



FEC HELIPOINTS & HELIPOINT EQUIPMENT

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Remote Lighting Controller – Remote Panel (Mimic)

FEC Type: HP0655

User Manual – Specification - Diagnostics



Version 1.0 Issue: 6

23rd November 2014

Note that this manual relates to
Hardware V1.3 and Software V1.07



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Document Revision Sheet

Version - Issue	Date	Changes
1.0 - 1	1 st March 2014	Draft Document
1.0 - 2	7 th July 2014	1 st Production Version
1.0 - 3	7 th July 2014	Internal optimisation (not visible to users)
1.0 - 4	7 th October 2014	Revised status screens Enclosure V2 GSM aerial arrangement shown
1.0 - 5	12 th November 2014	Unit makes automatic status request at start-up to establish the link to the RLC
1.0 - 6	23 rd November 2016	Immediate channel On/Off with no PIN set as default



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1 Overview

FEC's Remote Lighting Controller is an all new, fully digital design that combines ease of installation and use with sophisticated yet simple and secure configuration via the IP65 rated keypad and LCD display or via SMS.

The Remote Panel enables the status of the linked helipad to be monitored through the Remote Lighting Controller on the pad. With appropriate PIN code protection the lights can also be controlled from the Remote Panel.

Installers and users must read both this manual and the manual for the Remote Lighting Controller together as the units operate as an integrated system.

1.1 Key Features

- FCC/EU approved, Integrated tri-band GSM Telemetry Engine for SMS control
- Secure PIN code protected SMS commands to monitor and control your installation
- Secure SMS status reporting – check out your installation remotely
- Remotely activate Channels 1, 2 or 3 and have the status sent straight back to the panel
- Internal Siren
- Local and remote test and diagnostics integrated into the unit
- Very low power consumption – Approx. 3W (idle) and less than 30W max. (including internal winter heater)
- Operates from 110-240V AC 50-60Hz or 12V DC (ideal for solar and batteries)

1.2 Part Numbers

Standard Equipment

Remote/Mimic Panel
HP0655

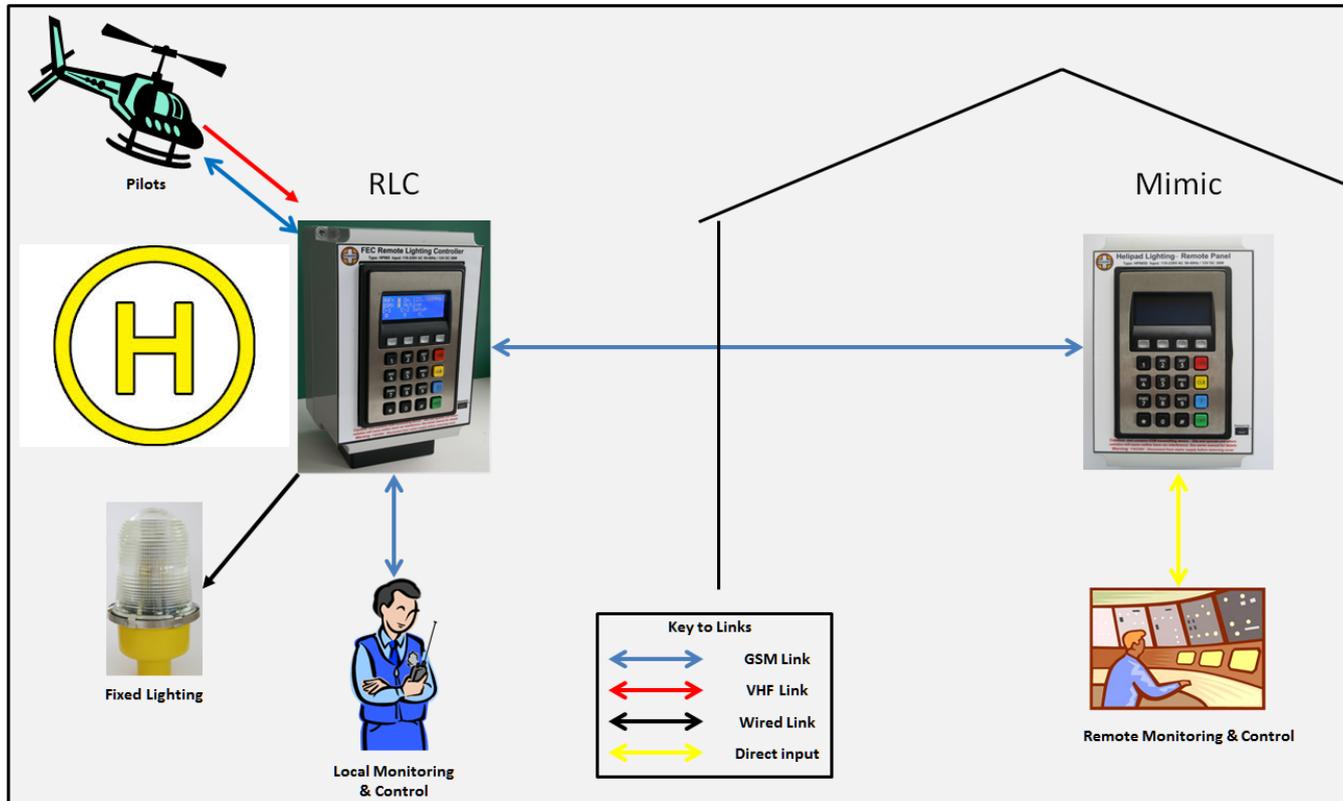
Optional Extras

Remote GSM Module	Uninterruptable Power Supply Option
HP0655 – Remote GSM	TBC



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2 Architecture of Remote Lighting Controller



The FEC RLC Remote Panel ('Mimic') is designed to work as an integral part of a complete Helipad Lighting system.

The Remote Panel can be located conveniently for the staff who are required to monitor and/or control the activity of the helipad lights.

The secure wireless link between the RLC and Remote Panel is via GSM SMS and only requires a mains power supply.

In areas of poor GSM signal coverage an optional Remote GSM Module is available (see Appendix for details).



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3 Principles of Operation

The FEC RLC Mimic adopts a set of simple but key principles in its mode of operation. These principles, which guide how the system works, are outlined below.

3.1 General

The controller is designed to 'fail safe'. For example – If power is lost at any time, on resumption of power, the controller will re-start and automatically attempt to establish the link with the RLC. If this fails the unit will advise that the link needs to be re-tested to confirm that helipad lighting status.

There are a number of 'Types' of users of the system:

Staff – This is generally anyone who has been given permission to use the system.

Operator – This is the owner or operator of the facility.

Agency – A third party who the operator wishes to be informed of operational activity.

Pad – The helipad system that is being monitored and controlled

FEC – FEC have defined access to certain options (e.g. reset the Operator's PIN).

OEM – The Original Equipment Manufacturer has defined access to perform diagnostic and support options.

The options available to FEC and OEM are explicitly defined as part of the supply agreement.

3.2 Keypad Operation

Most keypad input requires the user to enter a 4 digit password. Failure to do so quits the option.

If any of the menus below the main screen are entered but there is no keypad activity for 10 minutes, the system will automatically return to the main screen. This is to ensure that if someone was, for example, called away during a menu activity, the unit will return to the safe, 'armed' condition.

3.3 GSM/SMS Operation

Operational activity is limited to the User and Operator only as follows:

Action	Staff	Operator	Comment
Obtain Status	√	√	Will automatically receive from the paired RLC
Turn Channel(s) ON	√	√	All service requests require a correct PIN
Turn Channel(s) OFF	√	√*	*Note Staff can turn a Channel OFF only if they previously turned it ON An Operator can always turn Channels OFF irrespective of who turned it ON
Set Staff, Operator and Mimic PINS		√	



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4 Installation

Installation of the FEC RLC Remote Panel must be carried out by a suitably qualified electrician with full authority to undertake work in the safety critical environment.

It is recommended that a formal Statement of Works, Standard Operating Procedure or similar is created and used for the initial installation and testing and all subsequent test and maintenance activities to ensure the safety of the installation and personnel.

4.1 Locating the Remote Panel

The Remote Panel should be located in a secure location that is easy for operational staff to access the keypad and screen and appropriate for the mains wiring.

The enclosure is intended for wall mounting and, with suitable rails or adaptors, can be frame or pole mounted. Appendix 1 has a full size template for the mounting holes.

Although the enclosure is IP65 rated, a sheltered location is recommended.

Keep in mind that the controller will need:

- 1) Mains electricity supply, and
- 2) An external GSM aerial (supplied).

It is recommended that a GSM Signal Strength Analyser or mobile (cell) phone, on the same network as that intended for the controller, is used to check the signal strength/quality in the intended location.

4.2 Things you will need

Before starting the installation ensure that you have at least the following items in addition to those required for the rest of the installation:

- 1) A No.2 Philips (PH2) or No. 2 Pozidrive (PZ2) screwdriver to open the main enclosure.
- 2) A No. 0 or 1 Philips (PH1/2) or No. 1 Pozidrive (PZ1) screwdriver to access SIM cover.
- 3) The SIM (standard size not mini or micro) that you will be using. You will need to know the number to call it, but the controller does not need to know.
- 4) Fixing screws and wall plugs as required.

4.3 Preparing for Installation

Lay the Remote Panel on its back on a clean soft surface at least twice the width of the unit and undo the four corner retaining screws (note these screws are 'captive' and do not need to be fully removed).

Gently lift the front of the enclosure away from the base and lay face down to the left of the base unit. Be careful not to strain the cables as this could cause permanent damage.

Disconnect the following cables from the keypad enclosure:

- 1) Main power and relay controller ribbon cable
- 2) Earth bonding lead
- 3) GSM aerial lead (V2 enclosure)

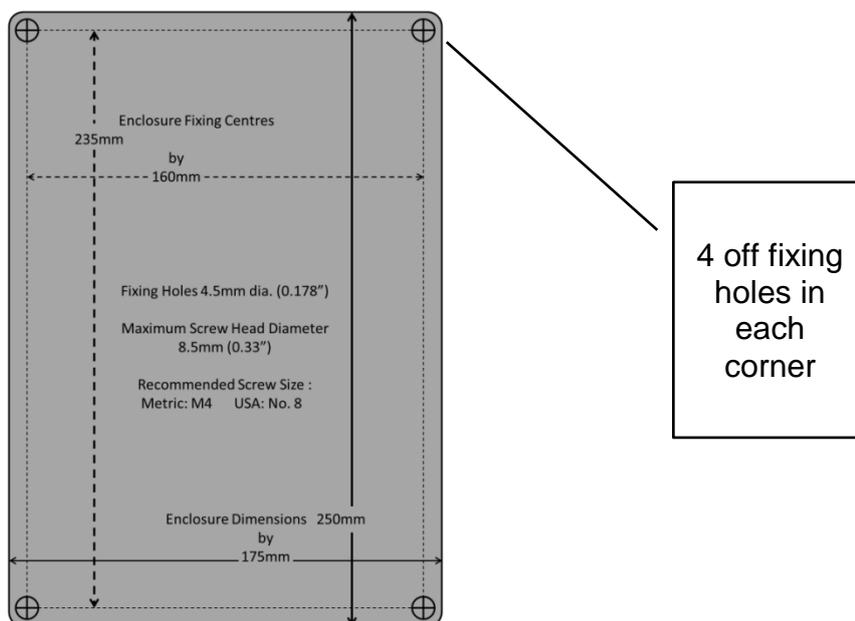
Note: 1) may have retaining screws. Use a PH1/2 or PZ2 screwdriver to remove and use a small amount of Loctite 248 Medium Strength thread locking compound on re-assembly.



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4.4 Installing the Base Unit

Either by measurement or using the template in Appendix 1, mark out and drill (and plug) the surface to which the Remote Panel is to be fixed.



If the fixing screws are not in a convenient position for the surface on which the controller is to be fixed then the use of rails, frames or battens is recommended.

DO NOT DRILL HOLES THROUGH THE ENCLOSURE BASE

The fixing screws are in the same position as the top cover retaining screws. The maximum screw diameter is 4.5mm (0.178") and a maximum head diameter of 8.5mm (0.33"). Recommended screw sizes are Metric M4 or USA No. 8 of a suitable length and type for the surface.

Mount the base of the enclosure and ensure that the fixing screws are secure but do not over-tighten as this could damage the enclosure and compromise the IP65 rating.

Once the base has been fitted, the unit can be wired up (next section). Take particular care not to damage the Power Supply Unit, Relay Driver board and Relays during the installation of cable.



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4.5 Installing the GSM aerial

The GSM aerial is shipped attached to the outer packaging. Do not over-tighten the connector as this may permanently damage the aerial or socket but ensure it is fully home.

4.6 Electrical Installation

It is recommended that mains cables are fixed first to avoid damage to aerial or signal cables.

If the Remote Panel is to be operated from a mains power supply it must be connected to the supply using a fused double pole isolator.

The controller has a maximum power consumption of 30watts and a 5 Amp fuse should be used.

4.7 Circuit Connector and Cable Entry (enclosure V1)

For V1 Enclosures, an external 'stub' GSM aerial is fitted on top of the unit and should prove sufficient for most installations. Be careful when handling the front panel to ensure that the aerial is not damaged.

If necessary an external GSM aerial option pack is available.

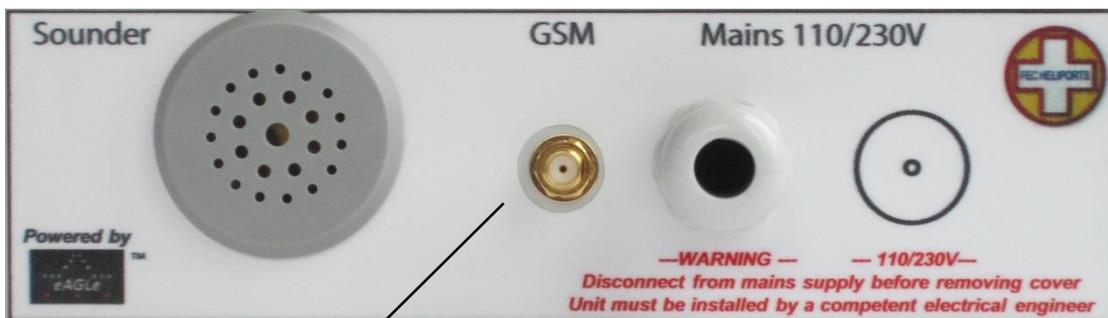


Optional GSM connector position

Power input cable gland

4.8 Circuit Connector and Cable Entry (enclosure V2)

For V2 Enclosures, an external GSM aerial, mount and cable are supplied. The Cable is connected to the SMA connector on the bottom of the enclosure and the aerial sited in an area of good GSM coverage for the network selected.



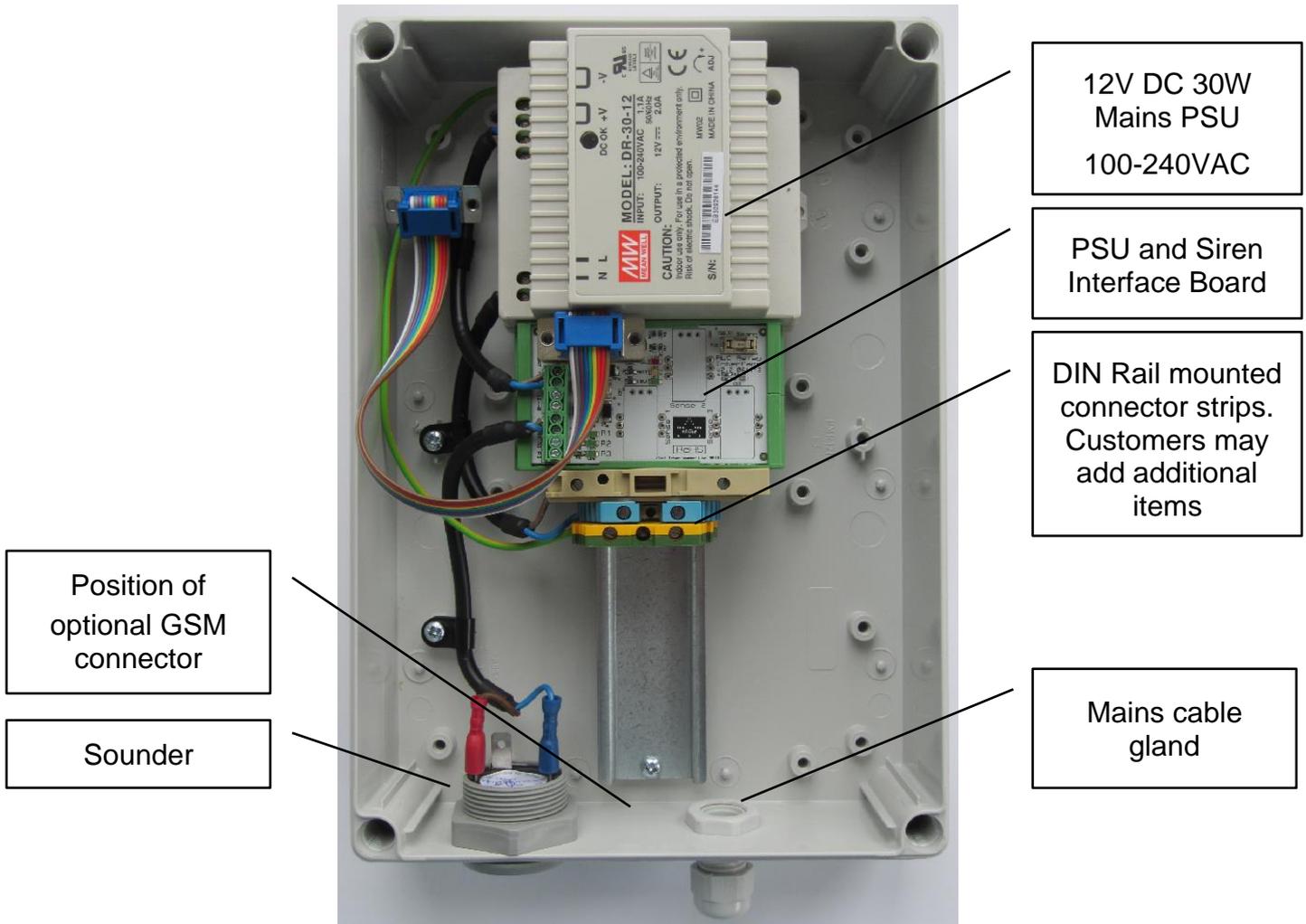
GSM Aerial



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4.9 Mains wiring

The arrangement of the base unit is shown below (enclosure V1).



Notes:

- 1) Live (Brown), Neutral (Blue) and Earth (Green/Yellow) 4mm IMO DIN rail mounted connector strips are provided for customer wiring.
- 2) Additional connectors can be added by the customer but pay particular attention to:
 - a. Such connectors are often open on one side. Care must be taken to ensure that the open side is always covered by its neighbour or end plate.
 - b. The earth connector is fixed and grounded to the DIN rail by a central screw. To move this connector, slacken the central screw, move as required and re-tighten.
 - c. The Earth connector provides the earth bonding connection to the controller.
 - d. The connectors must be gently pushed tight against the PSU and Relay Interface Board to ensure that these items are prevented from sliding on the rail.
- 3) The controller is fitted with a mains powered 12V Power Supply Unit (PSU). The installer must connect this to the incoming mains supply via the fuse (provided) using suitable 3 core cable (3x0.75mm). The PSU is double insulated and is not earthed.

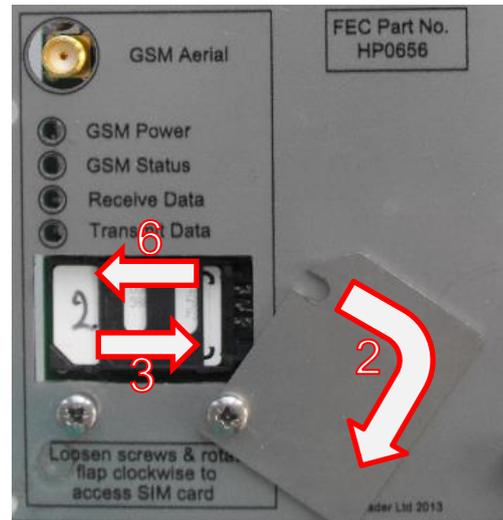
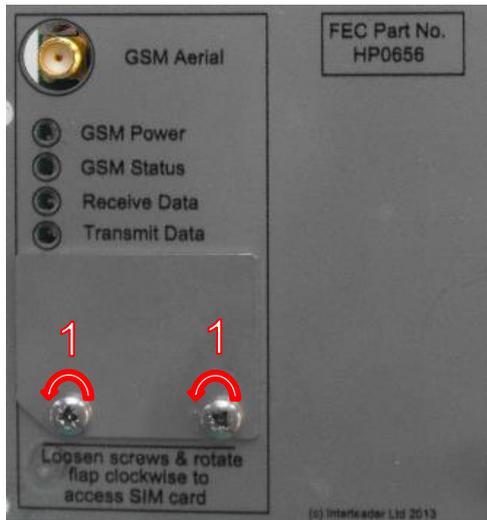


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4.10 Inserting the SIM

While the front panel including the keypad and LCD are disconnected and before re-assembly, the SIM should be fitted.

The SIM is located behind a rotating flap on the back of the keypad unit (below left).



To fit SIM:

- 1) Slacken the two screws (using a Philips PH1/2 or Pozidrive PZ2 screwdriver). There is no need to remove the screws or plate
- 2) Rotate the flap clock-wise as shown
- 3) Slide the plastic SIM carrier gently to the right and then pull forward
- 4) Insert the SIM into the plastic SIM carrier (metal contacts to the left/inside and the ident corner downward)
- 5) Close the flap making sure that the SIM is in, correctly aligned and properly seated
- 6) Slide the plastic SIM carrier to the left until a 'click' is heard or felt
- 7) Rotate the flap back into place and gently re-tighten the screws.

4.11 Final Assembly

Re-attach the ribbon cable, earth bonding lead and GSM aerial (V2 enclosure only) between the front panel unit and the base unit.

Re-assemble the front cover to the base unit and tighten the retaining screws firmly but not too tight.

Take care that:

- 1) All connectors and cables are secure and that they are not caught in anything.
- 2) The enclosure retaining screws are screwed in evenly and firmly but not too tight

You are now ready to configure the unit (section 6).



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5 Basic Operation

5.1 Menu - Overview

The FEC RLC Mimic is fully configurable via the front panel keypad and screen.

All setup, test and monitoring of the controller is carried out via the front panel keypad and LCD display (many commands also possible remotely via SMS – see later section). There are no controls inside the case.

The menus are arranged in a hierarchical structure with a consistent presentation format and key operation. Extensive use is made of the 4 'Function Keys' above the main 16 key keypad and, in conjunction with changing legends on the screen, intuitively guide the user through the various steps.

Key features of the interface are shown below.



LCD Screen Common Layout

Line 1 indicates the menu level
Line 2 provides status or instruction
Line 3 Indicates the 'Function Keys' function
Line 4 identifies the keys and their status

Function Keys 1-4 (left to Right)

Data Entry Keypad

In the example to the left:

The 1st line indicates Main Screen Level.

The 2nd line indicates helipad lights are off.

The 3rd line confirms the function of each key.

The 4th line represents the Function Keys.

Note that in some menus the boxes in the 4th line also give the current status of that function and that in some menus more information is provided and hence the exact layout above not followed. The approach is the same and where there are differences instructions provided.

F4, usually marked 'Exit', returns to the previous level in the menu and in many screens accepts the conditions set in that menu. If Marked 'Quit' then that screen/data is discarded before return.

Repeatedly pressing F4 will bring you back to the main menu.



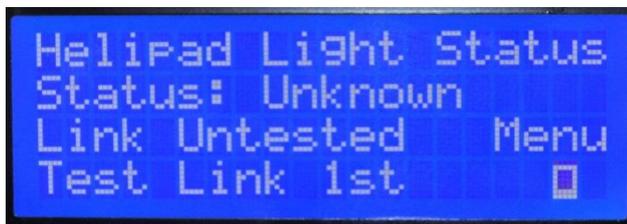
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5.2 The Main Screen

The top menu is not really a menu at all but rather the main status display page with two states: 1) Link un-tested, and 2) Link tested.

By default the screen remains lit all of the time. To save power (particularly useful in battery powered installations) the LCD screen back-light can be set to 'Auto' in which case it goes out 30 seconds after the last key was pressed or the screen was refreshed. To re-activate the backlight, simply momentarily touch any key and the screen will light up for another 30 seconds. During an Active Period (when the controller has been commanded to turn on the lights) the screen remains on. See section on system setup.

The screen provides all of the essential information to show the status of the system.



The screen on the left is showing that the link is untested, the screen to the right that it has been tested and the lights are off.

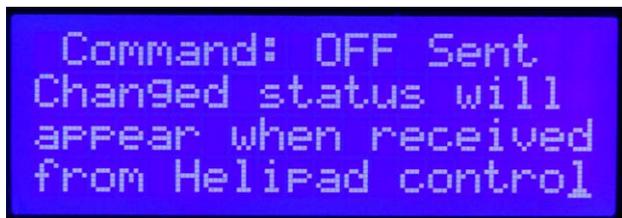
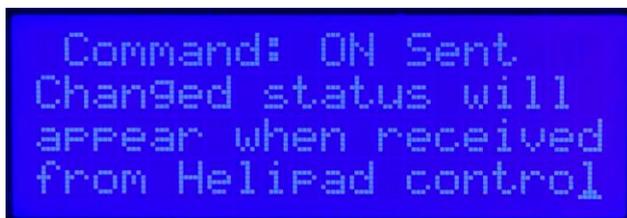
Once the GSM number of the Mimic Panel has been entered into the Remote Lighting Controller (RLC) and the GSM number of the RLC entered into the Mimic Panel, at power-up the Mimic panel will automatically send a status request to the RLC to perform the link test. As soon as the status has been received the Mimic panel will display the screen on the right.

The link between the paired systems has now been established.

5.2.1 Immediate Channel On/Off

If immediate channel On/Off has been enabled without the need to enter the Menu/PIN access (the default state as delivered), pressing any of the channel buttons will immediately send a request to the RLC to flip the status of that channel.

For example, if all channels are Off (as picture top right) and the C-1 (channel 1) button is pressed a request will immediately be sent to the RLC to turn that channel On. There is no checking of a PIN number. The screen will confirm the On request has been sent (below, left).



Once the circuit is On (square box filled solid), pressing the C-1 button will immediately request the RLC to turn that channel Off. The screen will confirm the Off request has been sent (above, right).

The PIN Mode (whether a PIN is required or not) can be changed through the main menu. See section 6.4.5.



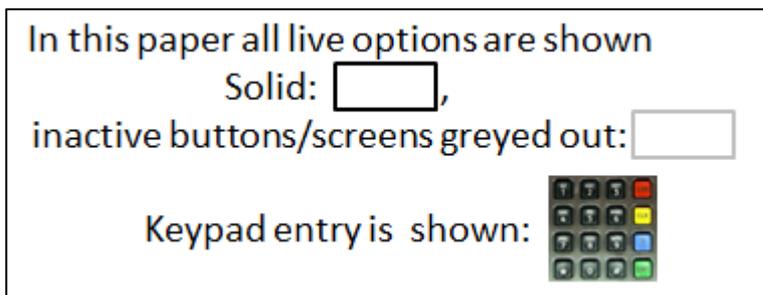
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5.2.2 Entering Menu Mode

To enter the Menu mode, simply press the function key (F4).

You will be taken immediately to the PIN challenge screen (over) before making menu selections..

Note that the representation above is used consistently throughout the manual.



Warning

Once the Menu Mode is selected, the system no longer monitors the GSM receiver and will not respond to remote commands. All setups should be performed when it is known that no movements requiring the monitoring of the lighting controller are required



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6 Access Menu

Pressing 'Menu' on the main menu first brings up a PIN challenge menu to determine which 'type' of user is accessing the system since each can perform different functions:

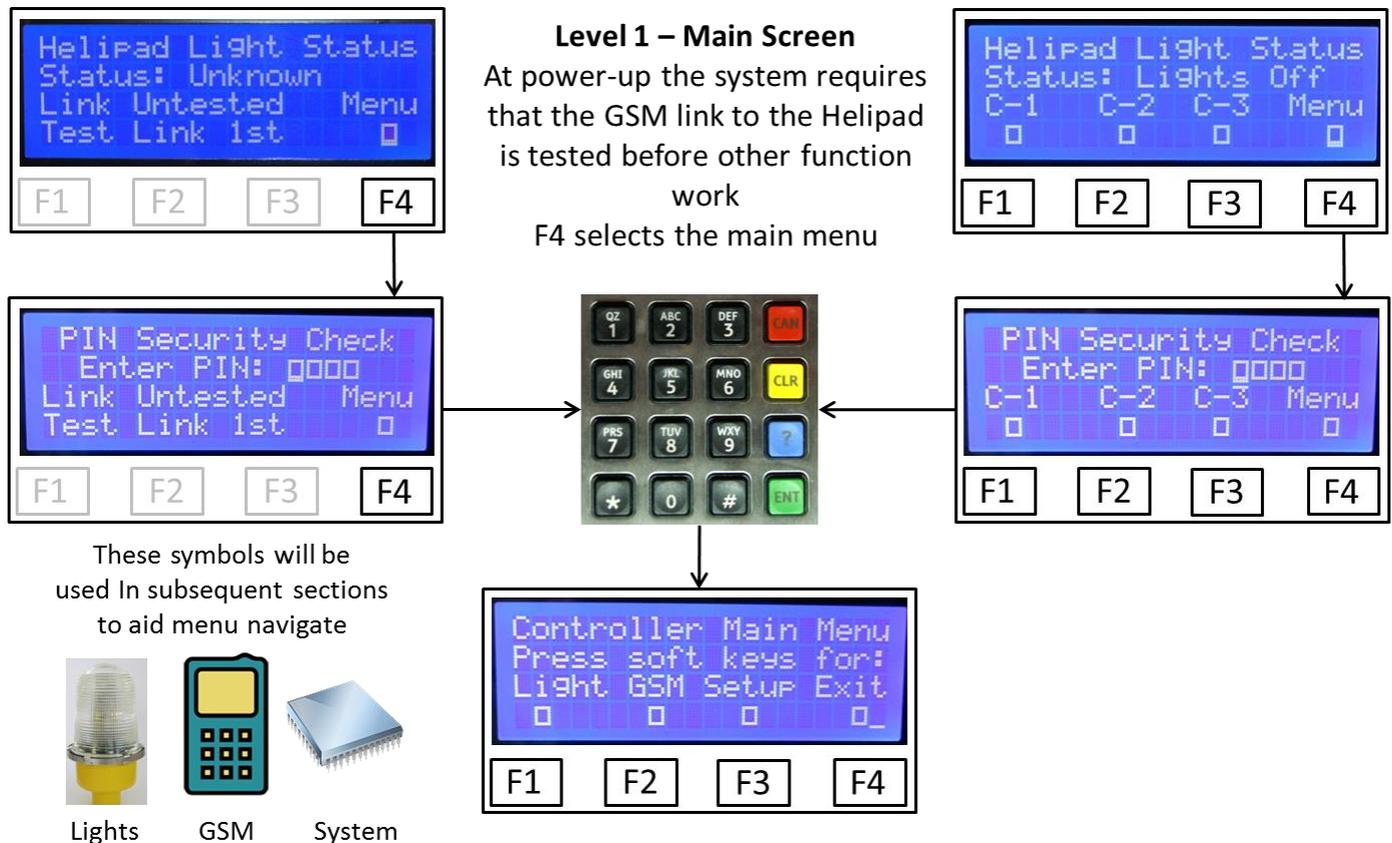
There are five types of 'User' defined in the system:

- 1) Staff – A person granted permission to perform certain commands.
- 2) Ops. – The Owner/Operator of the facility.
- 3) Agency – A third party who receives status information
- 4) FEC – Technical staff from FEC.
- 5) OEM – The Original Equipment Manufacturer.

Each type of user (except Agency) has a PIN access code and can perform a variety of configuration and other tasks on the system.

Using the numeric PIN code, enter the 4 number PIN code. As each number is pressed it replaces the relevant box until four numbers are entered.

NB – As an additional security measure, if numbers are not entered within 5 seconds of each other, the screen times out and returns to the main menu. Also if the wrong code is given this is advised and a return made to the main programme.

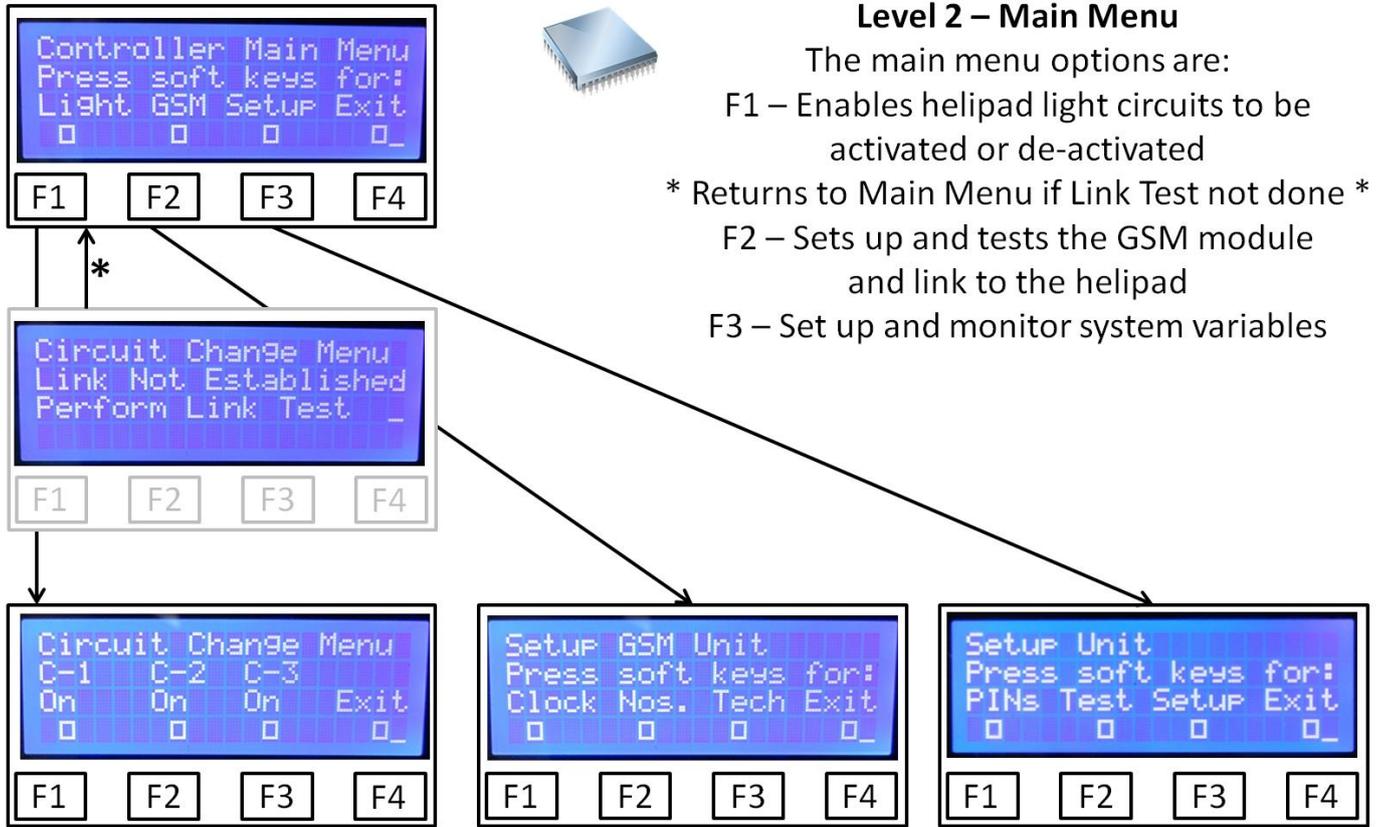




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6.1 Setup Control Menu

Once the correct PIN has been entered the Setup menu is entered.



There are three main setup areas: Lights, GSM and Setup.

In the following sections we will go through each of these areas in turn.



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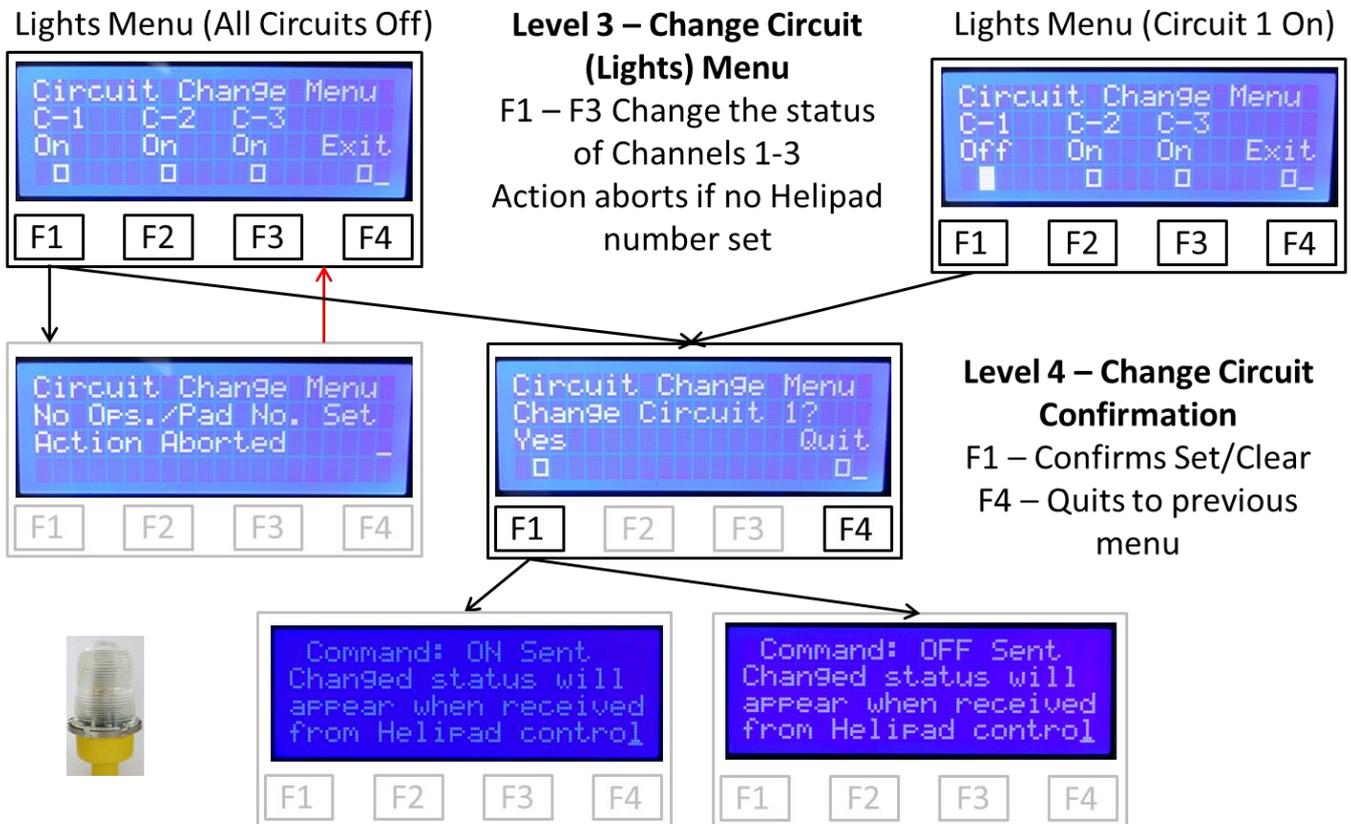
6.2 Lights Menu

The RLC Remote Panel can be used to turn channels (Lights) on and off.

As the system uses a Mobile Phone (Cell Phone) SMS link, just as with any SMS the number to be called must be entered into the system before the command can be sent.

From the menu on the left an attempt has been made to turn on channel 1. If no 'Pad' number has previously been entered, the request is rejected. If it has there is a challenge menu followed by confirmation that the 'Set' request has been sent.

In the menu on the right channel 1 is already on. The same request is this time accepted because the 'Pad' number has been stored. Following a challenge menu there is confirmation that the 'Clear' request has been sent.



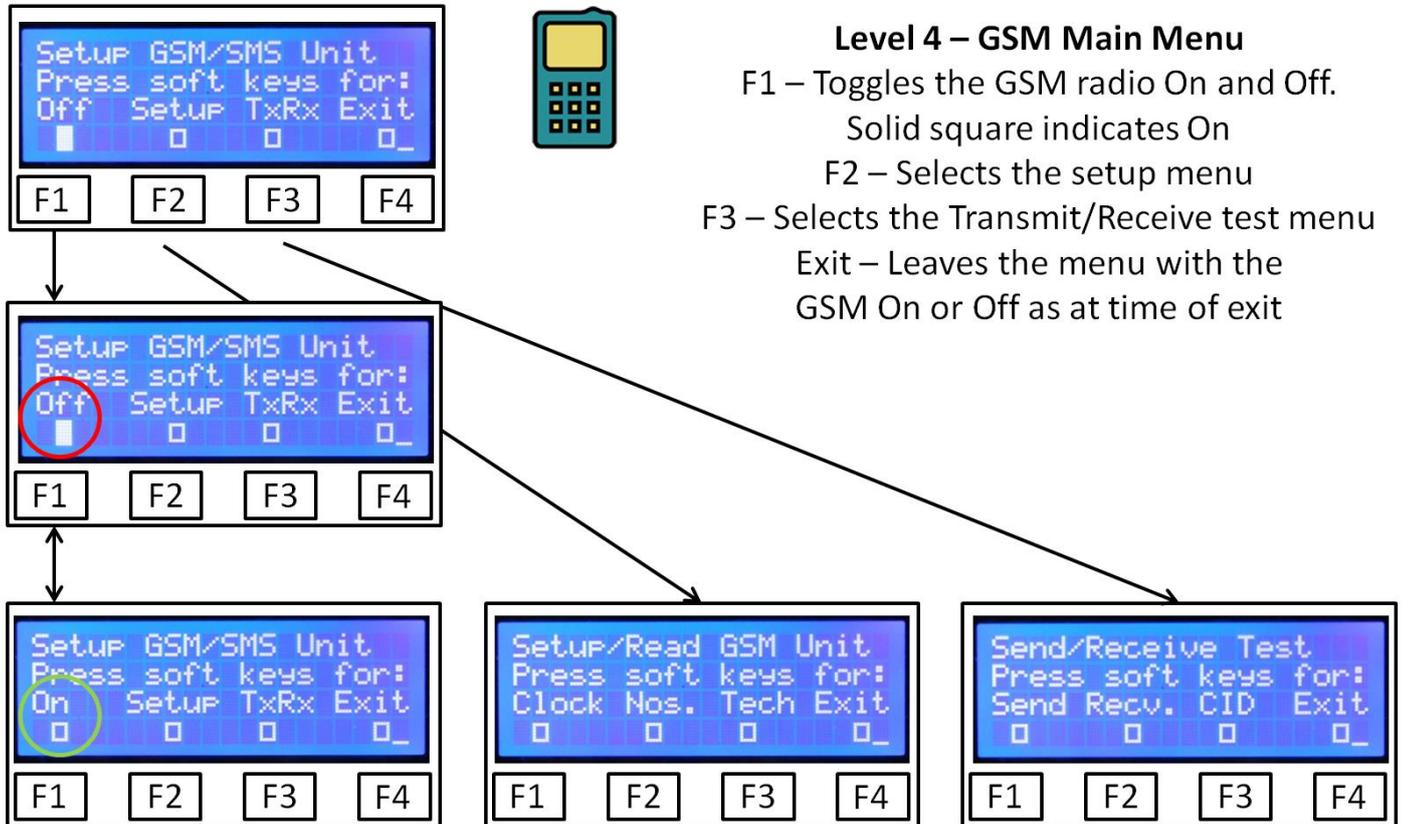
Note that in both cases the system will return to the main screen which will be showing the status before the command was sent. Once the unit receives confirmation that the demanded action has taken place the display will change accordingly.



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6.3 Setup GSM/SMS Unit

If the GSM receiver was on when Setup was selected, then the screen will appear as follows.



Note that the 1st soft key is solid indicating that the GSM receiver is ON and that the soft key option is to turn it Off. Pressing F1 will toggle the GSM receiver on and off and it will be left in that state on Exit. The other menu options are:

Setup – Performs a variety of configuration options on the GSM system, and

TxRx – Enables a number of GSM/SMS tests to be performed.

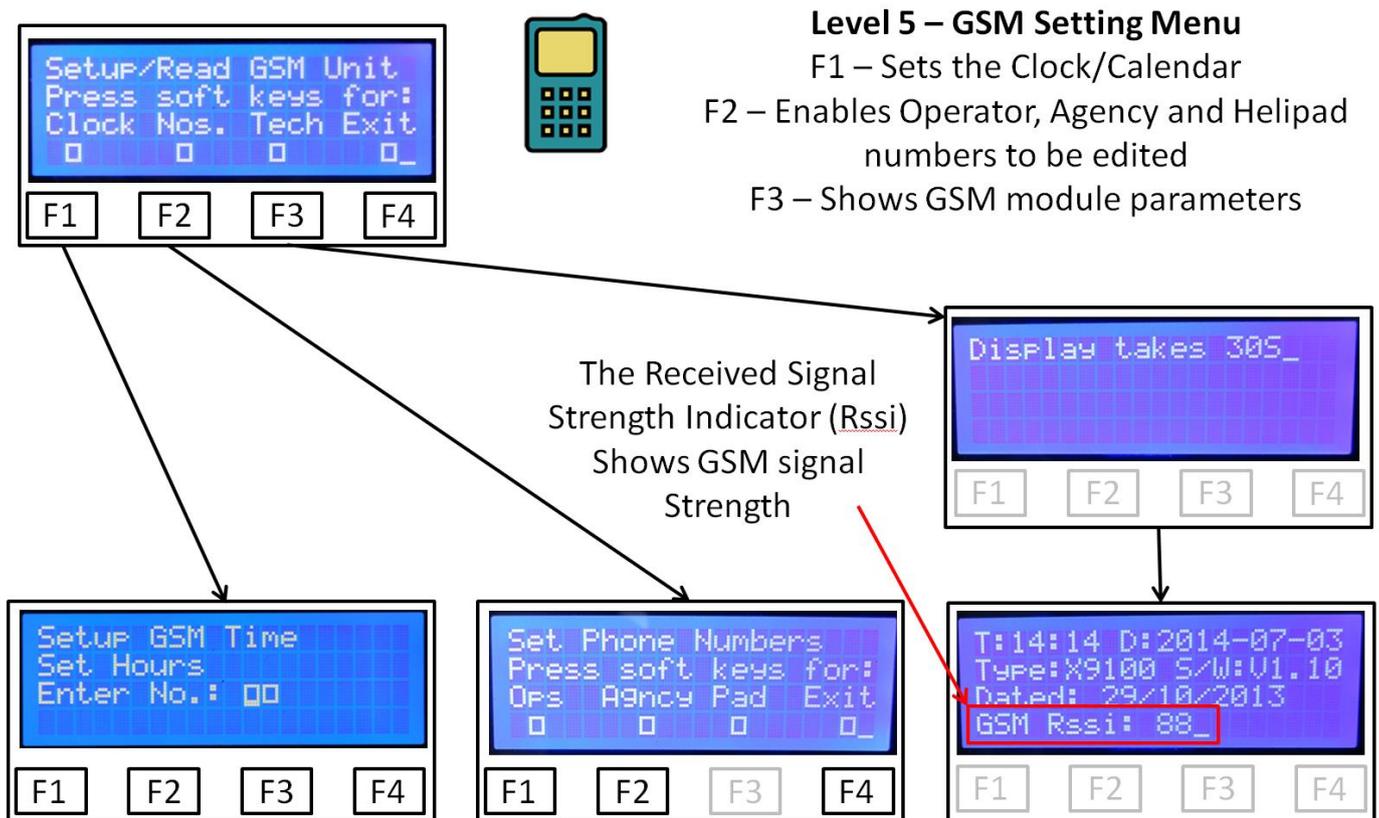


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6.3.1 Setup GSM

Selecting Setup brings up the following menu which allows:

- 1) The clock/calendar to be set
- 2) The Operator, Agency and Helipad RLC ('Pad') stored numbers to be viewed and changed, and
- 3) The GSM module to be interrogated for version/build information and the current received signal strength (Rssi) to be read.



Selecting the 'Tech' option initiates a read of the GSM module.

NB – It may take up to 30 seconds for the module to be read and the data displayed.

The data are displayed in three groups:

- 1) Time and Date - T:HH:MM D:YYYY-MM-DD
Example shown is 14:14 on the 3rd July 2014
- 2) The GSM module type and software version and build date, and
- 3) The GSM signal strength on a scale of 0 (no signal) to 100 (Max signal strength)
Typical operating range is 60-80

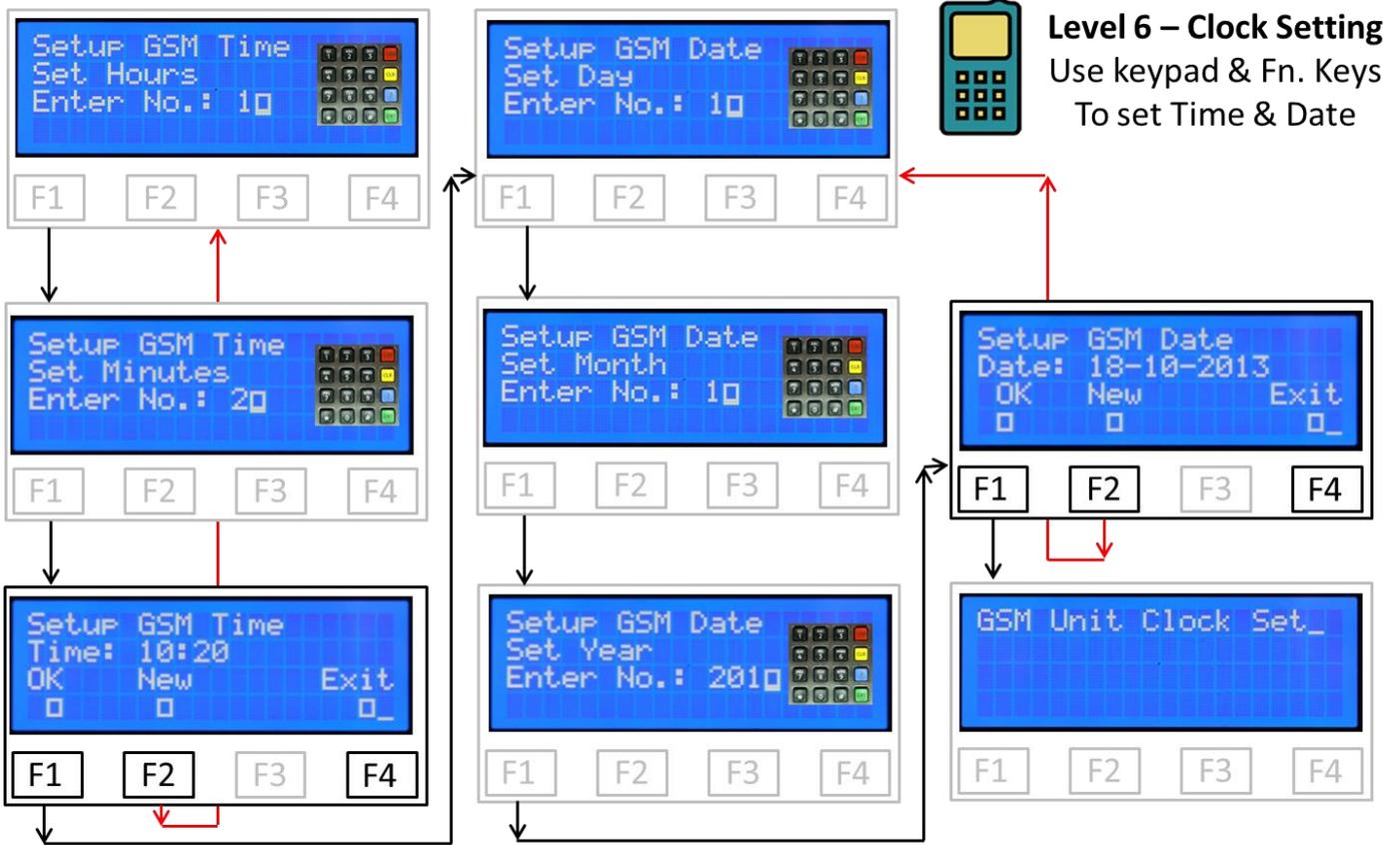
Once the data have all been displayed there is a pause of a few seconds and then the system returns to the Setup/Read GSM Unit menu.



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6.3.2 Set GSM Clock

Selecting Clock from the previous menu starts the clock setting process:



The first screen requests the hour. This must be entered in 24 hour format and as a two digit number. For example 9 o'clock in the morning would be entered '09' and 5 o'clock in the afternoon '17'.

Immediately that the two numbers for the hours have been entered you are prompted to enter minutes. Again this is as a two digit number.

Immediately the minutes have been entered the time is shown (bottom left screen) which you can accept (F1 -OK) or reject and start over (F2-New).

Once the time has been correctly entered, the day of the month is prompted for. Again this is in a two digit format. The number is checked to be in the range 1-31 but does not check against the month which is entered in the same way, again being checked to be in a valid range of 1-12.

Once the month has been correctly entered you are prompted for the year. The system pre-fills the Century (20) and accepts all years from 13-99.

On completion of the above there is a screen to confirm the date with the same options as before. Pressing F1 accepts the date/time and sets the clock.

Confirmation that the clock has been set is displayed for a short period before returning to the main menu.

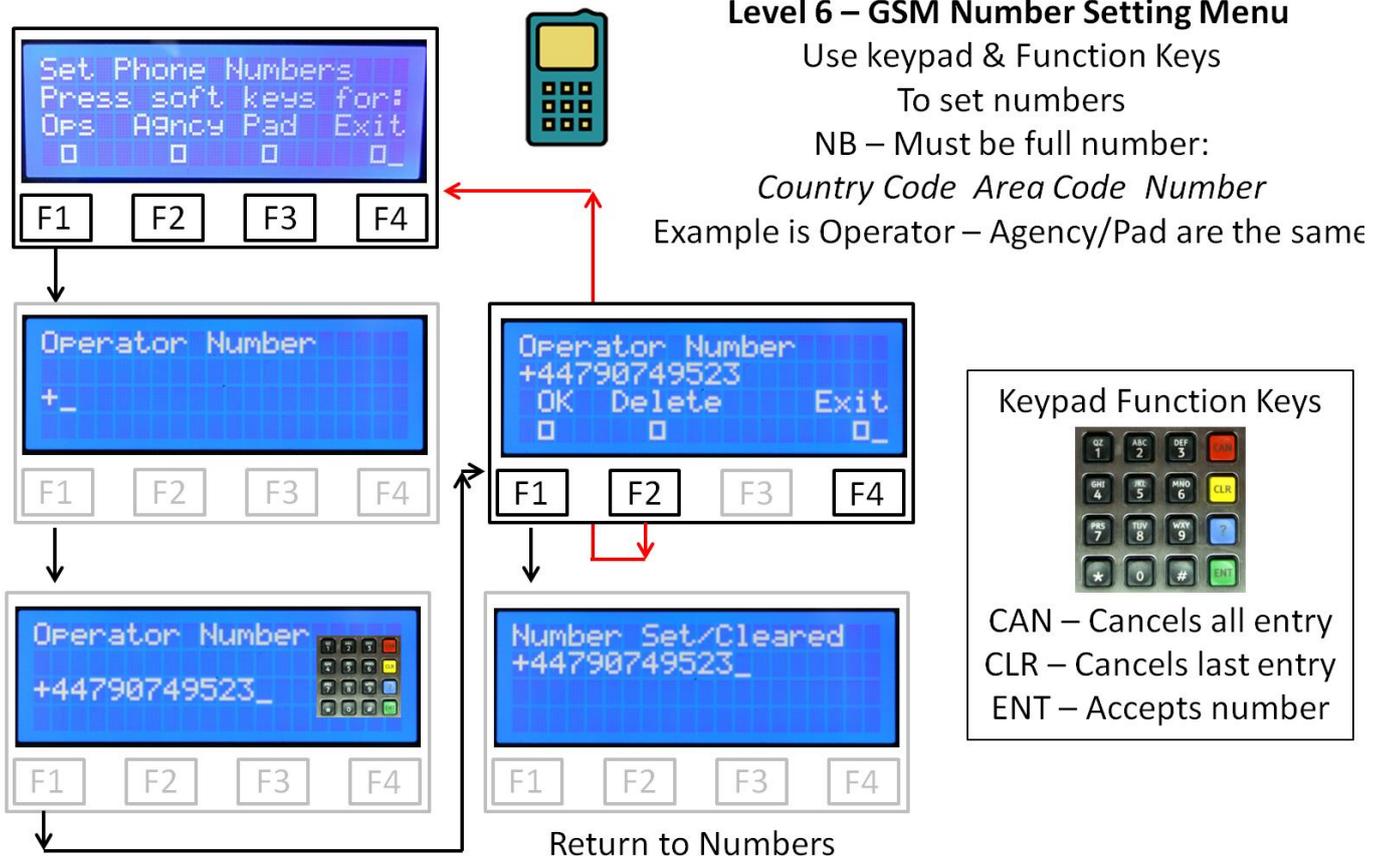


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6.3.3 Set GSM Numbers

The system can store three numbers:

- 1) Operator (Ops) – This is the number of the Owner/Operator.
- 2) Agency – This number, which is optional, is the number to which only operational reports are sent. This can be any third party that the Operator wishes to keep informed of activity without the bother of having to manually alert them.
- 3) Pad - This number, which is essential, is the number of the Helipad RLC to allow remote monitoring and alerting of channel activation



In the above example the Operator number has been selected (F1).

The current Operator number is displayed (middle left) and in this case is blank as no previous number has been entered.

The required number is entered after the '+' prompt (part of the international dialling scheme).

Note in contrast to other screens the keypad CAN, CLR and ENT keys are active.

If an error is made, CLR can be used to backspace and correct.

To clear the entire entry and start over press CAN.

To accept the number press ENT.

The process for entering the Agency and Pad numbers is exactly the same as for Operator.

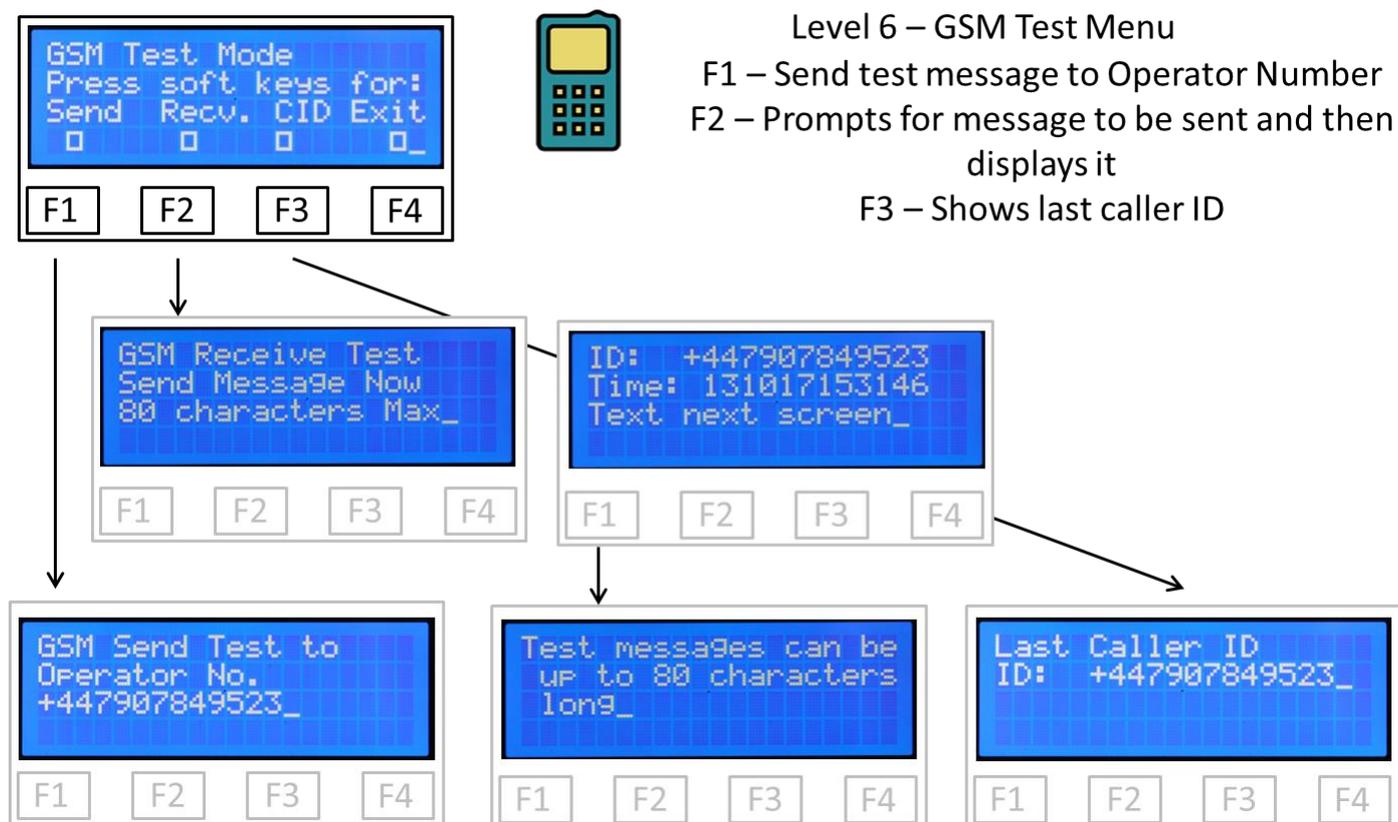


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6.3.4 GSM Test Menu

The system is able to perform the following tests on the GSM radio:

- 1) Send a test text to the Operator number. N.B. – The Operator number must have been previously entered – see section above
- 2) Receive a test message from any number (maximum of 80 characters in the message), and
- 3) Display the phone number of the last caller (Caller ID – CID)



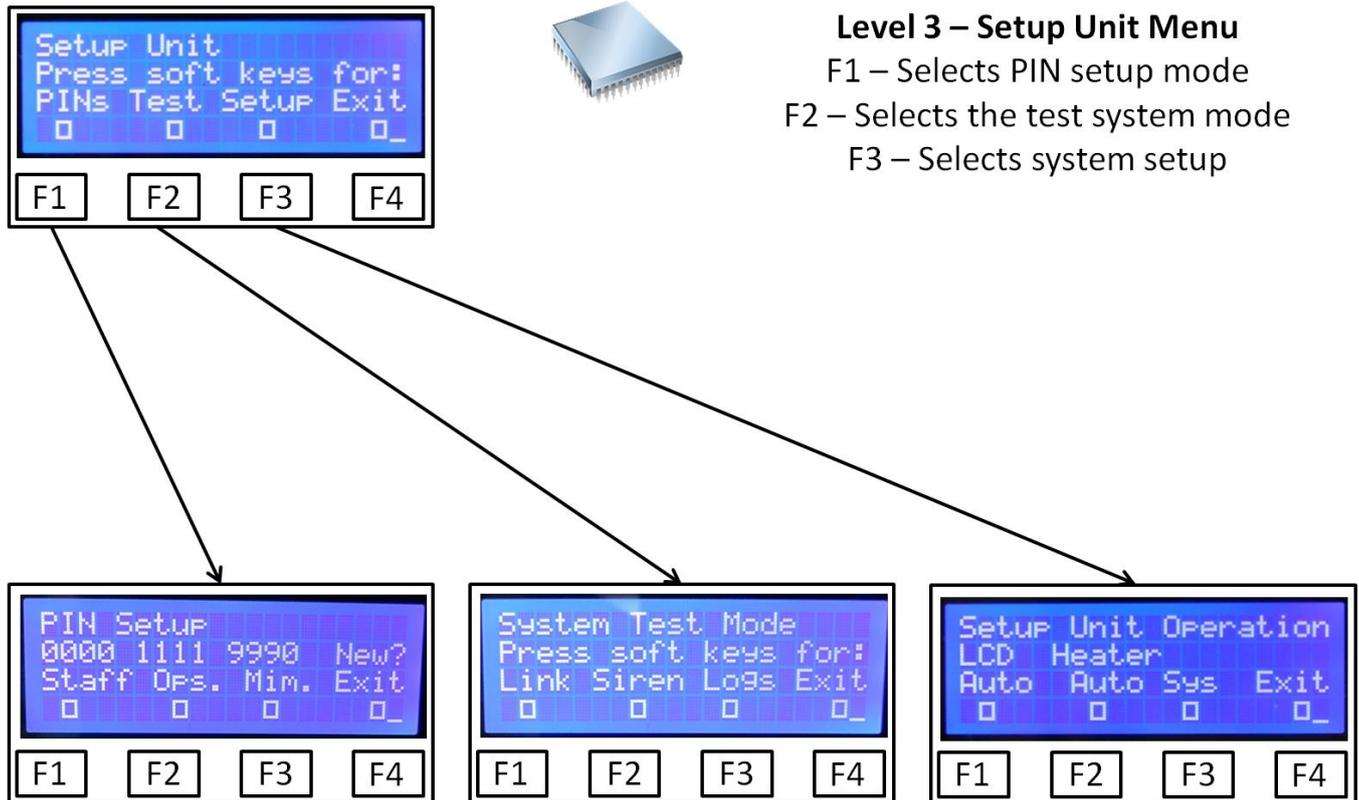


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6.4 Setup Unit Menu

There are three options available to the Operator:

- 1) Set PIN numbers
- 2) Test the system, and
- 3) Configure the system



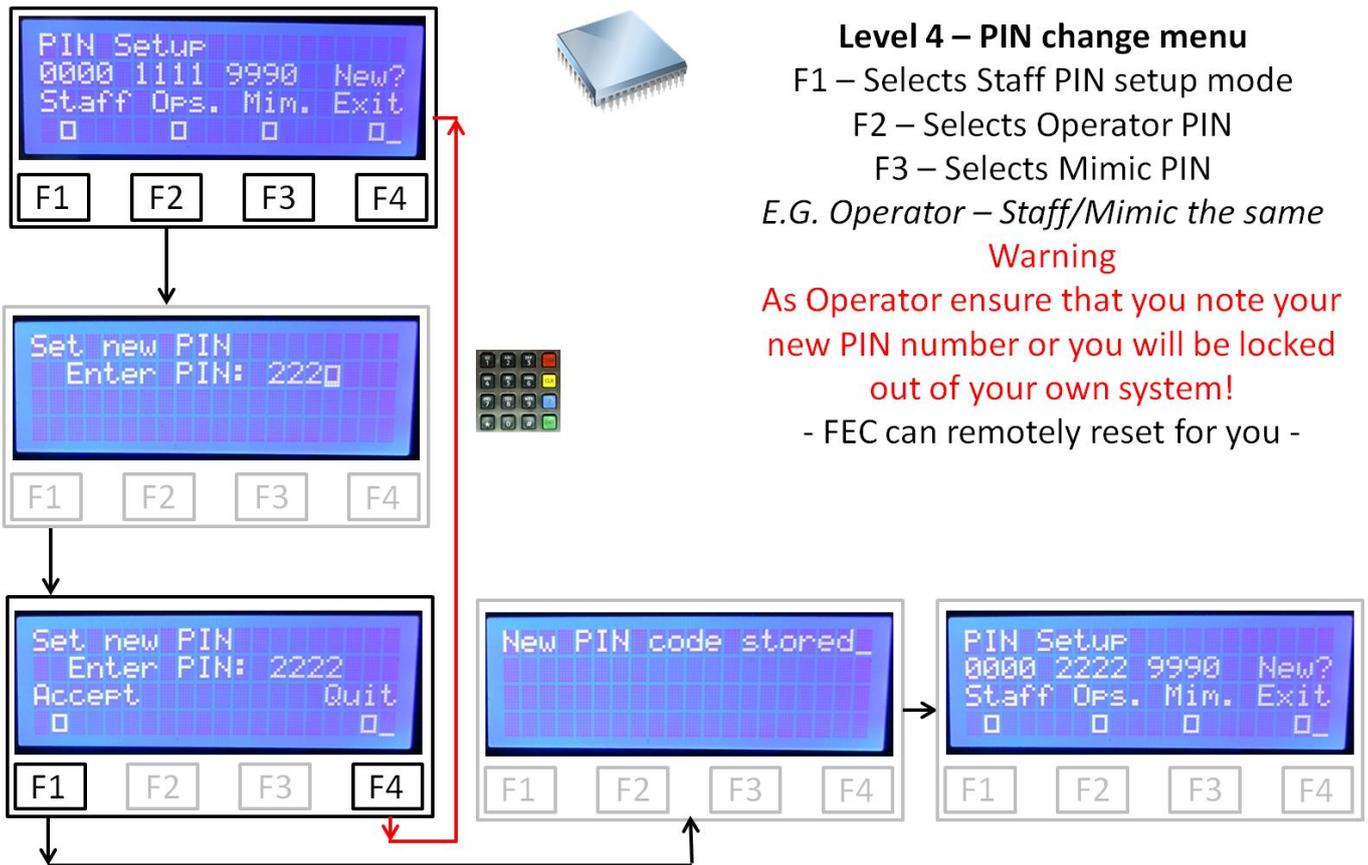


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6.4.1 Setting PINs

The Operator can set PINs for Staff, themselves and the Mimic panel.

Note that the Mimic PIN entered into the Remote Panel and the RLC must be the same as each unit is expecting this.



The above example shows how the Operator can reset their own PIN.

Note the warning about forgetting the Operator PIN – you will be locked out of your own system and only have User privileges until reset.

If an Operator does lock themselves out, FEC will be able to remotely reset.

Entering a new PIN is also possible via SMS.

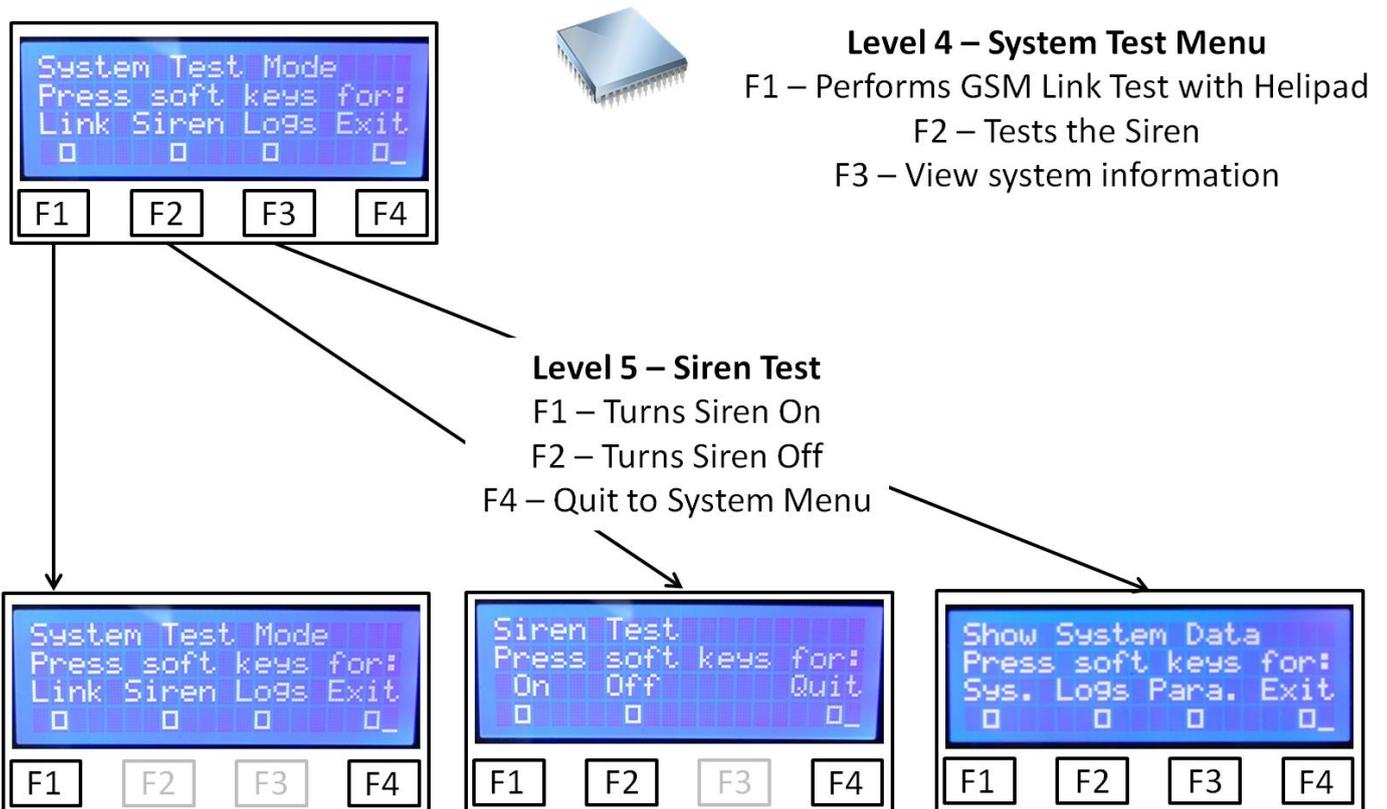


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6.4.2 System Test Menu

There are three options currently in the System Test Menu:

- 1) Test the GSM link between the Remote Panel and the RLC.
- 2) Test the Siren, and
- 3) Show system information





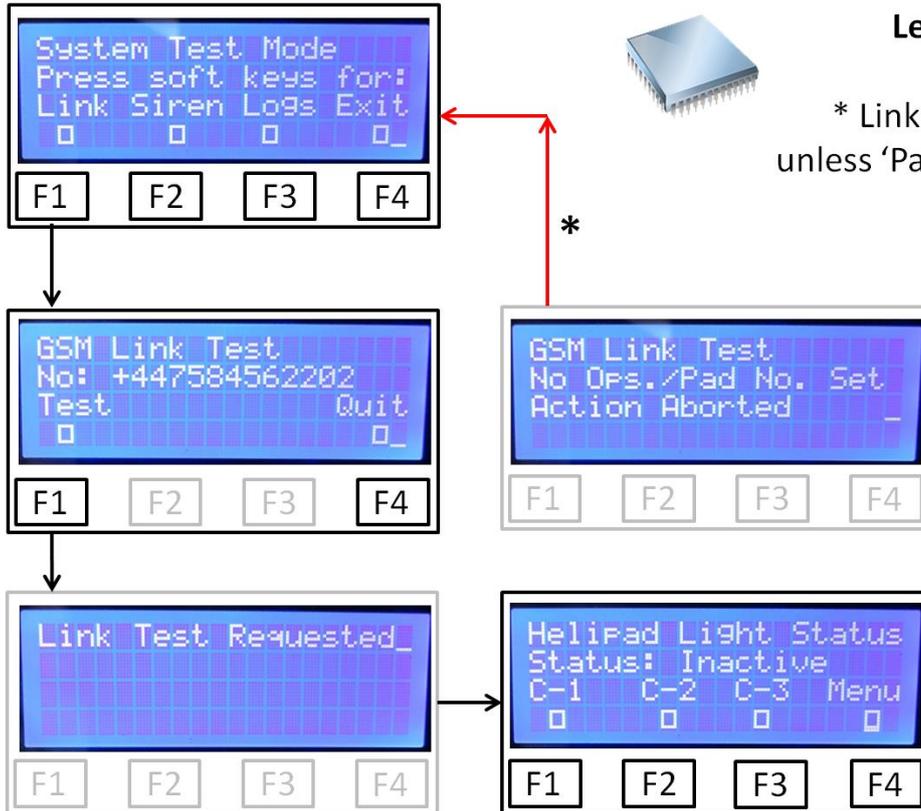
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6.4.3 Link Test

The Link Test sends a status request to the Helipad RLC.

If no 'Pad' number has been entered then this is advised and the test aborted. To continue, store the 'Pad' number (see section 6.3.3).

If a Pad number is stored, then a request is sent and the system returns to the main screen.



Level 5 – Link Test Menu

F1 – Select Link Test

* Link Test will not be performed unless 'Pad' number has been entered *



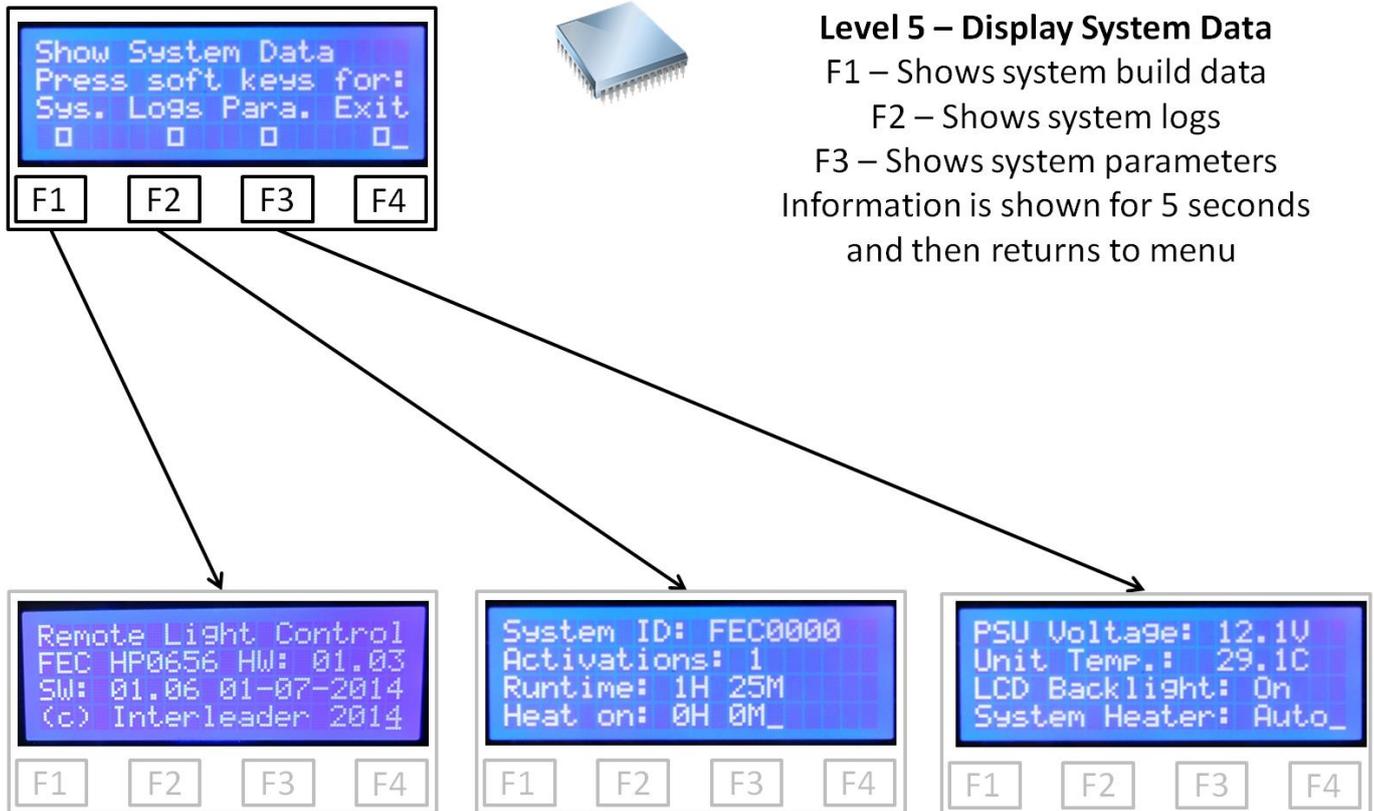
*



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6.4.4 Show System Information

A number of configuration and system data are held and updated by the system. This information is available through this menu.



System

Shows the type and hardware & software configuration.

History Logs

Shows the system ID, the number of times it has been turned on and off (activations), the total unit run-time and the time the heater has run for.

System Parameters

Shows the current Power Supply Unit (PSU) voltage and unit temperature and the configuration of the LCD Backlight (On – default or Off) and heater (Auto – Default or Off).

Note that if the unit is being run from a 12V battery, the PSU voltage will indicate the battery voltage.

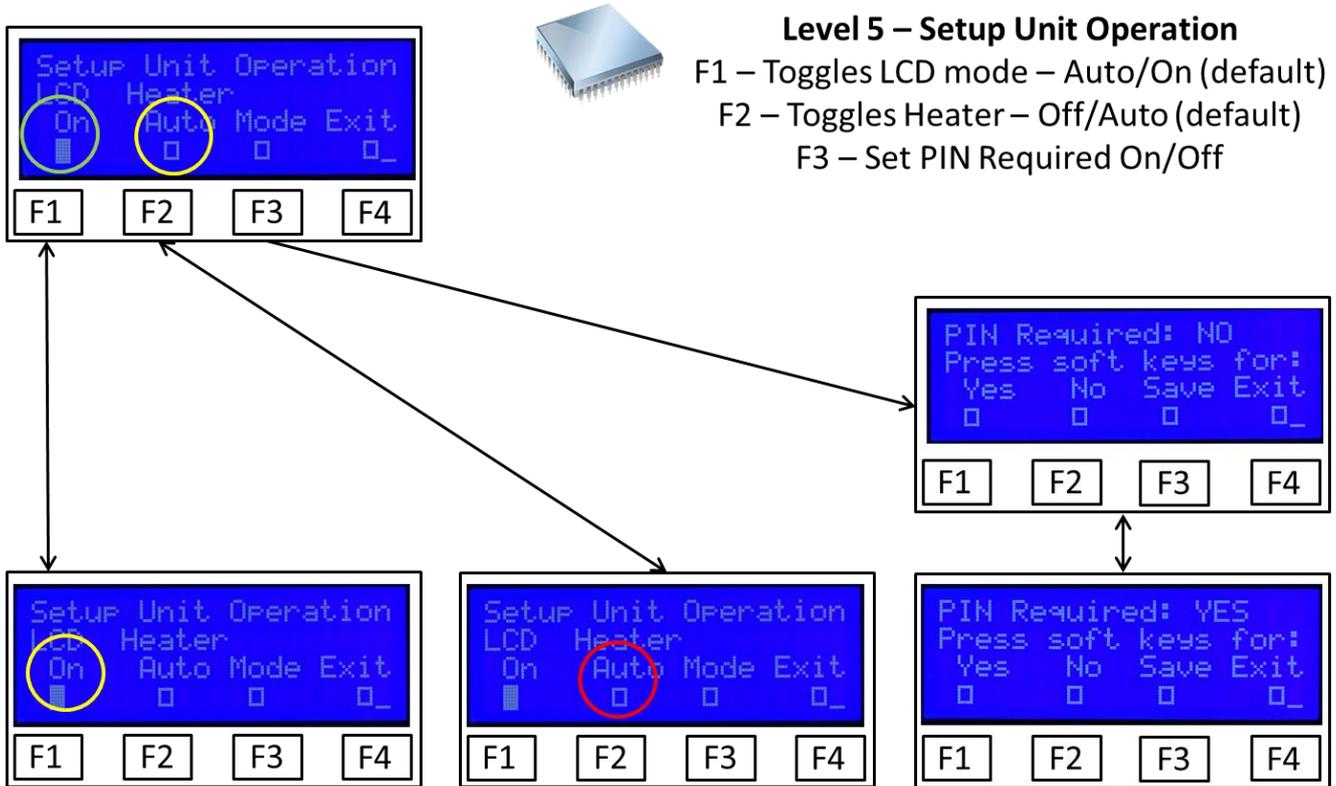


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6.4.5 Setup Unit Operation

There are two main options:

- 1) Control of the LCD backlight and internal heater for power management, and
- 2) Set the PIN Access Mode for switching channels On and Off



LCD

By default the LCD display Backlight is On. Optionally it can be set to Auto to save power. In auto mode the backlight goes off if no key is pressed or message sent to the screen for ten minutes. Touching a key or sending a message to the screen will immediately turn the backlight back on again.

Heater

By default the heater is in Automatic mode. As the internal temperature of the box drops towards freezing, the heater is run increasingly hard to maintain the keyboard, display and electronics at a temperature above freezing. In a battery powered system the heater can be turned off to conserve power.

Mode

The Mimic Panel is delivered with the PIN Required set to No. In this mode channels can be set On or Off without the need to go through the main menu and enter a PIN code.

On selecting this option, the screen will indicate the current stored mode NO (default) or YES. Use F1 and F2 to switch between the two and F3 to store the displayed mode. Exit will leave the routine without storing the displayed setting.

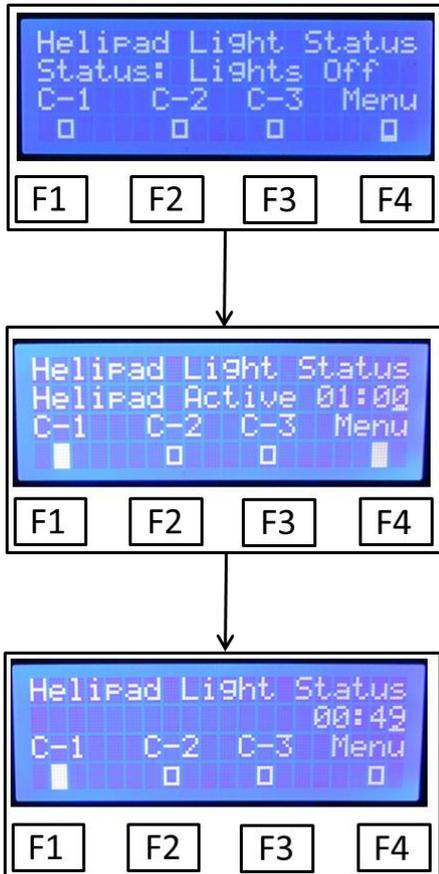


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7 Normal Operation

When operating normally, with the link tested and the helipad lights off the main screen will be showing.

When the lights are activated, the screen will change to the middle screen and the siren will sound.



Level 1 – Basic Operation (channels off)

F1 – F3 Are active until a channel is on
F4 – Selects Menu



Level 1 – Basic Operation (channel(s) on)

F1 – F3 Inactive
F4 – Selects Menu
<CAN> - Cancels the Siren
<CLR> - Clears the alert
(after PIN challenge)

The length of time the lights have been on is shown on the status line.

The siren may be silenced by pressing the <CAN> key. No PIN is required and the operation is immediate. The screen continues to show that it is active by flashing 'Helipad Active' on line 2 once a second. The timer will continue to count up (to a maximum of 100 minutes when it will roll over to 0 and start again). Once cancelled, the siren can only be re-activated by another channel going active.

To cancel the alert completely press <CLR>. A PIN is prompted for which must be either a valid Staff or Operator PIN. If a valid PIN is entered, the alert is cancelled and the screen reverts to that shown top left. If no valid PIN is entered the alert (with or without siren) will resume.



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8 Summary Specification

- Controller modes: 2 - GSM/SMS or Keypad
- GSM Bands: Tri-Band
- Network: Operators choice subject to coverage
- Tariff: Account (recommended) or pre-pay
- GSM aerial options: Externally mounted on unit (V1 Enclosure).
 - Optional SMA socket for Remote mounting.Remote via external socket (V2 Enclosure)
- Degree of protection: IP65 (general)
- LCD and Keypad protection: IP65 and 'vandal resistant'
- Unit operating temperature: -25°C to +50°C
- System Storage temperature: -25°C to +80°C
- Compliance: ROHC Compliant except exempt items (radios)
- Operating voltage (AC): 100-240V AC 50-60Hz
- Electrical Protection 5A 20mm Fuse
- Operating voltage (DC): 12V DC
- Max voltage range (DC): 10V – 15V DC
- Power (standby): 3 watts (approx.)
- Power (GSM transmitting): 10 watts (maximum)
- Max power consumption: 30 watts (including optional winter heater)
- Size: Height - 11" (280mm)
 - Excluding GSM aerial (V1 enclosure)Depth - 6.5" (165mm)
Width - 7" (180mm)
- Weight (with shipping packaging): 5.5lbs 2.5kg (3.9kg)
- Warranty: 2 years return to FEC
- Protection (Environmental) IP65



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9 Power Supply Unit Specification

All specifications are manufacturer's data:

- Manufacturer: Meanwell
- Manufacturers Model No.: DR-30-12
- Universal AC input/Full range 100-240V AC 50-60 Hz
- Input current: 1.1A
- Protections: Short circuit/Over load/Over voltage
- Cooling by free air convection
- Can be installed on DIN rail TS-35/7.5 or 15
- Isolation class
- LED indicator for power on
- 100% full load burn-in test
- Approvals:



10 Spare Parts

The following spare parts are available and can be fitted by users:

There are no other user serviceable parts.

Items requiring repair need to be returned to FEC.



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11 Diagnostics and Fault Finding

The following are the range of simple tests that an end-user of the controller can perform – to be carried out in the order given.

Warning

If the controller is mains powered, the controller box will contain dangerous voltages. A qualified electrician must perform all of the necessary safety checks on the unit prior to any other tests being carried out.

Basic Visual Checks – Ensure that:

- The unit is properly mounted, secure and appears physically undamaged
- There are no signs of overheating
- The wiring, switches and fuses that power the unit are all working as expected

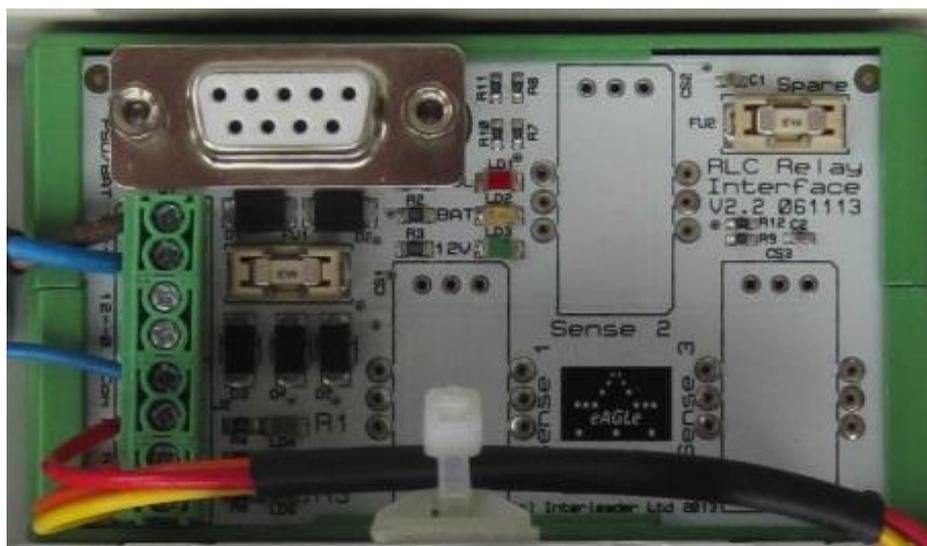
Basic Operational Checks – Ensure that:

- The PSU Status LEDs are as follows:
- +12.0V – Lit
- + 5.0V – Lit
- + 3.3V - Lit
- The LCD back-light comes on when a key is pressed
- The controller responds correctly to keypad inputs.

Basic Power Checks – In the event that neither of the above works

- Isolate the power and remove the front cover
- Visually check that all of the cable are fitted correctly
- Re-apply power and observe if LEDs on PSU and Relay board are lit (see earlier section)
- If so – are the LEDs in the back of the Keypad enclosure lit

If all of the above are OK but the LCD is still not backlit and the keypad does not work there is a fault that requires the unit to be returned for repair





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12 Appendix 1 – Software Updater

The FEC RLC Mimic Panel can be updated with new software in situ.

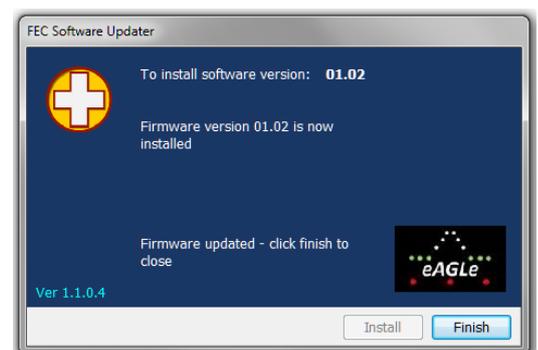
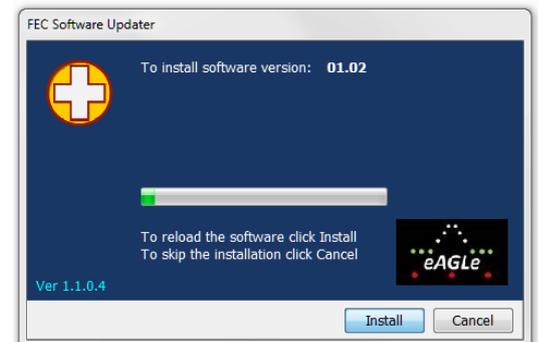
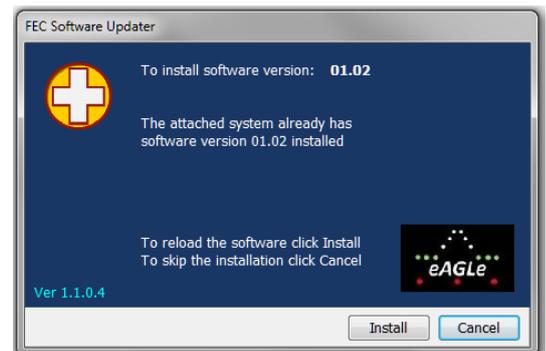
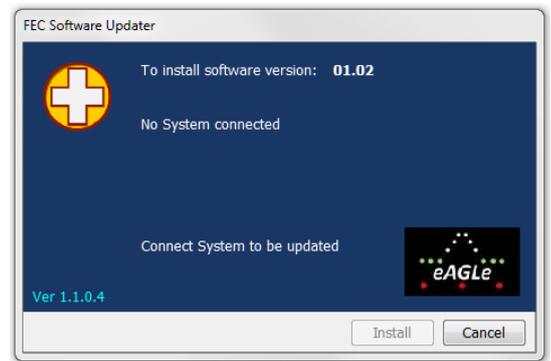
To update the software requires a Windows PC and a USB cable with type 'A' plug one end and type 'B' the other.

The installer requires neither software nor drivers to be installed on your PC – the standard Windows HID drivers already installed are used.

Software updates can be emailed to you as a self-extracting zip file.

To update the software:

- 1) Turn the unit off and disconnect from the normal power source
- 2) Open the enclosure as described in earlier sections (open carefully and disconnect aerial and connecting cable and earth wire)
- 3) Lay the controller front panel face down on a protective flat surface
- 4) Double click on the update file and a screen similar to that to the top-right will appear
- 5) Connect the USB cable to the PC
- 6) Hold down the Boot-loader switch at the same time as connecting to the USB port on the rear of the controller (image right) – this will power the controller from the PC
- 7) The screen on the PC should now advise that the system is connected and the Install button will be changed from greyed-out to active.
- 8) Click Install and the software will be automatically uploaded to the controller checked
- 9) A screen (right) confirms the update in progress
- 10) When complete – click finish and the window will close
- 11) If Windows asks if the programme installed ok – click yes
- 12) Disconnect the USB cable
- 13) Reassemble the controller and turn on
- 14) The controller will now be running the new software (validated in Show Systems Data menu)





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13 Appendix 3 – Factory Default Settings

The following are the Factory default settings:

Item	Default Setting	Comment
LCD Backlight	On	Option = Auto
Backlight timeout period	1 minute	Cannot be changed
In-Menu timeout period	10 minutes	Cannot be changed
Heater Enable	Auto	Option = Off
Staff PIN	0000	
Operator PIN	1111	
Mimic/Pad PIN	9990	

14 Appendix 4 – Aerials and Cables

14.1 Mains Cables, Switches and Fuses

No external mains cables, switches or fuses are supplied with the RLC.

It is the responsibility of the owner/installer to ensure that the installation is carried out in such a manner as to ensure the safety of the installation and that it meets all of the relevant local regulations.

14.2 GSM Aerial

The RLC Mimic is supplied with a GSM aerial which must be attached to the socket on top of the unit (V1 Enclosure) or via the integrated connection cable (V2 Enclosure).

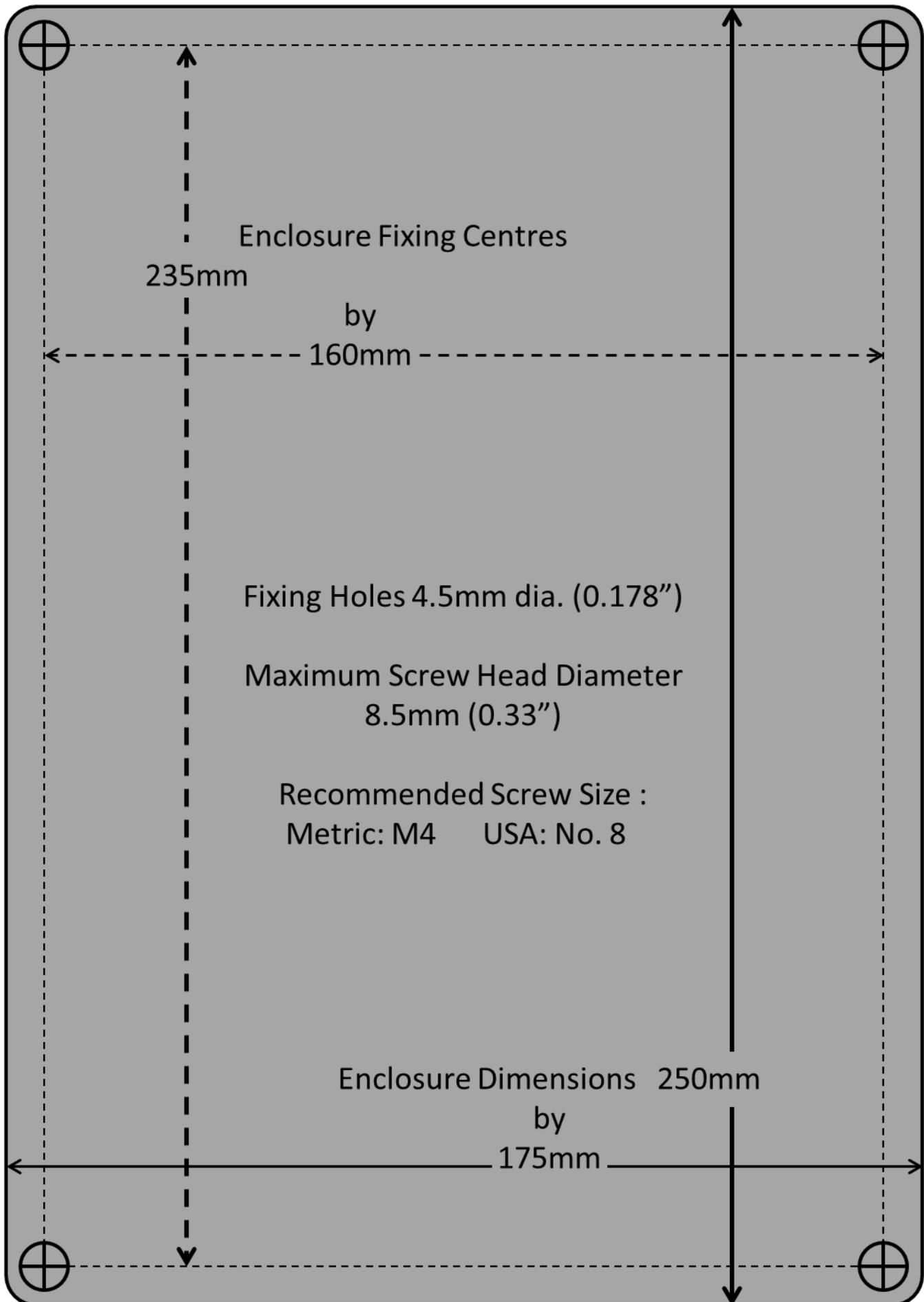
Ensure that it is a secure fit but do not over-tighten.

If a remote location for the GSM aerial is required, a suitable coax cable fitted with SMA connectors should be obtained.

To avoid undue cable losses, keep the cable as short as possible (max 10m).

15 Appendix 5 – Mounting Template

The template below is at a scale of 1:1 if this document is printed on A4 paper or US Letter and no scaling options are used e.g. do NOT use the printing option 'scale to fit'.





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