

SMS Lite 4G

User Guide

SMS Lite 4G
Version 2.2



Contents

About This User Guide	5
Product Overview	5
Features	5
Getting Started	6
Antenna Connection	6
Install the SIM Card	6
Inputs and Outputs (I/O)	7
Output Relays	7
Configuration	8
Register Phone 1 (Ph1) – Master User	8
Using the SMS Lite 4G	9
Inputs	9
Outputs	9
Configuration Overview	10
Escalations	11
Advanced Commands	11
Debouncing Inputs	11
Configuration	12
Clearing the configuration settings	12
Supply Voltage Alarm	12
Operational Commands	12
Inputs	12
Message Paths	13
Alarms	13
Alarm messages for escalations	14
Other alarm messages	14
Output Control	14
Information Commands	15
Status LED	16
Troubleshooting	17
Troubleshooting Tips	19
General Tips and Information	20
Programming Tips	21
PIN Required for any Configuration Text	21
Clear An Individual Phone Number	21
Replace An Individual Phone Number	21
Clear All Settings	21



Output Permissions Default	21
Empty Configuration Values	21
Active Alarm Interruption	21
Error Message	21
Case Sensitivity	21
Technical Specifications	22
SMS Lite Specification	22
Configuration Worksheet	23
Warranty.....	24
Additional Information and Support	24

Copyright 2022
QTech Data Systems Limited
 Christchurch, New Zealand

All rights reserved.

The circuit details, software algorithms and know how disclosed in this document are proprietary to **QTech Data Systems Limited** and shall remain the intellectual property of **QTech Data Systems Limited**.

DISCLAIMER

The information in this document is subject to change without notice and does not represent a commitment on any part of **QTech Data Systems Limited**. While the information contained herein is assumed to be accurate, **QTech Data Systems Limited** assumes no responsibility for any errors or omissions.

Contact QTech

QTech Data Systems Limited
 12 Midas Place, Middleton
 Christchurch 8024
 New Zealand
 Phone: +64-3-366-3713
 Fax: +64-3-365-2815
 Email: support@qtech.co.nz
 Web: www.qtech.co.nz

Revision Details

Version	Date	Author	Change Description
V1.0	10/11/14	IH	Original Format
V1.1	23/02/15	RH, FA	Addition of 'debounce' option for inputs & formatting update
V1.2	13/03/15	FA	Reword escalation sentence pg10. Edit diagram for Input / Output
V1.3	22/08/16	RH	Minor alterations to suit V3.00 Firmware
V1.4	20/09/16	RH	Added SIM Busy error code
V1.5	23/02/18	GP	Added notices to clarify security conditions required for messages to be processed. Added additional information on LED error codes
V1.6	11/02/19	RH	Added variable length pulse command
V1.7	12/07/19	GP	Added troubleshooting section
V1.8	1/08/19	AM	Added LE910 modem specifications. Amended text for legibility and naming consistency
V1.9	15/04/20	PW	Add product number to version control
V1.10	18/02/21	PW	Add programming tip to avoid spaces in naming conventions
V2.0	10/11/21	AM	New document format, minor updates and corrections
V2.1	13/1/22	GP	Minor corrections to debounce, add test command
V2.2	29/3/22	GP	Minor additions to defaults and inputs sections

About This User Guide

This document aids with the installation and operation of the QTech SMS Lite system. Included in this document is:

- How to install the SMS Lite module
- SMS Lite operation
- Device Configuration
- Device Specifications

Contact QTech for application notes, which can be obtained to provide guidance for specific configuration scenarios, detailing the configuration workflow steps.

Product Overview

The SMS Lite is a cellular remote-control device that uses text messages to provide up to four people with status conditions, notifications, and control options for its four switched inputs and two relay outputs. It is operational within minutes with the minimum configuration requirement being the registering of a single cellular number to the SMS Lite. No external software is required.

The SMS Lite supports connection to current New Zealand telecommunications companies (Spark/Vodafone/2Degrees) and selected Australian Networks including Telstra and Optus but not all frequency band classes. Contact QTech for advice on supported networks if necessary.

Each SMS Lite is supplied with the following:

- Qty 1x SMS Lite Module (P/N PD8640-4G)
- Qty 1x Antenna (stub type), 2dBi gain (P/N PD9230)

The power supply is not included - please order a plug pack P/N PD5412 if required or visit our website for suitable alternatives.

Please read this guide before using the SMS Lite.

Please ensure you read the technical details prior to connecting ANY external device to the SMS Lite.

This version of the SMS Lite is configured for NZ and AU cellular networks only.
(For use in other countries, please contact QTech)

Features

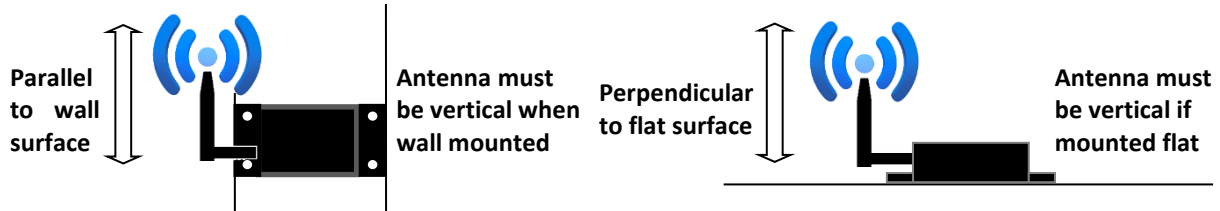
- 4 digital inputs
- 2 digital outputs
- Solar power charging and battery operation (when supplied with QTech RSS01 Remote Solar Station enclosure).
- 3G Bands (MHz) B1(2100), B5(850), B8(900)
- 4G Bands (MHz) B1(2100), B3(1800), B5(850), B8(900) B28(700)
- Configuration by text messaging, no programming software required

Getting Started

Antenna Connection

Carefully connect the antenna. Do not operate the SMS Lite without an antenna connected. The antenna must be vertically orientated.

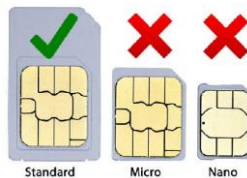
Alternative high gain and externally mounting antenna options are available.



Install the SIM Card

Before installing the SIM card, ensure that it is registered and activated on the Telco's network.

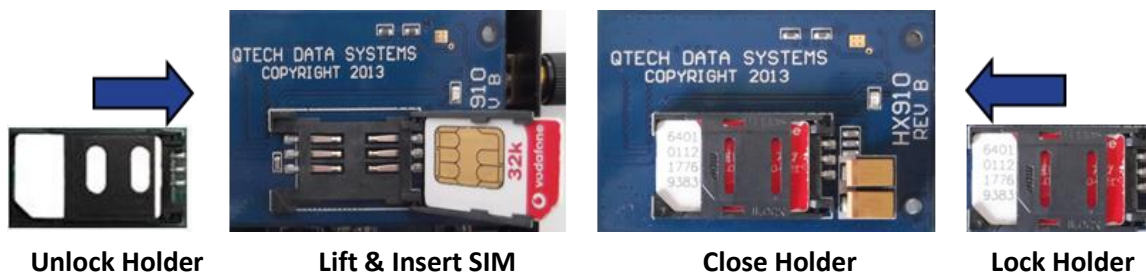
The SIM card must be a standard "full size" card, not a micro or nano SIM.



We recommend you insert the SIM into a regular cell phone and check that you can send and receive messages. Carefully remove the SMS Lite cover by prising the side panels close to the retaining dimples.

Locate the SIM card holder adjacent to the antenna. Push the top of the holder in the direction of the "Open" arrows to "Unlock" (toward antenna), then flip open (away from the antenna).

Carefully insert the SIM card from your chosen Telco. Be careful to orientate the card correctly, once in place carefully slide the plastic retainer towards the antenna to "Lock".



Inputs and Outputs (I/O)

The basic I/O connection details are shown in the diagram below.

Default Setting <input name>: INP1 INP2 INP3 INP4

These can be labelled – refer to Configuration Instructions.



Close switch contact to turn “INP1” “ON”



Send “ON” command to close “RLY1” operating light

Output Relays

The output relays are normally open devices with a maximum rating of 32V DC at a current of 2A. The relays can switch low DC voltage, low current devices directly. However, we recommend using interface relays as they improve future serviceability and are required for higher voltages or currents.

Warning – DO NOT directly connect to 220V AC voltage. The New Zealand and Australian wiring regulations require that any wiring in excess of 32 volts must be carried out or be certified by a registered electrician. Consult your local electrical installer for further guidance.

Configuration

To operate the SMS Lite, the device must have a mobile number registered as 'Phone 1' referred to as Ph1. You must register this number before you can configure any of the inputs or outputs.

The device can have up to 4 phone numbers registered. It is recommended that Ph1 is the main contact as any alarm escalations programmed will step in numerical order Ph1, Ph2, Ph3, and Ph4.

If there is no response, the next number in the list is sent a notification after 10 minutes **or** if a busy message is received from the previous phone the next person is also notified.

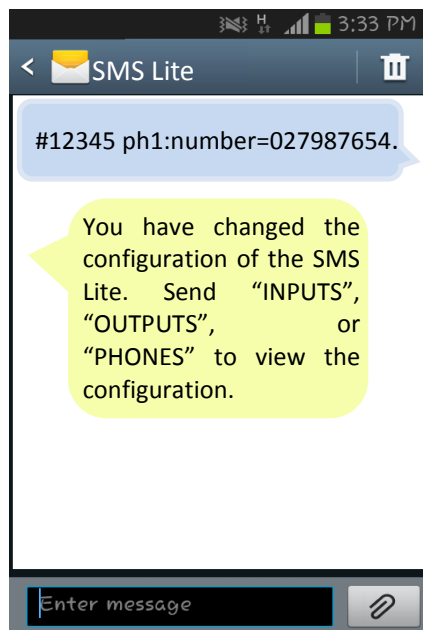
Register Phone 1 (Ph1) – Master User

Use the following procedure to program up to 4 individual phone numbers.

1. Locate the PIN (Personal Identification Number) printed inside your SMS Lite case. The PIN in this example is 12345.



2. Compose text message to the SMS Lite mobile number in the following format: #[PIN][space]Ph1:number=0123456789[dot] (e.g. **#12345 Ph1:number=027987654.**)
3. A confirmation text will be sent to you acknowledging a configuration change.



Each configuration command must be finished with a full stop (.)

The PIN is used each time a configuration change is made

A setting can be overridden by sending a new configuration message. A configured input, output, or phone number can also be cleared by sending a configuration message with a blank value:

#[PIN][space]Ph2:number=.

Using the SMS Lite 4G

You can now connect the SMS Lite to the required inputs and outputs and configure them.

Inputs

Once the SMS Lite is configured, Phone 1 will be sent a message each time any of the inputs turn on or off. They must acknowledge receipt of the notification. Up to 3 other phones can be programmed to receive a notification. If Phone 1 replies 'busy' or if there is no response after 10 minutes, the SMS Lite will send a text to the next programmed number.

Outputs

Once the SMS Lite is configured, Phone 1 can control the outputs by sending the following commands:

- Turn the specified output on
ON <output name> (e.g. **ON RLY1**)
- Turn the specified output off
OFF <output name> (e.g. **OFF RLY1**)
- To pulse an output on for one second then off again
PULSE <output name> (e.g. **PULSE RLY1**)
- To pulse an output for a defined period of time
PULSE <output name> <duration> <units> (e.g. **PULSE RLY1 10 mins**)

Where the units can be ms, sec, min, or hr, and the maximum duration is 1 day.

To allow control permissions to more than one phone, each output will need to be configured.

If you do not rename the inputs and outputs, they will operate under their default names which are:
<input name> INP1 → INP4 and <output name>: RLY1 & RLY2

This is all that is required for your configured phone number to receive notifications from the SMS Lite Inputs and control the outputs. While it is not strictly necessary, we highly recommend programming the Site Name and the Input and Output names, especially where you have multiple connections as these names are used in the text messages and can save confusion.

A configuration worksheet can be found at the back of this manual and on our website. We highly recommend you use these to record the Site, I/O names and the phone numbers and their escalation order.

Configuration Overview

Further configuration is possible to allow personalisation of your SMS Lite. You can assign a site name to the SMS Lite, as well as naming each of the inputs and outputs, and assigning phone(s) to these. The SMS Lite can be configured with up to 4 phone numbers allowing multiple user notifications and control options.

Tip – DO NOT use a space in the naming convention for the Site Name, Inputs or Outputs i.e. “Back Gate” should read “BackGate”. Or “High Lvl” should read “HighLvl”. Remember to keep the names less than 8 characters long.

All configuration text messages sent to the SMS Lite must in the form of:

#[PIN][space]<object>:<item>=<value>[dot]

e.g. **#12345 Site:Name=Shed1.**

Or

#12345 INP1:Name=Pump.

Configuration options are shown in the following table:

Object	Item	Value
Site	Name	The name of the site where the SMS Lite is installed. (8-character limit)
INP1, INP2, INP3, INP4 These are the 4 individually configurable inputs	Name	An identifying name for the input. (8-character limit)
	Phones	Ph1→Ph4 Which configured phone number(s) will receive notifications from this input.
RLY1, RLY2 These are the 2 outputs which allow you to turn on / off or pulse	Name	An identifying name for the output. (8-character limit)
	Phones	Ph1→Ph4 Which configured phone number(s) have permission to control this output.
Ph1, Ph2, Ph3, Ph4 Phone numbers of people who receive alarm escalations or can control inputs	Number	Local or International format (e.g. 021...or +6421....) The phone number(s) that will receive notifications and/or have control. Up to 4 people.

Configuration messages can be sent individually with one text message per configuration instruction or in a combined text message:

To program the Site name to Shed1, name Input 1 as Pump and set notification escalations to phones 1, 2 and 3. You can either send the SMS Lite 3 individual configuration text messages:

e.g. **#12345 Site:Name=Shed1.**
#12345 INP1:Name=Pump.
#12345 INP1:Phones=Ph1,Ph3.

Or you can send 1 combined message:

e.g. **#12345 Site:Name=Shed1. INP1:Name=Pump. INP1:Phones=Ph1,Ph2, Ph3.**

Escalations

When programming the alarm escalations to phone numbers it is important to note that the numbers step in numerical order.

E.g. Ph1→Ph2→Ph4 and Ph1→Ph2→Ph3 will work, however if you were to attempt to program Ph4→Ph2→Ph3, the configuration text would be accepted but the escalation order would be Ph2→Ph3→Ph4.

After any configuration change you will receive either a confirmation message or an error message. If you receive an error message, double check the configuration format and check that there is a full stop at the end.
Correct the error and resend.

Text commands can be in upper or lower case; however, any capitalisation when naming the Site, Input or Outputs will be retained.

e.g. **#12345 Site:Name=Shed1.**
is valid as
#12345 site:name=shed1.

Note: Each Input and Output must have a unique name.

The security for these messages is based on the PIN number being correct. Any phone can be used for these commands if the PIN in the message matches that printed on the SMS Lite. If the PIN is not correct messages will not be processed.

Advanced Commands

Debouncing Inputs

This feature prevents the SMS Lite from sending multiple messages when connected to devices such as float switches, which can switch on and off several times before settling due to contact bounce. You can program a delay before the text message is sent by the SMS Lite.

The trigger point / device that is connected to the SMS Lite must stay in that state for the 'debounce' time that is set, before the SMS Lite will send a text message alerting you of a status change.

The delay is configurable, and you can select one of the following options: 0, 5, 10, or 30 seconds, or 1, 5, 10, or 15 minutes. Only these values are allowed.

The debounce value is applied to all inputs - you cannot specify different values for each input.

Configuration

Program the 'debounce' option and value using the following instruction:

#[PIN][space]<object>:<item>=<value>[dot]
#12345 site:debounce=value. (e.g. *#12345 site:debounce=1min*)

The value must be written in the following format "0sec", "5sec", "10sec", "30sec", "1min", "5min", "10min", "15min"

For example:

#12345 site:debounce=10sec.

Clearing the configuration settings

To clear all of the SMS Lite configuration settings, use the message:

#[PIN][space]Defaults[dot]

Note: This command will also clear all the programmed telephone numbers. After issuing this command you must re-register the Master User (Ph1) before proceeding.

Supply Voltage Alarm

If the SMS Lite supply voltage drops below 10.5V DC, Ph1 will receive this notification message:

The supply voltage at <site> has gone low.

When the voltage increases above 11.5V DC a supply voltage message will be sent:

The supply voltage at <site> has returned to normal.

Supply voltage alarms do not escalate like input alarms. Supply voltage can be queried at any time using the STATUS command

Operational Commands

Inputs

To acknowledge an alarm:

OK <input name> (e.g. Text: **OK Pump**)

This will stop any further escalation of the alarm to the numbers in the phone list for that input status change. It will begin at the top of the list the next time the input is activated.

To force the SMS Lite to send the alarm message to the next phone number in the list.

BUSY <input name> (e.g. Text: **BUSY Pump**)

Not available to the last phone number in the list of that input.

Alarm message for one person:

<Site> <Input> has turned ON. (e.g. Text: **Shed1 Pump has turned ON**)

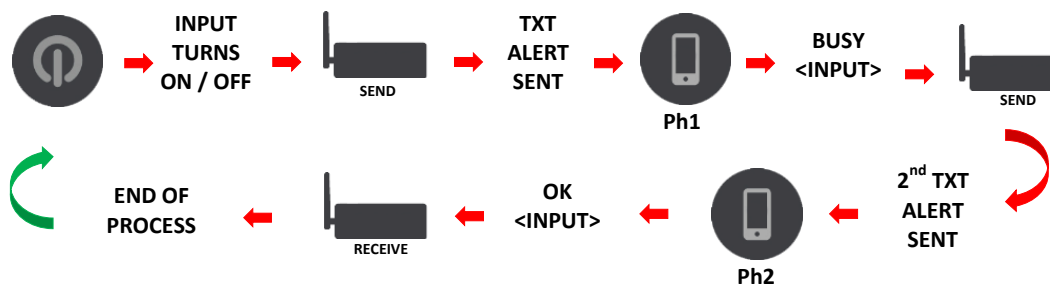
Message Paths

The following diagrams are examples of the message flows for the SMS Lite. They show the basic message flow, an example of a busy response, no response and the escalation flow to multiple phones.

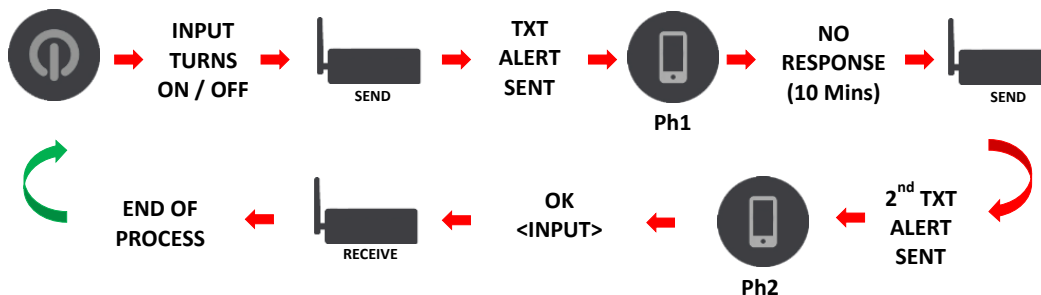
Example 1 - Phone 1 Alerted – Alarm Acknowledged



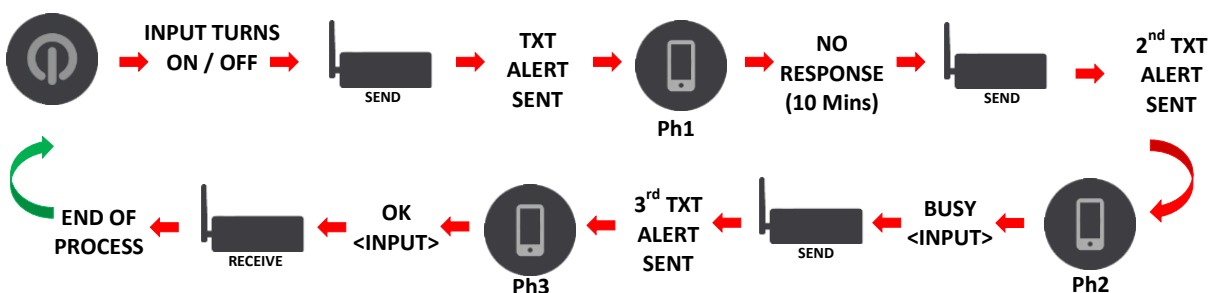
Example 2 - Phone 1 Alerted, Busy – Escalate to Phone 2



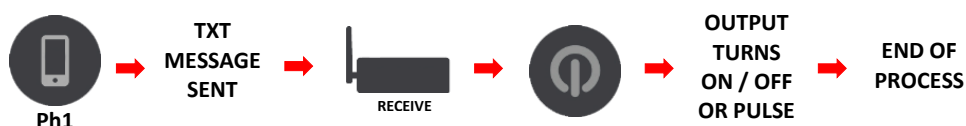
Example 3 - Phone 1 Alerted, No Response – Escalate to Phone 2 After 10 Mins



Example 4 - Phone 1 No Response, Escalate to Phone 2 After 10 Mins, Busy – Escalate to Phone 3



Example 5 - Output – Control Output with Phone 1



Alarms

Alarm messages for escalations

The first person in the multi-person escalation list receives a message and they are given the option to reply BUSY:

Format: <Site> <Input> has turned ON. Reply OK <Input> or BUSY <Input>. You are the <nth> of <N> to be sent this.

e.g. **Shed1 Pump has turned ON. Reply OK Pump or BUSY Pump. You are the 2nd person of 3 to be sent this message**

The last person in the escalation list receives a different message as they don't have the option to reply BUSY:

Format: <Site><Input> has turned ON. Reply OK <Input>. You are the <nth> of <N> to be sent this.

e.g. **Shed1 Pump has turned ON. Reply OK Pump. You are the 3rd person of 3 to be sent this message**

Other alarm messages

Other alarm messages have the following format.

Alarm has been acknowledged message:

<Site><Input> alarm has been acknowledged.

Alarm has not been acknowledged message:

<Site> <Input> alarm was NOT acknowledged.

SMS Lite returns to normal (Idle) state:

<Site><Input> has turned OFF.

Output Control

Control outputs by sending a text message containing on/off or pulse and the output name. In this example Output 1 has been renamed 'Fan'

- Turn the specified output on
ON <output name> e.g. ON Fan
- Turn the specified output off
OFF <output name> e.g. OFF Fan
- To pulse an output on for one second then off again
PULSE <output name> e.g. "PULSE Fan", or "PULSE fan 1 sec"

The security for these commands is based on whether the phone number that sent the message is in the SMS Lite's phone list. If the phone number is not in the list, the command will not be processed.

Information Commands

INPUTS *e.g. Text: INPUTS*

The SMS Lite will respond with a description of how the inputs are configured. This includes the input names, and the phone number list for each input. The current value for input debouncing is also displayed.

OUTPUTS *e.g. Text: OUTPUTS*

The SMS Lite will respond with a description of how the outputs are configured. This includes the output names, and the list of phone numbers that are allowed to control each output.

PHONES *e.g. Text: PHONES*

The SMS Lite will respond with a description of the phone number list it has configured.

STATUS *e.g. Text: STATUS*

The SMS Lite will respond with the current values of all inputs and outputs as well as current supply voltage.

BAL *e.g. Text: BAL*

The SMS Lite will request the prepay account balance information from the cellular operator then forward that message (or messages) to the phone number that requested it. (Not available from 2 Degrees).

The security for these commands is based on whether the phone number that sent the message is in the SMS Lite's phone list. If the phone number is not in the list, the command will not be processed.

STATS *e.g. Text: STATS*

The SMS Lite will respond with information about the Radio Signal Strength. This will range from -50dBm to -110dBm and is reported as *Strong, Medium* or *Weak*.

INFO *e.g. Text: INFO*

The SMS Lite will inform you of the version of firmware it is running.

TEST *e.g. Text: TEST*

This is a quick check to see if the SMS Lite is operational. It will display a led sequence and send the response:

“SMS-Lite comms test succeeded!”

Use this for initial setup checks, see section on Troubleshooting.

The commands above do not care about the phone number - any phone can be used for these commands.

Status LED

The SMS Lite has a status LED, labelled 'Link' situated next to the antenna connection.

The LED will indicate various events that have occurred:

- When the SMS Lite powers on the LED will toggle on and off 5 times slowly.
- While the SMS Lite is has connected to the network the LED will indicate 1 short pulse every two seconds. This is called the "Heartbeat" indication.
- Each time the SMS Lite sends an SMS OK the LED will indicate a burst of 5 short pulses. This is called the "Transmit" indication.
- If the SMS Lite tried to send an SMS but there was a problem the LED will indicate 3 long pulses. This is called the "Transmit fault" indication.

The LED also indicates an error code that can be used to identify particular issues:

- 2 pulses indicate that the Modem will not power on.
- 3 pulses indicate that the Modem will not respond to commands.
- 4 pulses indicate that the SIM card is not inserted.
- 5 pulses indicate that the SMS Lite is not registered to the cellular network.
- 6 pulses mean that the cellular operator is not supported by the device.
- 7 pulses indicate that the SIM card is currently busy. Note, this can occur briefly during the initialisation phase after it is powered on.

The first two errors (2 and 3 pulses) require the SMS Lite be returned to QTech for service.

Error 4 may be fixed by checking the SIM card inside the SMS Lite.

Error 5 is normally caused by a weak signal to the cell tower.

Error 6 may occur in some overseas locations.

Error 7 may occur if the SIM card is not compatible with the SMS Lite.

There is one other type of error indication, and that is when the SMS Lite tries to send a message but gets an error code back from the phone network, it will blink 3 times slowly. If the message was sent successfully it will blink 5 times quickly. The most frequent reason for this error is that there is no credit on the SIM card but could also be something like the cell tower being busy.

Troubleshooting

If you experience difficulties getting the unit working in your area it may be for a number of reasons including (but not limited to):

1. The account balance on the SIM is zero.
2. The device is out of mobile network coverage, which may also depend on the antenna being used.
3. The SIM is from an unrecognised Mobile Network Operator (MNO).
4. The device is operating in an area where the mobile infrastructure (such as frequency band or protocol) is not supported by the SMS Lite device hardware.
5. The SIM is from a virtual mobile network operator and may be using a different SMS SCA (Service Centre Address, sometimes referred to as service centre number) or the SCA has not been programmed or provisioned on the SIM correctly.
6. The device is running on older firmware which can result in issue number 3 above.

There are some actions that can be taken to assist QTech with diagnosing the issue. These involve carefully noting the actions of the indicator LED as it powers up and also counting the number of pulses in an error code when it is displayed.


The typical boot sequence when the device starts is as follows:

- The device will turn the indicator status LED on then flash briefly with a number of flashes (potentially flash code 7 indicating the device is busy).
- The device then turns the indicator off and if there is another error code this will be displayed (e.g. flash code 5 indicating not yet registered on the network)
- If this error code is repeatedly displayed, then this is the code that should be reported to QTech.
- If the error code is replaced by the heartbeat indication (very short flash every few seconds) then the device is in its normally operating mode and is registered on the mobile network.

You can quickly check the unit is running by performing a verification test if your device is running version 4.04 of the firmware or later.


Running a verification test

Step	Description	Note
1	Remove the top cover of the unit	Power down the device. The top cover is held in place using dimpled locators. The cover is “sprung” open by gently prising the lid corners up. A flat bladed screwdriver can be used to assist but ensure that you avoid touching the electronics unnecessarily or scratching the device metalwork.



daughterboard

mainboard

Step	Description	Note
2	Insert a valid SIM card	<p>Ensure the SIM you are using has a valid SCA number and phone number and is known to be working (test in a phone beforehand if necessary).</p> <p>Insert the SIM card into the SIM socket, noting the correct orientation is observed. Bear in mind that not all SIMs can be used in all localities.</p>
3	Power up the device to check operation	<p>Connect the power adaptor to the unit and turn on the power. Do not touch the electronics.</p> <p>The device will indicate a burst of LED flashes on boot up then settle into a heartbeat flash (very short) every few seconds. During boot up the device may indicate an error code. If so, please note it down.</p> <p>As an added indication that it is working the LED on the modem daughterboard itself will slowly flash on and off (on for 1sec off for 1sec each approx..) indicating that the device has registered on a network.</p>
4	Send a test message	<p>Send a test message to the device from a phone by creating a new text message addressed to the device's phone number: Test (Note that no PIN number is required).</p>
5	Verify operation	<p>If the device is operating the LED will be flashing will indicate 1 short pulse every two seconds. This is called the "Heartbeat" indication.</p> <p>When it receives the test message the LED will display a test pattern on the LED for a few seconds consisting of alternating long and short flashes</p>  <p>(i.e., short flash – longer flash – gap – short flash-longer flash – gap). You will see this pattern a few times.</p> <p>If the SIM is working properly the device will send a response text message "SMS Lite comms test succeeded" to the phone.</p> <p>When it sends this message there will also be a short burst of LED flashes to indicate that it is transmitting.</p> <p>If the device fails to do either or both of these, then there is a fault. If a fault error code is being flashed, see the previous section on Status LEDs to diagnose the fault, or contact QTech for assistance after working through the troubleshooting tips below.</p>
6	End of test	Power down and carefully replace the top lid.

Troubleshooting Tips

- A) Make sure you have reception bars on your phone in the same place as the device in case there is a network coverage issue.
- B) Check the account balance for the SIM card (phone number) and ensure there is enough credit for sending texts.
- C) Make sure when you power up the device you see the heartbeat indication. If you see nothing on the LED after the initial boot sequence of flashes then inspect the LED on the modem board. If there is no indication on the modem board then the device has not registered on the network. If you see a periodic slow on-off of the LED then it appears to have registered but if the main board LED is solid on or off then there is a fault on the device and it may need reprogramming with firmware. Also see troubleshooting tip (I).
- D) If the **test** message results in the LED test pattern displayed this means that the device is successfully registered on the mobile network and is receiving messages.
- E) If the **test** message displays the test pattern but a test response message is not received by the phone, this means there is a problem with the device on the network. It could be an incorrect SCA service number, incorrectly provisioned SIM, issue with account balance or other error. The user should contact the SIM provider to check that the SIM is correctly provisioned. Alternatively, the SIM can be checked in a phone by sending a message from the phone. Also, double check that the LED in the modem daughterboard is flashing on and off slowly.
- F) If the **test** pattern is not displayed this means that the device may not be registered on the network or there is a lack of coverage or network unavailability or that the network does not offer coverage in the frequency band classes supported by the device hardware. If the SIM works correctly in a phone, then the issue may be one of frequency band operation. Contact QTech for assistance.
- G) If the device appears to be operating normally and you have programmed it with a valid phone number in the address book to receive alarm notifications then ensure that you do not receive the transmit fault indication (three long flashes). This usually indicates that the programmed phone number in the address book is incorrect. It can also indicate that there is a problem with network availability.
- H) If the device appears to be operating normally but inserting a SIM from a new provider has caused it to stop, then using the old SIM, send the INFO command to obtain the firmware version number and note the response. The firmware may require updating in order to support the new SIM. Contact QTech for assistance.
- I) If the device apparently suddenly stops working or does not work properly after the device has been powered up after a sustained period of being off, or if it has been used extensively in a phone before use in an SMS Lite, then it may have received network generated txt messages that it is unable to process. Try removing the SIM and placing it in a phone then clear all new messages and also clear any old messages that may be stored on the SIM. Then replace the SIM into the SMS Lite and power it up. This issue might also be resolved by upgrading to the latest version of firmware.

General Tips and Information

1. The SMS Lite is over voltage protected by a 30-volt Zenner diode. Voltages greater than this will blow the internal 2A fast blow fuse. The supply voltage should be clean, continuous and transient free.

To comply with the New Zealand and Australian wiring regulations the SMS Lite cannot be connected to any external voltages exceeding 32 volts AC or DC. To connect to or control higher voltage equipment please consult a Registered Electrician.

DO NOT use Switch Mode Power Supplies (SMPS) with this product. The DC power supply used for this product MUST have a grounded negative or be a “linear” transformer-based plug pack. The reason is that the antenna, programming port and external connections can provide exposed earth points and the SMPS can impose an AC voltage on the DC ground, which can lead to damage.

Suitable cost-effective plug packs are available from QTech including P/N PD5412, PD5413 & PD5414.

-
2. The reliability of all cellular products is dependent on good signal strength. Before deciding on the Telco to choose, please check coverage. We suggest that a cellular phone is taken to site, to check the signal strength, i.e. how many “bars” are displayed.
 3. The supplied stub antenna (P/N PD9230) should be suitable for locations with good cellular coverage (full bars) and where the SMS Lite is in a non-conductive enclosure (e.g., plastic). Other external mounting antenna options are also available; contact your equipment supplier or QTech Data Systems Ltd for more details.

DO NOT operate the SMS Lite without an antenna connection.

-
4. Inputs are connected to suitable mechanical switches, contacts and other closure devices. An input is active or ON when the input switch is closed and inactive or OFF when the input switch is open.

Only mechanical switches or mechanical closure devices should be connected to the inputs. DO NOT connect external voltage or other electrical source to the inputs.

-
5. The relays are internally protected by solid state snubbers for operating with inductive loads.
 6. SMS messages on this device are limited to 160 Characters to provide compatibility with older GSM services. There may be occasions when messages are truncated due to this limitation. To avoid this set and check the debounce time before assigning phones to inputs.

Programming Tips

PIN Required for any Configuration Text

The PIN is used each time a configuration change needs to be made. Each configuration command must be finished with a full stop.

i.e. `#[PIN][space]Ph1:number=0123456789[dot]`

Clear An Individual Phone Number

i.e. `#[PIN][space] Ph2:number=.`

We recommend that you do this if a staff member leaves and you will not need to replace that person in the list.

Replace An Individual Phone Number

i.e. `#[PIN][space] Ph2:number=027456789[dot]`

If you wish to replace a number, simply send a new configuration message containing the position in the list i.e. Ph2 and the new number. This number will now have all the previous persons escalations and control permissions. You can send a text containing 'Inputs' or 'Outputs' to check which escalations or control permissions are assigned to this number.

Clear All Settings

To clear all configuration settings and restore factory defaults, send the text: `#[PIN][space] Defaults`
Use this to clear all programming.

Output Permissions Default

If you do not program the phone numbers for an output then each person (Ph1 – Ph4) will automatically have permission to send control commands to the output.

Empty Configuration Values

As per the example above to clear an individual phone number, it is valid to specify an empty value - this might be useful if you want to prevent all phones from being able to control an output. e.g.

`#12345 RLY1:phones = .`

Active Alarm Interruption

After any configuration changes the SMS Lite will reinitialise all active alarm state information – check there are no active alarms before reconfiguration as the process will be halted. *By sending 'Status' to the SMS Lite you can see the status of any of the inputs or outputs, this can help identify if the alarm escalation has been interrupted by a configuration change.*

Error Message

If you get an error message from the SMS Lite, check the previous message you have sent. Key things to check are the PIN, object or item spelling or the full stop may be missing. Correct the error and re-send.

Case Sensitivity

The messages are not case sensitive, but the capitalisation of any names you configure will be retained.

Technical Specifications

Note. Specifications are subject to change without notice.

SMS Lite Specification

Item	Parameter	Specification
General		
	Part Number	PD8640-4G
	Dimensions	Approx. 112 x 75 x 25mm (Overall) 4x mounting holes to fit M4 fixture
	Weight	255 grams (with supplied antenna)
	Temperature	Operating: 0-70 degrees C
	Humidity	0 – 90% non-condensing
	Ingress Protection	IP20, water contact must be avoided
	Power	Input voltage: 12V-24 V DC Current: 13mA @ 12V DC, 9mA @ 24V DC
	Power Connector	2.1mm DC socket, centre positive
I/O		
	Digital Inputs	3 x signal/ground pairs, switched to ground Input voltage: 4V max. Input Current: 4mA Ground inputs are internally tied to power ground
	Digital Outputs	3 x isolated relay output pairs Output voltage: 32V max. Output Current: 2A max.
Modem	Antenna	Detachable SMA Max. Cable length 6m (low loss RG57)
	3G Bands (MHz)	B1(2100), B5(850), B8(900)
	4G Bands (MHz)	B1(2100), B3(1800), B5(850), B8(900) B28(700)

Configuration Worksheet

	e.g.	SMS Lite
Phone:	021234567	
Site:	Shed1	
PIN:	#12345	

Phone	Number	Contact Person
Ph1:		
Ph2:		
Ph3:		
Ph4:		

	e.g.	Input 1	Input 2	Input 3	Input 4
Name:	Pump				
Phones:	Ph1,Ph2,Ph3				

Program the phones which will be included in each input escalation, if required.

	e.g.	Output 1	Output 2
Name:	Fan		
Phones:	Ph1,Ph2,Ph4		

Program the phones which will have permission to control outputs.

Additional sheets can be downloaded from our website: www.qtech.co.nz

Warranty

The SMS Lite hardware and software is covered by QTech Limited Warranty Agreement and software End User License Agreement, respectively.

Please refer to the QTech Limited Product Warranty Agreement, which may be downloaded from the QTech website: www.qtech.co.nz

QTech Data Systems Limited does not warrant the suitability of this product for any particular application as the conditions in which it is used are beyond our control. This is notwithstanding warranty of merchantability.

Additional Information and Support

If you have problems try the following:

- Visit the QTech web site for application notes and guides
- Refer to the troubleshooting section if one is present in this document
- Contact the support desk at support@qtech.co.nz
- Phone the support desk, contact details at beginning of this document



QTech Data Systems Ltd

12 Midas Place, Middleton, Christchurch 8024

PO Box 9087, Tower Junction, Christchurch 8149

Ph: +64 3 366 3713

admin@qtech.co.nz

techsupport@qtech.co.nz

www.qtech.co.nz