



Advanced and Advanced Extra

Installation Guide



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Introduction

Product Description

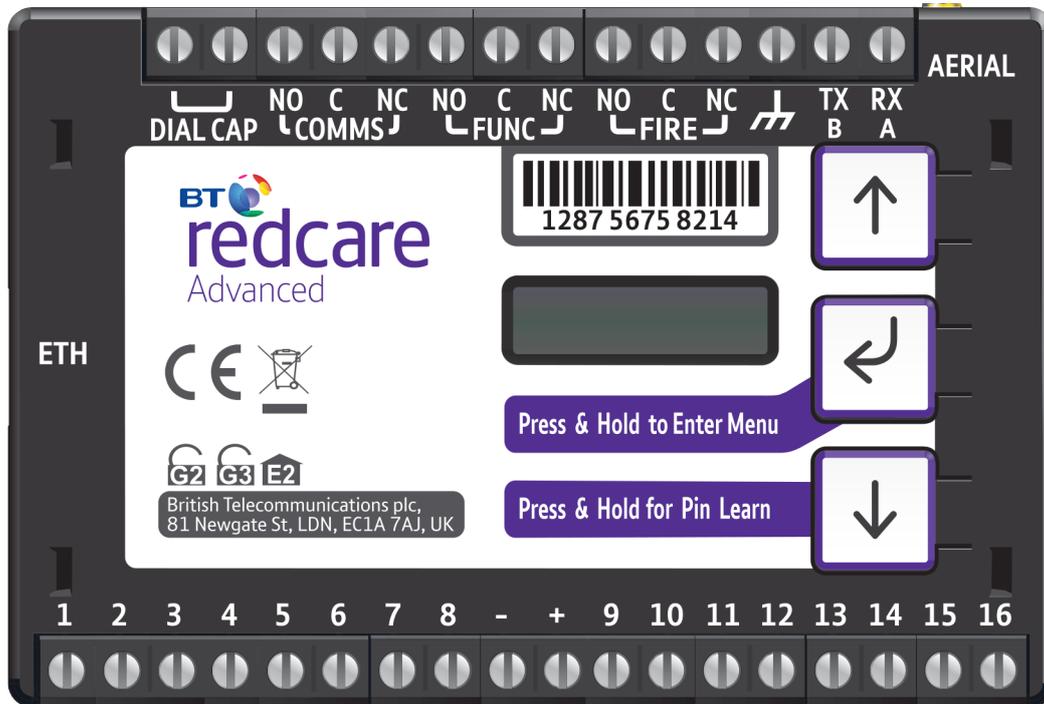


Figure 1 – Advanced and Advanced Extra unit (not to scale)

Advanced and Advanced Extra is a dual path alarm signalling unit for transmitting alarm signals from a customer's alarm panel, via the BT Redcare network, to an Alarm receiving Centre (ARC). Both Advanced and Advanced Extra units are IP primary path with dual SIM 4G/2G mobile technology as the back up path. The units are designed for use in both Security and Fire systems.

The unit communicates via the BT Redcare Network and 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. Both enabled for 4G/2G connectivity.

Specifications

Size: 95mm x 67mm x 17mm

Power: 9V – 30V

Current:

	Average Normal Operation	Average Max loading (inc relays and dial capture operated)
IP/4G unit @12V	85mA	185mA
IP/4G unit @24V	45mA	100mA

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.

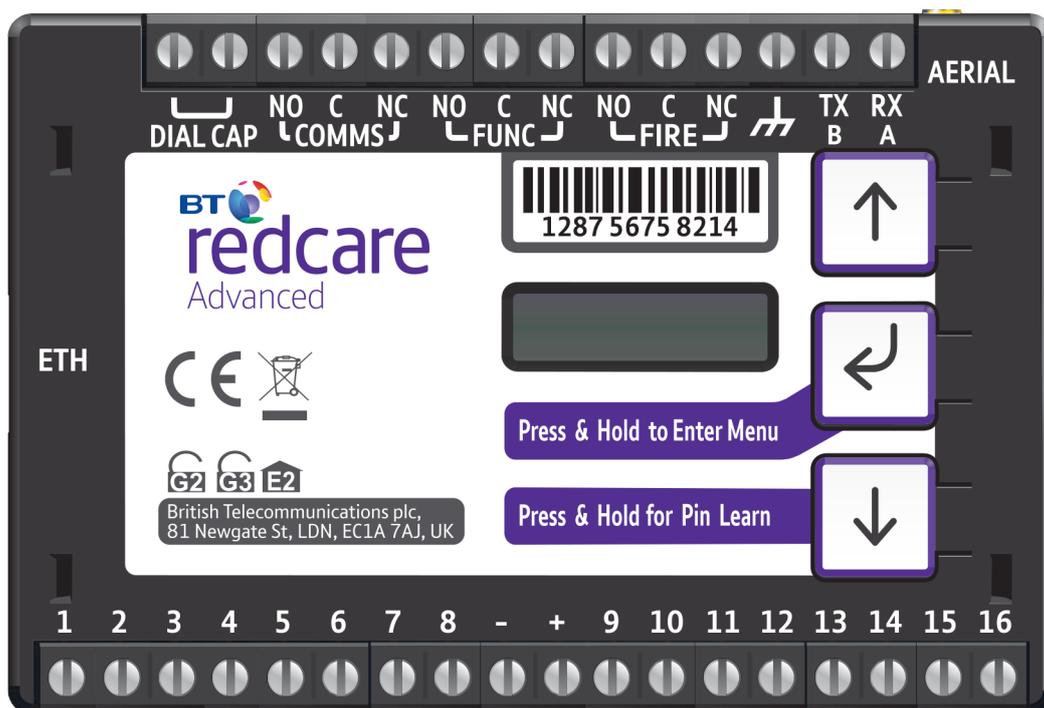


Figure 2 - Layout of terminals (not to scale)

Connection Terminals

The screw terminals for the alarm inputs are suitable for use with a standard 3mm blade terminal screwdriver.

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.



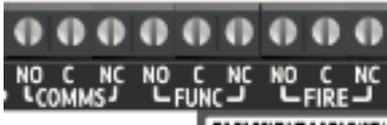
By default the 16 alarm inputs require a positive condition to be presented to send an alarm. (Default = Positive applied). This can be changed using the Pin Learn button or through the configuration menu. See later section on configuration.

Input (PIN)	Use
1	Fire alarm (When programmed 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

Fig 3 - Alarm input allocations. (Functions must be agreed with your ARC)

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.

Ethernet connection

The Ethernet port needs to be connected to a suitable Ethernet network using CAT5 cable. For most IP installations, a standard Ethernet patch cable can be used.

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.

IP	120s
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.

**Path: IP
Registered**

IP Path and if registered with the platform.

**Path: Mobile
Registered**

Mobile Path and if registered with the platform.

**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.

**Service Grade
Redcare DP3**

Service Grade – shows the EN Performance category. DP2 for Advanced, DP 3 for Advanced Extra.

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.

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

**Alarms Battery
Low Battery**

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 IP 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 99 (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

Output 2 (Func)

Output 2 has a number of configuration options

1. Dual path fault:

Will operate when both paths are in fault.

2. User control output:

This can be switched on and off from the web portal or the app.

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

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 by 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.

Defaults Output 1 and 2:

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 reprogramming.

Output 3 is set to User operated

Fire output settings:

To ensure that the Advanced and Advanced Extra units 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:

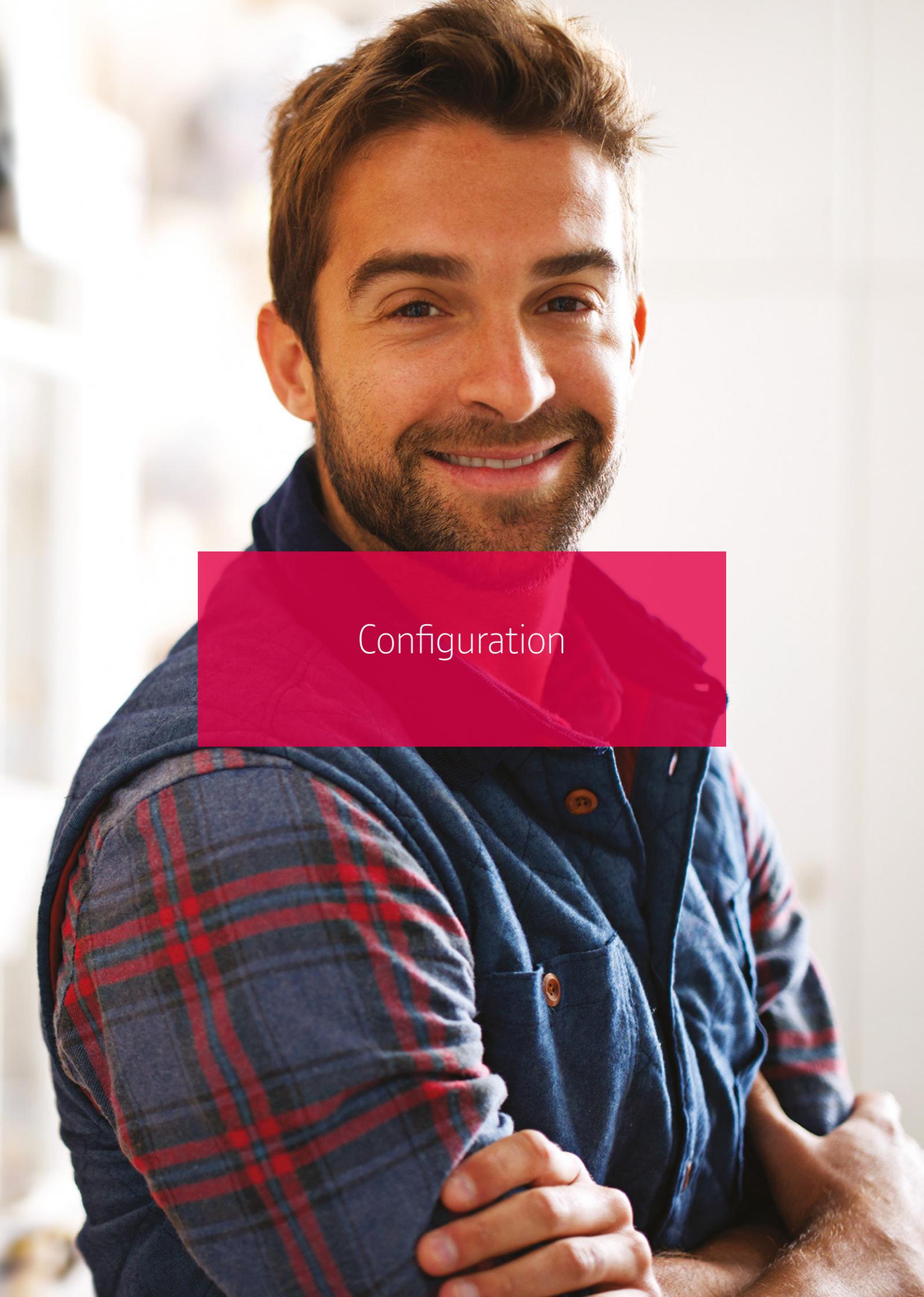
FIRE – Fire Ack – will operate when an acknowledgment to a pin 1 alarm is received from the ARC. It will return to normal when pin 1 is reset.

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

A close-up portrait of a man with short brown hair and a light beard, smiling warmly. He is wearing a dark blue button-down shirt with red and white plaid patterns on the sleeves. A semi-transparent pink rectangular box is overlaid on the lower half of his face, containing the word "Configuration" in white, sans-serif font.

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 tamper 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.

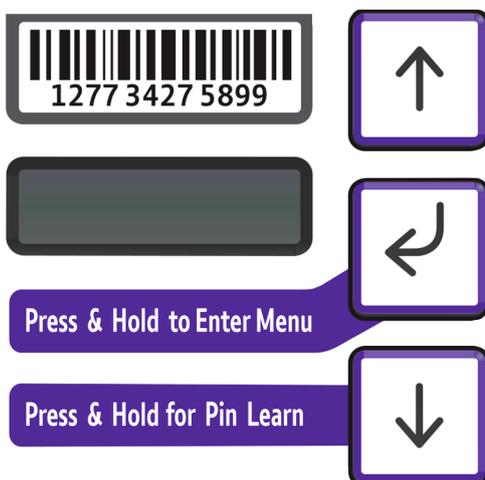
The unit can either be configured by using the on-board configuration menu driven by the buttons, or through the installer app or web portal. Some configurations are only available through the app or web portal.

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

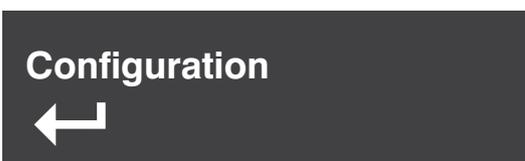
- Change the individual Pin status
- Enable dual end of line for interconnection monitoring
- Change the IP mode from dynamic to static, and allocate a static IP address/subnet/and gateway address
- Change the comms fail output type etc.

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.

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.

Output Type 1 *
Single Path Fault

Notice-
Saved!

Some menu items have more options. e.g. Output 2 has 4 options to set the comms fault output type. 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

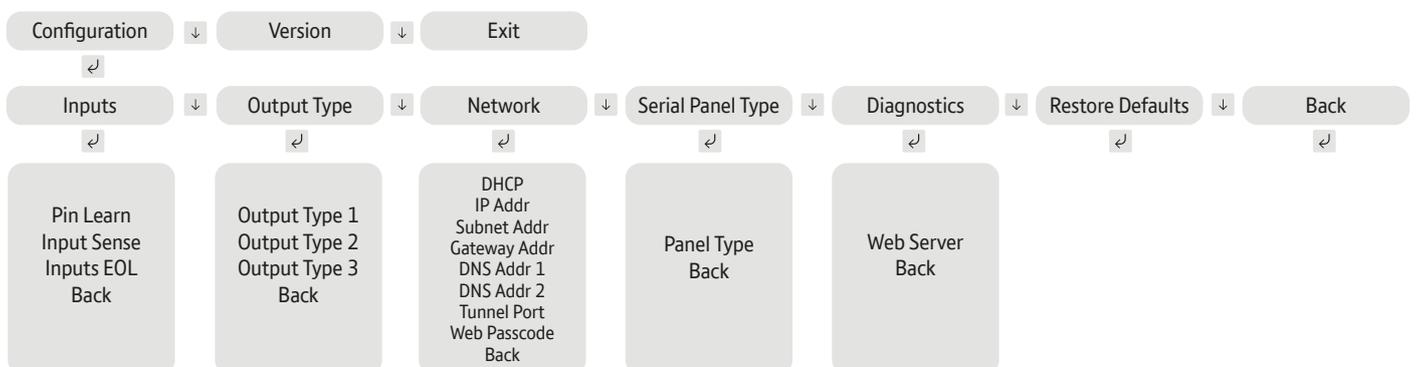


Figure 7 – button configuration main menu options

Inputs

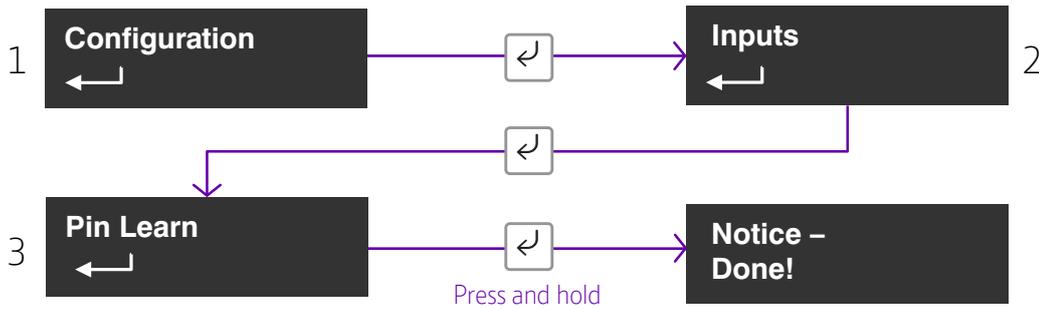
Pin Learn

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

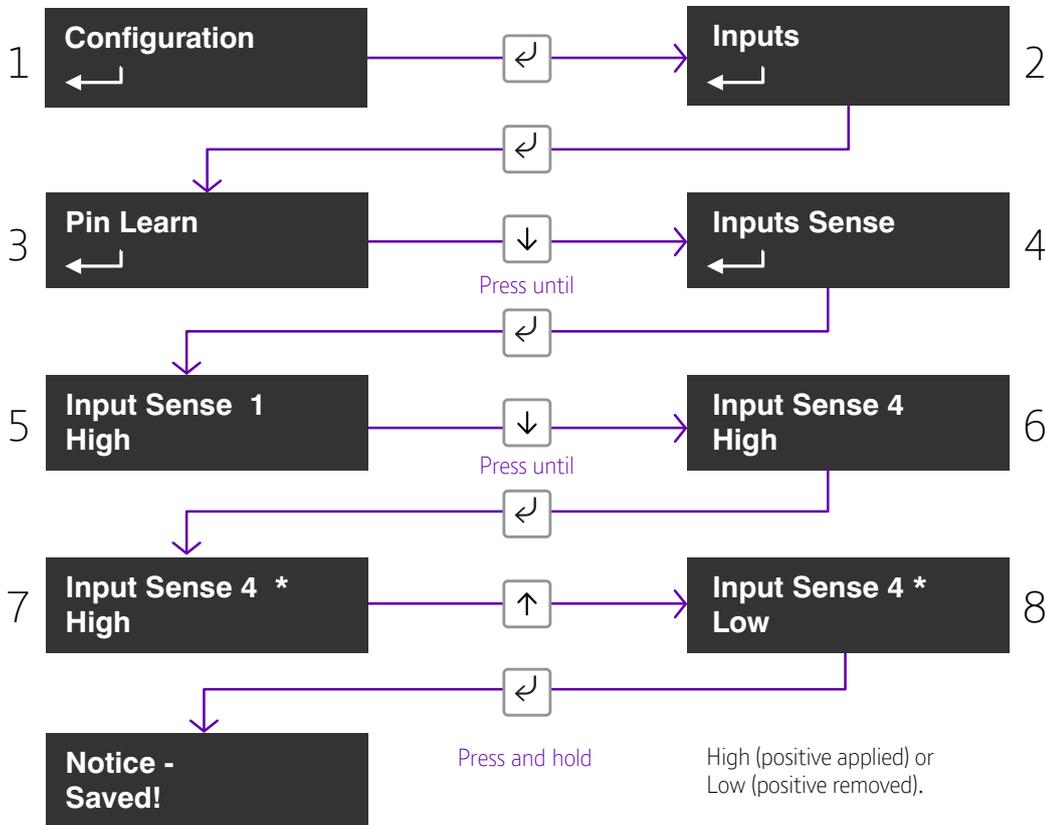
Edit mode for that part of the menu can be exited at any time, without saving changes, by pressing for 5s. This will return you to the sub menu that you were making changes in.

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 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.

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.

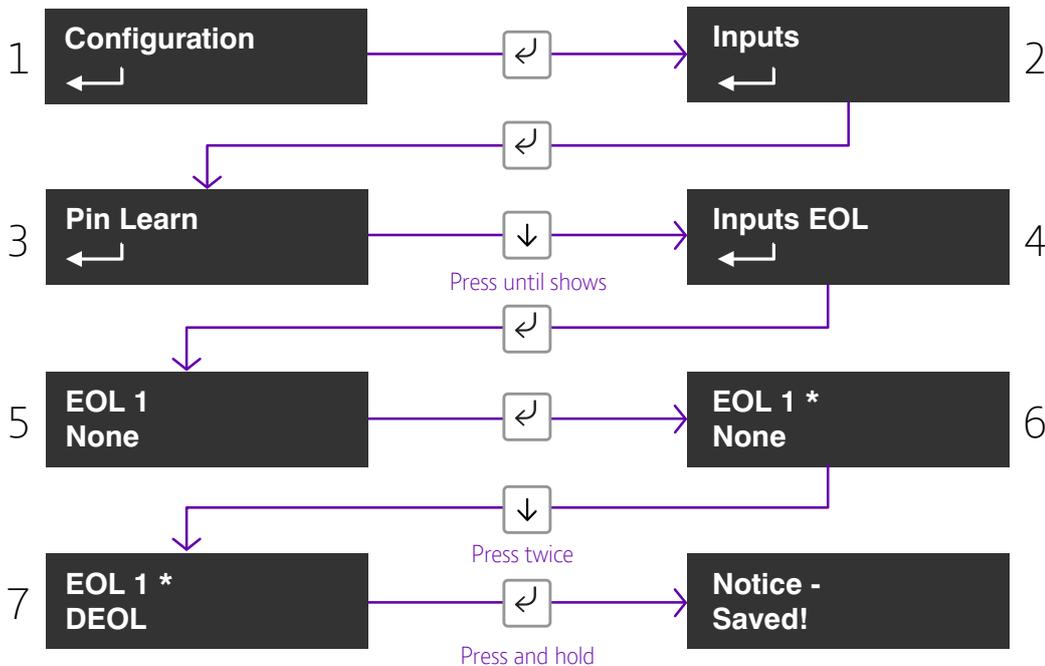
The configuration menu can be exited at any time without saving any changes by pressing for 5 seconds. This will take you back to the scrolling status display.

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 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

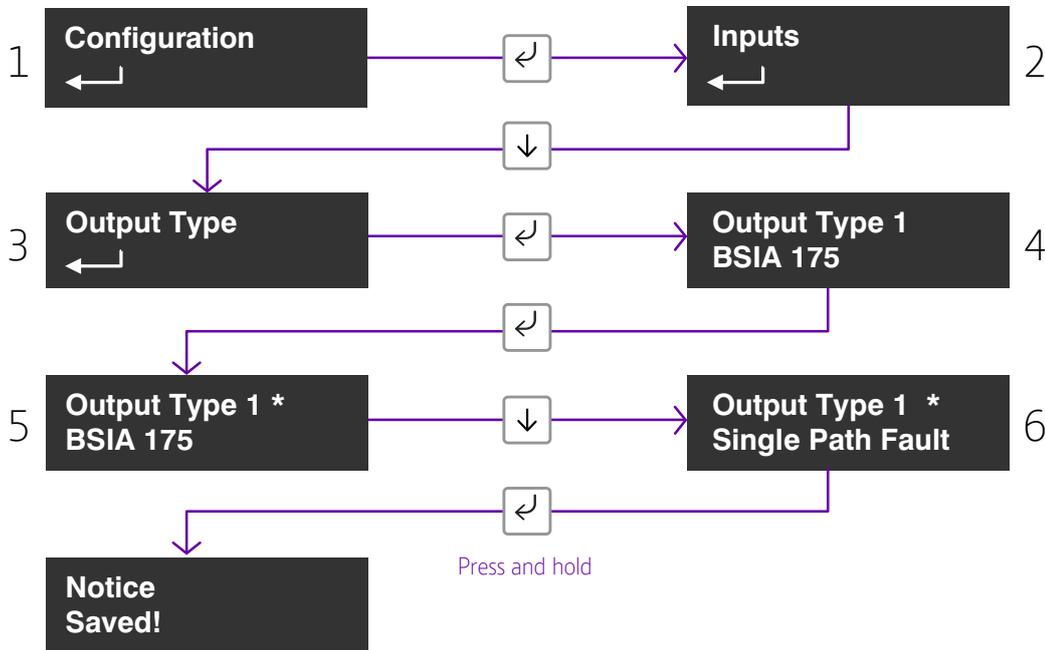
2. Output type 2 (Func)

- 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

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)

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 pin learn. 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 programming options under the network sub menu are:

1. DHCP:

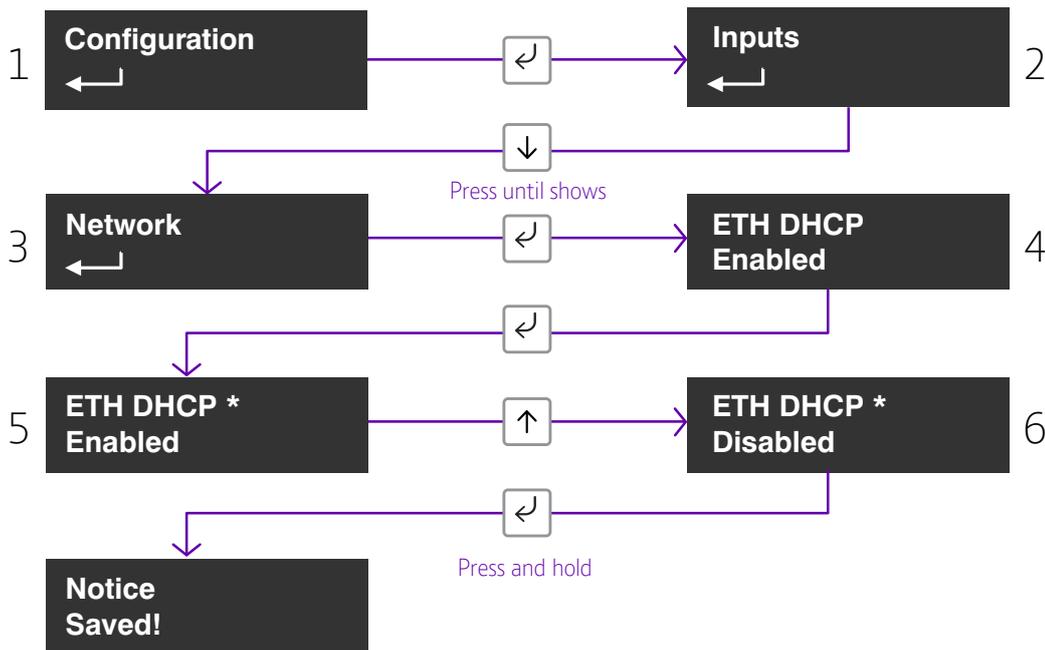
Allows the unit to be changed between dynamic (DHCP client) or Static mode.
Default setting is enabled.

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

- **IP address** – shows current IP Address but can also be configured for a static IP address
- **Subnet mask address** – shows current subnet address but can also be configured for a customers subnet address
- **Gateway address** – shows current gateway address but can also be configured for a customers gateway address
- **DNS Address 1** – can be configured to use specific DNS servers
- **DNS Address 2** – 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

When DHCP is set to disabled this then sets the unit in Static IP addressing mode.

Example – To change from DHCP to Static mode:



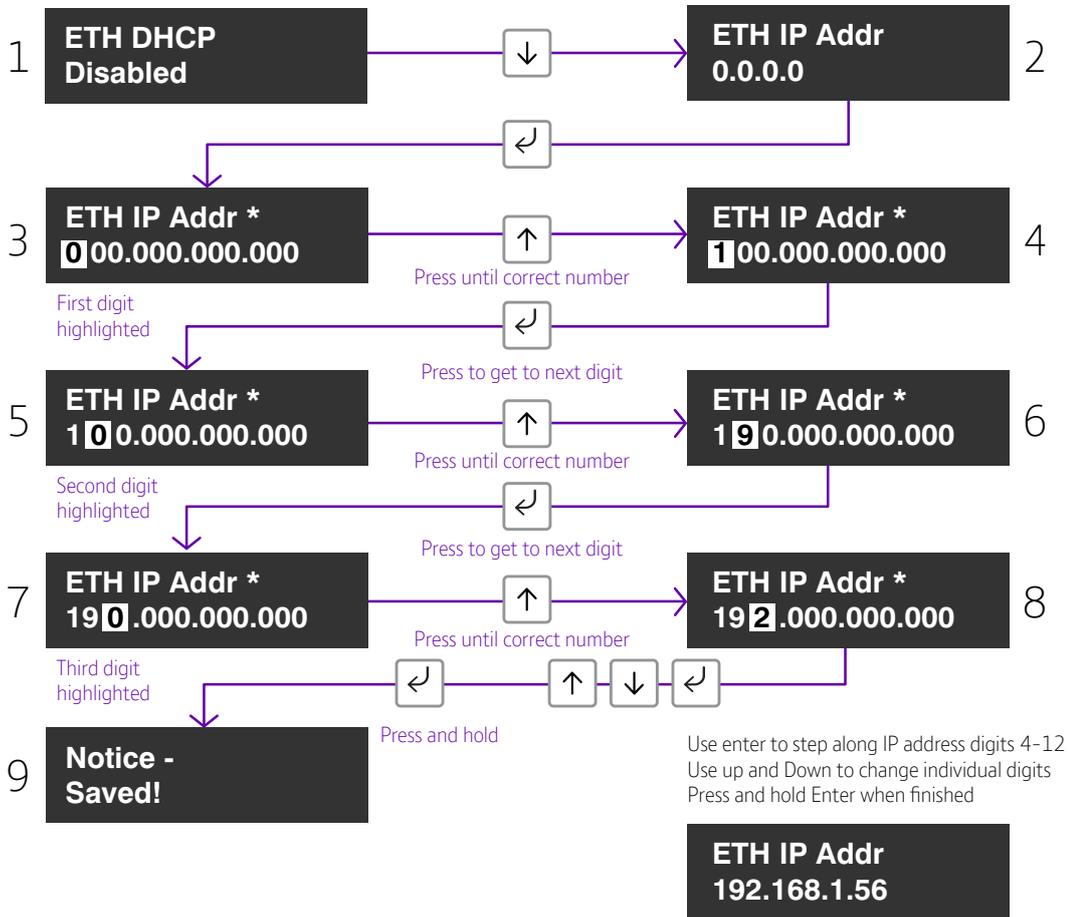
Access the configuration menu by holding the Enter button for 3 seconds, press the Enter button again, the display will show pin learn. Press the down arrow until Network is displayed. Press the Enter button again. ETH DHCP is displayed. Press the Enter button . * will be displayed. Use down arrow to disable DHCP 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.

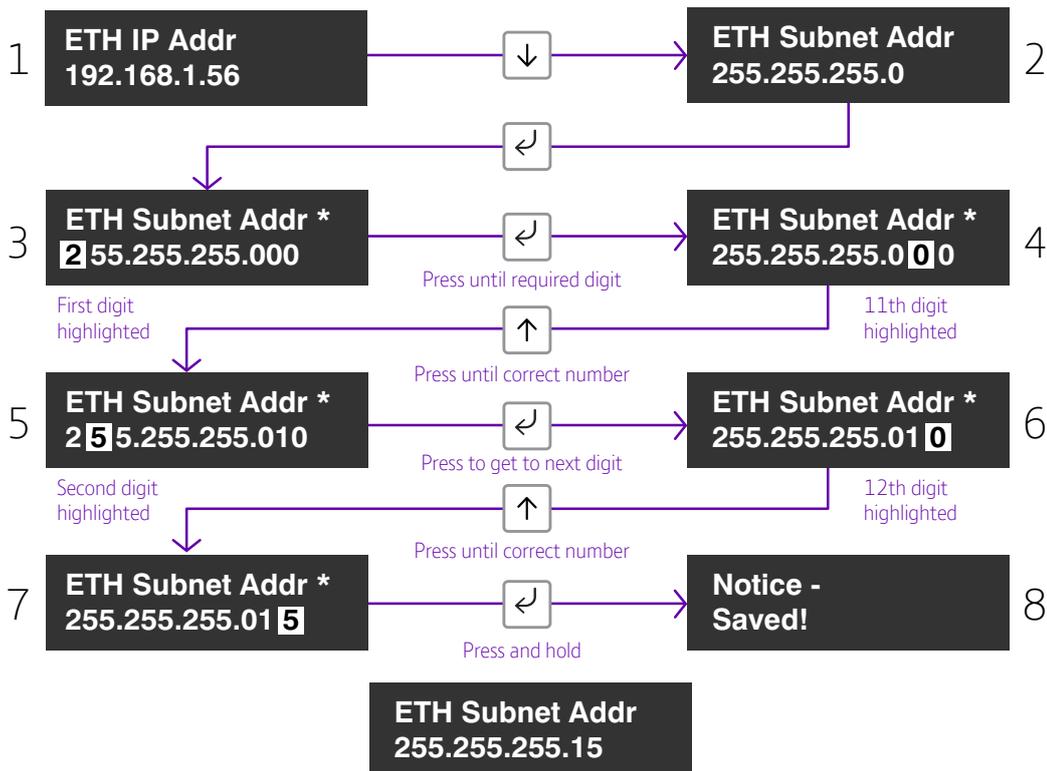
The configuration menu can be exited at any time without saving any changes by pressing  for 5 seconds. This will take you back to the scrolling status display.

Setting a static IP Address, Netmask and Gateway Address

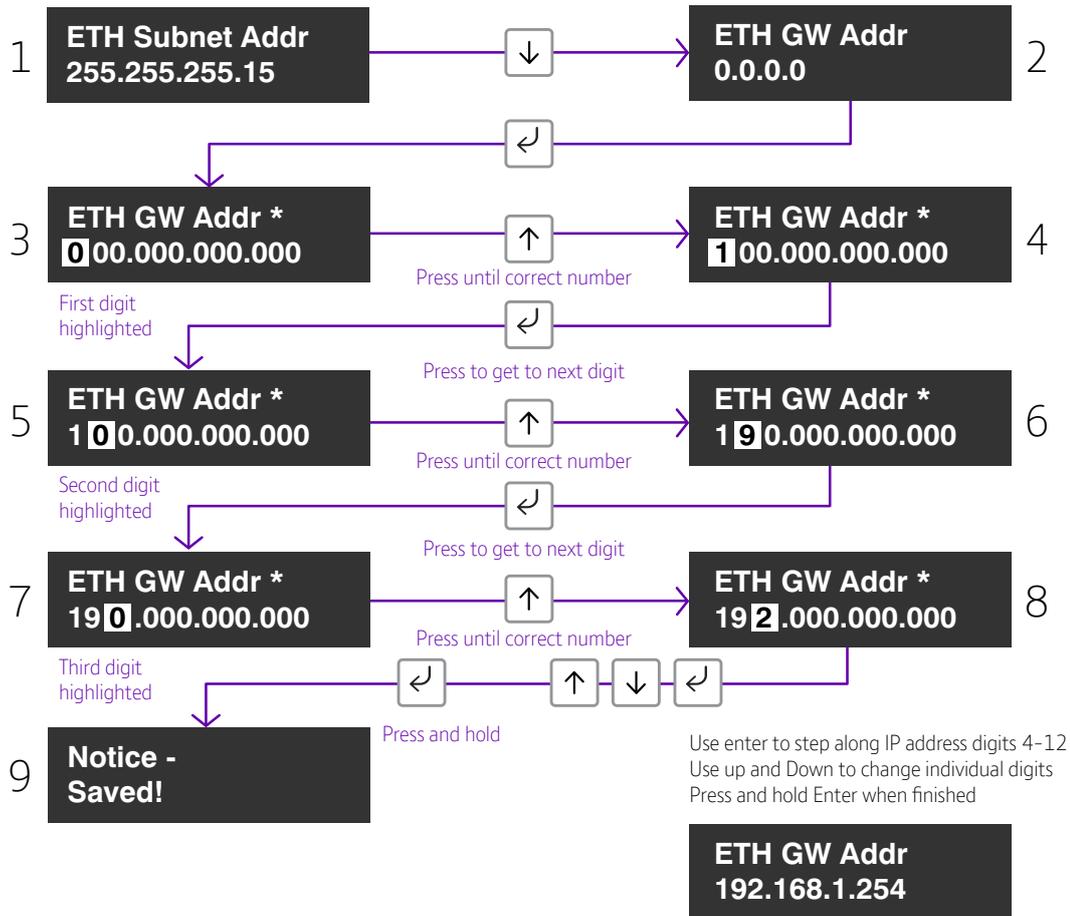
If the unit is to be connected to a LAN that requires the unit to have a static IP address (i.e. no DHCP server on the LAN) then this can be configured as follows after setting DHCP to Disabled.



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.

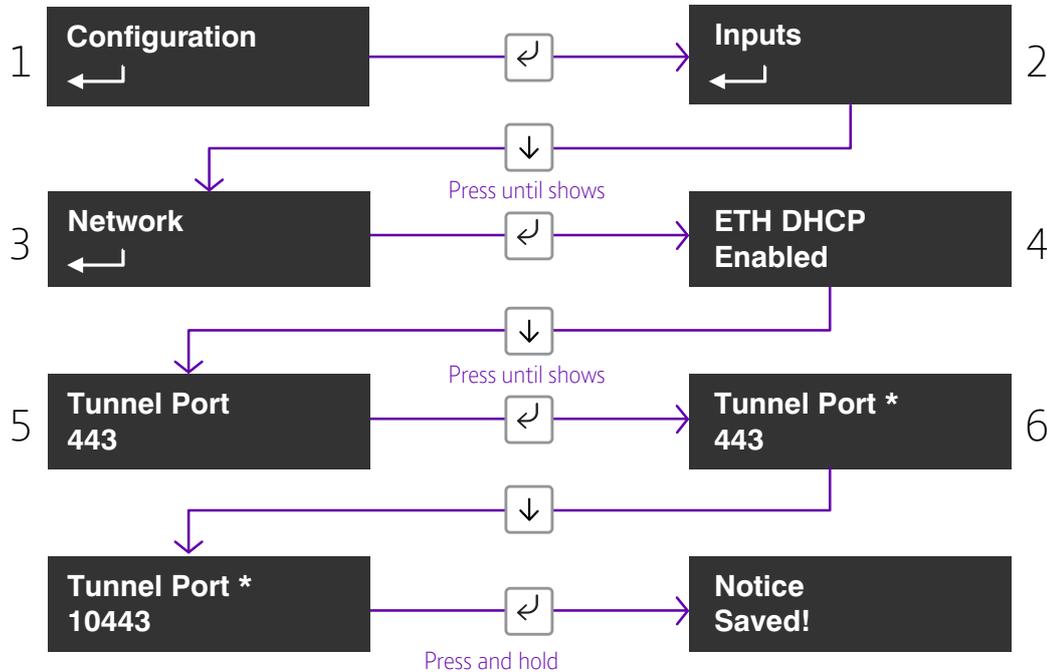
The configuration menu can be exited at any time without saving any changes by pressing  for 5 seconds. This will take you back to the scrolling status display.

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 IP 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 ETH DHCP. 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

Required to convert host names that are used to contact the server.

DNS Addr 2

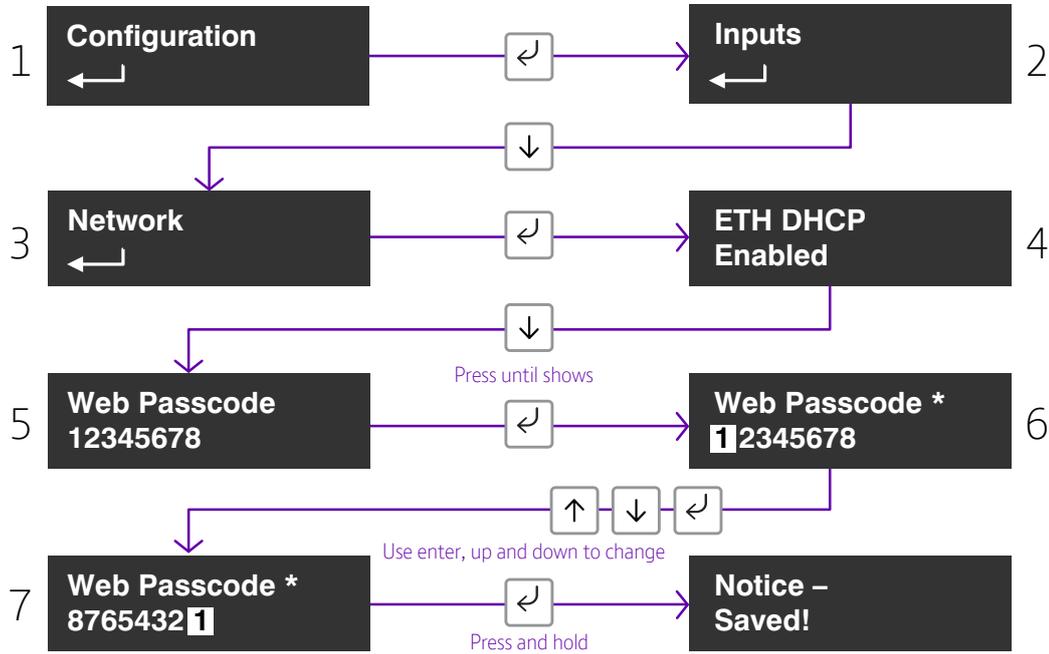
Alternative DNS addresses eg 8.8.8.8 or 1.1.1.1

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, it can be changed from its default



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.

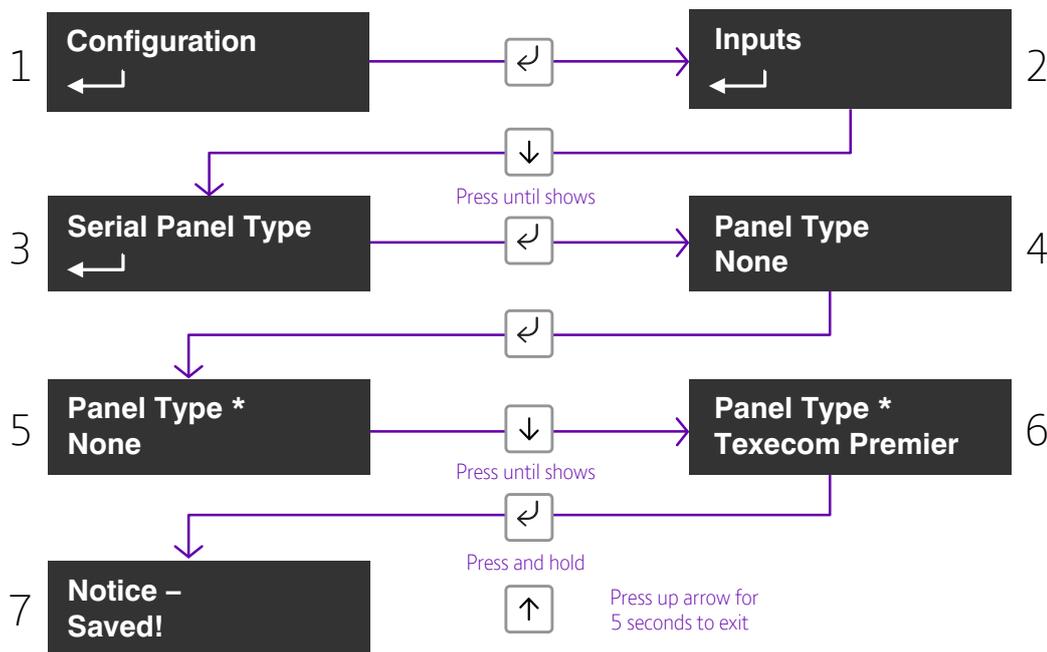
Serial Connection Panel type

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))
- Teocom 816 (Teocom 412/816/832 (RS232 19200 8n2 inv))
- Teocom 48 88 (Teocom 48/88/168 Com - IP(RS232 19200 8n2 inv))
- Teocom Premier (Teocom Premier Elite 48 Com-IP (RS232 19200 8n2 inv))
- Bespoke Panel
- TBA
- Contact IP (RS232 9600/2400/1200 8n1)

Example - changing the unit to connect to a Teocom 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 pin learn. 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.

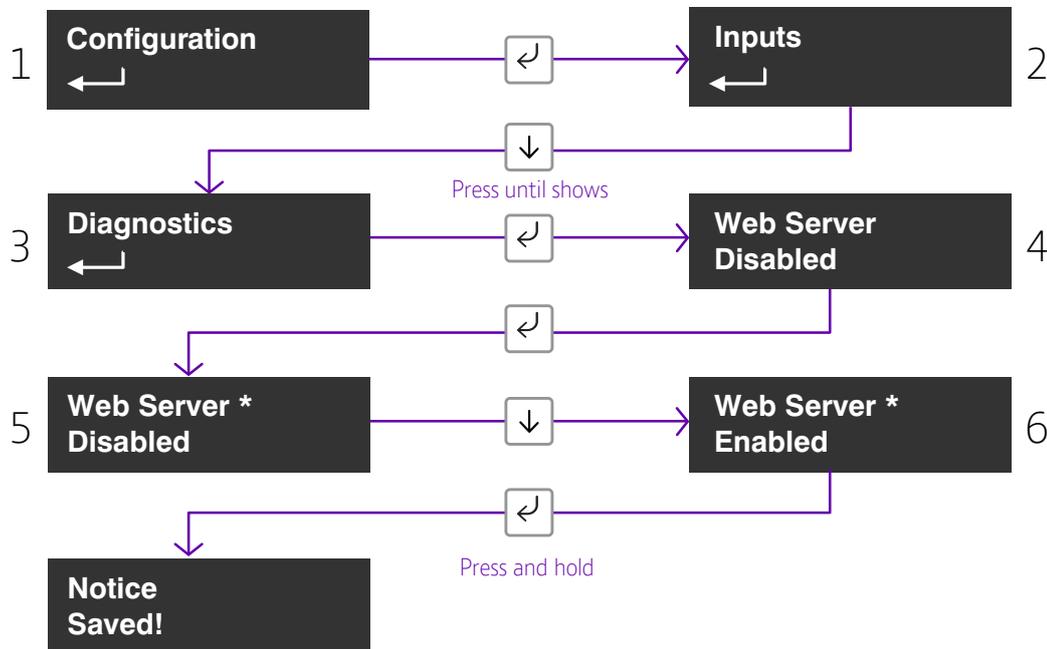
Edit mode for that part of the menu can be exited at any time, without saving changes, by pressing for 5s. This will return you to the sub menu that you were making changes in.

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://192.168.222.222>.

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

The unit will now have a static IP address of 192.168.222.222 for the duration that the web console is enabled. To access the Web Server a PC needs to be connected to the Ethernet port. If an Ethernet switch is used to allow connectivity to the customers network and your lap top then the units will still be able to communicate with the platform over the IP path.

If you plug the cable direct from the PC to the unit, the unit will be unable to communicate across the IP path. A comms fault on the IP path will therefore be signalled to ARC after the normal time out (normally 3 minutes for DP3, 30 mins for DP2). The Comms output will also operate after the time out (normally 4/30 mins) indicating single path fail. This is considered normal. The Mobile path will still function while the web server is enabled i.e. the unit respond to incoming polls over mobile.

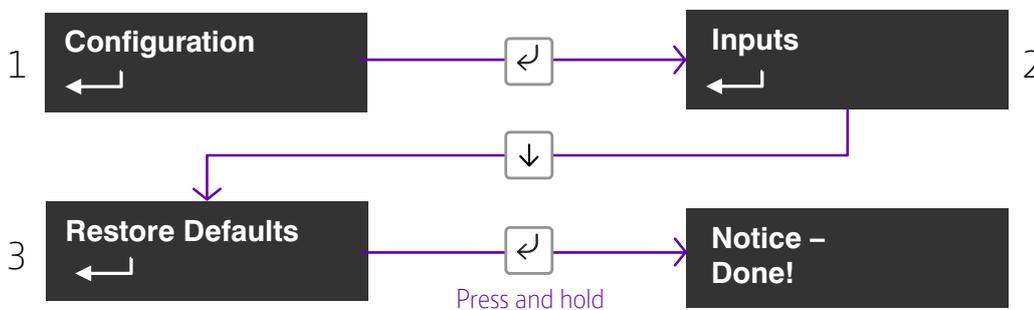
- Web Server will automatically exit after 20 minutes.
- Web Server can be disabled at any time by the installer.
- Web server will revert to disabled if the unit is restarted.
- To access the Web Server a PC needs to be connected to the Ethernet port.
- Configure the PC to have a static IP address within the range 192.168.222.xxx.
- i.e. set the PC to have the following static details:-
- IP address = 192.168.222.10
- Subnet mask = 255.255.255.0
- Gateway = 192.168.222.222.

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 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

LAN Sign in

Enter your username:

Enter your password:

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

- Main
- Pins
- Events
- Users
- Settings
- Logout

Outputs



Output 2 (FUNC)



Output 3 (FIRE)

System Messages

Alarms GPI

4

Status



IP Path



Mobile Path



Alarm

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. Output 3 is configured.

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.

In the example above LAN is red, (showing down), as we have connected the laptop into the Ethernet port – therefore the connection to the customer's network is unplugged and the IP connection is in the down state.

The bell icon is Red in the example above as we have a Pin 4 alarm, shown in the system messages box, which you would expect to see as the system will be open.

If no PIN inputs are in alarm the bell icon will be green.

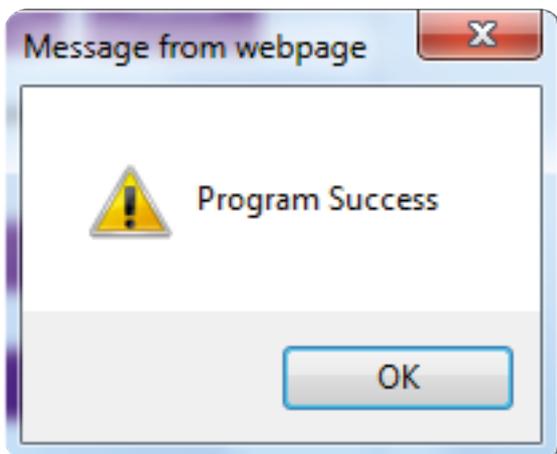
System messages

The system messages box will scroll through 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.

Main	
Pins	
Events	
Users	
Settings	
Logout	

●	Pin 1	Short
●	Pin 2	OK
●	Pin 3	OK
●	Pin 4	Alarm
●	Pin 5	OK
●	Pin 6	OK
●	Pin 7	OK
●	Pin 8	Cut
●	Pin 9	OK
●	Pin 10	OK
●	Pin 11	OK
●	Pin 12	OK
●	Pin 13	OK
●	Pin 14	OK
●	Pin 15	OK
●	Pin 16	OK

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.

Main
Pins
Events
Users
Settings
Logout

Events

Previous
Next
Refresh

All ▼

Time	Event	Type
2018-11-11 15:23:51	Tamper Alarm	Event
2018-11-11 15:23:51	GPI Alarm	Event
2018-11-11 15:23:51	Config Change	
2018-11-11 15:20:42	Access	Event

Main
Pins
Events
Users
Settings
Logout

Configure Users

Add
Edit
Delete
Save

Edit an Existing User

User installer (1) ▼

User Name

PIN

Type
Master Installer ▼

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

Main
Pins
Events
Users
Settings
Logout

Settings Selector

Details ▼

Up
Down
Save

Device Details

Serial Number
015906173302

Ethernet MAC Address
00:0D:16:38:B7:B0

Firmware Version
A71P000011-99

Hardware Version
207370 IX 03

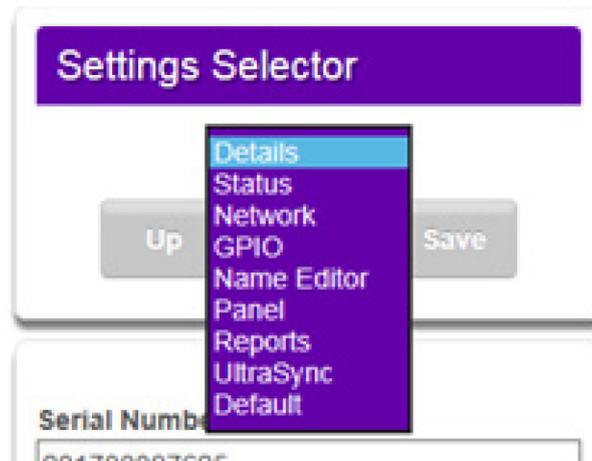
Bootloader Version
B4611

Web Pages Version
0.06

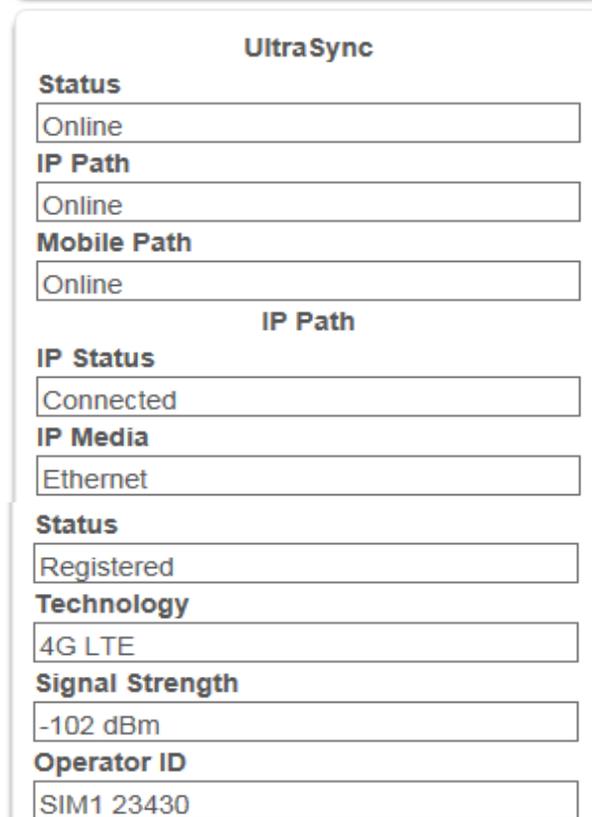
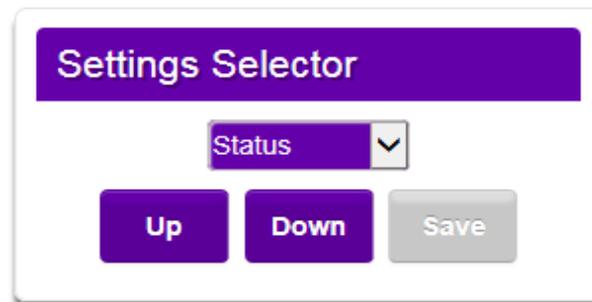
Menu Strings Version
0.1

Device Region
EMEA

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 is offline and disconnected in the example shown above as we have the laptop plugged into the ethernet port. 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

Network

The screenshot displays a 'Settings Selector' window with a 'Network' dropdown menu. Below the dropdown are three buttons: 'Up', 'Down', and 'Save'. The 'Ethernet' section is expanded, showing 'Method' set to 'DHCP' and 'Tunnel Port' with a list containing '443' and '10443'. The 'Remote Access' section is also visible, showing 'Web Access Passcode' set to '65790246'.

Settings Selector

Network

Up Down Save

Ethernet

Method
DHCP

Tunnel Port
443
10443

Remote Access

Web Access Passcode
65790246

This menu allows you to change from DHCP to static and to alter the Web Access Passcode. To change to static click on the drop down arrow which will then show DHCP and Static. Click on static. Additional boxes will be displayed allowing you to add in the static IP, Sub net and Gateway addresses.

Settings Selector

Network

Ethernet

Method

IP Address

Subnet Mask

Gateway

DNS 1

DNS 2

Tunnel Port

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

GPIO

Settings Selector

GPIO ▼

Up
Down
Save

Input

Input 1 ▼

Input Sense 1

High ▼

Input EOL 1

None ▼

Mains Fail Time

7

Output

Output 1 ▼

Output Type 1

BSIA Form 175 ▼

Input

- Input 1
- Input 2
- Input 3
- Input 4
- Input 5
- Input 6
- Input 7
- Input 8
- Input 8
- Input 9
- Input 10
- Input 11
- Input 12
- Input 13
- Input 14
- Input 15
- Input 16

Low

High

None

EOL

DEOL

Output 1 ▼

- BSIA Form 175
- Single Path Fault
- Dual Path Fault
- IP Path Fault

User

Dual Path Fault

Mobile Path Fault

RPS

Fire NAK

Output 3 ▼

Output Type 3

- User
- Fire ACK

In this menu, by using the drop down arrows on each section, you can change any of the PIN input status from High (positive 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.

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.

Settings Selector

GPIO

Input

Input 8

Input Sense 8

High

Input EOL 8

DEOL

Mains Fail Time

7

Output

Output 2

Output Type 2

Fire NAK

Name Editor

Settings Selector

Name Editor ▼

Up Down Save

Functions

Output 2 (FUNC)

Output 3 (FIRE)

Pins

Pin 1

Pin 2

Pin 3

Pin 4

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.

Settings Selector

Panel

▼

Up

Down

Save

Panel

Type

None

Galaxy Dimension 48/96/264/520 (RS232 9600 8n1)

Galaxy Dimension 48/96/264/520 (RS485)

Galaxy G3 48/144/520 (RS232 9600 8n1)

Galaxy G3 48/144/520 (RS485)

Galaxy G2 12/20/44 (RS485)

Galaxy Classic 8/18/60/128 (RS485)

Galaxy Classic 500/504/512 (RS485)

Texecom Premier 412/816/832 (RS232 19200 8n2 inv)

Texecom Premier 48/88/168 Com-IP (RS232 19200 8n1 inv)

Texecom Premier Elite 24/48/88/168/640 Com-IP (RS232 19200 8n1 inv)

E-Bound AVX (RS485 9600 8n1)

Pyronix (RS232 9600 8n2)

ContactIP (RS232 9600/2400/1200 8n1)

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.

Reports

Settings Selector

Reports ▼

Up Down Save

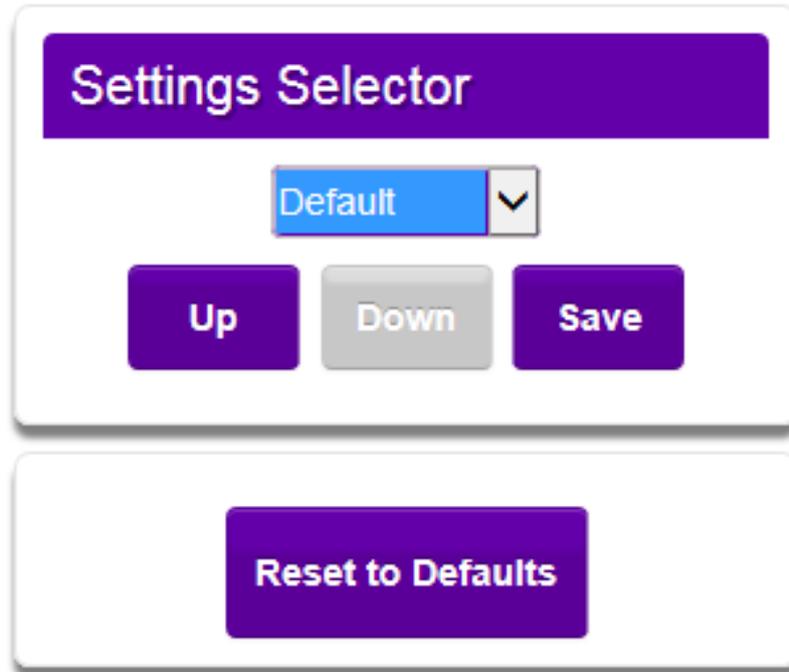
Email 1 ▼

Email 1 Address

- Video
- System
- Power
- Arm/Disarm
- Alarm

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

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.

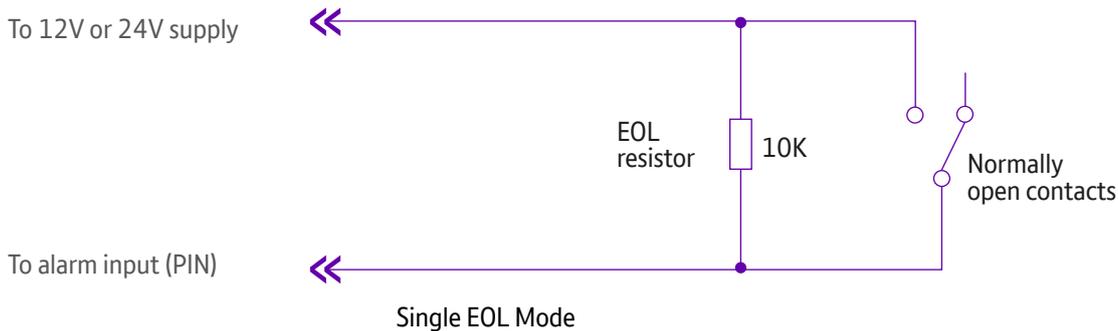
Should the web server enablement time out you will not be able to save changes. You will need to re enable the Web Server through the programming buttons.

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 requirement 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.



Wiring for Interconnection Monitoring

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

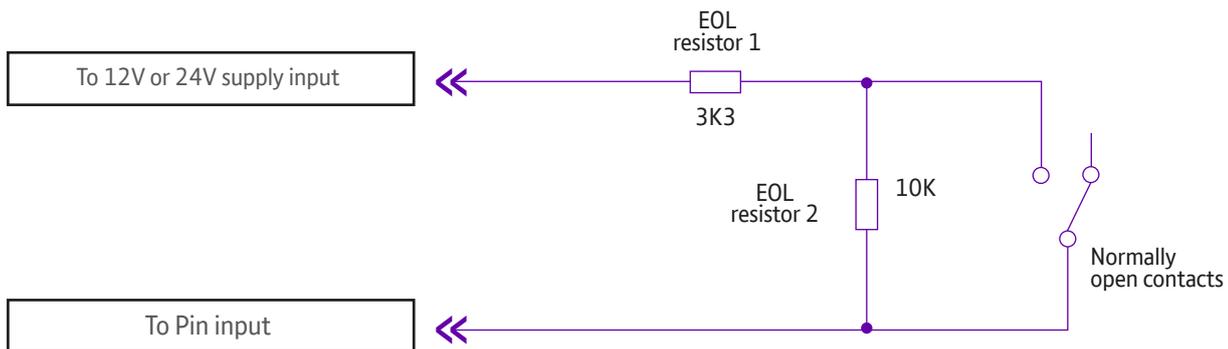


Fig 8

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

3.3K Ω 1%

orange, orange, black, brown, brown

10K Ω 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.

Alarms GPI Cut

6

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.

Alarms GPI Short

8

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

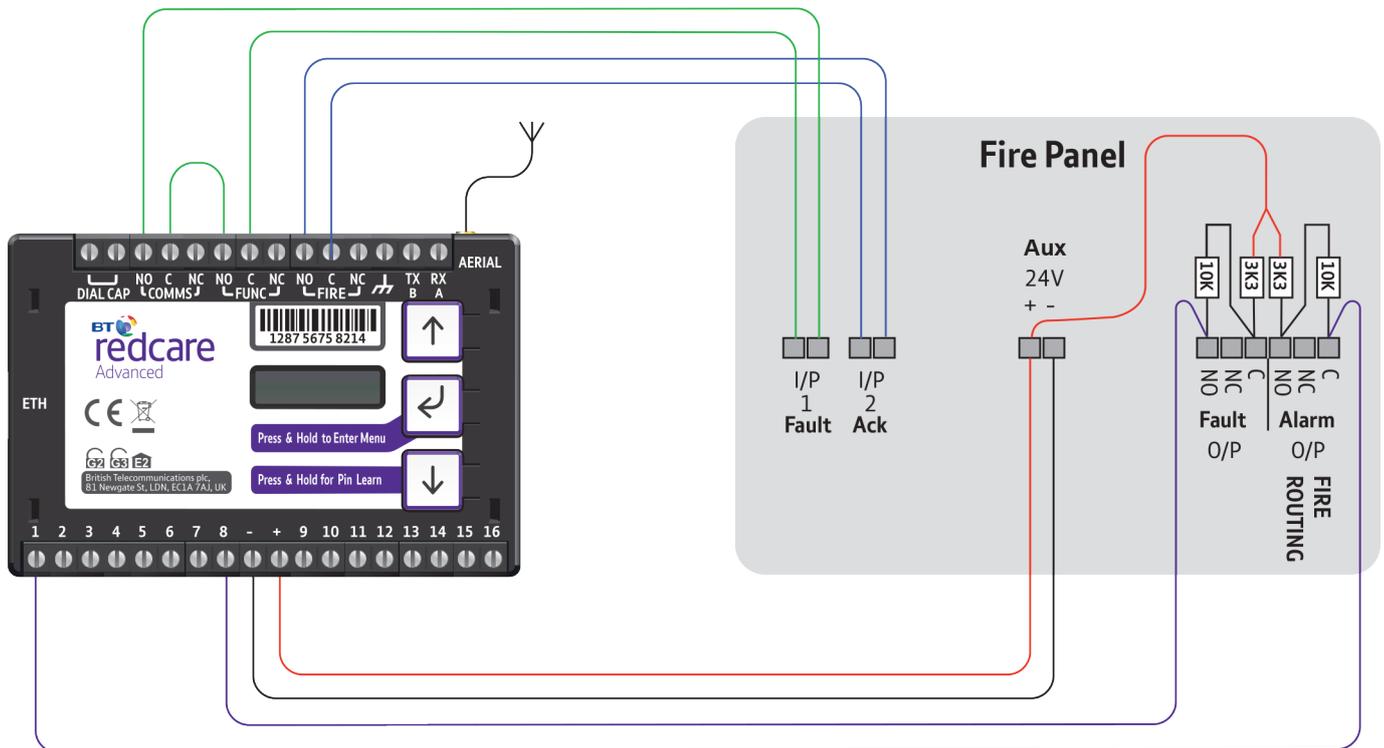


Figure 10 – Typical fire alarm connections for panel with 2 inputs and unit with interconnection monitoring

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:

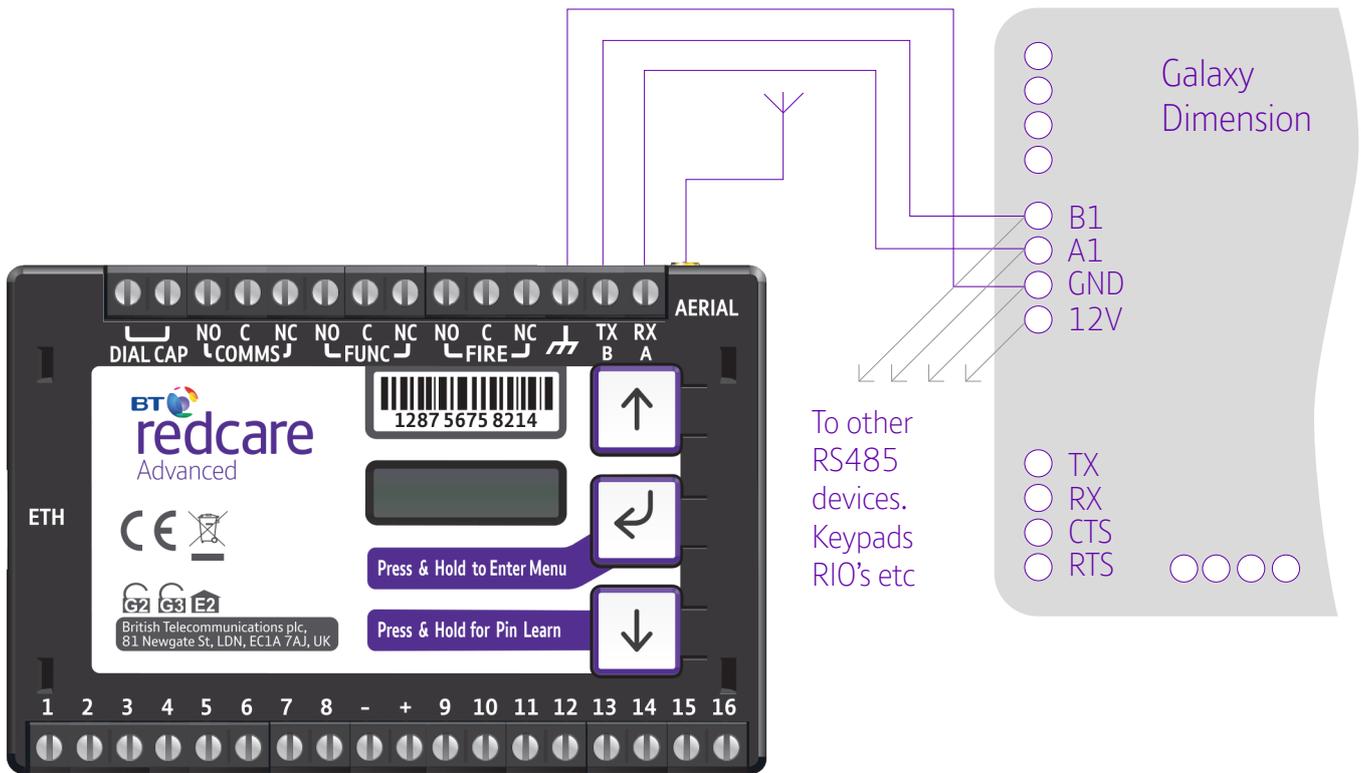


Figure 11 (not to scale)

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 (Essential or Redcare Platform generated alarms) and alarm panel generated ZONE alarms.

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, traffic 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 Server
F175	Form 175 as issued by BSIA
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

Support

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



EN50136, EN50131, PD6669, PD6662

EN 54-21:2006

Alarm transmission and fault warning routing equipment for fire alarm systems

Offices worldwide

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