



User Instruction Manual

IQSPI99

Custom Serial Port Interface with RollNet

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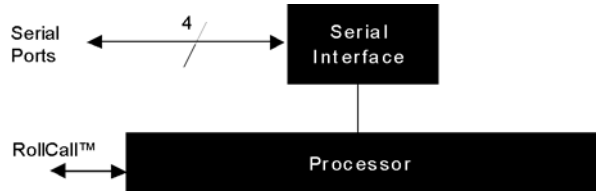
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1.Introduction

1.1 Module Description

The IQSPI99 provides protocol translation between ES-Switch commands from a Serial Control Interface and SW-P-02 General Switcher protocol to the Nucleus 2450 controllers.



1.2 Order Codes

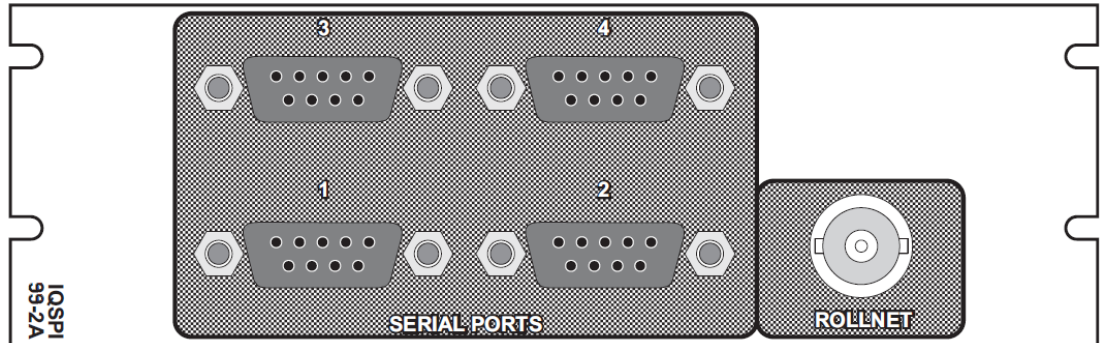
The following product order codes are covered by this manual:

IQSPI99-2A Serial Port Interface. 4x 9-way, D-type serial ports and 1x RollNet BNC connector (Double A).

1.3 Rear Panel View

A single rear panel style is available. It is not interchangeable between the two styles of enclosures ('A' and 'B'). However, the card may be fitted into any style of enclosure.

IQSPI99-2A

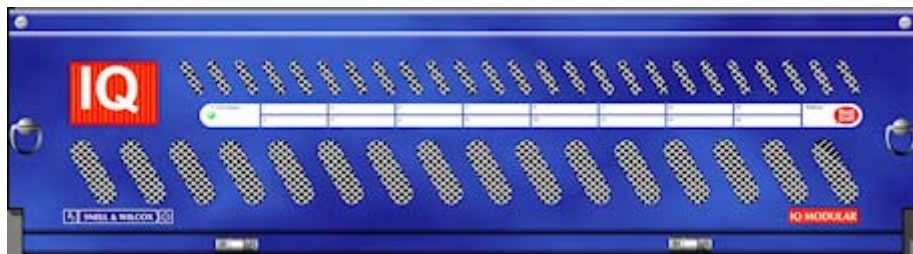


1.4 Enclosures

The IQSPI99 modules can only be fitted to the 'A' style enclosure types, show below:

Enclosure order codes IQH3B-S-0, IQH3B-S-P



Enclosure order code IQH1A-S-P**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**

1.5 Feature Summary

The IQSPI99 provides the following features:

- Interfaces external devices to RollCall, i.e. ES-Switch commands from a Serial Control Interface.
- Two RS232/RS422 user-configurable ports.
- Two further RS422 serial ports.

2. Technical Specification

| Inputs and Outputs | |
|---|---|
| Serial Ports | |
| Ports 1 and 2 | RS232/422 selectable connection via 9-way, D-type |
| Ports 3 and 4 | RS422 connection only via 9-way, D-type |
| Control Interface | |
| RollCall | 1x RollNet Interface via BNC 75 Ohm connector Format: 2.5 Mbps |
| Indicators | |
| Data Sent | For 4 interfaces |
| Data Received | For 4 interfaces |
| RS232 Mode | RollCall network activity and status |
| Specifications | |
| All ports speed | 1200 - 115200 bps |
| Power Consumption | |
| Module Power Consumption | 5.9 W (max.) |
| EMC Performance Information | |
| Environment | Commercial and light industrial E2 |
| Peak Mains Inrush Current following a 5 second Mains Interruption | No Mains Input |
| Performance Information | No performance degradations or cable length limitations |

3. Connections

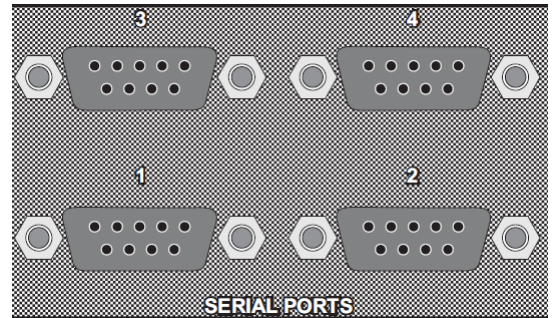
This section describes the physical input and output connections provided by the IQSPI99.

3.1 Serial Ports

All serial connections are via 9-way, D-type connectors and all interfaces are bi-directional.

Ports 1 and 2 may be configured as either an RS422 or a RS232 interface.

Ports 3 and 4 are RS422 interfaces.



Serial Ports 1 and 2 Configuration

Serial ports 1 and 2 may be configured as either RS422 or RS232 via the RS232 Mode control in the [Port] section of the configuration file. See Syntax of the IQSPI Configuration File for more information.

Pin Connections for 9-way, D-type Connections

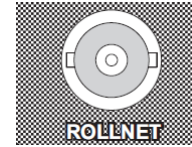
| As RS422 (ports 1 to 4) | | | | |
|--------------------------|----------------------------|----------------------------------|------------|----------------------------------|
| IQSPI99 | | | | |
| 9-way, D-type Pin Number | Ribbon Cable Strand Number | Description | Connect To | Remote Unit |
| 1 | 1 | Ground | ↔ | Ground |
| 6 | 2 | Not Used | | |
| 2 | 3 | Received Data A (RxDA)(Rx-ve) | ↔ | Transmitted Data A (TxDA)(Tx-ve) |
| 7 | 4 | Received Data B (RxDB)(Rx+ve) | ↔ | Transmitted Data B (TxDB)(Tx+ve) |
| 3 | 5 | Transmitted Data B (TxDB)(Tx+ve) | ↔ | Received Data B (RxDB)(Rx+ve) |
| 8 | 6 | Transmitted Data A (TxDA)(Tx-ve) | ↔ | Received Data A (RxDA)(Rx-ve) |
| 4 | 7 | Not Used | | |
| 9 | 8 | Not Used | | |
| 5 | 9 | Not Used | | |

As RS422 (ports 1 to 4)

| As RS232 (only applies to ports 1 and 2 when configured as RS232) | | | | |
|---|----------------------------|--------------------------|------------|--------------------------|
| IQSPI99 | | | | |
| 9-way, D-type Pin Number | Ribbon Cable Strand Number | Description | Connect To | Remote Unit |
| 1 | 1 | Ground | ↔ | Ground |
| 6 | 2 | Not Used | | |
| 2 | 3 | Received Data A (RxD) | ↔ | Transmitted Data A (TxD) |
| 7 | 4 | +10 V | | |
| 3 | 5 | Transmitted Data B (TxD) | ↔ | Received Data B (RxD) |
| 8 | 6 | Not Used | | |
| 4 | 7 | +10 V | | |
| 9 | 8 | Not Used | | |
| 5 | 9 | Ground | ↔ | Ground |

3.2 RollNet Interface

The RollCall system is connected using 75 Ohms "T" pieces in a similar manner to a coaxial "Ethernet" system. Both extremities of the system must be terminated in 75 Ohms.



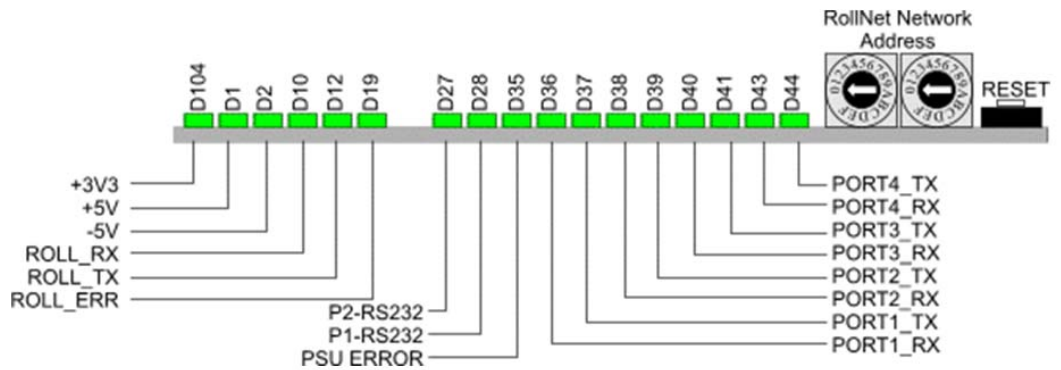
Note: RollNet will only be active if it is enabled by menus of the UseRollNet control in the [IQSPI] section of the configuration file.

Note: The coaxial link is bi-directional and therefore must not be passed through signal switching networks.

Note: In a RollCall™ segment, all units must have different unit address codes.

4. Card Edge Controls

The LEDs on the edge of the module indicate its operating status.



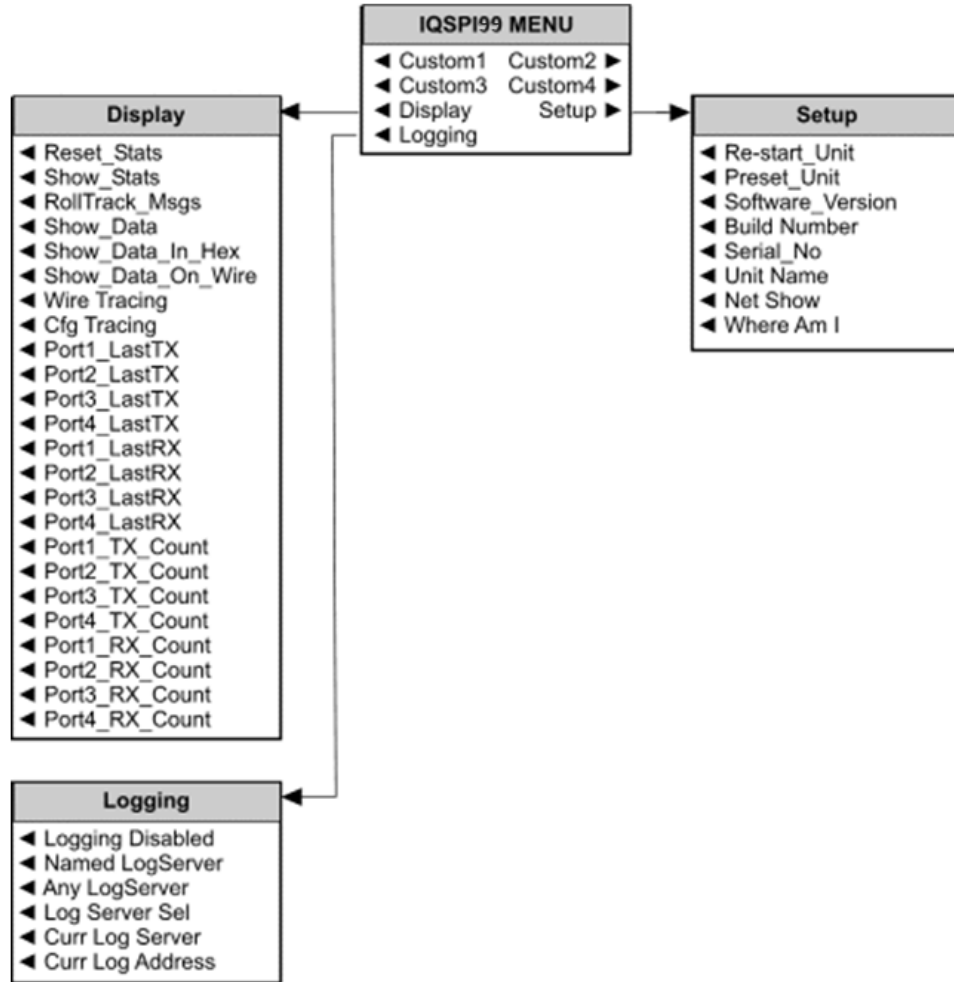
| LED | Color | Description |
|------|-------|---|
| D104 | Green | Indicates that a 3.3 V power supply is present. |
| D1 | Green | Indicates that the positive power supply is present. |
| D2 | Green | Indicates that the negative power supply is present. |
| D10 | Green | Indicates that RollNet data is being received. |
| D12 | Green | Indicates that RollNet data is being transmitted. |
| D19 | Green | Indicates that a RollNet error has occurred. |
| D27 | Green | When illuminated, indicates that serial port 2 is configured to be RS422. When not illuminated, indicates that serial port 2 is configured to be RS232. |
| D28 | Green | When illuminated, indicates that serial port 1 is configured to be RS422. When not illuminated, indicates that serial port 1 is configured to be RS232. |
| D35 | Green | Indicates that a PSU Error has occurred. |
| D36 | Green | Indicates that Port 1 is receiving serial data. |
| D37 | Green | Indicates that Port 1 is transmitting serial data |
| D38 | Green | Indicates that Port 2 is receiving serial data. |
| D39 | Green | Indicates that Port 2 is transmitting serial data. |
| D40 | Green | Indicates that Port 3 is receiving serial data. |
| D41 | Green | Indicates that Port 3 is transmitting serial data. |
| D43 | Green | Indicates that Port 4 is receiving serial data. |
| D44 | Green | Indicates that Port 4 is transmitting serial data. |

5. IQSPI99 Menus

5.1 Menu Navigation

The following menus are provided to enable configuration of the module.

From the main **IQSPI99 Menu**, further sub-menus for **Display**, **Logging** and **Setup** are provided for configuration of these functions by pressing the button adjacent to the required text line.



5.2 Operation From An Active Control Panel

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

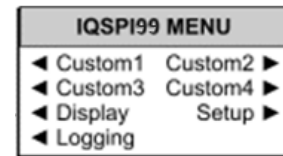
The menus available for this card are shown above and will appear in the Control display window.

Operational details for the remote control panel may be found in SECTION 1 of the *Modular System Operator's Manual*:

5.3 IQSPI99 Menu

The **IQSPI99 Menu** enables you to select various sub-menus by pressing the button adjacent to the required text line.

Whenever a menu item is selected, the parameters of that selection are 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.

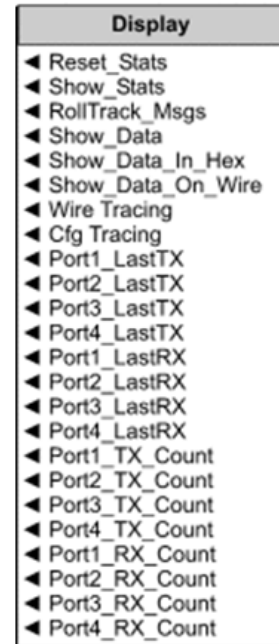


5.4 Display Menu

The **Display** menu enables you to monitor information about and/or reset the operational state of the module.

The following functions may be selected:

- **Reset_Stats:** Resets statistical data.
- **Show_Stats:** Displays statistical data
- **RollTrack_Msgs:** Selecting this item shows acknowledgement messages from RollTrack units, in the information window and enables RollTrack failure reporting to be displayed.
- **Show_Data:** This enables the display of the most recent send and received data strings on each port.
- **Show_Data_In_Hex:** Controls whether data is shown in hexadecimal or ACSII format.
- **Show_Data_On_Wire:** Shows data strings as they occur on the wire.
- **Wire Tracing:** Traces data strings, in real time, as they appear on the wire, into the circular RAM buffer for debug purposes.
- **Cfg Tracing:** Traces data strings, in real time, as they appear from the configuration file, into the circular RAM buffer for debug purposes.
- **Port1_LastTX to Port4_LastTX:** For each port, displays the most recent messages sent by the IQSPI00.
- **Port1_LastRX to Port4LastRX:** For each port, displays the most recent messages received by the IQSPI00.
- **Port1_TX_Count to Port4_TX_Count:** For each port, displays the count of messages sent by the IQSPI00.
- **Port1_RX_Count to Port4_RX_Count:** For each port, displays the count of messages received by the IQSPI.

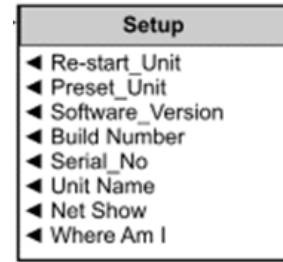


5.5 Setup Menu

The **Setup** menu enables you to display information the unit and to restart it.

This selection reveals a sub-menu that allows the following functions to be enabled:

- **Re-start_Unit:** This function restarts the unit. It has the same action as a power-up power-down operation.
- **Preset_Unit:** Sets all adjustment functions that include a preset facility, to their preset value. Note that this is a momentary action and the text will not become reversed.
- **Software_Version:** Displays the version of software fitted in the module. Select OK to return to the Setup Menu.
- **Build Number:** Displays the build number of the unit. Select OK to return to the Setup menu.
- **Serial_No:** Display the serial number of the unit. Select OK to return to the Setup menu.



The following options are only available when the UseRollNet control is enabled in the [IQSPI] section of the configuration file.

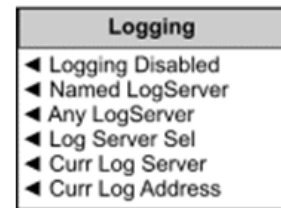
- **Unit Name:** Displays the unit name. Select Ok to return to the Setup menu.
- **Net Show:** This function allows a unit to be `hidden' from the network system. When netshow is active the unit broadcasts its presence.
- **Where Am I:** This allows a unit to be physically located in a large system. When this function is selected, LED indicators on the front of the card will flash.

5.6 Logging Menu

The **Logging** menu enables you to configure the logging characteristics of the unit.

These options are only available when the UseRollNet control is enabled in the [IQSPI] section of the configuration file.

- **Logging Disabled:** This option allows logging to be disabled.
- **Named LogServer:** If this option is selected, logged information will only be sent to the selected log server.
- **Any LogServer:** If this option is selected, log information will be sent to any Logger on the system. If there is only one log server on the system, it is recommended that you use this option.
- **Log Server Sel:** This option enables you to select a specific log server.
- **Curr Log Server:** This option displays the name of the current log server.
- **Curr Log Server:** This option displays the address of the current log server.



6. Updating the Configuration File

6.1 Introduction

The IQSPI99 configuration file loaded on the Serial Port Interface (SPI) card can be retrieved through the RollCall™ control panels and stored locally on a drive, the configuration file can be modified on a text editor and re-downloaded back to the Serial Port Interface (SPI) card.

6.2 Configuration File

Some aspects of the protocol convertor are controlled via the configuration file **setup.cfg**, which is reproduced below in its entirety.

```
[IQSPI]
AlphaVersion=B
CommandVersion=1
UseRollNet=1
RouterMaxDests=1152
RouterMaxSrcs=1152

[Port1]
Name=GenSwitcher1
Setup=38400,8,e,1
CmdTimeout=500
LinkLostTimeout=10000
CmdBase=1000
ChannelCoder=GenSwitcher,1

[Port2]
Name=ExtController1
Setup=38400,8,n,1
CmdTimeout=500
LinkLostTimeout=10000
CmdBase=2000
ChannelCoder=ESSwitch,1

[Port3]
Name=GenSwitcher2
Setup=38400,8,e,1
CmdTimeout=500
LinkLostTimeout=10000
CmdBase=3000
ChannelCoder=GenSwitcher,2

[Port4]
Name=ExtController2
Setup=38400,8,n,1
CmdTimeout=500
LinkLostTimeout=10000
CmdBase=4000
ChannelCoder=ESSwitch,2
```

The key things that are configurable, and which may be relevant during an installation, are described in the following paragraphs.

6.3 Allocation of Devices to Serial Ports

In the default shipped configuration (as per above), the Router main and expansion frames are allocated to ports 1 & 3, and the external control system (main and backup) can be connected to ports 2 & 4.

However, the allocation of devices to serial ports can be changed via the config file, subject to the following rules:

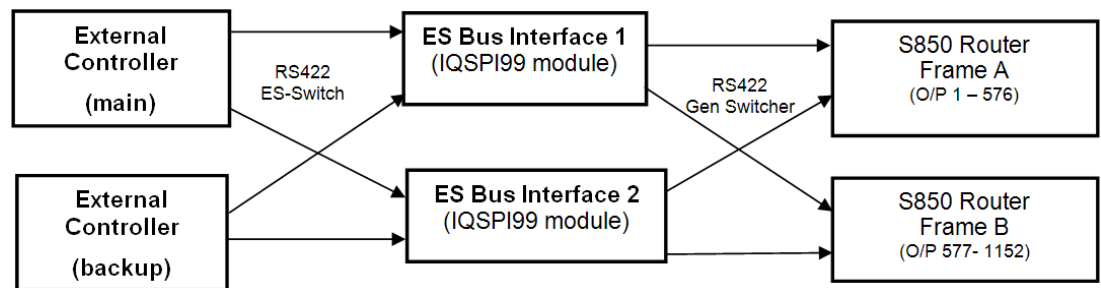
- The channel coder statements are required to enable the correct protocol on each port.
- The Router main frame must be on a lower port number than the expansion frame.

6.4 Serial Port Setup

The serial port settings (speed, data bits, etc.) can be set individually for each port.

Ports 1 & 2 can be set to RS232 rather than RS422, if necessary.

6.5 System Configuration

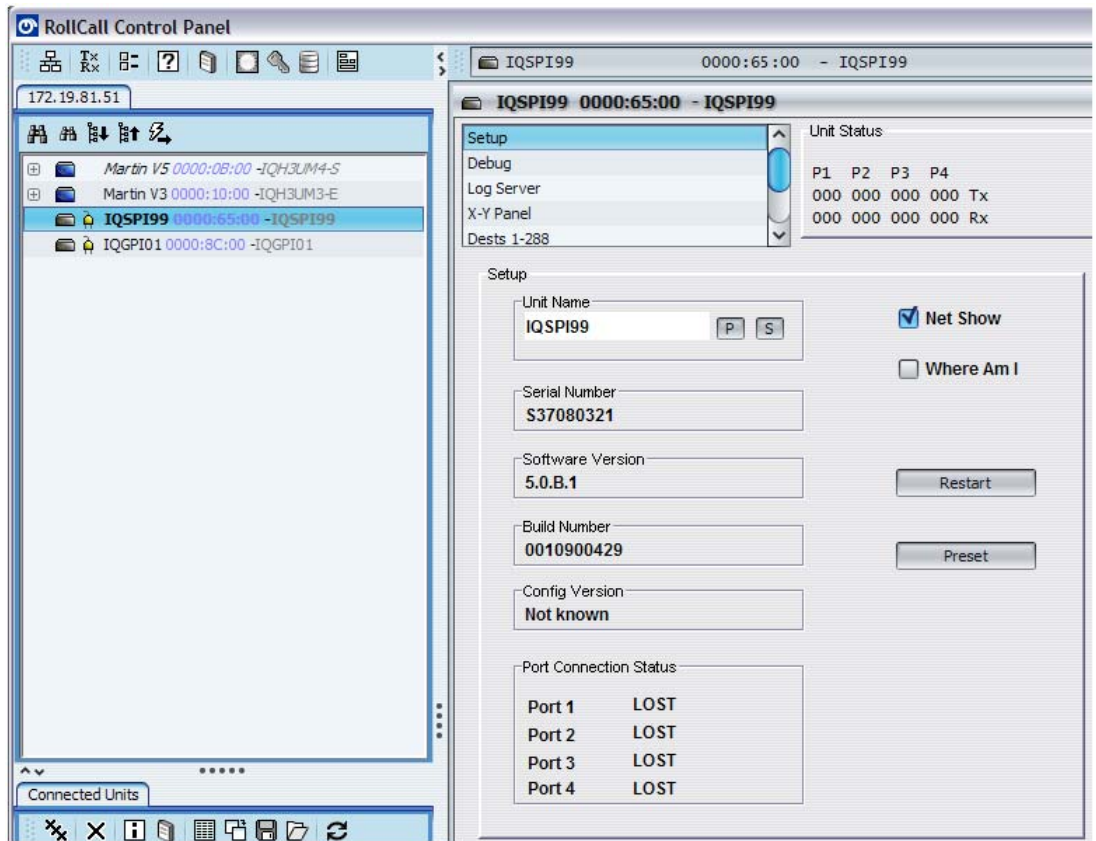


The above solution supports a single matrix and level, and up to 1152 sources and destinations.

6.6 RollCall Suite Control Panel Install

The free RollCall™ Control panel (RollCall™ Lite 4.4 or later) can be downloaded via the Snell Website. Please refer to the user manual for installation requirements and configuration.

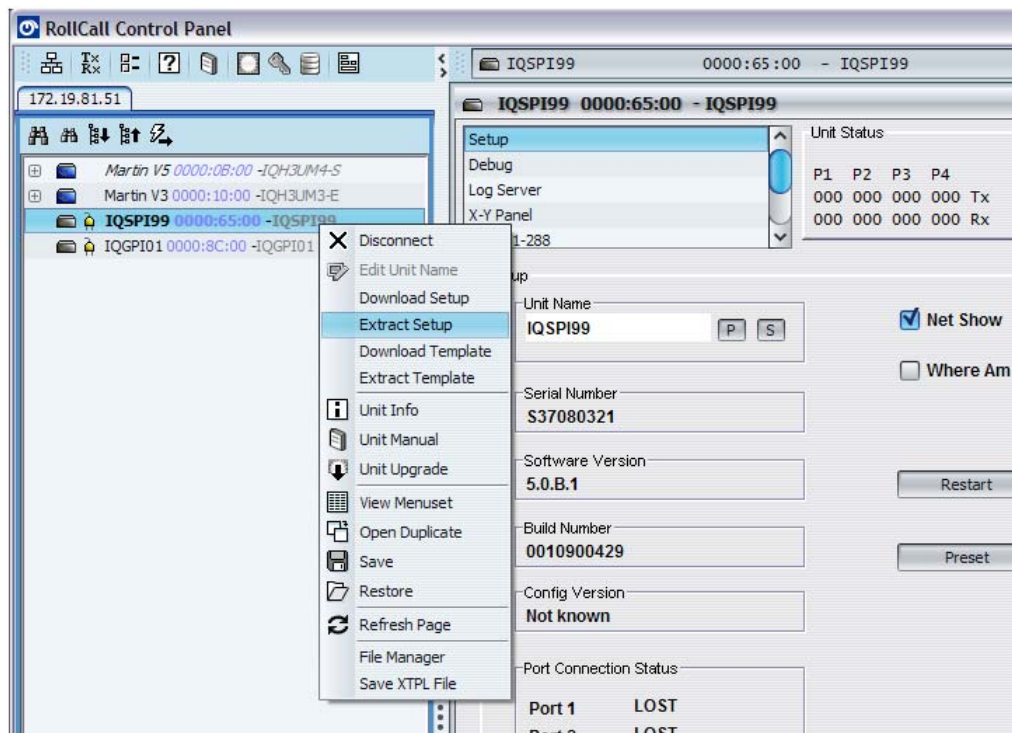
Once installed and the unit connected to the RollCall™ network then it will be listed on the Network tree available for further control or setup operations.



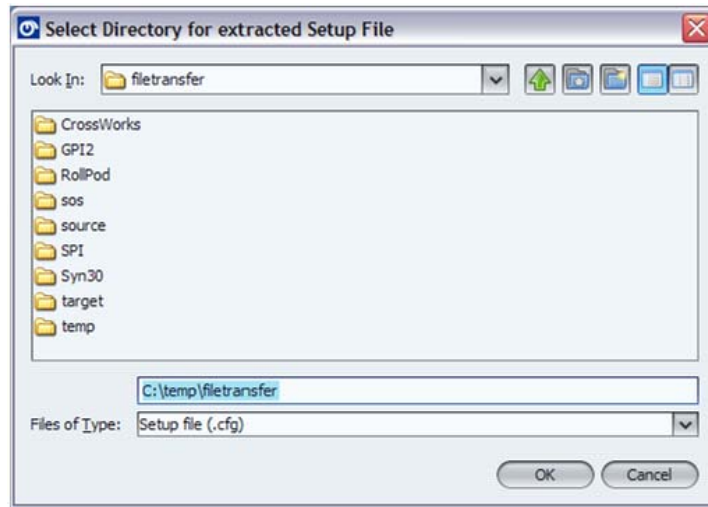
6.7 Updating the Configuration File Using RollCall Control Panel

To modify the port baud rate or configuration settings, you must extract the configuration file of the unit and apply the changes.

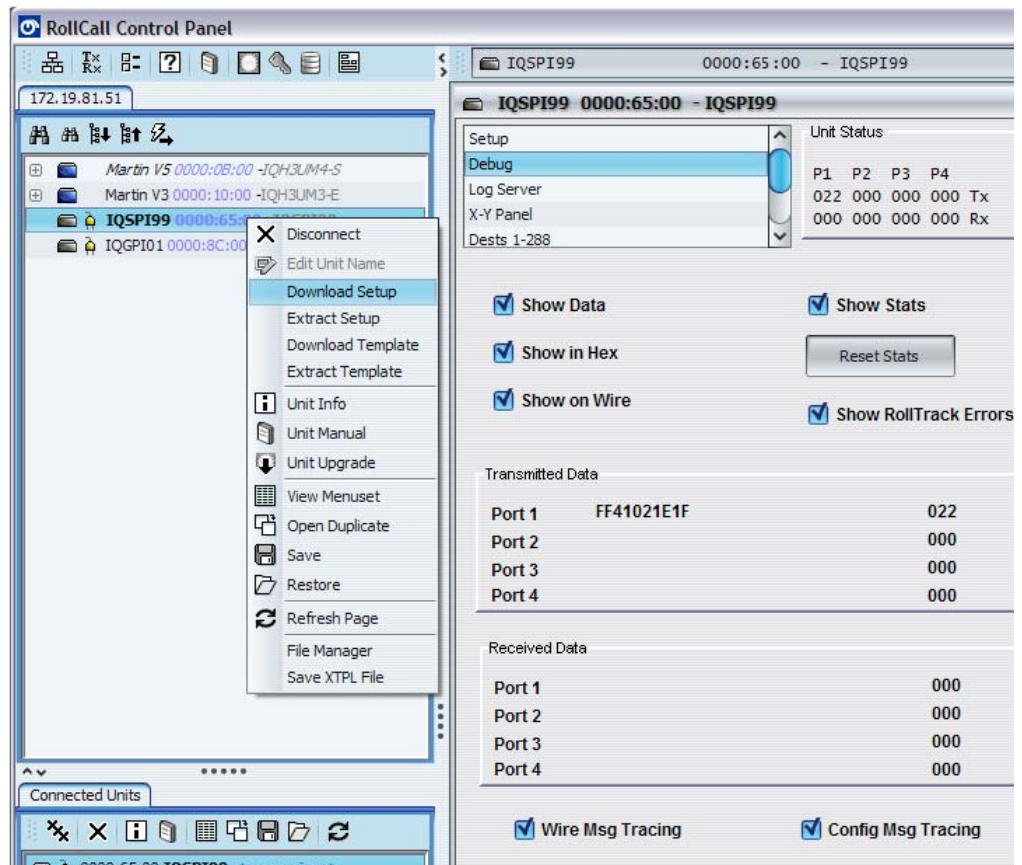
1. On the network tree, right-click on the unit and select **Extract Setup** from the displayed options menu.



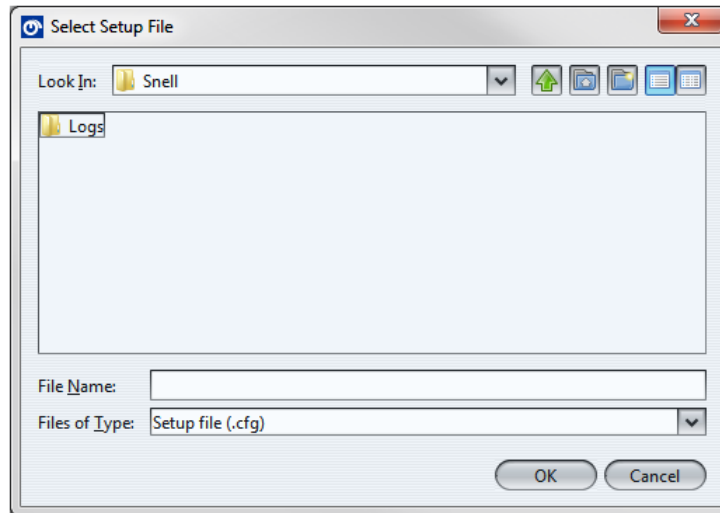
2. On the pop-up window select a directory in which to save a local copy of the **setup.cfg** file. Click **OK** to confirm.



3. Once the modifications are performed you will need to update the configuration on the card with the updated file. In this case on the network tree right-click on the unit and select **Download Setup** from the displayed options menu.



4. On the pop-up window select the **setup.cfg** file to download. Click **OK** to confirm.



5. The unit will be reset and operate based on the new configuration file.