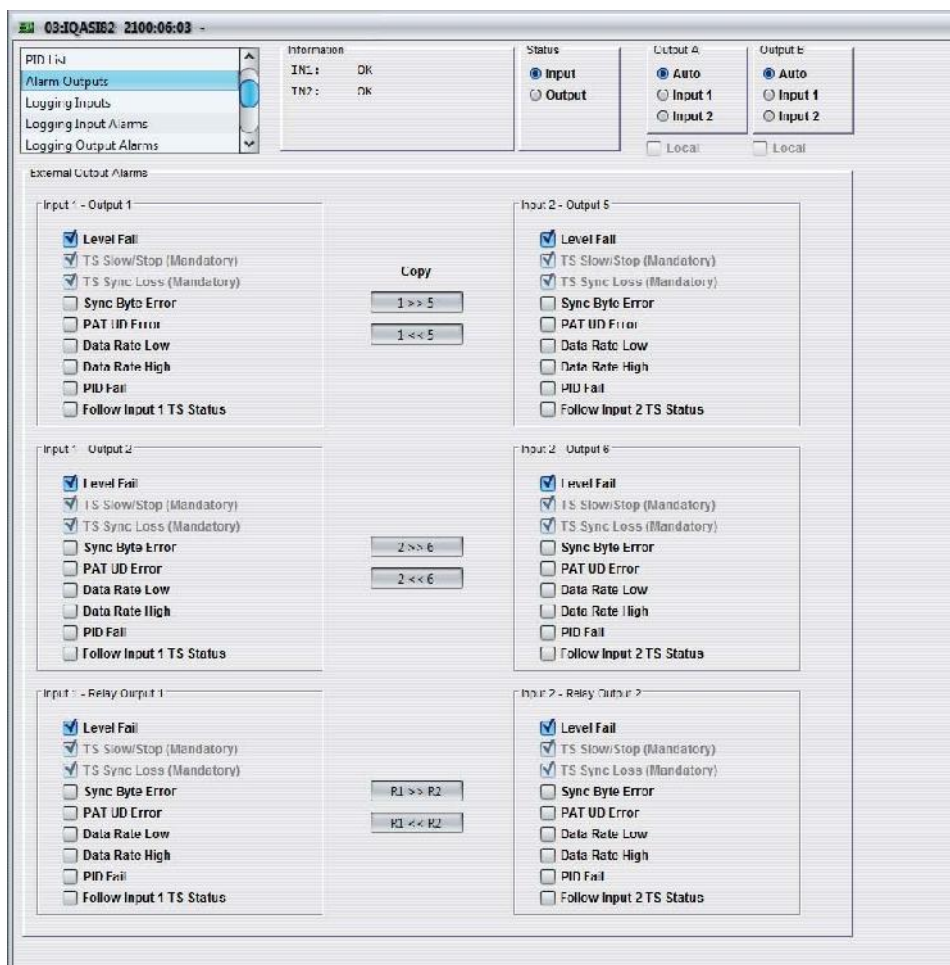
Copy

The Copy control deletes the PIDs already associated with the target list and then copies the source listing to the target.

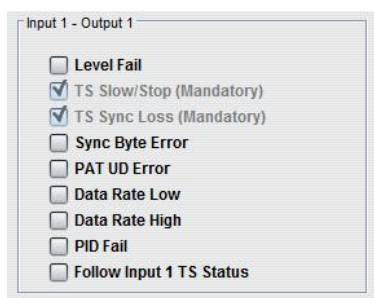
Copy	Description
1 >> 2	Copies PIDs listed for input 1 to input 2.
1 << 2	Copies PIDs listed for input 2 to input 1.

Alarm Outputs

The **Alarm Outputs** menu is used for managing GPI Outputs and Relay output behaviour.



Input N, Output N



Each output / relay output has its own set of controls; the controls for each work the same.

An output will be set if any of the checked conditions are met for its respective input. Select which are applicable, other than those marked as being mandatory, by simply checking the appropriate checkbox.

Copy Controls



Settings may be copied between pairs of outputs using the copy controls provided.

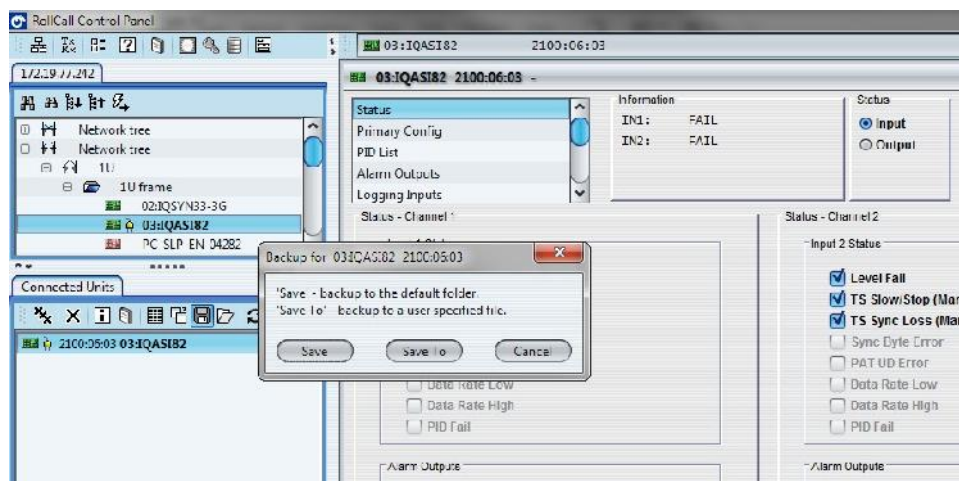
Savesets

Savesets allow predetermined RollControl fields to be saved to file which can then be used to either transfer the settings to another card, or used as a backup of the settings for that card.

Saving a Saveset


1. To use the Saveset feature, click on Save  from the **Connected Units** toolbar.

The Backup dialog box appears.

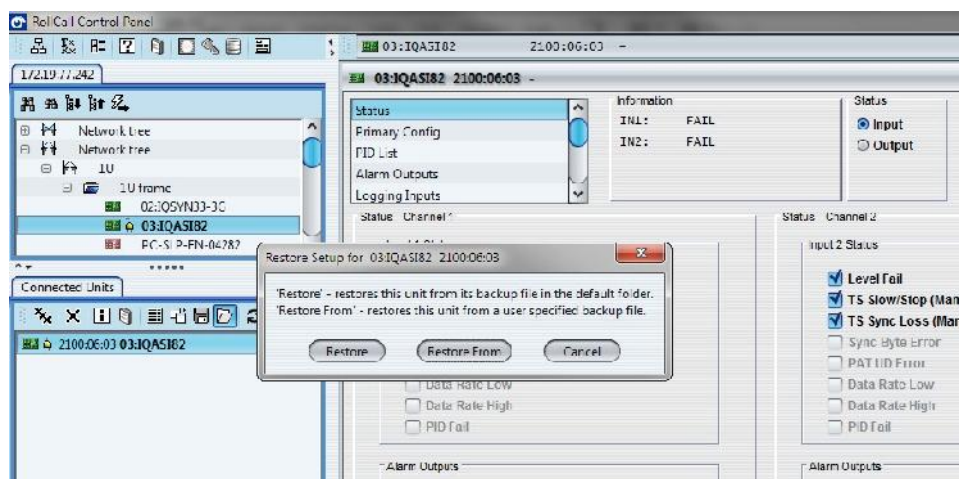


2. Either click the **Save** button to save the unit state to the default backup folder, or click the **Save To** button to save the unit state to a user specified file.

Restoring a Saveset

1. From the **Connected Units** toolbar, click on the Restore folder icon  (8th icon from the left).

The Restore dialog box appears.



2. Either click the **Restore** button to restore the unit state from the default backup folder or click the **Restore From** button to restore the unit state from a user specified file.

While the Saveset is being restored, you can view its status in the Information Window.



Restoring a Saveset for this product will take time, depending on the number of differences there are between products' current settings, to those of the Saveset being recalled.

For example if the two PID tables are fully populated (64 entries), and restoring a Saveset will change all of these, it will take approximately two minutes to save the product settings to the ASI monitor.



Product controls are not locked during the recall time.

Although, products settings can be changed during a recall, changes will not be registered until the recall has finished. It is therefore advisable to wait until the Saveset has been applied, by checking the **Recall** state shown on the **Input Status** panel.

Logging

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

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/> Input Ident	INPUT_1_IDENT=	ASI_IN_1
<input checked="" type="checkbox"/> Input Name	INPUT_1_NAME=	ASI_1
<input checked="" type="checkbox"/> Input State	INPUT_1_STATE=	OK
<input checked="" type="checkbox"/> Input Type	INPUT_1_TYPE=	ASI

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/> Input Ident	INPUT_2_IDENT=	ASI_IN_2
<input checked="" type="checkbox"/> Input Name	INPUT_2_NAME=	IN_2
<input checked="" type="checkbox"/> Input State	INPUT_2_STATE=	OK
<input checked="" type="checkbox"/> Input Type	INPUT_2_TYPE=	ASI

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

Logging Inputs

The Logging Inputs menu displays the current log information for each of the two inputs.

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/> Input Ident	INPUT_1_IDENT=	ASI_IN_1
<input checked="" type="checkbox"/> Input Name	INPUT_1_NAME=	ASI_1
<input checked="" type="checkbox"/> Input State	INPUT_1_STATE=	OK
<input checked="" type="checkbox"/> Input Type	INPUT_1_TYPE=	ASI

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/> Input Ident	INPUT_2_IDENT=	ASI_IN_2
<input checked="" type="checkbox"/> Input Name	INPUT_2_NAME=	IN_2
<input checked="" type="checkbox"/> Input State	INPUT_2_STATE=	OK
<input checked="" type="checkbox"/> Input Type	INPUT_2_TYPE=	ASI

Logging Input Alarms

The **Logging Input Alarms** menu is used to select which fields should be enabled for each of the two inputs. This is the same information as presented for the inputs on the **Status** menu.

03:IQASI82 2100:06:03

Logging Inputs

- Logging Input Alarms
- Logging Output Alarms
- Logging Output Status
- Logging Misc

Information

IN1: OK

IN2: OK

Status

☒ Input

☐ Output

Output A

☒ Auto

☐ Input 1

☐ Input 2

Output B

☒ Auto

☐ Input 1

☐ Input 2

☐ Local

☐ Local

Logging Input 1

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/> Level Fail	INPUT_1_LEVEL_FAIL=	OK
<input checked="" type="checkbox"/> IS Slow/Stop	INPUT_1_IS_SLOW_STOP=	OK
<input checked="" type="checkbox"/> TS Sync Loss	INPUT_1_TS_SYNC_LOSS=	OK
<input checked="" type="checkbox"/> Sync Byte Error	INPUT_1_SYNC_BYTE_ERROR=	OK
<input checked="" type="checkbox"/> PAT UD Error	INPUT_1_PAT_UD_ERROR=	OK
<input checked="" type="checkbox"/> Data Rate High	INPUT_1_DATA_RATE_HIGH=	OK
<input checked="" type="checkbox"/> Data Rate Low	INPUT_1_DATA_RATE_LOW=	OK
<input checked="" type="checkbox"/> PID Fail	INPUT_1_PID_FAIL=	OK

Logging Input 2

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/> Level Fail	INPUT_2_LEVEL_FAIL=	OK
<input checked="" type="checkbox"/> TS Slow/Stop	INPUT_2_TS_SLOW_STOP=	OK
<input checked="" type="checkbox"/> TS Sync Loss	INPUT_2_TS_SYNC_LOSS=	OK
<input checked="" type="checkbox"/> Sync Byte Error	INPUT_2_SYNC_BYTE_ERROR=	OK
<input checked="" type="checkbox"/> PAT UD Error	INPUT_2_PAT_UD_ERROR=	OK
<input checked="" type="checkbox"/> Data Rate High	INPUT_2_DATA_RATE_HIGH=	OK
<input checked="" type="checkbox"/> Data Rate Low	INPUT_2_DATA_RATE_LOW=	OK
<input checked="" type="checkbox"/> PID Fail	INPUT_2_PID_FAIL=	OK

Logging Output Alarms

The **Logging Output Alarms** menu is used to select which fields should be enabled for each of the two outputs. This is the same information associated with the external outputs, presented for the **Status** menu.

03:IQASI82 2100:06:03

Logging Input Alarms

Logging Output Alarms

Logging Output Status

Logging Misc

RollTrack

Information

IN1: OK

IN2: OK

Status

☒ Input

☐ Output

Output A

☒ Auto

☐ Input 1

☐ Input 2

Output B

☒ Auto

☐ Input 1

☐ Input 2

☐ Local

☐ Local

Channel 1

Log Enable	Log Field	Log Value
<input type="checkbox"/> External Output 1	ALARM_EXT_OUTPUT_1=	OK
<input type="checkbox"/> External Output 2	ALARM_EXT_OUTPUT_2=	OK
<input type="checkbox"/> Relay 1	ALARM_EXT_RELAY_1=	OK

Channel 2

Log Enable	Log Field	Log Value
<input type="checkbox"/> External Output 5	ALARM_EXT_OUTPUT_5=	OK
<input type="checkbox"/> External Output 6	ALARM_EXT_OUTPUT_6=	OK
<input type="checkbox"/> Relay 2	ALARM_EXT_RELAY_2=	OK

Logging Output States

The **Logging Output Status** menu is used to select which fields should be enabled for the output states. This is the same information presented in the **Output Information** panel.

03:IQASI82 2100:06:03 -

Logging Output Alarms
Logging Output Status
 Logging Misc
 RollTrack
 Setup

Information
 IN1: OK
 IN2: OK

Status
☒ Input
☐ Output

Output A
☒ Auto
☐ Input 1
☐ Input 2
☐ Local

Output B
☒ Auto
☐ Input 1
☐ Input 2
☐ Local

Output A Status

Log Enable	Log Field	Log Value
<input type="checkbox"/> Input Selected	OUTPUT_A_INPUT=	2
<input type="checkbox"/> Switch Mode	OUTPUT_A_MODE=	AUTO

Output B Status

Log Enable	Log Field	Log Value
<input type="checkbox"/> Input Selected	OUTPUT_B_INPUT=	2
<input type="checkbox"/> Switch Mode	OUTPUT_B_MODE=	AUTO

Logging Miscellaneous

The **Logging Misc** menu is used to select which fields should be enabled for the unit's basic parameters.

03:IQASI82 2100:06:03 -

Logging Output Alarms
 Logging Output Status
Logging Misc
 RollTrack
 Setup

Information
 IN1: OK
 IN2: OK

Status
☒ Input
☐ Output

Output A
☒ Auto
☐ Input 1
☐ Input 2
☐ Local

Output B
☒ Auto
☐ Input 1
☐ Input 2
☐ Local

Logging Misc

Log Enable	Log Field	Log Value
<input checked="" type="checkbox"/> OS Version	SN=	80-2
<input checked="" type="checkbox"/> Build No.	OS_VERSION=	V115 Release
<input checked="" type="checkbox"/> Hardware Ver.	BUILD_NUMBER=	0171501716
<input checked="" type="checkbox"/> Hardware Mod.	HARDWARE_VERSION=	IQAS80-010/0
<input checked="" type="checkbox"/> ASI Software Version	HARDWARE_MOD=	0
<input checked="" type="checkbox"/> Firmware Version	ASI_SOFTWARE_VERSION=	2.00
<input checked="" type="checkbox"/> Up Time	FIRMWARE_VERSION=	11110
<input checked="" type="checkbox"/> RollTracks	UPTIME=	000:03:48:00
<input checked="" type="checkbox"/> Rear ID	ROL_STATES=	OK
<input checked="" type="checkbox"/> Rear Status	REAR_ID=	237
<input checked="" type="checkbox"/> Slot Width	REAR_STATUS=	OK
<input checked="" type="checkbox"/> Slot Start	SLOT_WIDTH=	2
<input checked="" type="checkbox"/> Power Usage	SLOT_START=	3
	POWER_USAGE=	6.5W/6.5LU

Log Field Descriptions

In the tables below, N is the input number.

Logging Inputs	Description
INPUT_N_IDENT=	The identifier of the serial data input, based on the rear ID.
INPUT_N_NAME=	The name of the input, as defined by the user in the Setup menu
INPUT_N_STATE=	“OK” – the input signal is good “FAIL” – the input signal is not detected
INPUT_N_TYPE=	This displays the type of input as specified by the unit's configuration: i.e. “ASI”

Logging Inputs Alarms	Description
INPUT_N_LEVEL_FAIL=	The alarms are as previously described for the Input Status. The alarm will indicate Fail if the parameter is outside of the alarm range but will only be acted upon if the alarm is enabled in the primary configuration and/or the alarm outputs. “OK” – The alarm is silent “FAIL” – The alarm is active
INPUT_N_TS_SLOW_STOP=	
INPUT_N_TS_SYNC_LOSS=	
INPUT_N_SYNC_BYTE_ERROR=	
INPUT_N_PAT_UD_ERROR=	
INPUT_N_DATA_RATE_HIGH=	
INPUT_N_DATA_RATE_LOW=	
INPUT_N_PID_FAIL=	

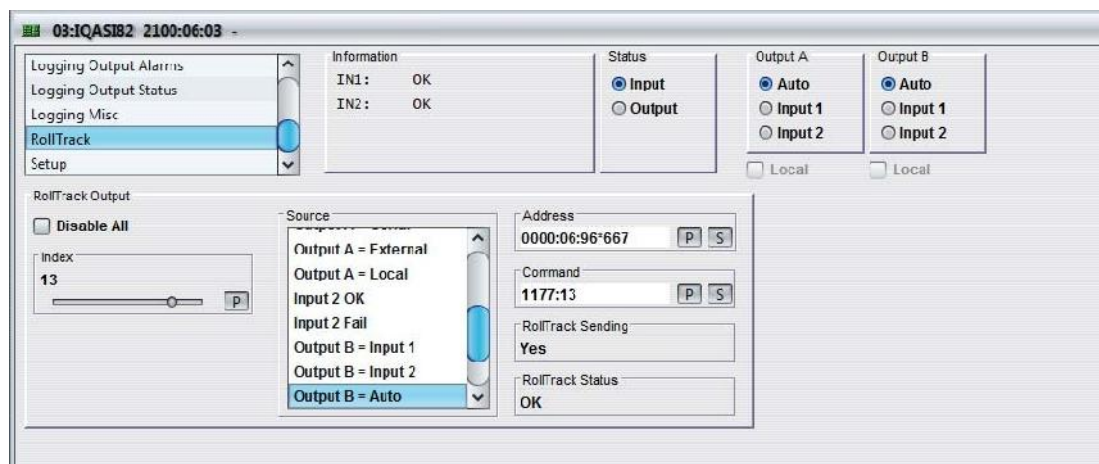
Logging Outputs Alarms	Description
ALARM_EXT_OUTPUT_1=	The alarms are as previously described for the Input Status. The alarms are an indication of the GPI output state with respect to the alarm state and which alarms have been selected for the individual GPI outputs. “OK” – The alarm is silent “FAIL” – The alarm is active
ALARM_EXT_OUTPUT_2=	
ALARM_EXT_RELAY_1=	
ALARM_EXT_OUTPUT_5=	
ALARM_EXT_OUTPUT_6=	
ALARM_EXT_RELAY_2=	

Logging Output Status	Description
OUTPUT_N_INPUT=	“1” or “2” – The source selected for the output
OUTPUT_N_MODE=	This reports which switching mode is being deployed, namely: “LOCAL” – Front panel switching “REMOTE_SERIAL” – Serial port / RollCall forced “REMOTE_EXT” – GPI switching “AUTO” – ASI82 decision based switching

Logging Miscellaneous	Description
SN=	Displays the module serial number (Note – cannot be deselected)
OS_VERSION=	Displays the operating system name and version.
BUILD_NUMBER=	Displays the software build number
HARDWARE_VERSION=	Displays the hardware version number
HARDWARE_MOD=	Displays the hardware modification level
ASI_SOFTWARE_VERSION=	Displays the ASI controller software version
FIRMWARE_VERSION=	Displays the ASI controller firmware version
UPTIME=	Displays the time since the last restart in the format ddd:hh:mm:ss
ROL_STATES=	The status of any RollTracks that have been enabled. Valid values are: OK, Disabled, or FAIL
REAR_ID=	Displays the rear panel type number
REAR_STATUS=	Displays the status of the rear panel
SLOT_WIDTH=	Displays the slot width
SLOT_START=	The first slot number the rear occupies. Use in conjunction with SLOT_WIDTH to determine the slots that the unit occupies.
POWER_USAGE=	Displays the power rating for the module. This is a maximum rating not a live power reading,

RollTrack

The **RollTrack** menu allows information to be sent via the RollCall™ network, to other compatible units connected on the same network.



The 'source' window lists the RollTrack sources

Disable All

When checked, all RollTrack functions are disabled.

Index

The Index slider identifies the RollTrack action being configured. You can create up to 16 RollTrack actions. Click the **P** button to select the default preset value.

Source

This slider enables the source of information that triggers the transmission of data to be selected. Dragging the slider selects the RollTrack source, displayed below the slider. Clicking the **P** button selects the default preset value. When no source is selected, **Unused** is displayed.

RollTrack Source	Description
Unused	No RollTracks sent.
Input 1 OK	Input 1 is good
Input 1 Fail	Input 1 is bad
Output A = Input 1	Output A source Input 1
Output A = Input 2	Output A source Input 2
Output A = Auto	Output A mode is Auto
Output A = Serial	Output A mode is Serial
Output A = External	Output A mode is External
Output A = Local	Output A mode is Local
Input 2 OK	Input 2 is good
Input 2 Fail	Input 2 is bad
Output B = Input 1	Output B source Input 1
Output B = Input 2	Output B source Input 2
Output B = Auto	Output B mode is Auto
Output B = Serial	Output B mode is Serial
Output B = External	Output B mode is External
Output B = Local	Output B mode is Local

Address

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

The address may be changed by typing the new destination in the text area and then selecting the **S** button to save the selection. Clicking the **P** button returns to the default preset destination.

The RollTrack address consists of 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 in the example, is a user-configured number that identifies the destination unit in a multi-unit system. This ensures that only the correct unit responds to commands. If left at 00, an incorrectly fitted unit may respond unexpectedly.

Rolltracks can be internally looped back using address FFFF:00:00.

Command

This item enables a command to be sent to the selected destination unit.

The command may be changed by typing a code in the text area and then selecting the **S** button to save the selection. Clicking the **P** button returns to the default preset command.

The RollTrack command consists of two sets of numbers, for example: 84:156:

- The first number (84) is the actual RollTrack command
- The second number (156) is the value sent with the RollTrack command

RollTrack Sending

A message is displayed here when the unit is actively sending a RollTrack command.

Possible messages are:

Message	Description
No	The message is not being sent.
Yes	The message is being sent.

RollTrack Status

A message is displayed here to indicate the status of the currently selected RollTrack index.

Possible RollTrack Status messages are:

RollTrack Source	Description
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.
Bad	RollTrack message has not been correctly acknowledged at the destination unit. This could be because the destination unit is not of the type specified.
Disabled	RollTrack sending is disabled.

Configuring a RollTrack Action

1. Select the Index number. This identifies the RollTrack action being configured. (You can create up to 16 RollTrack actions.)
2. From the Source list, select the source that will trigger RollTrack transmission.
3. In the Address field, enter the RollTrack address and click S. To return the value to its default, click P.
4. In the Command field, enter the RollTrack command and click S. To return the value to its default, click P.

Viewing RollTrack information

See "RollTrack Sending" and "RollTrack Status".

Setup

The **Setup** menu display basic information about the module, such as the serial number and software versions. Functions are provided to restart the module or return all settings to their factory or default settings.

Item	Description
Product	The name of the module
Software Version	The currently installed software version number
Serial No	The module serial number
Build	The factory-build number. This number identifies all parameters of the module
KOS	The operating system version number
PCB	The Printed Circuit Board revision number
Rear ID	The rear panel type

Factory Defaults

Resets module settings to their factory defaults.

Restart

The Restart button reboots the module, simulating a power-up/power-down cycle.

Input Names

These are the input names displayed in Logging Inputs.

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**.



This menu is only visible in **supervisor** mode; accessible via the RollCall Control Panel.

The Command-Line Interface

The Command-Line Interface (CLI) may be used for configuration, monitoring and control. It is provided to facilitate scripting and as an entry point for integration into existing software systems. It provides full access to all IQASI82 features using a standard terminal emulation program.

The command line protocol is available via the front or rear serial connection.

Terminal settings

The rate is set by slider 2 on DIL switch S1 on the microcontroller sub-board. This can be either 9600 or 38400 Baud, with 8 data bits, 1 stop bit, no parity and software handshaking using Xon/Xoff. This setting affects both front and rear serial ports.



Do not alter this setting from 38400 as it will prevent RollCall from working.

Command directory

Note: CLI commands are not case sensitive.

Dedicated query commands	
alarm	List all the sub-alarms that are assigned to TS status 1 & 2, relays 1 & 2 and external outputs 1 - 8
config	Query configuration (level alarm thresholds, data rate thresholds and PIDs)
help	List all commands
inout	Show the state of external inputs, relays and external outputs
pid	List all PIDs that have been entered in the PID list
status	Show current TS and channel status
time	Show current date and time
version	Query software and firmware versions

Set Commands

Set current time and date

tim:dd-mm-yy hh:mm:ss Set current date and time (all fields must be entered).

Example: Tim:10-05-14 13:30:00; set date to 1:30 pm, 10 May 2014

Configuring TS status alarms

atn:x Add a sub-alarm to input 'n' TS status where 'x' is the alarm code number and 'n' is either 1 for input 1 TS status or 2 for input 2 TS status.

Examples: at1:8 – add PID fail sub-alarm to input 1 TS status.
 at2:5 – add PAT error sub-alarm to input 2 TS status.

rtn:x Remove a sub-alarm from input 'n' TS status where 'x' is the alarm code number and 'n' is either 1 for input 1 or 2 for input 2.

Examples: rt1:8 – remove PID fail sub-alarm from input 1 TS status.
 rt2:5 – remove PAT error sub-alarm from input 2 TS status.

Alarm code numbers

1	ASI level fail
2	TS slow/stopped (Mandatory alarm)
3	TS sync loss (Mandatory alarm)
4	Sync byte error
5	PAT error
6	Low data rate
7	High data rate
8	PID Missing
9	Not used for atn:x and rtn:x commands
?	List alarm codes and current assignments



The '?' argument will turn any of the above commands into a query command.

Configuring output alarms

aon:x Add a sub-alarm to external output 'n', where 'x' is the alarm code number.
 Outputs 1 and 2 monitor ASI input 1 and will be assigned input 1 sub-alarms.
 Outputs 5 and 6 monitor ASI input 2 and will be assigned input 2 sub-alarms.
 No other values of 'n' are configurable.

Examples: ao2:1 – Add to Output 2: sub-alarm 1. This is the ASI level sub-alarm (for ASI input 1)
 ao5:4 – Add to Output 5: sub-alarm 4. This is the Sync byte error sub-alarm (for ASI input 2)

ron:x Remove a sub-alarm from external output 'n', where 'x' is the alarm code number. Again, 'n' may be 1, 2, 5 or 6.

Examples: ro2:8 – Remove from Output 2: sub-alarm 8. This removes the PID missing sub-alarm from output 2.
 ro6:5 – Remove from Output 6: sub-alarm 5. This removes the PAT error sub-alarm from output 6.

arn:x Add a sub-alarm to relay output 'n', where x is the alarm code number and 'n' is either 1 or 2.

Examples: ar1:1 – add ASI level fail alarm to relay 1.
 ar2:4 – add sync byte error alarm to relay 2.

rrn:x Remove a sub-alarm from relay output 'n', where x is the alarm code number and 'n' is either 1 or 2.

Examples: rr1:3 – remove sync loss alarm from relay 1.
 rr2:6 – remove low data rate alarm from relay 2.

Alarm code numbers

1	ASI level fail
2	TS slow/stopped (Mandatory alarm)
3	TS sync loss (Mandatory alarm)
4	Sync byte error
5	PAT error
6	Low data rate
7	High data rate
8	PID Missing
9	Follow respective TS status definition
?	List alarm codes and current assignments



The '?' argument will turn any of the above commands into a query command.

Configuring level alarm thresholds

lan:xxx Set level alarm threshold in dB for input 'n' where xxx is integer -1 to -12, 'n' is the input number 1 or 2.

Examples: la1:-3 – Set input 1 level alarm threshold to -3dB.
 la2:-10 – Set input 2 level alarm threshold to -10dB.

Configuring TS data rate alarm thresholds

dhn:xxxxx Set high data rate threshold for input 'n' TS, in packets per second from 1 to 65535, where 'n' is input 1 or 2.

Examples: dh1:15000 – Set input 1 high TS data rate to 15,000 packets per second.
 dh2:5000 – Set input 2 high TS data rate to 5,000 packets per second.

dlm:xxxxx Set low data rate threshold for input 'n' TS, in packets per second from 1 to 65535, where 'n' is input 1 or 2.

Examples: dl1:150 – Set input 1 low TS data rate to 150 packets per second.
 dl2:50 – Set input 2 low TS data rate to 50 packets per second.

Configuring PAT detection

patudn:xx.xx Set input n PAT upper distance time in seconds from 0.01 to 30.00
 The TR 101290 recommended value is 0.5s
 Where 'n' is input 1 or 2.

Example: patud2:00.50 - set PAT upper distance for input 2 to 0.5s

Configuring PID detection

apn:xxxx Add PID to input 'n' PID list where xxxx is decimal PID value from 1 to 8191 and ? lists all stored PIDs, 'n' is the input number 1 or 2.

Examples: ap1:? – List all stored PIDs in input 1 PID list
 ap2:? – List all stored PIDs in input 2 PID list

rpn:xxxx Remove PID from input 'n' PID list where xxxx is decimal PID value from 1 to 8191 and ? lists all stored PIDs, 'n' is the input number 1 or 2.

Examples: rp1:888 – remove PID 888 from input 1 PID list
 rp2:555 – remove PID 555 from input 2 PID list

udn:xx.xx Set upper distance for input 'n' PID detector where xx.xx is the threshold in seconds from 0.01 to 30, with a resolution of 0.01 seconds, 'n' is the input number 1 or 2.

Examples: ud1:20 – Set input 1 PID detector threshold to 20 seconds
 ud2:15.5 – Set input 2 PID detector threshold to 15.5 seconds

Configuring initial conditions

sad:x Set multi-second sub-alarm initial conditions, where x is:
 1 - IUPG (default) - "not proven" taken as good
 2 - GUPI - "not proven" taken as fail

Example: sad:1 multi-second alarms start good after TS_sync_loss recovery.

Selecting remote ext control type (GPIO / DART)

rct:x Configure remote external control mode to use interface x, where x is:
 1 - GPIO (default)
 2 - DART

Example: rct:2 - enable control over DART interface, disable control over GPIO interface.

Configuring the switch type*

swt:x Set switch type, where x is 1 – near-seamless, 2 – non-seamless and ? – list switch type codes and current setting.

Examples: swt:1 – Set 2x2 switch to be near-seamless
 swt:2 – Set 2x2 switch to non-seamless
 swt:? – List alarm codes and current assignment

Configuring auto-switch preferences*

asp:x Auto-switch preference where x is the preference code number

Examples: asp:1 – Main/reserve, A unbiased, B unbiased
 asp:? – Show current preference

Preference code numbers

1	Main/reserve, A unbiased, B unbiased
2	Main/reserve, A biased to 1, B unbiased
3	Main/reserve, A unbiased, B biased to 2
4	Main/reserve, A biased to 1, B biased to 2
5	Preview, unbiased
6	Preview, biased
7	Auto-switch disabled
?	List preference codes and current preference



The '?' argument will turn any of the above commands into a query command.

Setting the Mode

msa:x Mode set for output A where x is:
 1 - Auto
 2 - Remote serial

msb:x Mode set for output B where x is:
 1 - Auto
 2 - Remote serial

Examples: msa:1 – Set output A to Auto
 msb:2 – Set output B to Remote serial

Controlling the switch

opa:x	Force output A source to input 'x'. Control is only possible if the current mode is Auto or Remote serial. Selecting 1 or 2 will automatically set the current mode to Remote serial and 0 returns the mode to Auto.
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opb:x	Force output B source to input 'x'. Control is only possible if the current mode is Auto or Remote serial. Selecting 1 or 2 will automatically set the current mode to Remote serial and 0 returns the mode to Auto.
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Examples:	opa:1 – Force output A source to input 1. opb:2 – Force output B source to input 2. opa:0 – Return output A to Auto mode.
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References

International standards:

[1] ISO/IEC 13818-1 Second Edition (2000-12-01)

Information technology – Generic coding of moving pictures and associated audio information: Systems

European standards:

[2] BS EN 50083-9 (2002)

Cable networks for television signals, sound signals and interactive services – Part 9: Interfaces for CATV/SMATV headends and similar professional equipment for DVB/MPEG-2 transport streams

[3] EN 300 468 V1.4.1 (2000-11)

Digital Video Broadcasting (DVB); Specification for Service Information (SI) in DVB systems

US standards:

[4] ATSC Doc. A/65A Rev. A – 31 May 2000

Program and System Information Protocol for Terrestrial Broadcast and Cable (Revision A) and Amendment No.1

Technical reports: EBU/CENELEC/ETSI-JTC

[5] ETSI TR 101 290 V1.2.1 (2001-05)

Digital Video Broadcasting (DVB); Measurement guidelines for DVB systems

Glossary

8-VSB	Eight discrete amplitude level, “vestigial side-band” broadcast transmission technology. VSB is an analogue modulation technique used to reduce the amount of spectrum needed to transmit information through cable TV, or over-the-air broadcasts used in the NTSC (analogue) standard. 8-VSB is the U.S. ATSC digital television transmission standard.
Adjacent Channel Interference	Interference caused by extraneous power from signal in an adjacent channel. The problem is often caused by the inability to produce perfect filters without roll off. See <i>Frequency Offset</i> .
Ambient	The atmospheric conditions surrounding a given item. Normally in terms of factors which influence or modify, such as temperature or humidity.
Amplitude	The magnitude of variation in a changing quantity from its zero value.
ASI	Asynchronous Serial Interface.
Attenuation	A reduction in power. It occurs naturally during wave travel, through lines, waveguides, space or a medium such as water. It may be produced intentionally by placing an attenuator in circuit. The amount of attenuation is generally expressed in decibels per unit of length.
ATSC	Advanced Television Systems Committee. Formed to establish technical standards for US advanced television systems. Also, the name given to the digital broadcast transmission standard.
Bandwidth	The range of frequencies over which signal amplitude remains constant (within some limit) as it is passed through a system.
BER	Bit Error Rate. A measure of the errors in a transmitted signal. Bit errors are caused by interference or loss of signal, which can result in disruption to the stream of bits composing the DTV picture.
BNC	A radio frequency connector with an impedance of 75 Ω , designed to operate in the 0 to 4 GHz frequency range.

C/N	Carrier to Noise ratio. A measurement of the ratio of RF signal power to noise power.
COFDM	<p>Coded Orthogonal Frequency Division Multiplexing. An Orthogonal FDM scheme transmits many streams of data on multiple carries simultaneously. Orthogonality reduces co-channel interference and multiple carries minimises losses due to selective interference. The Coded version, C(OFDM) uses integrated forward error-correction coding and statistical analysis based on channel-state information (CSI) to achieve substantial performance benefits compared to uncoded or non-CSI OFDM.</p> <p>COFDM resists fading, is very tolerant of multipath interference and is well suited to building Single-Frequency Networks (SFNs).</p> <p>It is used extensively in European digital television (DVB-T) and digital radio (DAB) systems.</p>
dB (Decibel)	A logarithmic unit used to describe signal ratios. For voltages $\text{dB} = 20 \text{ Log}_{10}(V1/V2)$.
DID	Data identifier.
DTV	Digital television. This comprises all the components of digital television, including HDTV, SDTV, datacasting and multicasting.
DVB	Digital Video Broadcasting
DVB-C	Digital Video Broadcasting baseline system for digital cable television.
DVB-S	Digital Video Broadcasting baseline system for digital satellite television.
DVB-T	Digital Video Broadcasting baseline system for digital terrestrial television.
DVB-T2	An extension of DVB-T that allows higher modulation order using advanced error detection and correction (from DVB-S2) to allow higher bit rates.
FEC	Forward Error Correction. A receiver technique for correcting errors in the received data.
Frequency Offset	<p>Intentional shift of a radio carrier frequency to avoid interference with other transmitters.</p> <p><i>See Adjacent Channel Interference.</i></p>

GHz	Gigahertz. One billion cycles per second (10^9 cps).
Headend	Electronic control centre of a cable system. The site for collecting signals from many sources, processing them and preparing them for distribution.
kHz	Kilohertz. One thousand cycles per second (10^3 cps).
LDPC	Low Density Parity Check.
LSB	Least Significant Bit.
MER	Modulation Error Ratio.
MHz	Megahertz. One million cycles per second (10^6 cps).
MPLP	The DVB-T2 Multiple Physical Layer Pipe (MPLP) allows multiple PLP's to be present in the DVB-T2 modulation. The DVB-T2 allows for up to 256 PLP's to be defined.
Modulation	A process that moves information around in the frequency domain in order to facilitate transmission or frequency-domain multiplexing.
MPEG	Moving Picture Experts Group. Industry standard for compressing and decompressing digital audio video signals
MSB	Most Significant Bit.
MSps	Mega-symbols per second.
Multiplexer	An electronic device that allows multiple channels to be combined into a single signal.
OFDM	See COFDM.
Packet	A variable-sized unit of information that can be sent across a packet-switched network.
PAL	Phase Alternating Line. 50 Hz video format used in much of the world outside of the USA.
PCR	Program clock reference.
PID	Packet identifier.

PLP	Physical Layer Pipe. See MPLP.
PSI / SI	Program specific information.
QAM	Quadrature Amplitude Modulation. A digital modulation technique that allows very efficient transmission of data over media with limited available bandwidth.
QPSK	Quadrature Phase Shift Keying. A digital technique that is widely employed in direct broadcast satellite or terrestrial transmission systems
RF (Radio Frequency)	In broadcasting applications, the signal after the modulation process.
RS	Reed-Solomon.
SNR	Signal to Noise Ratio.
Symbol Rate	Replacement term for Baud; a unit of signalling speed, the number of times a signal on a communications circuit changes.
Termination	An impedance at the end of transmission line that matches the impedance of the source and of the line itself. Proper termination prevents amplitude errors and reflections. ASI transmissions use 75 transmission lines, so a 75 terminator must be at the end of any signal path.
Tuner	Any device or apparatus used for selecting and controlling the operating frequency of a circuit or equipment, such as the channel selector in a television receiver.
UTP	Unshielded Twisted Pair.
Viterbi	Algorithm for Forward Error Correction.

Specification

Inputs and Outputs

Signal Inputs	
Number and Type:	2 off – ASI TS (270 Mbit/s)
Electrical:	Transformer coupled 75 Ω 800mV p-p
Connector/Format:	BNC
Standards:	DVB-ASI, EN50083-9
Input Cable Length:	<100M
Signal Outputs	
Number and Type:	4 off – ASI TS (270 Mbit/s)
Electrical:	Transformer coupled 75 Ω 800mV p-p
Connector/Format:	BNC
Standards:	DVB-ASI, EN50083-9
General Purpose Interface	
GPI:	4
Electrical:	Opto-isolated with an internal 5V pull-up through 470 Ω , active low 8mA
Connector/Format:	Standard Snell screw terminal
GPO:	8
Electrical:	Darlington driver with 0V common, max sink current 500mA switching up to 50V
Connector/Format:	Standard Snell screw terminal

Indicators

Front Panel / Card Edge	Status	Indication
Power:	OK	Green
CPU:	OK	Green Flashing
Input Status:	OK Fail	Green Red
Remote:	Selected	Green
Local:	Selected	Red
Output Source:	Selected	Yellow

Power Consumption

Module Power Consumption:	6.5 W Max (A frames), 6.5 PR Max (B frames)
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Please refer to the relevant Snell IQ Enclosure manual for an explanation of Power Rating (PR) units.

RollCall Features

Status:	Input and Output alarm status
Primary Config:	ASI switch configuration
PID List:	PID management
Alarm Outputs:	Enable / disable
Logging:	Input Status Input Alarms Output Alarms Output Status Misc
Controls	On/off Index Source Address Command Status Sending
Backup/Restore	Unlimited Savesets for RollCall Fields/Settings
Setup	Versions Reset defaults Restart