BT redcare

Ultimate

Installation Guide

Contents

Introduction

Product Description

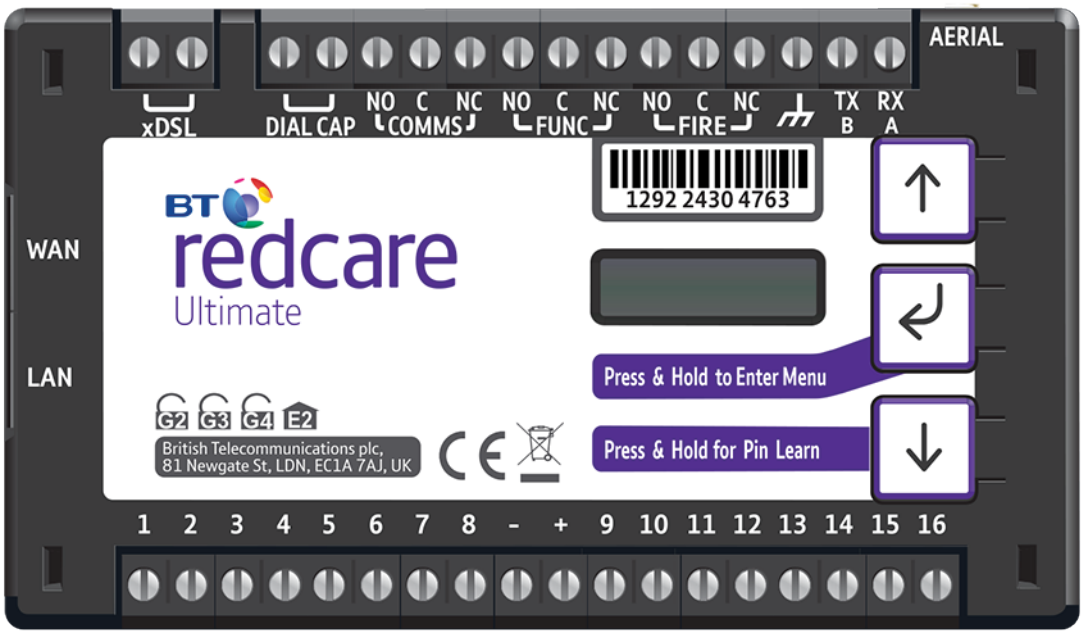


Figure 1 – Ultimate unit (not to scale)

Ultimate is a dual path alarm signalling unit with its own built in hub. It is set up to work with private broadband service for transmitting alarm signals from a customer's alarm panel, via the BT Redcare private network, to an Alarm Receiving Centre (ARC).

There are 3 service options available.

1. The private broadband can be ordered to work on an existing WLR (Wholesale Line Rental) phone line provided by Openreach. This line must not have another working broadband service on it.

2. If no phone line is available you can order the service with an access line.

3. As an additional service on an existing Fibre to the Premise.

All services need to be in an Openreach served area.

Ultimate uses a private IP primary path with dual SIM 4G/2G mobile technology as the back up path.

The unit is designed for use in both Security and Fire systems.

A valid TA account must exist for the unit to communicate.

The TA account will have been populated with the serial number of the unit.

The unit has 16 general purpose alarm inputs, and 3 outputs, making it suitable for connection to most common alarm panels.

The unit is supplied already fitted with two BT Redcare enabled SIM cards, one an EE UK fixed SIM and a UK Roaming SIM.

Specifications

Size: 114mm x 67mm x 20mm

Power: 9V – 30V

Current:

	Average Normal Operation	Average Max loading (inc relays and dial capture operated)
IP/4G unit @12V	292mA	395mA
IP/4G unit @24V	150mA	201mA

Alarm inputs: 16 General purpose inputs 1-16. (-0.5V – 30V)

Alarm threshold: High >2V, and Low <1.3V

Outputs: 3 x Relay NO C NC (Comms, Func, Fire)

RS232 port: remote panel access (UDL) and signalling to some intruder panel types

RS485 port: remote panel access (UDL) and signalling to some intruder panel types

Configuration: Using on board configuration buttons, web portal or App

Processor: STM32

Wireless module: ELS61

Mounting and Wiring

Removal of Cover

The top cover can be removed by gently releasing each of the 4 clips on the base of the unit by pushing the clips outward with a screwdriver blade.

Regular access to the inside of the unit should not be required, although occasional access may be required to access the SIM cards.

Mounting

The unit should be mounted inside the alarm panel, or inside a separate powered housing, using the sticky mounting pads supplied.

For security installations the enclosure must meet or exceed the protection requirements of the particular security grade for the whole installation as per EN 50131-1.

For fire alarm panels the enclosure must meet the requirements of EN 54-21 7.3 (eg. IP30 or above). Enclosure requirements for the signalling unit are the same as for the fire alarm panel itself and must meet EN 54-2. The enclosure must restrict access to installer level 3. The enclosure must provide the facility to indicate the state of the fault and acknowledge outputs on the signalling unit.

The supplied aerial should be mounted vertically outside of the housing by removing the adhesive backing.

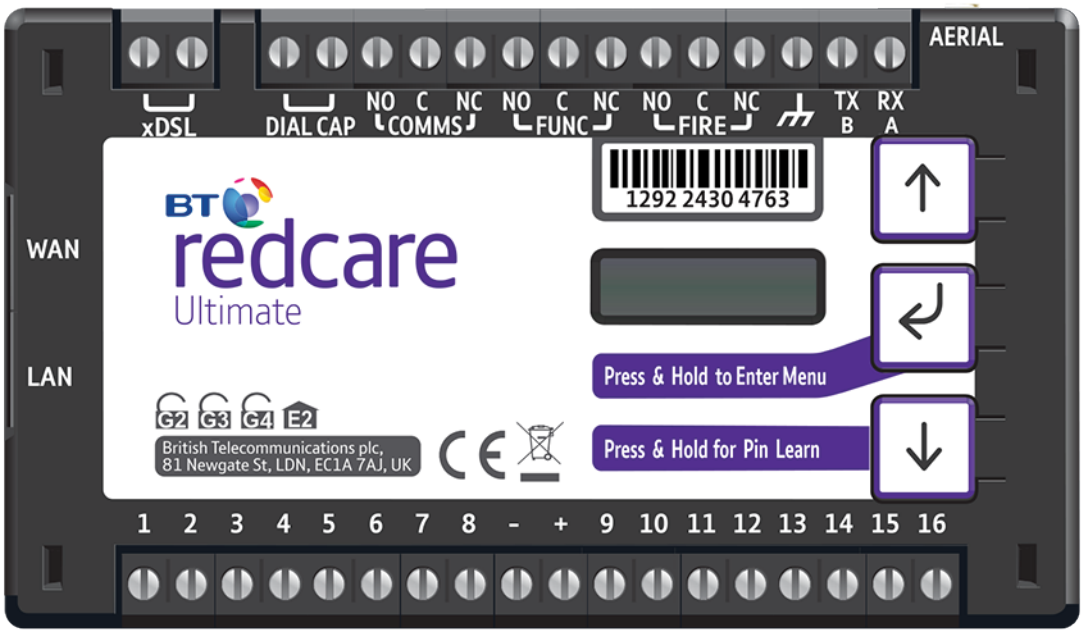


Figure 2 – Layout of terminals (not to scale)

Connection Terminals

All screw terminals are suitable for use with a standard 3mm blade terminal screwdriver.

xDSL connections

Connection to the DSL service is by the two screw connections top left of the unit labelled xDSL

See section on DSL connections

WAN connection

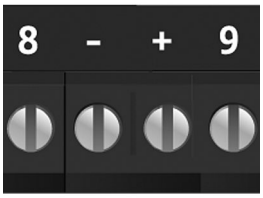
The WAN port is for connection to the Redcare broadband service delivered over a FTTP service

LAN connection

The LAN port is for future developments but can be used to connect a Laptop to the device to access the webserver

Power connections

Power to the unit is via 2 screw terminals at the centre, with positive to the right nearest Pin 9.

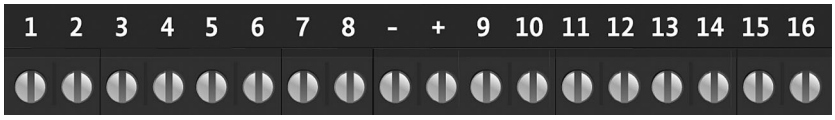


The supply voltage range is 9V to 30V. The unit is designed to be connected to the auxiliary power output on an associated alarm panel, or separate powered enclosure. For use with intruder alarm panels the power supply must meet the requirements of EN 50131-6.

For use with Fire alarm panels the power supply must meet the requirements of EN 54-4 and the unit must be mounted in the same enclosure as the power supply from which it derives its power. Ensure the power source is sufficient to power all devices connected. See the power requirements in the specification section for more information. The account at the Alarm Receiving Centre (ARC) should be put “on test” before power up, as signals will be sent following initialisation.

Alarm inputs

The unit has 16 alarm inputs which are presented on screw terminals along the bottom of the unit. These are labelled as Pin 1-8 and 9 -16.



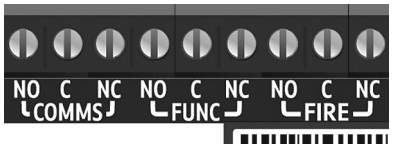
By default the 16 alarm inputs require a positive condition to be presented to send an alarm. (Default = Positive applied).

This can be changed using the Pin Learn button or through the configuration menu. See later section on configuration.

Input (PIN)	Use
1	Fire alarm (When programed Fire NAK and ACK outputs operate in conjunction with pin 1)
2	Fire Fault or Hold up alarm
3	Intruder alarm
4	Open / Close (Set / Unset) (Func out put can be set up as RPS in conjunction with pin 4)
5-10	General alarm
11	ATS input (BSIA F175 mode) (Can be reprogrammed as a normal alarm pin)
13	AC Fail alarm (has a 7 minute delay which can be altered in programming)
14-16	General alarm

Outputs

Three relay outputs are provided on screw terminals at the top of the unit.



Output 1 is Comms, Output 2 is Func, and Output 3 is Fire.

For fire alarm installations the indication of 'acknowledgement of fire alarm' and 'SPT fault' messages must be provided by the fire panel into which the SPT is mounted. System fault indications which are notified by the line fault output (Output 1) must be latched by the fire panel as required by EN 54-21.

See the further sections on outputs for a full explanation.

Serial data connections

The serial data connection labelled TX, RX, B and A is configurable for RS485 or RS232 connection depending on the panel.

This is done in the configuration menu.

These ports allow serial alarm panel connection. See Panel Upload Download section.

Dial capture

The dial capture (Dial Cap) terminals enable interfacing with an alarm panel's digital communicator. The alarm panel can then send SIA, CID or Fast Format messages through the unit to the Alarm Receiving Centre.

Dial capture can also be used for upload download UDL allowing remote access with some types of alarm panel.

Aerial connection

Connect the supplied aerial to the MMCX connector on the top right of the unit. The aerial should be placed in a vertical position that receives the best wireless coverage. Carry out a survey to establish the best location.

If necessary, a selection of high gain and extension aerials can be purchased from the BT Redcare shop at **https://www.btinstallershop.com**


Programming

Unit Initialisation

The unit will immediately attempt to connect to the BT Redcare platform over the configured paths. The unit will typically complete path establishment in the following times from power up.
The xDSL/FTTP Path takes longer as the dsl modem needs to train up with the broadband service

xDSL/FTTP	240s
4G/2G	120s

Figure 4 – time to commission paths after unit power up

Status display

The unit clearly displays its status on the OLED.

In its normal working state, the unit will cycle its display depending on the dsl configuration.

Path: DSL
Registered

IP Path and if registered with the platform
For ADSL and VDSL connections.

DSL
20MB / 400KB

If the DSL path is synced it will show downstream and upstream speeds. Whilst syncing this will show the unit handshaking or training up depending on the type of broadband service

Path: Mobile
Registered

Signal Strength
4G [▄▆] [-103]

Signal strength – network type (4G or 2G) received wireless signal strength in dBm and signal strength indicator bars. 2 Bars or more is the recommended signal level required.

Mobile Operator
EE

Shows which network the Mobile path is connected to

Service Grade
Redcare DP4

Service Grade – shows the EN Performance category.

DP4 for Ultimate

The performance category can only be determined by the unit while in contact with the platform. The unit will not show the performance category until at least one path is registered and the profile can be retrieved from the platform.

If the unit is configured and connected to an FTTP service then the display will show

Path: Ethernet Registered

Alarms GPI Alarm 3

Pin status – any outstanding alarm pins will be shown.

If no pins are in the alarm state, then pin status will not be shown.

Alarms Battery Low Battery

The unit may also show (low battery) if the supply voltage is below the supply threshold.

Signal strength:

That is:

- On 2G below -90dBm = X will be displayed
- On 2G between -90 & -85, 1 bars will be displayed
- On 2G between -85 & -80, 2 bars will be displayed
- On 2G between -80 & -75, 3 bars will be displayed
- On 2G above -75dBm, 4 bars will be displayed

That is:

- On 4G below -120dBm = X will be displayed
- On 4G between -120 & -110, 1 bars will be displayed
- On 4G between -110 & -100, 2 bars will be displayed
- On 4G between -100 & -90, 3 bars will be displayed
- On 4G above -90dBm, 4 bars will be displayed

X or 1 bar – try to improve the signal by moving the unit, aerial or using an extn or high gain aerial – available from **btinstallershop.com**

Guide to signal strength

Figure 5 – Signal strength chart

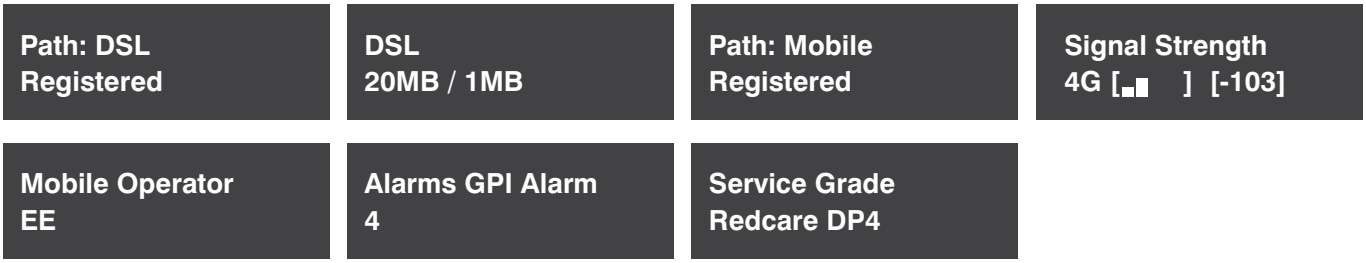


Figure 6 – typical display cycling on a fully commissioned unit with a good signal strength and pin 4 in the alarm or open state.

Path Status

The state of the communication paths is indicated by the OLED display, both the xDSL/FTTP and mobile path have the following possible path status:

- Up No Reg – path is up but not registered with the platform
- Registered – has contacted the platform and successfully registered
- Alarm/Ack – Alarm is being transmitted and awaiting Ack
- Down – the path has lost connectivity to the platform and is trying to reconnect

Note: When fully commissioned over both paths, then both paths should be registered.

PIN inputs

Of the 16 alarm pin inputs, all behave as general purposes inputs with the following exceptions.

Pin 1 must be used for Fire alarm when ACK NAK outputs are used for Fire panels. The signalling unit, when configured, provides an acknowledge and not acknowledged indication via use of outputs 2 (Func) and 3 (Fire).

Pin 4 can have an RPS output associated with it. (See output 2 RPS (N/A for Fire config))

Pin 11 acts as an ATS input as per the requirements of the BSIA form 175 document. This applies only when output 1 is set to BSIA mode. N/A when configured for Fire.

Pin 13 acts as an AC fail input and therefore has a default 7 minute delay before a pin 13 alarm is transmitted. It also has a 7 minute delay before a reset is sent. On presenting an alarm condition to pin 13, the units display will show the alarm immediately but 7 minutes of constant alarm condition needs to elapse before transmission. Similarly, restoring pin 13 will immediately remove pin 13 from the display, but 7 minutes of constant restore condition needs to elapse before transmission of pin 13 restore.

The 7 minute time delay can be configured through the web portal or app by typing a new value upto 255 (mins) in the “Mains Fail delay” field. If the “Mains Fail delay” is set to 0, then pin 13 can be used as a general purpose alarm input. (Subject to ARC acceptance).

Pins 1 – 16 can be set up for End of Line and Dual End of Line interconnection monitoring see descriptions on end of line monitoring.

Default Outputs

Output 1 (Comms)

Output 1 acts as the Communications fail output. The mode of operation can be selected through the configuration menu. (see configuration section)

1. BSIA form 175 output.

This allows the alarm panel to interrogate path faults as single path or dual path. By default the relay output will switch, following either path fail, once the relevant timer has expired.

If ATS input (pin 11) is toggled during the fail period, i.e. (panel interrogation) then Output 1 will either switch back to indicate a single path failure, or remain operated to indicate a dual path failure.

The unit also supports inverted mode BSIA175 operation by learning pin 11 to be positive removed.

2. Single path fault
Will operate when either path is in fault

3. Dual path fault
The relay will operate when both both the IP and Mobile path are in fault

4. IP Path fault
To be used in conjunction with Output 2 for the mobile path

The following states will apply to the relay

Condition	Relay Terminal	Fire ACK
Power Off	Output 1	C <-> NC
Power On (no comms fault)	Output 1	C <-> NO
Comms fault	Output 1	C <-> NC

Output 2 (Func)

Output 2 has a number of configuration options

1. User operated output:
Can be operated remotely with the customer app.

2. Dual path fault:
Will operate when both paths are in fault.

3. Mobile path fault output:
In this case Output 1 is set as the IP path fault output, and Output 2 as the Mobile path fault output.

4. RPS output for Pin 4:
The output will operate when input pin 4 is triggered. It will return to normal when an acknowledge signal is returned from the ARC. The output has a minimum operation time of 1s.
When the acknowledgement is received in less than 1 second after pin 4 is triggered then the output will remain operational for 1s.

5. Fire NAK output:
When configured in this way Output 2 will activate after a pin 1 alarm is sent and no acknowledgement from the platform is received for 80s

6. Keyswitch:
To be able to set /unset the alarm panel with the customer app.

By default Output 2 is set to Dual path fault.

Output 3

1. **User operated**
The default setting for output 3. This can be operated through the web portal or the app.
2. **Fire ACK output:**
When configured in this way, output 3 will activate when an acknowledgment to a pin 1 alarm is received.
It will de-activate when pin 1 resets.
3. **Keyswitch**
To be able to set/unset the alarm panel with the customer app

Keyswitch Mode

1. **Momentary** – momentary pulse to allow set and unset of alarm panel with customer app
2. **Latched** – Latched output option to allow set and unset of panel with customer app

Used in conjunction when setting output 2 as Keyswitch

Defaults Output 1, 2 and 3:
Output 1 is set to BSIA 175 and will operate if either path is in fault.
Output 2 is set to Dual path fault.
This allows a choice for simple installations for PD6669 without reprograming.
Output 3 is set to User operated

Fire output settings:
To ensure that Ultimate can inform the fire alarm panel of status as per the requirements of EN 54, the outputs need to be configured as follows.

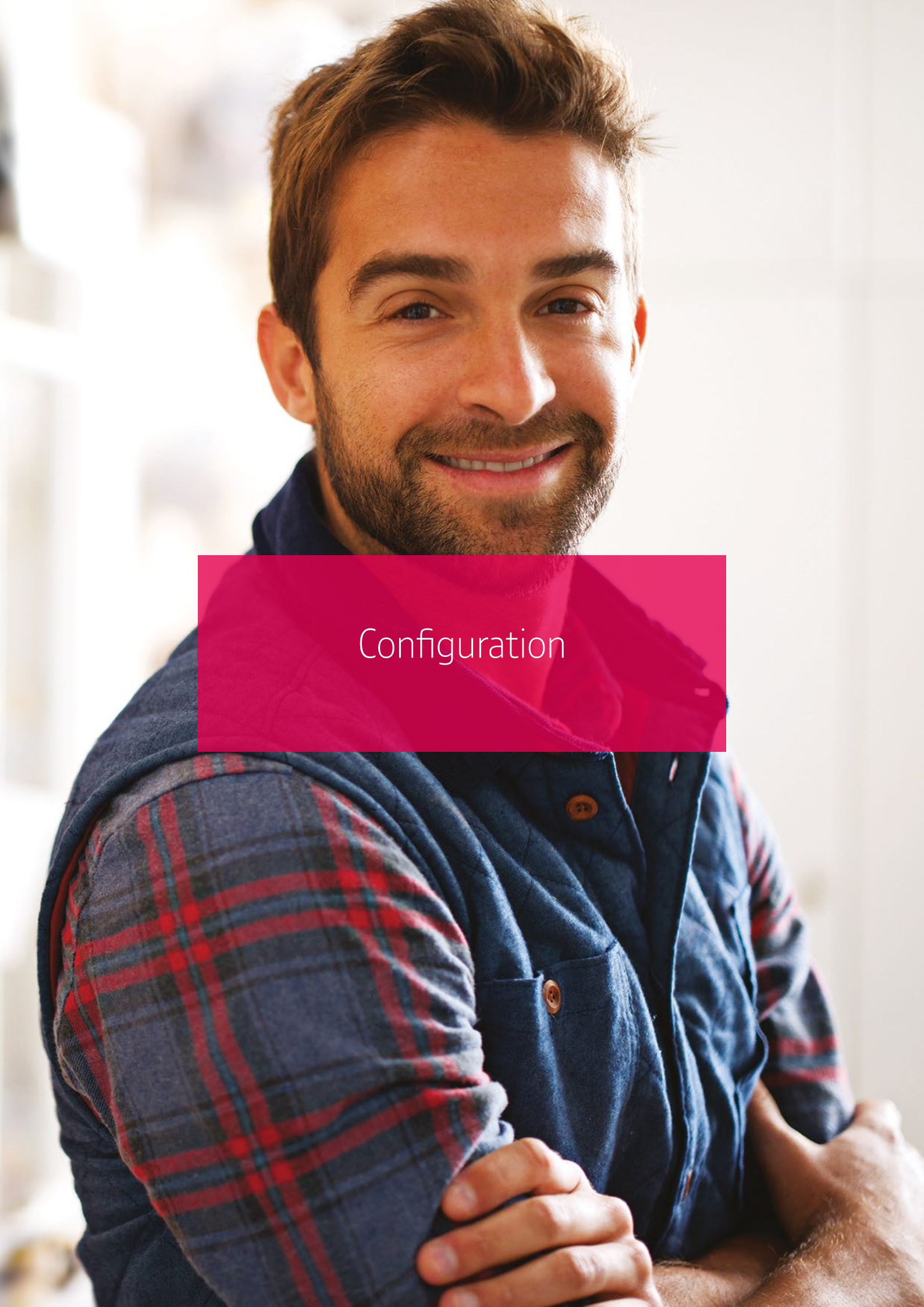
Output 1:
Comms –Single Path fail. Will operate when either signalling path fails.

Output 2:
FUNC - Fire Nak. Will operate after a pin 1 alarm is sent and no acknowledgement from the Alarm Receiving Centre (ARC) is received for 80s.

Output 3:
FIRE - Fire Ack - will operate when an acknowledgment to a pin 1 alarm is received from the ARC. It will return to normal when pin 1 is reset.
Output 1 will be operated in the normal state. This ensures that, in the unlikely event of a total failure of the unit, the fire panel will still detect a state change on its fault input.

The NAK and ACK relay operate in the following mode:

Condition		
	Relay Terminal	Fire ACK
Power Off	Output 3	C <-> NC
Not in ACK(idle)	Output 3	C <-> NO
ACK	Output 3	C <-> NC
	Relay Terminal	Fire NACK
Power Off	Output 2	C <-> NC
Not in NAK (idle	Output 2	C <-> NO
NAK (no ack for 80 seconds)	Output 2	C <-> NC



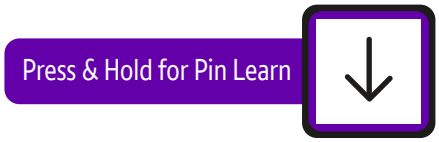
Configuration

Pin Learn

For speed of installation a single button press pin learn is available.

All pins to be used should be wired in and all the pins should be in the non alarm state. No tampers should be active (if wired in) and Pin 4 (open /close) should represent the system being set/closed.

When ready press and hold the down arrow for 3s, Notice Done! is displayed when finished.



This has completed the pin learn. There is also an option to learn the pins within the configuration menu.

Configuration Menu Programming

The unit is supplied pre-configured with factory default values. For most installations no changes to the configuration are required.

The unit can either be configured by using the on-board configuration menu driven by the buttons, or through the installer app or web portal. Some configurations are only available through the app or web portal.

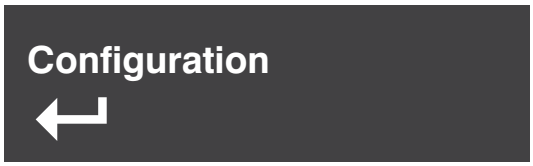
A minority of sites may require minimal configuration changes at installation, and most of these will be achievable through the button configuration. i.e.

- Change the individual Pin status
- Enable dual end of line for interconnection monitoring
- Change the comms fail output type etc.

Button configuration

The button configuration mode is entered by holding down the centre configuration button (Enter) for 3s.

The unit will then display Configuration.



Press the Enter button again and the display will show the first menu option.

When in the main menu, each press of ↓ will step to the next menu item down.

Use ↑ to step back up and eventually return to the top of the menu. The full main menu options are shown in Fig. 7.

Pressing the Enter button on any menu item will enter the sub-menu and take you into edit mode. This will allow the function to be changed. Depending on the menu item will depend on the structure of the sub-menu.

You know you are in edit mode and that changes can be made by a * next to the menu title.

**Output Type 1 *
Single Path Fault**

Typically, many menu items simply have two options, use the down and up arrow to switch between the two. Press and hold the Enter button to save changes. Display will show notice saved.

**Notice-
Saved!**

Some menu items have more options. e.g. Output 2 has 5 options. On such menus, press the Enter button to enter the sub menu, then use the down and up arrows to increment through the options with each press. Holding the Enter button for 5s will save changes. Display will show notice saved.

Some more complex menu items use the Enter button to also step through additional items in the sub menu. i.e. Network IP addresses to be input.

Edit mode can be exited at any time, without saving changes, by pressing ↓ for 5s. This will return you to the sub menu that you were making changes in.

The configuration menu can be exited at any time without saving any changes by pressing ↑ for 5 seconds. This will take you back to the scrolling status display.

Main menu display

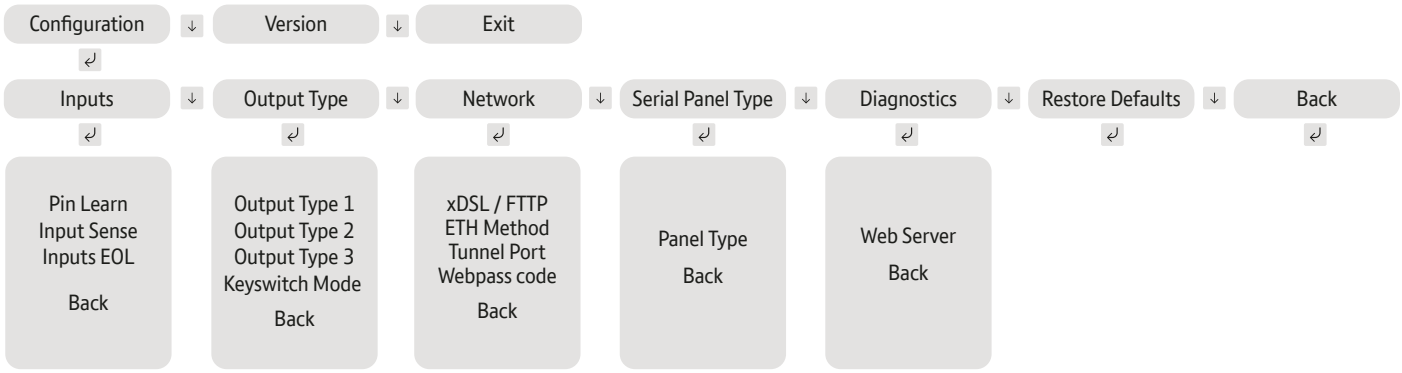


Figure 7 – button configuration main menu options

Additional network menus will become available depending on xDSL/FTTP and ETH Method. see Ethernet method page 26

Inputs

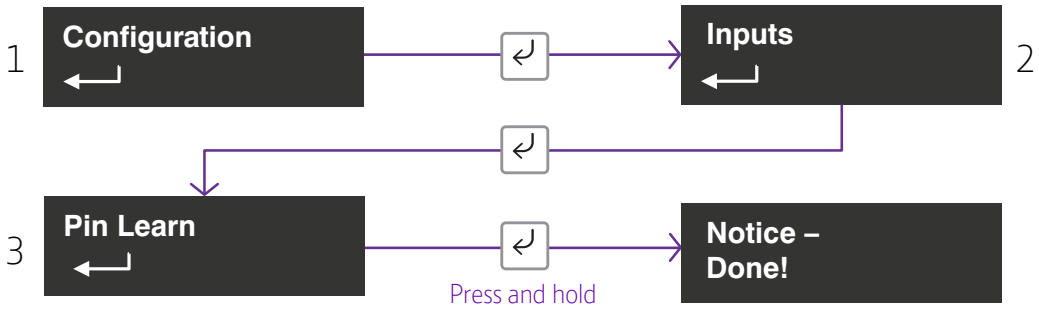
Pin Learn

The polarity of pins can be learnt by pressing and holding the down arrow for 5s.

The display will show notice done.

Pin learn can also be carried out through the configuration menu.

Example – to learn the pin polarity in the configuration menu:-



- Access the button configuration menu by holding the Enter button. Configuration is displayed
- Press Enter button again
- The display now shows Pin learn
- Press and hold the Enter button – the display shows notice done

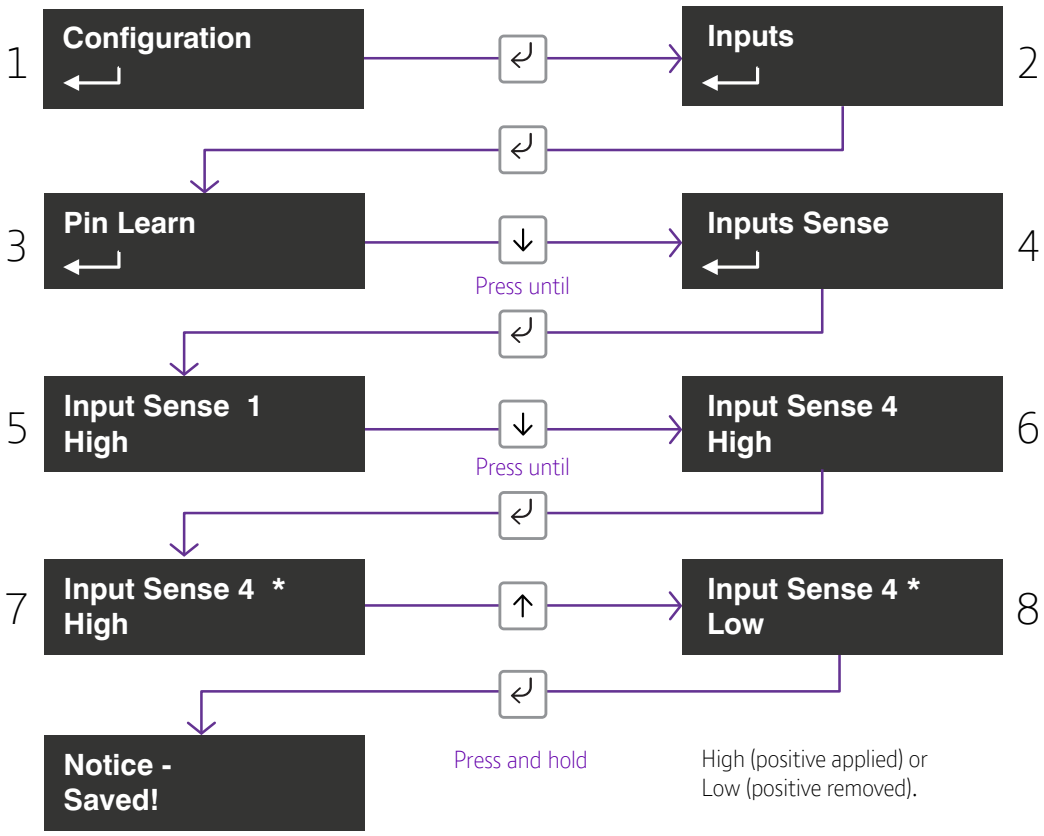
Edit mode for that part of the menu can be exited at any time, without saving changes, by pressing ↓ for 5s. This will return you to the sub menu that you were making changes in.

The configuration menu can be exited at any time without saving any changes by pressing ↑ for 5 seconds. This will take you back to the scrolling status display.

Input Sense

The polarity of the pins can manually be configured by the installer. This is additional to the pin learn function described earlier.

Example – to configure pin 4 to be positive removed:-



Access the configuration menu by holding Enter button for 3 seconds, press the Enter button again, the display will show pin learn. Press the down arrow. The display will show Input Sense. Press the Enter button again to enter Input Sense. Pin 1 and status will be shown.

Use the down arrow to step through the pins. Once the desired Pin is reached press the Enter button . * will be displayed. Use down or up arrow to change to High or Low.

High (positive applied) or Low (positive removed).

Once selected hold the Enter button down till notice saved is displayed.

Then it will return to the postion in the menu for you to select another pin or use the down arrow to step through all pins to get to the Back.

Edit mode for that part of the menu can be exited at any time, without saving changes, by pressing ↓ for 5s. This will return you to the sub menu that you were making changes in.

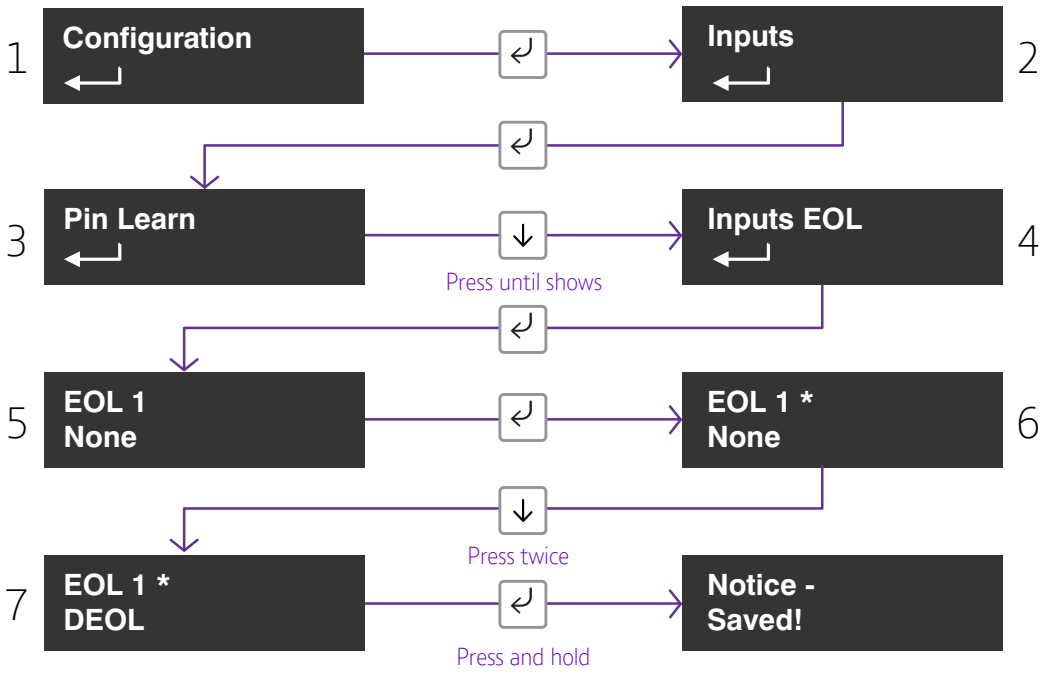
The configuration menu can be exited at any time without saving any changes by pressing ↑ for 5 seconds. This will take you back to the scrolling status display.

Inputs EOL

The alarm inputs (PINS) can be set to the following modes:

- None - (Alarm & Restore)
- EOL (Single end of line mode) - (Alarm, Restore & Cut)
- DEOL (Dual End of line mode) - (Alarm, Restore, Cut & Short)

Example – configure Pin 1 for DEOL



This allows the unit to monitor the wiring to the alarm panel contacts.

Access the configuration menu by holding Enter button for 3 seconds, press the Enter button again, the display will show inputs, press the enter button again, the display will pin learn. Press the down arrow twice. The display will show Inputs EOL. Press the Enter button again to enter Input EOL. EOL 1 = None will be shown.

Use the down arrow to step through the pins. Once the desired Pin is reached press the Enter button . * will be displayed. Use down or up arrow to change to None, EOL or DEOL.

Once selected hold the Enter button down till notice saved is displayed.

Then it will return to the same position in the menu for you to select another pin or use the down arrow to step through all pins to get to the Back option.

Edit mode for that part of the menu can be exited at any time, without saving changes, by pressing ↓ for 5s. This will return you to the sub menu that you were making changes in.

The configuration menu can be exited at any time without saving any changes by pressing ↑ for 5 seconds. This will take you back to the scrolling status display.

Outputs

The three relay outputs can be configured as follows:

1. Output type 1 (Comms):

- BSIA 175 Mode -operates when either path is in fault but in conjunction with Pin 11 ATS allows the panel to interrogate the device to determine a single or dual path fault (default).
- Single path fault – operates when either path is in fault
- Dual path fault – operates when both paths are in fault
- IP path fault – operates when the IP Path is in fault

2. Output type 2 (Func)

- Dual path fault – operates when both paths are in fault (default)
- User – allow the relay to be operated remotely via the app or portal (default)
- Mobile path fault – operates when the mobile path is in fault
- RPS – return path signal operates in conjunction with pin 4
- Fire Nak – Fire pin not acknowledged. Operates in conjunction with Pin 1
- Keyswitch – allows panel to be set/unset via the customer app

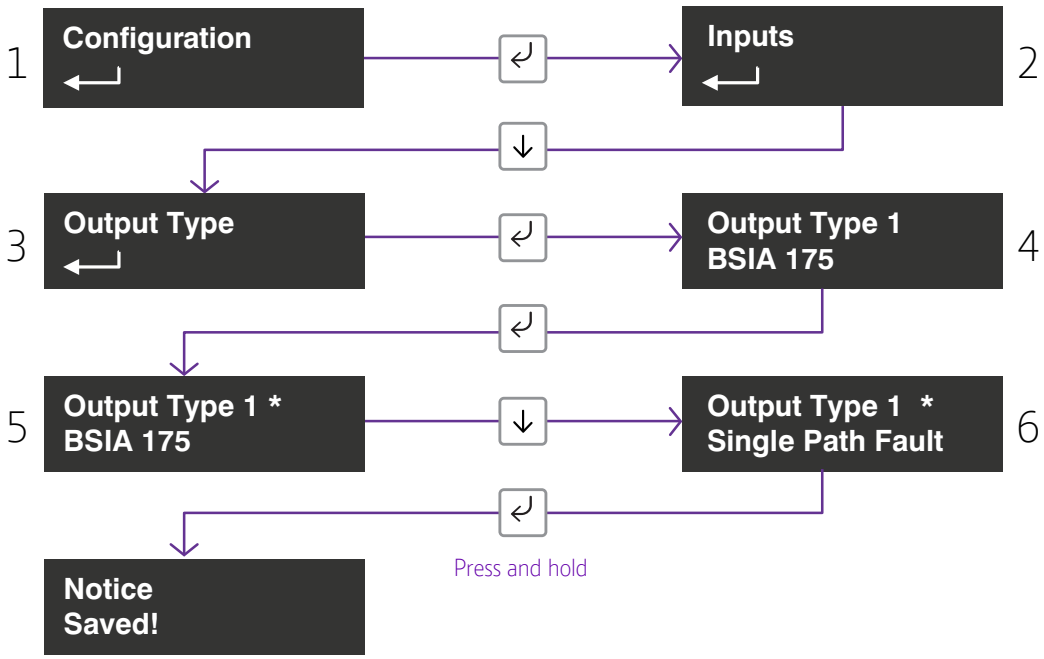
3. Output type 3 (Fire):

- User - allow the relay to be operated remotely via the app or portal
- Fire Ack - Fire pin acknowledged. Operates in conjunction with Pin 1 (default)
- Keyswitch – allows panel to be set/unset via the customer app (Coming soon)

4. Keyswitch Mode:

- Momentary - allow the Func relay, when set to Keyswitch, to be operated remotely via the app or portal by one pulse of the relay (default)
- Latched - allow the Func relay, when set to Keyswitch, to be operated remotely via the app or portal by latching the relay

Example – configure Output 1 (Comms) for a single path fault



Access the configuration menu by holding Enter button for 3 seconds, press the Enter button again, the display will show inputs. Press the down arrow until Output Types is displayed. Press the Enter button again. The display will show the default setting for Output type 1. Use the down arrow to step through the Output types. Once the desired output is reached press the Enter button . * will be displayed. Use down or up arrow to change to the required configuration for that output.

Once selected hold the Enter button down till notice saved is displayed.

Then it will return to the same position in the menu for you to select another output or use the down arrow to step through all outputs to get to the Back option.

Edit mode for that part of the menu can be exited at any time, without saving changes, by pressing ↓ for 5s. This will return you to the sub menu that you were making changes in.

The configuration menu can be exited at any time without saving any changes by pressing ↑ for 5 seconds. This will take you back to the scrolling status display.

Network

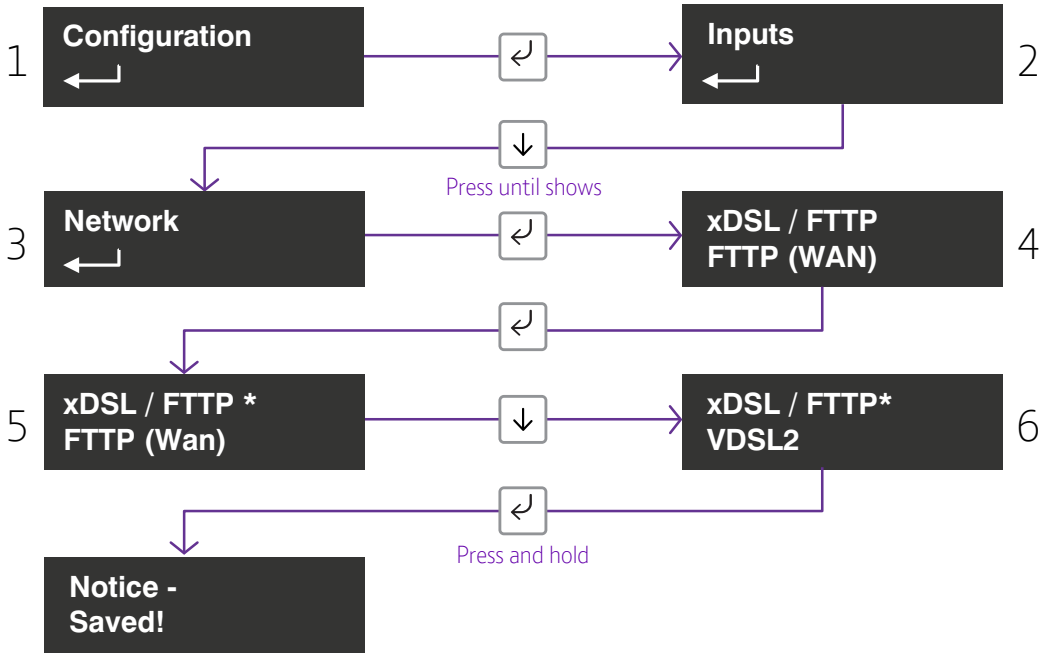
The programing options under the network sub menu are:

1. xDSL/FTTP

- FTTP (WAN) use when connecting to a FTTP service
- ADSL2 used when connecting to an ADSL2+ service
- VDSL2 used when connecting to an FTTC service

Redcare will advise if it is either an ADSL2+ or VDSL service that has been supplied

If ADSL2+ or VDSL2 is selected the next menu option under network will be Tunnel Port



Access the configuration menu by holding the Enter button for 3 seconds, press the Enter button again, the display will show inputs. Press the down arrow until Network is displayed. Press the Enter button again. xDSL/FTTP is displayed. Press the Enter button . * will be displayed. Use down arrow to change to VDSL2.

Once selected hold the Enter button down till notice saved is displayed.

Edit mode for that part of the menu can be exited at any time, without saving changes, by pressing ↓ for 5s. This will return you to the sub menu that you were making changes in.

The configuration menu can be exited at any time without saving any changes by pressing ↑ for 5 seconds. This will take you back to the scrolling status display.

1. Ethernet Mode:

PPPoE

Default it is set as PPPoE for connecting to the Redcare broadband service and should not be changed unless the device is being used temporarily on a customer network or broadband.

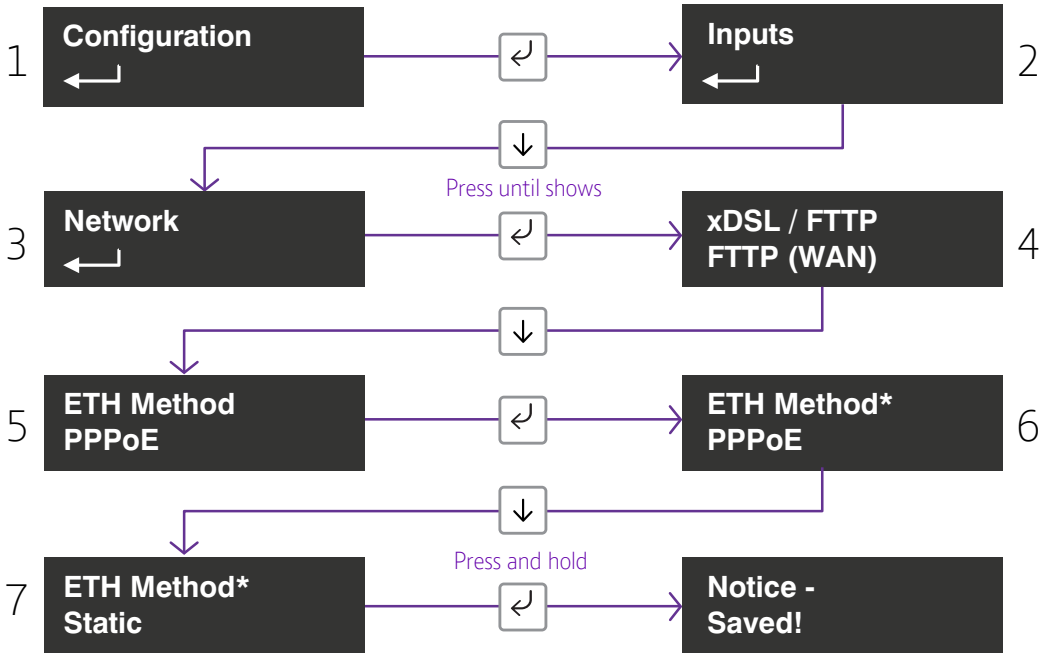
If being used on a customer Network or Broadband service the unit can be set to DHCP or Static

Allows the unit to be changed between dynamic (DHCP client) or Static mode.

The Ethernet port will attempt to obtain an IP address from a DHCP server on the LAN.

- **ETH IP address** – shows current IP Address but can also be configured for a static IP address
- **ETH Subnet mask address** - shows current subnet address but can also be configured for a customers subnet address
- **ETH Gateway address** - shows current gateway address but can also be configured for a customers gateway address
- **ETH DNS Address 1** – 1.1.1.1 or can be configured to use specific DNS servers
- **ETH DNS Address 2** – 8.8.8.8 or can be configured to use specific DNS servers
- **Tunnel Port** – Port 443 is default but there is an option to use 10443
- **Web passcode** – used in conjunction with Installer and Customer apps

Example – To change to Static mode:



Access the configuration menu by holding the Enter button for 3 seconds, press the Enter button again, the display will show inputs. Press the down arrow until Network is displayed. Press the Enter button again.xDSL/FTTP is displayed, press the down arrow ETH Method is displayed. Press the Enter button . * will be displayed. Use down arrow to change to static which switches to Static IP addressing.

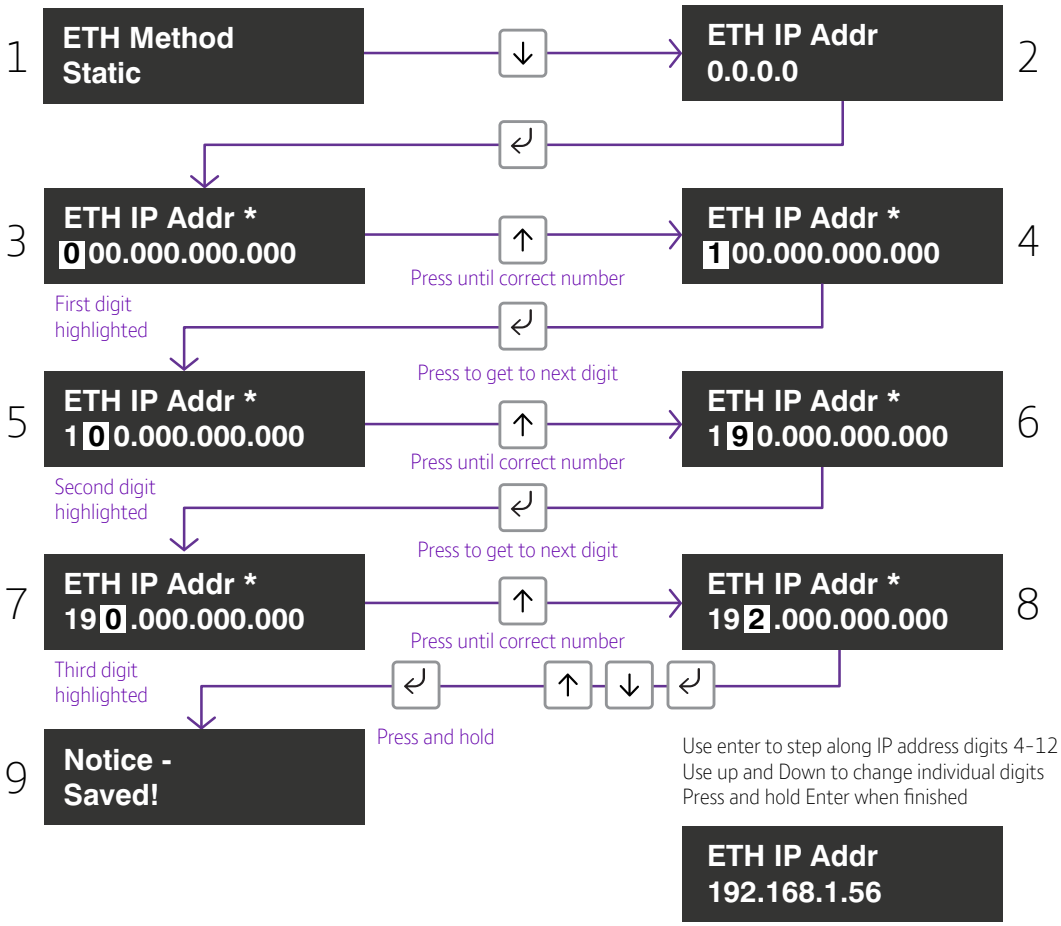
Once selected hold the Enter button down till notice saved is displayed.

Edit mode for that part of the menu can be exited at any time, without saving changes, by pressing ↓ for 5s. This will return you to the sub menu that you were making changes in.

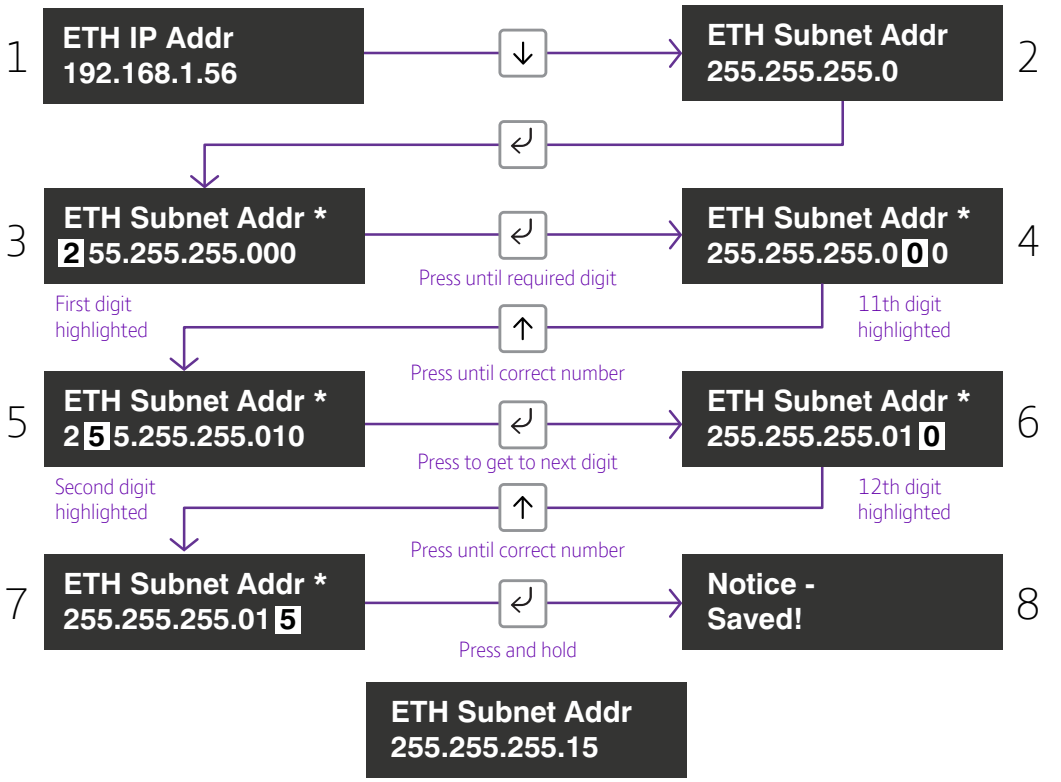
The configuration menu can be exited at any time without saving any changes by pressing ↑ for 5 seconds. This will take you back to the scrolling status display.

Setting a static IP Address, Netmask and Gateway Address

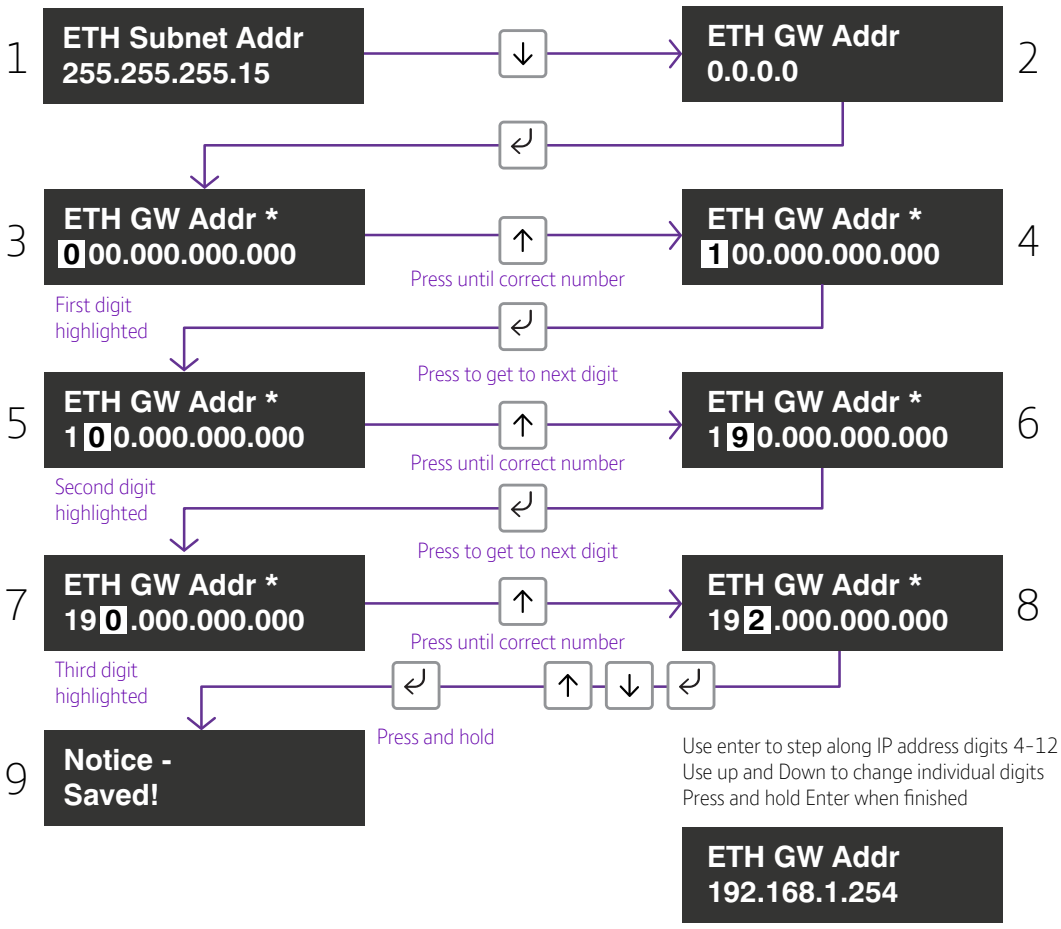
If the unit is to be connected to a LAN that requires the unit to have a static IP address (i.e. no DHCP server on the LAN) then this can be configured as follows after setting DHCP to Disabled.



Then use to step to subnet address and use the same process as above to set the subnet address



Then use ↓ to step to gateway address and use the same process as above to set subnet address



Note that IP addresses are made up of 12 digits in 4 batches of 3, separated by dots. When the addresses are entered through the buttons they must be put in as 12 digit numbers, with zeros used to the left of each batch where necessary to pad out the addresses. i.e.

- IP Address = 192.168.001.056
- Subnet mask = 255.255.255.015
- Gateway = 192.168.001.254

The full address will be shown on the display for each of the above.

Edit mode for that part of the menu can be exited at any time, without saving changes, by pressing ↓ for 5s. This will return you to the sub menu that you were making changes in.

The configuration menu can be exited at any time without saving any changes by pressing ↑ for 5 seconds. This will take you back to the scrolling status display.

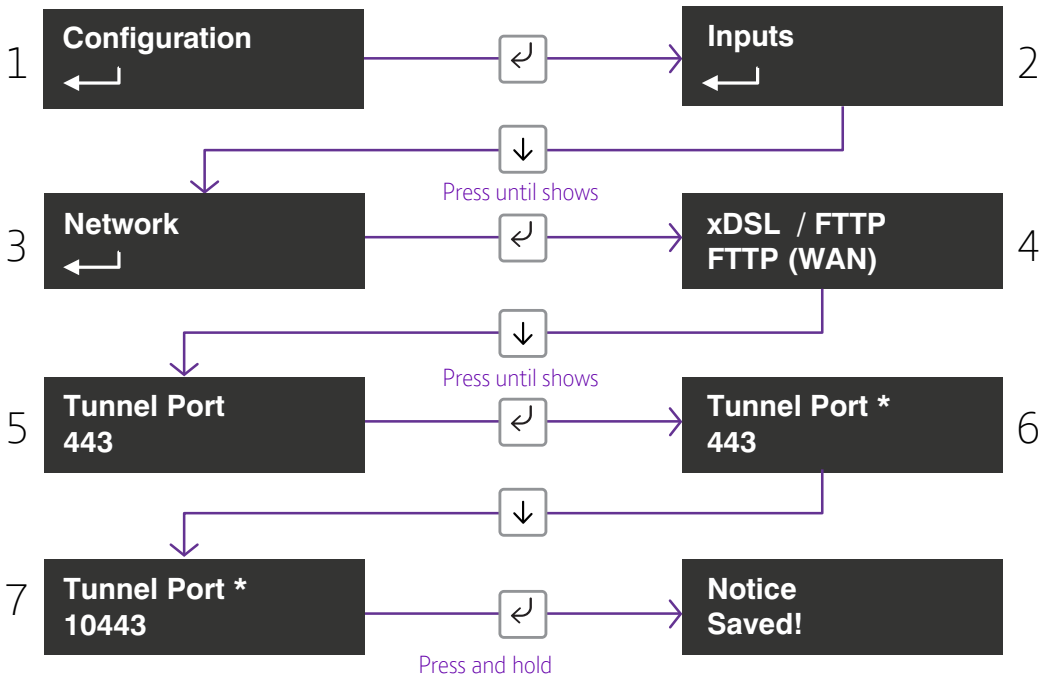
Tunnel Port

The alternative tunnel port can be selected by accessing the Tunnel Port menu under network

- 443 (default)

- 10443

Example – changing the unit to use Port 10443



When used in Ethernet Static or DHCP mode, the unit will attempt to establish a connection to the BT Redcare servers by signalling on IP Port 443.

For most LANs this will function correctly, but on some advanced LAN configurations the network manager may not allow outgoing access on port 443 but 10443 may have outgoing access. Where this is the case then the unit can be configured to use the alternative port 10443. The BT Redcare servers are set to accept both ports and so no changes are required other than on the unit's configuration.

Access the configuration menu by holding the Enter button for 3 seconds, press the Enter button again, the display will show pin learn. Press the down arrow until Network is displayed. Press the Enter button again. The display will show xDSL/FTTP. Use the down arrow to step through to, Tunnel Port 443 is displayed. press the Enter button . * will be displayed. Use down arrow to change to 10443.

Once selected hold the Enter button down till notice saved is displayed.

DNS Addr 1
1.1.1.1
Required to convert host names that are used to contact the server.

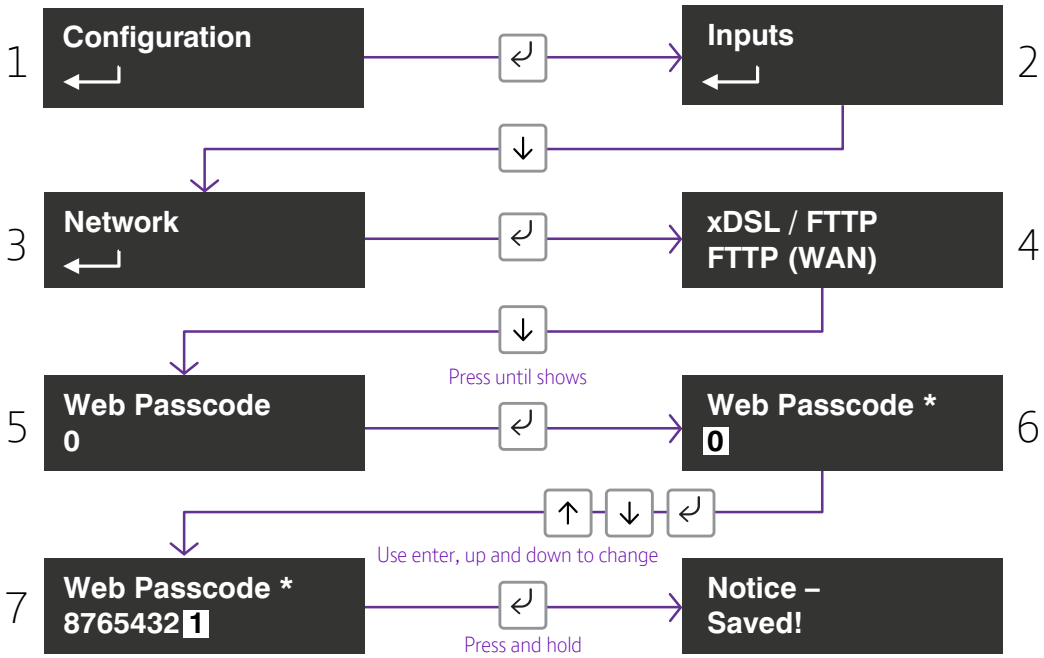
DNS Addr 2
8.8.8.8
Alternative DNS addresses

Edit mode for that part of the menu can be exited at any time, without saving changes, by pressing ↓ for 5s. This will return you to the sub menu that you were making changes in.

The configuration menu can be exited at any time without saving any changes by pressing ↑ for 5 seconds. This will take you back to the scrolling status display.

Web Passcode

This code is used to set up both the installer and customer app. The pass code will need to be entered by you and can be any 8 digits



Edit mode for that part of the menu can be exited at any time, without saving changes, by pressing ↓ for 5s. This will return you to the sub menu that you were making changes in.

The configuration menu can be exited at any time without saving any changes by pressing ↑ for 5 seconds. This will take you back to the scrolling status display.

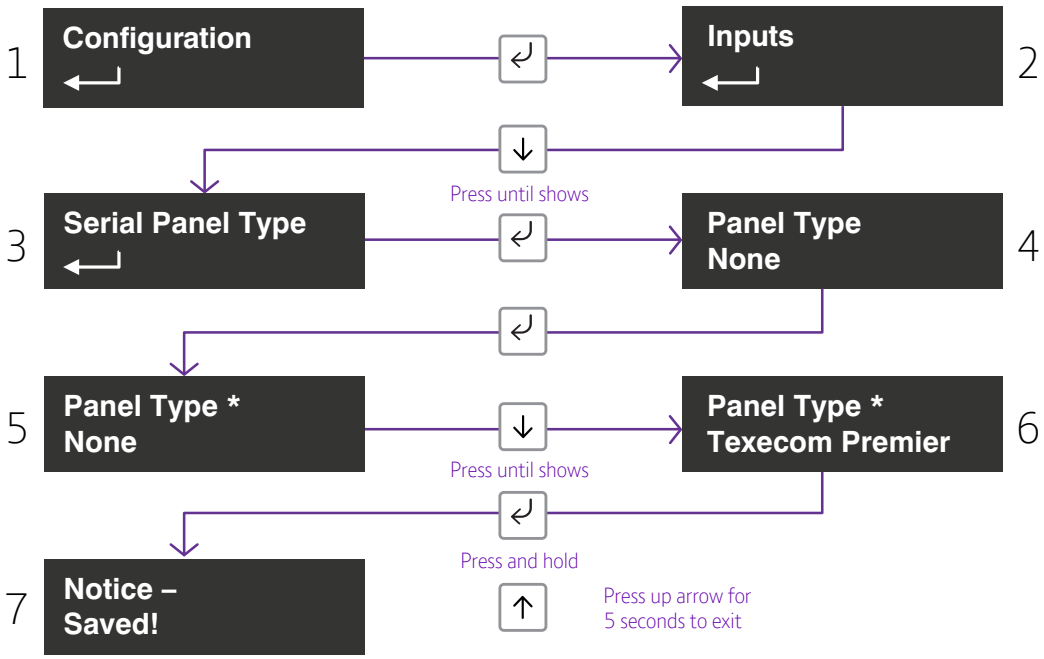
Serial Connection Panel type

This menu selects the panel connection type for serial connected panels (RS232 or RS485).

Settings:

- None
- Dimension GD 232 (Galaxy Dimension 48/96/264/520 (RS232 9600 8n1))
- Dimension GD 485 (Galaxy Dimension 48/96/264/520 (RS485))
- Galaxy G3 232 (G3 48/144/520 (RS232 9600 8n1))
- Galaxy G3 485 (G3 48/144/520 (RS485))
- Galaxy G2 485 (G212/20/44 (RS485))
- Galaxy Classic 485 L (Classic 8/18/60/128 (RS485))
- Galaxy Classic 485 H (Classic 500/504/512 (RS485))
- Texecom 816 (Texecom 412/816/832 (RS232 19200 8n2 inv))
- Texecom 48 88 (Texecom 48/88/168 Com - IP(RS232 19200 8n2 inv))
- Texecom Premier(Texecom Premier Elite 48 Com-IP (RS232 19200 8n2 inv))
- Bespoke Panel
- Pyronix RS232
- Contact IP (RS232 9600/2400/1200 8n1)
- Panel RS232 UDL

Example – changing the unit to connect to a Texecom Premier Elite panel via RS485.



Access the configuration menu by holding Enter button for 3 seconds, press the Enter button again, the display will show inputs. Press the down arrow until serial panel type is shown. Press the Enter button again to enter serial panel Type. Default status = None will be shown.

Use the down arrow to step through the available panel. Once the desired Panel is reached press and hold the Enter button down till notice saved is displayed.

Then it will return to the same position in the menu for you to select a different panel or use the down arrow to step through all pins to get to the Back option.

If panel types are changed the unit will reboot for the changes to take effect

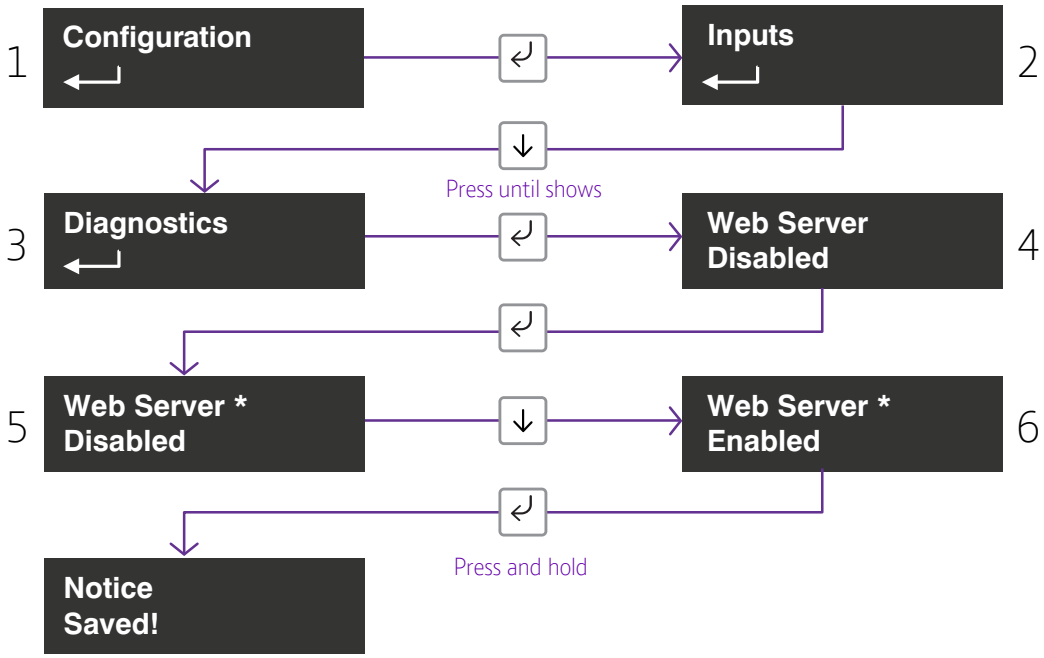
Edit mode for that part of the menu can be exited at any time, without saving changes, by pressing ↓ for 5s. This will return you to the sub menu that you were making changes in.

The configuration menu can be exited at any time without saving any changes by pressing ↑ for 5 seconds. This will take you back to the scrolling status display.

Diagnostics

Web server

To allow access to program the unit via a lap top, the web server needs to be set to enabled. Access to the web server is then allowed.



You will then need to plug in your laptop and login to the device.

Open your web browser, i.e. internet explorer, and surf to **http://192.168.33.1.**

You can get the username and password from your BT Redcare account manager.

The unit will now have a static IP address of 192.168.33.1 for the duration that the web console is enabled. To access the Web Server a PC needs to be connected to the Ethernet port.

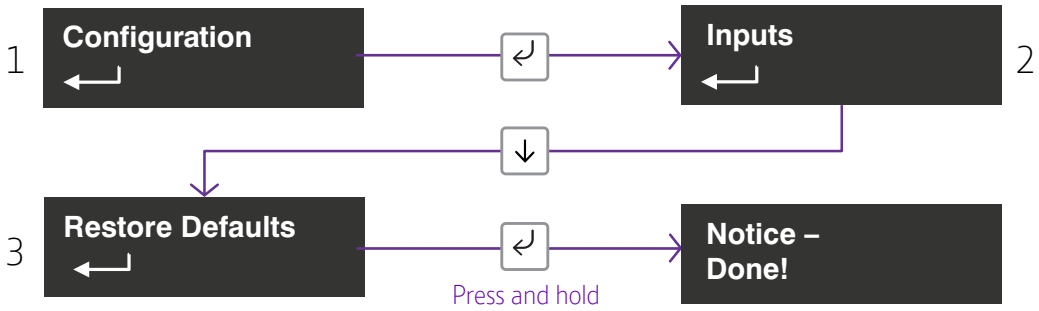
- Web Server will automatically exit after 20 minutes.
- Web Server can be disabled at any time by the installer.
- Web server will revert to disabled if the unit is restarted.
- To access the Web Server a PC needs to be connected to the Ethernet LAN port.

Access the configuration menu by holding Enter button for 3 seconds, press the Enter button again, the display will show Inputs. Press the down arrow until diagnostics is shown. Press the Enter button again to enter diagnostics. Web Server, Disabled is displayed. Press Enter button again, * is displayed, press down arrow enabled is shown, hold Enter button to save changes.

Restore Defaults

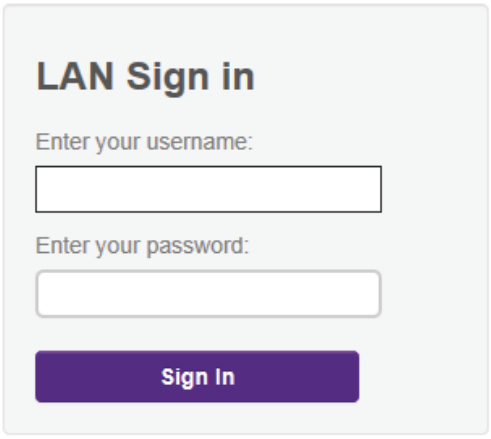
The Restore defaults option on the menu can be used to set the unit back to factory default. That is all settings will be reset to their standard values.

Example – setting the unit back to factory default.



The configuration menu can be exited at any time without saving any changes by pressing ↑ for 5 seconds. This will take you back to the scrolling status display.

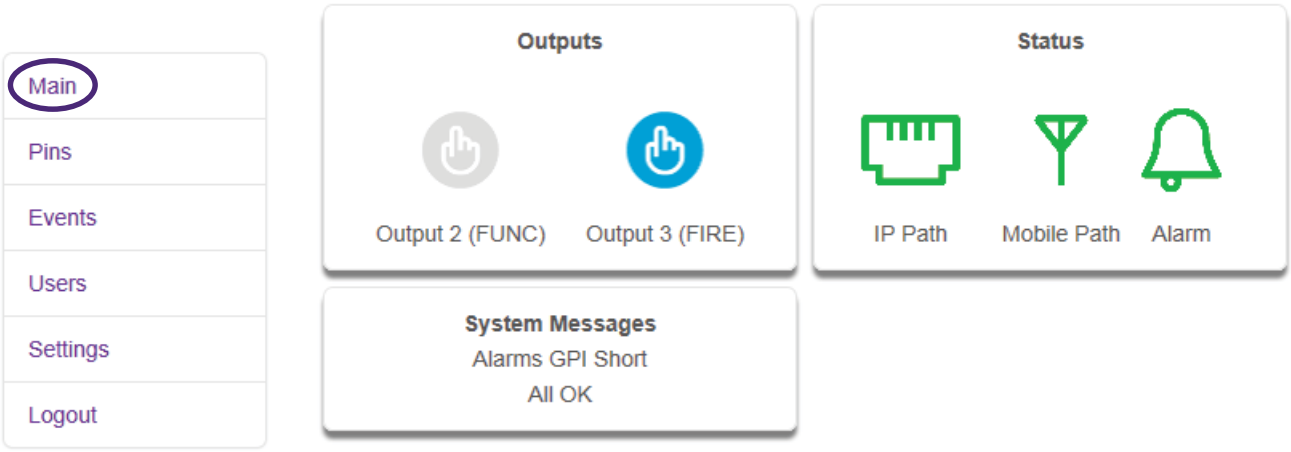
Web Server



Log in with the BT username = xxxxx, password = xxxxxxxx

This is available from the BT Redcare Technical Helpdesk or your Redcare account manager.

Main Status Display

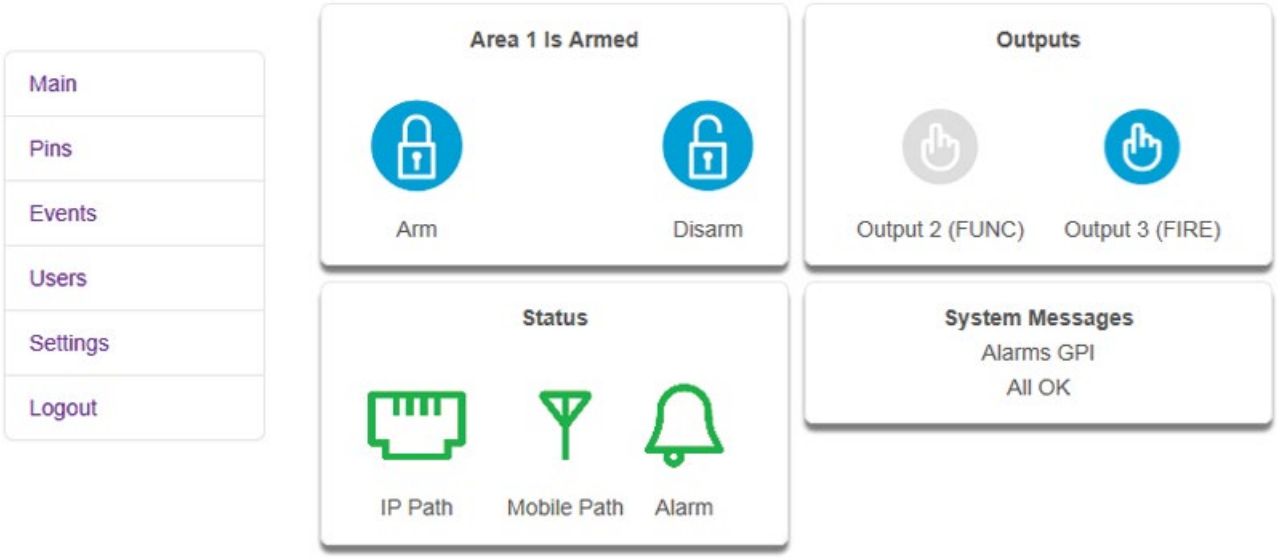


When you first login you are presented with the main status page, you can return to this page at any time by clicking Main on the menu bar.

The status page shows the User operated outputs. Output 2 (FUNC), which can be renamed in the settings menu, can be operated by clicking on the interactive icon if Output 2 (FUNC) is set up as USER. When operated the interactive icon turns orange from blue and back to blue when pressed again. Output 3 (FIRE) can be operated in the same way when Output 3 (FIRE) is set to USER. If the Output Icon is grey it means that the Output is not set up as User operated.

In the example above Output 2 is not configured to be user operated. Outpt 3 is configured.

The main status page will be different if a keyswitch option is selected



Status

These icons show the status of the signalling paths and if there are any outstanding alarms. Green for the signalling path icons indicates signalling paths are successfully connected to the platform. Red indicates that a path is down.

The bell icon is green in the example above as we have no alarms showing in the system messages box, which you would expect to see as the system will be set.

If PIN inputs are in alarm the bell icon will be red.

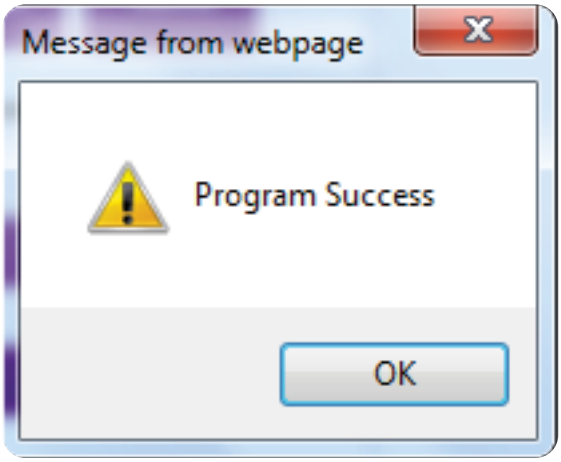
System messages

The system messages box will scroll though the key messages:

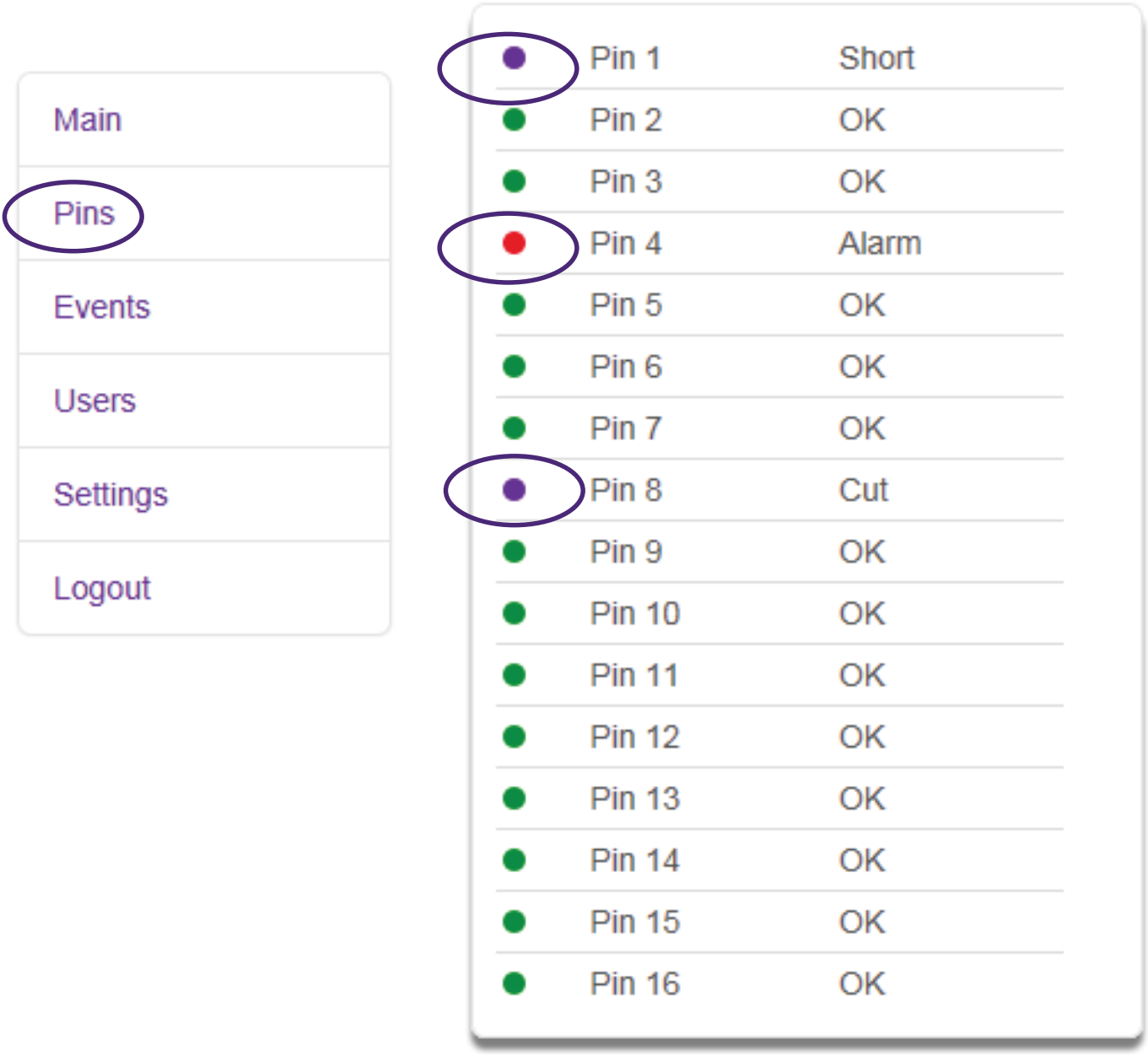
- Battery – will indicate if supply is low
- Alarms GPI Cut – Any PIN inputs that are in the cut state (EOL or DEOL)
- Alarms GPI short – Any PIN inputs that are in the short state (DEOL)
- Alarms GPI – Any PIN inputs in alarm
- Signal strength – signal strength in dBm and the name of the mobile network operator

The menu bar on the left hand side can take you to any of the menu options described below.

Should you need to make any changes in the following menu options click on save. This will save your changes to the unit.

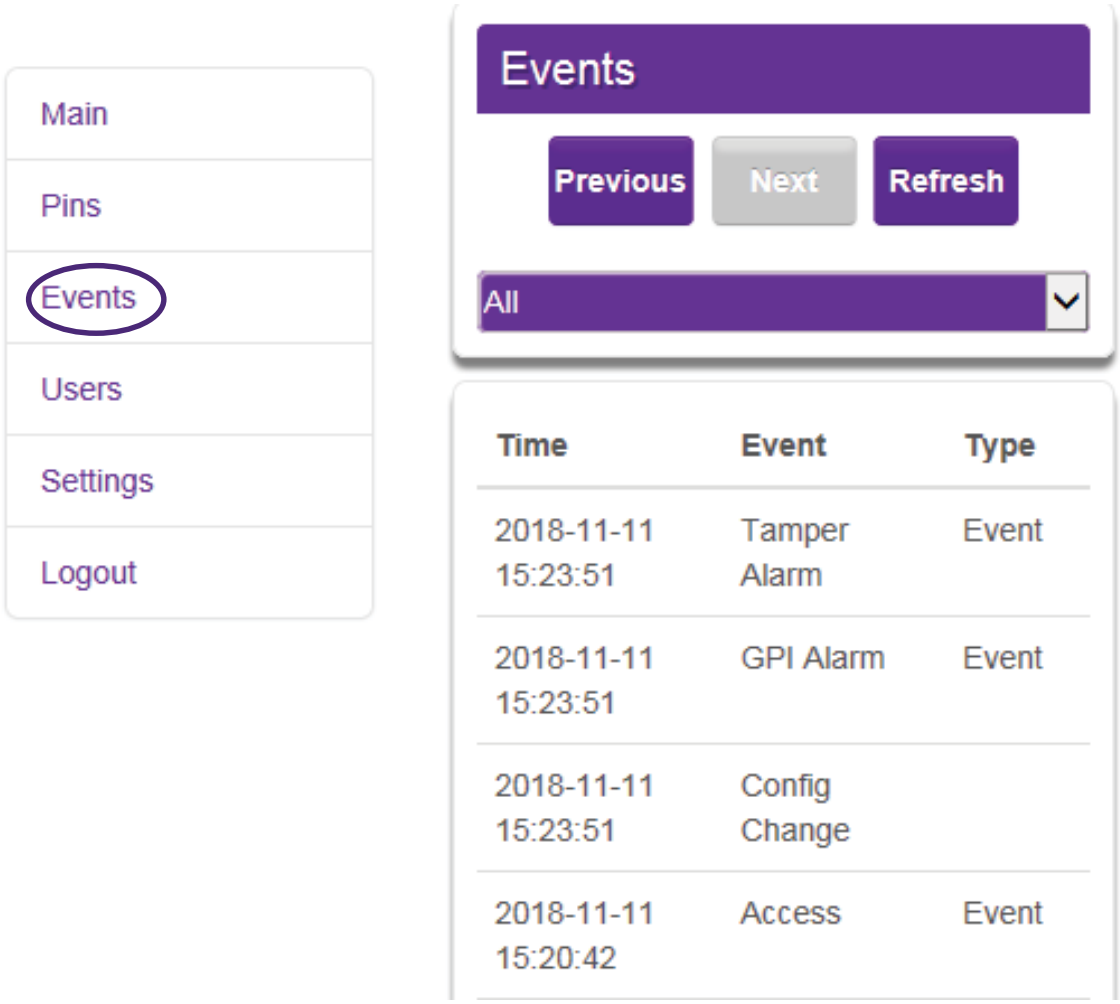


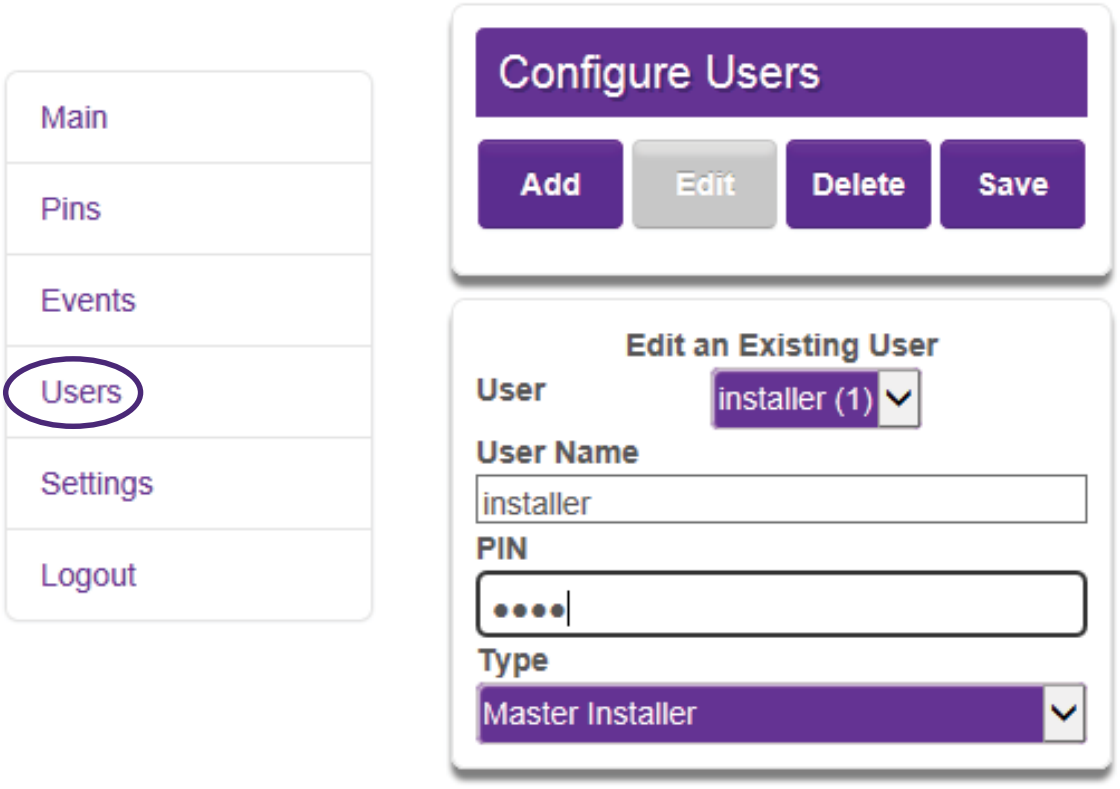
The above will be shown when changes have been saved. Click OK to continue.



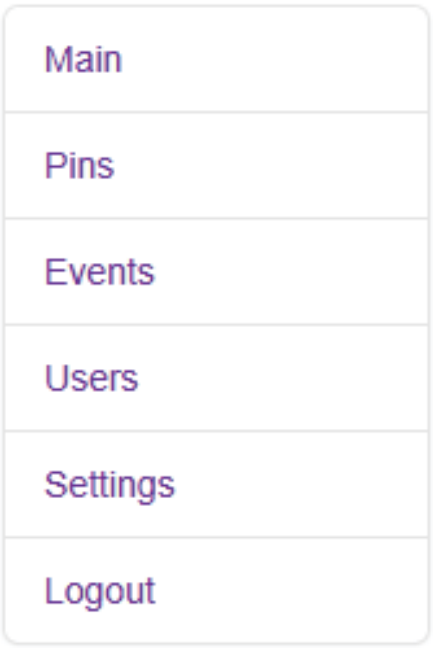
Pins shows the Name (if changed) and status of each of the PIN alarms. OK with green dot shows the pin is not in alarm and Alarm with the red dot if in alarm. It will also show if a PIN is in a cut or short state, with a blue dot and cut or short.

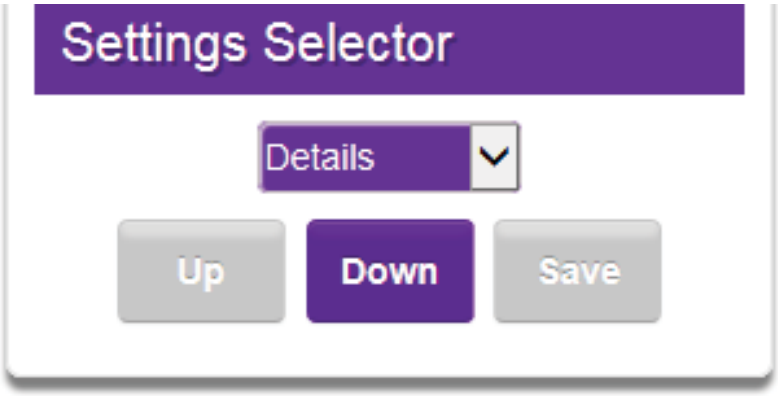
The below shows the most recent events. If you click on the drop down you are able to filter the events by type. Eg Alarms, System, Configuration or Connection.

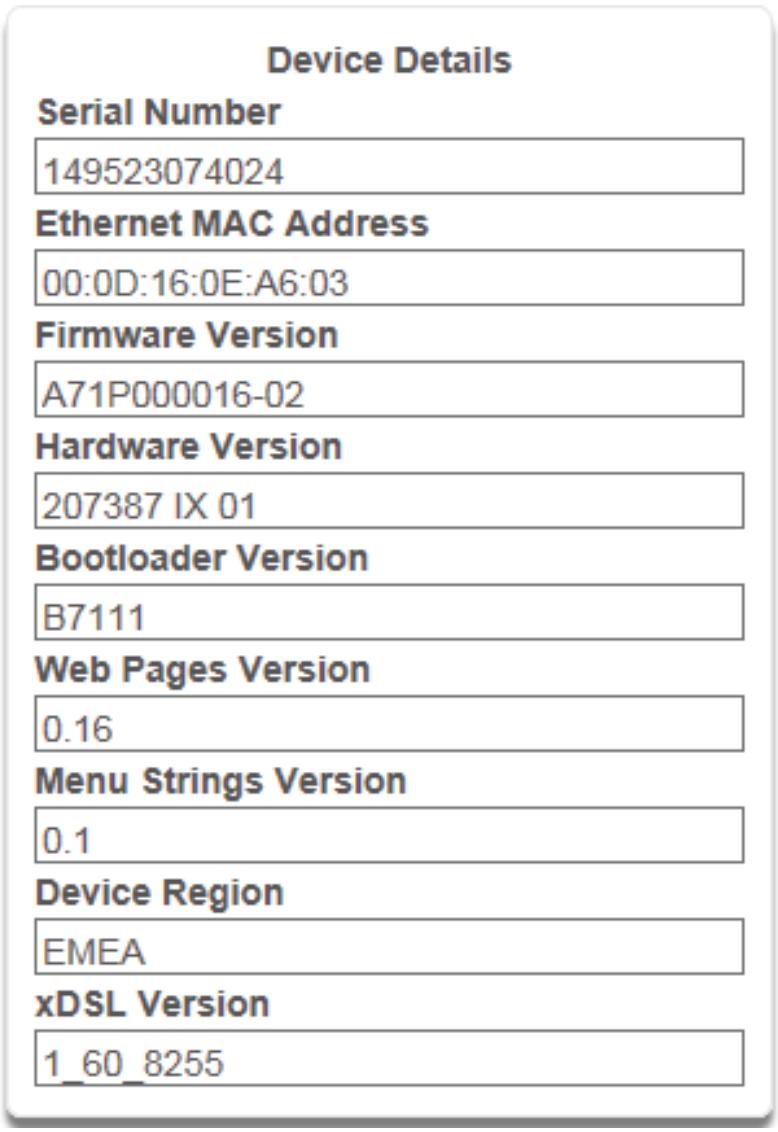


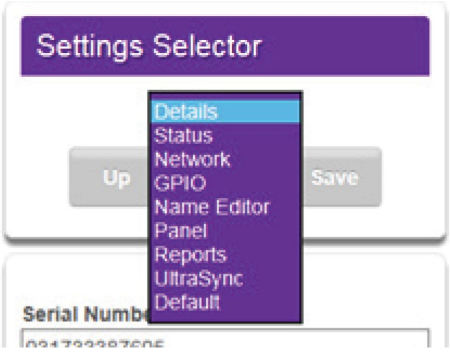


This menu allows you to set up additional installer and end customer app access to the unit and change log in pin numbers.



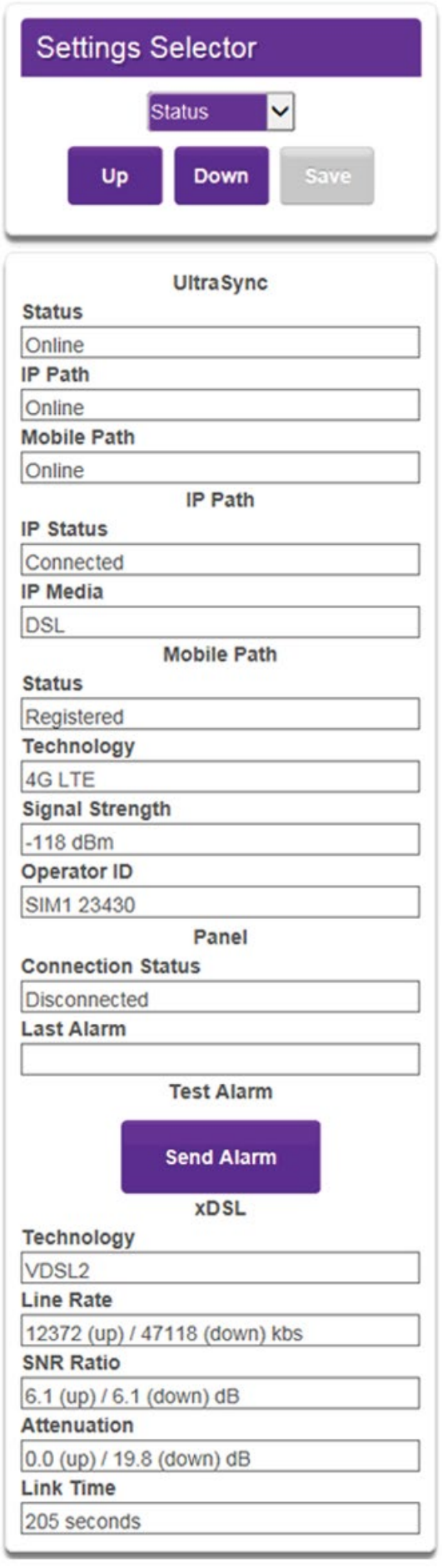






The settings menu has sub menus to be able to program the unit. The first screen gives you details of the device including MAC address and firmware version. Use the down button to step to the first sub menu option or use the drop down to access the sub menus.

Status



The status sub menu shows the status of the IP path. It also shows the mobile path status, if its using 2G or 4G, the signal strength, which SIM and operator

23410 -02, 23415 - vodafone,
23420 - Three,
23430 - EE

Panel - if the panel is connected serially then this will show the status of that connection

By clicking the test alarm button this will send a test alarm over both paths

xDSL shows the technology (ADSL2+ or VDSL2) the sync rate - up and down speeds and link up time

Network

The Network menu allows you to change the broadband service type between Ethernet (FTTP) VDSL (FTTC) and ADSL

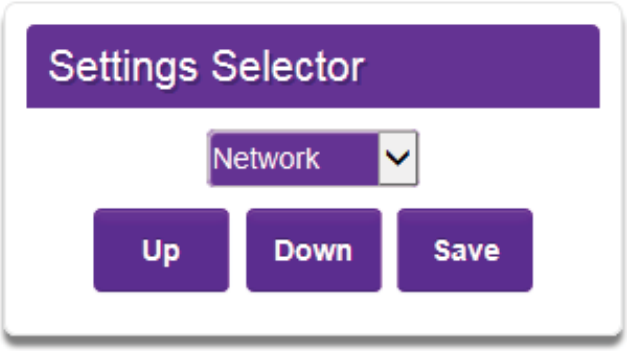
When set to ADSL2 or VDSL2 no other changes should be made as this could affect the service operation.

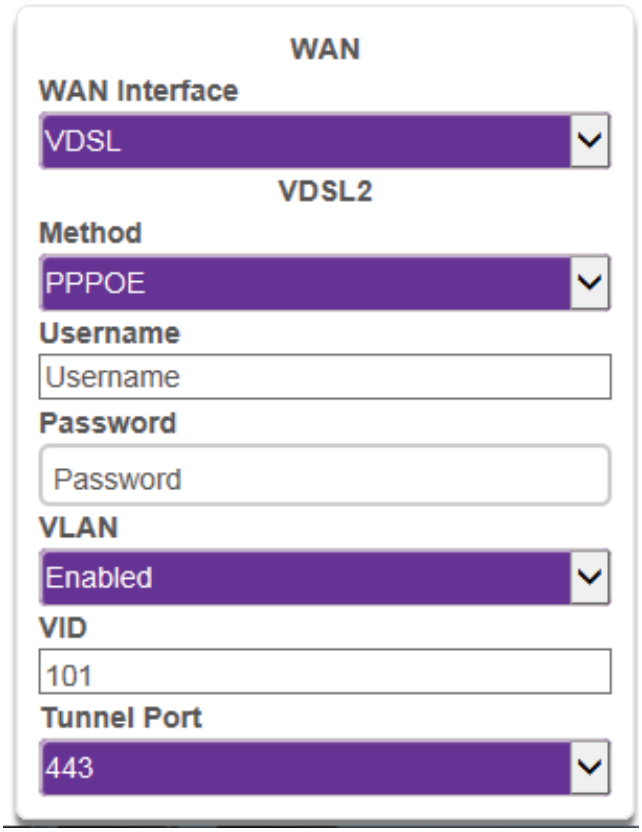
If you wish to use this unit temporarily as an Advanced unit on a customer network or broadband, then select Ethernet as the WAN interface and the method to DHCP

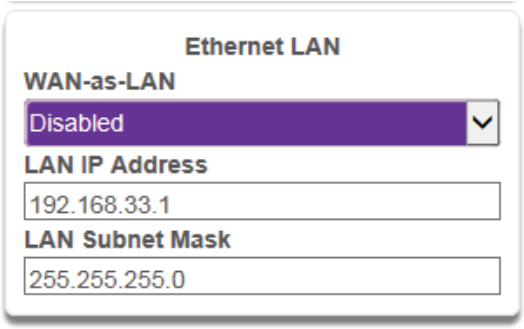
When you connect back to the Redcare broadband service you will need to change these back

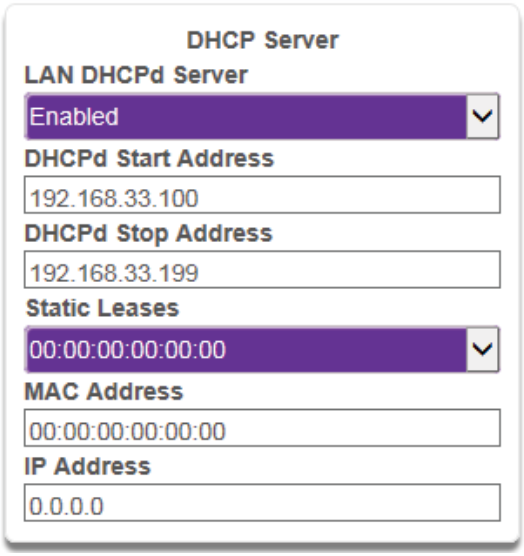
The Web Access passcode should be entered if setting up App access. Enter an 8 digit number and save changes

Make your changes and then click the save button. Program success will be displayed.

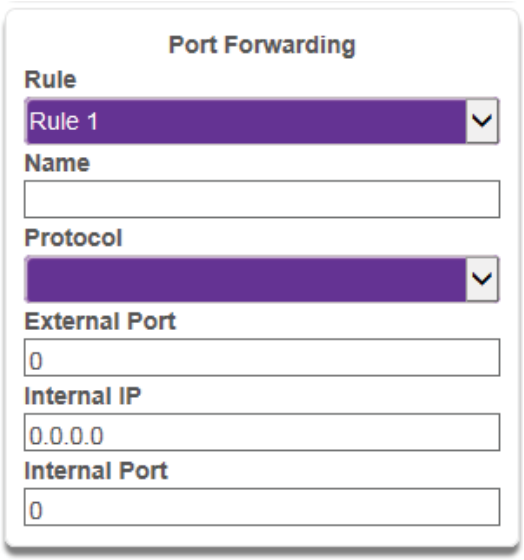


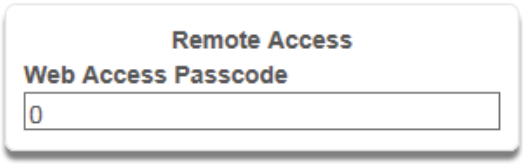




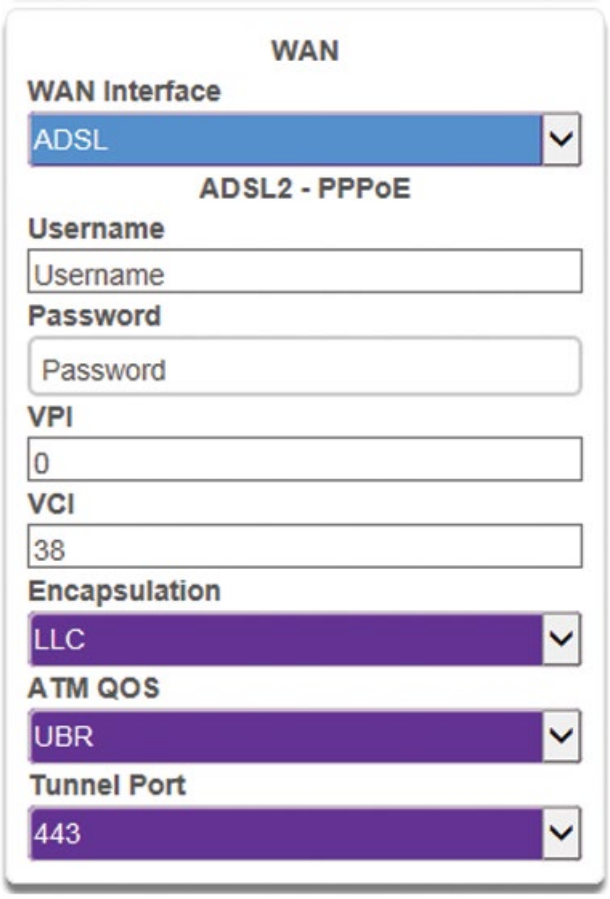


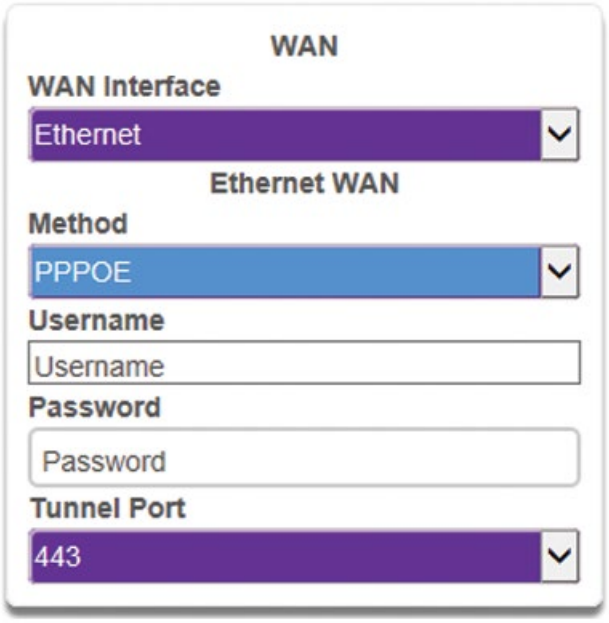
WAN as LAN, DHCP Server and port forwarding are for future developments





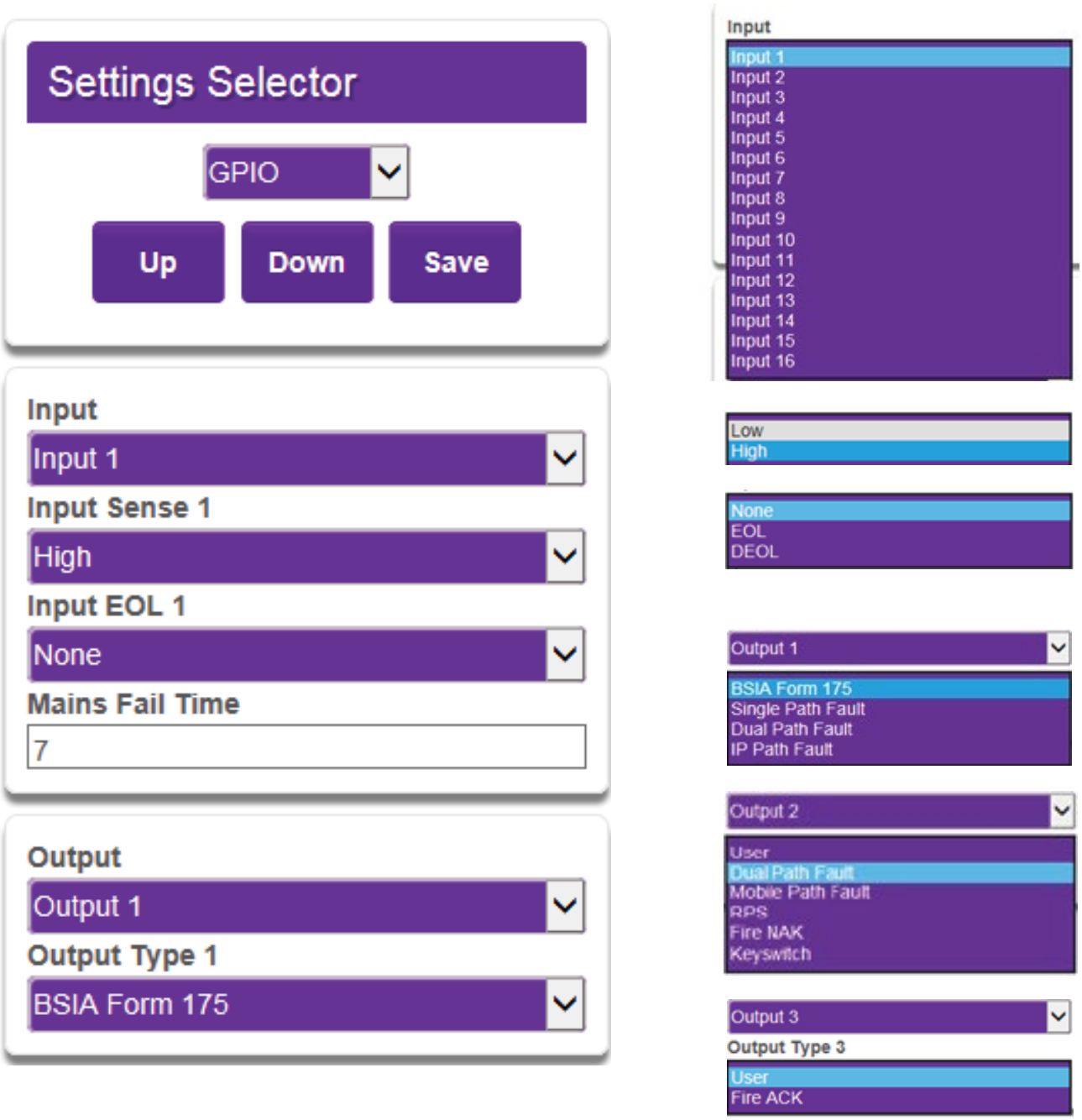
For ADSL and FTTP (WAN) the settings are as follows. these should not be changed





GPIO

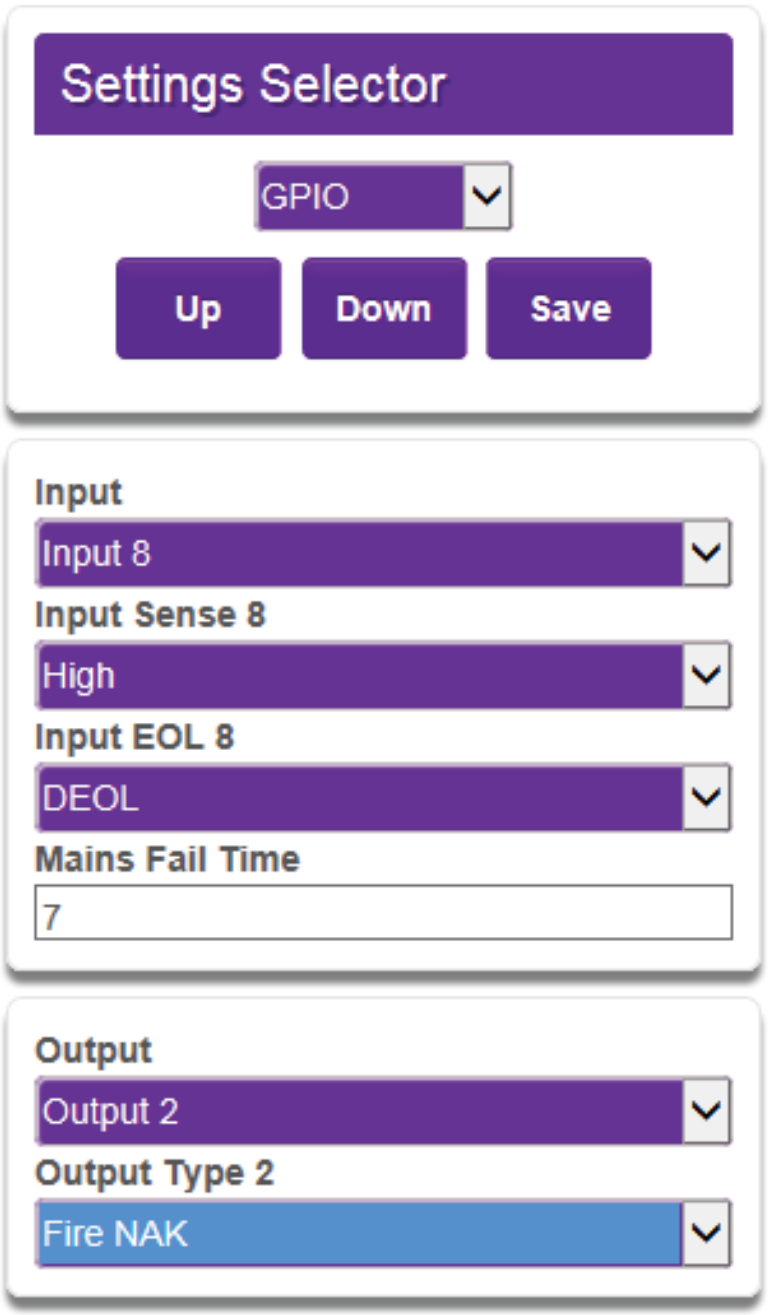
In this menu, by using the drop down arrows on each section, you can change any of the PIN input status from High (postive removed) to Low (positive removed). You can set up either end of line (EOL) or dual end of line (DEOL) for each PIN as required. Mains fail time for Pin 13 can be adjusted. If set to Zero, PIN 13 becomes a normal alarm pin. Each of the 3 Outputs can be configured as described earlier in this guide.



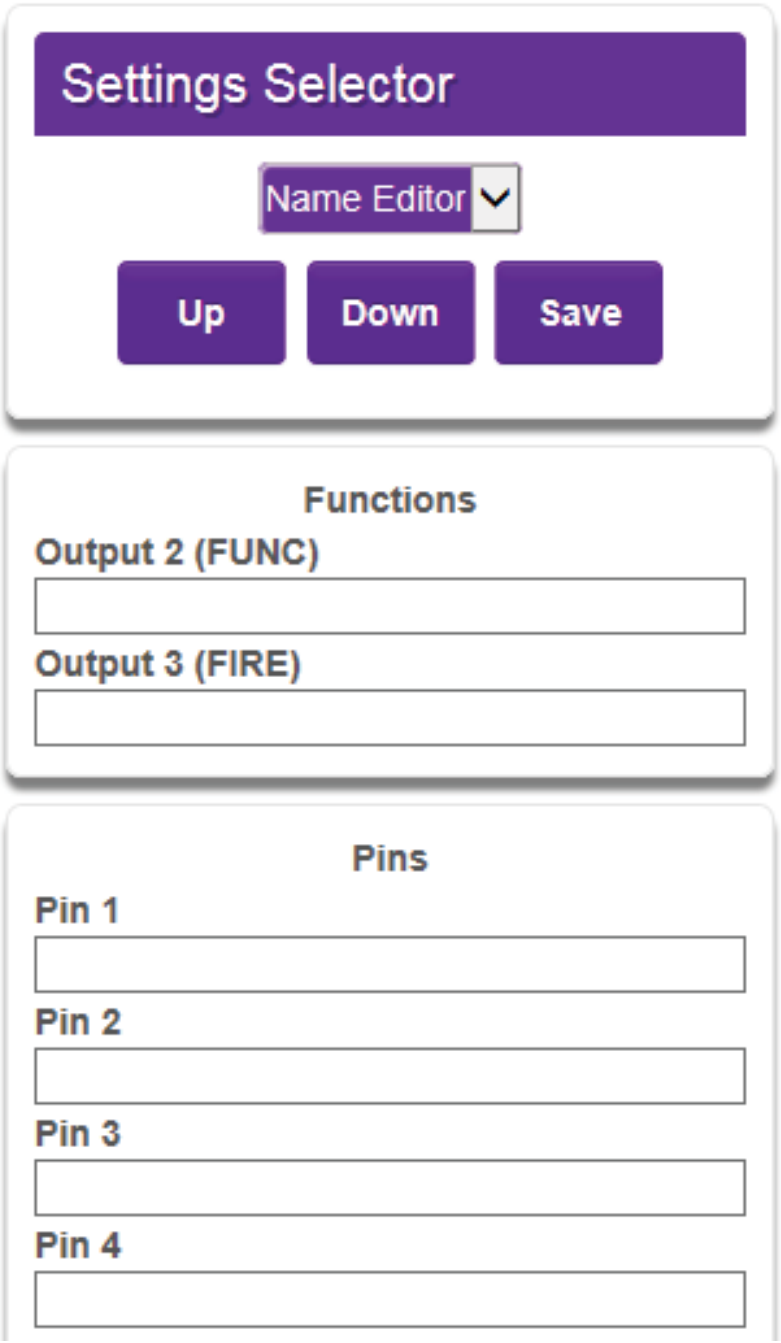
When Output 2 is set to keyswitch you will need to go to the Keyswitch section to select the correct settings

In the example below, we show PIN 8 as Active High, with DEOL monitoring. Output 2 is set to operate as a Fire NAK output (operates if an acknowledgement on a PIN 1 alarm is not received within 80 seconds).

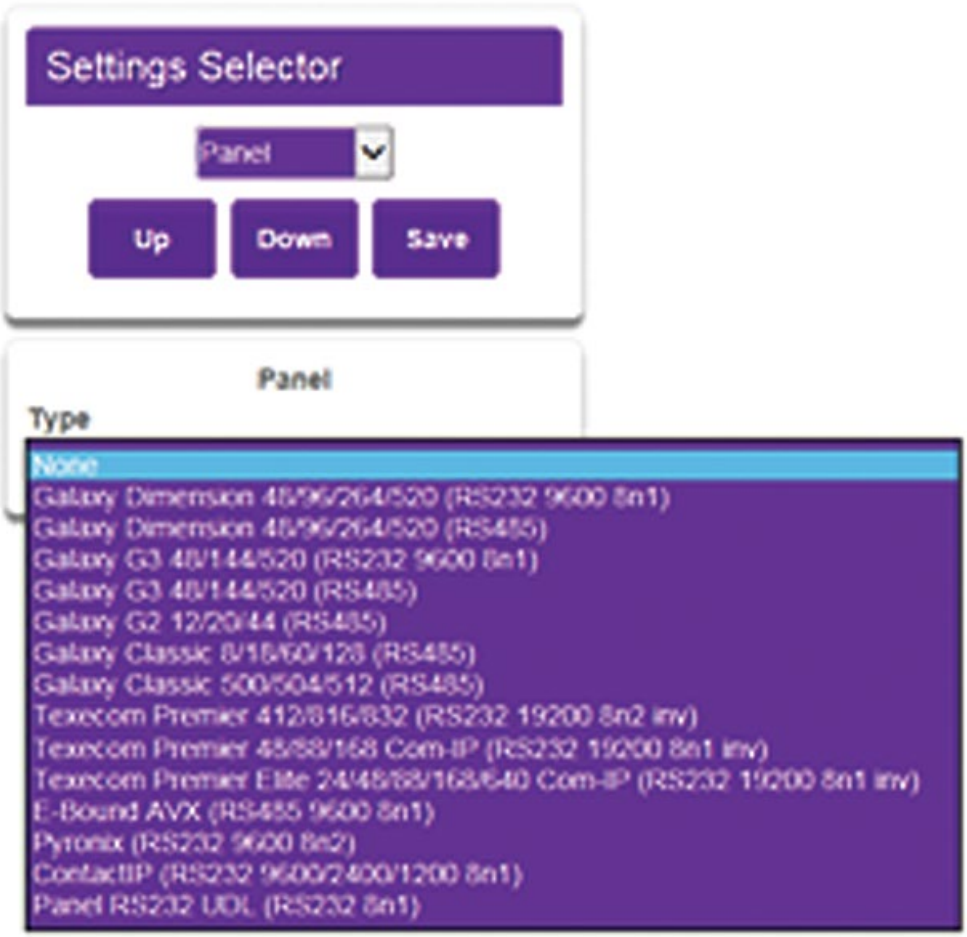
Make all the changes to the PIN inputs and outputs then click the save button to store your changes in the unit. Program success will be displayed.



Name Editor

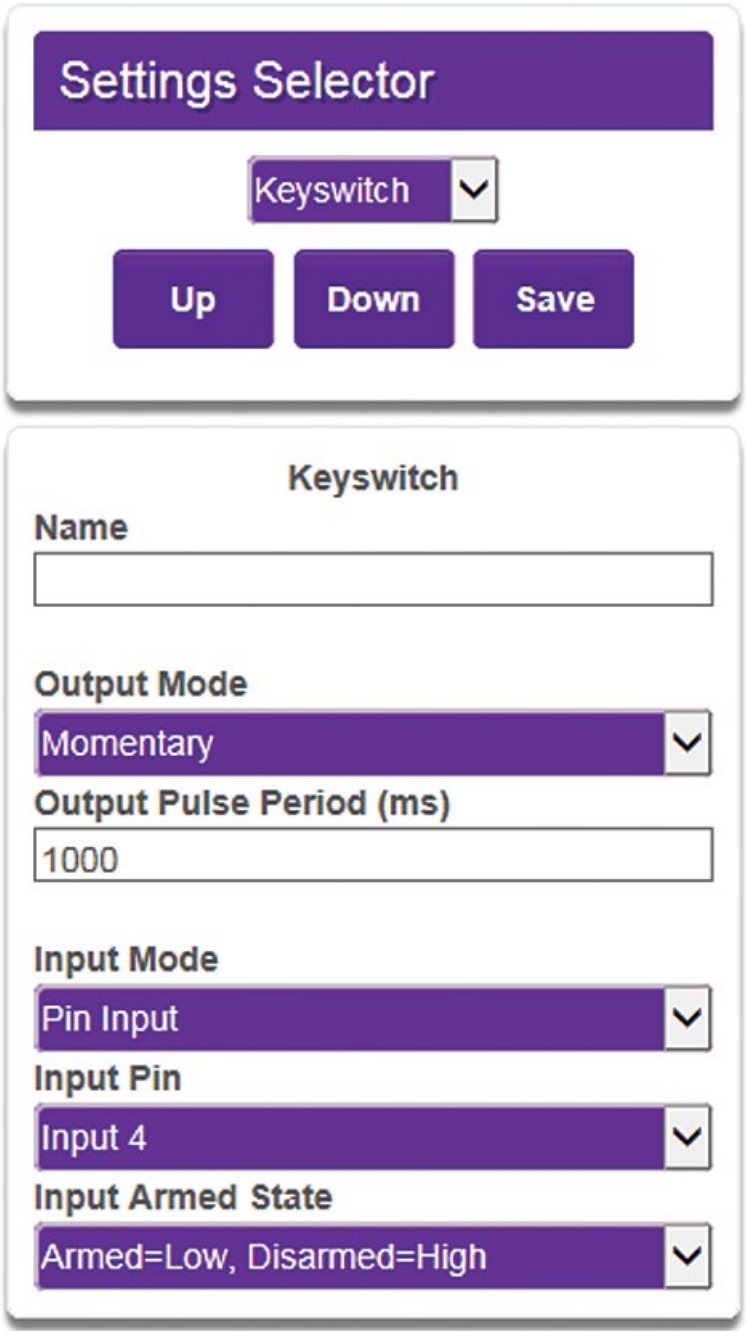


It is possible to add names to the PIN inputs. This will then show up on the customer app and notifications. You can choose a description for the USER relay outputs. Click save when you have entered all the information.



Allows selection of the Serial connection for specific panel types. Select the drop down next to Type and you will get a list of panel types. Select the required panel type and connection type and then click save. Program success will be displayed.

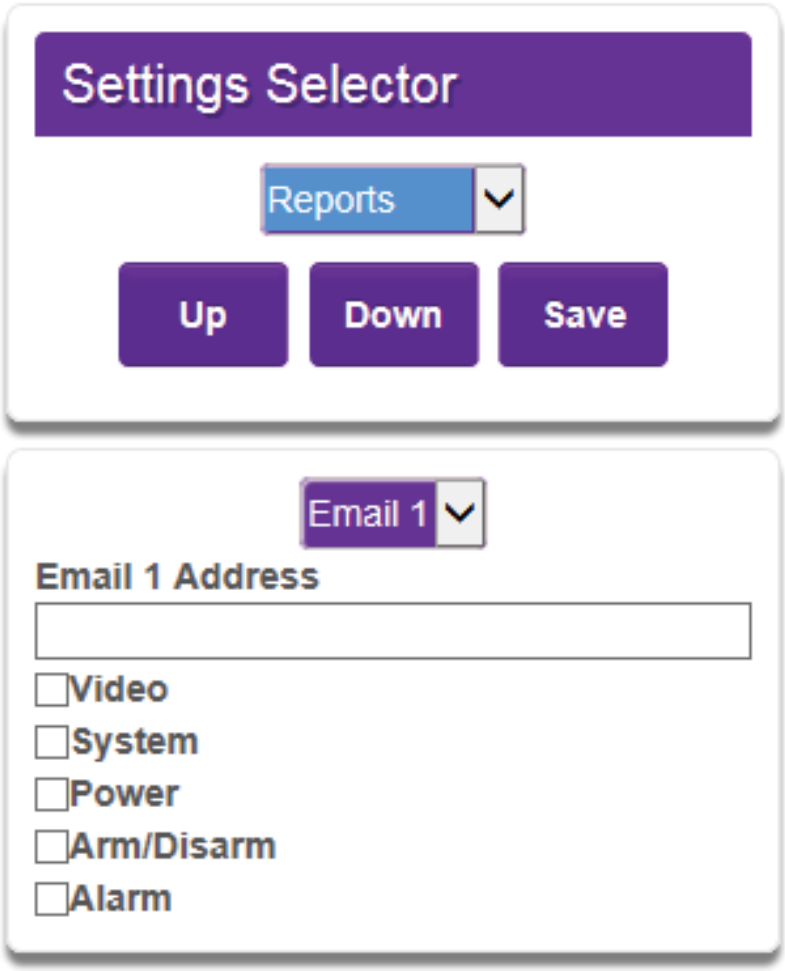
Keyswitch



Output pulse period can be changed if required.
(milliseconds)

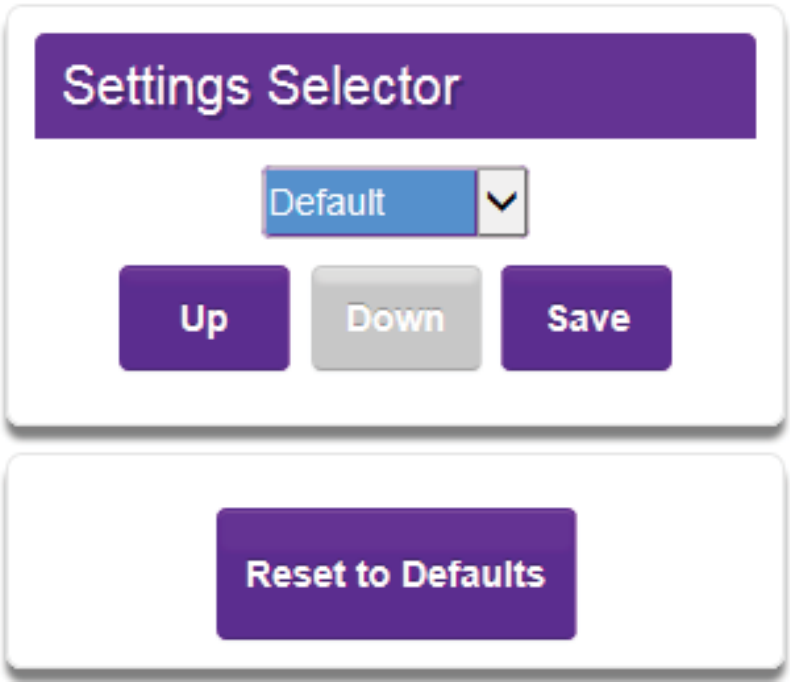
There is an option to change the output mode to Latched

Reports



This allows you to set up a number of email addresses that could receive emails on the various options. e.g. Alarms and System mesages.

Defaults



The above restores the unit to factory settings by clicking Reset to Defaults.

Logout

Clicking Logout will take you back to the sign in screen.

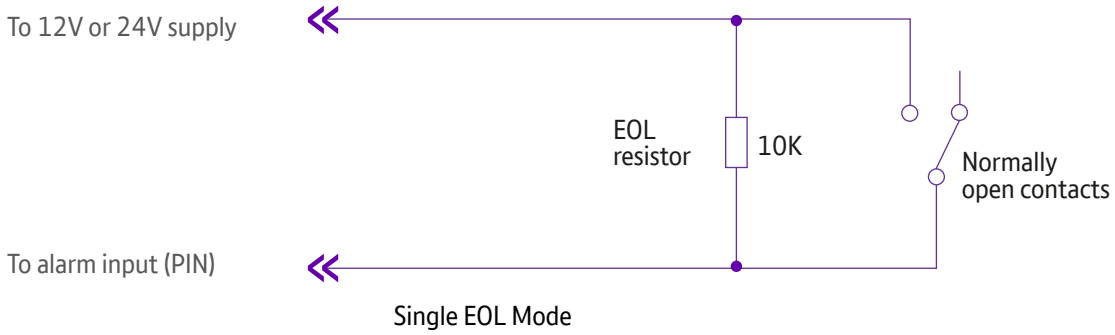
Should the web server enablement time out you will not be able to save changes. You will need to re enable the Web Server through the programming buttons.

Interconnection Monitoring

If the enclosure housing the unit is not next to, or close coupled to, the fire panel i.e. right next to the fire panel enclosure or perhaps a very short (<25mm/1") section of cable conduit coupling the enclosures together then there is a require-ment in EN54-21 to detect open or short circuits on the interconnection wiring between the fire panel and the unit as well as an indication back to the fire panel of an issue.

The power connections need to meet EN54-21 7.5.2 when the unit is fitted in an enclosure remote from the Fire control panel.

To enable the interconnection monitoring you will need to program the unit via the config menu, app , laptop or web portal.



Single EOL Mode

Wiring for Interconnection Monitoring

Each of the pins required will need to be wired as shown below.

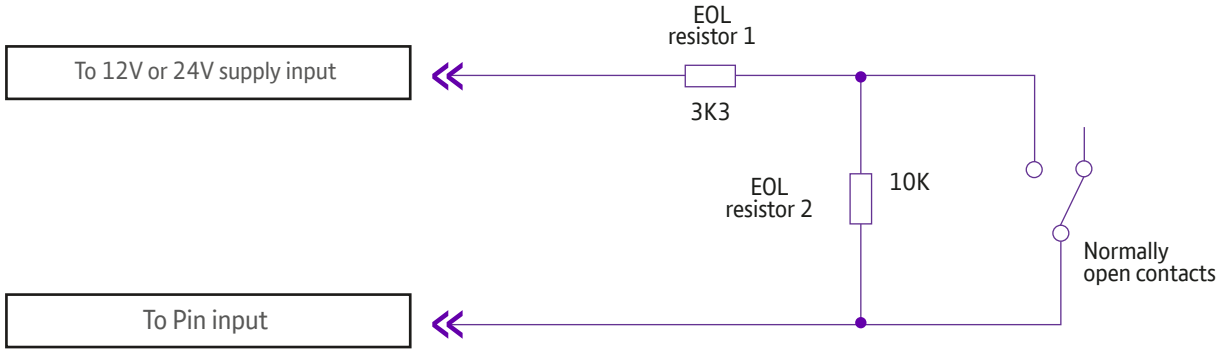


Fig 8

You will need 1 x 3K3 and 1 x 10K resistors for each PIN with interconnection monitoring.
Resistors are available from the BT Redcare installer shop. **www.btinstallershop.com**

3.3KΩ 1%

orange, orange, black, brown, brown

10KΩ 1%

brown, black, black, red, brown

Fig 9

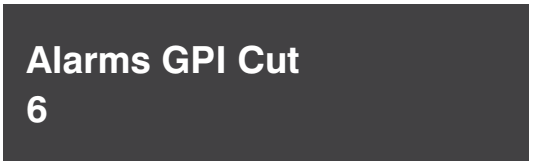
Resistor	Item Code Label	Colour Code
3K3	089446	Red Dot in packet
10K	089447	Blue Dot in packet

What happens when pins are configured and wired in this way

The dual resistor EOL mode is able to detect four states:

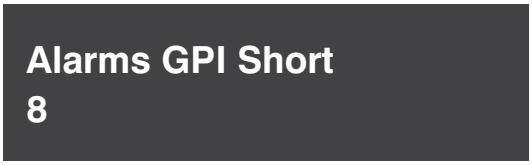
- Alarm event
- restore
- Wire cut
- Wire shorted

The OLED display will show Pin cut 1 through 16 to indicate the wire cut condition for any of PINs 1-16, which are presently in the wire cut state.



Above, example Cut on Pin 5.

The OLED display will show Short 1 through 16 to indicate the wire shorted condition for any of PINs 1-16, which are presently in the wire shorted state.



Above, example Short on Pin 8.

Example configuration and wiring for connection to fire panel with interconnection monitoring

Ensure that the required pins have Dual EOL enabled in the config menu in the example Pin 1 and Pin 8 have been enabled for this.

Note it is available on pins 1 – 16

- Output 1 = Single path fail
- Output 2 = Fire Nak
- Output 3 = Fire Ack

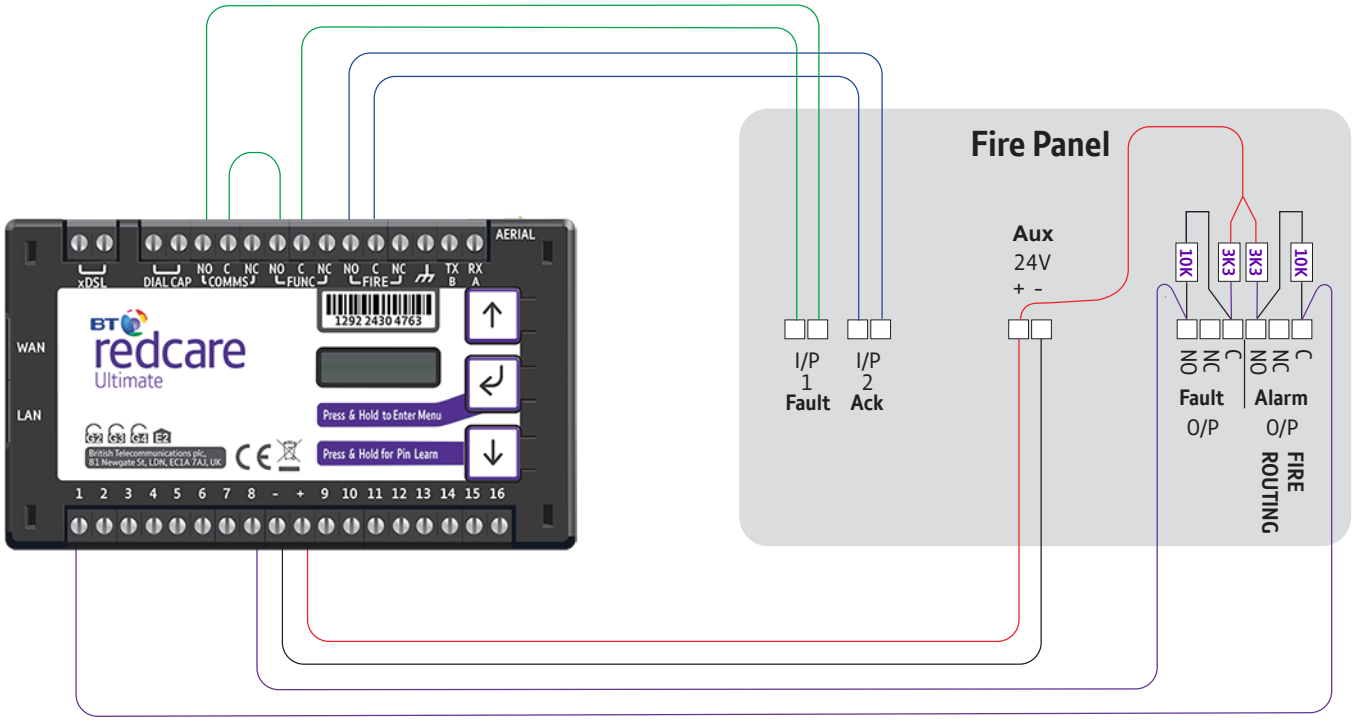


Figure 10 - Typical fire alarm connections for panel with 2 inputs and unit with interconnection monitoring

Roaming SIMs

The unit has two SIMs.

SIM 1 EE network sim with 4G and 2G .

SIM 2 a UK roaming sim with 4G and 2G network access.

The unit uses smart roaming to determine which network to use.

Should network connectivity be lost the unit will try different networks, 4G and 2G and will also swap SIMs if required.

Should the unit lose connectivity with the BT Redcare platforms, or lose registration with the current base station, then the unit will roam onto the next available 4G or 2G network.

Panel upload Download and Enhanced format signalling (SIA/CID)

Remote access to the alarm panel can be achieved using the BT Redcare UDL facility.

Additional panel set up information is also available for enhanced format signalling.

Contact your BT Redcare representative for further details.

Dial Capture

The dial capture pins present a 'phone line' to the panels on board digital communicator Connect the alarm panel's digital communicator line connections to the terminals marked Dial Cap on the unit.

The terminals are not polarity conscious.

Configure the alarm panel digital communicator to dial 29 and use the last 4 digits of the TAID as the account number.

The dial capture board will auto detect the panel protocol as events are sent from the alarm panel. SIA, CID or FF.

Please check current panel compatibility listing.

If there are any issues you can easily spot them and put them right by connecting a test phone, or listening device to the Dial Capture inputs. The dial capture pins with a test phone connected and line seized (as if making a phone call) will provide a continuous tone (dialling tone). The dial capture pins will also have a voltage on there of 45V.

Serial Panel connections

Select the required panel via the serial panel type menu option via the buttons, app or web portal.

Please contact your BT Redcare representative for the latest information on panel compatibility for Upload download and enhanced format signalling via serial connections.

Then wire in the panel using the GND, TX/B and RX/A terminals.

Example below shows connection via RS 485 to a Galaxy Dimension panel:

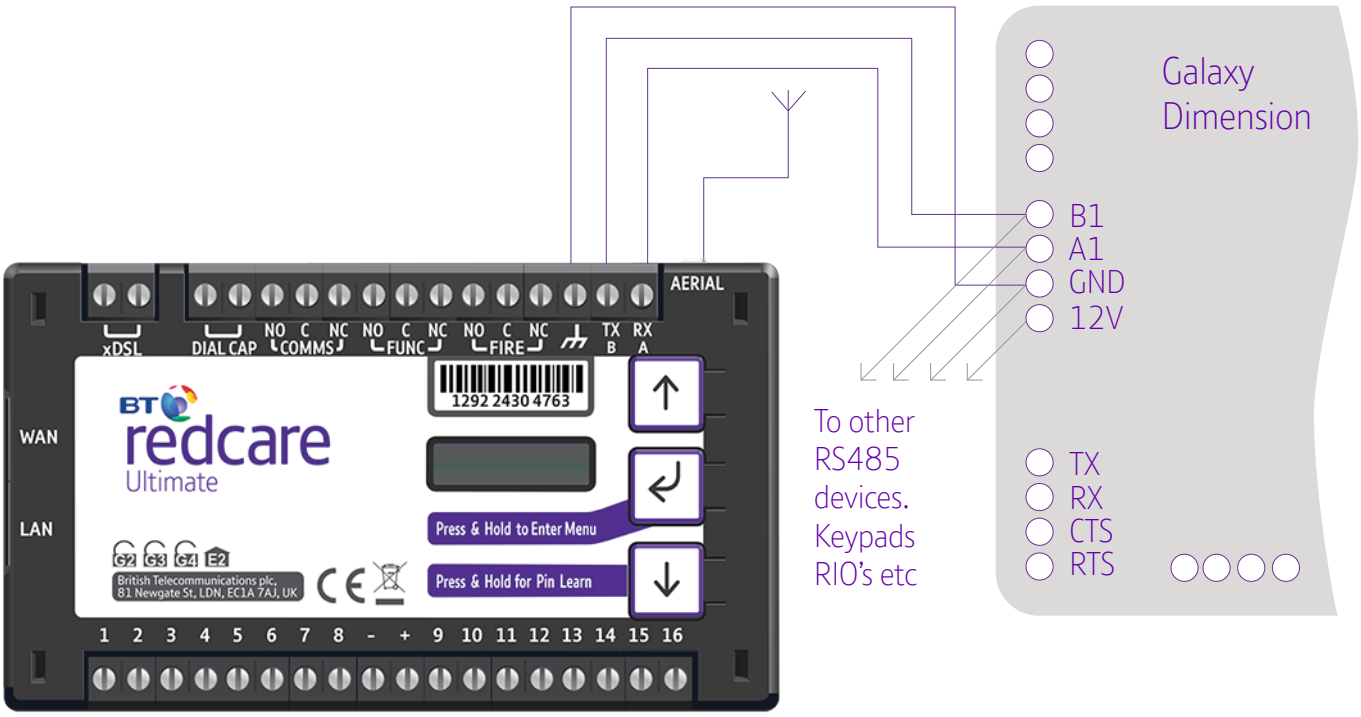


Figure 11 (not to scale)

Connection Advice

The unit should be connected to the Honeywell Galaxy panel as shown in figure 11, RS485A to A1 and RS485B to B1. Do not use the secondary data line (if your panel has one- A2/ B2) as it will not work. Ensure that the GND of the unit is connected to the GND terminal on the panel.

It is recommended that good quality screened cable (Belden type, CAT5e or equivalent) is used in all wiring of this type to avoid interference on the panel's data bus. A 680Ω resistor should be used at the end of the 'daisy chain' line of devices in the normal way, taking care not to exceed the maximum number of devices allowed on that data line. If the unit is fitted less than 5m from the alarm panel then an additional termination resistor is generally not required.

The Unit does not have a terminating resistor.

Alarm List

Description	Pin	CID (zone)
Inputs 1-16	1-16	323 (901-16)
Low Battery	985	302 (999)
Unit reboot	984	305 (995)
Panel dial fail	983	314 (999)
Software changed	979	304 (999)
Panel message error	958	311 (997)
Panel Connection (RS485)	n/a	356 (997)
BSIA 175 Test	n/a	354 (998/999)
Inputs 1-16 cut alarm	n/a	325 (901-16)
Inputs 1-16 Short Alarm	n/a	324 (901-16)
IP Path	1023	351 (999)
Mobile Path	1022	351 (998)
Total Comms Fault	n/a	350 (999)

Figure 12 – alarms signals as delivered to your ARC

IMPORTANT NOTE: If intending to use dial capture or serial for sending alarms, please confirm beforehand with your ARC that their automation software is capable of differentiating correctly between PIN alarms (Ultimate or Redcare Platform generated alarms) and alarm panel generated ZONE alarms.

If used temporarily as an Advanced on a customers Network or broadband then the following applies

IP specification notes

IP Protocol: TCP

Port: 443 or 10443

Data Usage / Requirements

IP polling is every 30 seconds. A poll and response results in 288 total bytes transferred (incl IP headers). A small number of alarms will also typically be generated per day and these result in 296 bytes transferred. Overall this generates approximately 800K bytes per day, per site.

Traffic Direction

The Advanced and Advanced Extra establishes an outgoing TCP connection from your network to the BT Redcare platform. Once this outgoing TCP connection has been established, traffc over that connection is 2 way.

Additional Protocols

Only TCP is required from your network.

Port Forwarding

No ports need to be forwarded in the incoming direction. The outgoing TCP connection connects to port 443 or 10443 on the BT Redcare network, so you would need to allow outgoing access to port 443 or 10443 if you block that by default.

NAT: Not required

4G/2G Requirements

You do not need to route mobile traffic. The mobile connection from the communicator through to the BT Redcare platform and on to the ARC is entirely independent of your network.

DHCP and Static Addressing

The communicators can be configured as either DHCP clients or with specific static IP addresses on your internal network as you prefer.

DNS Server

The device uses host names for establishing connection to the servers so DNS addresses will be required.

Disposal

The symbol shown here and on the product, means that the product is classed as Electrical or Electronic Equipment and should not be disposed of with other household or commercial waste at the end of its working life.

The Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC) has been put in place to recycle products using the best available recovery and recycling techniques to minimise the impact on the environment, treat any hazardous substances and avoid the increasing landfill.

Product disposal instructions for users:
Please dispose of the product as per your local authority's recycling processes. For more information please contact your local authority or retailer where the product was purchased.

The product may be returned to the freepost address below:

BT Supply Chain
Darlington Road,
Northallerton,
North Yorkshire
DL6 2PJ

Disclaimer

The manufacturer or his agents disclaim responsibility for any damage, financial loss or injury caused to any equipment, property or persons resulting from any use of this equipment. The manufacturer is not liable for any purely economic loss arising from any use of this equipment. All responsibility and liability in the use of BT Redcare products are assumed by the user.

This unit is designed to be used in customer premises. Use of this equipment in other locations may void warranty. This unit is not intended for use in marine environments or water borne vessels.

BT Redcare may make changes to features and specifications at any time without prior notification in the interest of ongoing product development and improvement.

Glossary of terms

ADSL	Asymmetric digital subscriber line (Broadband)
ARC	Alarm Receiving Centre
BSIA	British Security Industry Association
CSQ	Carrier Signal Quality (RSSI,BER)
DHCP	Dynamic Host Configuration Protocol
DNS	Domain Name System
F175	Form 175 as issued by BSIA
FTTC	Fibre To The Cabinet
FTTP	Fibre To The Premise
GMT	Greenwich Mean Time
IP	Internet Protocol
LAN	Local area Network
MMCX	Micro Miniature Coaxial Connector
OLED	Organic Light Emitting Diode
RSSI	Received Signal strength indicator
RPS	Return Path Signalling (An output that confirms delivery of PIN 4 to the ARC)
RX	Receive
SID	Serial Identity number - 12 digit unique identity number of a unit
SIM	Subscriber identity module (sim card)
TTL	Transistor Transistor Logic
TX	Transmit
VDSL	Very high speed digital subscriber line
WAN	Wide Area Network

Support

For assistance with your BT Redcare installation, please contact the BT Redcare Helpdesk on:
0800 800 628

CE

EN50136, EN50131, PD6669, PD6662

EN 54-21:2006

Alarm transmission and fault warning routing equipment for fire alarm systems

Offices worldwide