



# Modular System

# Operator's Manual

© March 2000

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## Information Concerning this Manual

This manual contains information for the KUDOS IQ Modular System mainframes and information for specific modules.

If specifically ordered, this manual could be supplied containing operating information for all modules currently available plus previous versions of modules or deleted products.

When a mainframe is supplied with particular modules installed, only operational information for those modules will be found in this manual and each module will have a dedicated numbered section as shown in the Table of Contents.

If, at a later date, other types of modules are supplied and installed, the operational information section for those modules will be supplied. The sheets will be ready hole-punched and should be fitted into this manual binder in the appropriately numbered section.

Update/revision sheets should replace existing pages when supplied by the agent or Snell & Wilcox Ltd.

*(Note that the last six numbers of the text in the lower left hand corner of the page, is the release date of that revision in day, month, year sequence)*


## Important Notice

To fully conform to EMC standards as specified on page 4 of this section, modules must be installed as specified in Section 1, page 1.2

No responsibility is taken by the manufacturer or supplier for any non-compliance to EMC standards due to incorrect installation.

# Safety Warnings

**Always ensure that the unit is properly earthed and power connections correctly made.**

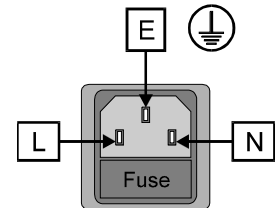
This equipment shall be supplied from a power system providing a **PROTECTIVE EARTH**  connection and having a neutral connection which can be reliably identified.

The power terminals of the IEC mains input connector on the rear panel are identified as shown below:

E = Protective Earth Conductor

N = Neutral Conductor

L = Live Conductor



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## Power cable supplied for countries other than the USA

The equipment is normally shipped with a power cable with a standard IEC moulded free socket on one end and a standard IEC moulded plug on the other. If you are required to remove the moulded mains supply plug, dispose of the plug immediately in a safe manner. The colour code for the lead is as follows:

GREEN/YELLOW lead connected to E (Protective Earth Conductor)

BLUE lead connected to N (Neutral Conductor)

BROWN lead connected to L (Live Conductor)

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## Power cable supplied for the USA

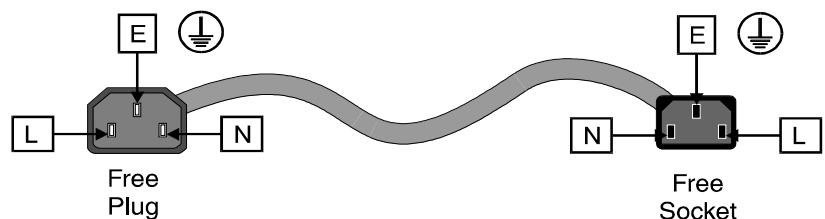
The equipment is shipped with a power cord with a standard IEC moulded free socket on one end and a standard 3-pin plug on the other. If you are required to remove the moulded mains supply plug, dispose of the plug immediately in a safe manner. The colour code for the lead is as follows:

GREEN lead connected to E (Protective Earth Conductor)

WHITE lead connected to N (Neutral Conductor)

BLACK lead connected to L (Live Conductor)

The terminals of the IEC mains supply lead are identified as shown opposite:



*Note that for equipment that is not fitted with a mains power switch, to comply with BS60950 Clauses 1.7.2 and 2.6.9, the power outlet supplying power to the unit should be close to the unit and easily accessible.*



### **Warnings**

Voltages within this unit can be lethal under certain circumstances. Where power is required to be connected to the unit during servicing great care must be taken to avoid contact with these voltages.

Maintenance should only be carried out by suitably qualified personnel.

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## EMC Standards

This unit has been designed to comply with the following standards:

### Electromagnetic Compatibility-Generic Immunity Standard BS EN 50082-1:1992

*The European Standard EN 50082-1:1992 has the status of a British Standard and is related to European Council Directive 89/336/EEC dated 3rd May 1989.*

### Electromagnetic Compatibility-Generic Emission Standard BS EN 50081-1:1992

*The European Standard EN 50081-1:1992 has the status of a British Standard and is related to European Council Directive 89/336/EEC dated 3rd May 1989.*

## Safety Standards

This unit has been designed to comply with EN60950:1992 as amended by amendment A1(May 1993) and amendment A2(March 1994). Specification for safety of technology equipment, including electrical business equipment.

## EMC Performance of Cables and Connectors

Snell & Wilcox products are designed to meet or exceed the requirements of the appropriate European EMC standards. In order to achieve this performance in real installations it is essential to use cables and connectors with good EMC characteristics.

All signal connections (including remote control connections) shall be made with screened cables terminated in connectors having a metal shell. The cable screen shall have a large-area contact with the metal shell.

### COAXIAL CABLES

Coaxial cables connections (particularly serial digital video connections) shall be made with high-quality double-screened coaxial cables such as Belden 8281 or BBC type PSF1/2M.

### D-TYPE CONNECTORS

D-type connectors shall have metal shells making good RF contact with the cable screen. Connectors having "dimples" which improve the contact between the plug and socket shells, are recommended.

**CAUTION:** These servicing instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the Operating Instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

## Packing List

The unit is supplied in a dedicated packing carton provided by the manufacturer and should not be accepted if delivered in inferior or unauthorised materials. Carefully unpack the carton and check for any shipping damage or shortages.

Any shortages or damage should be reported to the supplier immediately.

Enclosures:

- Mainframe
- Power cable
- Module(s)
- Operator's Handbook(s)

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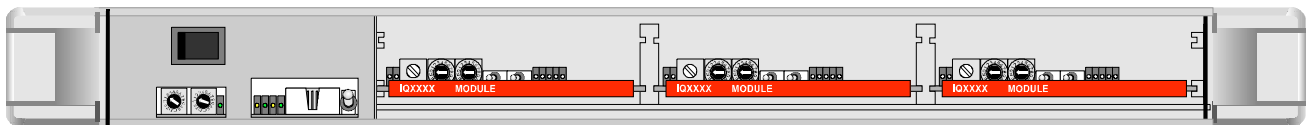
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## GENERAL CONCEPT

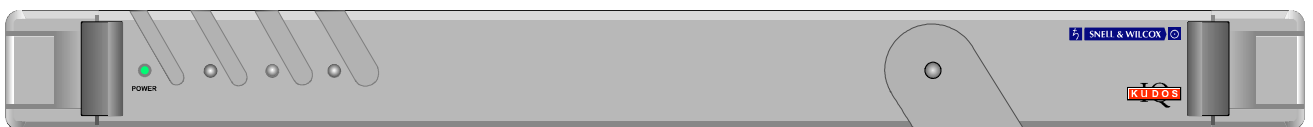
Various cards (Modules) may be fitted into a 19" mainframe rack system and mate with a backplane containing the appropriate connectors.

The 1U rack may contain up to three double width modules fitted horizontally and the 3U rack may contain up to eight double width modules, sixteen single width modules (or combinations of both types) fitted vertically.

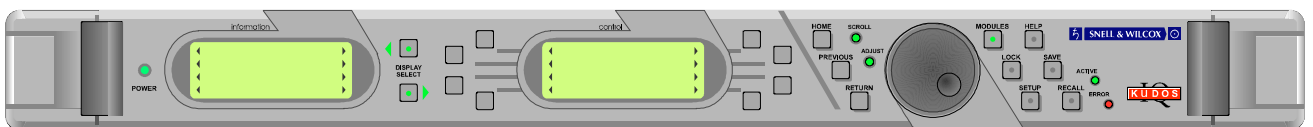
## 1U Mainframe



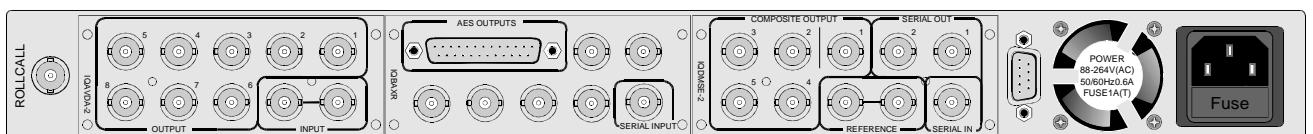
## 1U Passive Front Panel



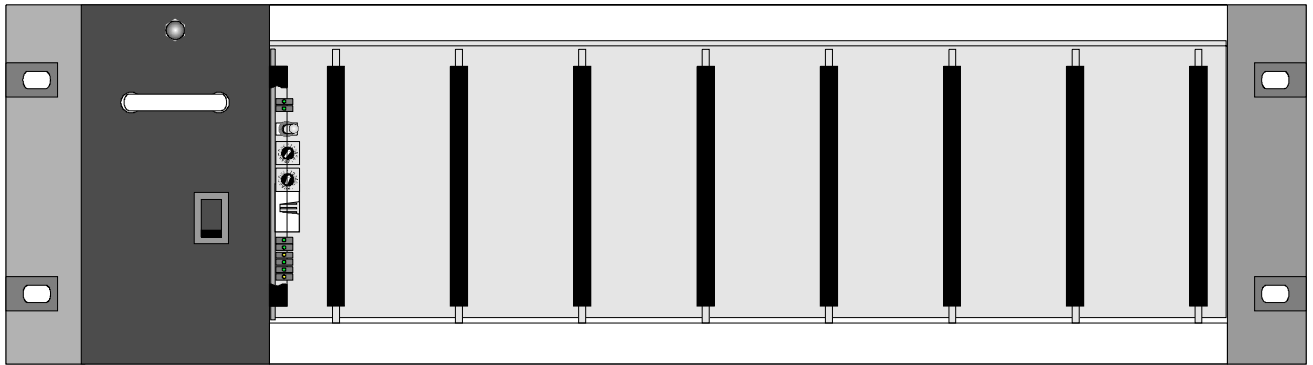
## 1U Active Front Panel



## Rear of 1U Mainframe fitted with three Modules



3U Frame (Single Power Supply) fitted with eight Double width Modules

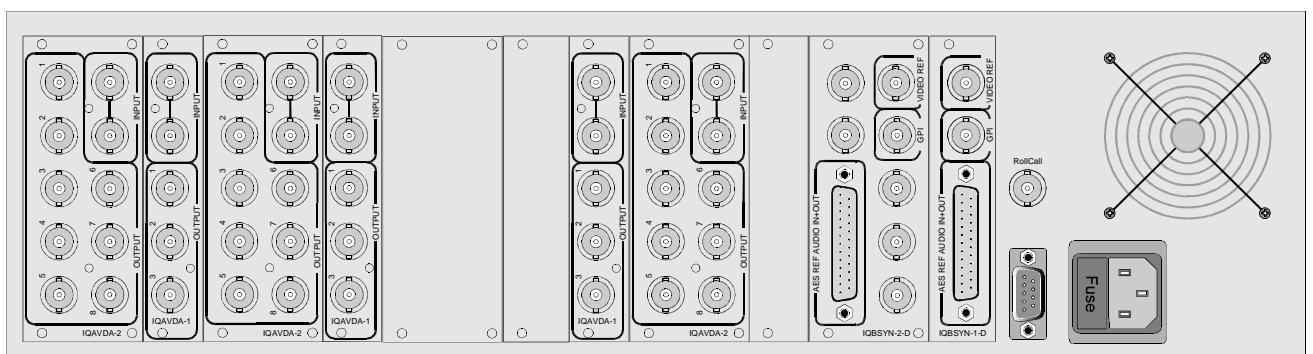


## Important Installation Notice

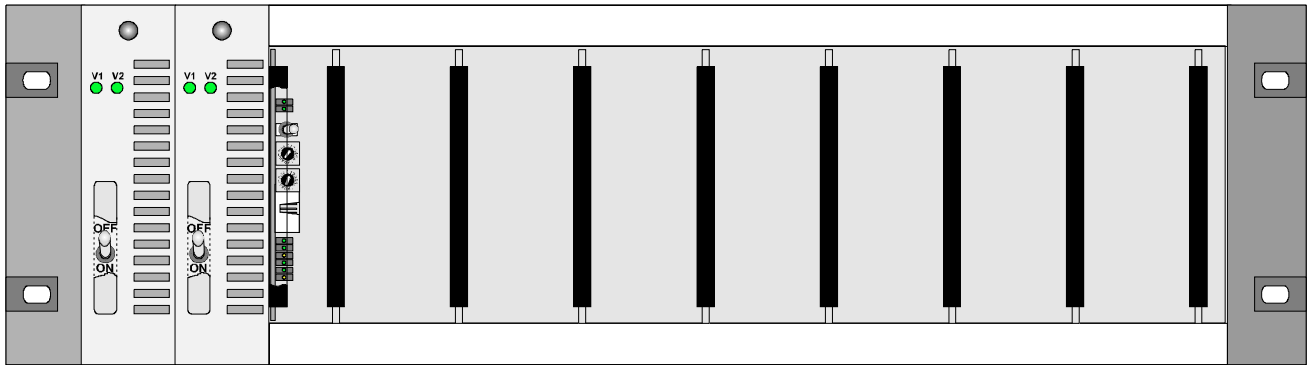
**To fully conform with EMC standards modules must be correctly installed in the mainframes paying particular attention to the following:**

1. A modular card must only be plugged into a rear connection panel specifically designed for that module
2. The rear of the mainframe must have a full complement of rear panels. Any vacant slots must have a blank rear panel fitted
3. All mainframe covers and rear panels must be fitted and screwed down using all available fixing holes
4. The mainframe front panel must be in the closed position

3U Frame (Single Power Supply) fitted with Modules



## 3U Frame (Dual Power Supplies) fitted with 8 Double width Modules



The dual power supply versions of the IQ Modular 3U frame have all the capabilities and functionality of the standard frames except that they are designed to accept one or two PBUK1137 power supplies with independent IEC320 mains inlets.

Individually, each PSU module is capable of powering the IQ 3U frame containing any combination of IQ modules. When two units are installed the operation of the whole frame becomes protected against single-instance power failures. The manufacturer specifies a maximum of 50 mating cycles.

Monitoring circuitry built in to each PSU reports power failures via isolated relay contacts on the 'STATUS' connector (9-pin D, female) on the frame rear panel and two bi-colour LEDs on the front of each power supply.

The bi-colour LEDs on the PSU front panels are green if the PSU is supplying power to the rack, and turn red if the associated regulation unit has failed.

The LEDs are also red if the mains power to the unit has failed or if the unit is switched to standby, provided that the other PSU is functioning.

Within the PBUK1137 power supplies the positive and negative rails are independently regulated and have no minimum load current requirements. The DC outputs of the PBUK1137 power supplies have series Schottky diodes that allow direct connection of multiple units on one power bus.

Additional components adjust the regulation so that the power supplies will attempt to share the load current requirements. The balance of current sharing between supplies is subject to variation of the basic regulation of the PSUs. With two PSUs the unit with the higher output voltage will contribute more current to the load.

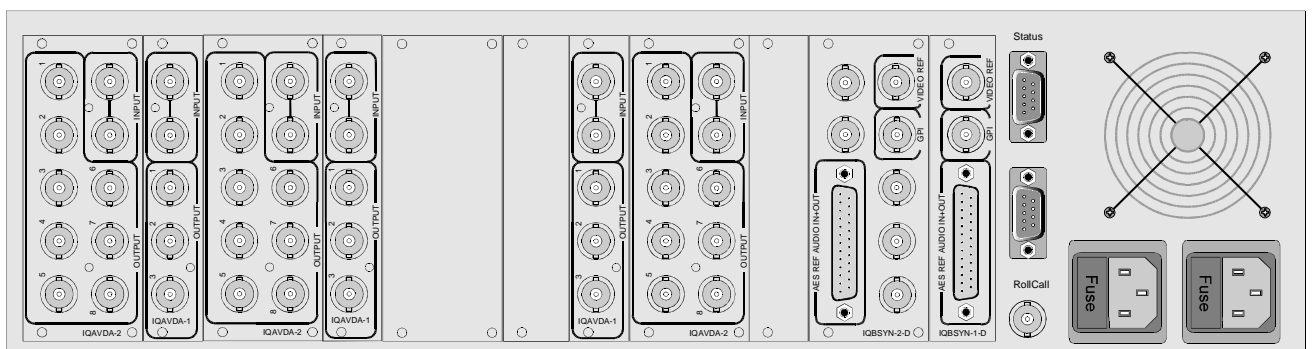
To maintain correct cooling airflow when only one PBUK power supply is fitted the vacant supply position must be covered with the AIR COOLING CONTROL PLATE (part No. RMMN 2390830A, blanking plate)

When two power supplies are fitted the blanking plate is secured to a bracket on the inside of the front panel.

**Warning:**

To avoid connector damage, power modules must not be plugged into, or unplugged from, the enclosure when powered-up. Set the power module's front-panel switch to OFF before plugging or unplugging.

## 3U Frame (Dual Power Supplies) fitted with Modules



## Control Panels

A mainframe and the modules that it contains, may be controlled by the following methods:-

1. Locally, by use of an active front panel (the control panel) for the 1U system
2. Remotely, by use the same control panel as in (1) above, connected by a single cable assembly
3. Remotely, from any number of control panels (1U), connected via the RollCall communications network
4. For units not equipped with RollCall preset controls and switches are provided on the front of each module, accessible behind the drop-down front panel.

## The RollCall Communications System and Computer Control System

RollCall remote control gives a uniquely powerful and flexible operating system that can be as simple as a single rack unit with control panel, or a powerful multi-master, multi-slave configuration with the PC controllability for full station automation.

The RollCall command protocol derives control panel operating software from the IQ module being addressed. This unique feature ensures that module updates or additions will not require control system software upgrades - simply plug in and switch on.

For modules with the RollCall option fitted all card edge control functions are available on the remote control panel or any other controlling device. For some module cards additional control functions and readouts will be available to the RollCall panel but will not be accessible via the card edge controls.

*Note that for some modules if any of the preset switches mentioned above are set to the ON position, it will not be possible for the function to be disabled by the remote control mechanism. Under these circumstances a message will be displayed on the active remote control panel indicating that control is not available. To avoid this situation it is recommended that all card edge preset switches be set to the OFF position.*

When the unit (or module) is powered-up the module will normally assume the same set-up conditions that existed at the last power-down. This information is provided by the non-volatile memory of the module's dedicated Control Processing Unit under the control of RollCall. Some modules incorporate methods that allow other set-up conditions to exist on power-up; please consult the information specific to each module for details.



### RollCall Network System Details

The Kudos IQ Modular system has a flexible and yet powerful remote control system. The units in the system are joined via a high-speed network and each box enclosure (including active front panels) is a node on the network. The system can have a maximum of 240 nodes with any combination of control panels and modular rack boxes. With the 3U box holding up to 16 cards, the system can accommodate 4064 (254 x 16) cards. Each box is physically addressed via switches on the Remote Control Interface.

The RollCall network has three interface connections on each IQ enclosure:

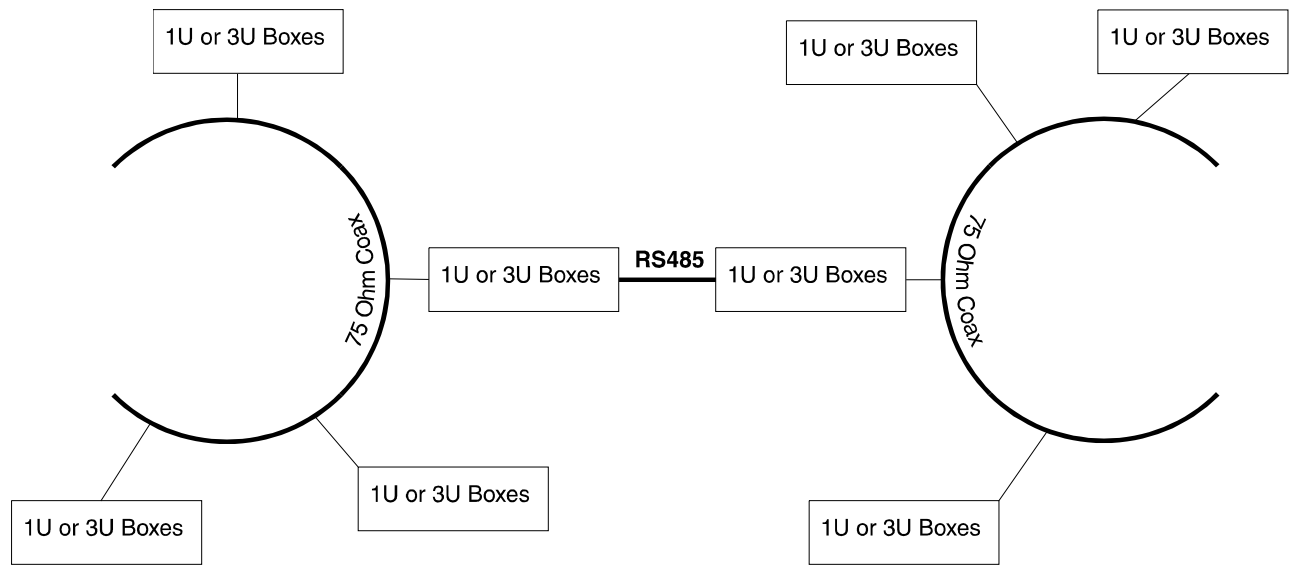
1. 75 Ohm coaxial BNC for box-to-box connections running at 2.5 Mb/s.
2. RS485 9 way 'D' connector for internal bus connections such as to front panels running at 2.5 Mb/s.
3. 38.4 Kb/s asynchronous RS422 port for binary and ASCII terminal access for third party equipment.

The RS422 and RS485 interfaces share the same D connector. Selection of the interface format is by a switch on the Remote Control Interface.

The primary connection interface will be the coaxial network. Each section can support up to 64 unit loads at lengths of up to 400 metres. The following is a table of unit loads for each type of equipment.

Equipment	Unit loads
Active 1U box (up to 3 modules)	4
Active 3U box (up to 16 modules)	4
Active 1U ShoeBox + front panel	4
Stand alone unit (Supervisor, MDD, Golden Gate)	2
PC Remote module	1

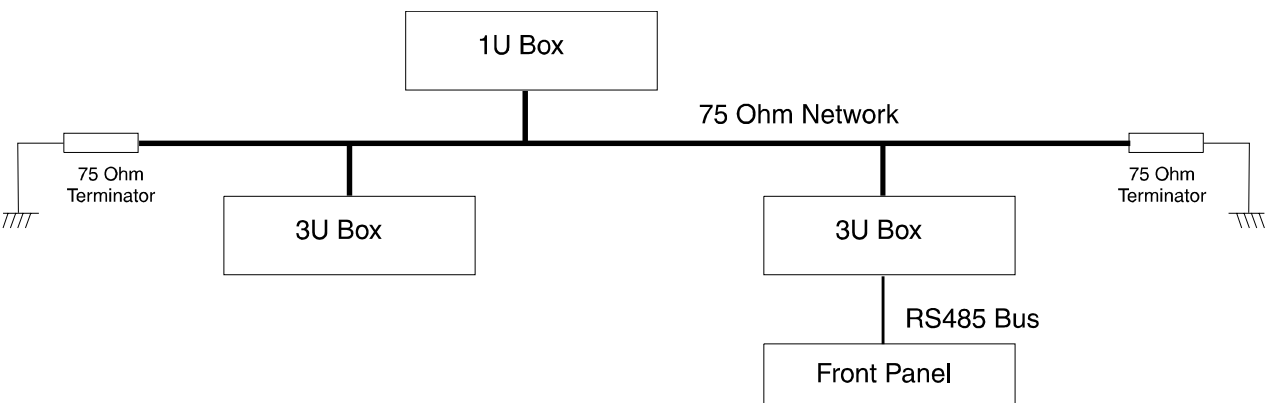
Sections of the coaxial network can be joined using the RS485 bus. The RS485 connections are limited to shorter distances but are multi-drop allowing a rich combination of network configurations. The combined total number of units across the coaxial network and the RS485 bus is still 255 nodes and the total network length can be up to 1500m.



75 Ohm Coaxial Interface

This interface allows connections of units to a single section of 75 Ohm video cable. Each unit is physically joined via a T-piece connector. Each end of the section is terminated by a 75 Ohm resistor at each end of the cable. The data rate on this interface is 2.5 Mb/s. Each section of cable can be up to 400m.

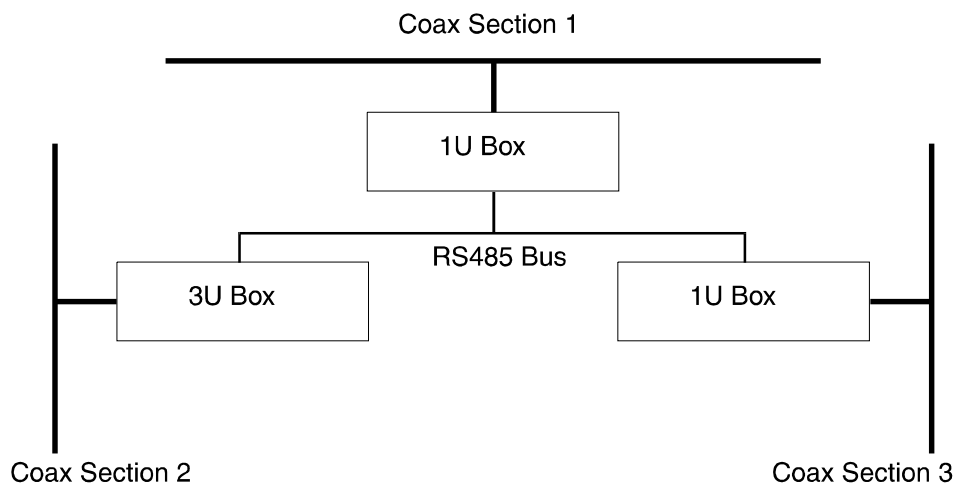
Example configuration:



## RS485 Differential Interface

This interface allows bus connections to internal pieces of equipment such as front panels. It is a multi-drop differential bus with a data rate of 2.5 Mb/s. The data format used on this bus is identical to that used on the coaxial network, hence can provide a natural bridge between coaxial sections.

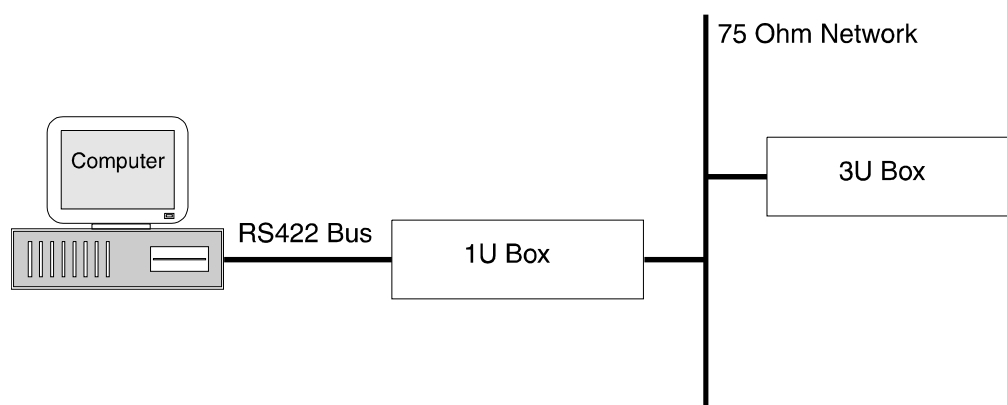
Example configuration:



## RS422 Asynchronous Interface

This interface is specifically designed for third party connections into the system and runs at 38.4 Kb/s. This allows PC's or any other serial device access to any of the units within the system. Every active 1U or 3U box has one of these ports. The port can operate in either binary or ASCII modes. In binary mode, formatted packet data is sent to the port using STX and ETX characters and in ASCII mode, each character is translated from its ASCII value to its binary equivalent, therefore allowing simple terminal access to the system.

Example configuration:



## TECHNICAL PROFILE

**Features****Inputs/Outputs**

RollCall™ Remote Control	BNC connector
RS422/485 Remote Control	9-pin D-type connector

**Active Front Panel Controls (not for 3U case)**

Dedicated Push Buttons for:

- Home
- Previous
- Return
- Modules
- Lock
- Setup
- Save
- Recall
- Display Select
- Menu Text Select
- Spinwheel for menu control

**Preset Controls**

Unit address code set switches	2 Hex switches 0 to F
Communications mode switch	Select RollCall™ 485 or RS422 interface

**Additional Controls via RollCall™ Remote Control System**

Full Control via active front panel

**Specifications**

Number of Modules that may be accommodated	Shoebox: None; use with blank or active front panel 1U: 3 (double width type), fitted horizontally: 6 (single width BNC type) 3U: 8 double width or 16 single width (or combinations of both) fitted vertically 100 mm wide, 340 mm long.
Module card dimensions	
Module rear connector	64 way DIN41614
Module rear panel dimensions	103.4 mm wide, 40.4 mm (double width) 20 mm (single width) high.

**Power (Shoebox)**

Input Voltage Range	100 V to 250 V 50/60 Hz
Input Connector	IEC320 Fused 1.6 A(T)
Power Switch	Located on rear panel
Power Consumption	20 VA maximum

**Power (1U Box)**

Input Voltage Range	88 V to 264 V 50/60 Hz
Input Connector	IEC320 Fused 1 A(T)
Power Switch	Behind drop-down front panel
Power Consumption	90 VA maximum
Modules Power	50 W maximum
Dissipation	
Output	+7.5 V and -7.5 V $\pm$ 5% Note that all modules have built-in power supply fuses.

**Power (3U Box)**

Input Voltage Range	88 V to 264 V 50/60 Hz
Input Connector	IEC320 Fused 5 A(T)
Power Switch	Behind drop-down front panel
Power Consumption	250 VA maximum
Modules Power	150 W maximum
Dissipation	
Output	+7.5 V and -7.5 V $\pm$ 5% Note that all modules have built-in power supply fuses.

**Mechanical (Shoebox)**

Temperature Range	0 to 40° C operating, -30 to +75° storage
Case Type	1U rack mounting steel case
Dimensions	483 mm x 198 mm x 44.4 mm (w, d, h)
Weight	Approximately 1 kg.

**Mechanical (1U Box)**

Temperature Range	0 to 40° C operating, -30 to +75° storage. Cooling fan is fitted.
Case Type	1U rack mounting steel case
Dimensions	483 mm x 415 mm x 44.4 mm (w, d, h)
Weight	Approximately 5kg. without modules

**Mechanical (3U Box)**

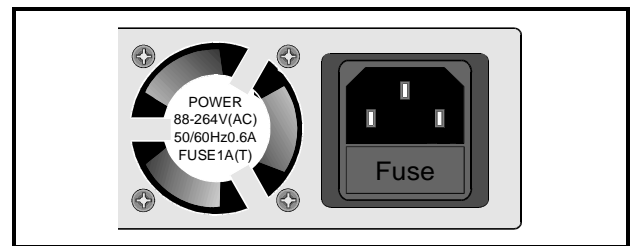
Temperature Range	0 to 40° C operating, -30 to +75° storage Cooling fan is fitted.
Case Type	3U rack mounting steel case
Dimensions	483 mm x 415 mm x 135 mm (w, d, h)
Weight	Approximately 8kg. without modules

## INSTALLATION

### 1U MAINFRAME

#### POWER CONNECTIONS

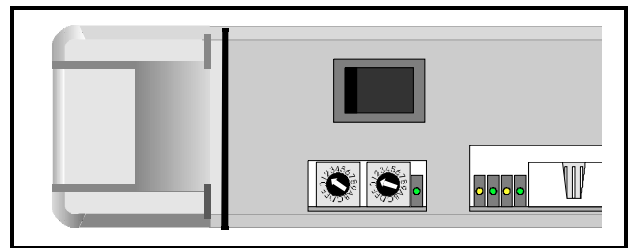
This is the IEC320 mains power connector suitable for a standard IEC type power cable and contains a 1A (T) fuse. If a fused type plug is fitted to the cable a fuse of 7A rating should be installed.



#### POWER ON/OFF SWITCH

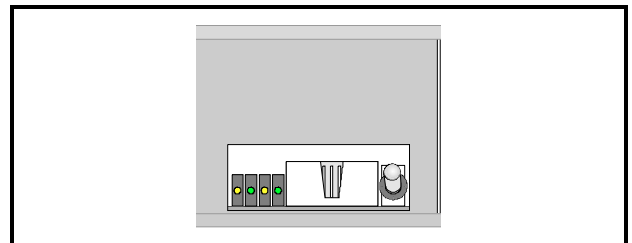
The power ON/OFF switch is located behind the drop-down front panel in the left-hand corner.

Power ON will be indicated by the illumination of the LED on the front panel.



#### FRONT PANEL CONNECTOR

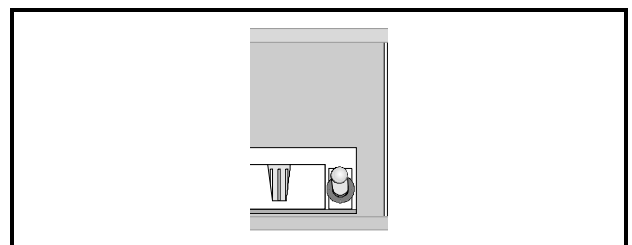
When an active control panel is fitted to the unit, this connector carries the communication signals between the mainframe and the front panel.



#### COMMUNICATIONS MODE SWITCH

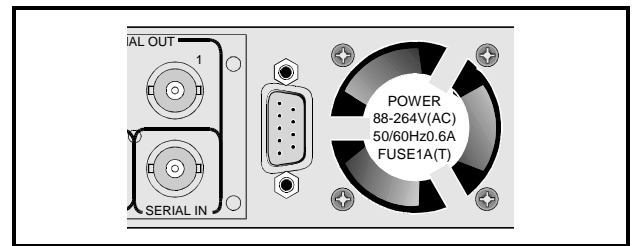
This toggle switch allows the type of communication signal used for the rear panel 'D' connector, to be selected.

The switch should be in the UP position to use RollCall485 and in the DOWN position to use RS422(PC) interface signals.



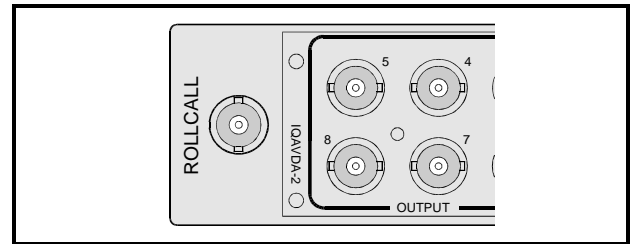
## COMMUNICATIONS CONNECTOR

This 9 pin 'D' connector on the rear panel allows the unit to be connected to the RollCall485 network communications system. This connector may also be used as a RS422 port. For more information see RollCall section.



## RollCall

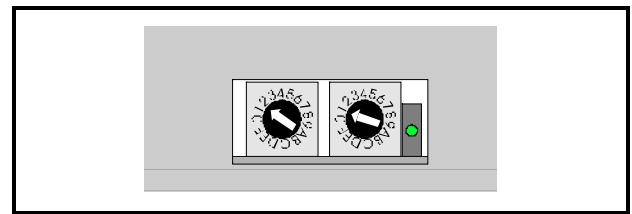
This single BNC connector allows the unit to be connected to the RollCall network communications system.



## HEX SWITCHES

Both of these switches are used to define the Unit Address code for the equipment. They are only read at power-up.

Position '0' on the left-hand switch will disable the RollCall function on the unit; all other positions on these switches may be used to set the Unit Address code in Hex. (Left hand switch 1 to f, right hand switch 0 to f)

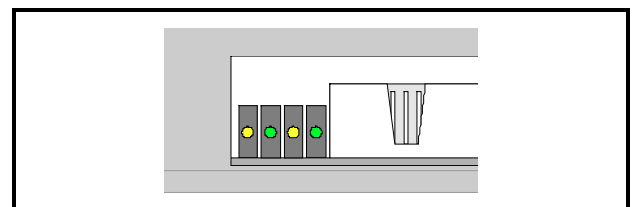


If a code is already in use the RollCall receive and transmit LED's will flash alternately at a 1 second rate. The unit must then be powered-down, the code reset and the unit powered-up again.

Note that in a RollCall segment, all units must have different unit address codes. For more information see RollCall section.

## LED INDICATORS

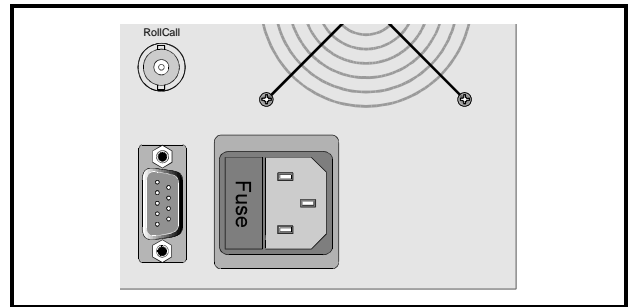
The left hand green LED will be illuminated when the PSU is in operating. The next yellow LED indicates that the unit is receiving RollCall commands. The next green LED indicates that the unit is transmitting RollCall commands. The next yellow LED indicates that the unit is receiving RS422 commands. The next green LED indicates that the unit is transmitting RS422 commands.



## 3U MAINFRAME

## POWER CONNECTIONS

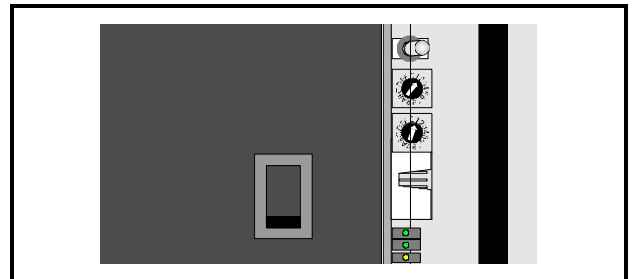
This is the IEC320 mains power connector suitable for a standard IEC type power cable and contains a 5A(T) fuse. If a fused type plug is fitted to the cable a fuse of 7A rating should be installed.



## POWER ON/OFF SWITCH

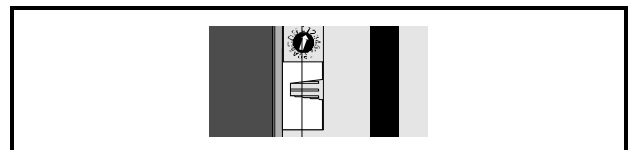
The power ON/OFF switch is located behind the drop-down front panel in the left-hand corner.

Power ON will be indicated by the illumination of the front panel LED and by the LED's on the individual cards.



## FRONT PANEL CONNECTOR

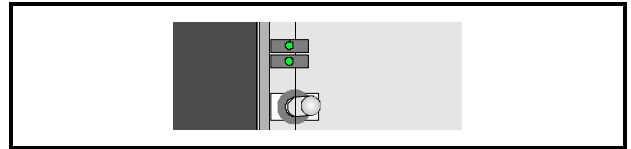
This connector joins the front panel LED indicator to the mainframe.



## COMMUNICATIONS MODE SWITCH

This toggle switch allows the type of communication signal used for the rear panel 'D' connector, to be selected.

The switch should be in the right hand position to use RollCall485 and in the left hand position to use RS422(PC) interface signals.



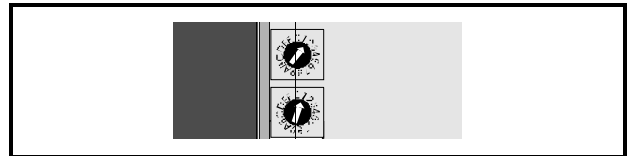
## HEX SWITCHES

Both of these switches are used to define the Unit Address code for the equipment. They are only read at power-up.

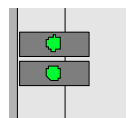
Position '0' on the upper switch will disable the RollCall function on the unit; all other positions on these switches may be used to set the Unit Address code in Hex. (Upper switch 1 to f, lower switch 0 to f)

If a code is already in use the RollCall receive and transmit LED's will flash alternately at a 1 second rate. The unit must then be powered-down, the code reset and the unit powered-up again.

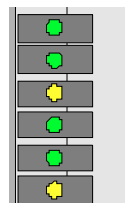
Note that in a RollCall segment all units must have different unit address codes.



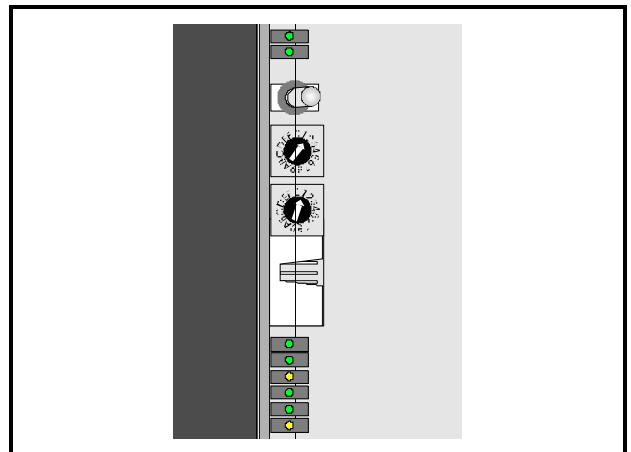
## LED INDICATORS



Indicates the +5 V supply OK (Green)  
Indicates the -5 V supply OK (Green)



Back Plane Comms (Green)  
Back Plane Comms (Green)  
422 Rx (Yellow)  
422 Tx (Green)  
RollCall Tx (Green)  
RollCall Rx (Yellow)





## 3U MAINFRAME WITH DUAL POWER SUPPLIES

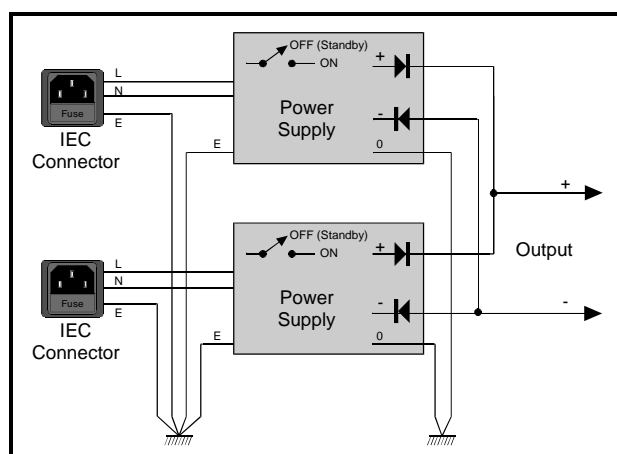
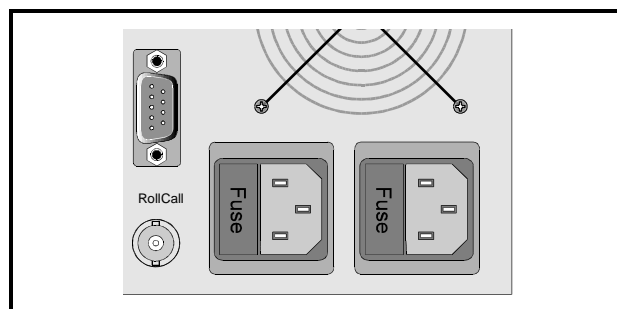
## POWER CONNECTIONS

These are the IEC320 mains power connectors suitable for a standard IEC type power cable and contains a 5A(T) fuse. If a fused type plug is fitted to the cable a fuse of 7A rating should be installed.

Each IEC connector supplies an independent feed of power to each of the two power supply modules as shown in the diagram opposite.

**Caution: To Reduce The Risk Of Electric Shock, Plug Each Power Cord Into Separate Branch Circuits Employing Separate Service Grounds.**

Ensure that both power cords are plugged into mains outlets operating from the same phase.

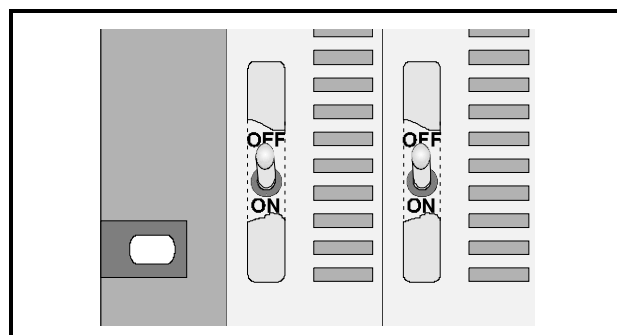


## POWER ON/OFF SWITCHES

The power ON/OFF switch is located behind the handle on the front panel of each power supply.

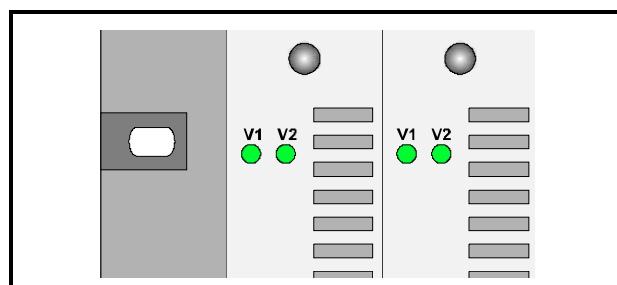
Power ON will be indicated by the illumination of the LED's V1 and V2.

Note that the OFF position sets the power supply to the STANDBY position



## LED INDICATORS V1 (+ve supply) V2 (-ve supply)

These bi-colour LED's are green if the PSU is supplying power to the rack, and turn red if the associated regulation unit has failed. The LED's are also red if the mains power to the power supply unit has failed or if the unit is switched to standby, provided that the other PSU is functioning.



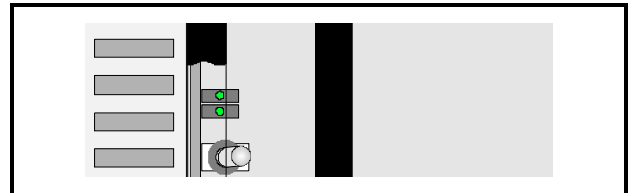
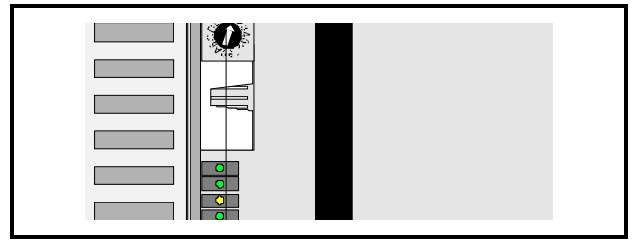
## FRONT PANEL CONNECTOR

This connector joins the front panel LED indicator to the mainframe.

## COMMUNICATIONS MODE SWITCH

This toggle switch allows the type of communication signal used for the rear panel 'D' connector, to be selected.

The switch should be in the right hand position to use RollCall485 and in the left hand position to use RS422(PC) interface signals.



## HEX SWITCHES

Both of these switches are used to define the Unit Address code for the equipment. They are only read at power-up.

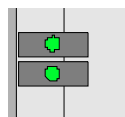
Position '0' on the upper switch will disable the RollCall function on the unit; all other positions on these switches may be used to set the Unit Address code in Hex. (Upper switch 1 to f, lower switch 0 to f)

If a code is already in use the RollCall receive and transmit LED's will flash alternately at a 1 second rate. The unit must then be powered-down, the code reset and the unit powered-up again.

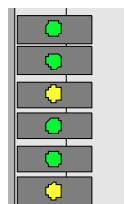
Note that in a RollCall segment all units must have different unit address codes.



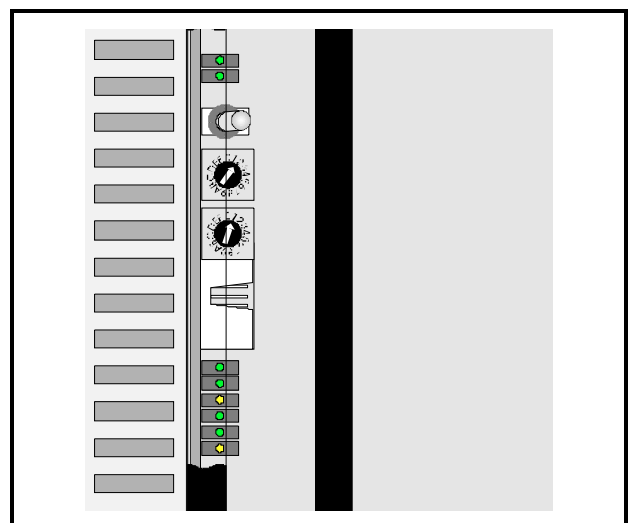
## LED INDICATORS



Indicates the +5 V supply OK (Green)  
Indicates the -5 V supply OK (Green)

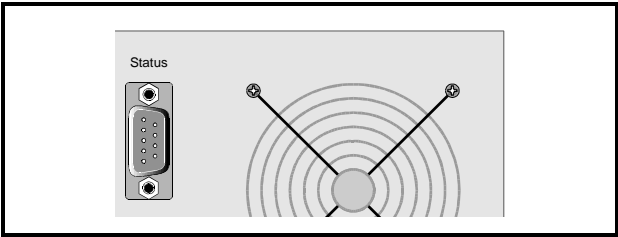


Back Plane Comms (Green)  
Back Plane Comms (Green)  
422 Rx (Yellow)  
422 Tx (Green)  
RollCall Tx (Green)  
RollCall Rx (Yellow)



STATUS CONNECTOR

Monitoring circuitry built in to each PSU reports power failures via isolated relay contacts on the 'STATUS' connector (9-pin D, female) on the frame rear panel.



Connections are as follows:

Pin No.	Condition to....	Pin No.	Function
3 or 7	Closed	1	3U Frame Powered OK
4 or 8	Open	9	3U Frame Powered OK and no PSU failures
3 or 7	Open	6	3U Frame is Powered and no PSU failures
3 or 7	Closed	6	Any Power Failure
4 or 8	Closed	9	Any Power Failure
3 or 7	Open	1	3U Frame has no power (no mains or PSU's OFF)

Examples of various conditions:

**Frame powered, no faults:**

- 3 or 7 to 1 closed
- 3 or 7 to 6 open
- 4 or 8 to 9 open

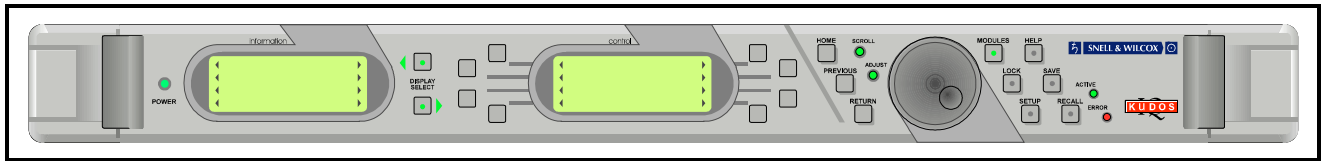
**Frame powered, PSU fault:**

- 3 or 7 to 1 closed
- 3 or 7 to 6 closed
- 4 or 8 to 9 closed

**No frame power:**

- 3 or 7 to 1 open
- 3 or 7 to 6 closed
- 4 or 8 to 9 closed

## Operation



### 1U ACTIVE CONTROL PANEL

#### GENERAL INFORMATION

Modules may be controlled by means of a local, front control panel, by a similar panel at a remote location or a computer interface. Communication is via a wired network system called RollCall™ and many units may be controlled.

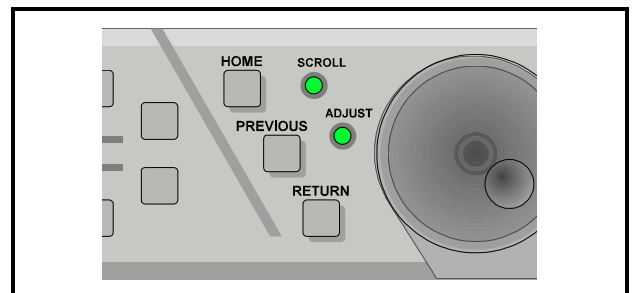
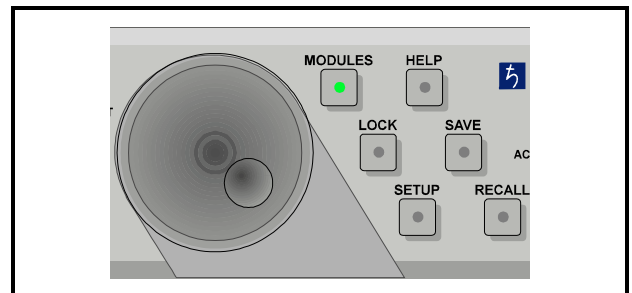
#### THE CONTROL PANEL

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

Menus are selected by push buttons and further menu selections made by rotating a spinwheel and pressing a push button.

The spinwheel also allows continuously variable parameters, (where applicable) to be adjusted and the settings seen in the LCD window.

Various specific operations may be achieved by operating dedicated push buttons.



#### The Menu System

The system may be considered structured as a set of menus and sub-menus that are displayed in the Control window. The **Information** window will display the current status of the controlled module and other information messages. (e.g. error comments, warnings etc.)

The **Control** display contains the names of the lower-level menus that may be scrolled through using the spinwheel.

The sub-menu may then be selected by pressing the push button adjacent to the arrowhead in the text line of the menu name.

This sub-menu will then be displayed in the window and will have the option of selecting another sub-menu in the same manner, or allow the adjustment of a particular parameter.

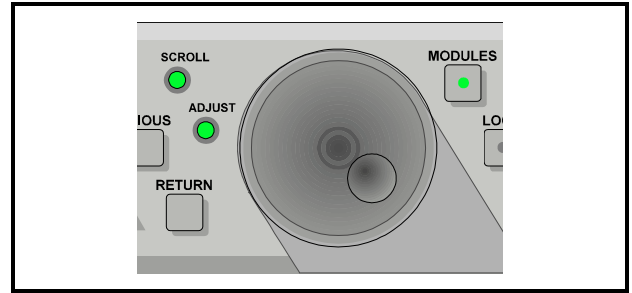
Pressing the **Home** button will display the **Select Menu** in the control window from any position in the menu hierarchy.

The **Previous** button allows a return to the last menu that was changed. Up to 20 changed menus may be retraced using this function.

The **Return** button will allow access to the previously selected upper-level menu.

Note that the spinwheel will only be operative when the **Scroll** green LED is illuminated, indicating that a menu with more than four text lines is being displayed. Operating the spinwheel then allows the other text lines to be displayed.

When illuminated the **Adjust** LED indicates that parameters of the selected module may be adjusted.

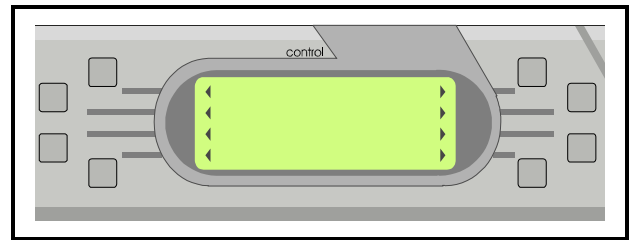


## THE LCD DISPLAY WINDOWS

### CONTROL Window

The **Control** window displays all Selection Menus and sub-menus.

The selection is made by pressing the button adjacent to the required item.



## SYMBOLS

Symbols used in this window have the following meanings:



These symbols, to the right or left of text indicate that the item may be selected. Pressing the button adjacent to this symbol selects the menu item.

...

When three dots (periods) follow an item it indicates that more sub-menus are available under this item.

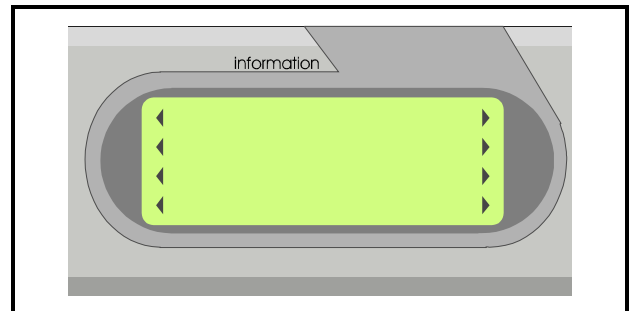
## INFORMATION Window

The Information window has four lines of text indicating current selections and various information messages.

Note that some units will overwrite the information window indication with their own messages. Under these conditions the control panel will only be able to write to the information window when the unit has been disconnected.

The first line will contain the name of the unit which is currently being controlled.

The second, third and fourth lines provide information

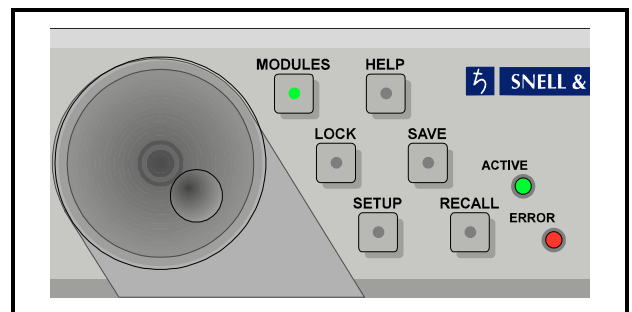


## OVERVIEW

The control panel allows access to modules in the following sequence:

Access to unit, then access to the gateway module of a unit, which in turn allows access to a particular module which then allows module functions to be controlled.

Alternatively the control panel allows direct access to stand-alone units.



The Roll Call system can operate over 15 networks, 240 nodes per network and 64 nodes per segment.

## OPERATION FROM POWER-UP

On power-up the control window will display:

No Active Module

Modules: X=Number of modules connected to the system

The MODULES button should then be pressed and will become illuminated. A list of locations and their status (see SYMBOLS) will then be displayed in a list.

Pressing the button adjacent to the gateway symbol (or stand-alone unit) reveals the list of locations followed by a list of modules at that location.

To connect the desired module press the button next to the right hand arrowhead. The main menu **for that** module will then be displayed in the CONTROL window and the module will be connected to the control panel.

The INFORMATION window will now display the name of the module and the status/settings of that module.

*For details of the module sub-menus available, reference should be made to the operator's manual for that particular module.*

To disconnect the module press the MODULES button again and the CONTROL display will show the module name followed by a illuminated lamp symbol (this indicates that the module is connected)

Selecting this symbol will disconnect the module and when the MODULES button is pressed again the display will show the module name and the right hand arrowhead without an intervening symbol indicating that the module is disconnected.

## LED INDICATORS

The green LED indicator on the front panel marked POWER will be illuminated when the unit is powered-up.

The LED marked ACTIVE will be illuminated when the front panel is connected to and communicating with a unit.

The LED marked ERROR will flash to indicate that errors have occurred.

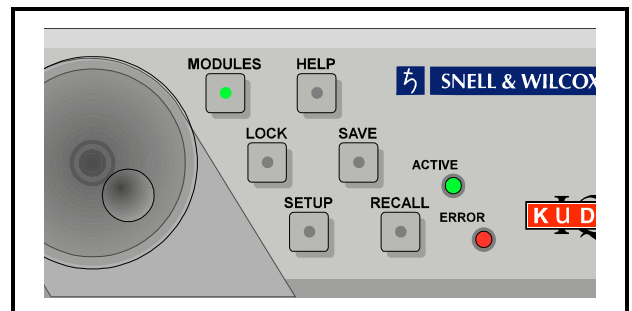
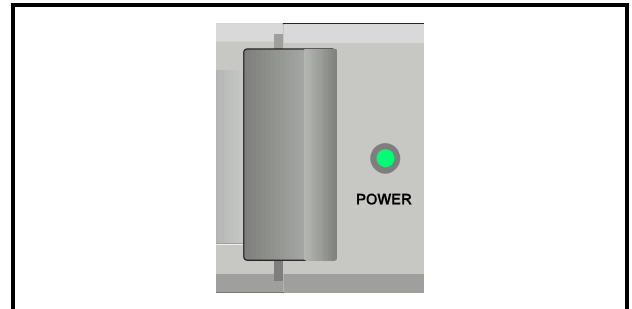
Note that if an attempt is made to access data that does not exist, this will be recognised as an ERROR.

Pressing the HELP button will display the nature of the error(s).

If the HELP button indicator is also flashing, pressing this button will display a list of the errors in the control window.

Pressing the button adjacent to the error message will clear the error message if the error no longer exists.

Note that the ERROR LED will continue to flash until all the error messages have been cleared.



## DEDICATED PUSH BUTTONS

Various specific operations may be carried out by using these push buttons.

When pressed the button LED will become illuminated, indicating that the function is active. Pressing the button again deactivates the function and the button LED will turn off.

## MODULES

When pressed and becomes illuminated, this button displays in the CONTROL window a list of the modules that are available to be connected to the the control panel.

The list shows the name of the module and the connection condition (connected or not connected) by means of symbols.

The symbols used are shown below:



This symbol represents a gateway.



This indicates that the unit is currently connected to this control panel. Pressing the adjacent button will disconnect the unit from the control panel.



This indicates that this unit is currently connected to and locked by another control panel.



This shows that the unit is in the standby mode. (i.e. currently not active but locked by this control panel)



This represents a bridge connection

## SAVE

This button reveals a list of 8 memory locations and allows the address of the currently active module to be saved to one of these memory locations by pressing the button adjacent to the desired memory location number.

## RECALL

This button reveals a list of 8 memory locations and allows the saved information to be recalled from one of the memory locations by pressing the button adjacent to the desired memory location number.

When selected the module will be reconnected without the need to select and connect via the modules list.

## HELP

Pressing this button will display warnings in the windows when applicable.

If an error has occurred (ERROR indicator illuminated) a message will be displayed in the control window. Pushing the button adjacent to the error message will clear it from the list.

If there are no errors the window will display:

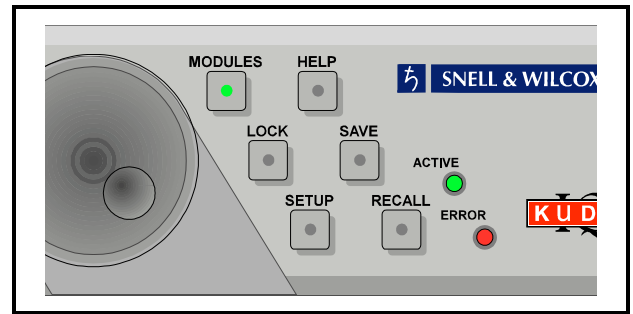
No Warnings

## LOCK

Pressing this button enables a selected module to be locked or unlocked to the control panel. This function will only be available for a unit that is already connected to the front panel. Other modules may be still be connected to, and controlled by the control panel but when the system is powered-up the control panel will only lock to the designated default unit allocated in the Set-Up mode.

The name of the currently selected unit and the 'lock' status. i.e. whether the unit is locked or unlocked to this control panel, will be shown in the Information window.

If a unit is locked/unlocked to this control panel 'Lock/unlock' will appear after the units name in the information window. To change the lock press the Lock button; this will toggle the text from 'lock' to 'unlock' The connection may then be saved to a memory location by pressing the SAVE button function.





The DISPLAY SELECT buttons allow the Information Window to display two different sets of information:

## 1 Identity Codes

The **first line** will show the unit name

The **second line** will show the unit address code and the RV (RollCall Version)

The **third line** will show the unit identity (RollCall) for that unit as three sets of digits separated by a dot.

1st set =	The version of the control unit
2nd set =	Variant of software version
3rd set =	Control compatibility version number

The **fourth line** will display system save codes

## 2 Current selections and conditions

First Line: **(Unit Name)**

This line shows the name of the unit.. If the name has been changed in the Unit Name Menu the new name will appear here.

Second line: **Signal(s) input status**

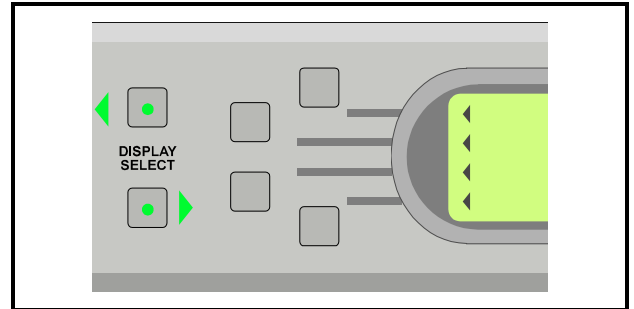
Third Line: **Status of other signal**

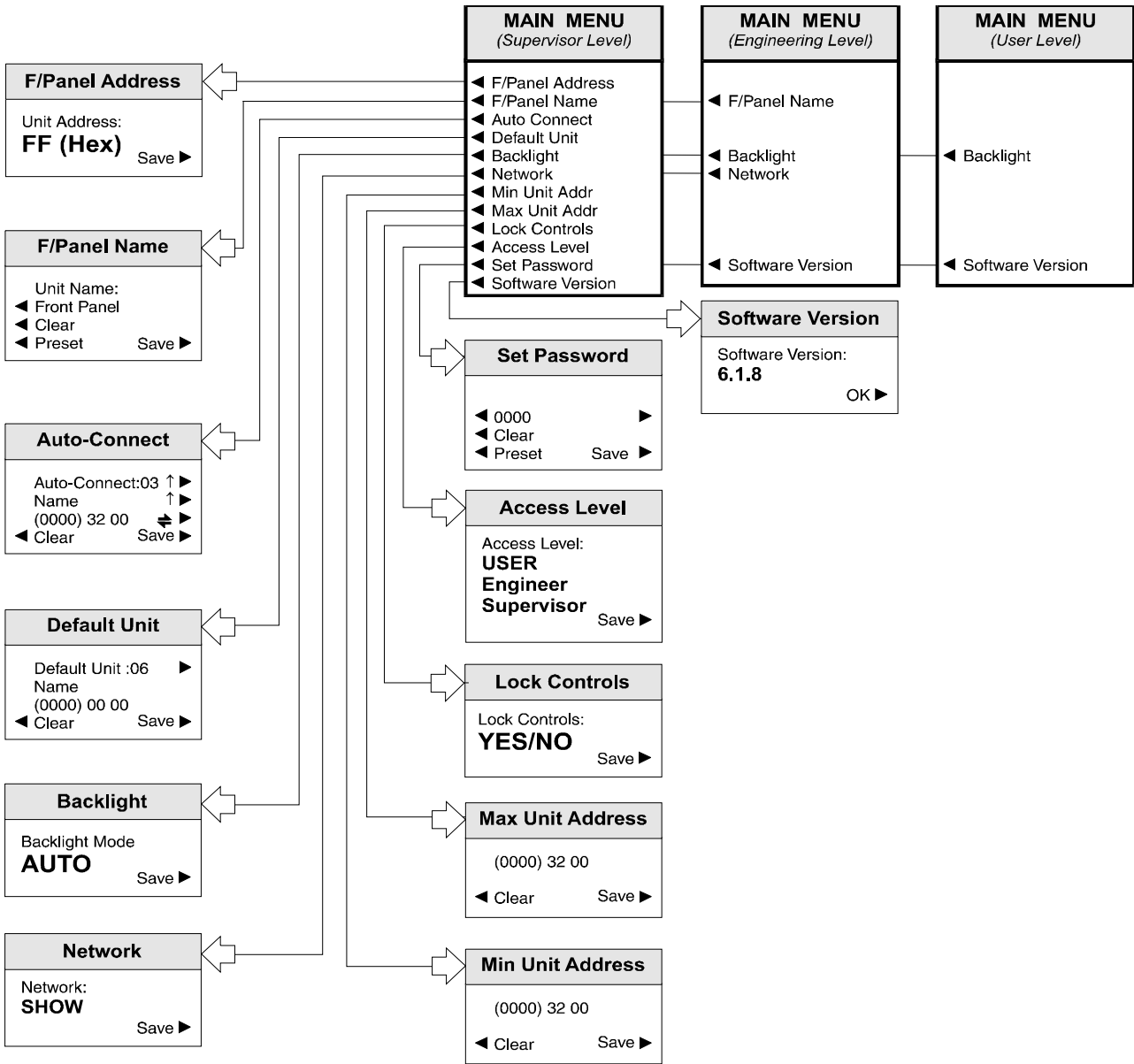
Fourth Line:

This line may be blank or show one of the following:

### Presetting

Presetting indicates that the unit has been asked to return all settings to their default values and the unit is performing this operation.





**Setup Menu System**  
(Software Version 6.1.8 onwards)

## SETUP MENU SYSTEM

(For Software Version 6.1.8 onwards; for previous version V6.0.7 see page 24, for versions previous to V6.0.7 see page 29)

### Changes for Software Version 6.1.8

**Lock Controls** item added to main menu in Supervisor level with a sub-menu showing YES/NO dialogue box added.

#### Lock Controls

This item allows the front panel to be locked-out such that it is inoperative. This function can only be entered in the Supervisor access mode.

To set this function enter at Supervisor level, select the **Lock Controls** item to reveal the dialogue box.

Select either YES or NO and save.

The function is now set.

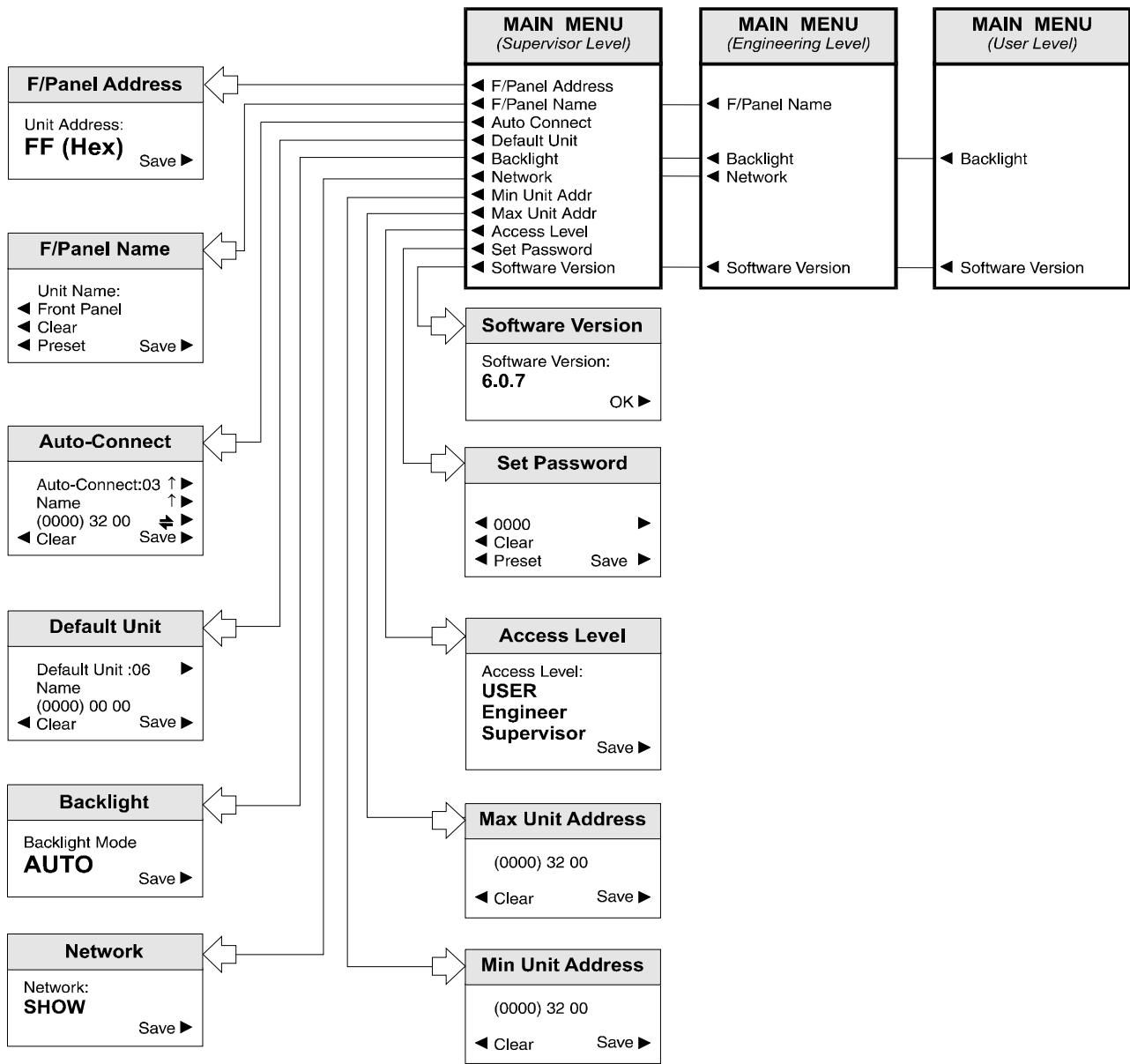
*Note that if this function is set to*

#### **Lock Controls: YES**

*and the unit is powered-up, the message*

**Front Panel Locked by Supervisor!**

*will appear.*



**Setup Menu System**  
(Software Version 6..0.7 onwards)

## SETUP

(For Software Version 6.0.7; for previous versions see page 29)

Pressing this button displays a list of front panel options in the CONTROL window. Examples of these are shown in the 'Setup Menu System' drawing on the previous page.

**Changes for Software Version 6.0.7**

1. *Program Keys* function deleted from main menu
2. Items added to main menu:  
Min Unit Addr  
Max Unit Addr  
Set Password
3. Three levels of access are provided: User, Engineer and Supervisor, with password protection. Each access level allows a particular set of sub-menus to be accessed.

## SETUP Sub-Menus

These are selected by pressing the button adjacent to the desired function.

*Note that all these sub-menus include a SAVE function that is used to save particular settings. If the changed settings do not need to be saved use the RETURN function to return to the previous menu; this action will abandon any changes and revert to the previously saved settings.*

**F/Panel Address**

The address of this control panel will be displayed as a 2-digit hexadecimal code.

*Note that the code 0,0 effectively switches the unit off from the network. The codes 0,1 to 0,F inclusive are reserved for bridge addresses. Codes 1,0 to F,F inclusive are available to the user.*

The address code is user defined in the range 1,0 to F,F and is set by rotating the spinwheel to the desired code and selecting the SAVE function.

**F/Panel Name**

The control panel may be given a name using this function (e.g. Edit Suite, Studio 2 etc.) The maximum number of characters, including spaces, is 19 and may consist of letters and numbers (ASCII Characters)

To edit the name press either the left or right hand button adjacent to the arrows for the centre text line until the character to be changed is flashing. (In the picture opposite this is the letter E) Using the spinwheel, scroll through to the character required and then, using the left and right hand buttons, select the next character; the other characters may be changed in the same way.

When the name has been set to that required press the SAVE function to save the name. Note that to remove a character and leave a clear space in the text line the **Clear** function (above Preset) should be used. The **Preset** function returns the text to the original data.

**Auto Connect**

The Auto Connect menu allows a number of units to be automatically connected to the control panel at power-up.

Up to 16 units may be designated in this way by assigning a number to them. (00 to 15)

***Note that these numbers are also used to assign the default unit .***

The units in this list are (on power-up) in the standby mode and although not currently active are locked to this control panel and may not be controlled by any other panel.

The unit name (second text line of the control window display) may be displayed by scrolling through the list using the button adjacent to the  $\uparrow$  arrow.

The network address of the unit is shown in the third text line as three sets of hexadecimal codes.

The first set is the network address, the second set is the physical unit address and the third set is the port address. Each set of these codes may be selected (the set will be shown enclosed in brackets) by pressing the button adjacent to this line.

The code may then be changed using the spinwheel.

The code may be reset to 0000 00 00 by pressing the clear button. This action also removes the unit name from the display and inserts a ? symbol indicating that no unit will be connected to this session.

The Auto Connect set-up may be saved by pressing either the dedicated front panel Save button or by pressing the button adjacent to the Save display text.

## Default Unit

On power-up the default unit will be automatically connected, its menus retrieved and will be ready for active control.

To define the default unit select Default Unit. Press the button adjacent to the default text arrowhead until the desired number is reached. (This number is the number assigned to a particular unit in the Auto Connect set-up) The name of this unit will appear in the second line of text.

Select Save to save this setting.

The Clear selection sets the default unit to 'None'

Note that if no units have been assigned numbers in the Auto Connect set-up a ? will appear in the second line of text. Also when the numbers are selected (in rotation) the word 'None' will appear after Default Unit when the number 15 is exceeded. This confirms that no units have been assigned a number.

Note that only one unit may be designated as the default unit.

## BackLight

Selecting this function allows the backlighting of the display windows to set, by rotating the spinwheel, to the following modes:

### OFF

Backlight always Off. Use this mode where ambient light level is high.

### ON

Backlight always On. Use this mode where ambient light level is low to improve text visibility.

### AUTO

Backlight will normally be On but will default to Off after 2 minutes. The backlight will return to Auto On whenever any front panel control is operated.

Press the button adjacent to the Save text to save the backlight mode.

## Network

This function allows the front panel to be 'hidden' from the network system. In the Hide mode this front panel will not appear in the Module List displayed on other control panels in the system.

### SHOW

This front panel will appear in the Module List of other control panels.

### HIDE

This front panel will not appear in the Module List of other control panels.

## Min/Max Unit Addr

The front panel can only hold a maximum of 200 addresses. The Min and Max Unit Addr (Address) function allows a range of addresses to be configured for partial use of the network.

The **Min Unit Addr** selection sets the minimum address.

The **Max Unit Addr** selection sets the maximum address.

The overall range of addresses is from 1 to 255.

## Access Level

The setup of the active front panel may be accessed at various levels. At the highest level (Supervisor) access is allowed to all functions. This level may only be accessed by entering a password. At lower levels (User and Engineer) access is only allowed to a limited number of functions.

As supplied the unit will be in a temporary Supervisor mode with no password protected access levels.

From the main menu select **Set Password**

To enter the Supervisor level and set up a password proceed as follows:

1. Power-down the unit
2. Hold down the **Modules** button and power-up the unit. Continue to hold down the button for a few seconds while powering-up.
3. From the main menu select **Access Level**
4. Using the spinwheel, select **Supervisor** and press **Save**
5. From the main menu select **Set Password**
6. The default password will be 0000 To change the password select the line for digits 1, 2, 3 and 4, and using the spinwheel to select the desired characters. Press **Save**

The password has now been set.

Selection levels are:

USER	Provides access to basic user controls.
ENGINEER	Provides access to more controls than at user level but less than at supervisor level.
SUPERVISOR	Provides access to all available control functions.

To set up this function rotate the spinwheel to the desired level and select Save.

Note that the number of control functions available at the various levels are set by the software/hardware of the module and are not user-adjustable.

## Version

This shows the Software version number. Press OK to return to the previous menu.

## SAVE

This button reveals a list of 8 memory locations and allows the address of the currently active module to be saved to one of these memory locations by pressing the button adjacent to the desired memory location number.

## RECALL

This button reveals a list of 8 memory locations and allows the saved information to be recalled from one of the memory locations by pressing the button adjacent to the desired memory location number.

When selected the module will be reconnected without the need to select and connect via the modules list.

## HELP

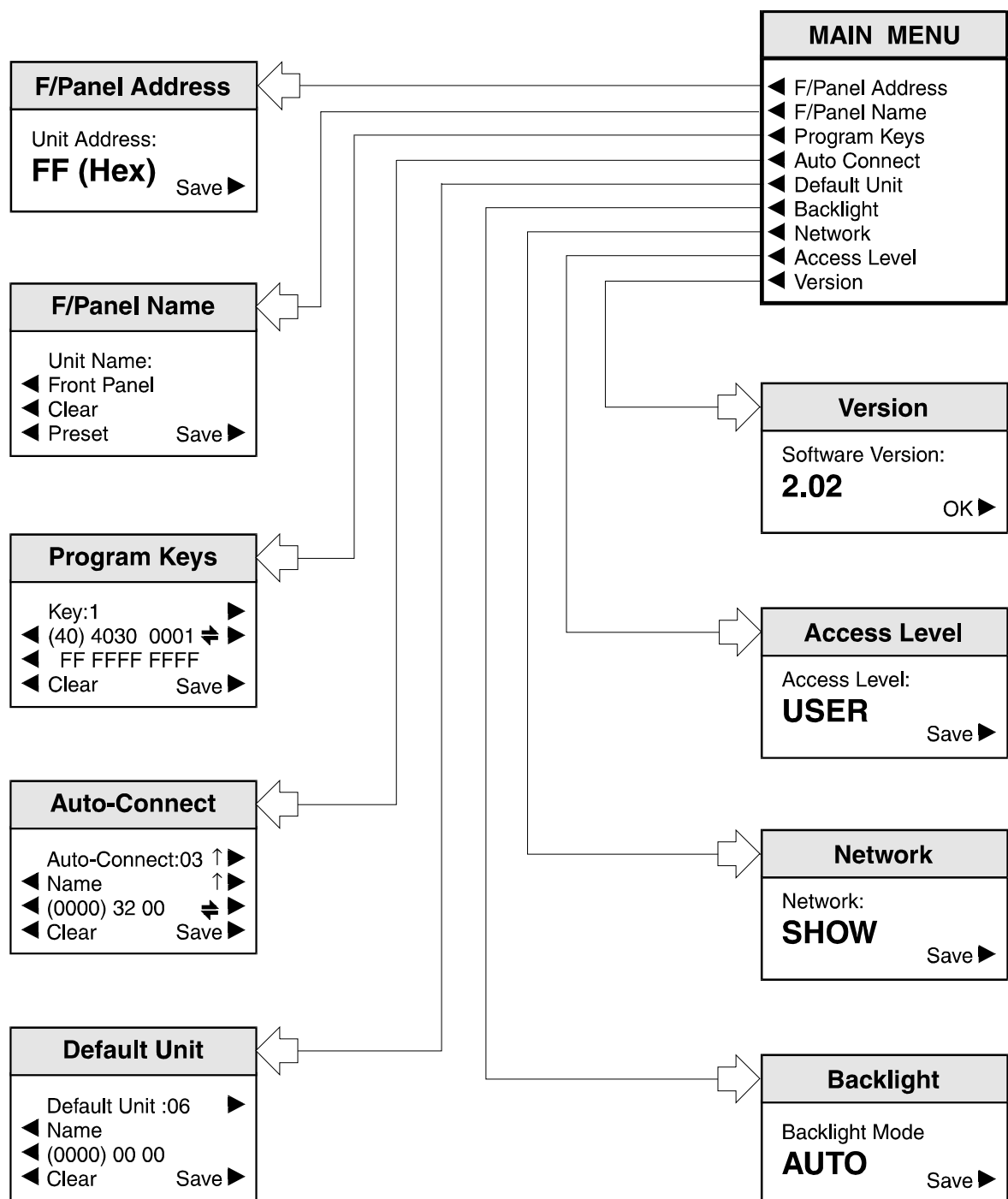
Pressing this button will display warnings in the windows when applicable.

If an error has occurred (ERROR indicator illuminated) a message will be displayed in the control window. Pushing the button adjacent to the error message will clear it from the list.

If there are no errors the window will display:

No Warnings





## Setup Menu System

**SETUP**

(For Software previous to Version 6.0.7; for later version V6.0.7 see page 24, for V6.1.8 see page 22)

Pressing this button displays a list of front panel options in the CONTROL window. Examples of these are shown in the 'Setup Menu System' drawing.

**SETUP Sub-Menus**

These are selected by pressing the button adjacent to the desired function.

*Note that all these sub-menus include a SAVE function which is used to save particular settings. If the changed settings do not need to be saved use the RETURN function to return to the previous menu; this action will abandon any changes and revert to the previously saved settings.*

**F/Panel Address**

The address of this control panel will be displayed as a 2-digit hexadecimal code.

Note that the code 0,0 effectively switches the unit off from the network. The codes 0,1 to 0,F inclusive are reserved for bridge addresses. Codes 1,0 to F,F inclusive are available to the user.

The address code is user defined in the range 1,0 to F,F and is set by rotating the spinwheel to the desired code and selecting the SAVE function.

**F/Panel Name**

The control panel may be given a name using this function (e.g. Edit Suite, Studio 2 etc.)

The maximum number of characters, including spaces, is 19 and may consist of letters and numbers (ASCII Characters)

To edit the name press either the left or right hand button adjacent to the arrows for the centre text line until the character to be changed is flashing.

Using the spinwheel, scroll through to the character required and then, using the left and right hand buttons, select the next character; the other characters may be changed in the same way.

When the name has been set to that required press the SAVE function to save the name.

*Note that to remove a character and leave a clear space in the text line the **Clear** function (above Preset) should be used.*

The **Preset** function returns the text to the original data.

**Program Keys**

This function is not available to the user.

**Auto Connect**

The Auto Connect menu allows a number of units to be automatically connected to the control panel at power-up.

Up to 16 units may be designated in this way by assigning a number to them. (00 to 15)

**Note that these numbers are also used to assign the default unit.**

The units in this list are (on power-up) in the standby mode and although not currently active are locked to this control panel and may not be controlled by any other panel.

The unit name (second text line of the control window display) may be displayed by scrolling through the list using the button adjacent to the arrow.

The network address of the unit is shown in the third text line as three sets of hexadecimal codes.

The first set is the network address, the second set is the physical unit address and the third set is the port address. Each set of these codes may be selected (the set will be shown enclosed in brackets) by pressing the button adjacent to this line.

The code may then be changed using the spinwheel.

The code may be reset to 0000 00 00 by pressing the clear button. This action also removes the unit name from the display and inserts a ? symbol indicating that no unit will be connected to this session.

The Auto Connect set-up may be saved by pressing either the dedicated front panel Save button or by pressing the button adjacent to the Save display text.

## Default Unit

On power-up the default unit will be automatically connected, its menus retrieved and will be ready for active control.

To define the default unit select Default Unit. Press the button adjacent to the default text arrowhead until the desired number is reached. (This number is the number assigned to a particular unit in the Auto Connect set-up) The name of this unit will appear in the second line of text.

Select Save to save this setting.

The Clear selection sets the default unit to 'None'

Note that if no units have been assigned numbers in the Auto Connect set-up a ? will appear in the second line of text. Also when the numbers are selected (in rotation) the word 'None' will appear after Default Unit when the number 15 is exceeded. This confirms that no units have been assigned a number.

Note that only one unit may be designated as the default unit.

## BackLight

Selecting this function allows the backlighting of the display windows to set, by rotating the spinwheel, to the following modes:

### OFF

Backlight always Off. Use this mode where ambient light level is high.

### ON

Backlight always On. Use this mode where ambient light level is low to improve text visibility.

### AUTO

Backlight will normally be On but will default to Off after 2 minutes.

The backlight will return to Auto On whenever any front panel control is operated.

Press the button adjacent to the Save text to save the backlight mode.

**Network**

This function allows the front panel to be 'hidden' from the network system. In the Hide mode this front panel will not appear in the Module List displayed on other control panels in the system.

SHOW	This front panel will appear in the Module List of other control panels.
HIDE	This front panel will not appear in the Module List of other control panels.

**Access Level**

The number of module functions and parameters that may be accessed and controlled by the front panel is set by the Access Level menu.

Some modules have a large number of variables which, under normal conditions, the user will not need to control whereas an engineer or supervisor will need to be able to control an increasing number of parameters.

Selection levels are:

USER	Provides access to basic user controls.
ENGINEER	Provides access to more controls than at user level but less than at supervisor level.
SUPERVISOR	Provides access to all available control functions.

To set up this function, rotate the spinwheel to the desired level and select Save.

*Note that the number of control functions available at the various levels are set by the software/hardware of the module and are not user-adjustable.*

**Version**

This shows the Software version number. Press OK to return to the previous menu.

**SAVE**

This button reveals a list of 8 memory locations and allows the address of the currently active module to be saved to one of these memory locations by pressing the button adjacent to the desired memory location number.

**RECALL**

This button reveals a list of 8 memory locations and allows the saved information to be recalled from one of the memory locations by pressing the button adjacent to the desired memory location number.

When selected the module will be reconnected without the need to select and connect via the modules list.

**HELP**

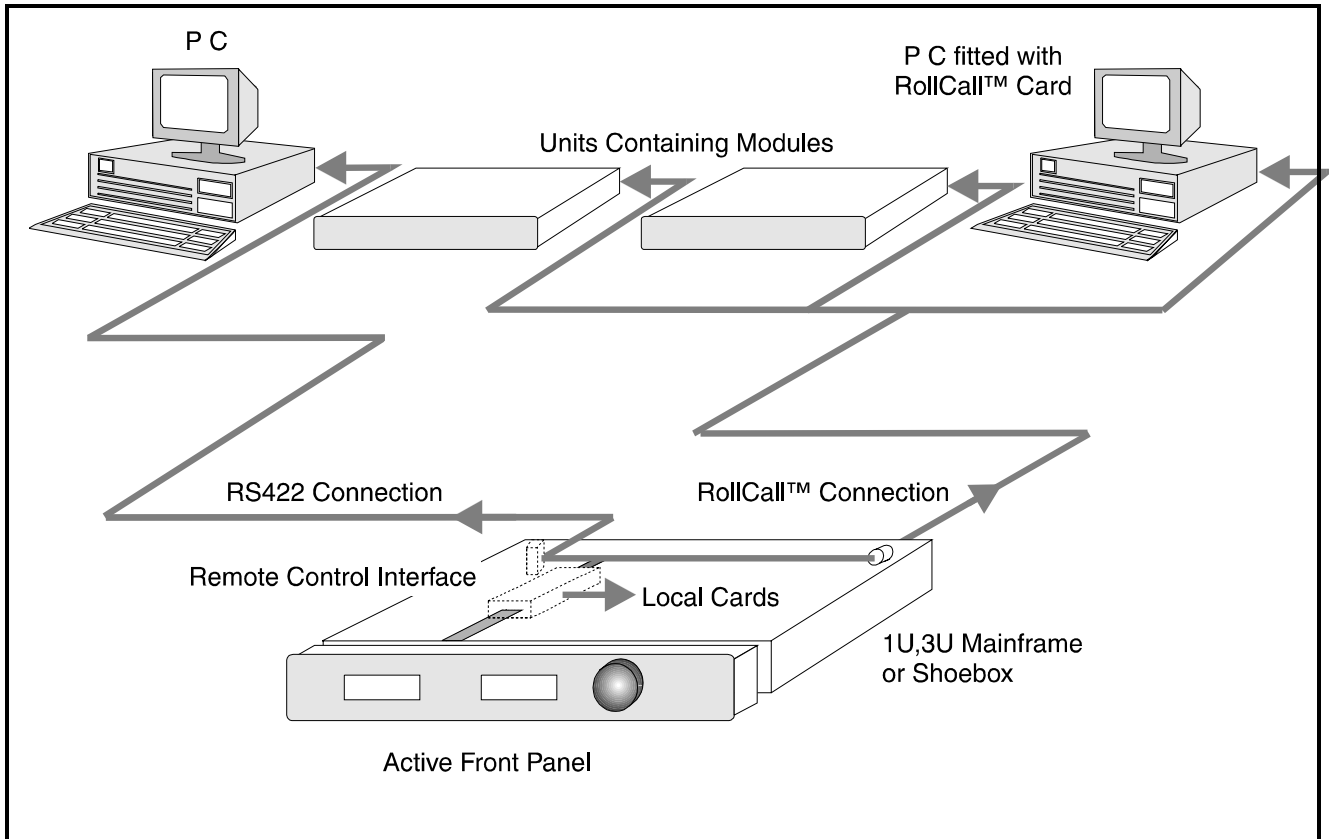
Pressing this button will display warnings in the windows when applicable.

If an error has occurred (ERROR indicator illuminated) a message will be displayed in the control window. Pushing the button adjacent to the error message will clear it from the list.

If there are no errors the window will display:

No Warnings

## CONTROL SYSTEM OVERVIEW



The RollCall™ control system allows RollCall™ compatible modular cards fitted into 1U or 3U main frames and dedicated units, to be controlled by means of an active front panel (local or remote), a PC. (fitted with a RollCall™ card) via the RollCall™ (a single coaxial cable) network or by a P.C. via an RS422 connection.

**A Remote Control Inter-Face (RCIF)** is used between the active front panel and the communication connectors and is housed in the mainframe or shoebox. (A shoebox is a small case containing a power supply and a RCIF that functions as a mainframe without modules)

The active front panel may communicate to either of the following:

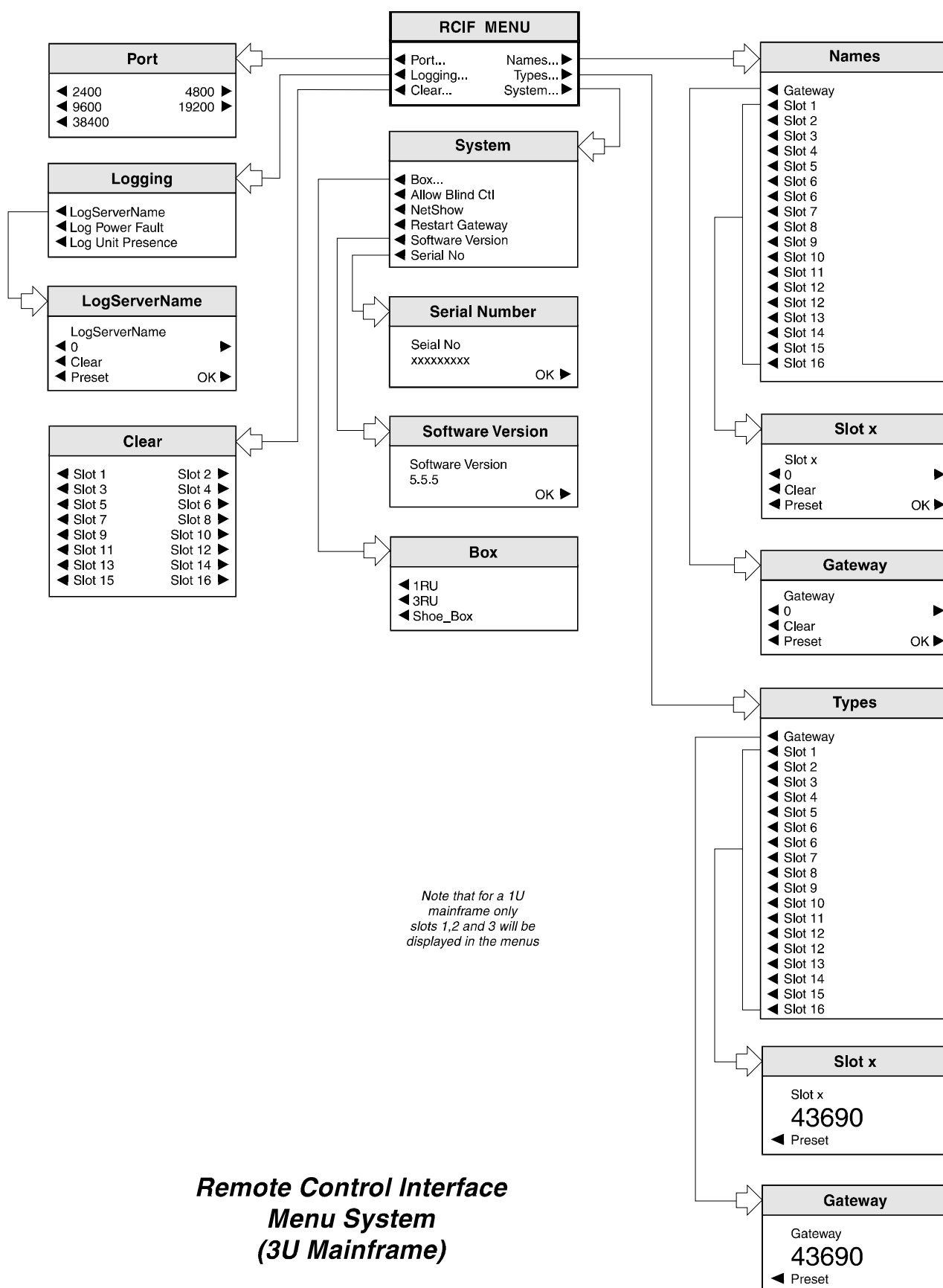
- Modular cards contained within the local mainframe
- The RollCall™ network (via BNC Connector)
- PC via 9-pin D connector for RS422 or RollCall™485

Operation uses a system of menus displayed in two LCD windows on the active front panel.

Menu items are selected by push buttons and further menu selections made by rotating a spinwheel and pressing a push button.

The spinwheel also allows continuously variable parameters, (where applicable) to be adjusted and the settings seen in the LCD window.

Modules may be accessed and controlled by activating the RCIF system, stepping into a list of modules and connecting to a particular module. The module may then be controlled by the active control device.



## THE RCIF MENU SYSTEM

(See drawing opposite 'Remote Control Interface Menu System')

### GENERAL INFORMATION

The RCIF Menu System allows access to setting of RCIF system parameters. All operational parameters and selections may then be made using a system of menus displayed in two LCD windows. Menus are selected by push buttons and further menu selections made by rotating a spinwheel and pressing a push button.

The spinwheel also allows continuously variable parameters, (where applicable) to be adjusted and the settings seen in the LCD window.

Various specific operations may also be achieved by operating dedicated push buttons.

### RCIF MENU DETAILS

To access this menu level press the Modules button on the front panel. This will reveal a scrollable list of modules. Press the left-hand button adjacent to the desired module. The RCIF main menu will be revealed.

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.

### Port

This selection reveals the **Serial Speed** sub-menu which allows the speed of the serial communications data signal to be set.

### Logging

If a logging device is attached to the RollCall network, certain information may be made available for logging.

The first item (LogServerName and associated text editing sub-menu) allows a log-server name to be produced.

Power fault and Unit presence may also be selected for logging.

### Names

***Note that the Names function must be used before attempting to use the Types item.***

This selection reveals a sub-menu containing a list of all slots available plus the RCIF.

Each of these items can be given a specific name. When the item is selected, the first character will be in reversed flashing text; this character can then be changed by rotating the spinwheel. When the desired character is found the button to the left or right of the text line should be pressed and the next text character will be highlighted and available for changing. The buttons to the left and right of the text line may be used to select other characters.

To save the new text, press the OK button. It should be noted that this is the only way to save the new text as any other button function will return to another menu without modifying the original text.

Note that to remove a character and leave a clear space in the text line the **Clear** function (above Preset) should be used.

The **Preset** function returns the text to the type name of the module installed in the relevant slot.

### Clear

This sub-menu allows a slot to be disconnected from a controlling unit.

Select the desired slot and press the adjacent button. If the slot text appears as reversed text the disconnect was successful.

## Types

Note that the Names item must be used before attempting to use this item.

This selection reveals a sub-menu containing a list of all slots available plus the RCIF.

The Names function allows a slot to be given a useful name e.g. DECODER A and so long as the correct card stays in that slot there will be no problems. However, if the card is replaced with an incorrect type e.g. an Encoder, the card will still appear to be DECODER A, which would be incorrect.

The Types function allows the unique RollCall identification number, in this example for the decoder, to be allocated to the slot. If an incorrect card type is installed in the slot the RollCall ID will not be correct and the actual card type e.g. the encoder card, will be displayed in the window.

This function also has the advantage that names and types may be setup before delivery that greatly eases on-site installation and de-bugging.

## System

### Box

This item reveals a sub-menu that allows the type of box (enclosure) to be selected. Either a 1RU, 3RU or Shoe Box types may be selected.

### Allow Blind Control

Blind Control is the ability to control a unit without a connection. Active Front Panels and RollCall PC programs use a RollCall connection to control a module. RollTrack (used for setting, for example, audio delay times to track video delays) does not use a connection, but just sets the delay. If a chassis fitted with modules which will be controlled by Blind Control (RollTrack and some third party remote control systems) then Allow Blind Control must be enabled. If Blind Control is not be used then Allow Blind Control may be disabled, giving protection against incorrectly set-up RollTrack source modules.

### NetShow

This function allows a unit to be 'hidden' from the network system. Pressing the adjacent button will toggle the text from normal to reversed.

When the text shows as normal the previously selected unit will not appear in the Module List displayed on other control panels in the system.

When the text is reversed the unit will appear in the Module List displayed on other control panels in the system.

*Note that if a unit is 'hidden' and control is required the unit's address should be changed using the Hex switches on the Remote Control Interface card When the unit address is changed and the unit powered-down and powered-up the NetShow state will be found to be in reversed text and the unit will now be shown in the Module List.*

*Also your connection to this unit will be lost within 60 seconds.*

### Restart Gateway

Selecting this function will re-boot the Gateway system with any changes incorporated. This provides an easier alternative to a power-down power-up operation.

### Software\_Version

This reveals the version number of the software used in the RCIF. Press OK to return to the previous menu.