BT REDCARE

Essential Extra

Installation Guide

LPCB
EN 50136-2:2013
EN 50131-10:2014
Cert No. 1270g

Secured by Design
SBD
Police Preferred Specification

bsi
Internet of Things - Commercial KITEMARK™
Secure Digital Applications KITEMARK™

Contents

Introduction

Product description

Essential Extra is a wireless 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) using pass-through mode of operation. Essential Extra units have dual modems with 4G/2G mobile technology in each 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 (Terminal adapter) account must exist for the unit to communicate. The TA account will have been populated with the serial number of the unit. Once connected to the platform the unit uses a poll and response check to determine path status. When the primary path fails the secondary path will take up the polling and reporting parameters of the primary path. Individual path fails are transmitted over the remaining path.

Dual path failure is platform generated. 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.

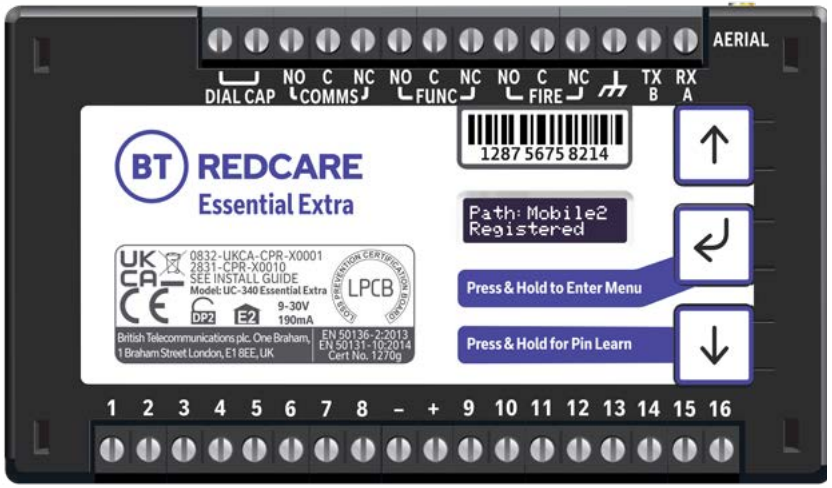


Figure 1 – Essential Extra unit (not to scale)

Primary path fail reporting	30mins
Secondary path fail reporting	5 hours
Both paths fail concurrent	60 mins
Catastrophic failure (both paths together)	31 mins
Alarm transmission category EN standards / PD6669 (UK)	DP2
PD6669, ENSO131 (2017) Grade	2/3
Grade option (Table 10 EN50131-1 2020)	3C, 2F
Previous grade (Pre June 1st 2019)	3
Environmental class	II

Specifications

Current	Average Normal Operation	Average Max loading (inc relays and dial capture operated)
4G/4G unit @12V	110mA	241mA
4G/4G unit @24V	50mA	110mA
Size:	114mm x 67mm x 20mm	
Weight:	139g	
Power:	9V – 30V	

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). Max rating 1A @ 30V DC
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
GSM/GPRS/EDGE:	Dual band 900/1800MHz, maximum transmit power +34.5dBm
LTE:	Penta-Band 700 (Bd28)/800 (Bd20)/900 (Bd8)/1800 (Bd3)/2100 MHz (Bd1), maximum transmit power +24dBm
Operating range:	-10 to +50 degrees Celsius, average 90% non condensing humidity

Safety notes

Warning

Read all safety warnings and instructions. Failure to heed warnings and follow instructions may result in electric shock, fire risk and/or personal injury.

Work area safety

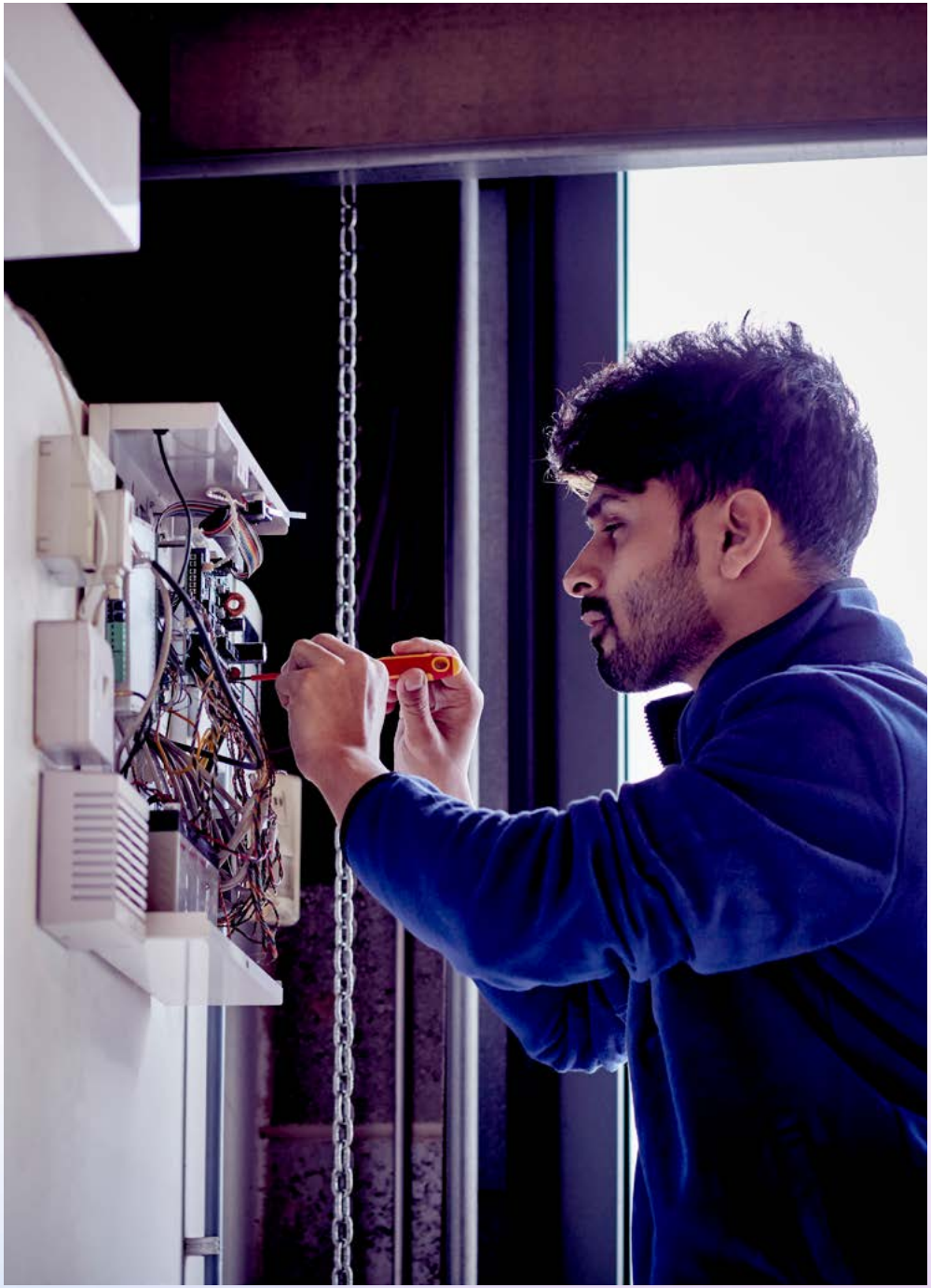
- Keep work area clean, well lit and free of obstacles.
- Keep floor and walkways clear of cables and materials to avoid trip hazards.
- Keep children and bystanders away while performing installation and maintenance work.
- Remove any left over materials when finished and keep all items away from children and pets.

Personal safety

- Stay alert and attentive. A moment of inattention may result in personal injury.
- Do not perform installation or maintenance work when tired or under the influence of medication, drugs or alcohol.
- Upon commencing work on security system enclosures and components, ensure the item is securely fixed to the wall and that no components or contents such as the battery can fall and cause personal injury.

Electrical safety

- Exercise care when working inside security system enclosures:
  - Metallic tools, fingers, body parts or jewellery coming into contact with mains wiring and terminals may cause electric shock.
  - Metallic tools or jewellery coming into contact with battery terminals may cause sparks, personal injury or create a fire risk.
- Exercise care when drilling into, or inserting fasteners into walls. Pipes and wiring may be present in the wall and contact with tools or fasteners may provide risk of electric shock, damage to premises services, or create a fire risk. Locate wiring, pipes and services first to avoid accidents.



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 a suitable robust enclosure, 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 all installations access to the unit needs to meet EN50131-1 installer access level 3.

For fire alarms it is recommended the signalling unit is mounted within an enclosure separate from the fire alarm panel or fire alarm power supply.

Caution: mounting the signalling unit within fire alarm panel or fire alarm power supply enclosure might invalidate their compliance with EMC regulatory requirements.

The separate enclosure must meet the requirements of EN 54-2 and EN 54-21 associated with access restriction to installer level 3, ingress protection to IP30 or above and power supply integrity. The transmission of fire alarm signals and the state of the fault and acknowledge outputs on the signalling unit shall be displayed at the separate enclosure or at the fire alarm panel. If the fire panel and the separate enclosure are some distance apart (i.e. not within line of sight) then the indications should be at the panel.

For optimum performance the supplied aerials should be mounted vertically outside of and away from the housing by removing the adhesive backing. Ideally the aerials should be at least 30cm apart and not mounted on a metal surface. The aerials should be installed a distance of 20cm or greater away from any user or bystander.

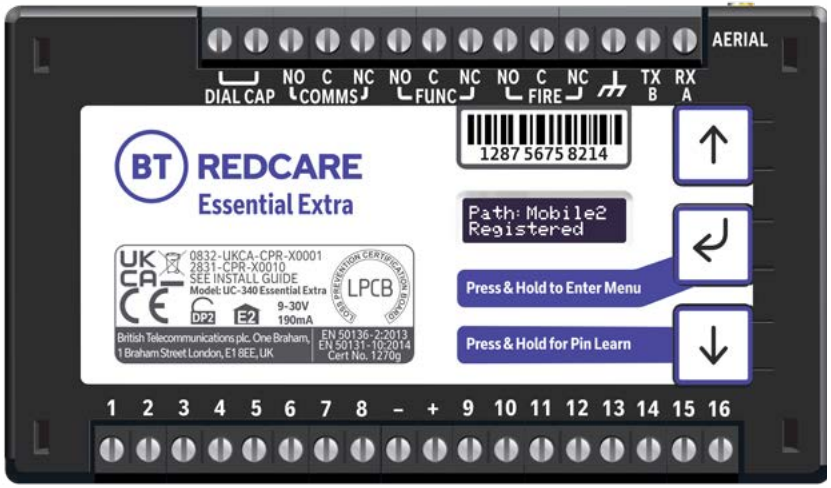


Figure 2 – Layout of terminals (not to scale)

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 two 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 signalling unit must be powered from a supply meeting the requirements of EN 54-4. 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 output 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

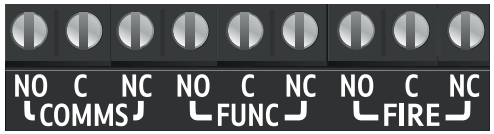
Figure 3 – Alarm input allocations. (Functions must be agreed with your ARC)

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

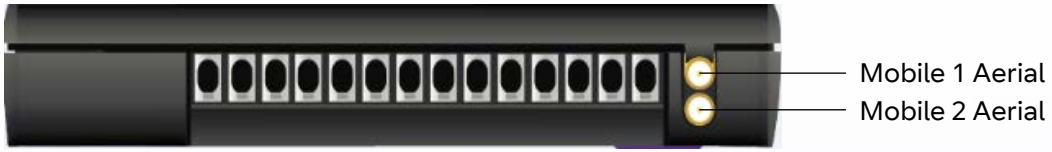
The Dial Capture (DIAL CAP) terminals enable interfacing with an alarm panel's digital communicator. The alarm panel can then send SIA, CID or Fast Format messages through the unit to the Alarm Receiving Centre.

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

Aerial connection

Connect the supplied aerials to the MMCX connectors on the top right of the unit. The aerials should be placed in a vertical position and slightly apart to ensure a good wireless coverage. Carry out a survey to establish the best location.

A Mobile signal analyser and a selection of high gain and extension aerials can be purchased from the BT Redcare shop at btinstallershop.bt.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.

Mobile 1	120s
Mobile 2	180s

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: Mobile1
Registered

Mobile1 Path and if registered with the platform.

Path: Mobile2
Registered

Mobile2 Path and if registered with the platform.

Mobile1 Strength
4G [▂▄] [-103]

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

Mobile1 Strength
4G [▂▄] [-101]

Shows the mobile network that the device is connected to.

Mobile1 Operator
EE

Mobile1 operator. This will always be EE.

Mobile2 Operator
Three

Mobile2 Operator. This could be any of the main UK networks.

Service Grade
Redcare DP2 R

Service Grade – shows the EN Performance category.

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.

Alarms Battery
Low Battery

The unit may also show Low Battery if the supply voltage is below the supply threshold.

Signal strength:

Signal strength	Display
On 2G below -90dBm	X will be displayed
On 2G between -90 and -85dBm	1 bar will be displayed
On 2G between -85 and - 80dBm	2 bars will be displayed
On 2G between -80 and -75dBm	3 bars will be displayed
On 2G above -75dBm	4 bars will be displayed

Signal strength	Display
On 4G below -120dBm	X will be displayed
On 4G between -120 and -110dBm	1 bar will be displayed
On 4G between -110 and -100dBm	2 bars will be displayed
On 4G between -100 and -90dBm	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.bt.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 mobile paths 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 acknowledgement.
- **Down** – the path has lost connectivity to the platform and is trying to reconnect.

Note: When fully commissioned both mobile 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 or a Keyswitch associated with it. (See output 2 RPS or Keyswitch (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 unit's 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 up to 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.)

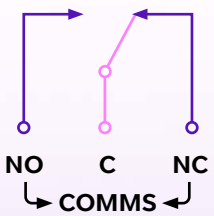
1. **BSIA form 175 output**
   This allows the alarm panel to interrogate path faults as single path or dual path. By default the relay output will switch, following either path fail, once the relevant timer has expired. If ATS input (Pin 11) is toggled during the fail period (i.e. panel interrogation) 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 Mobile paths are in fault.
4. **Mobile 1 Path fault**
   To be used in conjunction with Output 2 for Mobile 2 Path fault.

The following states will apply to the relay:

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

Relay status with path fail in operation



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 2 path fault output:**
   In this case Output 1 is set as the Mobile 1 path fault output, and Output 2 as the Mobile 2 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.
6. **Keyswitch:**
   To be able to set/unset the alarm panel with the customer app.

Output 3 (FIRE)

1. **User operated:**
   The default setting for output 3. This can be operated by the web portal or the app 2.
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 (Visible when output 2 or 3 set to Keyswitch)

- **Momentary** – momentary pulse to allow set and unset of alarm panel with customer app.
- **Latched** – Latched output option to allow set and unset of panel with customer app. Used in conjunction when setting output 2 as Keyswitch.

Default Outputs settings 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 reprogramming.
- **Output 3** is set to User operated.

Fire output settings:

To ensure that the Essential 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	Fire ACK	Relay Terminal
Power Off	Output 3	C <-> NC
Not in ACK (idle)	Output 3	C <-> NO
ACK	Output 3	C <-> NC
	Fire NAK	**Relay Terminal**
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. For use of the app or web portal remotely, written authorisation is required from a Level 2 user. Please contact the Technical Helpdesk for more information.

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

- 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'.

Configuration ↵

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

Inputs ↵

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. The structure of the sub-menu depends on the menu item.

Output Type 1*
Single Path Fault

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

Notice - Saved!

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!'

Some menu items have more options. E.g. Output 2 has four 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. E.g. 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 5s. This will take you back to the scrolling status display.

Main menu display

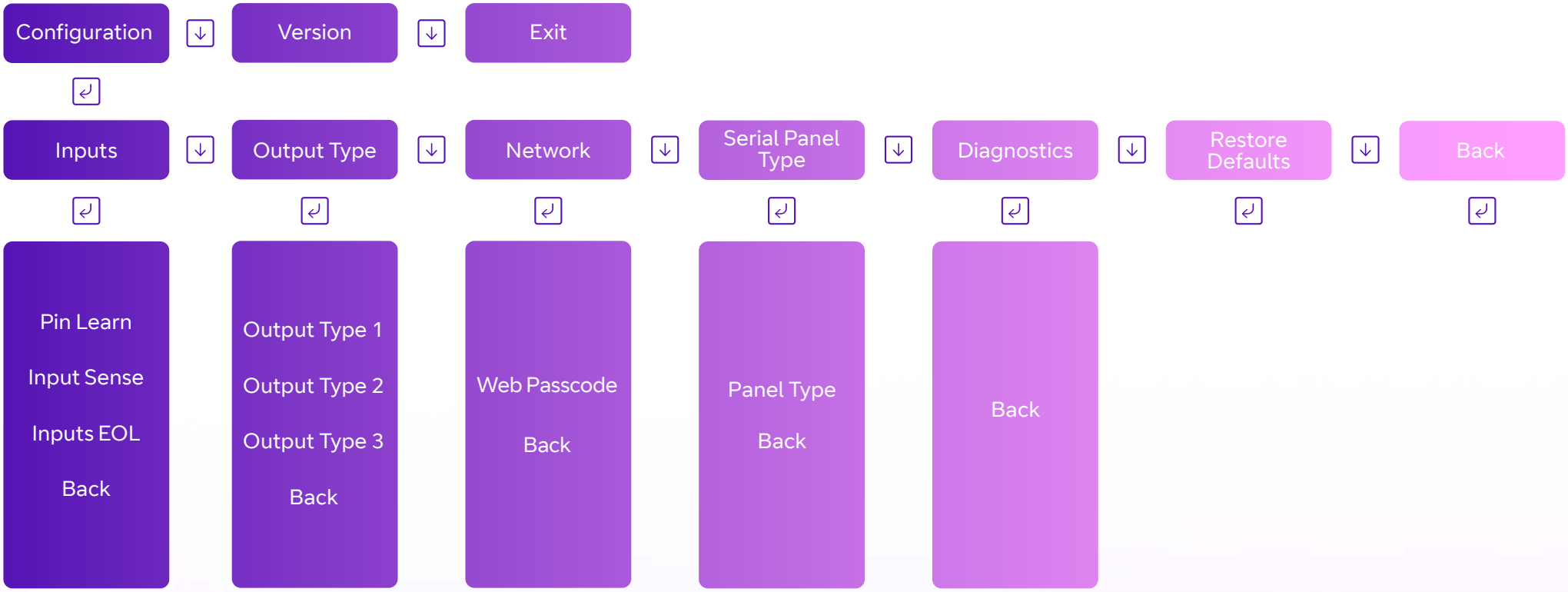


Figure 7 – Button configuration main menu options

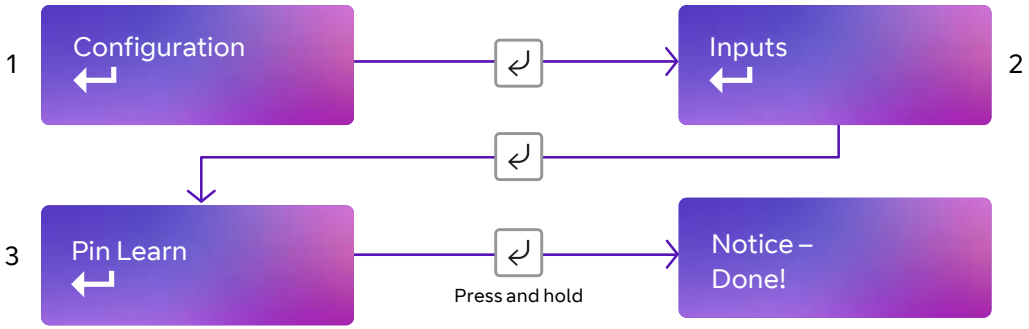
Inputs

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:



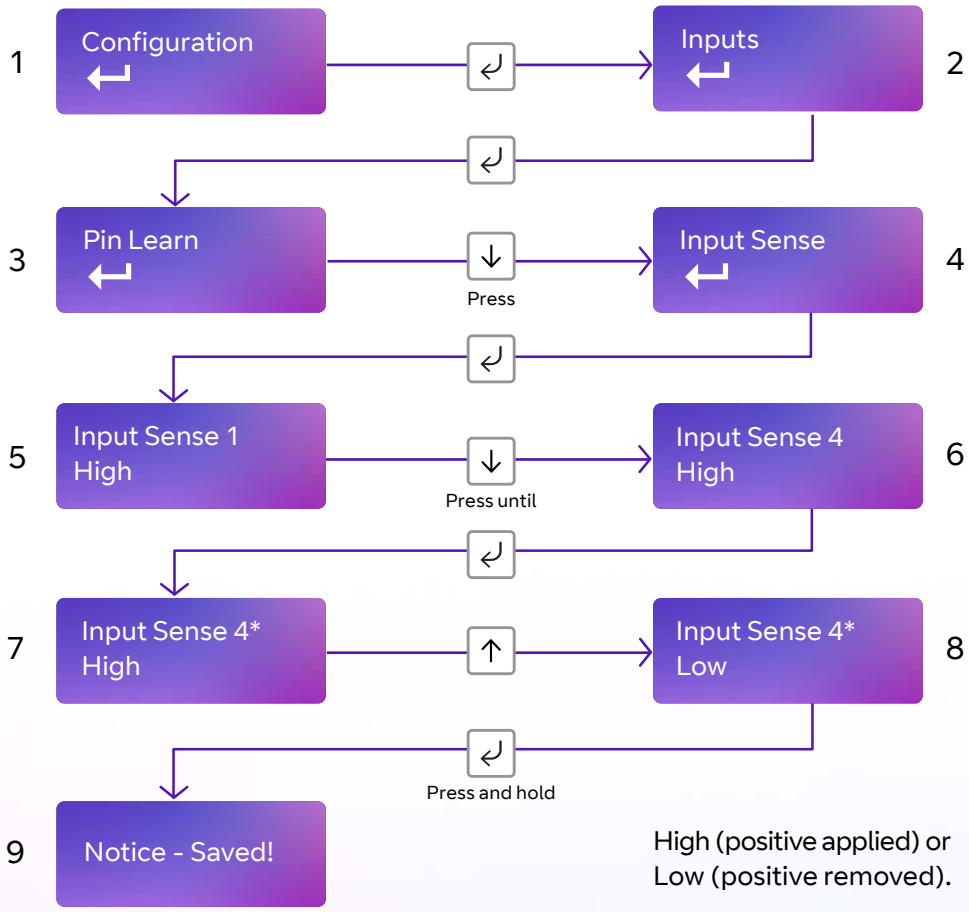
- Access the button configuration menu by holding the Enter button. ‘Configuration’ is displayed.
- Press Enter, ‘Inputs’ is displayed
- Press Enter button again.
- The display now shows ‘Pin Learn’.
- Press and hold the Enter button – the display shows ‘Notice – Done!’ Edit mode can be exited at any 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 5s. 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 in addition to the Pin Learn function described earlier.

Example – to configure Pin 4 to be positive removed:



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

- Access the configuration menu by holding Enter button for 3 seconds, press enter and 'Inputs' is displayed, 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' option.

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.

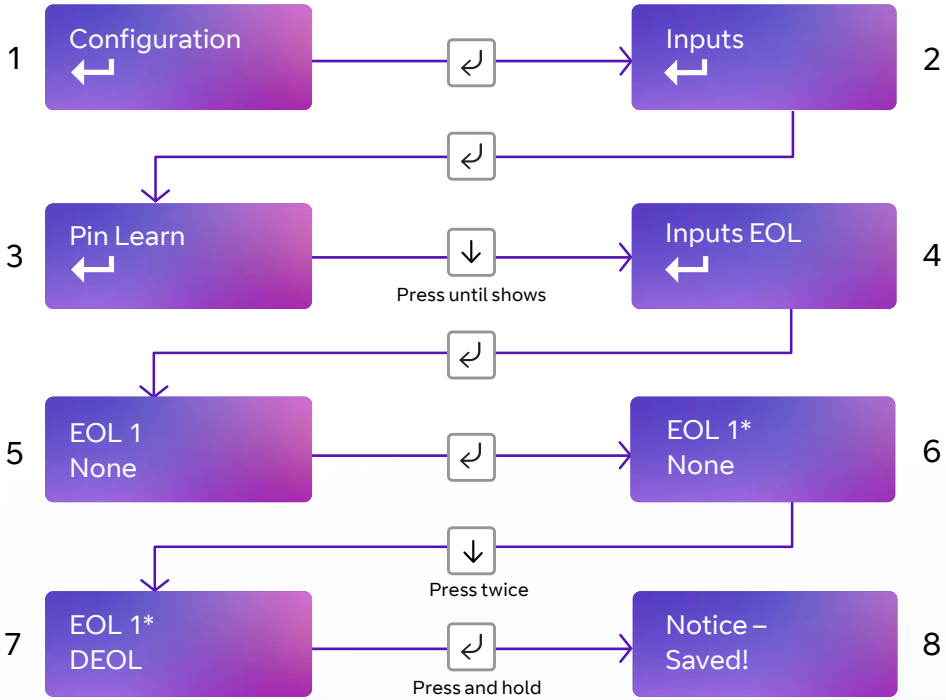
The configuration menu can be exited at any time without saving any changes by pressing ↑ for 5s. This will take you back to the scrolling status display.

Inputs EOL (End of Line mode)

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

- **None** – (Alarm and Restore)
- **EOL** (Single end of line mode) – (Alarm, Restore and Cut)
- **DEOL** (Dual end of line mode) – (Alarm, Restore, Cut and Short)

Example – configure Pin 8 for DEOL



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

- Access the configuration menu by holding the Enter button for 3s. Press Enter and 'Inputs' is displayed, 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 5s. 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.
- **Mobile 1 path fault** – operates when the Mobile 1 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 2 path fault** – operates when the mobile path 2 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 BT Redcare customer app.

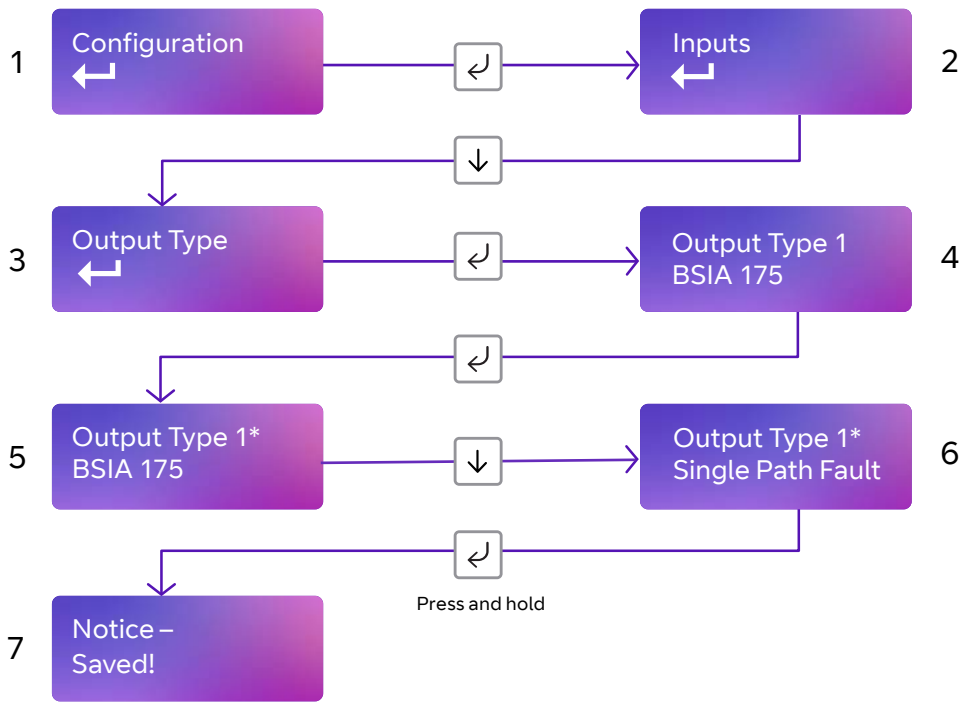
3. Output type 3 (FIRE):

- **User** – allows 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 BT Redcare customer app.

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 3s. Press the Enter button again, the display will show 'Inputs'. Press the down arrow until 'Output Type' 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.

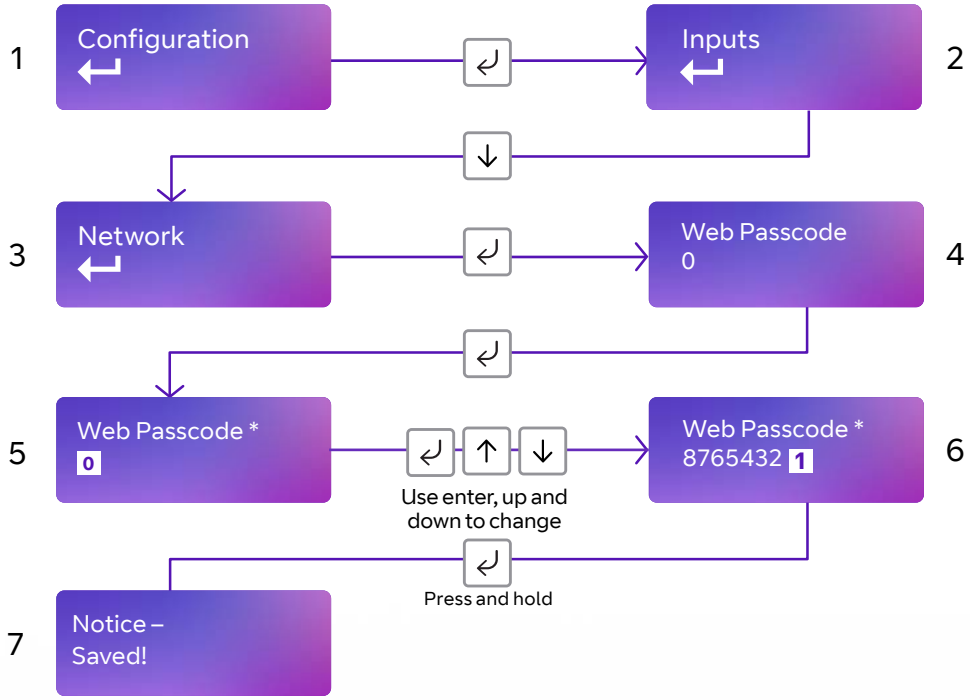
Edit mode for that part of the menu can be exited at any time, without saving changes, by pressing ↓ for 5s. This will return you to the sub-menu that you were making changes in.

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

Network

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 5s. This will take you back to the scrolling status display.

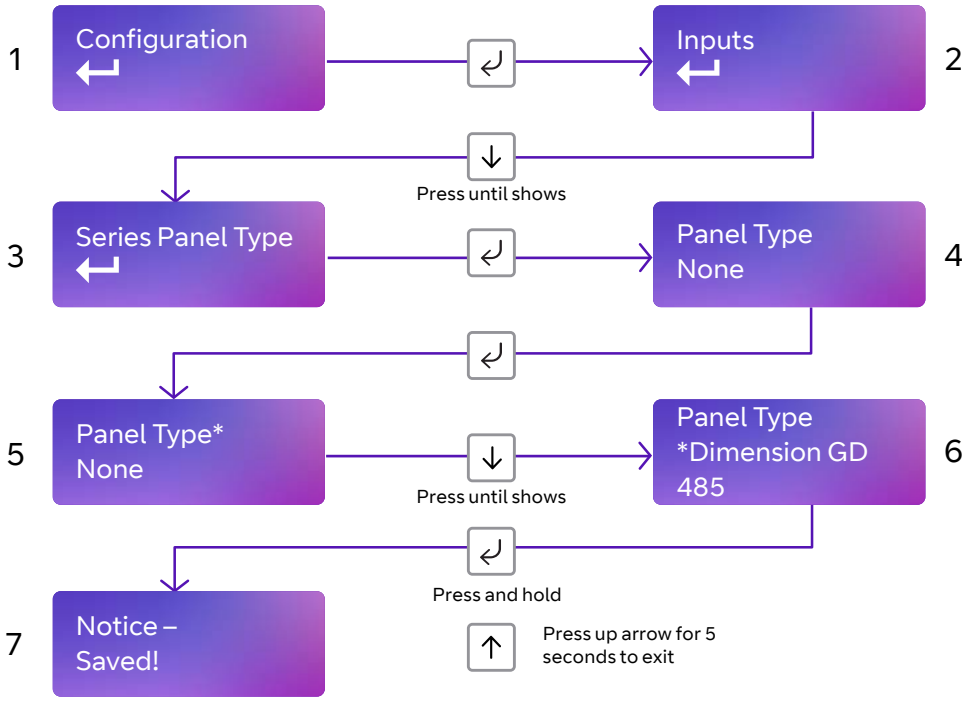
Serial connection panel type

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

Settings:

- None
- Menvier
- 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 9600 8n1) (Europe only not UK)
- Contact IP (RS232 9600/2400/1200 8n1)
- Panel RS232 UDL (8n1)

Example – changing the unit to connect to a Galaxy dimension panel via RS485.



- Access the configuration menu by holding Enter button for 3s. 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.

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 5s. This will take you back to the scrolling status display.

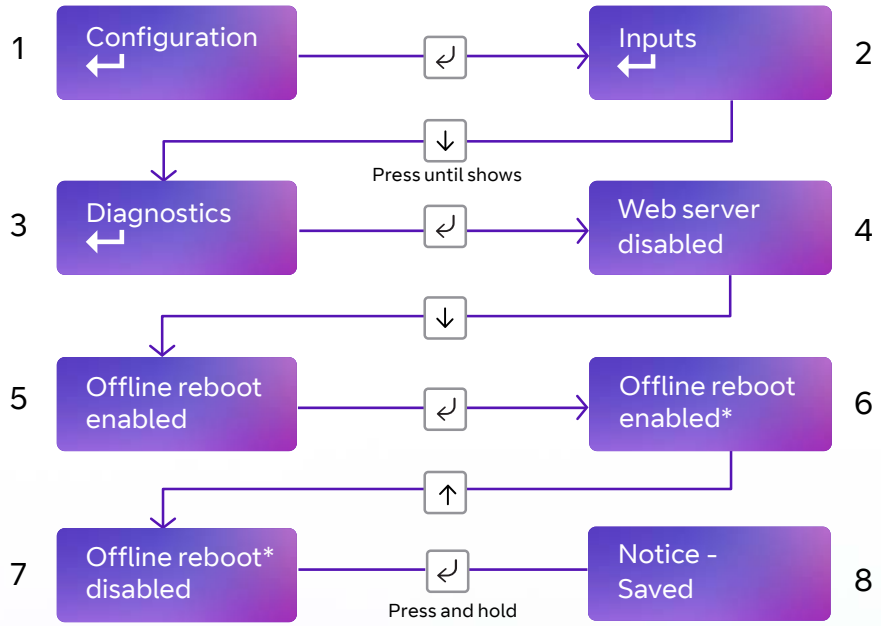
Diagnostics

Future development.

Offline reboot screen

Device will automatically reboot if offline for approx. 2 hours (time will vary between 2 and 3 hours)

This feature can be disabled as follows



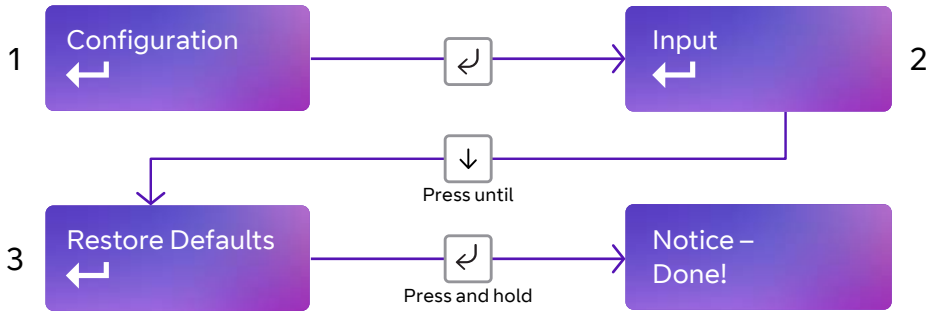
You can exit Edit mode at any time, without saving changes, by pressing ↓ for 5s. This will return you to the sub-menu that you were making changes in.

Exit configuration menu at any time without saving any changes by pressing ↓ for 5s. This will take you back to the scrolling status display.

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.

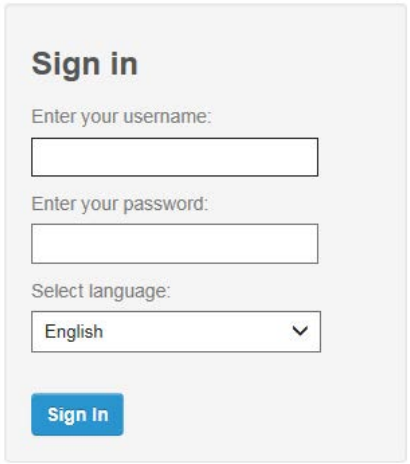
Example – setting the unit back to factory default



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.

Remote control

The descriptions below are when using the web portal. The same menu options are available in the BT Redcare Installer app.



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

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

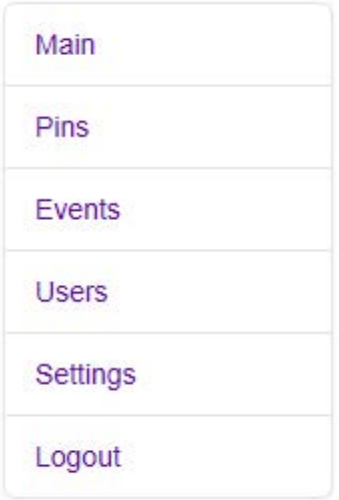
To comply with EN 50136-2 Clause 5.2 *Access levels*, the PIN code access must be set to 6-digits. You can change the access PINs in the USER settings. This applies for all types of access to the device.

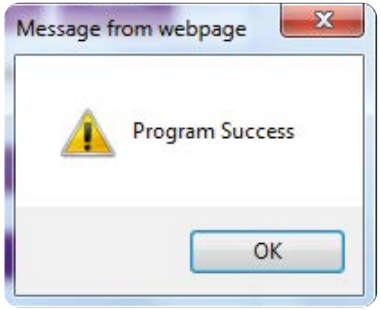
The menu

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

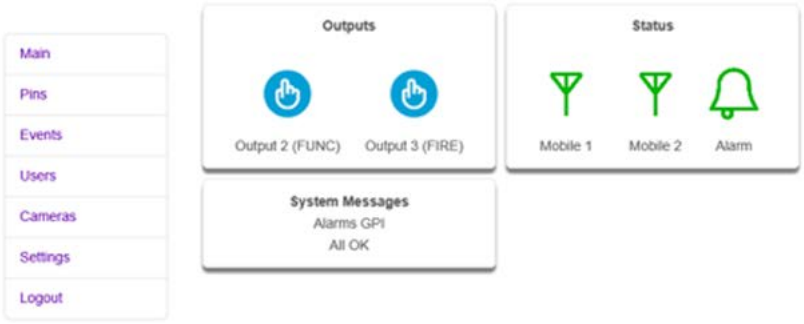
Should you need to make any changes in the following menu options click on Save. This will save your changes to the unit.

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





Main status display



When you first log in 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 and 3 are configured to be user operated.

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

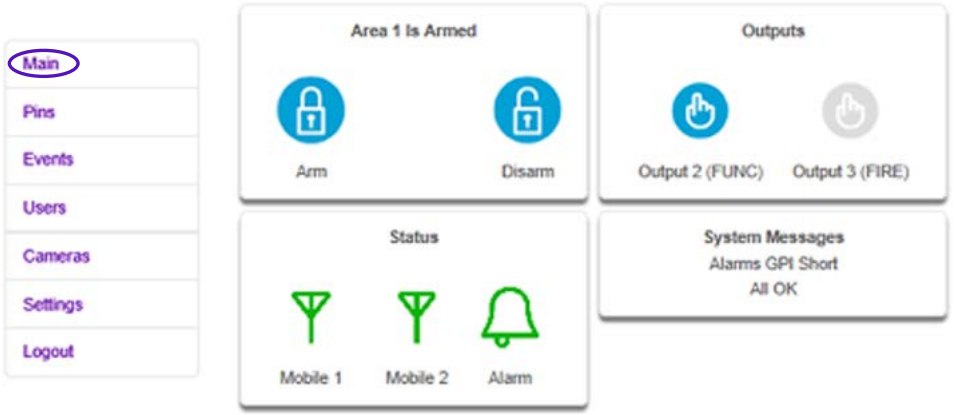
Status
These icons show the status of the signalling paths and if there are any outstanding alarms. Green for the signalling path icons indicates signalling paths are successfully connected to the platform. Red indicates that a path is down.

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

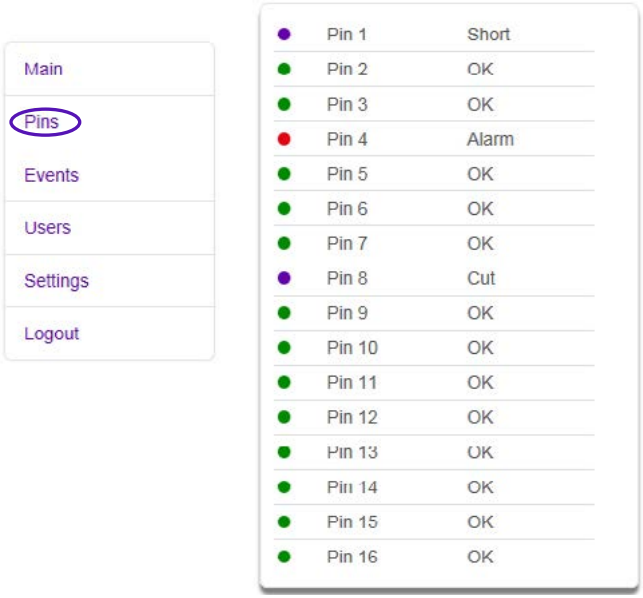
System messages
The system messages box will scroll though the key messages:

- **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
- **Mobile 1 Signal strength** – signal strength in dBm and the name of the mobile network operator
- **Mobile 2 Signal strength** – signal strength in dBm and the name of the mobile network operator



Pins

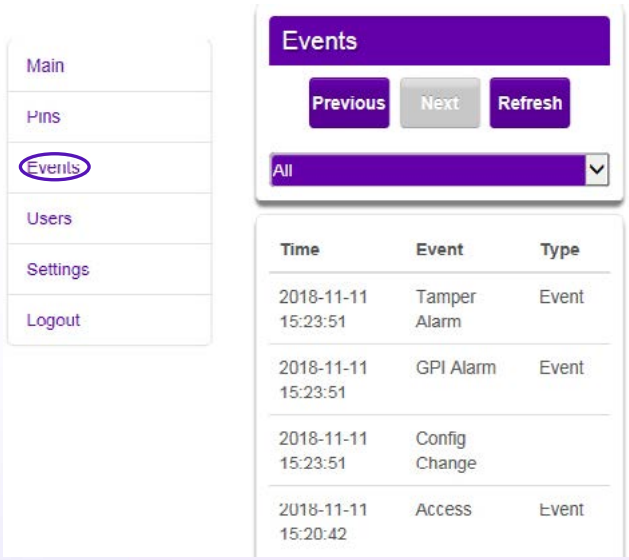
Pins shows the Name (if changed) and status of each of the pin alarms. OK with green dot shows the pin is not in alarm and Alarm with the red dot if in alarm. It will also show if a pin is in a cut or short state, with a blue dot and cut or short.



Events

This shows the most recent events. If you click on the dropdown you are able to filter the events by type. E.g. Alarms, System, Configuration or Connection.

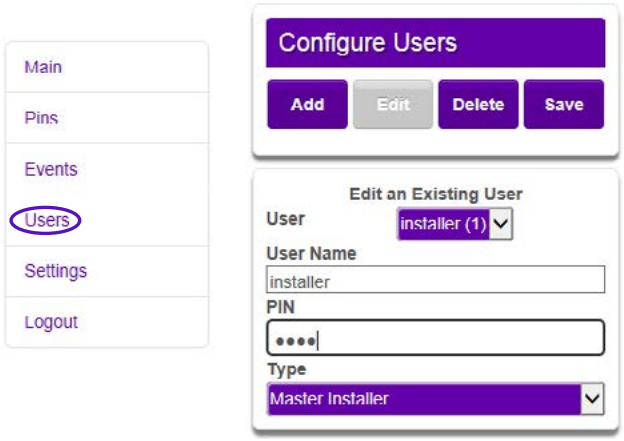
In the event log on the app or on the unit web page ** indicates a non-reportable event. If a single * is displayed by an event this indicates no acknowledgement has been received.



Users

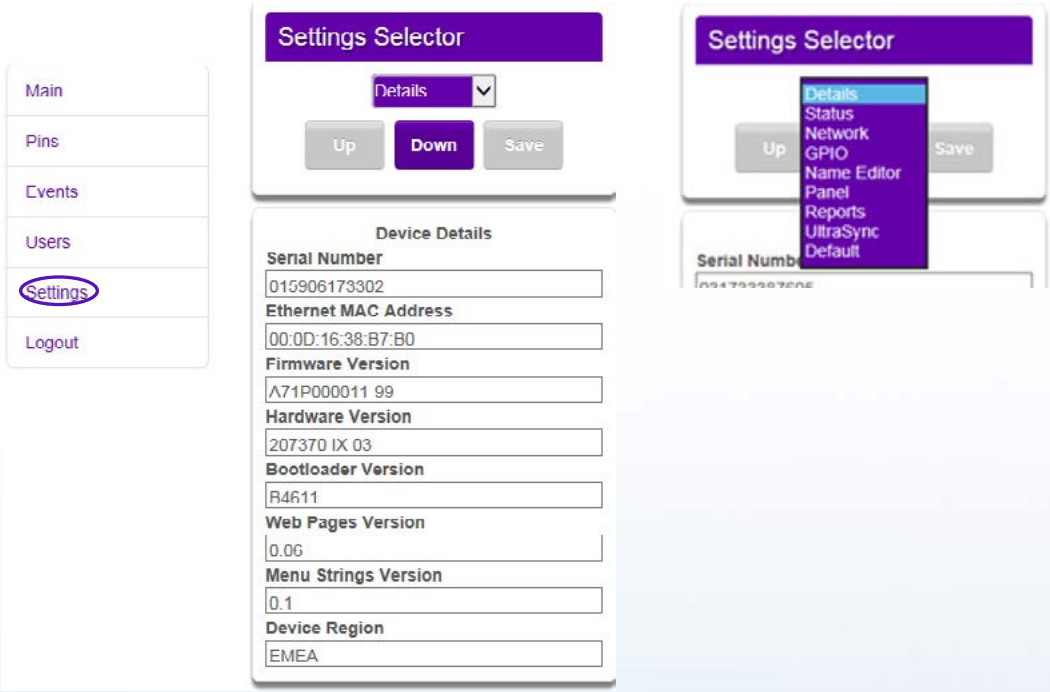
This menu allows you to set up additional installers and end customer app access to the unit and change login PIN numbers.

To comply with EN 50136-2 Clause 5.2 *Access levels*, the PIN code access must be set to 6-digits. You can change the access PINs in the user settings. This applies for all types of access to the device.



Settings

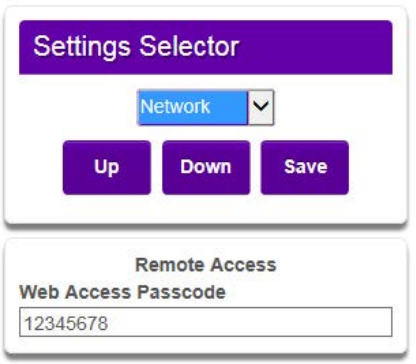
The Settings menu has sub-menus to be able to program the unit. The first screen gives you details of the device including MAC address and firmware version. Use the down button to step to the first sub-menu option or use the drop down to access the sub-menus.



The Status sub-menu shows the status of the mobile paths. If they are online and connected, if it's using 2G or 4G, the signal strength, which SIM and operator:

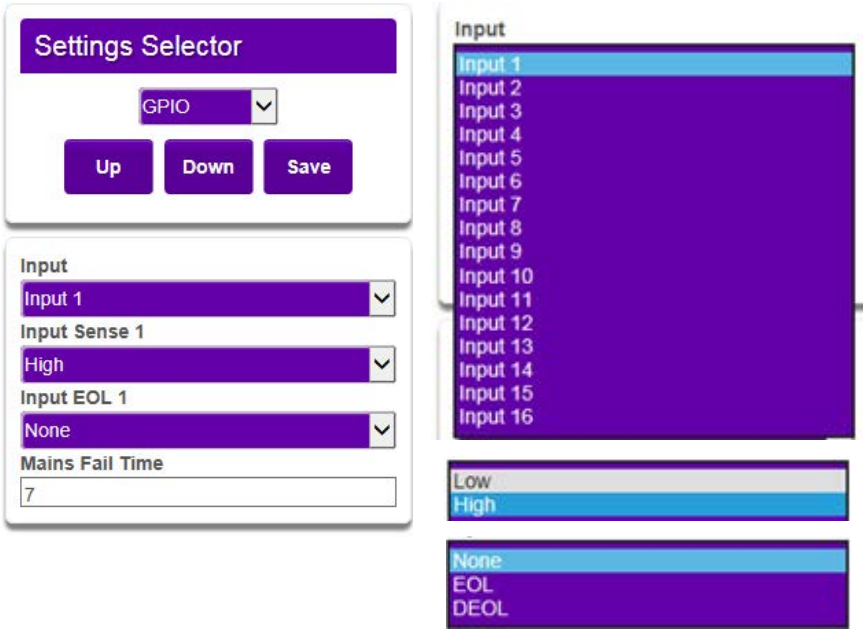
- 23410 – O2
- 23415 – Vodafone
- 23420 – Three
- 23430 – EE

There is also a Test Alarm function. This will send a test alarm over both signalling paths when you click the Send Alarm button.

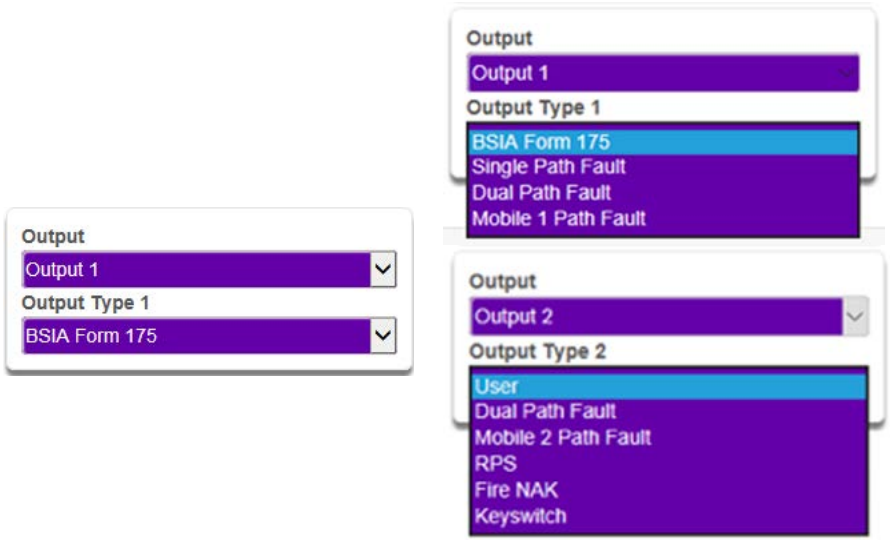


In **the Network sub-menu**, you are able to set up the Web Access Passcode. This should be entered if setting up app access.

- Enter an 8 digit number.
- Click the Save button.
  'Program Success' will be displayed.

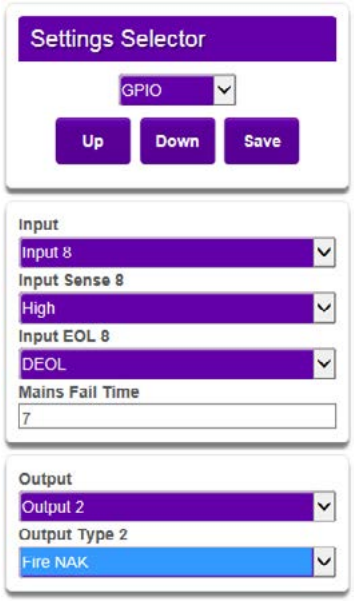


In **the GPIO sub-menu**, by using the dropdown arrows on each section, you can change any of the pin input status from High (positive removed) to Low (positive removed). You can set up either end of line (EOL) or dual end of line (DEOL) for each pin as required. Mains fail time for Pin 13 can be adjusted.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

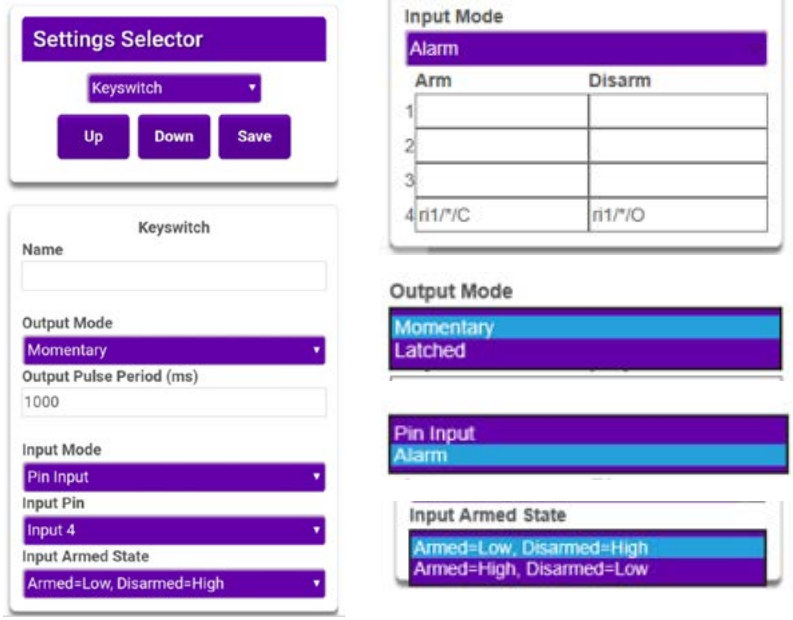


Make all the changes to the pin inputs and outputs then click the Save button to store your changes in the unit. ‘Program Success’ will be displayed.

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



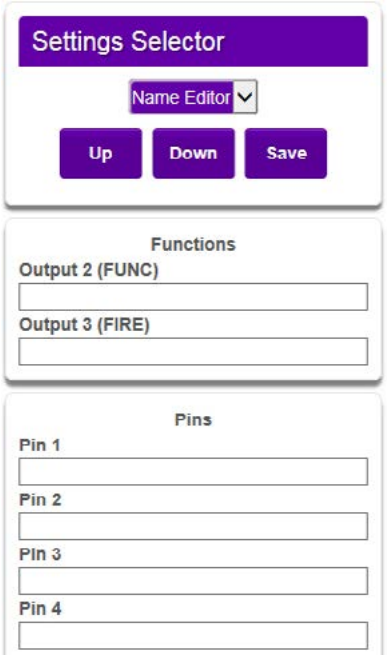
In the example, we show Pin 8 as Active High, with DEOL monitoring. Output 2 is set to operate as a Fire NAK output (operates if an acknowledgement on a Pin 1 alarm is not received within 80 seconds).



In **the Keyswitch sub-menu**, you can set up a keyswitch to operate in conjunction with the BT Redcare App. Any pin can be used, but will typically be Pin 4. It can be Latched or Momentary and armed low or high.

There is also the option to set up Keyswitch with extended format signalling.

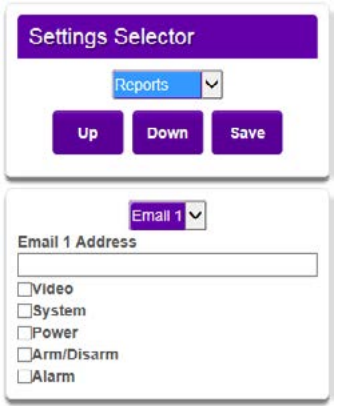
If using the Keyswitch you will need to ensure the intrusion alarm system is set up to comply with the requirements of BS 8243 when implementing remote setting/unsetting via the app.



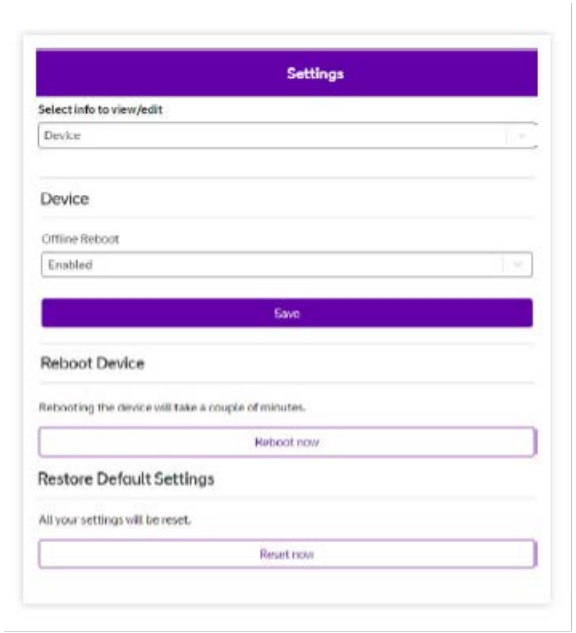
In **the Name Editor sub-menu**, you can add names to the pin inputs. This will then show up on the customer app and notifications. You can choose a description for the User relay outputs. Click Save when you have entered all the information.

The Panel sub-menu 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.

Ongoing development will add new panels over time. Please check with your Redcare account manager if the panel you use is not listed. Pyronix connection is for a European panel.



The Reports sub-menu allows you to set up a number of email addresses that could receive emails on the various options. E.g. Alarms and System messages.

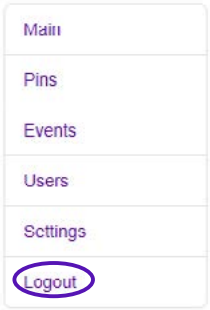


The **Default sub-menu** gives you the option to disable auto reboot. This is where the device will auto reboot to try to restore the connection after approximately two hours of losing that connection to the platform. Use the drop down arrow next to enabled, change to disabled and click save. This will stop the device auto rebooting.

Reboot device allows you to reboot the device remotely. Click reboot now. You will have to re-connect to the device as rebooting will lose the connection. Try reconnecting after a couple of minutes. To restore the unit to factory settings click Reset now.

Logout

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



Web portal and BT Redcare app

During the installation process or annual maintenance visit, it's important to check to see if there are any firmware updates available for the device. You should apply any firmware updates at that point – either from the Redcare web portal, or by the Redcare Helpdesk under the instruction of an on-site engineer.

There'll be firmware updates for security updates, bug fixes and additional functions. Once you've installed a device, you can check for firmware updates and apply them at any time, using the Redcare web portal.

It's your responsibility to update the firmware, as a reboot of the device will take place

Compliance with the user access level requirements of EN 50136

Access to the configuration options by an installer must be authorised by a level 2 user e.g. site owner.
For the Next Generation alarm transmission equipment compliance is achieved at installation by requiring a one-time authorisation agreed as part of a service level agreement.

It is recommended the signed authorisation is retained with the 'as fitted' documentation.

An example authorisation form is provided in the Appendix.

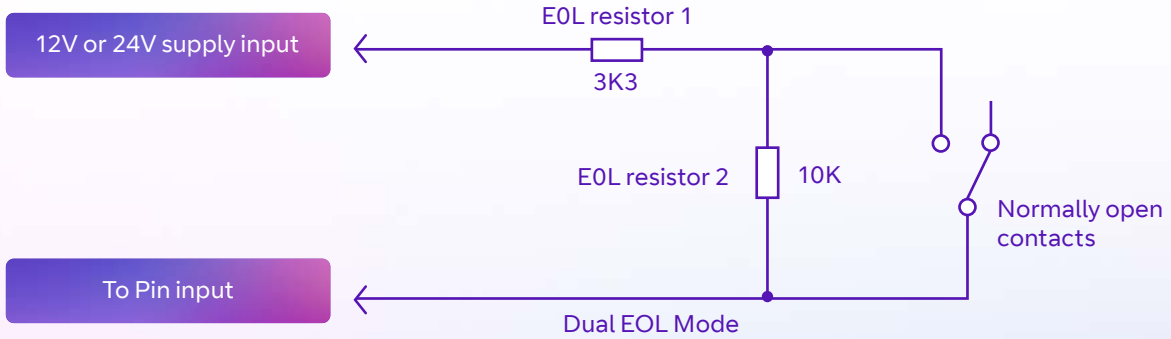
Interconnection monitoring

If the enclosure housing the unit is not next to, or close coupled to, the fire panel, e.g. 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 or web portal.

Wiring for interconnection monitoring

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



3.3KΩ 1%

orange, orange, black, red, brown

10KΩ 1%

brown, black, black, red, brown

You will need 1 x 3K3 and 1 x 10K resistor for each Pin with interconnection monitoring.

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

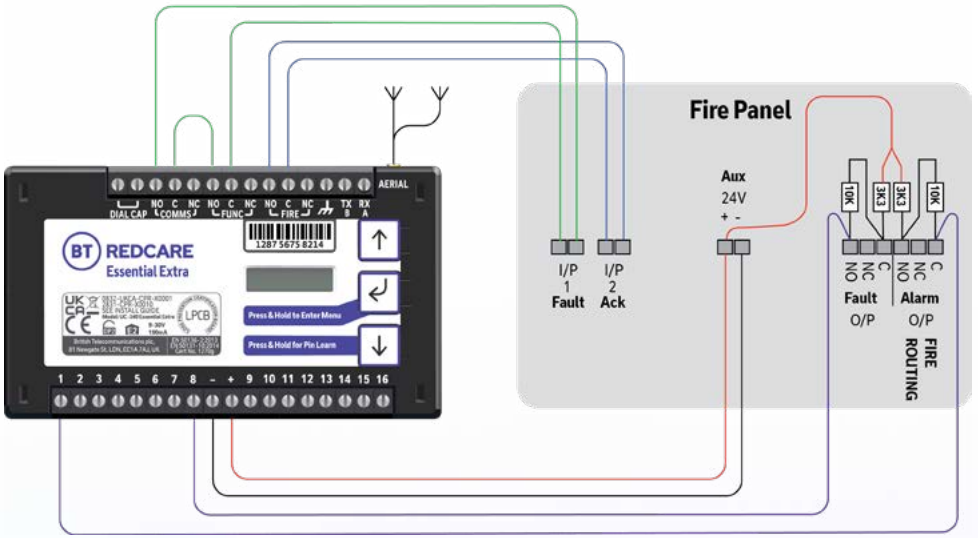


Figure 8 – Typical fire alarm connections for panel with two inputs and unit with interconnection monitoring

SIMs

The unit has two SIMs.

- **SIM 1** – EE network sim with 4G and 2G network access.
- **SIM 2** – a UK roaming sim with 4G and 2G network access.

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

SIM 2 will only connect to EE if no other networks are available.

Should network connectivity be lost the SIM for Mobile 2 will try different networks, 4G and 2G.

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 panel’s onboard 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:

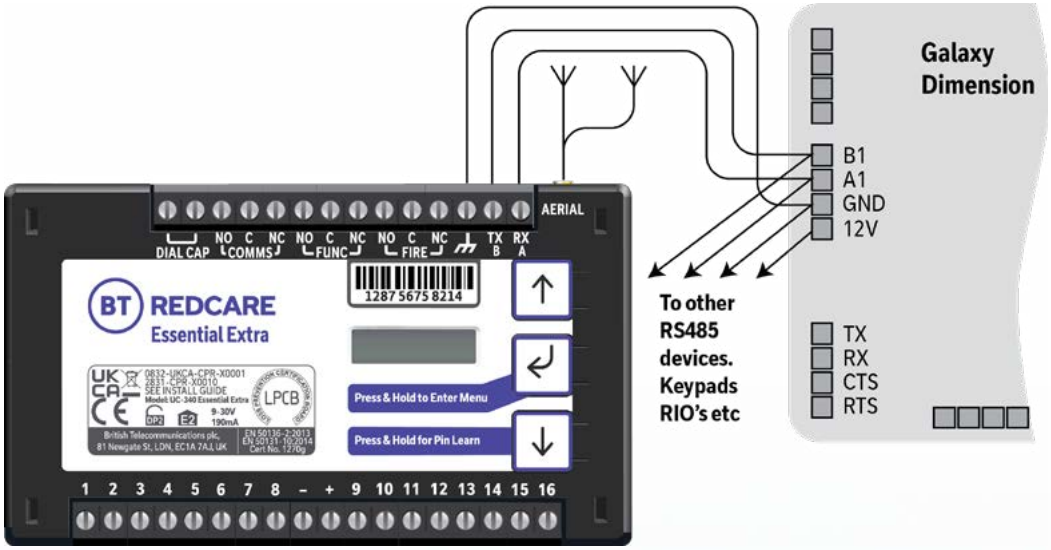


Figure 9 (not to scale)

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 (901-906)
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	n/a	356 (997)
BSIA 175 Test	n/a	354 (998/999)
Inputs 1-8 cut alarm	n/a	325 (901-908)
Inputs 1-8 Short Alarm	n/a	324 (901-908)
Total Comms Fault	n/a	350 (999)

Figure 10 – alarms signals as delivered to your ARC

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 extra or Redcare Platform generated alarms) and alarm panel generated ZONE alarms.

Disposal

The symbol shown here and on the product means that it's 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 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.

You can return the product 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

ARC
Alarm Receiving Centre

BSIA
British Security Industry Association

GMT
Greenwich Mean Time

IP
Internet Protocol

MMCX
Micro Miniature Coaxial Connector

OLED
Organic Light Emitting Diode

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, option 3.

Approvals

BT Redcare,
British Telecommunications plc 2022.
Registered office: 1 Braham Street,
London E1 8EE.
Registered in England
No. 1800000.

July 2021

Compliance to EN 50136-2: 2013 and EN 50131-10: 2014

EN50136, EN50131, PD6669, PD6662

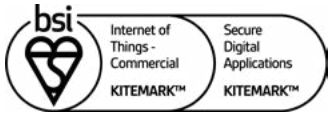
Essential Extra is suitable for use in systems installed to conform to PD 6662:2017 at Grade 2/3 (DP2) and environmental class 2.

Transmission Time	Information Security	Substitution Security	Reporting Time
DP4	DP4	DP4	DP2

Technical Data: see redcare.bt.com/installer-hub/brochures.html.

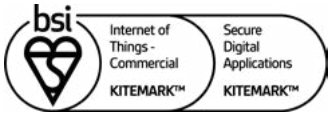
The Essential Extra unit meets the following performance parameters as per EN 54-21 Annex A.

Product	Fire Product	Transmission time Classification	Transmission time Max. Values	Reporting time Classification	Substitution Security	Information Security	Network Availability
Essential Extra	EN 54-21 Type 1	D4	M4	T3	S2	I3	A4



KM 742188

In respect of: Internet of Things (IoT)
Security of a device against common vulnerabilities for use in a commercial environment (includes Residential environment)



KM 742187

In respect of: OWASP ASVS and MASVS
Secure Digital Applications
Mobile Applications (OWASP MASVS Ver 1.3 Level 1):
BT Redcare Mobile Application Android version 2.18.0 Build 0363
BT Redcare Mobile Application iOS version 2.18.0 Build 0463
Web Application (OWASP ASVS 4.0.2 Level 1)
The BT Redcare Ultrasync Portal Application

LPCB certification

- Extensive testing by BRE has independently validated the performance of Advanced/Advanced Extra and demonstrated compliance with the applicable EN 50131 and EN 50136 standards.
- Regular on-going surveillance of the manufacturing facilities by BRE, ensures the high quality of the Next Generation range is maintained through the life of the products.
- LPCB certification provides prescribers and owners of intrusion alarm systems with assurance that the signalling equipment will respond rapidly and continue function reliably, a prerequisite for any monitored alarm system.

BSI 'Kitemark' accreditation for IoT devices, app and portal

- The Kitemark is designed to help consumers confidently and easily identify IoT devices, apps and portals that they can trust to be safe, secure, and functional.
- Once the BSI Kitemark is achieved the product will undergo regular monitoring and assessment including functional and interoperability testing, further penetration testing and an audit to review any necessary remedial action. Importantly, if security levels and product quality are not maintained the BSI Kitemark will be revoked until any flaws are rectified.
- The IoT Kitemark assessment process involves a series of tests that help ensure the device is fully compliant to the requirements. Before being awarded the Kitemark the manufacturer is assessed against ISO 9001, and the product is required to pass both an assessment of functionality and interoperability, as well as penetration testing scanning for vulnerabilities and security flaws.
- An app that has been awarded a BSI Kitemark™ for Secure Digital Applications has demonstrated that it has appropriate robust security controls in place for the information it is handling. To achieve the BSI Kitemark, an app must undergo rigorous and independent testing.

Police CPI 'Secured By Design' (SBD) accreditation

- Police Crime Prevention Initiatives (Police CPI) is a police-owned organisation which delivers a wide range of crime prevention and demand reduction initiatives across the UK.
- The extensive Police CPI portfolio covers a variety of crime prevention initiatives, of which Secured by Design is the most well-known, with all initiatives designed to keep the public safe from crime.
- Secured by Design (SBD) operates an accreditation scheme on behalf of the UK Police Service for products or services that have met recognised security standards. These products or services, which must be capable of deterring or preventing crime, are known as being of a 'Police Preferred Specification'.

Appendix

Example authorisation form

For the purposes of on-going maintenance and configuration

Company name

Authorises

Installer company name

Remote access to BT Redcare Next Generation Supervised Premises Transceiver

Serial No. number	
Installed at: premises address	
Date	Signature

Offices worldwide

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Any services described in this publication are subject to availability and may be modified from time to time. Services and equipment are provided subject to British Telecommunications plc's respective standard conditions of contract. Nothing in this publication forms any part of any contract.

Registered office: 1 Braham Street, London, E1 8EE.

Registered in England No. 1800000

March 2023