SED-15 4G

January 2026, V001

SMS I/O Control Board
Installation & User Manual

WARNING: PLEASE READ
INSTALLATION INSTRUCTIONS
FIRST

PRODUCT WARRANTY
This product is covered by a 12 month, back to base warranty from date of purchase and proof of purchase should be supplied. The warranty does not cover damage that has resulted from the improper installation or improper use of this product. The warranty does not cover lightning damage, product misuse, electrical surges or acts of God.

LIMITATION OF LIABILITY
Sec-Eng Systems Pty Ltd does not accept any liability for the loss or damage to property or persons in relation to goods supplied. This disclaimer is only limited to the warranty of the goods supplied and the intended use.

CONTENTS **Page**

1. SYSTEM OVERVIEW

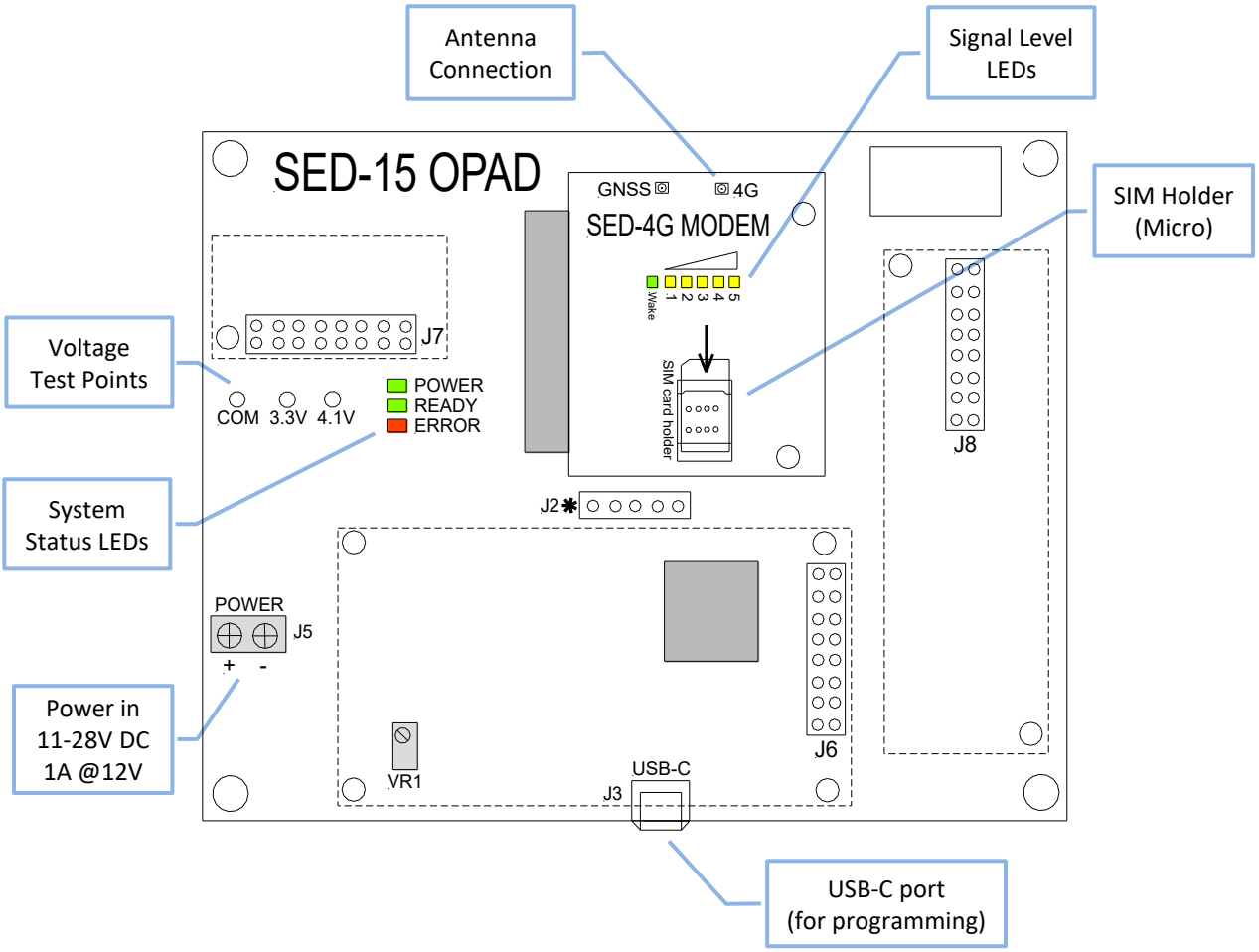
The SED-15 is a multifunctional I/O controller and voice dialler system with a modular architecture, allowing users to configure and expand the system based on application requirements.

The system consists of 4 modules:

- **SED-15 OPAD** Base board (includes 4G modem)
- **SED-15 I/O** 4 Input & 4 output board
- **SED-15 SLIC** Audio interface board
- **SED-15 BATT** Backup battery board

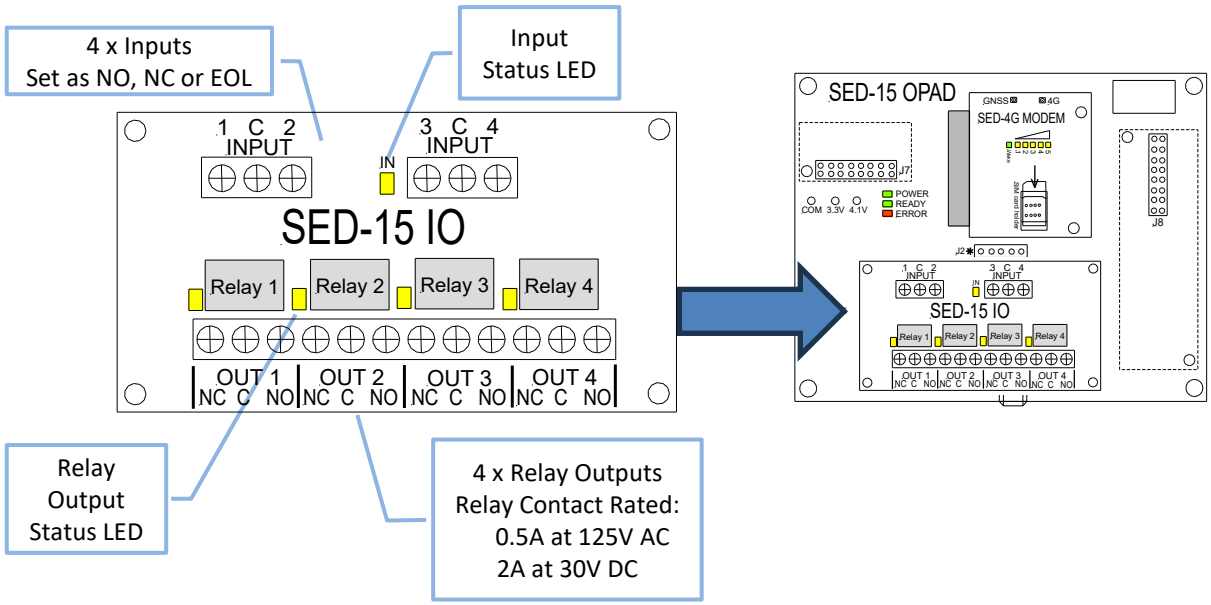
SED-15 OPAD

THE SED-15 OPAD is the base board which integrates the 4G communication module and microprocessor.



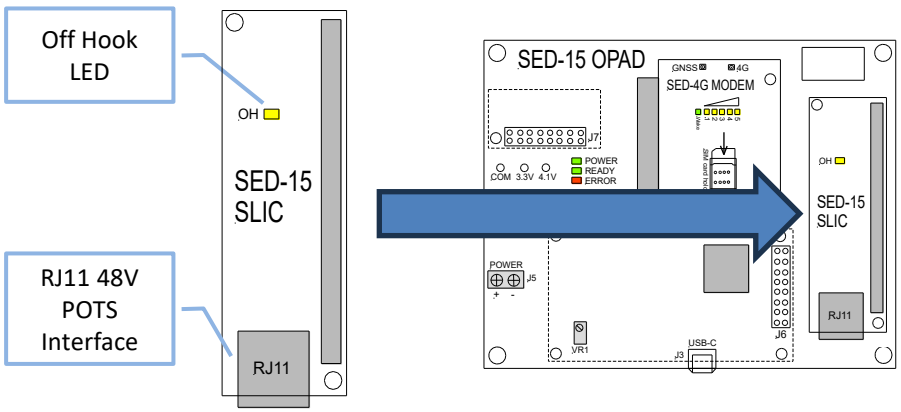
SED-15 I/O

The SED-15 I/O module features 4 inputs and 4 outputs which can be configured as Normally Open, Normally Closed or EOL.



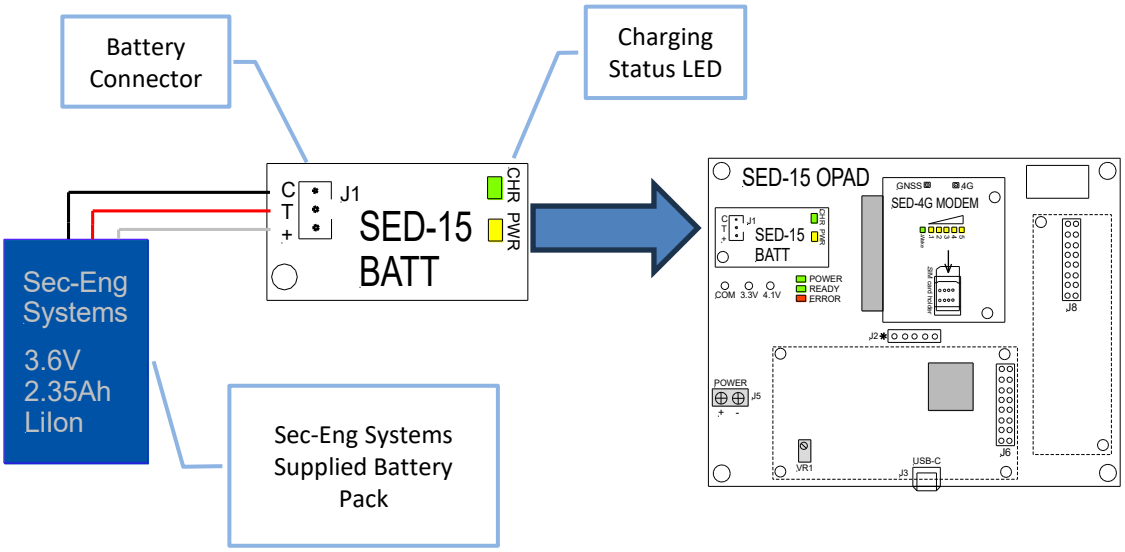
SED-15 SLIC

The SED-15 SLIC module adds a phone line interface to the system which simulates a 48V POTS line with 2-way audio pass though.



SED-15 BATT

The SED-15 BATT module adds battery backup to the system. It consists of a battery charging board and a proprietary lithium-Ion battery pack with safety protection.



2. WIRING & INSTALLATION

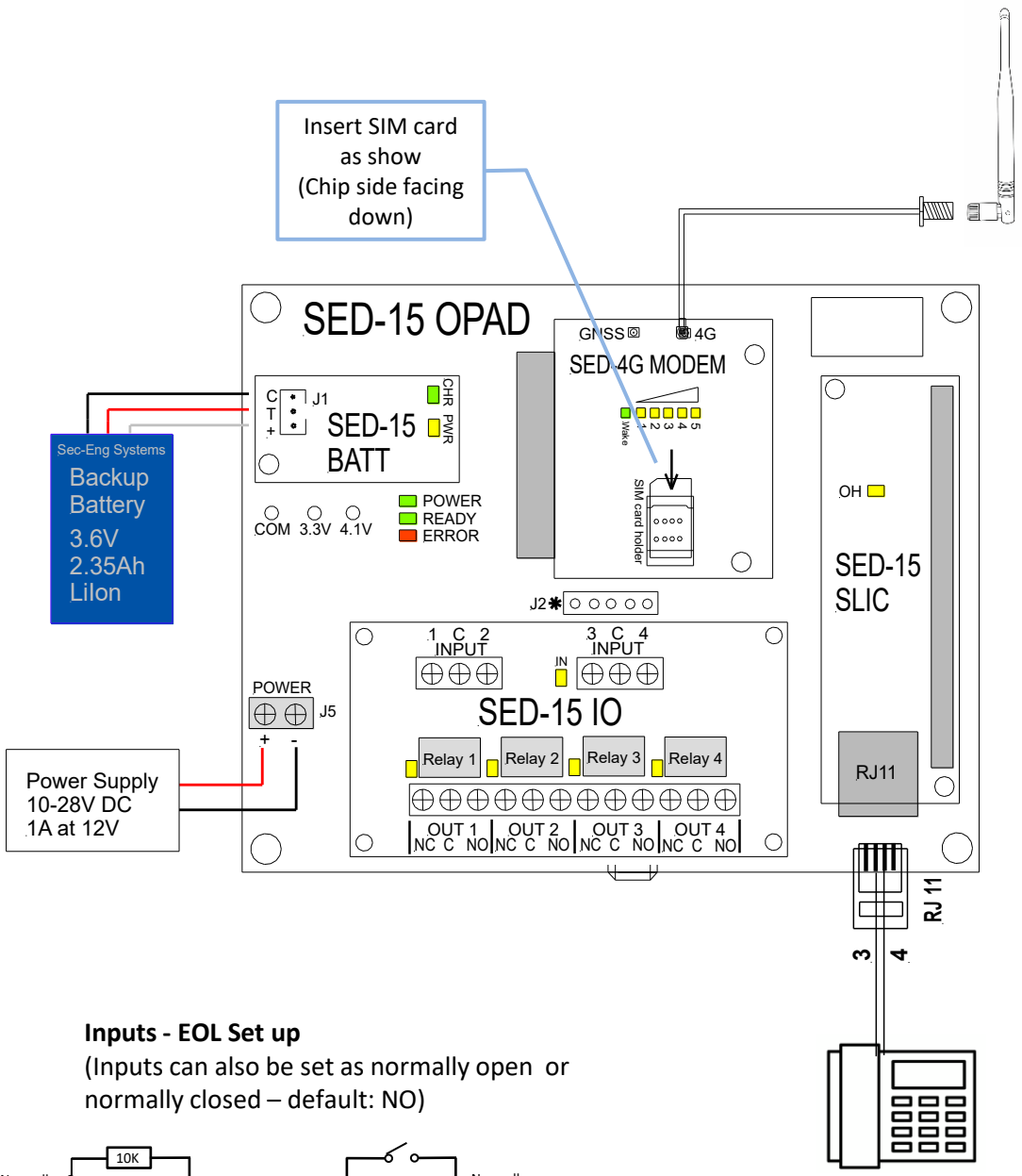
Follow the steps below when installing the SED-15:

1. Fit the **included** external antenna.
2. Fit an **active sim card** as shown on Page 7 (MICRO Size SIM).
3. Connect the backup battery to the **SED-15 Batt** module, if included. (Optional module)
4. Wire any **outputs** to be used for controlling external devices. (Relay outputs can be wired as normally open or normally closed)
5. Wire any **inputs** to be use for alarm reporting. (Inputs can be set as NO, NC or EOL 10K See page 15)
5. If a **SED-15 SLIC** module is fitted (Optional), a phone/dialler can be connected on the **RJ11** port.
6. Wire the power supply to the 2-way **Power** terminal.
7. Power up the system and wait 1-3 minutes for initialisation and a network connection to establish.
8. Once the system has successfully connected to the mobile network, the **Signal LEDs** should show a stable signal level. The **Power** and **Ready** LEDs should also be illuminated.
9. The SED-15 is now ready to accept SMS commands to program (See page 9), or connect the USB port to a PC for programming (see Page 10).

WARNING

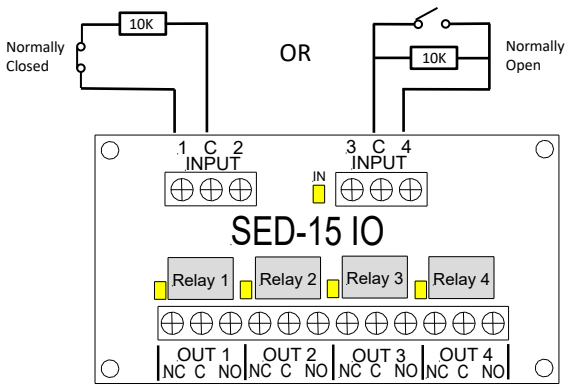
- The SED-15 is only to be installed by an authorised service person.
- The System requires a power supply, 12V DC, 1A.
- Ensure the unit is mounted in a safe & secure location, with the antenna in an **UPRIGHT** position.
- When installing in exposed areas, ensure that the antenna is covered in 20mm conduit to prevent tampering.

The above points should be taken seriously. Failing to abide by these may result in the product not performing as designed.



Inputs - EOL Set up

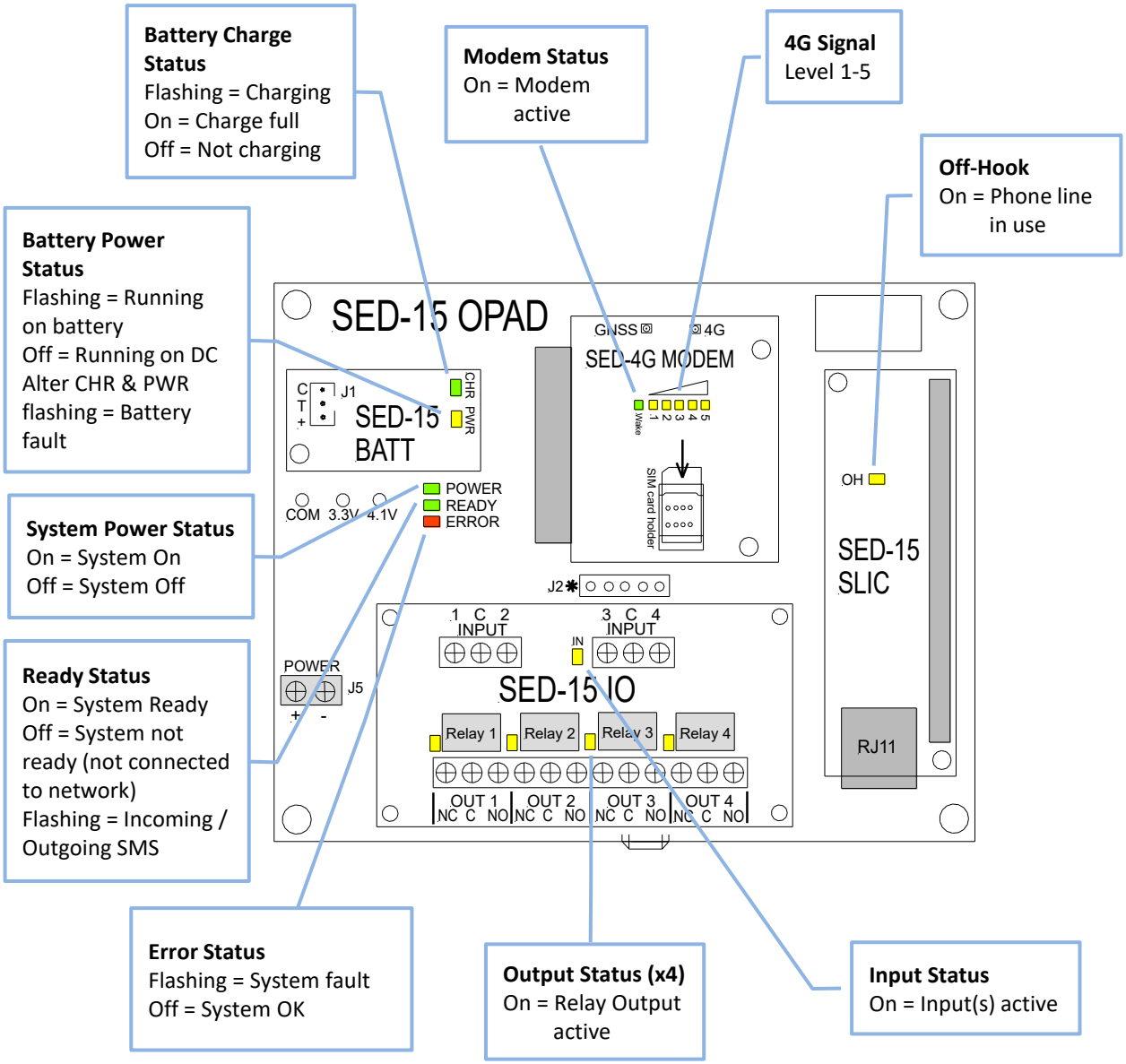
(Inputs can also be set as normally open or normally closed – default: NO)



Relay Contact Rating:
0.5A at 125V AC
2A at 30V DC

3. STATUS LED INDICATION

The SED-15 features multiple LEDs to indicate the system status and tasks being preformed.



4. SMS PROGRAMMING

When SED-15 is fitted with an active SIM card and is connected to the mobile network, SMS messaging can be used to view an edit the settings of the system.

SMS commands can be sent from any mobile phone to phone number of the SIM card fitted in the SED-15. The unit will then respond to that mobile phone with either a status report or a setting change confirmation.

All parameters listed in this guide can be viewed and modified using this programming method.

Checking Settings:

To check the current settings of a programmable field, send an SMS starting with the symbol **?** followed by the field name. See the following examples:

?S	request for a general status report
?In	request for programming fields relating to the inputs
?Out	request for programming fields relating to the outputs

?S should be used as an initial test to confirm if the SED-15 is responsive to SMS. It provides a general indication of the unit's status.

Example:
?Phone (will return a message with the list of phone numbers saved)
Phone1 : 042123456
Phone2 :
Phone3 :

Changing Settings:

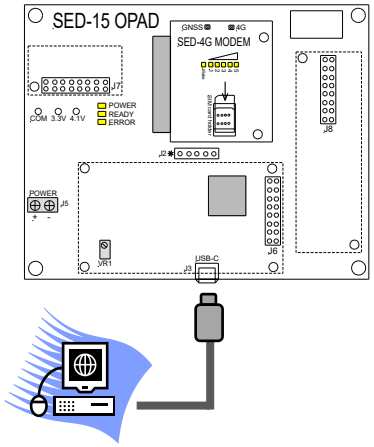
To change the settings of a particular field, send an SMS stating the field name followed by a space character and then the new setting required.

Using the example above

Phone1 042455555 (will set the Phone1 field to **042455555**)

The SED-15 will send a SMS confirming this change.

5. PC PROGRAMMING (Via USB Port)



The USB-C port on the SED-15 can be used to connect to a PC, to view and change setting on the system.

This is done using a terminal emulator software, such as uCon or PuTTY.
uCon (free-licence) can be downloaded from the link:
www.umonfw.com/ucon/

To Connect:

1. Use a USB-C cable to connect the SED-15 to a PC with terminal software installed.
2. Start the terminal software and select the Com port that's been allocated to the SED-15. (The Com port number will be set by the PC. Windows Device Manager can be used to verify the Com port)
3. Leave all other settings, such as Baud Rate and Flow control, to the default value. (USB connection does not require changing these)
4. Once a Terminal window has been opened, press the **Enter** key and a password request will appear.
   Type **zxcvbnm** followed by the **Enter** key.
   The message **Accepted** will the appear to confirm the correct password has been entered.

Programming commands can now be entered to view or edit any of the setting, in the same way with SMS Programming.

Checking Settings:

To check the current settings of a programmable field, enter the symbol **?** followed by the field name.

Example: **?In** is used to view the input settings

Changing Settings:

To change the settings of a particular field, type the field name followed by a space character and then the new setting required.

Example: **OUT1 ON** to turn on output 1

6. COMMANDS LIST

Command	Information Displayed
?S	basic status information
?P	full parameter list
?In	Input status & settings
?Out	Output status & settings
?Phone	Phone number list & related settings
?GSM	Modem status
?Ver	software version information
?Batt	Backup battery status & settings
?Link	Input-Output linking status & settings
?Test	Test report settings
?Power	Power fault report settings
?Pin	Access PIN settings
?history	history logs

All listed command can be entered via SMS and PC terminal connection.

For detailed information on each command, see the programming section

7. QUICK PROGRAMMING GUIDE (Input SMS Reporting)

The following guide lists the steps required to get the basic SMS functionality set up on the SED-15. (Input activations to generate SMS messages).
For more in depth programming instructions, refer to the Programming sections 8-13.

1. Enter the phone numbers which the SED-15 will report to, in the Phone Number List (section 8):
   Phone1 042####
   Phone2 042####
   Phone3 042####

2. Allocate these phone numbers, to the inputs being used and monitored. (what phone numbers to report to when each of the inputs are triggered)

   In # SMS List Z # = input number (1-4)
   Z = number location in the Phone list (multiple phone number can be listed)

   Example: **In 1 sms 134** (input 1 will report to phone numbers 1, 3 and 4)

3. Set the Input type, Normally open, Normally closed or EOL
   In type 1 Normally closed (Default)
   In type 2 Normally open
   In type 3 10k EOL

   NOTE: This will be applied to all 4 inputs.

4. Customise the text in the SMS sent when the input activates and restores.
   - To set the alarm message:
     In # alarm Y # = input number (1-4)
     Y = text (up to 80 characters)
   - To set the restore message:
     In # Restore Y # = input number (1-4)
     Y = text (up to 80 characters)

8. SETTING THE PHONE NUMBER LIST (SMS & Voice Calls)

The phone numbers which the SED-15 can SMS or dial are stored in this function. This list can hold up to 8 different phone numbers. Use the following commands to view and edit the phone number list:

- To view the current list entries: **?Phone**

?phone
---------- Phone ----------
Security: Disabled
Admin:
List:
Phone 1:
Phone 2:
Phone 3:
Phone 4:
Phone 5:
Phone 6:
Phone 7:
Phone 8:
SLIC:
Dial timer: 3 seconds
Call timer: 15 minutes
Offhook out: Disable

- To enter a new number or overwrite an existing one: **Phone X Y**
Single space character between list number and phone number

Y = Phone number

X = list number 1-8
(See table below)

Example: to set **Phone 1** with the number **0412345678**, use the command **Phone1 0412345678**
Set Phone 2 – Phone 8 in the same way if required.

To delete a listed phone number: **Phone X**
No character after the list number

X = number location in the Phone list

Example: use the command **Phone 2** to delete the number currently stored in the Phone 2 location.

9. INPUT SET UP

The SED-15 IO board includes 4 inputs which can be configured to report activations via SMS and phone call, as well as linking to the outputs on the IO board.
Use the following commands to view and edit the inputs:

- To view the current input set up: **?In**

?in
---------- Inputs ----------
Type: Normally closed
In 1: ON
Delay: 1sec
Alarm: Input 1 Alarm
Restore: Input 1 Restore
SMS list:
Call list:
In 2: ON
Delay: 1sec
Alarm: Input 2 Alarm
Restore: Input 2 Restore
SMS list:
Call list:
In 3: ON
Delay: 1sec
Alarm: Input 3 Alarm
Restore: Input 3 Restore
SMS list:
Call list:
In 4: ON
Delay: 1sec
Alarm: Input 4 Alarm
Restore: Input 4 Restore
SMS list:
Call list:

Input Type

The 4 inputs can be globally set to normally closed, normally open or 10k ohms end of line.

- To set, use the commands:

In type 1	Normally closed (Default)
In type 2	Normally open
In type 3	10k EOL

Input Status

The current state of the inputs is reported in the ?in response

In 1 : ON	Input 1 in Active (alarm state)
In 1 : OFF	Input 1 is Sealed (restored state)

The same applies to Input 2, 3 and 4.

Input Delay

A delay time can be set for each input for the activation or restore to be registered.

- To set:
  In # delay X
  # = input number (1-4)
  X=Time is seconds (0-1800 sec)

Input Labels (Text in SMS Message)

The message for when an input goes into an alarm and restore state can be set for each input.

- To set the alarm message:
  In # alarm Y
  # = input number (1-4)
  Y = text (up to 80 characters)
- To set the restore message:
  In # Restore Y
  # = input number (1-4)
  Y = text (up to 80 characters)

Input SMS List

This field set the phone numbers to which SMS messages are sent when inputs are triggered and restored. (set individually for each input)

- To set, use the commands:

  In # SMS List Z # = input number (1-4)

  Z = number location in the Phone list (multiple phone number can be listed)

  Example - Set input 2 to send a SMS to the number stored in Phone 3 and Phone 4:

  In 2 SMS list 34

Input Call List

In this field, the SED-15 can be set up to generate a phone call to notify when an alarm state is triggered. (it will NOT make call when the input restores)

NOTE: The call will be terminated when it is answered by the recipient or if it goes to voicemail.

Multiple number can be listed, with the system dialling each number in the listed order.

- To set, use the commands:

  In # Call List Z # = input number (1-4)

  Z = number location in the Phone list

  Example - Set input 1 to call to the number stored in Phone 2 and Phone 4: **In 1 Call list 24**

10. OUTPUT SET UP

The SED-15 IO board includes 4 outputs which can be controlled remotely via SMS or by linking to the inputs on the IO board.
Use the following commands to view and edit the outputs:

- To view the current input set up: **?OUT**

?out
---------- Outputs ----------
Out 1: OFF
SMS list: 1
Call list:
Out 2: OFF
SMS list: 1
Call list:
Out 3: OFF
SMS list: 1
Call list:
Out 4: OFF
SMS list: 1
Call list:
Fault: Disable

Output Status

The outputs current state is reported in the **?out** response

Out 1 : ON	Output 1 is on
Out 1 : OFF	Output 1 is off

The same applies to output 2, 3 and 4.

Output SMS List

This field set the phone numbers to which SMS messages are sent when and output changes state - on/off. (set individually for each output)

- To set, use the commands:
  Out # SMS List Z # = Output number (1-4)
  Z = number location in the Phone list (multiple phone number can be listed)

  Example - Set Output 2 to send a SMS to the number stored in Phone 3 and Phone 4: **Out 2 SMS list 34**

Output Call List

In this field, the SED-15 can be set up to generate a phone call to notify when the output turns on. (it will NOT make call when the output turns off)

NOTE: The call will be terminated when it is answered by the recipient or if it goes to voicemail.

Multiple number can be listed, with the system dialling each number in the listed order.

- To set, use the commands:
  Out # Call List Z # = Output number (1-4)
  Z = number location in the Phone list

  Example - Set output 1 to call to the number stored in Phone 2 and Phone 4: **Out 1 Call list 24**

Output 4 Fault Reporting

Output 4 can be set up to activate when there is a fault condition on the SED-15. These faults include:

- Loss of mobile network connectivity
- Power fail
- Backup battery fail (Power IN drops below 10V)

- To enable/disabled this mode:
  Out 4 fault # # = 1 (Enabled)
  0 (Disabled)

11. SECURITY FEATURES

The SED-15 offers a number of security features to restrict unauthorised access to the system and prevent any external tampering.

Restricted Phone Numbers Access

The feature allows the SED-15 to only respond to SMS messages from numbers that are saved in its Phone List.

- The function is viewed in the **?phone** response (Security)

?phone
---------- Phone ----------
Security: Disabled
Admin:
List:
Phone 1:
Phone 2:

- To enable/disable this feature:
  Phone Security # # = 1 (Enabled)
  0 (Disabled)

Admin Phone Number Access

A phone number can be set to have administrator access, where it can edit the programming of the system even if the Security function is set and the number is not on the Phone list.

- This function is viewed in the **?phone** response (Admin)

?phone
---------- Phone ----------
Security: Disabled
Admin:
List:
Phone 1:
Phone 2:

- To set the Admin number:
  Phone Admin # # = Phone number

PIN Code Access

A PIN code can be set up to restrict access to the system, and require the user to SMS the PIN before gaining access.

- To view this function: **?pin**

?pin
--------- PIN Codes ----------
PIN SMS: 0000 *(0000 = Disabled)*

- To set a PIN code:
  Pin sms # # = 4 - 10 digit code (numerical)

Once a PIN has been set up, the user will need to SMS the PIN to get a response from the system or be able to view or edit any of the settings. The session will timeout after 5 minutes and the PIN will need to be re-entered.

12. Voice Call Features (SLIC)

The SED-15 SLIC add-on board allows the system to make voice calls over the mobile network connection. This is done via the RJ11 port which simulates a 48V POTS phone line interface.

To use, simply plug a handset/dialler in the RJ11 port and dial tone should be available. The OH Led on the SLIC board will illuminate when the phone line is off hook.

Some options are available for customising the phone call features:

The setting can be viewed in the **?Phone** response

?phone
---------- Phone ----------
Security: Disabled
Admin:
List:
Phone 1:
Phone 2:
Phone 3:
Phone 4:
Phone 5:
Phone 6:
Phone 7:
Phone 8:
SLIC:
Dial timer: 3 seconds
Call timer: 15 minutes
Offhook out: Disable

Dial Timer

Sets the timeout between key strikes when dialling a phone number

- To adjust:
  Phone Dial timer # # = 3 – 10 seconds (Default: 0)

Call Timer

Sets the phone call duration timeout. The call will be ended when the time limit is reached.

- To adjust:
  Phone Call timer # # = 5 – 120 minutes
  (Default: 0 = unlimited)

Call Timer

Sets the phone call duration timeout. The call will be ended when the time limit is reached.

- To adjust:
  Phone Call timer # # = 5 – 120 minutes (Default: 0)

Off hook Out

Set an output to activate when the phone line is off hook.

- To adjust:
  Phone offhook out # # = 0 (Disabled)
  = 1 – 4 (output number)

13. POWER FEATURES

The SED-15 can report power failure events via SMS and relay output.

- To view the power function: **?Power**

?power
---------- Power ----------
List: 1
Fail delay: 0 minutes
Fail: System power fail warning
Restore: System power restored

Power Fail SMS List

This field sets the phone numbers to which SMS messages are sent when power to the SED-15 fails (drops below 10V) and restores.

- To set, use the commands:
  Power List # # = number location in the Phone list (multiple phone number can be listed)

Fail Delay

This field sets a delay between the power fail event and when it is reported via SMS and relay output.

- To set, use the commands:
  Powe fail delay # # = 0 – 60 minutes

Power Fail SMS Message

The text in the SMS sent in a power fail event is set in this field

- To set, use the commands:
  Powe fail # # = text (up to 80 characters)

Power Restore SMS Message

The text which is sent in the SMS message in a power restore event is set in this field

- To set, use the commands:
  Powe restore # # = text (up to 80 characters)

14. TECHNICAL SPECIFICATIONS

Dimensions:	160 x 120 x 45mm (Housing)
SIM Required:	MICRO size, SMS enabled
Power Input:	11-28V DC
Current draw:	1A, at 12V DC
Backup Battery Optional:	12V 7Ah gel cell (Not included)
Output Relay rating:	0.5A at 125V AC, 2A at 30V DC
Antenna connector:	SMA Female
Antenna supplied:	3dBi Omni directional
Modem:	UBLOX LARA R6 Cat-1 LTE
Network Connectivity:	VoLTE 4G with 3G and 2G fallback
	LTE frequency Bands B1(1920- 2170MHz), B3(1710-1880MHz), B5(824-894MHz), B7(25002690MHz), B8(880-960MHz), B28(703-803MHz)
	3G frequency bands B1(2100 MHz), B4(1700 MHz)

Certification

PTCRB, GCF, R&TTE & CE (Europe), FCC (US), IC (Canada), Giteki (Japan), A-tick & RCM (Australia), IDA (Singapore), Anatel (Brazil), NCC (Taiwan), CCC (China), KCC (S. Korea), AT&T (USA), DoCoMo, Softbank (Japan), Telstra (Australia), Vodafone (All Vodafone networks), Telecom NZ, Rogers, Bell Mobility, Telus (Canada), SKT (S. Korea), ICASA (S. Africa), AT&T (US).

SEC-ENG Austel Approval N3884 C-tick approved

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