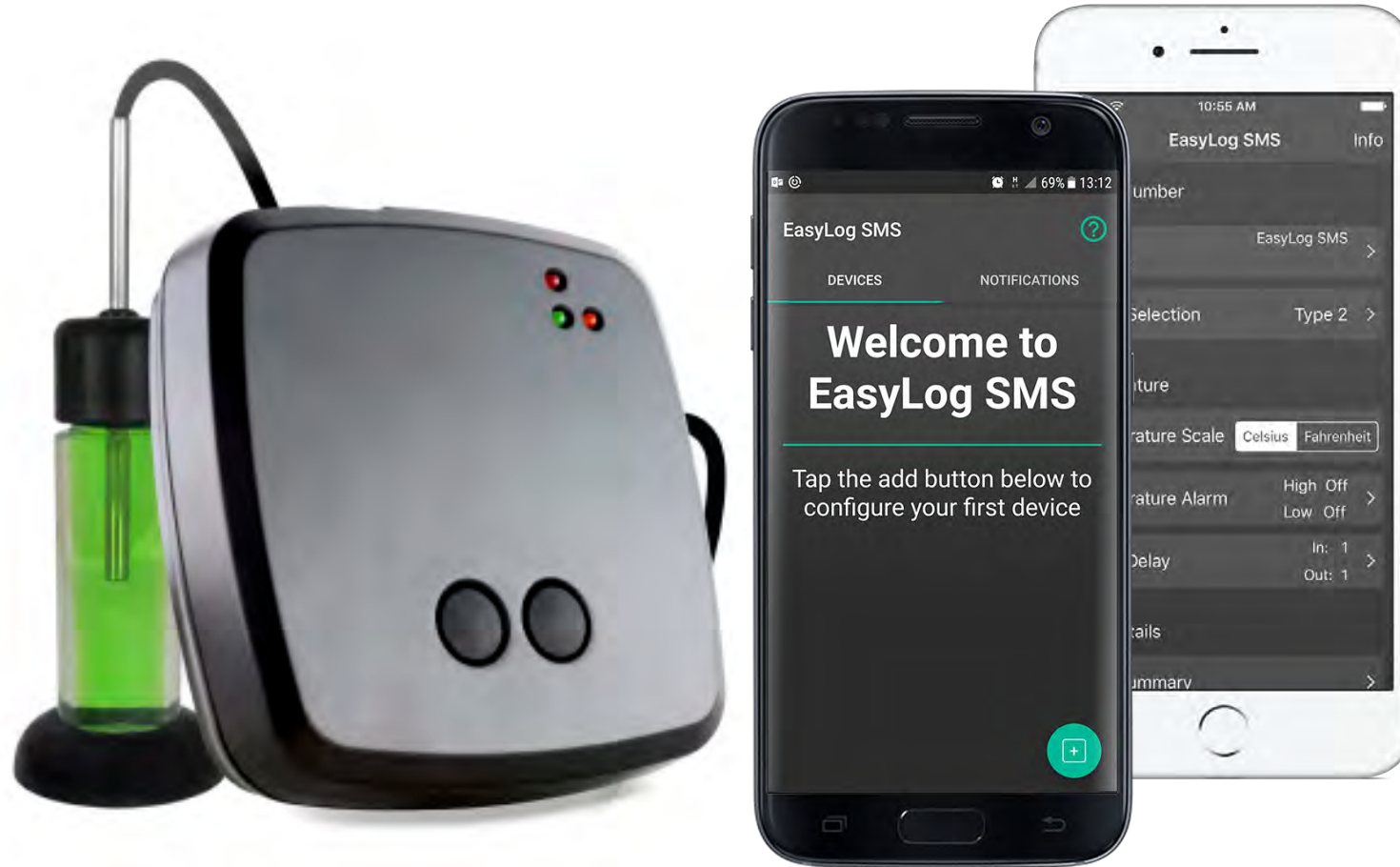
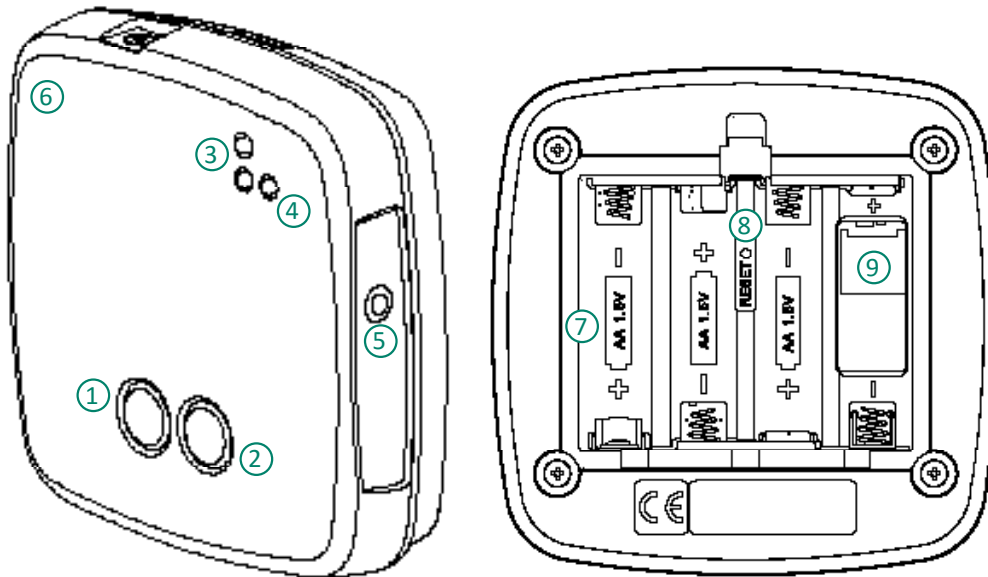


# Temperature Monitor with SMS Alerts



# Quick Start Guide



- ① Status button
- ② Stop button
- ③ Status LEDs
- ④ Netlight
- ⑤ External temperature probe port

- ⑥ Sounder
- ⑦ Battery Bay
- ⑧ Reset switch
- ⑨ SIM card holder

1. Check that there is adequate mobile signal strength from the appropriate provider at the location where you intend to use the unit.
2. Download and install the “EasyLog SMS” App from Google Play store or the App Store.
3. Carefully remove the battery plate and fit your SIM card into the microSIM holder.
4. Insert 4 x AA alkaline batteries into the unit and replace the battery plate.
5. Connect your probe in the external temperature probe port.
6. Open the App on your smartphone or tablet and add a new device. Use the mobile number that was supplied with your SIM card.
7. If using Android, select the device just added and press the “Setup” button.
8. Configure the parameters to suit your intended application, then press the “Start” button (Android) or “Send SMS Message” button (iOS) and follow the on-screen instructions, which will prepare the unit to receive the configuration SMS and send the message.
9. Once the configuration has been completed, you will receive a “Setup complete” message and the unit will begin monitoring.

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# EL-SMS App User Guide - Android



## Features

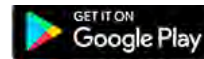
- Simple management of your EL-SMS devices.

## Compatibility/Limitations

- Compatible with Android versions 2.3.3+ (API 10).
- Android device must have mobile network service and the ability to send/receive text messages.

## App Use (App images are subject to change)

1. Download and install the Android App from Google Play.
2. Open the App (see Fig. 1).
3. Add the EL-SMS device to your list by clicking the “Add logger button” at the lower right of the screen.
4. Input the EL-SMS device mobile number. Optionally add a device name and notes regarding the device’s location, use etc. then press “Save” (see Fig. 2).



The device number can consist of the following characters: “+0123456789” and must be 7 digits or more.

The device name can consist of the following characters shown between the double quote marks below:

“abcdefghijklmnopqrstuvwxyz ABCDEFGHIJKLMNOPQRSTUVWXYZ0123456789”

The name can be up to a maximum of 16 characters. If left empty the default name “EasyLog SMS” will be used.

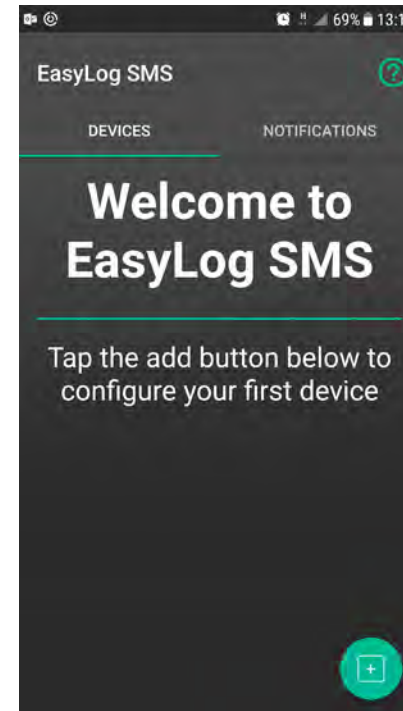


Fig. 1

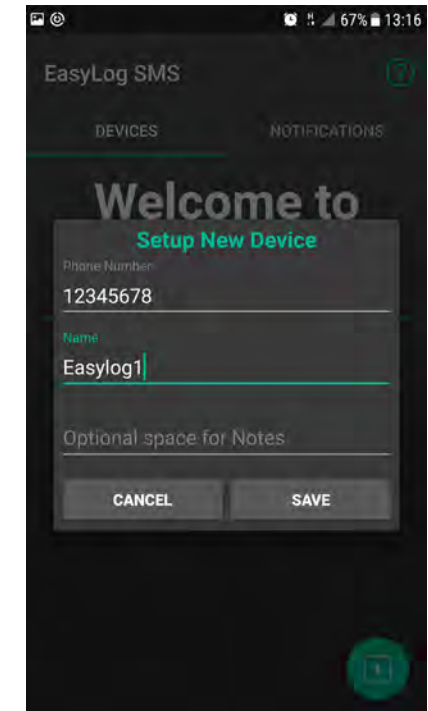


Fig. 2

# EL-SMS App User Guide - Android



## App Use (Continued)

The EL-SMS device is now in your device list. (See Fig. 3).

5. To configure the device, tap the device name in the list to bring up the options menu (See Fig. 4).
  - a. **SETUP** – Allows you to enter the Full Setup menu, see section 6 below.
  - b. **EDIT/VIEW** – Edit or view the basic details of the device.
  - c. **CHANGE ICON** – Allows you to change the icon for the device to a photo or reset it back to the default.
  - d. **DELETE DEVICE** – Removes the device from the App.

### 6. Full Setup

Tap the setting you wish to change (See Fig. 5).

- a. Probe selection - Allows you to select the correct probe type for your device. Select Type 2 for the standard probe (-TP model) or Type A for the high accuracy probe (-TP+ and -PROBE-G models).
- b. Temperature Scale – Choose between Celsius and Fahrenheit temperature measurements (See Fig. 6).
- c. Temperature Alarms – Set the high and low alarm thresholds you require (See Fig. 7).

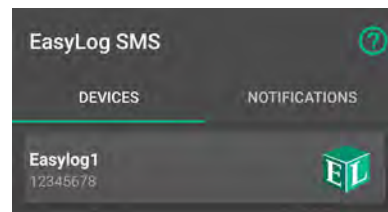


Fig. 3

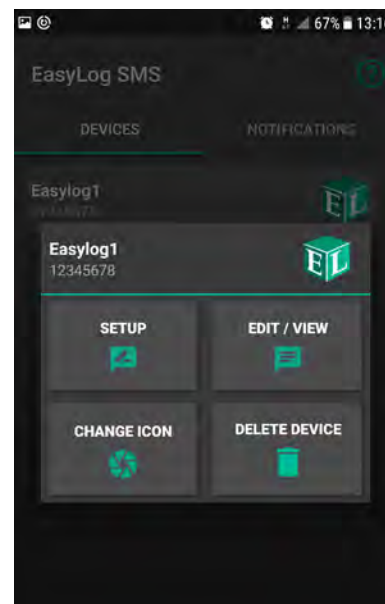


Fig. 4

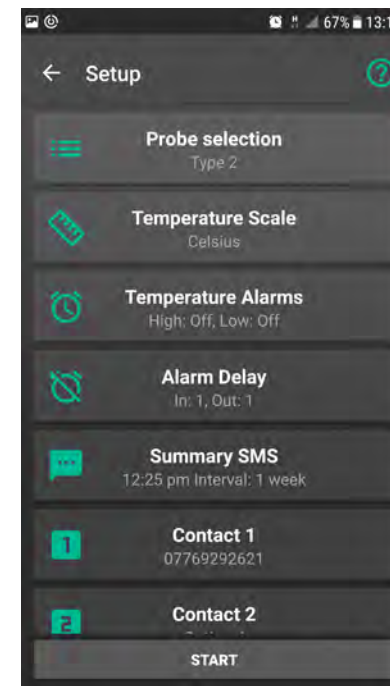


Fig. 5



Fig. 6

# EL-SMS App User Guide - Android



## App Use (Continued)

- d. Alarm Delay – Configure how many readings must occur in an alarm condition before you are notified and how many readings after the temperature normalises before a new alarm condition will be sent to you. (See Fig. 8).
  - e. Summary Interval – The interval at which the EL-SMS device will send you information regarding its status. (See Fig. 9).
  - f. Input up to three contact numbers that this EL-SMS device should notify, and select which messages they will receive (See Fig. 10).
  - g. Press the start button to send the configuration message to the EL-SMS device.
7. Viewing notifications – From the home page swipe left or tap “Notifications” to view the notification list (See Figs. 11 and 12).

This list contains the messages you have received from EL-SMS devices in your list. Tap a notification to view the message details. Messages can be deleted by pressing the trash can button on the notification, or by long-pressing on the notification in the notification list.

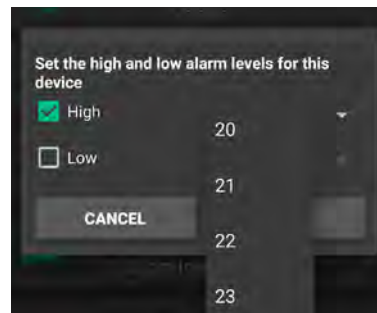


Fig. 7

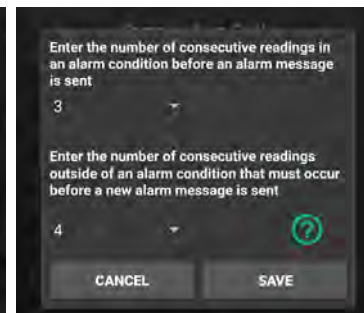


Fig. 8

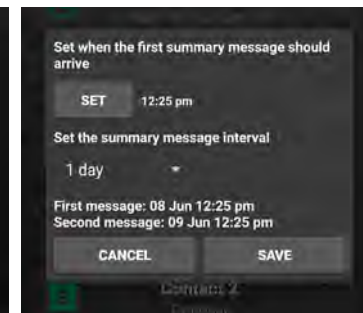


Fig. 9

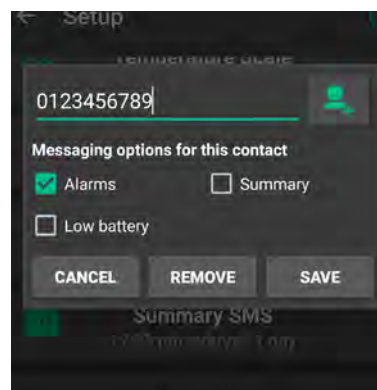


Fig. 10

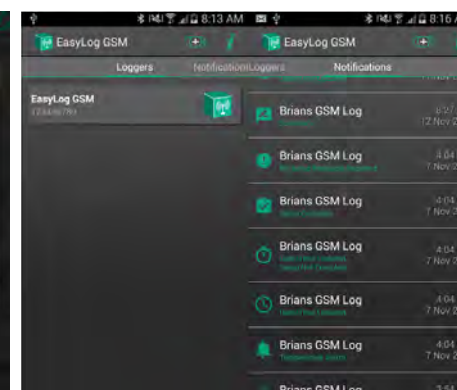


Fig. 11

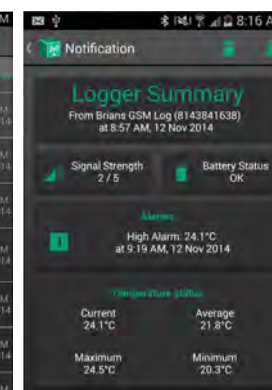


Fig. 12

# EL-SMS App User Guide - iPhone and iPad



## Features

- Simple management of your EL-SMS devices.

## Compatibility/Limitations

- Compatible with iOS versions 9.2 and above.
- Apple device must have mobile network service and the ability to send/receive text messages.

## App Use (App images are subject to change)

1. Download and install the App from the App Store/iTunes.



2. Open the App (see Fig. 1). Full Setup – Configure the device by tapping the options in the list.
3. Select and enter the EL-SMS device mobile number. Optionally add a device name then press “Save” (see Fig. 2).
4. Probe Selection - Select the appropriate probe type. Select Type 2 for the standard probe (-TP model) or Type A for the high accuracy probe (-TP+ and -PROBE-G models).
5. Temperature Scale – Choose between Celsius and Fahrenheit temperature measurements (See Fig. 3).

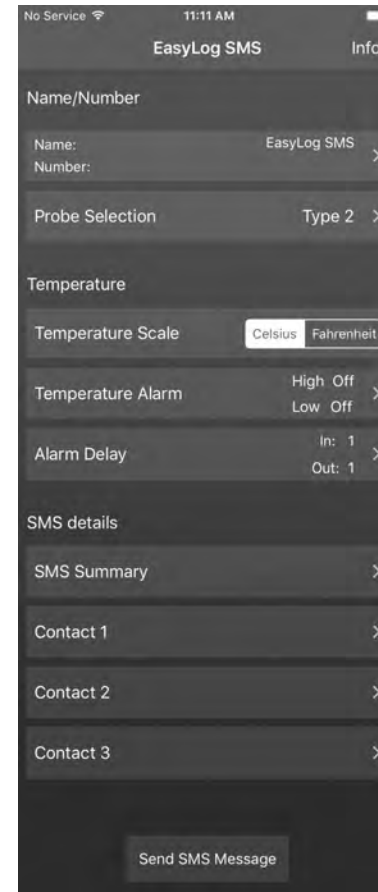


Fig. 1



Fig. 2



Fig. 3

# EL-SMS App User Guide - iPhone and iPad



- 6. Temperature Alarms - Set the high and low alarm thresholds (See Fig. 4).
- 7. Alarm Delay – Configure how many readings must occur in an alarm condition before you are notified and how many readings after the temperature normalises before a new alarm condition will be sent to you (See Fig. 5).
- 8. Summary Interval – The interval at which the EL-SMS device will send you information regarding its status. (See Fig. 6).
- 9. Contact Information – Input up to three contact numbers that this EL-SMS device should notify and select which messages they will receive (See Fig. 7).
- 10. Press the “Send SMS Message” button to send the configuration message to the EL-SMS device (See Fig. 1).



Fig. 4

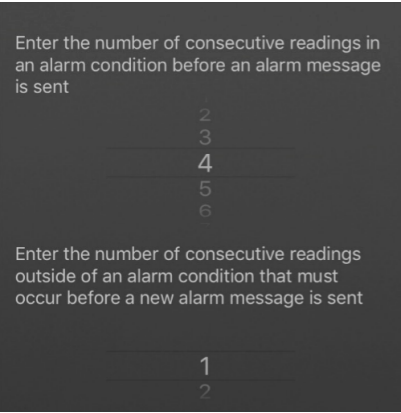


Fig. 5

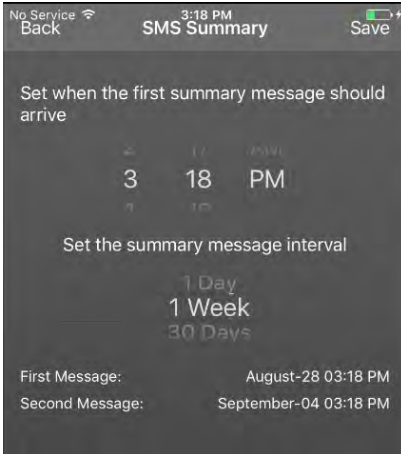


Fig. 6

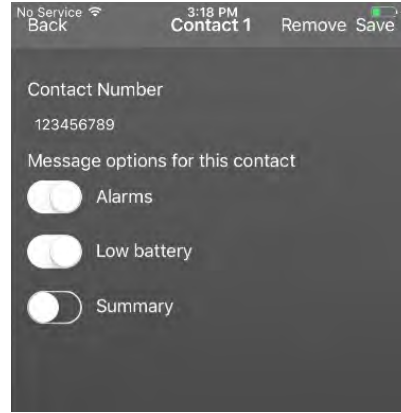


Fig. 7



# User Guide



## Introduction

The EL-SMS-2G range is a family of battery powered temperature alerts that will send SMS (Short Message Service) notification messages to designated mobile phone numbers whenever the temperature monitored exceeds a programmed upper or lower temperature limit.

The temperature limits along with other configurable parameters are sent to the unit via a configuration SMS which is created using the “EL-SMS” App.

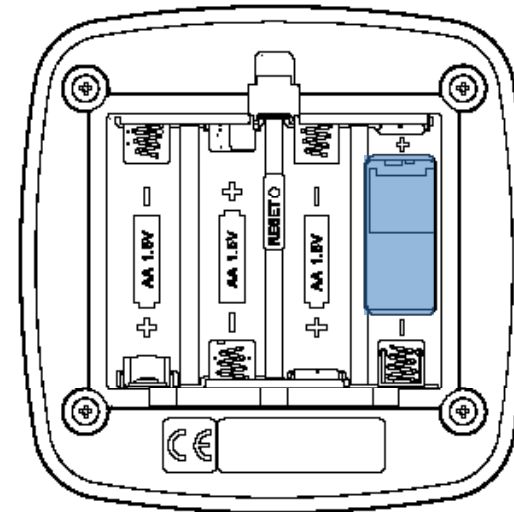
Once configured the EL-SMS units can send periodic summary messages to confirm that they are running normally. Summary messages contain the minimum, maximum and average temperature since the previous summary message, along with a history of the three most recent temperature limit breaches that the unit has detected.

These products use the GSM (Global System for Mobile Communications) network to deliver the SMS notification messages and must be fitted with a micro SIM card to allow them to connect to a GSM network and register. These units use a built-in aerial to allow communication with the GSM network.

Notification messages can be sent to up to three programmed mobile phone numbers. Each number can be individually configured to receive specific alerts, i.e. Alarm, Low Battery or Summary messages.

## Basic Operation

### SIM Card



The units require a micro SIM card to operate. It is important that no PIN code is enabled as this will prevent operation. If necessary, a normal mobile phone can be used to disable the SIM PIN code lock. Be aware that the product will erase any existing SMS messages that are already stored on the SIM card.

The SIM card must be fitted to operate normally.

All 2G micro SIM cards should work as long as the PIN code function is disabled. Visit <http://maps.mobileworldlive.com> to check for GSM coverage in your geographic location.

# User Guide



## Thermistor Probe

These units are supplied with a thermistor probe to sense temperature. The EL-SMS-2G-TP is supplied by default with a Type 2 (Standard) thermistor probe. The EL-SMS-2G-TP+ is supplied by default with a Type A (High Accuracy) probe and the EL-SMS-2G-PROBE-G with a Type A probe inserted into a glycol bottle.

The thermistor probes connect to the unit via the 3.5mm jack socket.

The thermistor probe type can be selected when the unit is configured using the App.

## Temperature Monitoring Interval

These units will take a temperature reading every minute. For this reason it may take up to one minute before the unit responds to a change in temperature.

## Multiple SMS Destinations

The units can send notifications to a maximum of three mobile phone numbers.

It should be noted that operating any unit with more than one destination mobile phone number will significantly reduce the expected battery life and may incur additional costs as more messages are sent.

When multiple destination numbers are used these units will attempt to send notification messages to each phone number. If the unit is able to successfully transfer the SMS to the mobile network for at least one of the destination numbers then it will assume that the delivery of the message was successful. Be aware however that actual delivery of the message is reliant on the mobile network and mobile operator's services operating normally.

## Alarm Delay Operation

These units allow a separate pre and post alarm delay to be applied to any set temperature alarms. This is useful to prevent sending excessive text messages if the measured temperature is fluctuating around either the high or low alarm levels.

When a knock-in delay is used, these units will wait until that number of consecutive temperature readings have all been in an alarm condition before sending a temperature alert message. If a knock-out delay is used, they will stay in an alarm state until the specified number of consecutive readings are all outside of an alarm condition. When the knock-out delay has completed, they will once again respond to new alarm conditions when they occur.

If the alarm delay feature is not required then the delay values should be set to one.

## Alarm Delay Example

Consider the following setup configuration:

Low temperature alarm set at 12°C using an "In delay" of 15 and an "Out delay" of 30.

With these settings the temperature must drop below 12°C and stay below for 15 minutes before an alarm condition will be registered. During this 15 minute period if any temperature reading is above 12°C then the delay is reset. This means that the temperature must then remain below 12°C for a further 15 minutes before the alarm is registered.

Once the alarm has been registered (after 15 consecutive minutes below 12°C) a low temperature SMS notification will be sent.

# User Guide



In order for the alarm condition to be cleared the temperature must rise and stay above 12°C for at least 30 minutes.

## Operating Modes

The EL-SMS-2G devices have three operating modes, these are:

- Standby mode**
- Setup mode**
- Run mode**

### Standby Mode

Standby mode is the mode that the unit will be in when it is idle, i.e. when the unit is not being setup or running. This state consumes minimal power. A one second press of the “Status” button will confirm if the unit is in this state. The unit will show either four green or five red LED flashes. Four green LED flashes mean the unit is ready to begin its first setup attempt. Five red LED flashes mean that the last attempt to set up the unit failed but it is ready for another attempt.

The unit will enter standby mode under the following conditions:

- When it is powered on and the unit is not configured.
- When it is powered on and the unit was configured but the real time clock has reset due to an interruption to the power (e.g. if the batteries ran flat during operation).
- When an attempt to setup the unit has been made and does not complete successfully.

- When the unit is in run mode and the stop monitoring button sequence is pressed.

### Setup Mode

This is the mode that allows a configuration SMS to be sent to the unit via the App.

The unit will not receive a configuration message until you have followed the steps below and the unit is ready to receive it. If you try sending a configuration message before this, the unit will not receive it. The configuration process can be started from either standby or run mode.

### Configuring the Unit

- Use the App to select the parameters you require.

*Note that the Apps do not save settings for each device. The Android App will remember the settings used for the last device configured.*

- In the App, press the “Start” button (Android) or “Send SMS Message” (iOS) at the bottom of the “Setup” screen.
- Push the “Status” button on the EL-SMS unit for five seconds and then release the button. The red LED should begin flashing once every five seconds. Wait until you hear a triple beep from the sounder. When this happens the LED will change to a double green LED flash every five seconds.
- The EL-SMS unit is now ready to receive the configuration SMS. Go ahead

# User Guide



and press the “Send” button in the App.

- Once you hear a double beep from the sounder you know the unit has successfully received the configuration message. If the configuration SMS was not received within two minutes you will hear five short beeps from the sounder to signal that the setup did not complete successfully.
- If the configuration completed successfully you will receive a “Setup complete” SMS on the mobile device that was used to send the configuration message to the unit.
- The unit will then enter Run mode where it will begin monitoring the external temperature for alarm breaches. This can be confirmed by pressing the status button for one second and checking that the LED’s operate as per the LED Flash Sequences.

Please note that the unit will not respond to button pushes once the setup sequence has started.

The length of time required for the unit to register on the mobile network can vary and is dependent on the unit having sufficient signal. If the unit is unable to register within two minutes it will exit the setup attempt. This will be indicated by five short beeps from the sounder and five red LED flashes when the status button is pushed.

Sometimes the unit may not be listening for SMS messages when the configuration SMS is sent. This could be due to delays inherent in the GSM network such as network outages, over subscription, routine maintenance work, message centre technical issues etc. If a setup attempt does fail you can simply repeat the setup process. If repeated attempts to setup the unit are failing then you should check that available signal strength is sufficient and there are no known network issues that

could be causing the problem.

If a setup attempt failed because the unit did not receive a valid configuration SMS:

1. If the unit was not previously configured the unit will enter standby mode again. When the status button is pushed it will display five red LED flashes showing that the last attempt to configure the unit failed.
2. If the unit was previously configured it will send a “No SMS Rxd” notification to the mobile phone numbers that were previously configured to receive “Summary” group notifications. The unit will then go back into Run mode using its previously configured settings.

If the unit is configured and operating in Run mode it should be noted that making a new attempt to configure the unit will stop it monitoring temperature. If the setup does not complete successfully then it will revert to run mode again, however, the following parameters will have changed:

- Summary messages will be delayed by up to five minutes.
- Temperature delay counts will be cleared.
- Low and high temperature alarm history will be cleared.
- Minimum, maximum and average temperatures will be reset.
- Any pending battery low or summary notifications will be cleared.

# User Guide



## Run Mode

Following a successful configuration of the unit it will enter into Run mode. In this mode the unit checks to see whether any notification messages are due to be sent (i.e. alarm breach, battery low or summary notifications) and then processes the notifications in order of their priority:

- Temperature alarms have the highest priority
- Low battery alerts have medium priority
- Summary messages have the lowest priority

In Run mode the temperature is measured once every minute using the external probe and the value is checked to see whether either the upper or lower temperature alarm limits have been breached. If an alarm limit is breached (see alarm delay operation) the unit will send an alert notification message to the contacts registered to receive the “alarm” group messages.

The battery condition is checked each time a temperature measurement is made. If a low battery condition is detected a battery low notification message will be sent.

The buttons are disabled whenever the unit is actively sending an SMS.

## Stop Monitoring

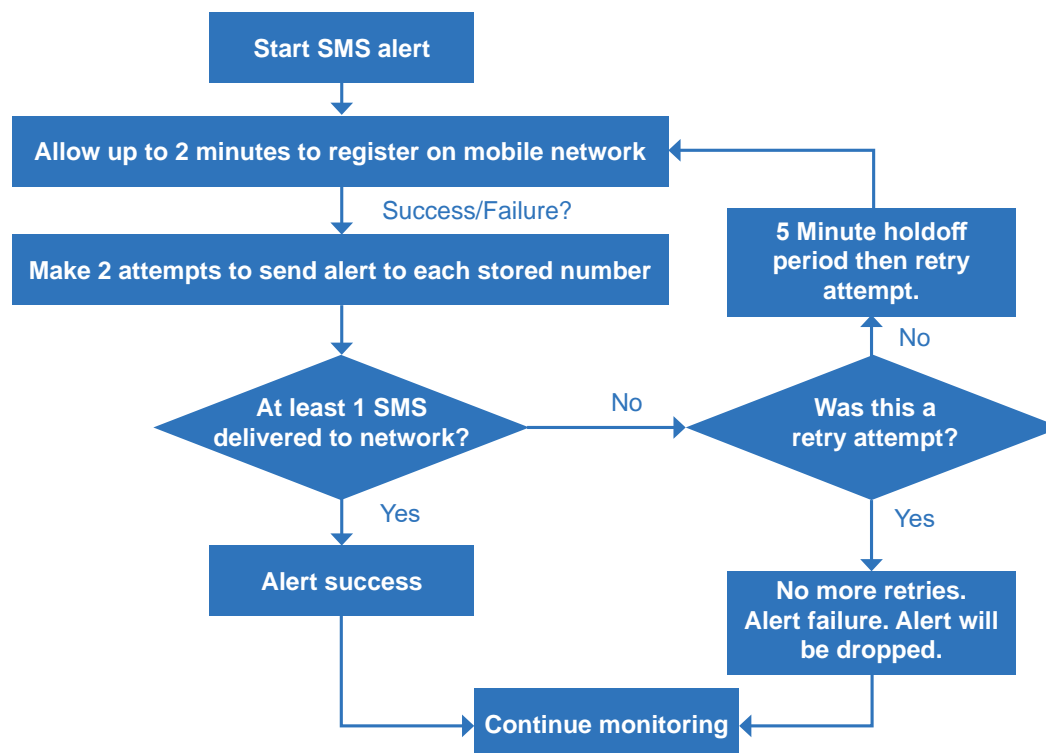
When the unit is in Run mode it can be put back into a Standby mode by pressing the “Stop monitoring” button combination. This should be done whenever you want to stop the unit from monitoring the temperature and sending alert messages.

To stop the unit, press the status button for five seconds whilst holding down the “Stop” button for at least one second. The unit will show the green LED for three seconds after which it will reset. The power up LED sequence will then be displayed

and the unit will be in the standby mode in an “unconfigured” state.

To start monitoring again you will need to repeat the setup process.

## SMS Retry Process



# User Guide



## SMS Retry Process (Continued)

The unit uses the retry sequence shown in the above diagram when attempting to send either a temperature alert or battery low message:

During the retry process, any other pending notification messages will be postponed.

The unit will assume that a notification message has been successfully delivered as long as the message was successfully transferred to the mobile network for at least one of the programmed numbers.

If after following the above retry sequence, a notification message still can't be sent to the mobile network, then the alert will be cancelled and the unit will continue normal operation looking for new alert conditions to occur. If the cancelled message was an alarm notification the alarm condition may still be reported in the following:

- 1) The alarm history in the next alarm message.
- 2) Most recent alarm in the next summary message.

The unit will only make one attempt to send a summary message. If the attempt is unsuccessful then the summary message will be cancelled. Regardless of the outcome the minimum, maximum and average temperature data for the period will be reset.

## Security

The only way to change the configuration of a running EL-SMS unit is to physically go to the unit to initiate a new configuration sequence. If security in the end user application is important then this should be considered when installing the unit.

Setting up the unit requires that someone is physically with the unit to begin the setup sequence by pressing the "Status" button for five seconds. The configuration message itself could be sent from any location so long as the person with the unit can press the button in coordination with the person sending the configuration SMS.

The unit will accept a configuration message from any mobile device running the App. Once a setup attempt has finished, the unit will no longer respond to incoming messages unless a new setup is attempted. The configuration message sent to the unit from the app is sent partially encrypted although the unit name is readable.

```
1EasyLog Office; ,
6,5*#,55*50
00000000000000000000
00000000000000000000
00000000000000000000
7*77224+2+225+2972
22272292,*222292 79
222222*25*757+5#2
752262272522922522
2
```

Example screen shot of encrypted text

# User Guide



## Hardware Operation

### Power up LED sequence

When the unit is powered on, the following LED flash sequence is displayed:

Red LED, Green LED, No LED's

### LED Flash Sequences

<b>Start up flash sequence</b>	Red LED, Green LED - 0.5s each
<b>Status display (standby mode)</b>	4 green flashes = Setup not yet attempted. 5 red flashes = Setup attempted but failed.
<b>Short push of status button.</b>	1.5s red LED = Low battery
<b>Setup mode sequence</b>	1 red flash every 5 seconds = Not ready to receive SMS.
<b>5 second push of status button</b>	2 green flashes every 5 seconds = Ready to receive SMS.
<b>Status display (Run mode)</b>	2 red flashes = In alarm condition (Highest priority)
<b>Push of status button</b>	3 red flashes = Low battery (Medium priority) 1 green flash = Running, no alarm conditions (Low priority)
<b>Stop monitoring</b>	Green LED on for 3s then off for 3s followed by reset. Unit "Configured" status is cleared.
<b>SIM Card Error</b>	4 red flashes every second for approximately 10 minutes.

### Netlight LED Operation

The orange Netlight status LED will show you the status of the internal 2G GSM module when it is in use. The flash sequences displayed by the Netlight are as follows:

<b>Off</b>	GSM module is powered off.
<b>1 second flash</b>	GSM module is not registered on a mobile network.
<b>2 second flash</b>	GSM module is registered on a mobile network.

### Sounder

The unit is fitted with a sounder which is used to indicate various operating conditions as follows:

<b>Ready for configuration message</b>	Triple beep
<b>Configuration message received</b>	Double beep
<b>No configuration message received OR message was not compatible with the unit</b>	Five short beeps

# User Guide



## Battery

For reliable operation of the unit it is recommended that only high quality alkaline batteries are used. This will ensure the best possible battery life.

When the unit is in Standby mode, the battery status will be checked once every three minutes. If the battery is low, the red LED will light for 1.5s when the "Status" button is pushed. The unit will not send a low battery alert when it is in Standby mode.

When the unit is in Run mode, it will send a low battery alert when it detects a low battery condition.

It should be noted that the battery capacity will be reduced when the unit is operating at lower temperatures. Also be aware that setting multiple destination phone numbers to receive notification messages will drain the battery much faster and as such it is recommended that only one of the programmed phone numbers is configured to receive the low battery alert.

If the unit is not going to be used for an extended period of time the batteries should be removed from the product.

The expected battery life at room temperature, sending a daily summary message and up to one alarm notification per week, is one year.

This estimate assumes that only one destination number has been configured. Using additional destination numbers will reduce the expected battery life.

## Aerial and Signal Strength

The unit uses a built-in aerial to connect to the mobile network. The reliability of the unit for sending messages is dependent on the signal strength available at the location of operation. The physical location of the unit will also affect the available signal strength and should be considered when situating the unit.

The most recent signal strength is displayed in each notification message that is sent by the unit. For reliable operation the signal strength should be above three bars. Operating below this signal strength may prevent the unit from being able to send messages. Note that the unit may not always connect to the same service provider if the SIM card permits roaming access.

The following table shows how the unit will report and display 2G signal strengths.

Signal strength (bars)	Signal strength (dBm)	Signal strength (ASU, 0 - 31)	Usability
1	-115 to -107	0 to 3	Weak Signal / Intermittent operation
2	-106 to -99	4 to 7	Poor Signal / Intermittent operation
3	-98 to -87	8 to 13	Good / Reliable operation
4	-86 to -77	14 to 18	Good / Reliable operation
5	-76 to -53	19 to 31	Excellent / Reliable operation

Failure to register onto a mobile network would usually indicate either insufficient signal strength or that the mobile network has failed to validate the SIM card (e.g. barred or blacklisted SIM numbers).



# User Guide



## Real Time Clock

The unit contains a real time clock which is used to add a timestamp to the outgoing messages. The clock is set automatically when the unit receives a configuration message from the App.

It should be noted that there will be a delay from the configuration message being sent from the App to being received by the unit. This delay is largely dependent on the mobile network and service provider and will therefore be unpredictable. This means that the clock in the unit may lag behind the actual time of the device used to send the configuration message by the amount that the configuration message was delayed.

Also note that the real time clock will be reset if the batteries are removed. The clock is set by reconfiguring the EL-SMS unit using the App.

## Time Zone

Outgoing notification messages sent by the unit contain the time zone as part of the time stamp information. The time zone is set to be the same as the local time zone setting on the mobile device that is used to configure the unit.

## Message Groups

The message groups allow each programmed mobile phone number to receive different combinations of the available notification messages. Each mobile phone number can be subscribed to any of the following message groups:

- Alarms
- Low Battery
- Summary

# User Guide



## Notification Types

### “Setup complete” Message

The “Setup complete” message is received when the unit has been configured and confirms that setup of the unit was successful. This message contains the following information:

- Date/Time field for confirmation that the real time clock has been set.
- Current temperature.
- Signal strength in bars (where one is poor signal and five is excellent signal).
- Programmed firmware version.
- Unit type number which is set at the factory and is used internally by the unit.
- Serial number of the unit.

```
EasyLog SMS
Setup complete
05/06/2017, 09:17 (UTC+00)
Cur: +23.8 C
Sig: 4 (-80 dBm)
Bat: OK
v1.2
Type: 002
SN: 876543212345678
```

### “No SMS Rxd” Message

This “No SMS Rxd” message is received if a setup attempt fails because no configuration message was received. It is only sent if the unit was previously in Run mode. The message will be sent to phone numbers that are subscribed to the “Summary” message group.

This notification message contains the unique 15 digit serial number for the unit and also shows the measured signal strength.

```
EasyLog SMS
No SMS Rxd
05/06/2017, 09:17 (UTC+00)
Cur: +23.8 C
Sig: 4 (-80 dBm)
Bat: OK
v1.2
Type: 002
SN: 876543212345678
```

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## “Temperature Alarm” Message

The temperature alarm message shows a history of the last three temperature alarm conditions. The temperature reading shown with each alarm in the history is the temperature reading taken at the time the alarm was registered by the unit.

The time, date and time zone information is shown only for the most recent alarm. High temperature alarms are indicated by the ‘H’ character, low alarms are indicated by ‘L’. Probe errors are shown with the message PrbErr followed by O or C for missing or broken probes.

```
EasyLog SMS
A1: L -17.0 F
05/06/2017, 12:15 (UTC+00)
A2: PrbErr O
A3: H +72.8 F
Sig: 4
Bat: OK
```

## “Summary” Message

The summary message is sent at the interval specified when the unit was configured.

The following information is shown in the summary message:

- The minimum, maximum and average temperature readings since the last summary interval.
- The most recent alarm condition and the date and time at which it was triggered.
- The most recent signal strength and battery status.

Note that the minimum, maximum and average temperature readings are reset at each summary message interval even if the summary message itself was unable to be sent due to lack of signal, network outage etc.

Summary messages may be delayed if the unit is sending higher priority messages such as the temperature alarm or low battery messages.

```
EasyLog SMS
06/06/2017, 10:00 (UTC+00)
Cur: +23.8 C
Min: -17.0 C
Max: +24.1 C
Avg: +12.4 C
A1: L -17.0 C
05/06/2017, 12:15
Sig: 4
Bat: OK
```

## “Low Battery” Message

The low battery message will be sent when the unit detects a low battery condition.

```
EasyLog SMS
Bat: Low
27/09/2018, 11:43 (UTC+00)
Sig: 4
```

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## Probe Errors

If the thermistor probe goes either open or short circuit during normal operation this will be reported in the alarm and summary messages as follows:

PrbErr O is displayed for a disconnected probe error (open circuit).

PrbErr C is displayed for a short circuit probe error (probably caused by a faulty probe).

Setup Complete / No SMS Rxd message report the probe errors as follows:

PrbErr Open is displayed for a disconnected probe error (open circuit).

PrbErr Closed is displayed for a short circuit probe error.

When a probe error occurs, the unit internally registers the following temperature for each condition:

Open Circuit Probe Error	-51 deg C
Short Circuit Probe Error	-50 deg C

For this reason, to receive probe error alarms, it is necessary to have the low alarm enabled.

When a probe error condition is detected, the min/max temperature reading in the next summary message will be shown as “---.-”, indicating that a probe error was encountered during the last summary interval. Also, the average temperature reading will be shown as “PrbErr” since the average temperature reading for the summary interval will be invalid.

```
EasyLog SMS
07/06/2017, 10:00 (UTC+00)
Cur: PrbErr C
Min: ---.-
Max: ---.-
Avg: PrbErr
A1: PrbErr C
07/06/2017, 03:30
Sig: 4
Bat: OK
```

*Example summary message with short circuit probe error*

```
EasyLog SMS
Setup complete
05/06/2017, 09:17 (UTC+00)
Cur: PrbErr Closed
Sig: 4 (-80 dBm)
Bat: OK
v1.2
Type: 002
SN: 876543212345678
```

*Example setup complete message with short circuit error*

# User Guide



## SIM Card Missing / SIM Card Fault Error

If during normal operation the unit detects either a missing or faulty SIM card, the unit will flash the red led four times a second for 10 minutes to indicate the error. The unit will then automatically reset.

If this error is observed, check that a SIM card is fitted and the SIM card contacts are clean.

## Disclaimers

### SMS Limit

This product does not limit the number of messages that can be sent in a given time period. This should be considered when setting up the unit. For example, if the measured temperature is likely to fluctuate around the programmed alert level then you should consider using the alarm delay feature to ensure that you do not receive notification messages each time an alarm threshold is crossed. Similarly when you have finished using the unit, remember to use the “Stop monitoring” button sequence to ensure that the unit will not send any more notification messages. You can confirm that the unit has stopped and is in Standby mode by pushing the status button and checking the LEDs.

Failure to adequately configure the product may lead to excessive operating costs.

### SMS Delivery

SMS text messaging is a “store and forward” messaging system which uses message service centres to temporarily store messages until they can be delivered. When using this product be aware that the text messaging network service does

not guarantee delivery of the messages that are sent to it. Sent messages may not reach their intended destination and this should be considered when planning how this product will be used in your application. You should also be aware that the delay between the unit sending a message and it being received can vary significantly.

Typical factors that can affect message delivery or timing include:

- Available credit.
- Signal strength and quality.
- Cell tower available capacity.
- Sending messages between different network operators.
- Agreements in place between network operators where roaming is used.
- Available capacity at the sending and receiving message centres.
- Network outage or planned maintenance.
- Receiving device switched off, flat battery or no-signal (will eventually be discarded by the network if they cannot be delivered. The length of time varies depending on the service provider used).

### Warnings

A separation distance of 20cm (7.87”) or more must be maintained between the antenna of this product and all persons to comply with FCC RF exposure requirements.

# User Guide



## Troubleshooting

Problem	Possible Causes	Solution
My unit is not responding to button pushes.	A setup attempt is underway.	Wait until the setup attempt is complete and try again.
	Unit has malfunctioned.	Remove batteries. Wait one minute. Re-insert batteries to restart the unit.
	Flat battery.	Replace batteries and re-configure the unit.
	A GSM operation is underway.	Wait until the netlight stops flashing and try again.
I'm not getting summary notifications anymore.	Flat battery.	Replace batteries and re-configure the unit.
	The unit has no signal.	Check signal strength using a mobile phone and if necessary re-position the unit.
	Possible mobile network outage / maintenance work.	Check the signal strength shown in the last summary message was sufficient for reliable operation.
	SMS message centre issues.	Normal operation will resume when the network service disruption has ended.
	Incorrect destination number entered when unit was configured.	Check destination number in the App and ensure it is enabled to receive summary message. Re-configure the unit if necessary.
	SIM card registration problem.	Ensure that the SIM card account is active and has credit.
I tried to set up my unit but the setup has failed.	Insufficient mobile signal.	Check signal strength using a mobile phone and if necessary re-position the unit.
	SIM card not fitted.	Remove batteries, insert a SIM card and then re-insert the batteries.
	Network congested delaying reception of the message.	Wait and try again.
I can't get my unit into setup mode.	"Status" button has not been pressed for long enough.	Ensure the "Status" button has been pressed for 5 seconds before being released.

# User Guide



## Other Information

Mobile Virtual Network Operators (MVNO's) resell access to the mobile infrastructure of the major network operators and generally offer their own customer service, billing support systems, marketing and sales personnel. MVNO's can typically offer better deals than you might get through the major networks directly.

## Basic Specifications

Thermistor probe types	Type 2 (Standard) or A (High Accuracy)
Thermistor probe measurement range	-40 to +125°C (-40 to +257°F)
Operating Temperature Range	-20 to +40°C (-4 to +104°F)
Resolution	0.1°C (0.2°F)
Accuracy	±0.1°C (±0.1°F) *
Temperature Monitoring Interval	Once per minute
Dimensions	105 x 105 x 29mm (4.1 x 4.1 x 1.1")
Weight (excl batteries)	128g (4.5oz)
GSM Module	Quad Band 2G Module Class 4 (2W @ 850/ 900MHz) Class 1 (1W @ 1800/1900MHz)
Internal Antenna	Penta-band Embedded Antenna 50 Ohm Impedance Linear Polarisation 3dBi Gain VSWR < 3:1

### Battery Life

1 Year  
(at 25°C, daily summary message to one phone number)

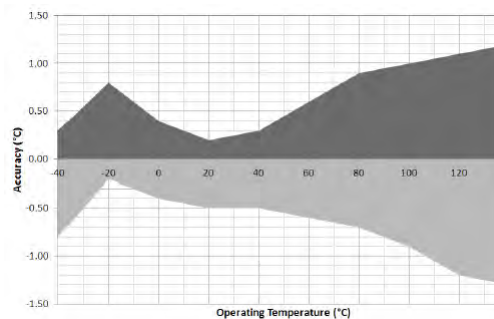
### IP Rating

The product has an IP rating of IP53 providing the thermistor probe is connected. This gives:

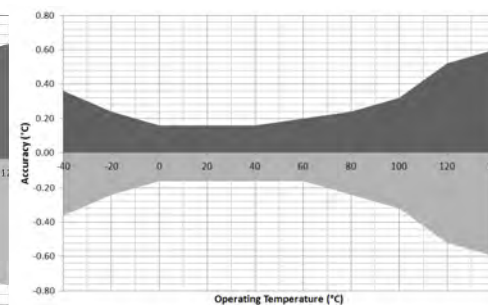
- Protection against solid bodies larger than 1mm.
- Protection against water droplets deflected up to 15° from vertical.

If you wish to use the unit outdoors, the thermistor probe must be connected and the unit should be positioned in a sheltered location.

\* At 25°C. See probe accuracy curve on data sheet. Important, quoted accuracy applies only when the unit is operating within the specified operating temperature range. Thermistor probe errors are not included and should also be taken into consideration.



Supplied 'Type 2' Standard Thermistor Probe  
Part Number: EL-PROBE2-1.0M-TP



Supplied 'Type A' High Accuracy Thermistor Probe  
Part Number: EL-PROBEA-3.0M-TP+

## Glossary of Terms

### **Global System for Mobile Communications [GSM]**

Standard developed by the European Telecommunications Standards Institute to describe protocols for second-generation (2G) digital cellular networks used by mobile devices.

### **Mobile Virtual Network Operator [MVNO]**

These are virtual network operators who resell access to the major network operators' infrastructure and generally offer their own customer service, billing support systems, marketing and sales personnel.

### **Short Message Service [SMS]**

Text messaging service allowing short text messages to be sent between devices connected via a GSM network.

### **Subscriber Identity Module [SIM]**

Integrated circuit that securely stores the international mobile subscriber identity (IMSI) and the related key used to identify and authenticate subscribers on mobile telephony devices. In simple terms, a chip which identifies who is paying the bill for any network services that are used.



# Temperature Monitor with SMS Alerts

