

IQCSPI Serial Port Interface



Module Description

The IQCSPI is a serial port interface for external devices and all RollCall compatible products. The SPI card consists of 4 serial interfaces, 3 x RS442, and 1 x RS232/RS422.

The IQCSPI can control many types of devices that have serial ports, including tape machines, routers and disk stores.

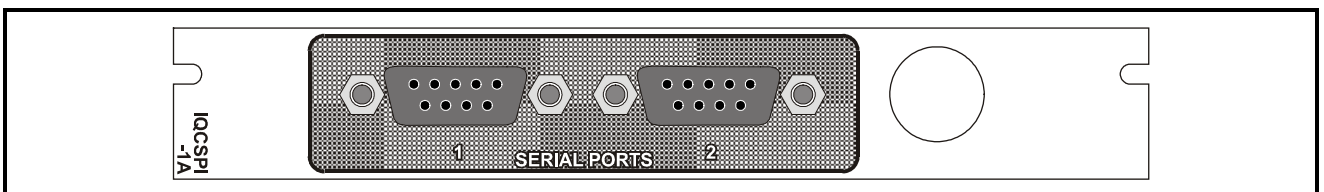
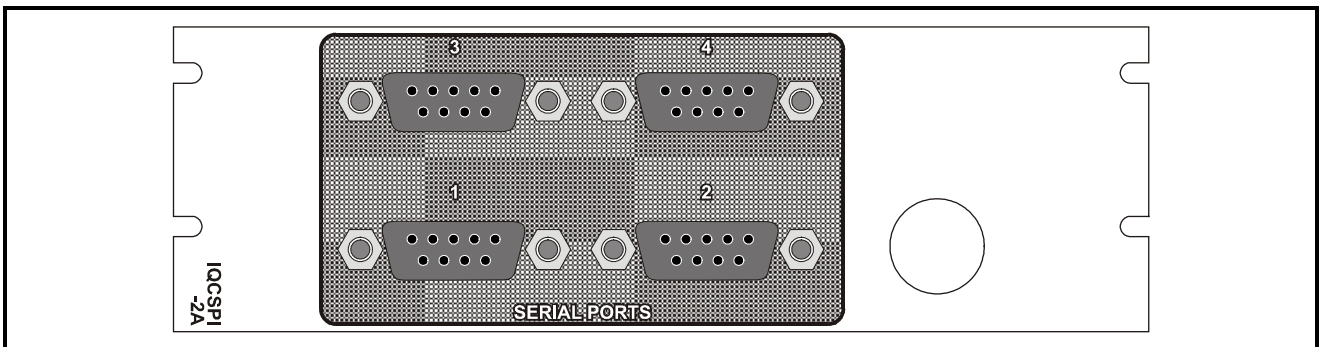
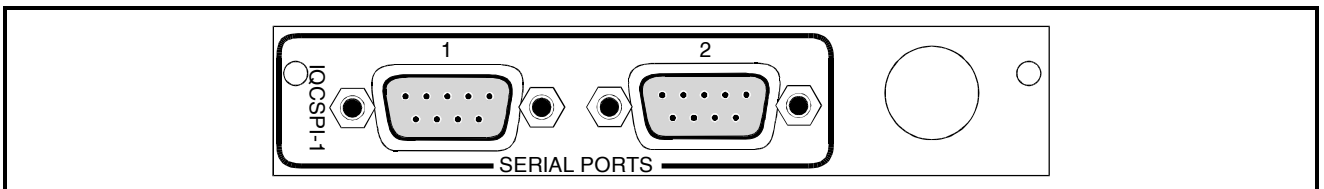
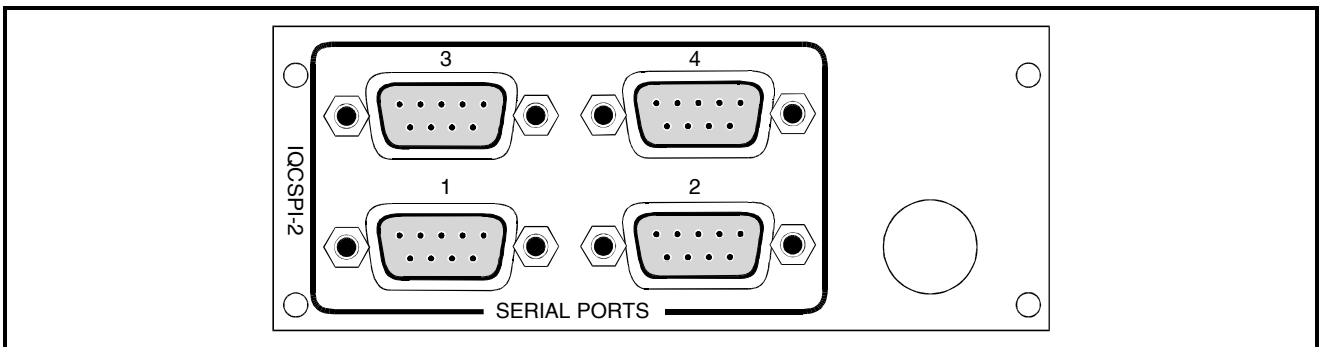
In addition the IQCSPI may receive commands from an intelligent control panel with a serial port, thus producing a quick customised user interface.

Each button could activate pre-defined commands such as router switching (e.g. IQDMX8) or frame freezing (e.g. IQDMSDA). Multiple actions from one input can be generated, producing many pre-defined commands via RollTrack.

The IQCSPI can communicate with other IQCSPI and GPI (General Purpose Interface) products. Thus pre-defined commands can be generated from external devices to other external devices via the RollCall network.

A set-up program is provided for downloading configuration information to the IQCSPI card

REAR PANEL VIEWS



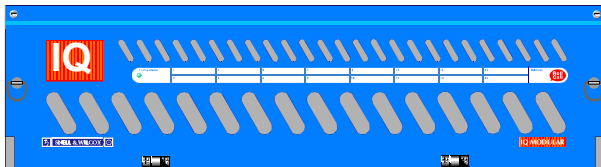
Versions of the module cards available are:

IQCSPI-2	4 x 9 way D connectors	Double width module
IQCSPI-1	2 x 9 way D connectors	Single width module
IQCSPI-2A	4 x 9 way D connectors	Double width module
IQCSPI-1A	2 x 9 way D connectors	Single width module

Note that there are two styles of rear panels available. They are not interchangeable between the two styles of enclosures. However, the cards may be fitted into any style of enclosure.

'A' Style Enclosure

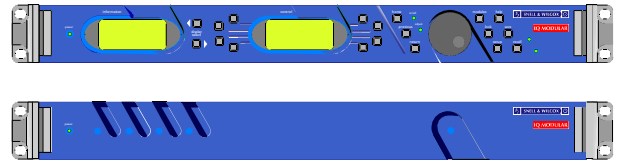
Rear panels **with** the suffix A may only be fitted into the 'A' style enclosure shown below.



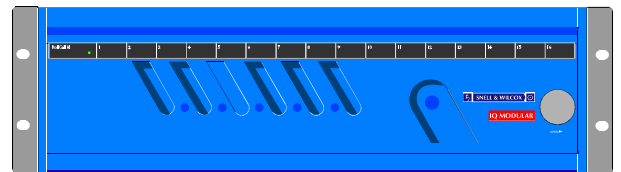
(Enclosure order codes IQH3A-E-0, IQH3A-E-P, IQH3A-0-0, IQH3A-0-P)

'O' Style Enclosures

Rear panels **without** the suffix A may only be fitted into the 'O' style enclosures shown below.



(Enclosure order codes IQH1S-RC-0, IQH1S-RC-AP, IQH1U-RC-0, IQH1U-RC-AP, Kudos Plus Products)

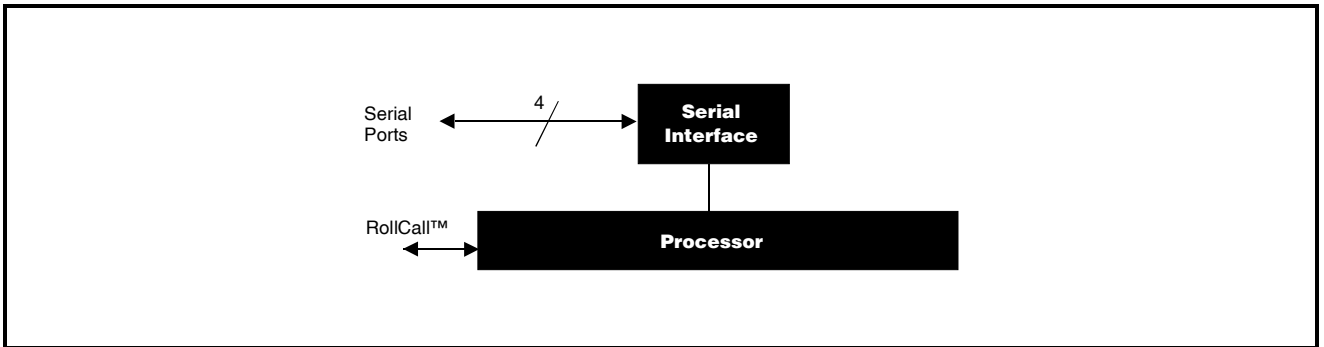


(Enclosure order codes IQH3N-0, IQH3N-P)



(Enclosure order codes IQH3U-RC-0, IQH3U-RC-P)

BLOCK DIAGRAM



FEATURES

- Enables control of products on the RollCall network via external serial events
- Interfaces external devices to RollCall i.e. tape machines, routers and disk stores
- Three RS422 serial ports
- One RS232/RS422 user-configurable port
- Multiple actions from one serial message with RollTrack
- External serial events produce RollCall logging messages
- Windows software program for function set-up
- Note: Contact sales office for a list of currently available interfaces to 3rd party equipment

TECHNICAL PROFILE

Features

Serial Ports

Up to 3 x RS422Connectors 9 way D-Type
 1 x RS232/422 (Port 1) Connector
 9 way D-Type

Indicators

Data Sent..... For 4 interfaces
 Data Received For 4 interfaces
 RS232 mode

Specifications

All Ports Speed 1200 – 38400 bit/s

Peak Mains Inrush Current following a 5 second mains interruption
 No mains input

Power Consumption

Module Power Consumption
 5.9 W max

Performance Information.... No performance degradations or cable length limitations

EMC Performance Information

Environment Commercial and light industrial E2

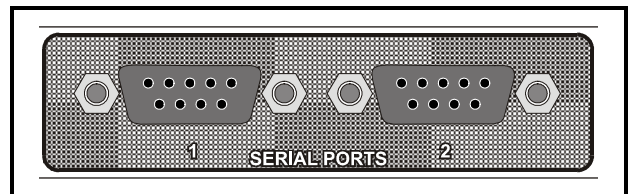
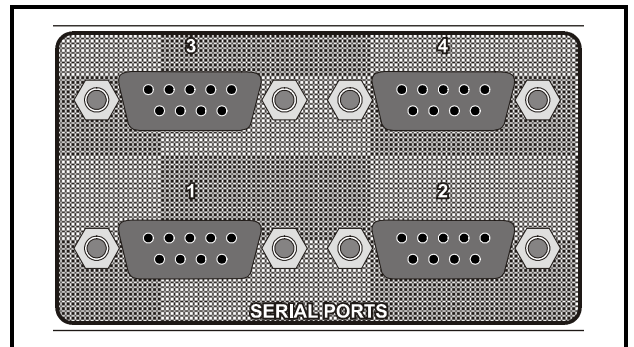
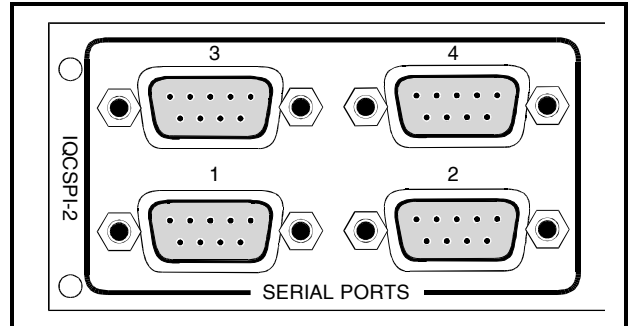
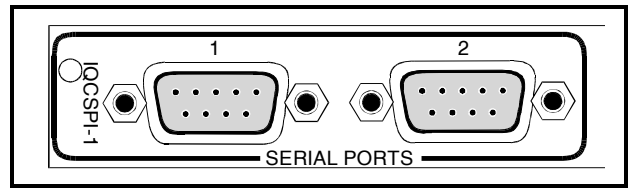
CONNECTIONS

The IQCSPI is an interface between Serial Data and RollCall™.

They have either one or three configurable RS422 interfaces (ports 2, 3 and 4) and one configurable RS422/RS232 interface (port 1)

All interfaces are bi-directional.

A 9 way D type connector interface is implemented.

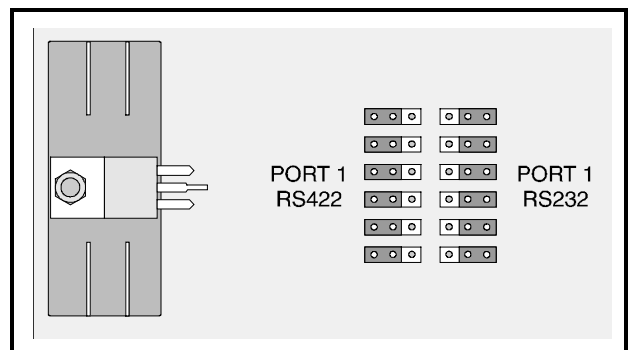


Configure Serial Port 1

Serial port 1 may be configured as either RS422 or RS232 by using links.

To configure port 1 as RS422 fit links to the left hand position.

To configure as RS232 fit links to the right hand position.



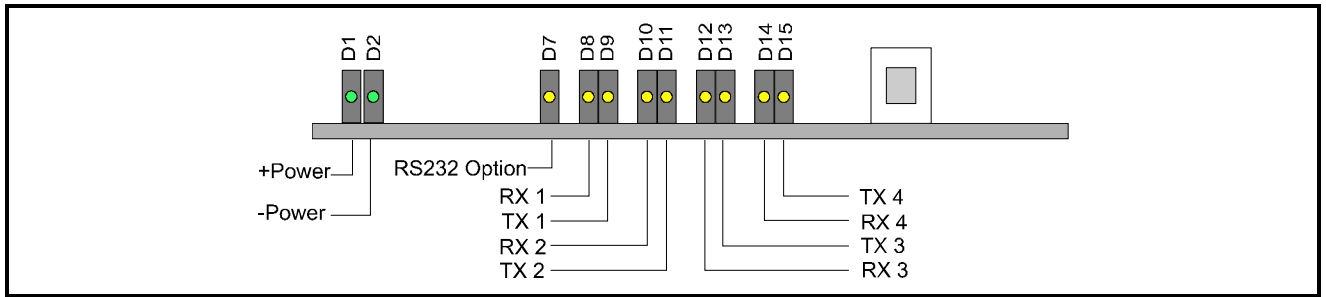
Pin Connections for 9 way D-Type Connectors

As RS422 (ports 1 to 4)				
IQCSPI			Connect to	Remote Unit
9 Way D-Type Pin Number	Ribbon Cable Strand Number	Description		
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		

For reference, the A signal is at 0V at line idle, and the B signal at +5V.

As RS232 (only applies to port 1 when configured as RS232)				
IQCSPI			Connect to	Remote Unit
9 Way D-Type Pin Number	Ribbon Cable Strand Number	Description		
1	1	Ground	↔	Ground
6	2	Not Used		
2	3	Received Data (RxD)	↔	Transmitted Data (TxD)
7	4	+10 V		
3	5	Transmitted Data (TxD)	↔	Received Data (RxD)
8	6	Not Used		
4	7	+10 V		
9	8	Not Used		
5	9	Ground	↔	Ground

CARD EDGE FUNCTIONS



D1
This green LED indicates that the positive power supply is present.

D2
This green LED indicates that the negative power supply is present.

D7
When illuminated this indicates that serial port 1 has been configured to be RS232 by using the on-card links.

D8
This indicates that data is being received via NET 1

D9
This indicates that data is being transmitted via NET 1

D10

This indicates that data is being received via NET 2

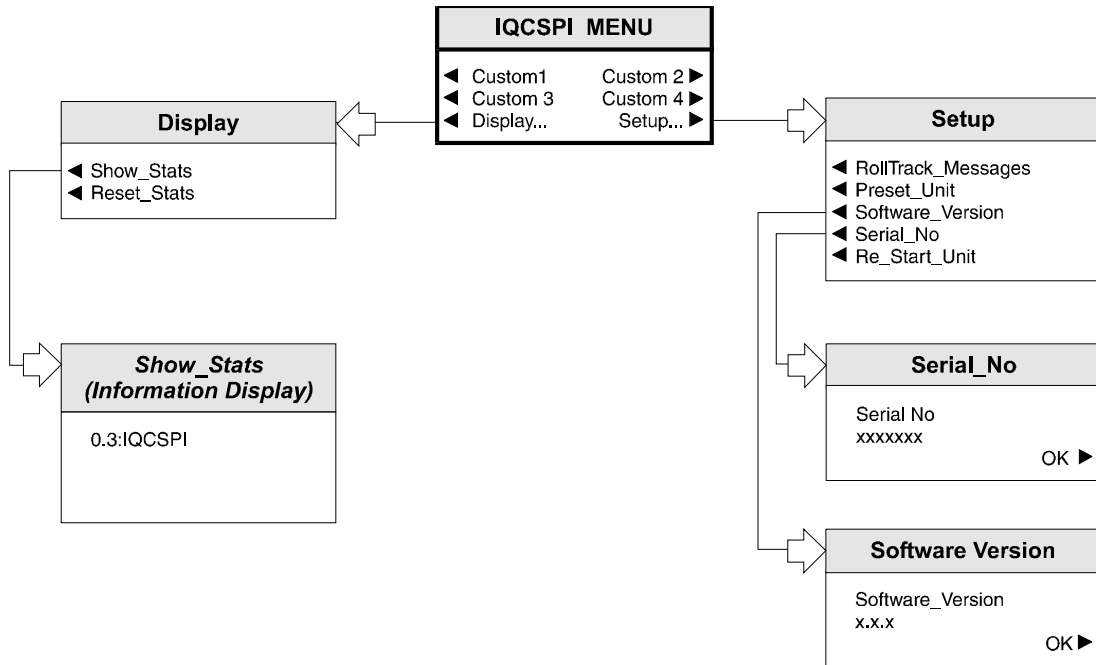
D11
This indicates that data is being transmitted via NET 2

D12
This indicates that data is being received via NET 3

D13
This indicates that data is being transmitted via NET 3

D14
This indicates that data is being received via NET 4

D15
This indicates that data is being transmitted via NET 4



***IQCSPI
Menu System***

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 on the previous page and will appear in the Control display window.

Operational details for the remote control panel will be found in SECTION 1 of the Modular System Operator's Manual.

MENU DETAILS

(see IQCSPI Menu System on previous page)

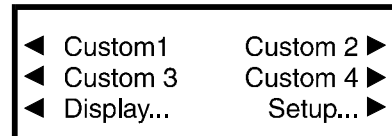
MAIN MENU

The main, or top level menu allows various sub-menus to be selected by pressing the button adjacent to the required text line.

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

Whenever a menu item is selected the parameters of that selection will be displayed in the Information window of the front panel. Where the selection is purely a mode selection and does not enable a sub-menu, the text will become reversed (white-on-black) indicating that the mode is active. If the mode is not available for selection the text will remain normal.

MAIN MENU



This function allows entry to any of four customized settings to be enabled.

These functions reflect the four-customizable serial ports. They are configured by downloading a configuration file to the unit.



Basic information about the operational state of the IQCSPI can be monitored and/or reset here.

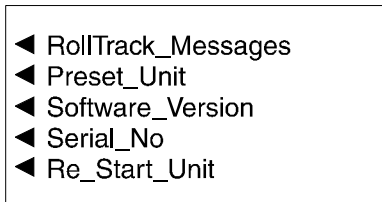


The following functions may be selected:

- ◀ **Show_Stats** The information will be displayed in the LCD information window
- ◀ **Reset_Stats** Data will be reset

Setup ▶

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

**◀ RollTrack_Messages**

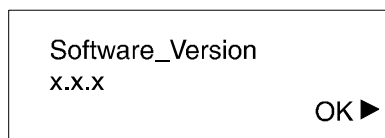
Selecting this item will show acknowledgement messages from RollTrack units, in the information window and enables RollTrack failure reporting to be displayed.

◀ Preset_Unit

Selecting this item sets all adjustment functions that include a preset facility, to their preset values. *Note that this is a momentary action and the text will not become reversed.*

◀ Software_Version

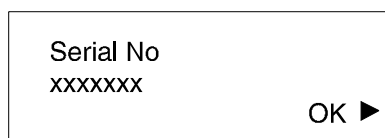
Selecting this item reveals a display showing the version of the software fitted in the module.



Select OK to return to the Setup Menu.

◀ Serial No

This displays the serial number of the unit.



Select OK to return to the Setup menu.

◀ Re_Start_Unit

This function will re-start or re-boot the unit. It has the same action as a power-down power-up operation but without the inconvenience.

IQCSPI Configuration File Editor User Guide

INTRODUCTION

The IQCSPI Configuration Editor is designed for use with a Serial Port Interface (SPI) card. The purpose of the program is to provide easy creation and editing of an SPI card's configuration file.

Functions within the IQCSPI Configuration Editor

Some of the functions of the IQCSPI Configuration File Editor are as follows:

- Output File View – The complete file within a text editor.
- Port View - A graphical (treeview) representation of how the menus will look if viewed on a IQ Modular control panel.
- Track Parameters – Constructs a RollTrack of a selected command from a device via RollCall.
- Read/Write of SPI configuration file – Transfer of the configuration file between a drive and the SPI card.

Installation

The following pre-installation requirements exists:

- Win95 (with Internet explorer version 4.0 or later), or later.
- One of the suite of RollCall software version 3.3 or later
(Note: If RollCall software is not present then install the free copy of RollCall IQSPCE, which is included with this package).

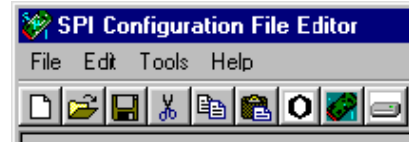
Once the above pre-installation requirements have been met the IQSPI Configuration Editor may be installed.

TOOLBAR FUNCTIONS

Starting from the left the icons are:

- New – File New, resets to default contents.
- Open – File Open, opens a configuration file.
- Save – File Save, saves a configuration file.

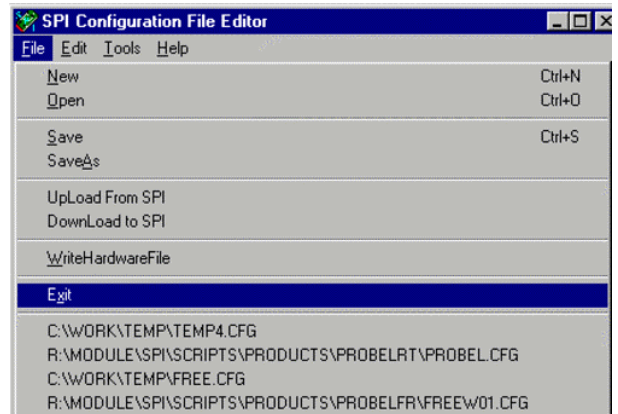
- Cut – Cut text to Clipboard (or else Commands if in a treeview).
- Copy – Copy text to Clipboard (or else Commands if in a treeview).
- Paste – Paste text from Clipboard (or else Commands if in a treeview).
- Toggle Port View On/Off – Switches the editing mode between the Output File and Commands within a Port View.
- Download to SPI device – Transfers current configuration file to selected SPI card.
- Upload file to Drive – Transfers configuration file from an SPI card to a selected file (path\name.cfg).



File Menu

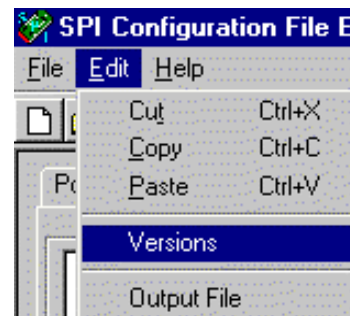
Many of these are included in the toolbar (and described within Toolbar functions) the exceptions being:

- SaveAs – Save current file under a different name.
- Write hardware file
- Exit – Terminates the SPI Configuration File Editor.
- A list of the recently opened files is appended to the bottom of this menu. Clicking on one will open that file.



Edit Menu

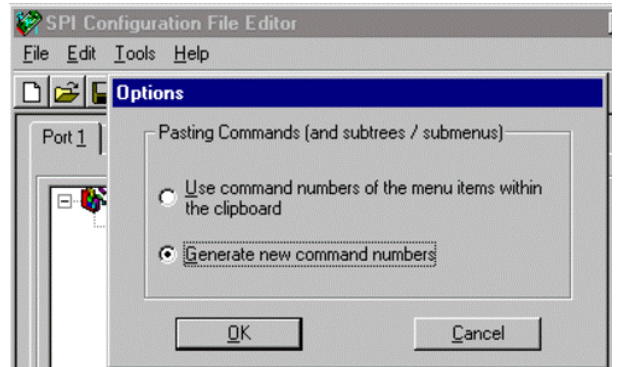
- Cut, Copy and Paste are described in the toolbar section.
- Versions – Displays the current file versions and allows them to be edited.
- Output File – This will switch to editing the actual output file in a text editor. (When in that mode the menu item Port View will appear at the bottom of the Edit menu, selecting that will switch to editing in Port View mode.)



Tools Menu

Options

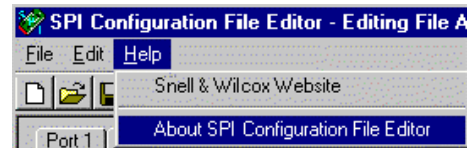
- The Tools, Options window allows the choice of whether to generate new command numbers when performing Cut / Paste of commands within a treeview.



Help Menu

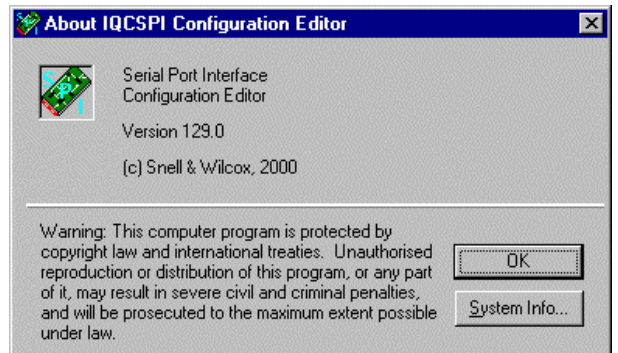
The Help menu has two items:

- Snell & Wilcox Website – If the computer is connected to a modem then the Snell & Wilcox Website will be loaded.
- About SPI Configuration File Editor – Displays a standard about box, this contains the version number of your installation of the IQCSPI Configuration Editor.



About Box

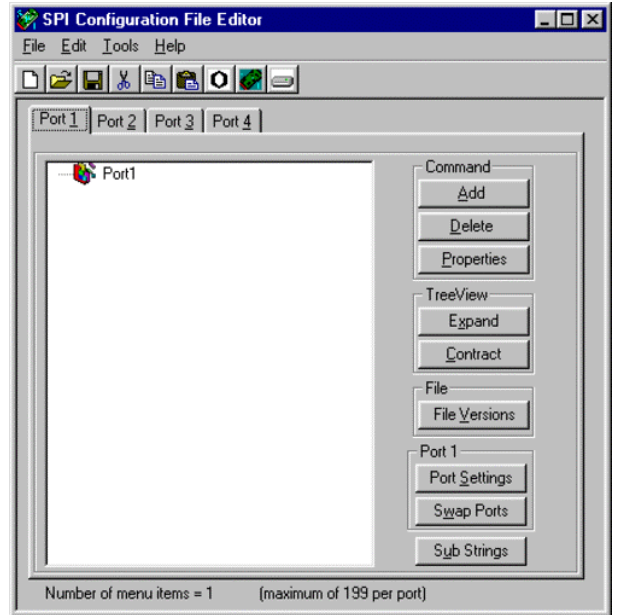
The about box appears as shown opposite:



STARTING A NEW FILE

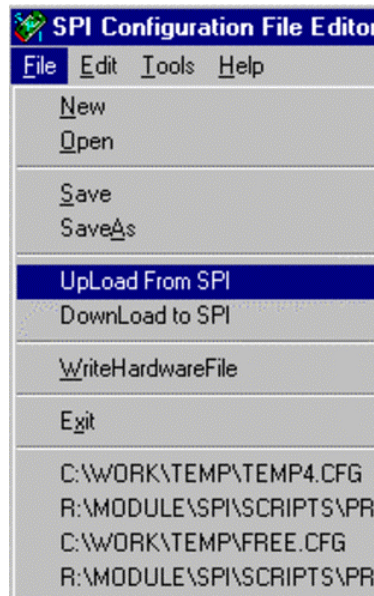
To start a new file from scratch select File, New (or the respective toolbar icon). This will start a new file with default contents as below:

Note this new file is held only within the IQCSPI Configuration Editor application, so it will need to be saved.



TRANSFERRING FILES BETWEEN DRIVE AND SPI CARD

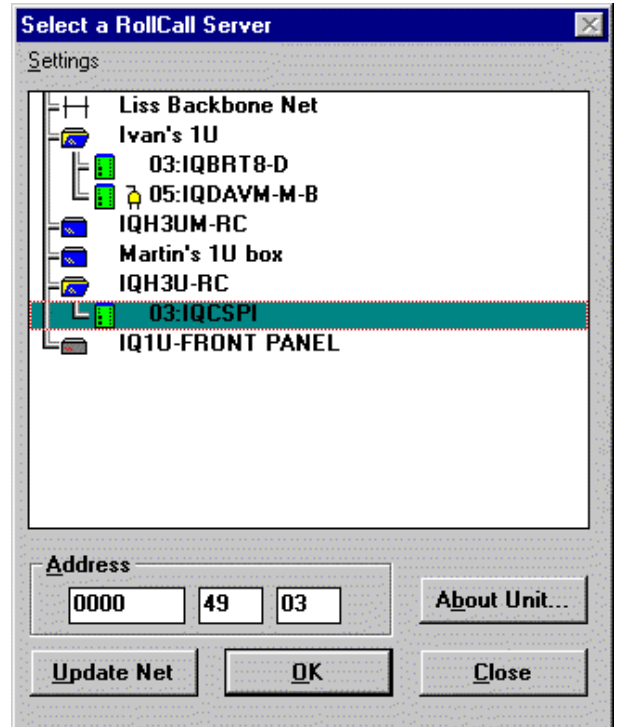
Note: RollCall only allows one connection at a time to a device, so if for example a front panel is connected to the SPI card it must be disconnected in order to perform uploading or downloading.



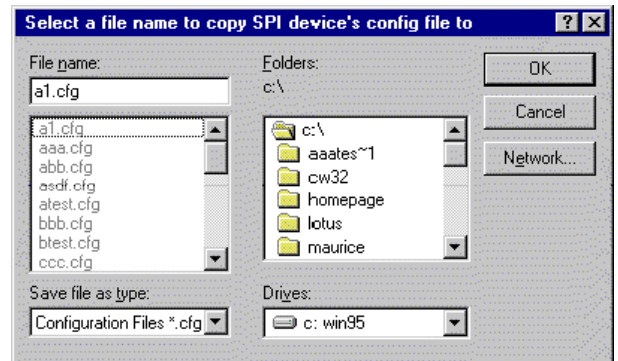
Uploading (Reading)

To edit a file existing within an SPI card, first it must be transferred to a drive, which the computer can access. To perform an Upload the following steps are to be undertaken:

- Select *File, Upload from SPI* (or the respective toolbar icon).
- A window appears showing the RollCall network, use this to select the SPI card you wish to read from.



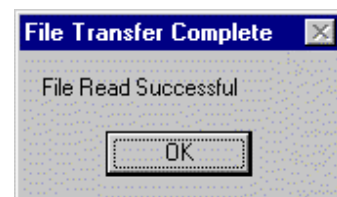
- Another window appears in which you can select a file name (and path) to copy the SPI configuration file to.



- A wait message appears followed by another indicating if the upload was successful.



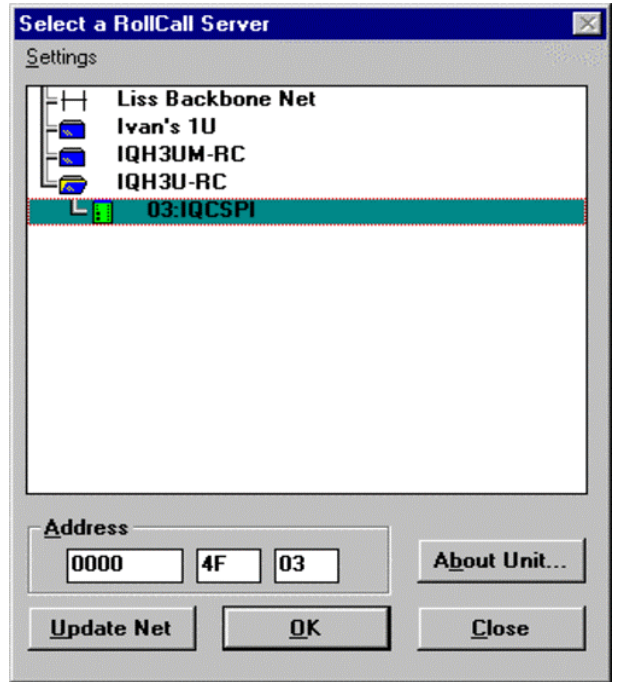
- The file with the name you gave is now opened for you to edit.



DownLoading (Writing)

Once the configuration file is completed it may be transferred to an SPI card. To perform a Download the following steps are to be undertaken:

- Select *File, Download to SPI* (or the respective toolbar icon).
- A window appears showing the RollCall network, use this to select the SPI card you wish to write to.



- The currently opened file is then transferred to the SPI card. After a wait, a message will appear indicating if the download was successful.



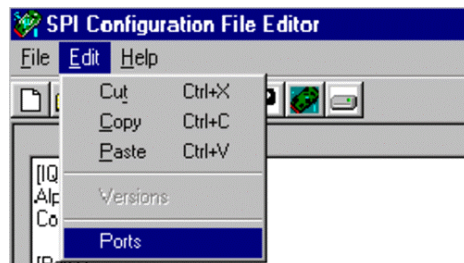
- The SPI card now contains this configuration file.



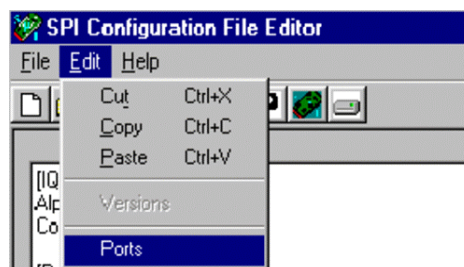
EDITING THE FILE

There are two ways to edit the file. The entire output file may be edited or more commonly the file will be edited using a graphical treeview of the commands (menu) for each port.

Selecting *Edit, Ports*

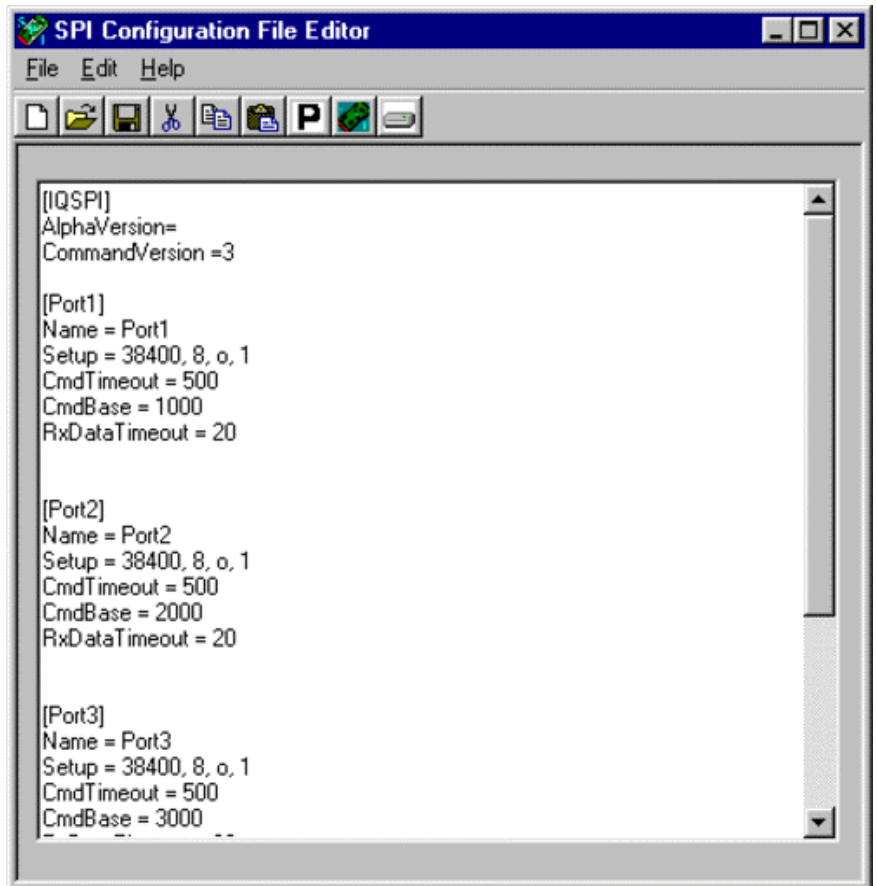


Selecting *Edit, Output File*



Editing in Output File mode

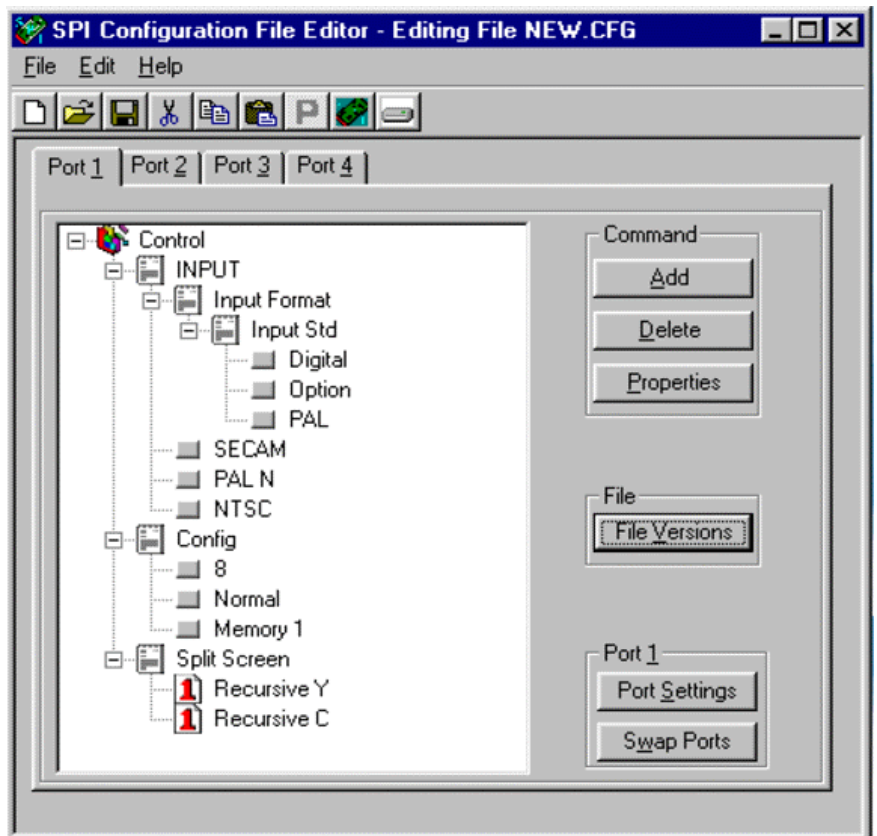
The files content appears within a text editor.



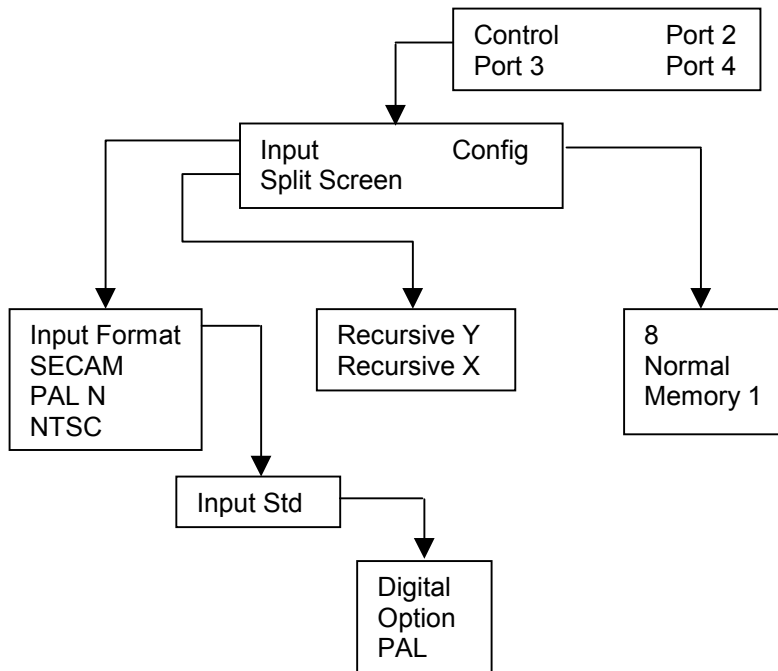
Editing Ports

Selecting *Edit, Ports* (or the respective toolbar icon) will produce the following display:

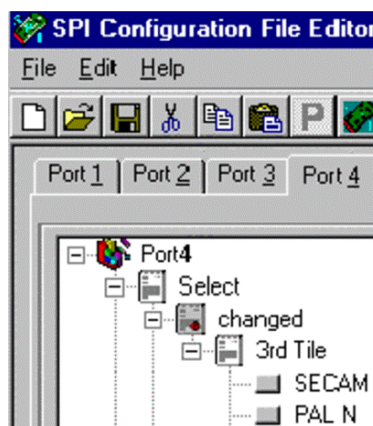
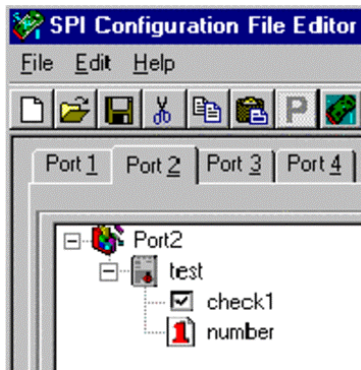
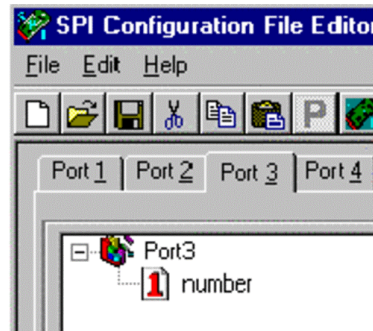
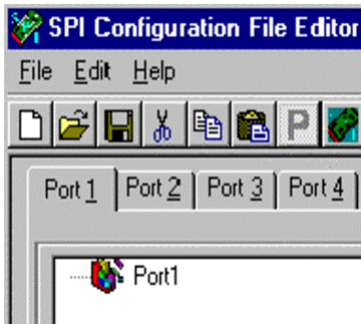
There are four ports, whose commands are shown in a treeview structure.



Viewing the SPI cards commands from a front panel would show:



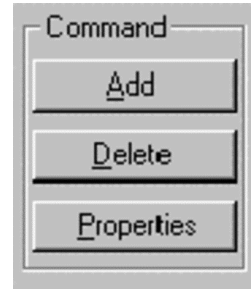
By clicking on a tab labelled Port1, Port2, Port3 or Port4 the respective port's menu is shown:



Adding a Command

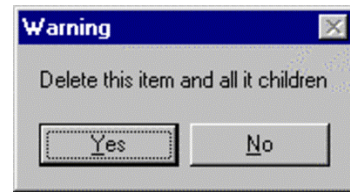
To add a command select the command you wish to appear above it and then click on the Add button (or right click over the tree view and select Add Menu Item from the pop up menu). A new command appears with a default set of parameters. It is recommended that the command's Style is selected before amending other properties.

Note: Only styles of List and Tiled may have children.



Deleting a Command

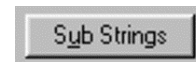
Select the desired command and then the Delete button (or right click over tree view and select Remove Menu Item from pop up menu). If the command (is a list or tiled style and) has children then these will also be deleted.



Warning box appears to indicate selected item has children. The user may select No if they decided not to delete this item and its children.

Substitution Strings

The IQCSPI can insert a string corresponding to the commands numeric value. Clicking on the sub strings button allows the user to Add/Edit/Remove substitution strings.

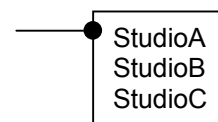


Example

Whenever `\$Strings%ld` appears within an outgoing payload (or the 'ParamStg' field) the string 'StudioB' will be substituted when the commands numeric value is 1.

Note that this can also be used within a logmessage.

Test of
Sustitution
Strings



Editing a Command's Properties

Selecting a command and clicking the Properties button (or double clicking on a command) will display a properties window. If the properties window is shown and a command clicked on then the properties of that command will be displayed.

Once the Properties box is visible, selecting (clicking on) a command within the treeview will allow its properties to be edited.

The Command Tab

This consists of Style and Number.

Style

The style can be one of the following: Tiled, List, Display, Button, CheckBox, Number, Vertical Graph, Horizontal Graph, Edit String, Vertical Level, Horizontal Level, Data.

Only commands with a style of Tiled or List may have children (menu options below this level). The default style for new commands is Tiled.

Number

This represents the RollCall command number of this command.

Value Offset

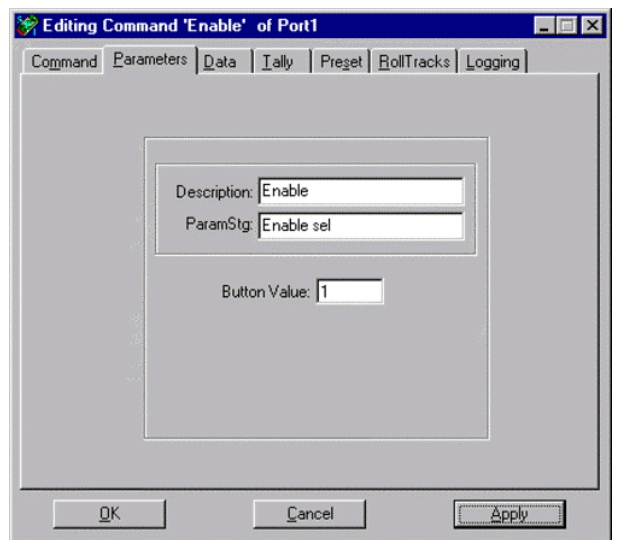
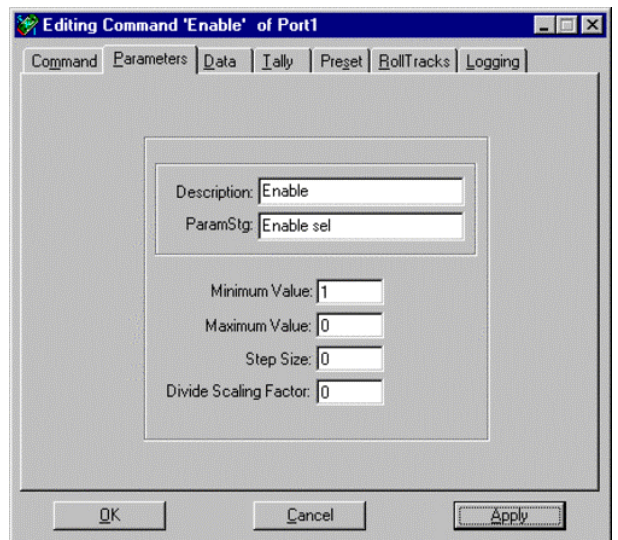
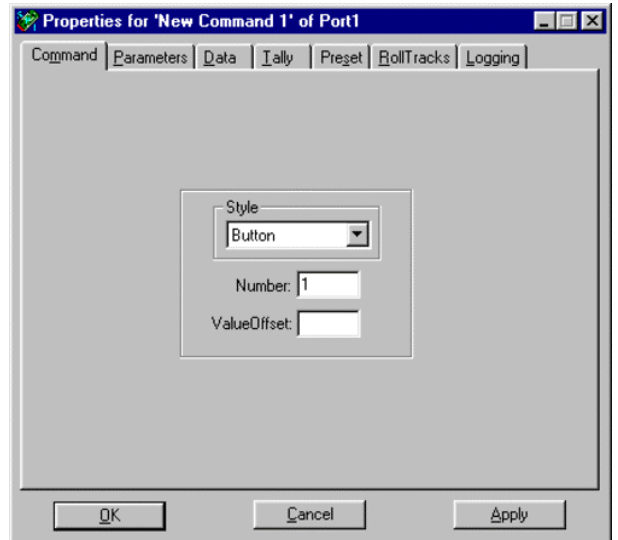
If a menu item has, for example, Rollcall values of min = -20 to max = 20, but the device connected via the IQCSPI's serial link requires values within the range 0 → 40 then this can be achieved by having a ValueOffset = 20.

The Parameters Tab

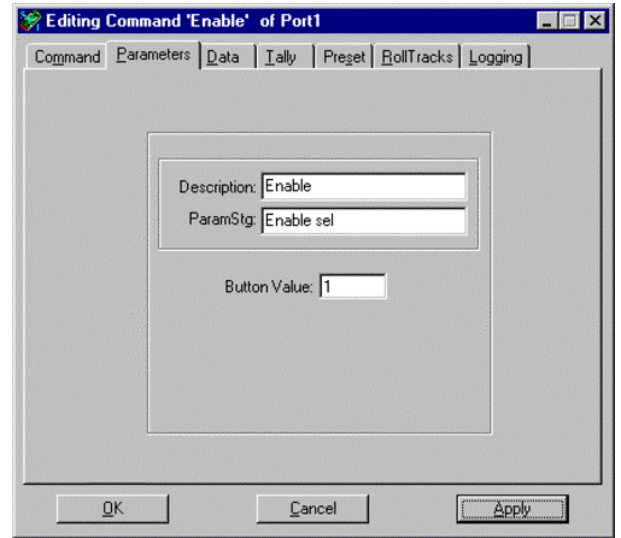
The contents of this will vary according to the style. It may include: Description, ParamStg, Minimum Value, Maximum Value, Step Size, Divide Scaling Factor.

Parameters for Number style.

Parameters for Button style.

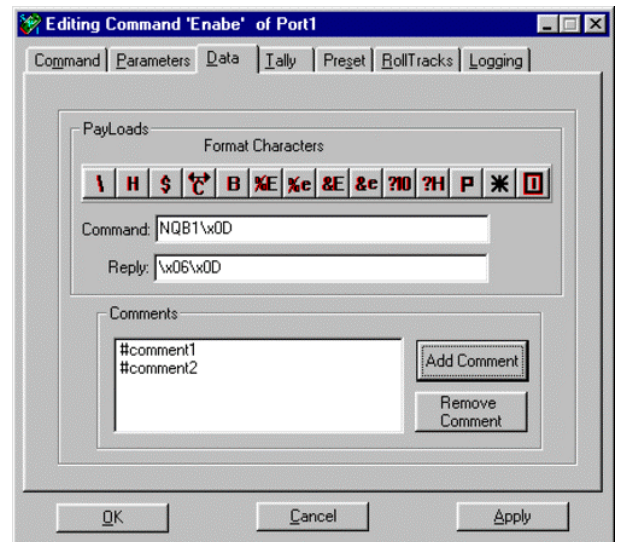


Parameters for CheckBox style.



The Data Tab

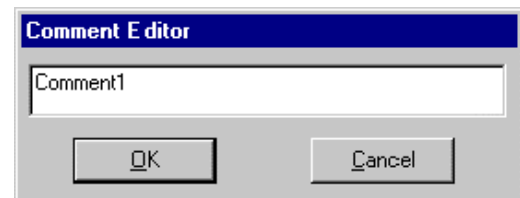
This contains the Command & Reply payloads and the Comments. There are a number of format characters, each of which will be applied to the active textbox upon clicking on the required button.



When setting something on the device that the SPI card is connected, a Command is sent from the SPI card from the device. The Reply is then sent from the device to the SPI card in response to the Command.

Comments

Clicking the Add Comment button (or double clicking on an existing comment) will display a comment editor. This is used to enter new comments or edit existing ones. To remove a comment select it and click on the Remove Comment button.

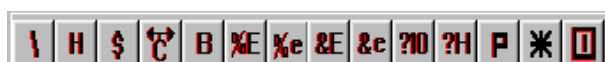


Payload Format Characters

These can be inserted within the payloads of the command, reply, tally, tallyreply, request and requestreply fields.

*Note: Outgoing payloads are Command, TallyReply, Request
Incoming payloads are Reply, Tally, RequestReply*

The payload format characters buttons and a description follow:



From left to right each button represents:

- Single Back Slash

This button inserts two backslashes, the first of which is ignored.

e.g. Payload = \\A
Sends = 92 65 (which is the decimal ASCII value of \A)

- Hex value (2 characters)

This button inserts \x followed by two Hex characters.

e.g. Payload = \xFF
Sends = 255 (which is the decimal value of FF)

- String Value

This button inserts \s. The string parameter of the command (up to a maximum of 20 characters) will be sent.

e.g. Command's String value = On
Payload = \s
Sends = 79 78 (which is the decimal ASCII value of On)

- Offset Character

This button inserts \c followed by two Hex characters. The Hex characters identify a particular character from within the command's string.

e.g. Command's String value = EFGHIJKLMNOPQ
Payload = \c0A
Sends = 78 (which is the decimal ASCII value of N)

- Byte Value

This button inserts \vb. The byte value of the commands numeric value is sent.

e.g. Command's numeric value = 2B 71 FF A3
Payload = \vb
Sends = 163 (which is the decimal value of A3)

- Integer (Big Endian)

This button inserts \vl. The integer value of the command's numeric value is sent in big endian format.

e.g. Command's numeric value = 2B 71 FF A3
Payload = \vl
Sends = 255 163 (which is the decimal value of FF A3)

- Integer (Little Endian)

This button inserts \vi. The integer value of the command's numeric value is sent in little endian format.

e.g. Command's numeric value = 2B 71 FF A3
Payload = \vi
Sends = 163 255 (which is the decimal value of A3 FF)

- Long (Big Endian)

This button inserts \vL. The long value of the command's numeric value is sent in big endian format.

e.g. Command's numeric value = 2B 71 FF A3
Payload = \vL
Sends = 43 113 255 163 (which is the decimal value of 2B 71 FF A3)

- Long (Little Endian)

This button inserts \vl. The long value of the command's numeric value is sent in little endian format.

e.g. Command's numeric value = 2B 71 FF A3
Payload = \vl
Sends = 163 255 113 43 (which is the decimal value of A3 FF 71 2B)

- Decimal ASCII String

This button inserts \a followed by a number 0-9. The number indicates the minimum number of digits sent from the commands numeric value.

e.g. Command's numeric value = 255
Payload = \a4
Sends the string = '0' '2' '5' '5'

- Hex ASCII String

This button inserts \h followed by a number 0-9. The number indicates the minimum number of digits sent.

e.g. Command's numeric value = FF
Payload = \h5
Sends the string = '00255'

Note that for incoming ASCII payloads of unknown size '\a0' and '\h0' may be used.

- Pro-bel Two's Compliment

This button inserts \P.

This only applies to outgoing payloads. It calculates the two's complement (for Pre-bel's SW-P-02 General Switcher Communication Protocol) upon everything which appears to its left within the payload.

- Wildcard

This button inserts *.

This applies to incoming payloads only.

For example ****/x0D within a payload will match any four characters followed by /x0D.

- Substitution Strings

This button inserts \String%ld\$.

This may apply to outgoing payloads, logmessages and the 'ParamStg' field.

Where this exists it will be substituted with a string corresponding to the commands numeric value.

- All other characters are sent as their decimal ASCII equivalent.

e.g. Payload = BRT7
Sends = 66 82 84 55

Note: The string value and numeric value of a command is set by a front panel or by RollCall control panel or by an incoming stream on the serial port.

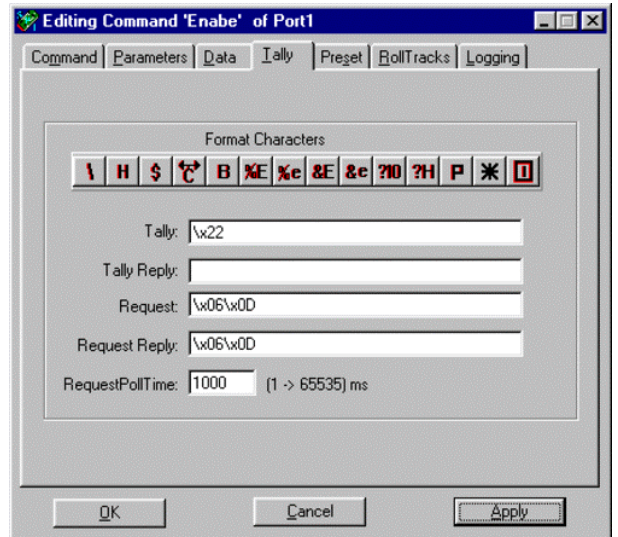
The Tally Tab

This contains the payloads for the Tally and the Tally Reply.
 For information on the Format Characters buttons see the section on the Data Tab.

The SPI card sends a Request to the device it is connected to obtain the current status of the device. A RequestReply is then sent from the device to the SPI card in response to the Request.

A Tally is initiated by the device and sent to the SPI card. If for example the device is a VCR and the play button is pressed on it, then the device will send a Tally to the SPI card (indicating that it is now playing). The TallyReply is sent from the SPI card to the device in response to the Tally.

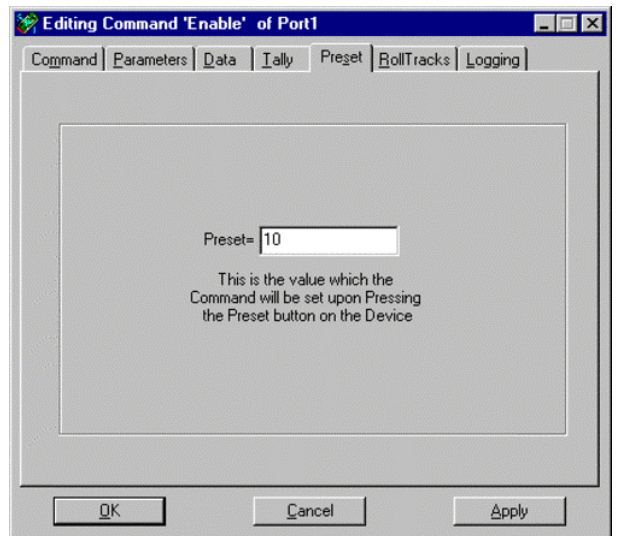
Request Poll Time is the time (in milliseconds) between each Request payload being sent.



The Preset Tab

This contains the value, which the command will be set to upon pressing the preset button on the SPI card.

Note that this only applies for Number & String styles.



The Tracks Tab

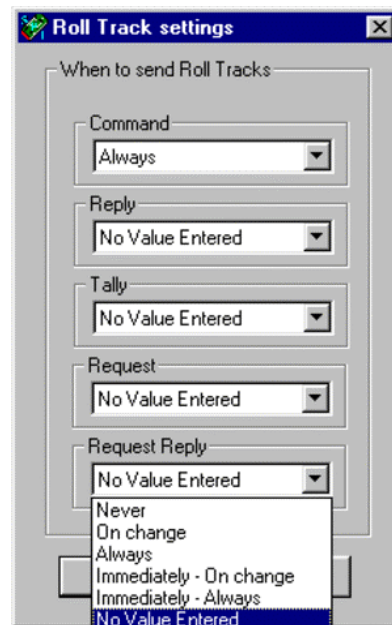
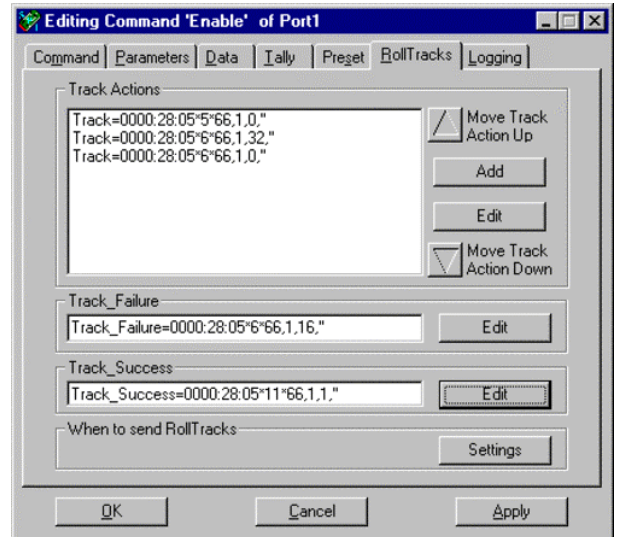
This contains the Track Actions and the Track confirmations.

Note: To enable Tack Actions, Track_Failure or Track_Success to be sent to other IQ modules it is necessary to configure the IQ rack containing the target module to allow incoming RollTracks. With gateway software version 5.10 or later, the "Permit Blind Control" command must be enabled.

The order in which the Track Actions appear represent the order in which they will be executed. To amend the order select a Track Action and then click on either the Move Track Action Up button or the Move Track Action Down button (these will move the selected Track Action one position up or down).

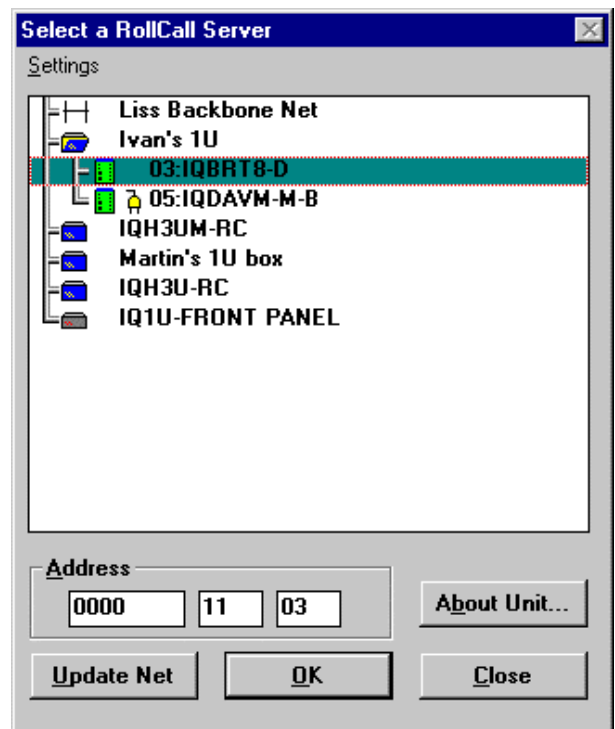
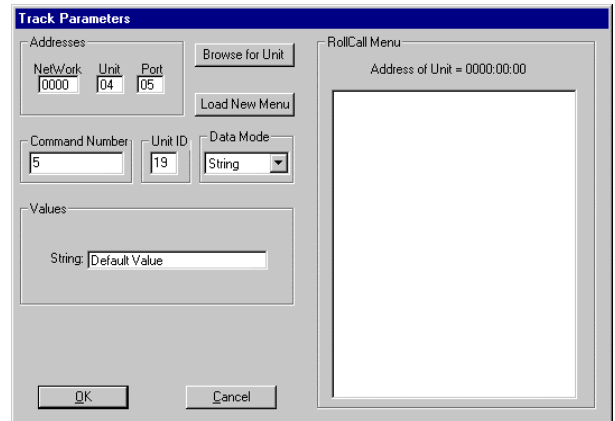
This view displays the Tracks Actions and confirmation (Track_Failure, Track_Success). To remove Track Actions, select one and press the Delete key on the keyboard. To remove Track_Failure or Track_Success go to the respective text box and delete its contents. Clicking on the Edit or Add button will generate a Track Parameter window, where each track is constructed.

For each command you can select when RollTracks will be sent.



Track Parameter window

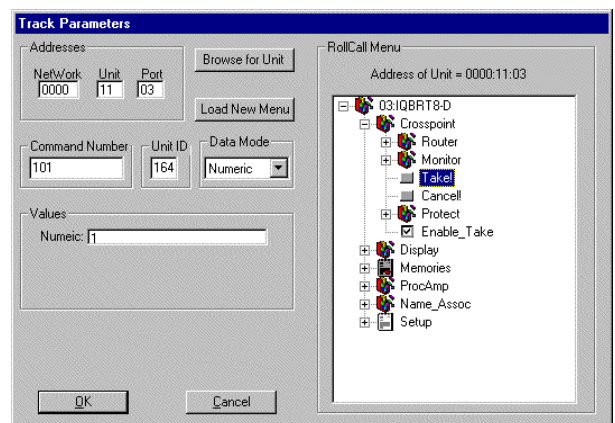
Clicking the Browse for Unit button allows the selection of a RollCall device on the network.



Once a device is selected, clicking on the Load New Menu button will load the selected device's menu. Selecting a command from within the treeview representation of the menu loads the command's parameters. Upon selecting OK a RollTrack is created and placed in the respective area on the Tracks Tab.

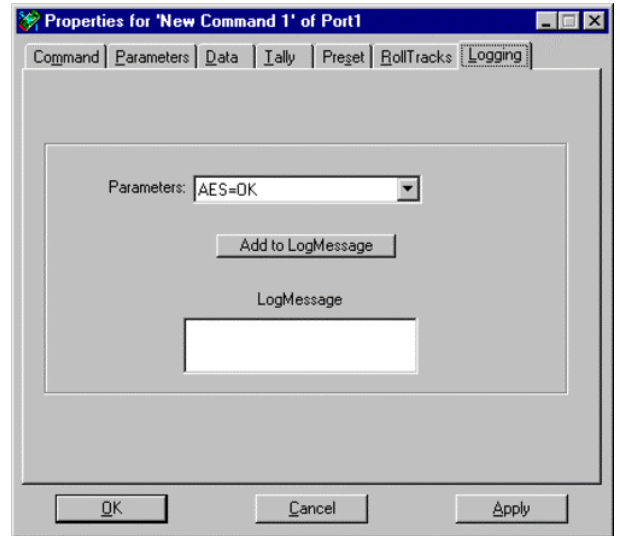
Upon clicking the Load New Menu button, there will be a pause whilst the menu loads. If it is not possible to load a menu then a message will appear to this effect.

Note: RollCall only allows one connection at a time to a device, so if for example something is connected to a device it must be disconnected in order to load its menu.



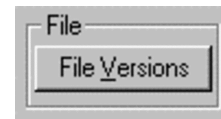
The Logging Tab

This contains the LogMessage. There are a number of default messages, which can be selected and then edited.

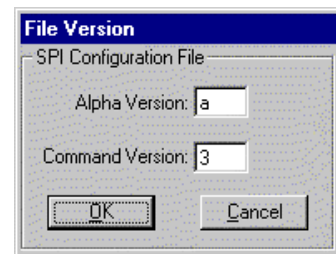


File Versions

These can be edited by selecting the File Versions button (or the Edit, Versions menu item).

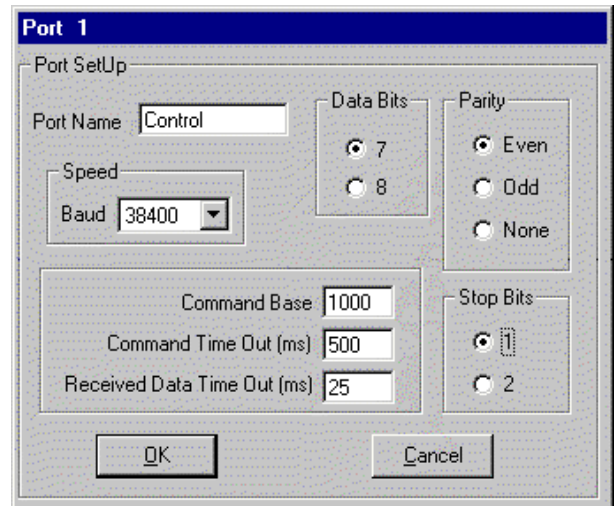


Note the File Version dialog box can only be accessed when editing in Port View mode.



Port Settings

The settings for each port may be edited by clicking on the Port Settings button.



Swapping Ports

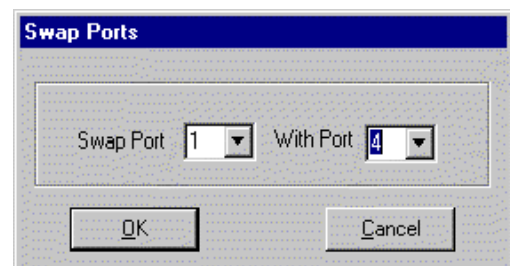
Clicking on the Swap Ports button allows two ports to be swapped. This swaps both the commands and the port settings of the two ports.



Cut, Copy & Paste

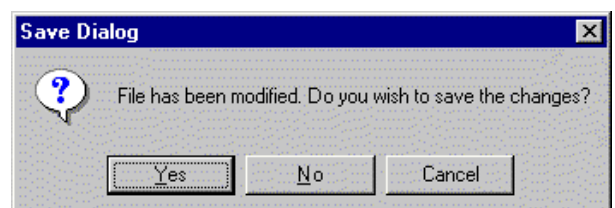
When using the tree structure representation of each port cut, copy and paste work as follows:

- Cut & Copy will place a copy of the selected command (and its sub menu) in the clipboard. Cut will also remove the selected command.
- Paste will place a copy of the command (which is held in the clipboard) underneath the selected command.



Prompt to Save

If changes have occurred then the user will be prompted to save when performing any of the following: File New; File Open; Upload from SPI; Download to SPI; Exit.



SYNTAX OF THE SPI CONFIGURATION FILE

File Header

This is always **[IQSPI]** and appears by itself on the first line of the file.

Versions

The file contains two version identifiers:

- AlphaVersion
- CommandVersion

AlphaVersion

This consists of:

“AlphaVersion=”letterRepresentingAlphaVersion

An example of this is: **AlphaVersion=a**

CommandVersion

This consists of: **“CommandVersion
=”NumberRepresentingCommandVersion**

An example of this is: **CommandVersion=8**

General Comments

A line can be designated as being a comment by prefixing it with the hash “#” symbol.

Port Number and Port Name

The file is split up into sections one for each port. Within each section are all the commands etc which belong to that port.

Port Number

This is positioned (by itself) at the first line of the port’s section within the file.

An example is **[Port2]**

Port Name

This is positioned (by itself) on the following line to the port number.

This consists of **“Name=”PortName**

An example is **Name=VTR(BETACAM)**

SetUp statement

This consists of:

“SetUP =” Speed Baud, Data Bits, Parity, Stop Bits

An example of this is: **Setup=38400,8,o,1**

Speed Baud

The speed in Baud is selected from a predefined list: 600, 1200, 2400, 4800, 9600, 19200, 38400

Data Bits

The number of Data Bits (to be transmitted in a packet) is selected from a predefined list: 5, 6, 7, 8

Parity

The Parity can be set to Odd “o”, Even “e” Or None “n”.

Stop Bits

This can be set to either 1 or 2.

CmdTimeOut

This is positioned on the line following the SetUp statement.

This consists of:

**“CmdTimeout=”NumberRepresentingCmdTime
Out**

An example is: **CmdTimeout=500**

CmdBase

This is positioned by itself on the line following the CmdTimeOut statement.

This consists of:

“CmdBase=”NumberRepresentingCmdBase

An example of this is: **CmdBase=2000**

RxDataTimeOut

This is positioned by itself on the line following the CmdBase statement.

This consists of:

**“RxDataTimeout=”NumberRepresentingRxData
TimeOut**

An example of this is: **RxDataTimeout=20**

Commands

These consists of

“Cmd=” dir,style,RCCmd,minR,MaxR,Step,div,txt,ParamStg,PayLoad, when to send RollTracks

An example of this is:

Cmd=1,48,1,1,0,0,0,'PLAY','\x20\x01\x21', 3

Each of the fields are separated by commas. Text is enclosed within single quotes. Any string field that is not used in a command shall have two single quotes placed at its position within the Cmd statement.

Table showing when each field is required.

(R=Required, N=NotUsed)

Style	Dir	Style	RCCmd	Min	MAx	Step	Div	Txt	ParamStg
Tiled	R	R	R	N	N	R	N	R	R
List	R	R	R	N	N	R	N	R	R
Display	R	R	R	N	N	N	N	R	R
Button	R	R	R	R	N	N	N	R	R
CheckBox	R	R	R	R	N	N	N	R	R
Number	R	R	R	R	R	R	R	R	R
Vgraph	R	R	R	R	R	R	N	R	N
Hgraph	R	R	R	R	R	R	N	R	N
EditString	R	R	R	R	R	N	N	R	R
Vlevel	R	R	R	R	R	R	N	R	N
Hlevel	R	R	R	R	R	R	N	R	N
Data	R	R	R	N	N	N	N	R	N

Dir

The Direction is always set to Dir = 1 = Output

Style

The style is one of a set of predefined values.

The possible values for this are as follows:

- | | | | |
|----|----------|-----|---|
| 0 | Tiled | 112 | Hgraph |
| 16 | List | 128 | EditString |
| 32 | Display | 144 | Vlevel |
| 48 | Button | 160 | Hlevel - horizontal level meter. No control |
| | | 192 | Data – binary data block |
| 64 | Checkbox | | |
| 80 | Number | | |
| 96 | Vgraph | | |

RCCmd

This is a number given to the command (in the range 1 to 0xEFFF).

MinR

This number is defined as a signed long integer. It represents the Minimum value allowed.

MaxR

This number is defined as a signed long integer. It represents the Maximum value allowed.

Step

This is a number, which represents increment/decrement steps. For styles of List and Tiled the Step value is equal to the total number of descendants (i.e. total number of commands which appear under the list, not just the immediate children)

Div

This is a number that represents the divide-scaling factor that is applied to the commands numeric value.

Text

This string represents the command text.

ParamStg

The printf string for parameter display.

PayLoad

This field contains the Command Payload, which is sent from the SPI card to the device.

When to send RollTracks:

Number	Description
0	Never
1	On Change
3	Always
5	Immediately – On Change
7	Immediately - Always

Communication between SPI and device

Example of an SPI card connected to a VCR.

Command and Reply

- If a button is pressed on the SPI card to control the VCR, a **Command** is sent from the SPI card to the VCR.
- A **Reply** is sent from the VCR to the SPI card in response to the Command.

Request and RequestReply

- For the SPI card to get the current status of the VCR, a **Request** is sent from the SPI card to the VCR.
- A **RequestReply** is sent from the VCR to the SPI card in response to the Request.

Tally and TallyReply

- If a button (say the Play button) is pressed on the VCR then a **Tally** is sent from the VCR to the SPI card
- A **TallyReply** is sent from the SPI card to the VCR in response to the Tally.

Remaining File Content

Reply

This is optional (however there is normally one for each command).

This is what the device sends to the SPI card.

It has the format:

“Reply=’Number:’ReplyPayloadString’, when to RollTrack

An example is: Reply=1:’\x12\x11\xF0\x19\x2C’

Request

It will have the format

“Request=’RequestPayloadString’, when to RollTrack

RequestReply

This will be positioned on the line following the Request statement.

It will have the format

“RequestReply=’RequestReplyPayloadString’, when to RollTrack

Request Poll Time

Every command that has a Request & Request Reply may have a RequestPollTime entry. This is the time in ms between each poll

Tally

It will have the format

“Tally=”’TallyPayLoadString’, when to RollTrack

Tally Reply

This will be positioned on the line following the Tally statement.

It will have the format

“TallyReply=”’TallyReplyPayLoadString’

Preset

Each command (cmd=) can have a (optional) Preset statement – but only if the command style can have a preset value. When the user presses the Preset button, the command’s value is set to the preset value.

Eg Preset=5

Only Number(80) and String(128) may have Preset

RollTrack Actions

This is optional.

Any number of these can appear (on the lines following the TallyReply statement if there is one).

Examples of this are:

Track=0000:00:00*24*126,1,1,"

This has the format:

Track=nnnn:aa:pp*c*ii,m1,v1,s1,o1,m2,v2,s2,o2

Where the extras o1,m2,v2,s2,o2 are all optional.

Network Address nnnn

nnnn = RollCall network address, (0000 on an unbridged network)

Unit Address aa

aa = RollCall unit address, e.g. hex switches in an IQ frame gateway card

Port Address pp

pp = Port address, e.g. physical slot number in an IQ frame

Command Number c

c = RollCall command number for the particular function/device

Unit ID ii

ii = RollCall unit ID, found in the product manual, or from RollCall "About unit" box

Data Mode m1 and m2

m = RollCall data mode, (1 = numeric value, 2 = string value, 16 = Preset)

The rMode field can be one of a predefined list:

Value (numeric) 1, String 2, Data 4, Preset 16,

- If value then Numeric Value v contains the current value for the command.
- If String then String value s contains a string.
- If Data then data follows within the string value s (lengthOfData = value set in v)
- If Preset then (no numeric or string value is to be sent as) the device being addressed will set the menu item identified by the command number to its Preset / default value.

Numeric value v1 and v2

v = Numeric value

String value s1 and s2

s = String value

Numeric Offset o1 and o2

o = Offset between the RollCall numeric value and the tally numeric value.

There are four valid forms of the Track line:

Track=nnnn:aa:pp*c*ii,m1,v1,s1

This sends the value formed by m1, v1 and s1 to command c on the unit nnnn:aa:pp with unit type ii, and expects to receive a reply with the same data mode and numeric value

Track=nnnn:aa:pp*c*ii,m1,v1,s1,o1

This sends the value formed by m1, v1+o1 and s1 to command c on the unit nnnn:aa:pp with unit type ii. It expects to receive a reply with the same data mode and numeric value.

Track=nnnn:aa:pp*c*ii,m1,v1,s1,o1,65536

This sends the value formed by m1, v1+o1 and s1 to command c on the unit nnnn:aa:pp with unit type ii. It expects to receive a reply, but ignores the value.

Track=nnnn:aa:pp*c*ii,m1,v1,s1,o1,m2,v2,s2,o2

This sends the value formed by m1, v1+o1 and s1 to command c on the unit nnnn:aa:pp with unit type ii. It expects to receive a reply with data mode m2, and the numeric value v2+o2.

The user can enter anything they want within the LogMessageHeader and the LogMessageValue. However there is standard list of LogMessages:

INPUT=OK, INPUT=LOST, STD=625, STD=525,
 STD+PAL, STD=NTSC, STD=PAL-M,
 STD=AUTO, STD=STDERR, STD=UNKNOWN,
 EXTREF=OK, EXTREF=N/A, EXTREF=LOST,
 EDH=OK, EDH=FAIL, EDH=NONE, EDH=RESET,
 ERRSEC=n, AUDIO=1-2-3-4-5-6-7-8,
 AUDIO=-----, POWER=OK, POWER=FAIL,
 SN=n, FAULT=NONE, FAULT=FAIL:description,
 MSG=Restarted, MSG=Restarted at, AES=OK,
 AES=LOST:description, FREQ=nn kHz,
 SOUND=OK, SOUND=LOW:description,
 PICTURE=OK, PICTURE=FREEZE,
 PICTURE=BLACK

Substitution Strings

The format for these is
Stringn = StudioA

Where n is an integer and 'StudioA' is the string which is substituted when the commands value is n.

The list must start with String0 and include every number between that and the highest numbered string.

Payload settings

For the Payloads of the Command, Relpy, Tally, TallyReply there are a number of formats which can be chosen as follows:

Format	Inserted String
Single Back Slash	\\
Hex Value Two Characters	\x (followed by 2 Characters)
String Value	\s
Offset Character	\c (followed by 2 Characters)
Byte Value	\vb
Int – Big Endian	\vl
Int – Little Endian	\vi
Long – Big Endian	\vL
Long – Little Endian	\vl
Decimal Ascii String	\a (representing the minimum number of printed characters)
Hex Ascii String	\h (representing the minimum number of printed characters)
Literal Character	(up to three characters)
Pro-Bel Checksum	\P (all to the left of \P) General Switcher Communication Protocol SW-P-02
WildCard	* (matches any character)
Substitution String	\\$String%ld\$

STRUCTURE OF SPI CONFIGURATION FILE

[IQSPI]

Alpha Version number Command Version Number Port number Port Name SetUp CmdTimeOut CmdBase RxDataTimeout	Command #Comment Reply PollTime Tally TallyReply Request RequestReply Preset Track Track	Track Track_Success Track_Failure LogMessage Next Commands.... Next Ports... Strings String0= String1=.....etc. EOF
---	--	--

