DallasDelta
Corporation Pty. Ltd.

4GS DOORSTATION

User Manual

Australian Made

Vandal Resistant

Weather Resistant

This user manual includes a step by quick start guide, Item checklist, diagrams and specifications.

CONTENTS

1. SAFETY AND CARE INFORMATION

Please read these instructions thoroughly before starting installation. This product must be installed and maintained only by competent personnel familiar with electrical and telephone installation.

IMPORTANT! This phone, like any wireless phone, operates using radio signals and the wireless network, which cannot guarantee connection in all conditions. Therefore, you should never rely solely upon any wireless phone for essential communications (e.g. medical emergencies).

Remember, to make or receive any calls, the phone must be switched on, appropriately configured and in an area with adequate cellular signal strength. Emergency calls may not be possible on all wireless phone networks, when certain network services or phone features are in use or on phones without a full keypad unless an auto-dial button is programmed to call an emergency number. Check with local cellular service providers. Emergency calls may be made even when a SIM card is not installed (subject to network availability) using a recognised emergency dialling code such as 112.

1.1 Operating environment

Make sure that no special regulation is in force that imposes restrictions on the use of mobile phones. Restrictions to mobile phones would also apply to this telephone. Most modern electronic equipment is shielded from radio frequency (RF) signals. However, certain electronic equipment may not be shielded against the RF signals from your phone.

1.2 Mains power supply

If a mains power supply unit (PSU) is used as the power source for the telephone, it must be installed by a competent installer and must be provided with a 2-pole disconnect device in accordance with EN 62368-1 Annex L.

1.3 Pacemakers

Pacemaker manufacturers recommend that a minimum separation of 20 cm (8 inches) be maintained between a hand-held wireless phone and a pacemaker. The same restriction should apply to the external antenna of this phone, where fitted. If you have any reason to suspect that interference is taking place, switch off the phone immediately. Hearing aids

The phone's radio signals may interfere with some hearing aids. In such cases move the antenna as far away as practical or consult your hearing aid supplier.

1.4 Other medical devices

Operation of any radio transmitting equipment, including the phone, may interfere with the function of inadequately protected medical devices. Consult a physician or the manufacturer of the medical device to determine if they are adequately shielded from external RF energy or if you have any questions. Switch off the phone in health care facilities when any regulations posted in these areas instruct you to do so. Hospitals or health care facilities may be using equipment that could be sensitive to external RF energy.

1.5 Radio transmission equipment

Dallas Delta's GSM products are designed to conform to international standards regarding the acceptance of radio frequency interference, certain installation locations may interfere with their proper operation. We recommend that Dallas Delta GSM equipment is not installed in close proximity to any equipment that generates RF signals (for example, radio transmitters), and is located as far as possible away from it or in a separate room.

1.6 Potentially explosive atmospheres

Do not install the phone or site the antenna in any area with a potentially explosive atmosphere and obey all signs and instructions. Areas with a potentially explosive atmosphere are often but not always clearly marked. They include chemical transfer or storage facilities; vehicles using liquefied petroleum gas (such as propane or butane): areas where the air contains chemicals or particles, such as grain, dust or metal powders.

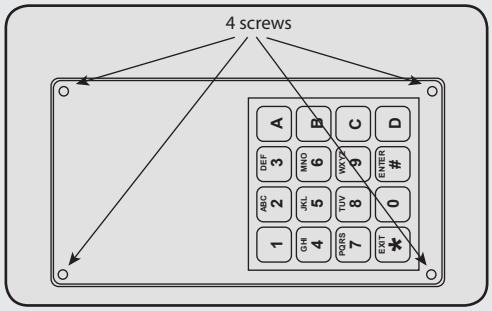
WARNING

• Site survey to ensure there is adequate 4G mobile signal coverage on the selected network. If solar power is a requirement, ensure clear, unobstructed view of the sky.

• Obtain a suitable SIM card. The SIM card can have a SIM PIN on it and it will need to be programmed into the unit. If the unit detects a SIM PIN with no PIN configured, it will halt during initialization and wait for the PIN configuration. It is recommended to disable voicemail on the SIM.

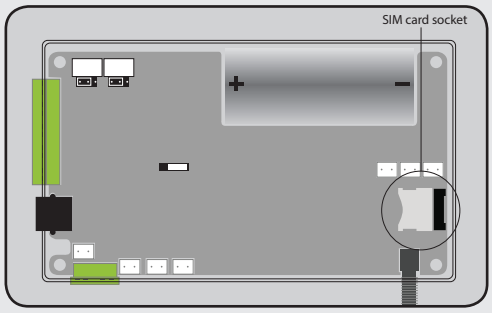
• Chose a power source. If solar is used, a 5W to 15W panel is required if not supplied

2.0 QUICK START GUIDE



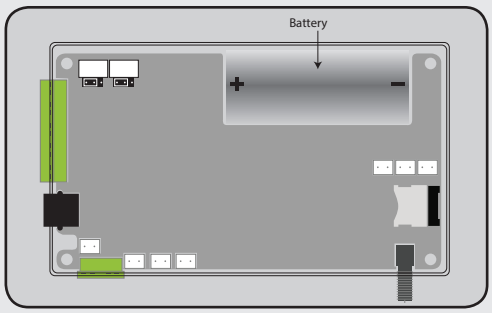
1. Open case

Undo all four screws on the lid of the plastic case to access the PCB.



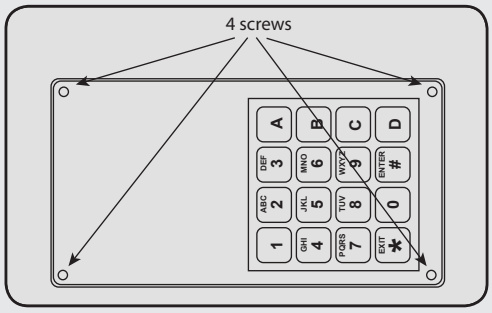
2. Insert SIM card

1 - Open the SIM socket by sliding forward top. **2** - Flip the top of the SIM card holder. **3** - Insert SIM card into socket. **4** - Close top. **5** - Slide top back into position.
Please Note: *For more information reference section -* ***6.2 Installing SIM***



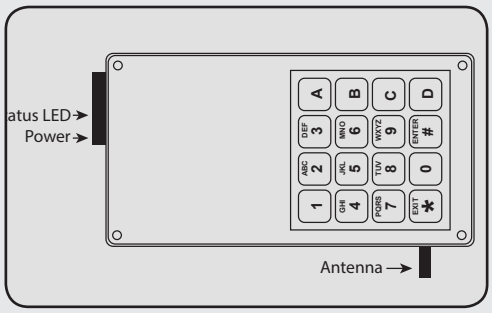
3. Switch on device

Switch on device on the small switch located on the center of the board



4. Replace case lid

Replace all four screws on the lid of the plastic case to access the PCB.



5. Connect power & antenna

Connect power to green plug as marked.
Connect antenna.

3. PRODUCT DESCRIPTION

This manual describes the 4G LTE versions of our popular door stations and roadside emergency phones, powered by our 4GS PCB (herein referred to as the 4GS).

Being a 4G LTE cellular device gives you the ability to install a telephone anywhere the mobile network is available without the expensive costs of having to run cables to remote or difficult sites.

Door station variants come with auto-dial buttons for dialling from the phonebook, or with full numeric keypads for speed or manual dialling.

The roadside phone is well suited for highways, freeways, tollways as well as many business and commercial settings.

All versions can be supplied in either handset or hands-free models.

All phones provide remote control to 2 relays (installed by default), which can be expanded with I/O expander options. This allows access control, remotely or locally if a keypad is fitted.

4. PRODUCT FEATURES

- Robust and weather resistant
- 4G LTE Telstra Certified Module
- Large phonebook (Can hold up to 50K numbers)
- Alternate phone numbers per phonebook entry
- Global alternate numbers
- Remotely programmable
- Over the air firmware updates
- Handset or Hands-free operation
- SMS reporting, programming and diagnostics
- Internal battery, providing 8 hours talk time, 200 hours standby
- Internal solar charge regulator with MPPT (Maximum Power Point Tracking) technology
- Optional Hearing Aid Loop

5. INSTALLATION

5.1 Prior to installation

Please perform the following before beginning installation:

- Site survey to ensure there is adequate 4G mobile signal coverage on the selected network. If solar power is a requirement, ensure clear, unobstructed view of the sky.
- Obtain a suitable SIM card. The SIM card can have a SIM PIN on it and it will need to be programmed into the unit. If the unit detects a SIM PIN with no PIN configured, it will halt during initialization and wait for the PIN configuration. It is recommended to disable voicemail on the SIM.

- Chose a power source. If solar is used, a 5W to 15W panel is required if not supplied.

5.2 Important Information

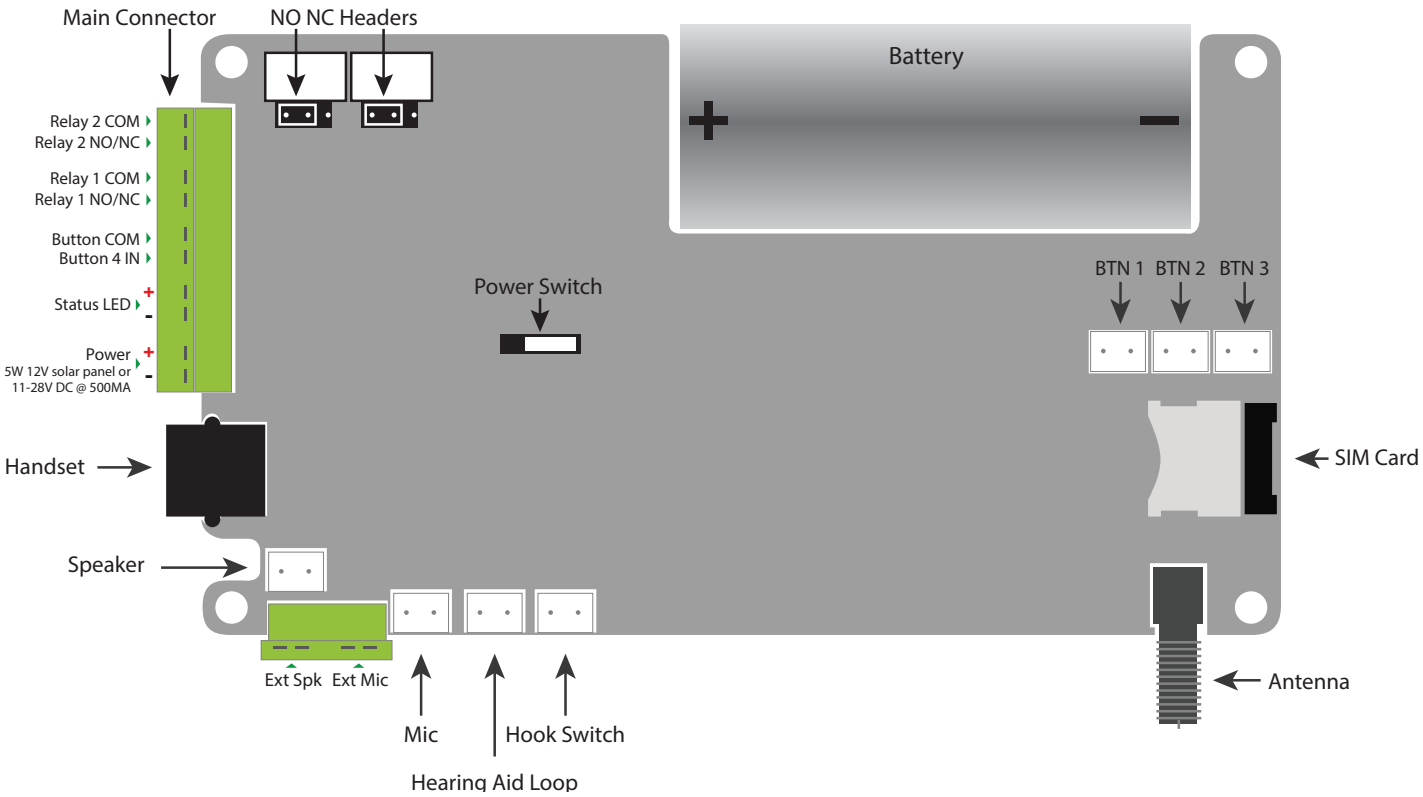
- Qualified Personnel Only
- Door station and roadside phones can be supplied with power supply options, which may require connection of the power supply to an AC mains supply. Qualified personnel must only perform installation and maintenance. Contact Dallas Delta if installation is required.
- Test tools required
- During testing and commissioning of the telephone it is recommended to use a laptop to connect to the internal USB port. Configuration can also be performed via the keypad fitted on the rear, or via SMS text messages.
- Avoid contamination during installation
- All possible measures must be taken to ensure water, fluid or dust does not contaminate the internal components of the telephone whilst unpacking, preparing and installing the telephone. Failure to do so may invalidate your warranty. Please retain and screws removed during installation or maintenance – make sure the correct screws are refitted to ensure the integrity of any seals.

Emergency Services warning

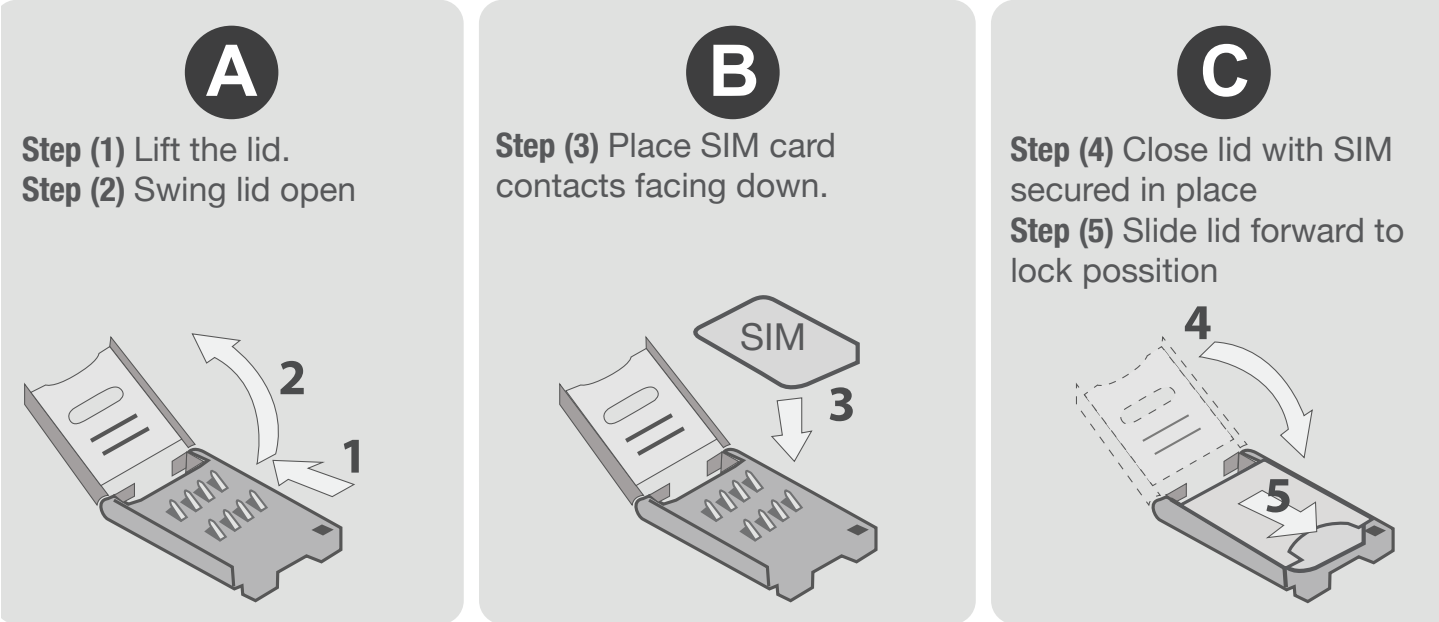
- If the telephone is configured so that it cannot make a direct call to emergency services, check with your telephone service provider or infrastructure maintainer whether it is necessary to warn users and if so, provide a suitable warning notice.

6. CONNECTIONS AND SETUP

6.1 Internal connections



6.2 Installing the SIM



Please Note: POWER switch (on the board) should be set to **OFF** during installation of the SIM card. Switch to **ON** once all connections have been made.

6.3 Battery

The internal battery is design to be permanently connected in circuit, much like a laptop or cell phone battery. If the battery is removed, please ensure it is re-fitted correctly paying special attention to the polarity of the battery and the markings on the PCB. ***Failure to do so could cause irreparable damage.***

The battery chemistry is Lithium Iron Phosphate (LiFePo4) which is a long-life, stable and high-performance battery. It has an expected life span of over 10 years under normal use.

The battery is to be charged only with the built-in charger by connecting a DC power supply of at least 11V DC. If the “solar panel fitted” option is enabled, at 12V solar panel with an OCV of at least 20V is required, or a DC power supply operating at 18V DC.

At 15W, the battery will be fully charged in approximately 1 HR.

Batteries may be stored connected for up to 6 months with no loss in battery capacity or performance. It is recommended to monitor and recharge the batteries at least once every 6 months while the 4GS is not in use. If the battery voltage falls below 1.5V, it may not recover.

If storage for longer than 6 months is required, it is recommended to remove the battery from the product.

6.4 Connecting the power supply

The 4GS requires an external DC power source and a suitable antenna.

The antenna cable screws onto the SMA connector as shown.

Connect the DC power source to the connector as shown. Do not connect the power supply if the battery has been removed.

Power requirements are **10 - 28V DC @ 2W - 15W (5W recommended)**.

If solar is used, ensure the solar panel fitted option is programmed to enable the MPPT (Maximum Power Point Tracking) feature. This feature monitors the input voltage and adjusts charge current to maintain the voltage at the maximum point in the IV curve for solar panels.

6.5 LED indications

On the front of the product is a single RGB LED that is used to provide useful status information.

LED Indication	Meaning
Off	Phone switched off - Slide power switch to ON
Yellow triple pulse	Initialising / Searching for SIM & Network Registration
Green double pulse	Standby - ready for use (Audio circuitry active)
Green pulse slowly	Standby - ready for use
Purple double pulse	Keypad entered programming mode
Cyan pulse	Call incoming
Cyan pulse slowly	Call in progress

6.6 Powering up

Step 1 Once the SIM card has been fitted and the DC power supply connected, move the POWER switch on the PCB to the ON position. The LED will begin to show three short yellow pulses to indicate it is initializing. If the LED does not light up, check the power supply is connected, or the solar panel is getting enough sunlight.

Step 2 A start-up tune will be played. Start-up takes about 30 seconds to 1 minute to completely register to the cellular network.

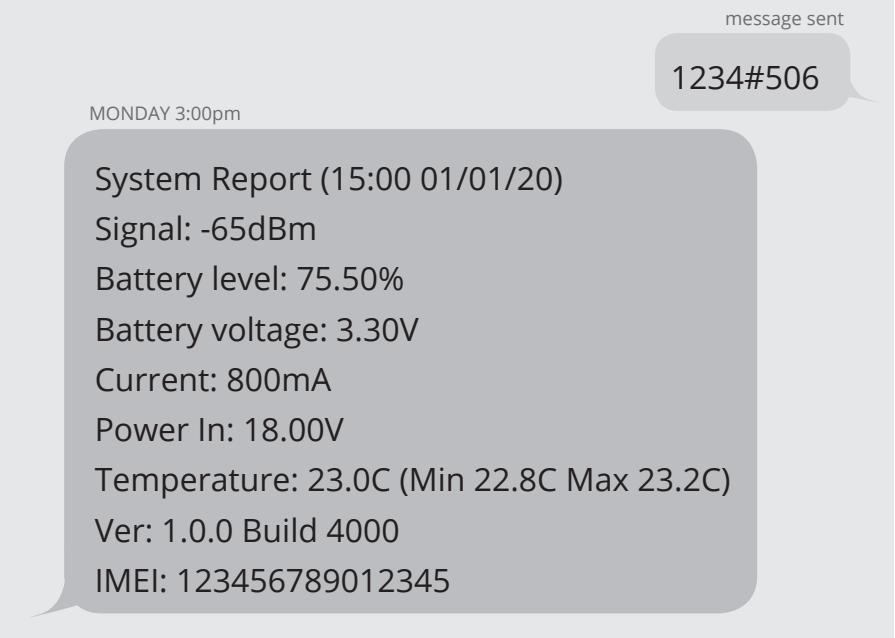
Step 3 Note that pressing any button on the keypad during start-up will cancel the audio tune being played. This is normal. You can begin programming the unit at any point during start up. If you need to enter a SIM PIN now is a good time to do so.

Step 4 When registered on the cellular network, “System Ready” will be played from the hands-free speaker and the LED will change to flashing green pulses.

Step 5 Using a cellular phone, send an SMS command to verify the status. Use the following format for your outgoing message: **1234#506**

The default PIN code: **1234** should be changed as soon as possible.

The reply on your phone should look similar to the following:



Step 6 Connect a laptop to the internal USB port to easily program the 4GS, or proceed to section 8 for details on other methods of programming.

Step 7 If everything looks correct in the status report, re-fit the rear panel and complete installation.

Step 8 Make a test call to the phone to ensure the hands-free operation works.

7 OPERATING

7.1 Hands free

All 4GS phones can operate in hands-free mode. To make a call either press one of the buttons on the front, or for handset or keypad models dial a speed dial entry or press '#' to begin dialling.

To end a call, press any of the buttons on the front or press the '#' key.

7.2 Handset

To make a call, begin by lifting the handset. Depending on configuration, the phone can auto-dial or accept a speed-dial entry via the keypad. If speed dial is disabled, you can begin dialling to any number after lifting the handset.

8 PROGRAMING

The 4GS phone can be programmed via multiple methods. The easiest way to perform initial configuration is done by USB, using the "Dallas Delta Configurator" software. This software can be downloaded from dallasdelta.com or delivered upon request.

You can also program the phone via SMS, Keypad entry or by establishing a phone call to the phone and using DTMF.

To program via USB, simply connect a USB Mini cable to the USB socket. Then using the "DDC Configurator" connect to the unit. Help is available for the software online.

The rest of this section will explain the multitude of parameters that can be configured by the other methods.

SMS, Keypad and DTMF programming all use the same parameters, however there are some subtle differences in how to use them.

8.1 SMS Programing

SMS programming a message must follow the format:

<PIN CODE>#<OPTION>(#<CONFIGURATION>)

(or use a space in place of #)

<CONFIGURATION> is optional and if missing the current programmed value will be read back.

Examples: **1234#2** (This will read the Hotline number)

1234#2#<phone number> (This will update and store the hotline number)

8.2 Keypad Programing

Keypad programming can be entered by holding down the '**D**' key on the rear keypad for two seconds. On variants with front keypad, programming mode is entered by pressing ***#*#** followed by the programming code (default **1234**). Once entered, the LED will change to purple and a voice prompt will be heard. Use **#** as a delimiter and **##** to commit the entry. For example, to adjust the handsfree microphone gain you would enter: **100#2##**

Programming mode will time out after 1 minute. Every 10 seconds a beep tone will be emitted to indicate that the phone is still in programming mode.

To exit programming mode, press '**D D**' on the rear keypad, or '**# # #**' on the front keypad.

8.3 DTMF Programing

To start DTMF programming first establish a call to the phone. You will then need to enter the DTMF programming code (Default 1234), upon which you will hear a voice prompt. Programming is now done as per the Keypad method, using # as a delimiter and ## to commit the entry.

It is highly recommended to change the DTMF and SMS programming codes, options 200 and 201 respectively.

Programming options are configured into sections. Phone and phonebook, Audio parameters, Codes, Options, SMS Settings and Functions.

To exit programming mode, dial '*** ***'.

8.4 Phone & Phonebook Parameters

OPTION 1 – Phonebook Entry

The phonebook is used for speed dial operations, CLI (Calling Line Identity) feature setup and button configuration. It is highly recommended to use the USB programming method as it is much simpler to use.

Each entry has an ID that relates to buttons and is used for speed dial. An ID can be up to 6 digits (see OPTION 5 for more information on setting the speed dial length). Entry ID is also mapped to a physical button. Button 1 is ID 1, button 2 is ID 2 and so on.

The phonebook grows in size as entries are added. The hardware on the 4GS has enough storage space to support tens of thousands of entries, much like a smart phone.

The CLI feature enables a matching incoming caller identity to activate a relay.

Button configuration sets the operation that is to be performed when a button is pressed.

A phonebook entry is made up of a number of fields. You can enter in only what is required for the entry or program by field. The fields are as follows:

Field 1: **<Phone number>** The main phone number for the entry and CLI detection

Field 2: **<Alternate number 1>** The first alternate number

Field 3: **<Alternate number 2>** The second alternate number

Field 4: **<Button operation>** Binary encoded value describing the operations performed on a button press for this entry (1 to make a call)

Field 5: **<CLI operation>** 0 to disable or the relay number that should be activated on an incoming call from **<Phone number>**

Field 6: **<CLI start time>** Time of day, in 24 hour format HHMM in which to allow the relay to be activated

Field 7: **<CLI end time>** The last time of day in which to allow the relay to be activated

Programming Phonebook Example

Here are some examples of programming a phonebook entry:

Syntax	ID	Description
1#1#0420123456	**1**	Program the phone number into entry ID 1, which is also mapped to button 1. The default button operation is to make a call, so this will effectively assign a call function to button 1.
1#10#98761234#0#0#1#1	**10**	This will program the phone number into ID 10. The next two fields after the phone number are set to 0, as no alternate numbers are required. The Button operation field is set to 1, to set the call bit and the CLI feature is enabled. As no start or end time were entered, it is permanently enabled.
1#10#1#98761234 **1#10#5#1**	**10**	This is an example of per field programming to achieve the same thing as above. The first entry programs the phone number into ID 10, field 1. The second entry enables the CLI feature by programming a 1 into field 5. On an incoming call from this phone number, relay 1 will be activated.

OPTION 2 – Hotline Number

This feature is only used for phones with a handset fitted. The phone will immediately dial the phone number stored in this option as soon as the handset is taken off-hook. To disable this feature, program a value of 0.

OPTIONS 3 & 4 – Global Alternate Numbers

Alternate numbers are called at the expiration of the “No Answer” timer (OPTION 12). If a phonebook entry has alternate numbers, those will be tried first. After those numbers are attempted (if any exist) the global alternate numbers are tried. Thus, there can be up to 5 call attempts, in the following order: <Phone number> <Alternate 1> <Alternate 2>< Global alternate 1> < Global alternate 2>

OPTION 5 – Speed Dial Length

On phones with a keypad fitted, the keypad can be used to enter a speed-dial number. To enable this feature, program the required length into this option.

The phone will wait for either the full length to be entered, or the dial timer to expire (5 seconds). If an entry ID is found in the phonebook that matches the number entered, the phone will begin dialling that number.

OPTION 10 – Auto Answer Time

If required the phone can automatically answer incoming calls. OPTION 10 specifies the length of time to wait before answering the call, in seconds. The default is 2 seconds. To disable this feature program a 0. The range is from 1 to 60 seconds. Also see OPTION 11 for instant auto-answer.

OPTION 11 – Instant Auto Answer

Programming a 1 into this option will enable the instant auto-answer feature. The phone will immediately pick up the call and route audio. This typically happens in around 200 milliseconds.

OPTION 12 – No Answer Timeout

In seconds, how long to wait before moving on to attempt the alternate numbers. Set to 0 to disable this feature. If disabled however, no attempts will be made to dial alternate numbers. The range is from 5 to 99 seconds.

8.5 Audio Parameters

OPTION 100 – Handsfree Microphone Gain

Microphone gain in 1.5dB steps, from 0 to 15 (0 to 22.5dB gain). The default is 2 and provides a 3dB gain.

OPTION 101 – Handsfree Volume

Master volume level of the handsfree speaker, as a percentage of maximum. Default is 55%.

OPTION 102 – Handset Microphone Gain

Microphone gain in 1.5dB steps, from 0 to 15 (0 to 22.5dB gain). The default is 10 and provides a 15dB gain.

OPTION 103 – Handset Volume

Volume level of the handset speaker, as a percentage of maximum. Default is 75%.

OPTION 104 – Hearing Aid Loop Volume

Volume level of the heading aid loop, if fitted, in percentage of maximum. Default is 50%.

OPTION 105 – Ring Volume

Ringer volume, as a percentage of maximum. Default is 60%.

8.6 Codes

OPTION 200 – Keypad & DTMF programming code

This code has two purposes. It can be used for DTMF programming or to allow programming of a phone from the front keypad (if fitted).

Enter this code during a phone call to enter remote programming mode.

OPTION 201 – SMS Unlock Code

The SMS unlock code must precede the option and programming parameters. The default is 1234.

OPTION 202 – SIM PIN Code

If the SIM card requires a PIN code, set it here. The phone will use this code to attempt to unlock a SIM.

OPTION 203 – SIM PUK Code

This code can be used to unlock a SIM card if it has been PUK locked.

OPTION 210 to 213 – Relay Activation Codes

Sending these codes via SMS, or entering them in during a call via DTMF will activate a relay. Option 210 is assigned to Relay 1, 211 to Relay 2 and so on. Depending on the hardware configuration there may only be one relay fitted.

OPTION 220 to 229 – Keyless Entry Codes

Keyless entry codes allows a phone with a front keypad to activate a relay. The phone supports up to 10 entry codes. To use an entry code, press <*> followed by the code.

When programming the entry codes, you can specify a relay to activate. The default is relay 1. If you would like to activate a different relay, simply add the relay number as another field after the code. For example, to set the code in the first entry to '1234' and have it activate relay 2, the syntax would be 220#1234#2.

8.7 Options

OPTION 300 – Unit ID Number

The unit ID is a number that can be assigned to a phone for identification purposes. It's range is from 1 to 9999. It can be read out when a call is answered by the phone. See OPTION 301 for more information.

OPTION 301 – Read ID On Answer

Setting this to 1 will cause the phone to read out aloud the Unit ID Number (OPTION 300) when a call is answered.

OPTION 302 – Play Start-up Tune

On by default as an indication that the audio hardware is working correctly. It plays for approximately 30 seconds during system initialization and setup.

OPTION 303 – Button Press Timeout

The length of time a button is required to be held down for it to be detected as valid. The values are multiples of 100ms and the default is 3 (300ms).

OPTION 304 – Handset Connected

Enables handset operation.

OPTION 305 – Handset Hook Polarity

The polarity of the handset hook switch. Active low if 0 or active high if 1.

OPTION 306 – Solar Powered

Set this to enable MPPT (Maximum Power Point Tracking) mode on the battery charger. MTTP is a technique commonly used with solar systems to maximize power extraction under all conditions. Enable this if a solar panel is the main power source.

OPTION 307 – Relay Activation Timer

In seconds, how long a relay will activate for. The default is 4 seconds. The range is from 1 second to 86400 (24 hours).

OPTION 308 – Mute Initial Audio

This will silence all of the audio prompts during start-up and initialization. This is useful for installations inside or in quiet areas where a reboot of the device and subsequent audio prompts could be a disturbance.

8.8 SMS Settings

OPTION 400 – Daily SMS Limit

Maximum number of SMS to send per day

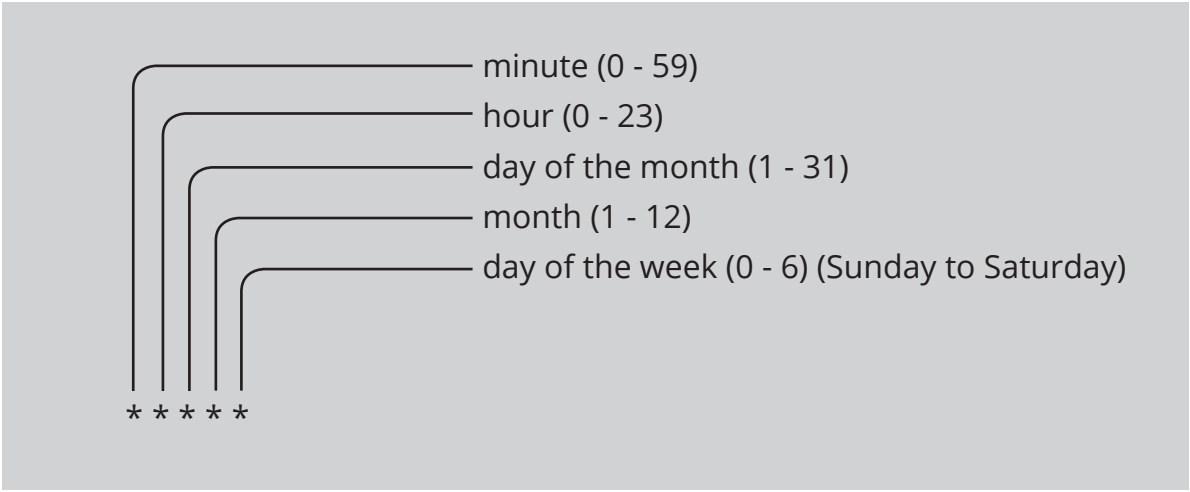
OPTION 401 to 403 – Reporting Phone Numbers

Up to three reporting numbers can be stored in the phone. These numbers are used by the phone to send various status reports and events.

OPTION 404 to 406 – Reporting Events

Per each reporting phone number, enable the events that are to be reported on by setting this bit field value.

Bit 1 – System Start-up



Bit 2 – System Report

Bit 3 – Outgoing Call

Bit 4 – Call Statistics

Bit 5 – Battery Charge Complete

Bit 6 – Battery Low

OPTION 407 – System Report Interval

The system report interval allows you to define when you would like to receive the System Report. Its format is specified using Unix CRON format, which has 5 time and date fields, as shown below:

This allows for a highly configurable interval to be set. When programming via USB or SMS you can use < / >, < - > and < , > to specify intervals, ranges or list; however, when using the keypad or DTMF programming you will need to substitute < / > for <A> , < – > for <B> and < , > for <C>.

Also, you can stop at any point if the rest of the entry is to be < * >.

Here are some examples:

Description	USB or SMS	Keypad or DTMF
Hourly	0	0##
Every 2 hours	0 */2	0#*A2##
Every 2 hours (8am-10pm Mon-Fri)	0 8-22/2 * * 1-5	0#8B22A2#*#*#1B5##
On the first day of the month at 10am	0 10 1	0#10#1##
On the first Mon, once per month at 10am	0 10 1-7 * 1	0#10#1B7#*#1##
At 10am and again at 4pm, Mon, Wed & Fri	0 10,16 * * 1,3,5	0#10C16#*#*#1C3C5##

OPTION 408 – System Report Flags

A bit field value to select what gets sent in a System Report.

Bit 1 – Basic battery information

Bit 2 – Extended battery & power information

Bit 3 – Hardware information and system temperatures

Bit 4 – Call information

8.9 Functions

OPTION 500 – Factory Default

Setting option 500 will perform a factory default of settings. Program a 0 to perform a load of factory default data, 1 to clear the phonebook and 2 to perform a software reset.

This can only be done locally via the keypad.

OPTION 501 – Read RSSI

By default, it is read back as a percentage. Program with ** to read out the direct RSSI level in dBm.

OPTION 502 – Read Battery Data

OPTION 503 – Read Firmware Version

OPTION 504 – Read System Uptime

OPTION 505 – Activate Relay

Program with 0 to turn off a relay, 1 to turn a relay on permanently, or a number in seconds up to 31536000 (365 days). By default, this will use relay 1. Add another parameter to select a different relay.

Examples:

20#2 - Activate relay 2 for 20 seconds

5 – Activate relay 1 for 5 seconds

OPTION 510 – System Reboot

OPTION 520 – Perform Firmware Update

Perform a firmware update to the latest version. A data pack is required on the SIM card to be able to perform this operation. This size of the download is typically 0.5Mb.

OPTION 521 – Perform Filesystem Synchronization

Use when requested by Dallas Delta to synchronize and update audio voice files to the latest versions. A data pack is required on the SIM card to be able to perform this operation. This size of the download is will vary but it can be up to 5Mb if every file requires updating.

9.0 PROGRAMMING SUMMARY / QUICK REFERENCE GUIDE

9.1 Phone

Option	Sample Syntax	Value / Range	Default Value	Description
1	1#<Loc>#<Field># <Phone no.>	See section on phonebook programming	-	Phonebook Entry
2	2#< Phone Number >	0 to clear, 3 - 16 digits	-	Hotline Number
3 - 4	3#< Phone Number >	0 to clear, 3 - 16 digits	-	Global Alternate Numbers
5	5#2	0 to disable, 1 - 6	0	Speed dial enable and length
10	10#2	0 to disable timer, 1 - 60	2	Auto Answer Time (Seconds)
11	11#0	0 / 1	Off	Instant Auto Answer
12	12#15	0 - 99	0	No Answer Timeout (Seconds)

9.2 Audio

Option	Sample Syntax	Value / Range	Default Value	Description
100	100#2	0 - 15	2	Handsfree microphone gain
101	101#55	40 - 100	55	Handsfree volume
102	102#2	0 - 15	8	Handset microphone gain
103	103#75	10 - 100	75	Handset volume
104	104#50	10 - 100	50	Hearing aid loop volume
105	105#60	10 - 100	60	Ring volume
106	106#75	20 - 200	75	Speech volume
107	107#25	20 - 200	25	Tones volume
108	108#25	20 - 200	25	Tunes volume
109	109#160	10 - 300	160	AGC multiplier (/10)
110	110#100	0 - 100	100	TX ducking (percent)
111	111#100	0 - 1000	100	RX detect debounce (ms)

9.3 Codes

Option	Sample Syntax	Value / Range	Default Value	Description
200	200#< Code >	A numerical code up to 15 digits	1234	Front Keypad & DTMF programming code
201	201#< Code >	A numerical code up to 15 digits	1234	SMS unlock code
202	202#0000	The SIM PIN must be 4 digits		SIM PIN code
203	203#12345678	The SIM PUK must be 8 digits		SIM PUK code
210 - 213	210#< Code >	A numerical code up to 15 digits		Relay activation codes
220 - 229	220#< Code >#[Relay]	A numerical code up to 15 digits		Keyless entry codes

9.4 Options

Option	Sample Syntax	Value / Range	Default Value	Description
300	300#0	0 to clear, 1 - 9999		Unit ID number
301	301#0	0 / 1	Off	Read ID on answer
302	302#1	0 / 1	On	Play startup tune
303	303#3	1 - 30	3	Button press timeout (x100ms)
304	304#0	0 / 1	No	Handset connected
305	305#0	0 / 1	Low	Handset hook polarity
306	306#1	0 / 1	Yes	Powered by solar panel
307	307#4	1 - 86400 (24 Hr)	4	Relay activation timer (seconds)
308	308#1	0 / 1	Off	Mute initial audio
309	309#1	0 / 4	Off	Relay On Call (Specify relay number to activate)

9.5 SMS settings

Option	Sample Syntax	Value / Range	Default Value	Description
400	400#100	> 0	100	Daily SMS Limit
401 - 403	401#< Phone Number>	0 to clear, 3 - 16 digits		Reporting Phone Numbers
404 - 406	404#3		3	Reporting Events
407	407#0#14#*#*#1B5		0 14 * * 1-5	System Report Cron
408	408#9		9	System Report Flags

9.6 Functions

Option	Sample Syntax	Value / Range	Default Value	Description
500	500#1	0 - 2	-	Factory Default
501	501	* = dBm , ** = %	dBm	Read RSSI
502	502	-	-	Read Battery Data
503	503	-	-	Read Firmware Version
504	504	-	-	Read System Uptime
505	505#1[#4]	Relay & optionally on time in seconds	-	Activate Relay
506	506	-	-	
510	510	-	-	System Reboot
520	520	-	-	Perform firmware update
521	521	-	-	Perform filesystem Synchronization

10. TECHNICAL SPECIFICATIONS

OPERATIONAL REQUIREMENTS

GSM SYSTEM	4G LTE, Cat 1, 4
	VoLTE with digital audio
	3G Bands:
	• 850MHz (B5)
	• 900MHz (B8)
	• 2100MHz (B1)
	4G Bands:
	• 700MHz (B28)
	• 850MHz (B5)
	• 900MHz (B8)
	• 1800MHz (B3)
	• 2100MHz (B1)
POWER SUPPLY	• 11 – 28V DC
	• Suitable for supply directly from a 12V solar panel. 2 – 15W (5W recommended).

PRODUCT FEATURES

CURRENT CONSUMPTION @ 12V SUPPLY	• Idle with battery fully charged – 3mA
	• Idle, charging battery at maximum charge current – 1.25A
	• In call, max transmit power, battery fully charged – 90mA
	• Recommend >=500mA 12V power supply
BATTERIES	Dallas Delta LiFePO4 3.2V 3.8Ah or
	Dallas Delta LiFePO4 3.2V 1.8Ah
	Talk time and standby time, if power supply is disconnected:
	• 12 hours talk time, 200 hours standby (3.8Ah battery)
	• 6 hours talk time, 120 hours standby (1.8Ah battery)
SPEAKER LOUDNESS	**>78dBa @ 1 metre**
MONITORED FAULTS / SENSORS	• Audio self-test
	• Stuck buttons
	• Battery state of charge and health
	• Supply voltage
	• PCB temperature
MONITORING METHOD	• Remote interrogation by SMS
	• Automated interval reporting

Notes:

CUSTOM

We have forty years experience in development of innovative custom communications equipment.

We meet the customers requirements and custom build the units to any size, material & button configuration.

COMMUNICATION

Our communications products cover a broad range of applications from entry control to emergency communication networks.

Using technologies that include: VoIP, GSM, Fibre and Analogue.

SOLUTIONS

If there is a product you require and it does not exist, we will design and manufacture it for you.

We will work with our clients to ensure that the correct product is made to the requirements & standard.

MANUFACTURING COMMUNICATIONS PRODUCTS

Remote Gate Acceess
Apartment Intercom
Rugged envirments
Roadside Emergency

Emergency Services
Industrial
Clean Room
Police Stations

High Voltage Line Isolators
Prisons
High Security
Control Centres

CERTIFICATIONS AND COMPLIANCE

AS/NZS 60950.1:2011
AS/CA S042.1:2011
AS/ACIF S042.3:2005
AS/CA S042.4:2011
RSS-132 Issue 2, RSS-133 Issue 5

GCF-CC (v3.40.2), NAPRD03 (v5.6)
FCC OET 65
FCC CFR Title 47 Part 2, TIA/EIA 603-C
FCC Part 22 Subpart H,
FCC Part 24 Subpart E

FCC Part 22.917(b),
FCC Part 24.238(b)
FCC Part 15 Subpart B: 2008 Class B
ANSI C63.4:2009
SGS Report No: EG/2013/80025

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