



GSM COMMUNICATOR



USER MANUAL

Revision History

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1. INTRODUCTION

The GSM Communicator provides a stable and versatile platform for customers wishing to add remote switching and monitoring functionality to a wide variety of applications. The unit supports both SMS and GPRS communication options and offers multiple input, as well as output peripherals. The GSM Communicator is ideally suited to battery-powered applications where effective power management is critical.

The device may be used as a stand-alone unit that interfaces to one, or many cell phones. Alternatively, the Sentry GSM Communicator may be used in conjunction with the Sentry GPRS server infrastructure, offering a full remote management solution that is robust, as well as cost-effective.

The device contains a unique “virtual wallet” feature that allows credits to be loaded onto the device. When an input pulse is detected, the unit determines if credit is available. If so, the pulse is reproduced on an output port and a credit is deducted.

The Sentry GSM Communicator is simple to set up and operate. A tri-colour LED indicates normal operation, fault conditions and adequate signal strength. All settings on the unit may be retrieved and altered remotely by an authorized user.

2. SPECIFICATIONS AND FEATURES

2.1. Hardware

- 2 x relay outputs (5A, 220V AC, 28V DC)
- 1 x digital output (0V low, 5V high)
- 2 x digital inputs (0V - 24V DC)
- Supply requirements: (12V, 500mA)
- External UART (3.3V or 12V)
- External I2C bus
- Real time clock/calendar with power backup
- Dual SIM
- Status indication LED (Tri-colour)
- Quad-band GSM module (Class 10 GPRS)
- External SMA connector
- Low-power standby mode

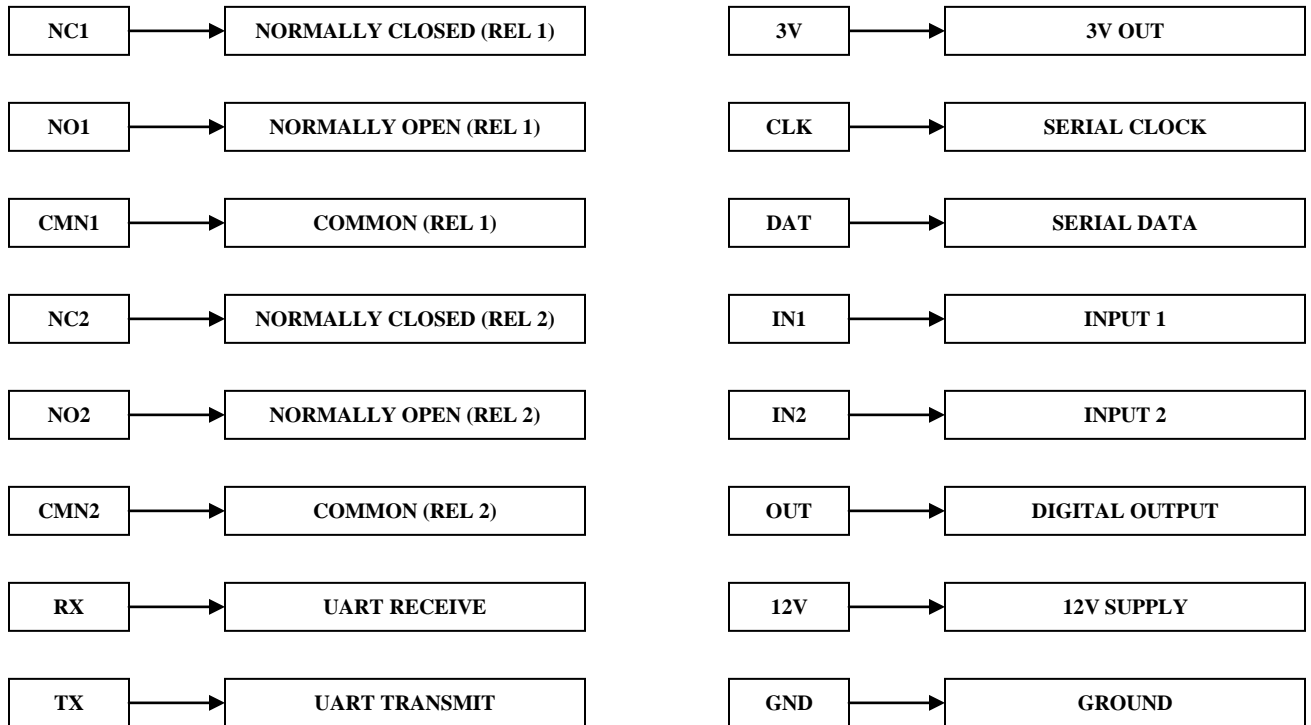
2.2. Software

- SIM pin lock
- GPRS with SMS fail-over or SMS only
- Application server (GPRS, SMS-to-TCP/IP) with management software
- Intuitive application software
- 3 time-settable modes available per output port (latch, toggle, pulse)
- Output port activation via SMS or missed call (optional confirmation via SMS)
- Up to 2 master (can alter settings remotely) users and 100 regular users
- User-settable input activation trigger-duration
- Input activation on high or low trigger
- SMS alerts sent concurrently to up to 3 destinations

3. BASIC SETUP



Fig. 3.1 – GSM Communicator connection terminals



3.1. Connection and Communication

Step 1:

Unscrew the front panel of the enclosure and remove the board from the enclosure. The board should slide out easily without excessive force needing to be applied.

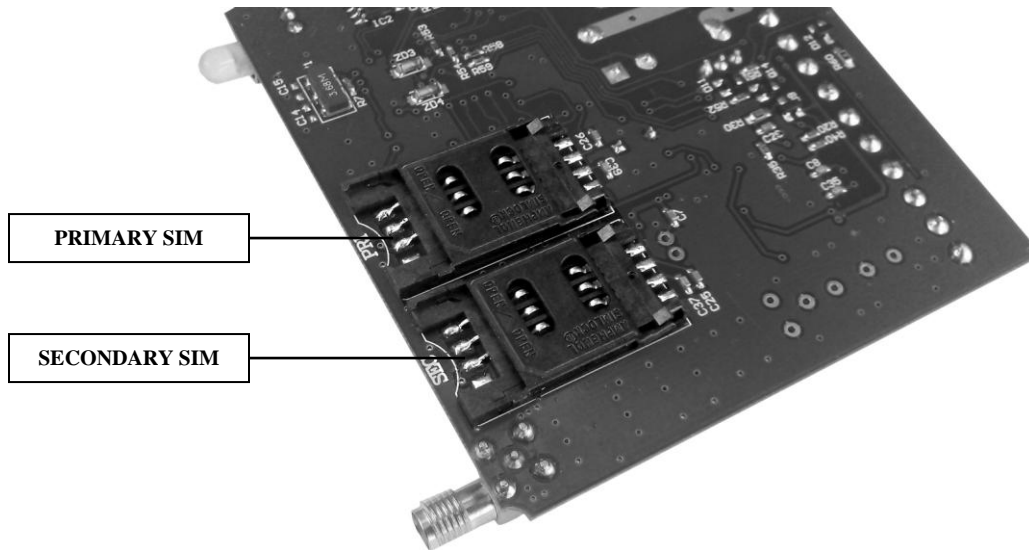


Fig. 3.2.1 – SIM card holders

Slide open the primary SIM cardholder labelled “PRI” (see Fig. 3.2) and insert the SIM card. Lock the SIM card in place once inserted. If a second SIM is desired for backup purposes, then this SIM card should be placed in the secondary SIM cardholder labelled “SEC.”

Step 2:

Place the board on a non-conductive surface (e.g. A wooden table or a book). Connect the 12V and ground terminals to a suitable power supply. You should see the LED light up red and then flash green, indicating that power is connected and the unit is operating normally.

Step 3:

Ensure that the correct USB drivers are installed on the PC being used. Drivers can be found on the supplied data pack or may be downloaded from:

<http://www.ftdichip.com/Drivers/VCP.htm>

Connect the USB programmer board to the cable supplied, and connect the other side of the cable to the PC. **DO NOT CONNECT TO THE DEVICE YET.** A new USB Serial COM port should be visible under:

System Properties>Hardware>Device Manager>Ports

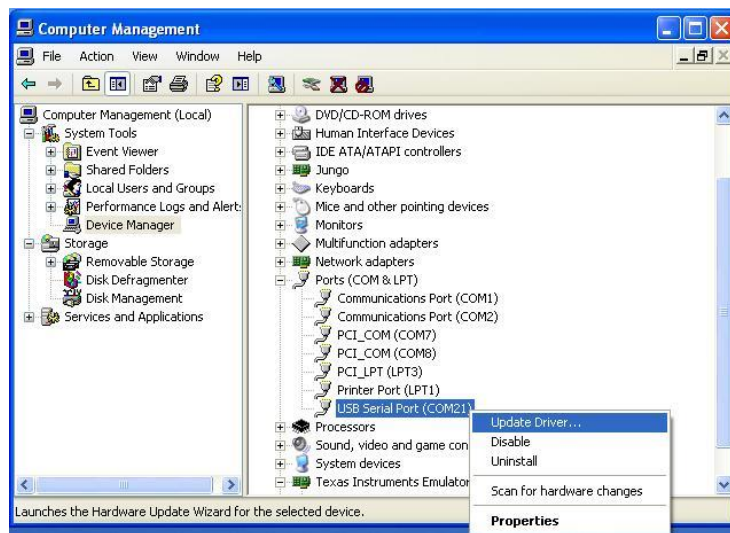


Fig. 3.2.2 – Windows Device Manager

If the USB Serial Port has not been assigned a COM port (COM21 above) then update the driver and point to the CDM v2.08.28 Certified parent folder. The operating system will automatically select the correct driver within this folder.

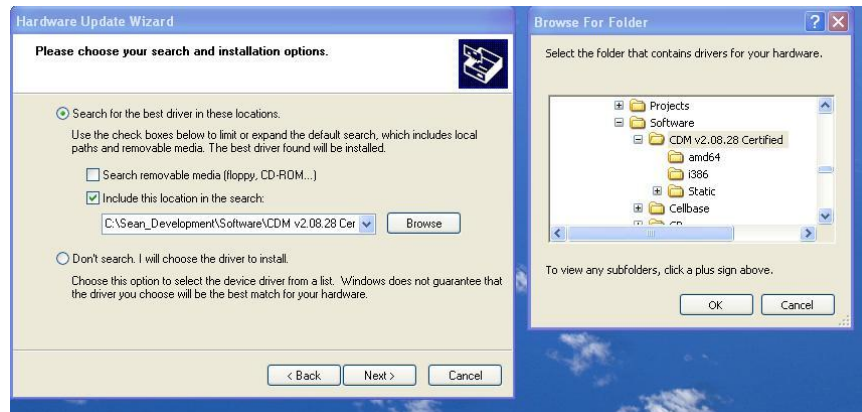


Fig. 3.2.3 – USB Device Driver



Fig. 3.3 – USB Programmer board connection

Insert the programmer pins into the terminals of the main board as shown in Fig. 3.3. The pin labels on the programmer board should correspond to the terminal labels on the main board as follows:

RX connected to **RX**
TX connected to **TX**
3V connected to **3V**
CLK connected to **CLK**

Tighten the screws on the terminals to ensure a good electrical connection.

Step 4:

Ensure that [Microsoft .NET Framework 4.0](#) or higher is installed on the PC.

Install the Sentry GSM Management Tool software package from the CD provided or from the [Downloads](#) section on the Sentry website. A shortcut icon should appear on the desktop once successfully installed. Open the Sentry GSM Management Tool.

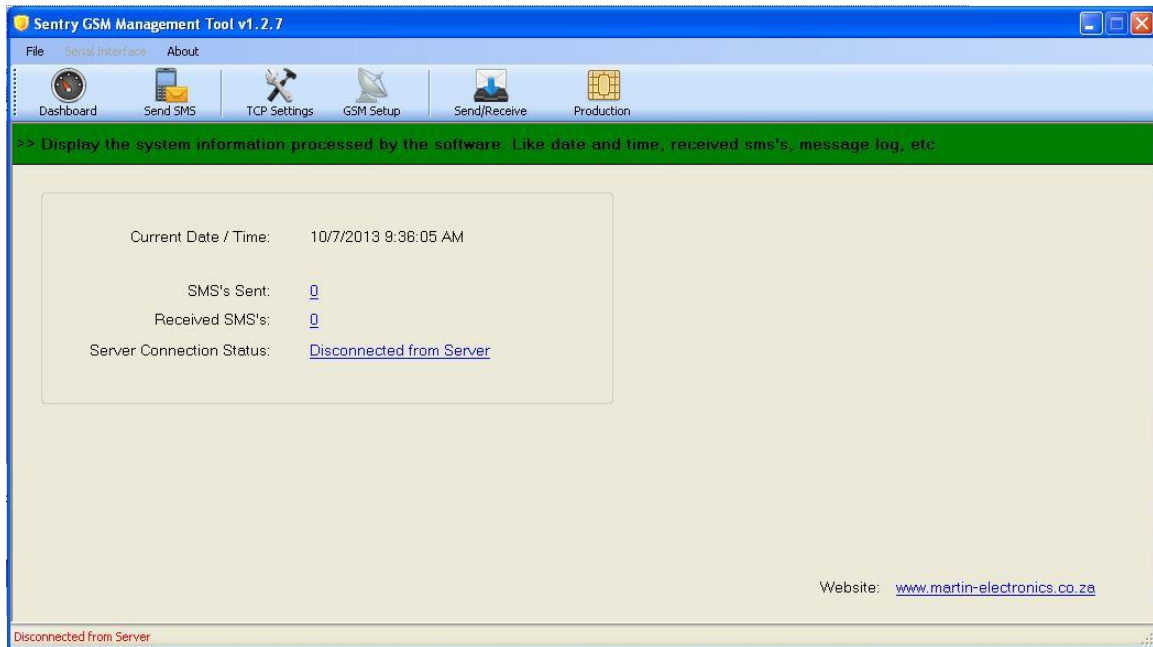


Fig. 3.4 – Dashboard view

The program will open to the Dashboard view.

Step 5:

Click on the *GSM Setup* icon then click on the *Serial Interface* option at the top left of the page.

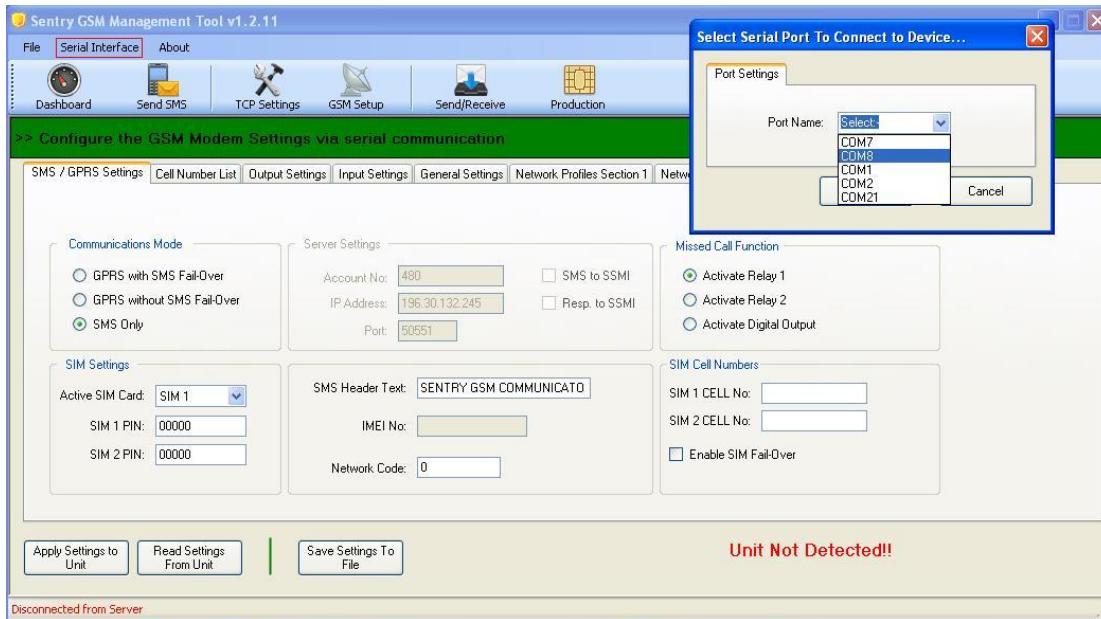


Fig. 3.5 – Serial interface connection

A dropdown box should appear. Select the COM port associated with the USB/Serial adaptor and click OK. The software will indicate the connection status at the bottom right of the page.

The software will ask if the unit settings should be imported click OK. This will populate all the software fields with the exact settings currently stored on the unit.

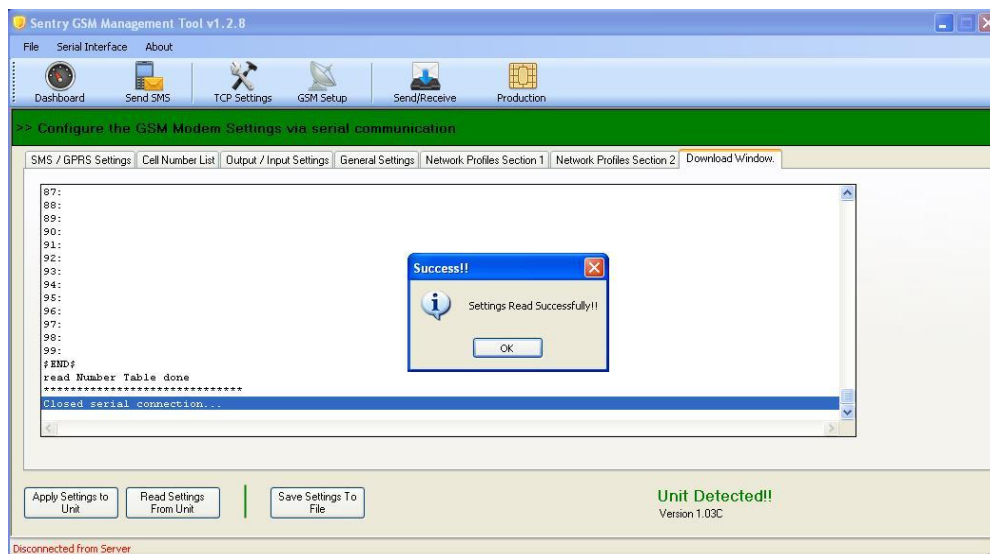


Fig. 3.6 – Read Settings From Unit

3.2. Customisation

3.2.1. SMS / GPRS Settings:

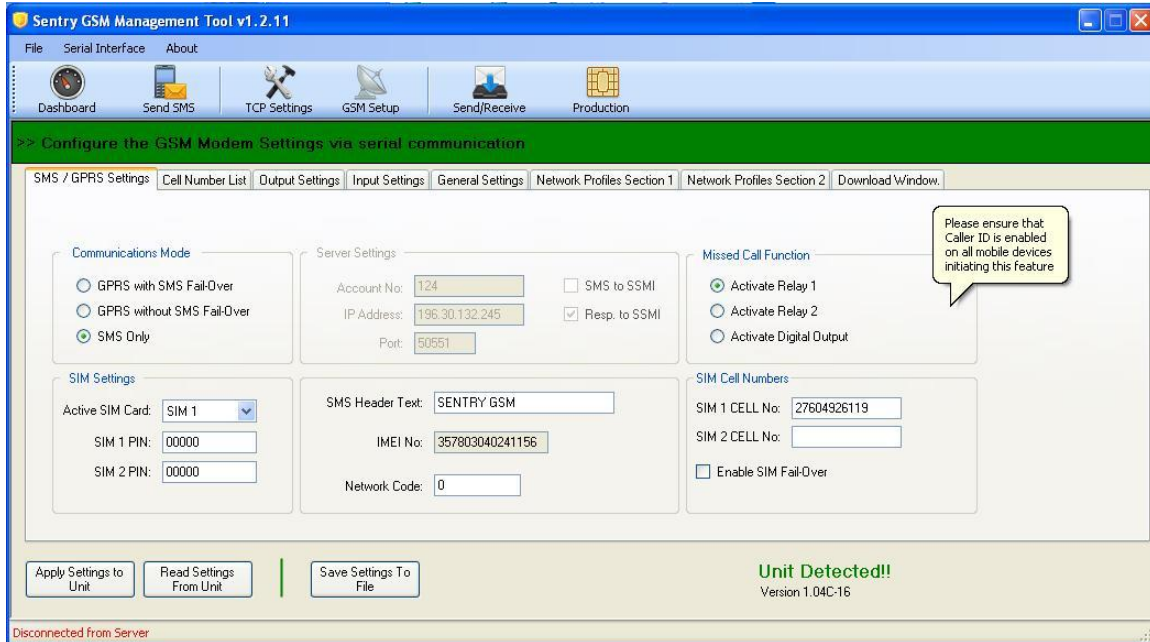


Fig. 3.7 – SMS / GPRS Settings

Communication Mode:

- **GPRS with SMS Fail-Over** – All alert and report messages are sent via the GPRS network as default. If the GPRS message fails to be sent, the unit will re-send the message to all Report Destination Numbers (see 3.2.2) via SMS. **Note:** The GPRS feature requires subscription, please contact Sentry.
- **GPRS without SMS Fail-Over** – All alert and report messages are sent via the GPRS network as default. If the GPRS message fails to be sent, the message will be discarded and lost.
- **SMS Only** – All alert and report messages are sent via SMS to all Report Destination Numbers.

SIM Settings:

- **Active SIM Card** – This refers to the SIM tray that will be accessed by the unit as default. SIM 1 refers to the primary SIM tray and SIM 2 refers to the secondary SIM tray.
- **SIM 1 PIN** – If the primary SIM card is password protected, the password may be stored here. The unit will automatically enter the correct password on start-up.
- **SIM 2 PIN** – If the secondary SIM card is password protected, the password may be stored here. The unit will automatically enter the correct password on start-up. **Note:** For both SIM cards, the password cannot be set or changed on the actual SIM card from the PC, this can be done from any mobile device.

Server Settings: Only applicable if used in GPRS mode

- **Account No.** – Unique number assigned to the user when signing up to the Sentry GPRS service.
- **IP Address** – The TCP/IP address that the unit will attempt to establish a connection with.
- **Port** – The TCP/IP port that the unit will attempt to open.
- **SMS to SSMI** – When in *SMS Only* mode, the GSM unit will send an SMS to the SSMI server as well as to all SMS Report Destinations.
- **Resp. to SSMI** – If enabled, GSM unit will respond to all Report Destinations if a SMS command is received (E.g. Balance).

Identification Settings:

- **SMS Header Text** – The text that will be displayed at the top of all messages and alerts. Can be customised to reflect a site or client name.
- **IMEI No.** – The *International Mobile Equipment Identity* number of the GSM module.
- **Network Code** – Can be used to lock the unit to a specific network using the network-specific identity code. 0 denotes automatic selection of network (recommended).

Missed Call Function:

- This sets the output port that will be activated if a missed call is received. The output port will be activated subject to the output settings chosen (see 3.2.3).
- **Please note:** The mobile device that initiates the call to the Sentry GSM Communicator must have the “Send Caller ID” enabled which displays the caller’s number on the device being called.

SIM Cell Numbers:

- **SIM 1 Cell Number** – This is the phone number associated with SIM 1. The number must include the international dialling prefix e.g. 27827824532. Not applicable in *SMS Only* mode.
- **SIM 2 Cell Number** – This is the phone number associated with SIM 1. The number must include the international dialling prefix e.g. 27827824532. Not applicable in *SMS Only* mode.
- **Enable SIM Fail-Over** – If enabled, the unit will attempt to log onto the network using the fail-over SIM should signal be lost or registration fail using the primary SIM. All *Report Destinations* will be sent a SMS if a SIM swap is initiated by the device.

3.2.2. Cell Number List:

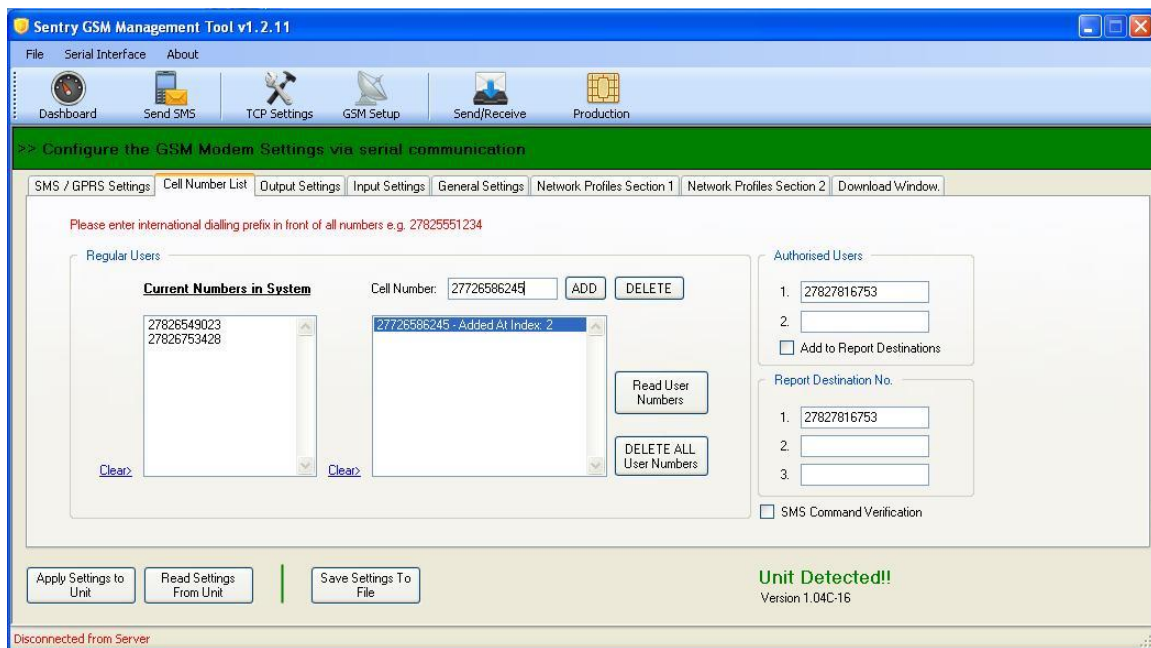


Fig. 3.8 – Cell Number List

Authorised Users:

- The **Authorised Users** have full remote administration rights to the device. The device will verify the originating number with the network before allowing any changes. A second Authorised User may be added/deleted remotely by the other Authorised User. The international dialling prefix must be added to the number E.g. 27834876542

- **Add to Report Destinations** – Automatically adds the *Authorised Numbers* to the *Report Destinations* list (see next paragraph).

Report Destination No.:

- These are the cell numbers that the unit will send all alert and report SMS messages to. These may be the same as the Authorised User numbers but must be explicitly set (unless the **Add to Report Destinations** box is ticked). Identical messages will be sent to all 3 Report Destinations “concurrently.” The international dialling prefix must be added to the number E.g. 27834876542

Regular Users:

- **Regular Users** may activate any of the 3 output ports via SMS or missed call, but may not change any settings on the device remotely. Up to 100 regular users may be stored on the device at once.
- To add a new user, enter the number into the *Cell Number* window and click **Add**. Include the international dialling prefix. E.g. 27827813765. The number will be placed in the first available memory address.
- To delete a user, enter the number into the *Cell Number* window and click **Delete**. Include the international dialling prefix. E.g. 27827813765. The unit will locate the number in the storage table and delete it.
- If a number already exists in the storage table, it will not be written to the table a second time.
- The **Read User Numbers** button may be clicked to retrieve all regular user numbers stored on the device.

SMS Command Verification:

- When enabled, the remote user will get a confirmation SMS sent back to them if they activate any of the output ports via SMS.

3.2.3. Output Settings:

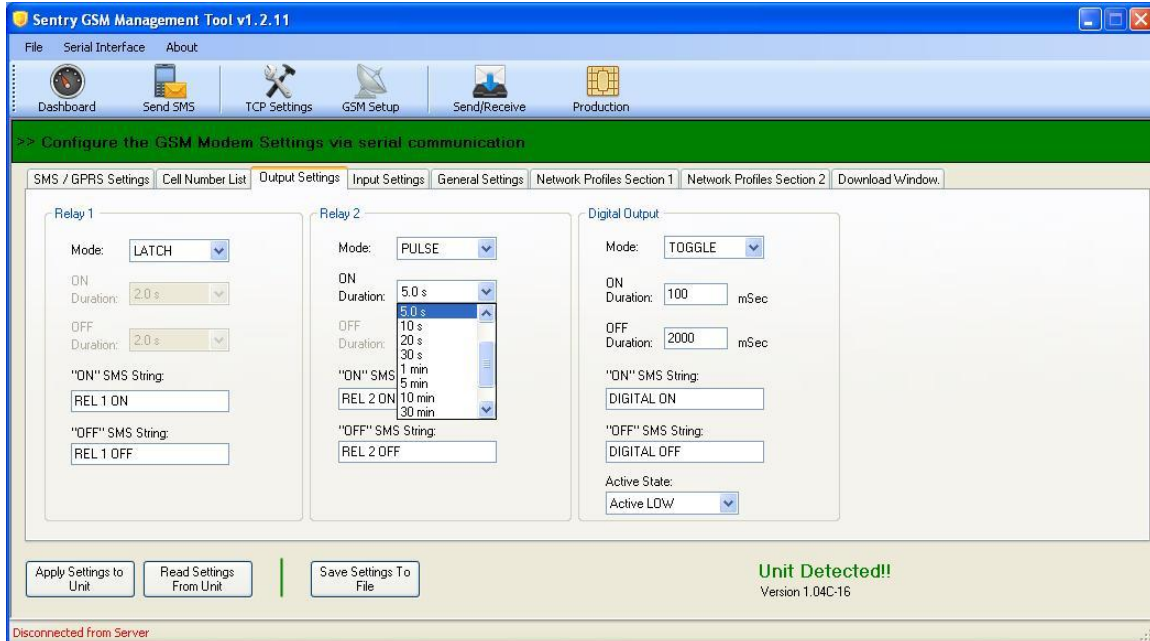


Fig. 3.9 – Output Settings

Relay 1:

- **Mode** – This dropdown box allows the user to set the operational mode of the relay namely:
 - **Latch** – When the relay is activated, it remains in the ON state until the user changes the state of the relay.
 - **Pulse** – When the relay is activated, it will remain in the ON state for a pre-defined *On Duration*, after which time the relay will revert back to the OFF state until activated again by the user.
 - **Toggle** – When the relay is activated, it will remain in the ON state for a pre-defined *On Duration*, after which time the relay will toggle states and remain in the OFF state for a pre-defined *Off Duration*. The cycle will repeat until the user disables the relay.
- **On Duration** – The time for which the relay will be in the ON state. Only applicable in Pulse and Toggle modes. May be set in varying intervals from 0.5 seconds to 1 hour.
- **Off Duration** – The time for which the relay will be in the OFF state. Only applicable in Toggle mode. May be set in varying intervals from 0.5 seconds to 1 hour.
- **“ON” SMS String** – The exact text that the unit will recognise as a command to activate the relay. This is not case sensitive.
- **“OFF” SMS String** – The exact text that the unit will recognise as a command to deactivate the relay. This is not case sensitive.

Relay 2: Identical in operation to **Relay 1** (above)

Digital Output:

- **Mode** – This dropdown box allows the user to set the operational mode of the digital output namely:
 - **Latch** – When the digital output is activated, it remains in the active state until the user changes the state of the digital output.
 - **Pulse** – When the digital output is activated, it will remain in the active state for a pre-defined *On Duration*, after which time the relay will digital output back to the inactive state until activated again by the user.
 - **Toggle** – When the digital output is activated, it will remain in the active state for a pre-defined *On Duration*, after which time the digital output will toggle states and remain in the OFF state for a pre-defined *Off Duration*. The cycle will repeat until the user disables the digital output.
- **On Duration** – The time for which the digital output will be in the ON state. Only applicable in Pulse and Toggle modes. May be set in increments of 10msec.
- **Off Duration** – The time for which the digital output will be in the OFF state. Only applicable in Toggle mode. May be set in increments of 10msec.
- **“ON” SMS String** – The exact text that the unit will recognise as a command to activate the digital output. This is not case sensitive.
- **“OFF” SMS String** – The exact text that the unit will recognise as a command to deactivate the digital output. This is not case sensitive.
- **Active State** – This allows the user to set the digital output to active high or active low.

3.2.4. Input Settings:

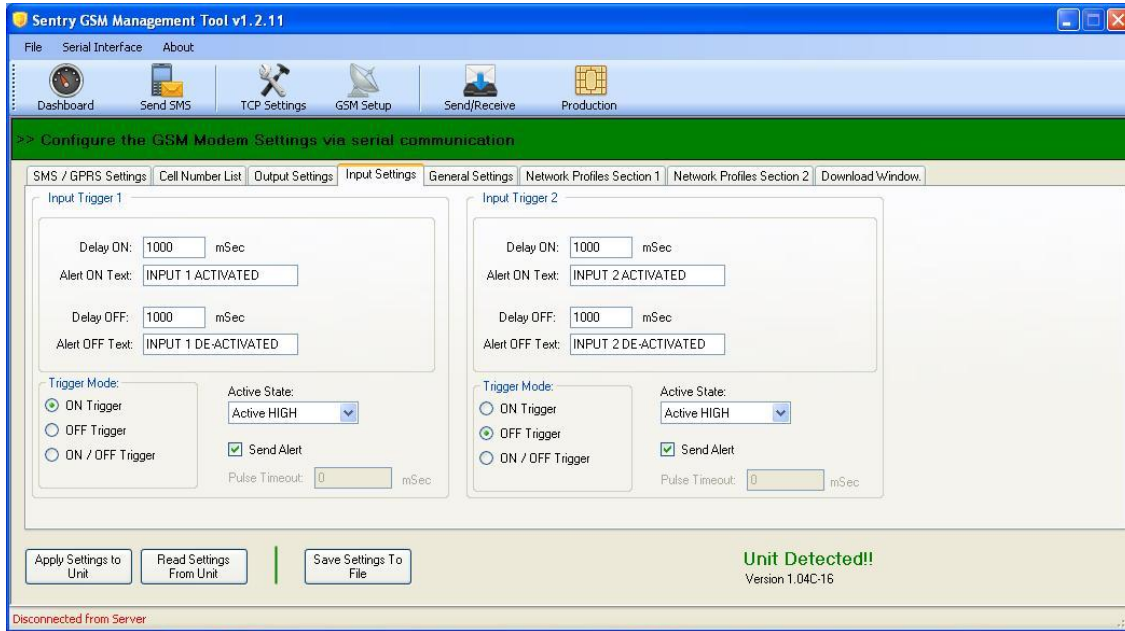


Fig. 3.10 – Input Settings

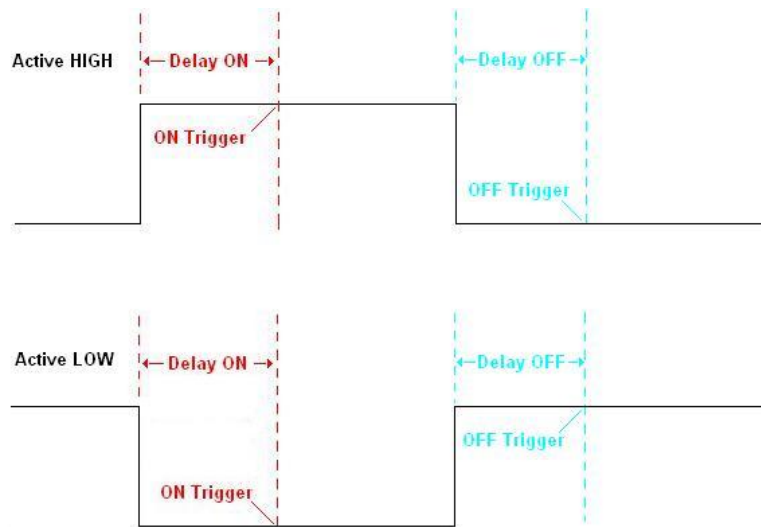


Fig. 3.11 – Input Functional Diagram

Input Trigger 1: (see Fig 3.10 & 3.11)

- **Delay ON** – This is the duration that the input trigger must be activated for before an alert condition will be recognised (ON Trigger or ON/OFF Trigger mode). Value may be set in 10 millisecond intervals ranging from 10 milliseconds to 2500 milliseconds.
- **Alert ON Text** – This is the text string that will be sent to the remote destination if the input port is activated.
- **Delay OFF** – This is the duration that the input trigger must be deactivated for before an alert condition will be recognised (OFF Trigger or ON/OFF Trigger mode). The input will not recognise another “ON” signal until the “Delay OFF” duration is exceeded. Value may be set in 10 millisecond intervals ranging from 10 milliseconds to 65000 milliseconds.
- **Alert OFF Text** – This is the text string that will be sent to the remote destination if the input port is deactivated.
- **Trigger Mode** – The unit has 3 trigger modes available.
Subject to the Active State (high/low) chosen.
 1. *ON Trigger* – Input will trigger after the delay ON time only.
 2. *OFF Trigger* – Input will trigger after the delay OFF time only.
 3. *ON/OFF Trigger* – Input will trigger after the delay ON time and will trigger again after the delay OFF time is reached.
- **Send Alert** – This tells the unit whether or not it should send a remote alert via SMS/GPRS if the input port is triggered (subject to Trigger Mode).
- **Active State** – The user may set the input to trigger on a high or a low signal.

Input Trigger 2: Identical to Input Trigger 1 (above)

3.2.5. General Settings

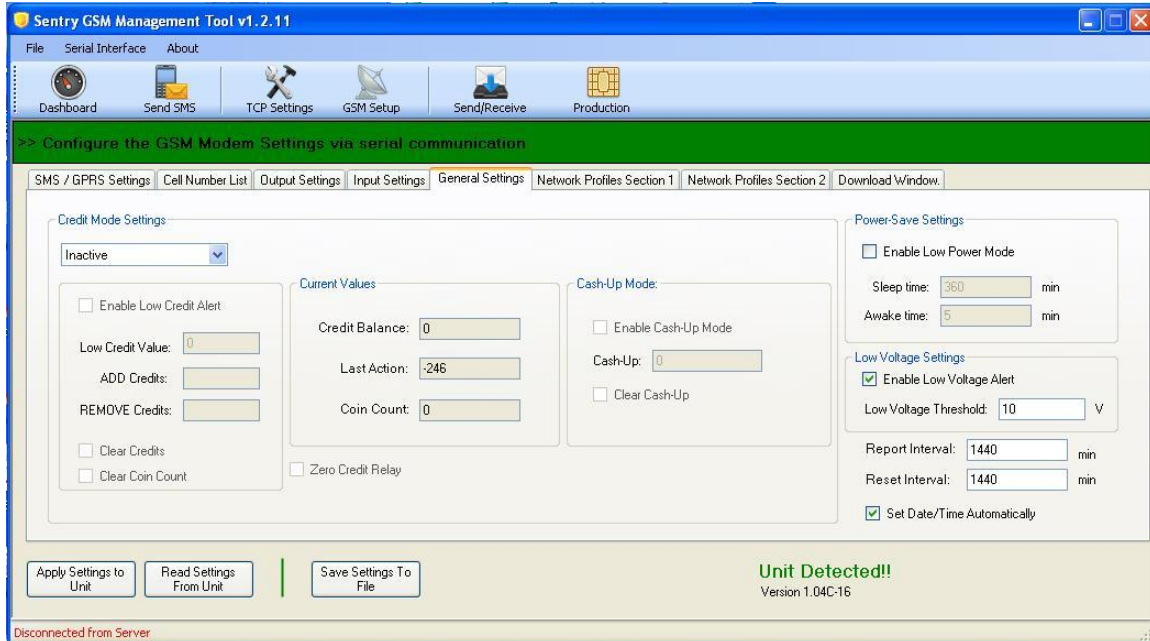


Fig. 3.12 – General Settings

Credit Mode Settings:

- **Credit Mode** – This activates the “digital wallet” feature of the device. If this mode is enabled, any pulse detected on input 2 is verified against a credit value stored within the unit. The pulse is then replicated on the digital output port (subject to the digital output settings in 3.2.3). If operated in *Pre-paid Mode*, there must be a positive balance in the account for the input pulse to be reproduced on the output pin. If operated in *Post-paid Mode*, the pulse will always be reproduced but the number of input pulses is counted and can be retrieved at any time by an authorised user.
- **Low Credit Alert** – When enabled, an alert will be sent to all report destinations if the credit value falls below a set value.
- **Low Credit Value** – The value below which the *Low Credit Alert* will be sent.
- **Add Credits** – Adds credits to the digital wallet.
- **Remove Credits** – Deletes credits from the digital wallet.
- **Clear Credits** – Clears all credits in the digital wallet.
- **Clear Coin Count** – Deletes ALL credits in the digital wallet.
- **Credit Balance** – Indicates the total number of credits in the account.
- **Last Action** – Indicates the last action that was performed on the account as well as the amount of credits added/deleted.
- **Coin Count** – The total number of times that input 2 has been pulsed.

- **Enable Cash-Up Mode** – This feature works in conjunction with the *Data* pin on the GSM unit. When the data pin is pulled low, the cash-up feature is initiated (NB: Do not apply a voltage above 3V to the data pin). When initiated, this feature will take a “snap shot” of the *Coin Count* and store it. The current value of the coin count will be sent to the Report Destination(s). Works in conjunction with the CLOSECASHUP command (see Appendix).
- **Cash-Up** – Amount stored in the Cash-Up memory location. A value of 0 indicates that the cash-up has been “closed.”
- **Clear Cash-Up** – Clears the value stored in the cash-up memory.

Power Save Settings:

- **Enable Low Power Mode** – Enables the *Low Power* feature of the device. In this mode, the GSM module will log onto the network for 3 minutes, after which the GSM part of the unit will be disabled to conserve power consumption. The GSM module will automatically activate and log onto the network after the *Sleep Time* has expired or if an alert is triggered. The unit will remain on the network for a 3-minute period, after which the GSM module will again be disabled. The unit typically draws 3mA in sleep mode.
- **Sleep Time** – The time (in minutes) after which the GSM module will be activated periodically.
- **Wake Time** – The time (in minutes) after which the GSM module will return to Sleep Mode once awoken.

Low Voltage Settings:

- **Enable Low Voltage Alert** – When enabled, the unit will send an alert message to all report destinations when the voltage falls below a set threshold. The alert status will only be reset once the voltage rises at least 1V above the threshold to prevent continuous alerting.
- **Low Voltage Threshold** – The voltage value below which an alert message will be sent.

Periodic Functions:

- ***Report Interval*** – The period (in minutes) after which the unit will automatically issue a status report to all report destinations (see *Status Report* in appendix A).
- ***Reset Interval*** – The period (in minutes) after which the unit will automatically reset the modem and re-register on the home network.
- ***Set Date/Time Automatically*** – When enabled, the unit will automatically send an SMS to itself on start-up, in order to retrieve the date/time from the network. The SMS will be sent to the SIM CELL No. populated in the SMS/GPRS Settings window. The date/time will only be set if there is no valid date/time detected. Once set, power may be removed from the unit for up to 30 min without losing the date/time setting. If this setting is disabled then the date/time will automatically be set on the first incoming SMS.

3.2.6. Network Profiles:

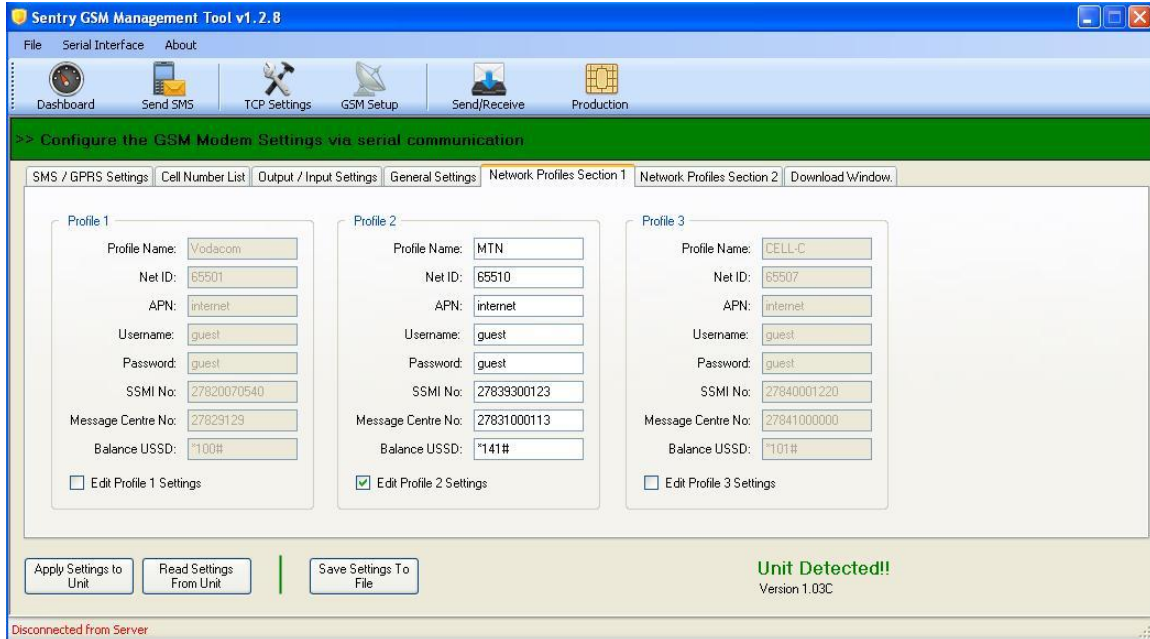


Fig. 3.13 – Network Profiles

Profile <1 - 5>: All 4 major networks in South Africa are pre-loaded into the device. The network profiles should only be altered if used outside South Africa or on a cellular network that is not already loaded. **Improper alteration may affect the functionality of the device.**

- *Profile Name* – The name that is associated with the cellular network.
- *Net ID* – The network identity code of the cellular provider.
- *APN* – The access point name associated with the GPRS network.
- *Username* – The username necessary to gain access to the GPRS network.
- *Password* – The password necessary to gain access to the GPRS network.
- *SSMI No.* – The number of the SSMI server associated with the cellular network. (Only applicable if utilising the Sentry Server option)
- *Message Centre Number* – The central message centre number associated with the cellular network.
- *Balance USSD* – The USSD code that the unit will use to query the airtime balance from the network.

3.2.7. Saving/Loading Custom Settings Profiles:

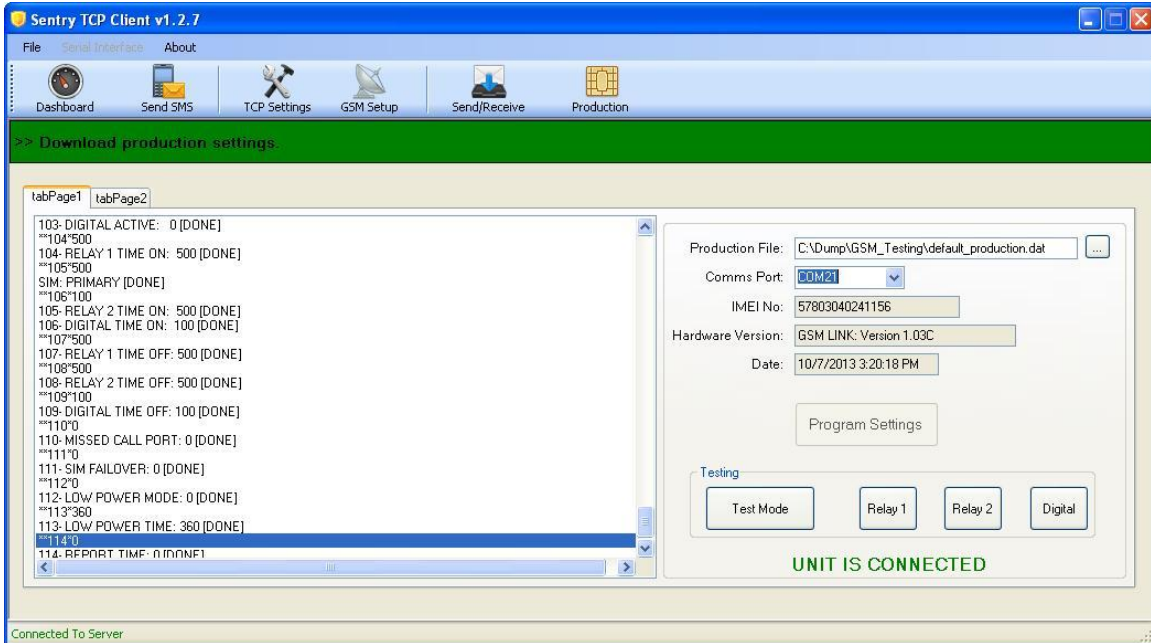


Fig. 3.14 – Loading Profiles

The Sentry GSM Communicator is shipped with default values for all settings. In many cases, the user's settings will deviate substantially from the default settings. In this case, the user may save their custom settings in a file using the *Save Settings To File* icon at the bottom of any of the GSM Setup tabs. When this icon is clicked, all settings from all GSM Setup tabs will be saved, regardless of which tab is currently displayed.

To load a profile, click on the *Production* icon. Direct the software to the applicable *Production (settings) File* and select the COM port. Click on the *Program Settings* icon to upload the file.

4. LED Indicator

The LED is used to indicate several states that the unit may enter. Below is a summary of these states and the associated LED indication pattern.

4.1. Unit Activated:

This state is entered when the unit is first powered up or when the unit resets itself automatically.

LED Pattern: <OFF><ON (red)(5 sec)>

4.2. GSM Set-Up:

This indicates that the unit is successfully communicating with the GSM module and attempting to establish a valid network connection.

LED Pattern: <ON (green)(100 msec)>
<OFF (100 msec)>
<ON (green)(100msec)>
...
<OFF (100 msec)>
<ON (green)(100 msec)>
...

4.3. Network Registration Successful – Good Signal:

This indicates that the unit has successfully registered with the home network and the signal is okay (>85dBm)

LED Pattern: <ON (green)(1 sec)>
<OFF (1 sec)>
<ON (green)(1 sec)>
...
<OFF (1 sec)>
<ON (green)(1 sec)>
...

4.4. Network Registration Successful – Low Signal:

This indicates that the unit has successfully registered with the home network but the signal is low (<85dBm) and a different antenna or network should be considered.

LED Pattern: <ON (green)(1 sec)>
<OFF (1 sec)>
<ON (red)(1 sec)>
...
<OFF (1 sec)>
<ON (green)(1 sec)>
<OFF (1 sec)>
<ON (red)(1 sec)>
...

4.5. PIN Error:

This indicates that the PIN code that the user is attempting to supply the SIM card is incorrect. Please verify that the PIN is correct then reset power to the unit to restart.

LED Pattern: <ON (red)(100 msec)>
<OFF (100 msec)>
< ON (red)(100 msec) >
...
<OFF (100 msec)>
< ON (red)(100 msec) >
...

4.6. Service Mode:

This indicates that the unit has entered “service mode.” In this mode, no credits will be deducted from the digital wallet, and no coins will be counted. All other unit functions remain unchanged. Only applicable when Credit Mode is enabled.

LED Pattern: <ON (red)(20 msec)>
<OFF (20 msec)>
< ON (red)(20 msec) >
...
<OFF (20 msec)>
< ON (red)(20 msec) >
...

APPENDIX A: SMS COMMANDS

Instructions: Type in ** followed by the setting number, followed by * and send the SMS to the cell number of the unit that you wish to address. **Note:** Your cell number must be stored as an Authorised User (see 3.2.2) to be allowed to change settings.

E.g. **2*12345

To change multiple settings at once, simply string the settings together. The device will recognise a maximum of 150 characters per SMS.

E.g. **2*12345**3*54321**6*100

Command: **1*<x>

Name: **ACTIVE SIM**

Description: Selects which SIM card will be accessed

Accepted Parameters: SIM 1 = 1
SIM 2 = 2

Example: **1*1

Command: **2*<x>

Name: **SIM 1 PIN**

Description: Stores pin number for SIM 1

Accepted Parameters: Up to 6 digits

Example: **2*654321

Command: **3*<x>

Name: **SIM 2 PIN**

Description: Stores pin number for SIM 2

Accepted Parameters: Up to 6 digits

Example: **3*654321

Command: **4*<x>

Name: **INPUT 1 ACTIVE**

Description: Sets input 1 to trigger on active-high or active-low state

Accepted Parameters: Active-high = 1
Active-low = 0

Example: **4*0

Command: **5*<x>

Name: **INPUT 2 ACTIVE**

Description: Sets input 2 to trigger on active-high or active-low state

Accepted Parameters: Active-high = 1
Active-low = 0

Example: **5*1

Command: **6*<x>

Name: **INPUT 1 ON DELAY**

Description: The time for which the input state must be altered before a trigger event will be initiated

Accepted Parameters: 1 to 255
Stores in increments of 10ms e.g. 11 = 110ms

Example: **6*15

Command: **7*<x>

Name: **INPUT 2 ON DELAY**

Description: The time for which the input state must be altered before a trigger event will be initiated

Accepted Parameters: 1 to 255
Stores in increments of 10ms e.g. 11 = 110ms

Example: **7*15

Command: **8*<x>

Name: **INPUT 1 ALERT**

Description: Sets whether or not a GPRS/SMS alert is sent when the input is triggered

Accepted Parameters: Alert sent = 1
Alert not sent = 0

Example: **8*1

Command: **9*<x>

Name: **INPUT 2 ALERT**

Description: Sets whether or not a GPRS/SMS alert is sent when the input is triggered

Accepted Parameters: Alert sent = 1
Alert not sent = 0

Example: **9*0

Command: **13*<x>

Name: **REPORT DESTINATION 1**

Description: Destination for all outgoing SMS reports and alerts. Number must include the international dialling prefix
E.g. 27825554321

Accepted Parameters: Up to 16 digits

Example: **13*27827910856

Command: **14*<x>

Name: **REPORT DESTINATION 2**

Description: Destination for all outgoing SMS reports and alerts. Number must include the international dialling prefix
E.g. 27825554321

Accepted Parameters: Up to 16 digits

Example: **14*27827910856

Command: **15*<x>

Name: **REPORT DESTINATION 3**

Description: Destination for all outgoing SMS reports and alerts. Number must include the international dialling prefix
E.g. 27825554321

Accepted Parameters: Up to 16 digits

Example: **15*27827910856

Command: **17*<x>

Name: **SMS/GPRS MODE**

Description: Sets the communication mode of the device

Accepted Parameters: GPRS with SMS Fail-over = 0
GPRS without SMS Fail-over = 1
SMS Only = 2

Example: **17*0

Command: **18*<x>

Name: **AUTHORISED NUMBER 1**

Description: Sets the cell number of a master user that has full security access to the unit. Number must include the international dialling prefix e.g. 27825554321

Accepted Parameters: Up to 16 digits

Example: **18*27827910856

Command: **19*<x>

Name: **AUTHORISED NUMBER 2**

Description: Sets the cell number of a master user that has full security access to the unit. Number must include the international dialling prefix e.g. 27825554321

Accepted Parameters: Up to 16 digits

Example: **19*27827910856

Command: **20*<x>

Name: **SMS TO SSMI**

Description: Enables/disables the sending of a SMS to the SSMI server when the unit is in SMS mode. Alerts will be sent to all Report Destinations and an additional SMS will be sent to the SSMI server

Accepted Parameters: SMS to SSMI disabled = 0
SMS to SSMI enabled = 1

Example: **20*1

Command: **21*<x>

Name: **CREDIT MODE**

Description: Activates/de-activates Credit Mode. When set to pre-paid or post-paid, the device will check credit values when input 2 is activated and reproduce the pulse on the digital output port (subject to settings on respective ports). In pre-paid mode, the output pulse will only be reproduced if there is a positive credit amount on the device. When read, the current coin count, credit balance and last user action will be displayed

Accepted Parameters: Credit Mode Inactive = 0
Credit Mode Pre-paid = 1
Credit Mode Post-paid = 2

Example: **21*1

Command: **22*<x>

Name: **LOW CREDIT ALERT**

Description: Activates/de-activates Low Credit Alert. When activated, the device will send an alert to the designated report destinations when a low credit value is reached. (See **23*)

Accepted Parameters: Low Credit Alert inactive = 0
Low Credit Alert active = 1

Example: **22*1

Command: **23*<x>
Name: **LOW CREDIT VALUE**
Description: Sets the low threshold value of available credits that will trigger a Low Credit Alert to the user.
Accepted Parameters: 1 to 65000
Example: **23*150

Command: **24*<x>
Name: **ADD CREDITS**
Description: Adds <x> number of credits to the local account on the device
Accepted Parameters: 1 to 65000
Example: **24*1500

Command: **25*<x>
Name: **REMOVE CREDITS**
Description: Deletes <x> number of credits from the local account on the device
Accepted Parameters: 1 to 65000
Example: **25*1500

Command: **26*0
Name: **CLEAR CREDITS**
Description: Deletes all credits from the local account on the device
Accepted Parameters: N/A
Example: **26*0

Command: **27*0

Name: **CLEAR COIN COUNT**

Description: Clears the coin counter value (sets to 0)

Accepted Parameters: N/A

Example: **27*0

Command: **28*<x>

Name: **ZERO CREDIT RELAY**

Description: Sets relay 2 to activate automatically when the digital wallet reaches zero in Pre-Paid mode.

Accepted Parameters: Zero Credit Relay active = 1
Zero Credit Relay inactive = 0

Example: **28*1

Command: **29*<x>

Name: **ENABLE CASH-UP**

Description: Sets the status of the Cash-Up feature when the unit is used in Credit Mode.

Accepted Parameters: Cash-up feature active = 1
Cash-up feature inactive = 0

Example: **29*1

Command: **30*<x>

Name: **RELAY 1 ON TEXT**

Description: Sets the text string that the device will recognise as a SMS command to turn on relay 1 (case insensitive).

Accepted Parameters: Up to 20 characters

Example: **30*Switch on light

Command: **31*<x>

Name: RELAY 1 OFF TEXT

Description: Sets the text string that the device will recognise as a SMS command to turn off relay 1 (case insensitive).

Accepted Parameters: Up to 20 characters

Example: **30* Switch off light

Command: **32*<x>

Name: RELAY 2 ON TEXT

Description: Sets the text string that the device will recognise as a SMS command to turn on relay 2 (case insensitive).

Accepted Parameters: Up to 20 characters

Example: **32* Switch on light

Command: **33*<x>

Name: RELAY 2 OFF TEXT

Description: Sets the text string that the device will recognise as a SMS command to turn off relay 2 (case insensitive).

Accepted Parameters: Up to 20 characters

Example: **33* Switch off light

Command: **34*<x>

Name: DIGITAL ON TEXT

Description: Sets the text string that the device will recognise as a SMS command to activate the digital output according to the setting in 103 (case insensitive).

Accepted Parameters: Up to 20 characters

Example: **34* Switch on LED

Command: **35*<x>

Name: **DIGITAL OFF TEXT**

Description: Sets the text string that the device will recognise as a SMS command to de-activate the digital output according to the setting in 103 (case insensitive).

Accepted Parameters: Up to 20 characters

Example: **35* Switch off LED

Command: **36*<x>

Name: **INPUT 1 ON TEXT**

Description: Sets the text string that the device will send to a report destination if input 1 is activated

Accepted Parameters: Up to 30 characters

Example: **36* Alarm zone 1 triggered

Command: **37*<x>

Name: **INPUT 2 ON TEXT**

Description: Sets the text string that the device will send to a report destination if input 2 is activated

Accepted Parameters: Up to 30 characters

Example: **37* Alarm zone 2 triggered

Command: **38*<x>

Name: **SITE NAME**

Description: Sets the text string that will be displayed at the top of each incoming SMS, can be used to identify the site/location of the unit.

Accepted Parameters: Up to 20 characters

Example: **38*Mary's Flower Shop

Command: **39*<x>

Name: **COMMAND CONFIRMATION**

Description: When set, the device will return confirmation of a successful incoming command via SMS to the number from which the SMS command originated. Confirmation setting applies to all SMS commands used to switch an output peripheral port ON or OFF e.g. relay1, relay2, and digital output.

Accepted Parameters: Command Confirmation Enabled = 1
Command Confirmation Disabled = 0

Example: **39*Mary's Flower Shop

Command: **40*<x>

Name: **SERVER**

Description: Sets the IP address or DNS host name for outgoing GPRS communications

Accepted Parameters: Up to 40 characters

Example: **40*martinelectronics.dyndns.org

Command: **41*<x>

Name: **PORT**

Description: Sets the TCP port used for outgoing GPRS communications

Accepted Parameters: 0 to 65535

Example: **41*50551

Command: **42*<x>

Name: **NET SELECT**

Description: Locks the device to a specific network by entering the network code. The network code entered must correspond to a code in 1 of the 5 available profiles or the value will default back to 0 (automatic network selection).

Accepted Parameters: Up to 10 digits

Example: **42*65501

Command: **43*<x>

Name: **NET SELECT**

Description: Sets the account number associated with the SSMI server. This number will be automatically appended to the applicable network SSMI number on successful registration to the network.

Accepted Parameters: 0 to 65535

Example: **43*813

Command: **46*<x>

Name: **SIM 1 CELL NUMBER**

Description: Stores the assigned network cell number of the SIM card placed into the primary tray of the device. Used for GPRS server identification and self SMS time setting

Accepted Parameters: Up to 16 digits

Example: **46*27827915555

Command: **47*<x>

Name: **SIM 2 CELL NUMBER**

Description: Stores the assigned network cell number of the SIM card placed into the secondary tray of the device. Used for GPRS server identification and self SMS time setting

Accepted Parameters: Up to 16 digits

Example: **47*27827915555

Command: **48*<x>

Name: **LOW VOLTAGE ALERT**

Description: Sets the SMS alert mode when a low voltage level is detected

Accepted Parameters: SMS Alert Inactive = 0
SMS Alert Active = 1

Example: **48*1

Command: **49*<x>

Name: **LOW VOLTAGE THRESHOLD**

Description: Sets the lower limit at which a low voltage condition will be triggered

Accepted Parameters: 0 to 15 (integers only)

Example: **49*10

Command: **50*<x>

Name: **PROFILE NAME (1)**

Description: Sets the text string associated with the profile

Accepted Parameters: Up to 10 characters

Example: **50*Vodacom

Command: **51*<x>

Name: **NETWORK ID (1)**

Description: Stores the network ID number associated with the profile

Accepted Parameters: Up to 10 digits

Example: **51*65510

Command: **52*<x>

Name: **APN (1)**

Description: Stores the network access point name for the network associated with the profile

Accepted Parameters: Up to 25 characters

Example: **52*internet

Command: **53*<x>

Name: **USERNAME (1)**

Description: Stores the username that the device will use to access the network APN

Accepted Parameters: Up to 20 characters

Example: **53*guest

Command: **54*<x>

Name: **PASSWORD (1)**

Description: Stores the password that the device will use to access the network APN

Accepted Parameters: Up to 20 characters

Example: **54*guest

Command: **55*<x>

Name: **SSMI NUMBER (1)**

Description: Stores the SSMI access cell number associated with the profile (network dependent). Number must include international dialling prefix.

Accepted Parameters: Up to 16 digits

Example: **55*27820070540

Command: **56*<x>

Name: **MESSAGE CENTRE (1)**

Description: Stores the message centre associated with the profile (network dependent). Number must include international dialling prefix.

Accepted Parameters: Up to 16 digits

Example: **56*27820070540

Command: **57*<x>

Name: **BALANCE USSD (1)**

Description: Stores the USSD code that the unit must dial in order to check its own airtime value

Accepted Parameters: Up to 8 characters

Example: **57**100#

Command: **60*<x>

Name: **PROFILE NAME (2)**

Description: Sets the text string associated with the profile

Accepted Parameters: Up to 10 characters

Example: **60*Vodacom

Command: **61*<x>

Name: **NETWORK ID (2)**

Description: Stores the network ID number associated with the profile

Accepted Parameters: Up to 10 digits

Example: **61*65510

Command: **62*<x>

Name: **APN (2)**

Description: Stores the network access point name for the network associated with the profile

Accepted Parameters: Up to 25 characters

Example: **62*internet

Command: **63*<x>

Name: **USERNAME (2)**

Description: Stores the username that the device will use to access the network APN

Accepted Parameters: Up to 20 characters

Example: **63*guest

Command: **64*<x>

Name: **PASSWORD (2)**

Description: Stores the password that the device will use to access the network APN

Accepted Parameters: Up to 20 characters

Example: **64*guest

Command: **65*<x>

Name: **SSMI NUMBER (2)**

Description: Stores the SSMI access cell number associated with the profile (network dependent). Number must include international dialling prefix.

Accepted Parameters: Up to 16 digits

Example: **65*27820070540

Command: **66*<x>

Name: **MESSAGE CENTRE (2)**

Description: Stores the message centre associated with the profile (network dependent). Number must include international dialling prefix.

Accepted Parameters: Up to 16 digits

Example: **66*27820070540

Command: **67*<x>

Name: **BALANCE USSD (2)**

Description: Stores the USSD code that the unit must dial in order to check its own airtime value

Accepted Parameters: Up to 8 characters

Example: **67**100#

Command: **70*<x>

Name: **PROFILE NAME (3)**

Description: Sets the text string associated with the profile

Accepted Parameters: Up to 10 characters

Example: **70*Vodacom

Command: **71*<x>

Name: **NETWORK ID (3)**

Description: Stores the network ID number associated with the profile

Accepted Parameters: Up to 10 digits

Example: **71*65510

Command: **72*<x>

Name: **APN (3)**

Description: Stores the network access point name for the network associated with the profile

Accepted Parameters: Up to 25 characters

Example: **72*internet

Command: **73*<x>

Name: **USERNAME (3)**

Description: Stores the username that the device will use to access the network APN

Accepted Parameters: Up to 20 characters

Example: **73*guest

Command: **74*<x>

Name: **PASSWORD (3)**

Description: Stores the password that the device will use to access the network APN

Accepted Parameters: Up to 20 characters

Example: **74*guest

Command: **75*<x>

Name: **SSMI NUMBER (3)**

Description: Stores the SSMI access cell number associated with the profile (network dependent). Number must include international dialling prefix.

Accepted Parameters: Up to 16 digits

Example: **75*27820070540

Command: **76*<x>

Name: **MESSAGE CENTRE (3)**

Description: Stores the message centre associated with the profile (network dependent). Number must include international dialling prefix.

Accepted Parameters: Up to 16 digits

Example: **76*27820070540

Command: **77*<x>

Name: **BALANCE USSD (3)**

Description: Stores the USSD code that the unit must dial in order to check its own airtime value

Accepted Parameters: Up to 8 characters

Example: **77**100#

Command: **80*<x>

Name: **PROFILE NAME (4)**

Description: Sets the text string associated with the profile

Accepted Parameters: Up to 10 characters

Example: **80*Vodacom

Command: **81*<x>

Name: **NETWORK ID (4)**

Description: Stores the network ID number associated with the profile

Accepted Parameters: Up to 10 digits

Example: **81*65510

Command: **82*<x>

Name: **APN (4)**

Description: Stores the network access point name for the network associated with the profile

Accepted Parameters: Up to 25 characters

Example: **82*internet

Command: **83*<x>

Name: **USERNAME (4)**

Description: Stores the username that the device will use to access the network APN

Accepted Parameters: Up to 20 characters

Example: **83*guest

Command: **84*<x>

Name: **PASSWORD (4)**

Description: Stores the password that the device will use to access the network APN

Accepted Parameters: Up to 20 characters

Example: **84*guest

Command: **85*<x>

Name: **SSMI NUMBER (4)**

Description: Stores the SSMI access cell number associated with the profile (network dependent). Number must include international dialling prefix.

Accepted Parameters: Up to 16 digits

Example: **85*27820070540

Command: **86*<x>

Name: **MESSAGE CENTRE (4)**

Description: Stores the message centre associated with the profile (network dependent). Number must include international dialling prefix.

Accepted Parameters: Up to 16 digits

Example: **86*27820070540

Command: **87*<x>

Name: **BALANCE USSD (4)**

Description: Stores the USSD code that the unit must dial in order to check its own airtime value

Accepted Parameters: Up to 8 characters

Example: **87**100#

Command: **90*<x>

Name: **PROFILE NAME (5)**

Description: Sets the text string associated with the profile

Accepted Parameters: Up to 10 characters

Example: **80*Vodacom

Command: **91*<x>

Name: **NETWORK ID (5)**

Description: Stores the network ID number associated with the profile

Accepted Parameters: Up to 10 digits

Example: **91*65510

Command: **92*<x>

Name: **APN (5)**

Description: Stores the network access point name for the network associated with the profile

Accepted Parameters: Up to 25 characters

Example: **92*internet

Command: **93*<x>

Name: **USERNAME (5)**

Description: Stores the username that the device will use to access the network APN

Accepted Parameters: Up to 20 characters

Example: **93*guest

Command: **94*<x>

Name: **PASSWORD (5)**

Description: Stores the password that the device will use to access the network APN

Accepted Parameters: Up to 20 characters

Example: **94*guest

Command: **95*<x>

Name: **SSMI NUMBER (5)**

Description: Stores the SSMI access cell number associated with the profile (network dependent). Number must include international dialling prefix.

Accepted Parameters: Up to 16 digits

Example: **95*27820070540

Command: **96*<x>

Name: **MESSAGE CENTRE (5)**

Description: Stores the message centre associated with the profile (network dependent). Number must include international dialling prefix.

Accepted Parameters: Up to 16 digits

Example: **96*27820070540

Command: **97*<x>

Name: **BALANCE USSD (5)**

Description: Stores the USSD code that the unit must dial in order to check its own airtime value

Accepted Parameters: Up to 8 characters

Example: **97**100#

Command: **100*<x>

Name: **RELAY 1 MODE**

Description: Sets the mode in which relay 1 will operate when activated.

Accepted Parameters: LATCH = 0
PULSE = 1
TOGGLE = 2

Example: **100*1

Command: **101*<x>

Name: **RELAY 2 MODE**

Description: Sets the mode in which relay 2 will operate when activated.

Accepted Parameters: LATCH = 0
PULSE = 1
TOGGLE = 2

Example: **101*2

Command: **102*<x>

Name: **DIGITAL MODE**

Description: Sets the mode in which the digital output will operate when activated.

Accepted Parameters: LATCH = 0
PULSE = 1
TOGGLE = 2

Example: **102*0

Command: **103*<x>

Name: **DIGITAL ACTIVE**

Description: Sets the digital output to be active-high, or active-low

Accepted Parameters: Active High = 1
Active Low = 0

Example: **103*0

Command: **104*<x>

Name: **RELAY 1 TIME ON**

Description: Sets the time the relay will be in the "ON" state when activated. Only applicable in pulse or toggle mode.

Accepted Parameters: 10ms to 100 hours
Set in increments of 10ms e.g. 11 = 110ms

Example: **104*100

Command: **105*<x>

Name: **RELAY 2 TIME ON**

Description: Sets the time the relay will be in the "ON" state when activated. Only applicable in pulse or toggle mode.

Accepted Parameters: 10ms to 100 hours
Set in increments of 10ms e.g. 11 = 110ms

Example: **105*100

Command: **106*<x>

Name: **DIGITAL TIME ON**

Description: Sets the time the digital output will be in the "ON" state when activated. Only applicable in pulse or toggle mode.

Accepted Parameters: 10ms to 100 hours
Set in increments of 10ms e.g. 11 = 110ms

Example: **106*100

Command: **107*<x>

Name: **RELAY 1 TIME OFF**

Description: Sets the time the relay will be in the "OFF" state when activated. Only applicable in pulse or toggle mode.

Accepted Parameters: 10ms to 100 hours
Set in increments of 10ms e.g. 11 = 110ms

Example: **107*100

Command: **108*<x>

Name: **RELAY 2 TIME OFF**

Description: Sets the time the relay will be in the "OFF" state when activated. Only applicable in pulse or toggle mode.

Accepted Parameters: 10ms to 100 hours
Set in increments of 10ms e.g. 11 = 110ms

Example: **108*100

Command: **109*<x>

Name: **DIGITAL TIME OFF**

Description: Sets the time the digital output will be in the "OFF" state when activated. Only applicable in pulse or toggle mode.

Accepted Parameters: 10ms to 100 hours
Set in increments of 10ms e.g. 11 = 110ms

Example: **109*100

Command: **110*<x>

Name: **MISSED CALL PORT**

Description: Sets the output port that will be activated on an authorised incoming call.

Accepted Parameters: RELAY1 = 0
RELAY2 = 1
DIGITAL OUTPUT = 2

Example: **110*1

Command: **111*<x>

Name: **SIM FAIL-OVER**

Description: Sets whether the device will alternate SIM trays if network coverage is lost or registration fails. A SMS is sent to all report parties if a SIM change is initiated by the device.

Accepted Parameters: Fail-over active = 1
Fail-over inactive = 0

Example: **111*1

Command: **112*<x>

Name: **LOW POWER MODE**

Description: Sets low power mode on the device. In this mode the GSM module will be activated for 3 minutes at a time and then shut down again.

Accepted Parameters: Low Power Mode Active = 1
Low Power Mode Inactive = 0

Example: **112*0

Command: **113*<x>

Name: **SLEEP TIME**

Description: Sets the intervals (in minutes) at which the module will be activated for the “awake” period (see **140). E.g. a value of 360 will result in the module waking up every 6 hours.

Accepted Parameters: 1 to 65535

Example: **113*360

Command: **114*<x>

Name: **REPORT TIME**

Description: Sets the interval (in minutes) at which the unit will automatically send a status report to the preset report destinations. E.g. a value of 1440 will result in a report being sent every 24 hours.

Accepted Parameters: 1 to 65535

Example: **114*360

Command: **115*<x>

Name: **RESET TIME**

Description: Sets the interval (in minutes) at which the unit will automatically reset the modem, provided there are no operations in progress. E.g. a value of 1440 will result in a report being sent every 24 hours.

Accepted Parameters: 1 to 65535

Example: **115*240

Command: **117*<x>

Name: **ADD AUTH USERS TO REPORT DESTINATIONS**

Description: Automatically places both Authorised Users in the Report Destinations table. Authorised users will receive all alerts.

Accepted Parameters: Add Auth Users to Reports = 1
Don't add Auth Users to Reports = 0

Example: **117*0

Command: **118*<x>

Name: **RESPOND TO REPORT DESTINATIONS**

Description: When enabled, the unit will send all responses to authorised commands (e.g. BALANCE) to the normal report destination(s) via SMS/GPRS. When disabled, the response will be sent via SMS to the initiating party only.

Accepted Parameters: Respond To All Report Destinations = 1
Respond To Initiating Party Only = 0

Example: **118*1

Command: **119*<x>

Name: **SET DATE/TIME AUTOMATICALLY**

Description: When enabled, the unit will automatically send an SMS to the SIM Cell Number (see **46) and extract the time from the network. An SMS will only be sent if an invalid date/time is detected. Once set, power may be removed from the unit for up to 30 min without losing the date/time setting.

Accepted Parameters: Set Date/Time Automatically = 1
Do Not Set Date/Time Automatically = 0

Example: **119*1

Command: **130*0<x>

Name: **CLEAR CASH-UP TOTAL**

Description: Clears (sets to 0) the amount stored in the cash-up memory.

Example: **130*0

Command: **131*<x>

Name: **INPUT 1 OFF DELAY**

Description: The time for which the input state must be altered (when ON) before a trigger event will be initiated. The OFF delay must be exceeded before another ON trigger will be considered.

Accepted Parameters: 1 to 65000
Stores in increments of 10ms e.g. 112 = 1120ms

Example: **131*112

Command: **132*<x>

Name: **INPUT 2 OFF DELAY**

Description: The time for which the input state must be altered (when ON) before a trigger event will be initiated. The OFF delay must be exceeded before another ON trigger will be considered.

Accepted Parameters: 1 to 65000
Stores in increments of 10ms e.g. 112 = 1120ms

Example: **132*112

Command: **133*<x>

Name: **INPUT 1 TRIGGER MODE**

Description: Sets one of the 3 trigger modes available on the device (see 3.2.4).

Accepted Parameters: ON Trigger Only = 0
OFF Trigger Only = 1
ON/OFF Trigger = 2

Example: **133*0

Command: **134*<x>

Name: **INPUT 2 TRIGGER MODE**

Description: Sets one of the 3 trigger modes available on the device (see 3.2.4).

Accepted Parameters: ON Trigger Only = 0
OFF Trigger Only = 1
ON/OFF Trigger = 2

Example: **134*1

Command: **135* <x>

Name: **INPUT 1 OFF TEXT**

Description: Sets the text string that the device will send to a report destination if input 1 is deactivated

Accepted Parameters: Up to 30 characters

Example: **135*Mains power restored

Command: **136* <x>

Name: **INPUT 2 OFF TEXT**

Description: Sets the text string that the device will send to a report destination if input 2 is deactivated

Accepted Parameters: Up to 30 characters

Example: **136*Mains power restored

Command: **137* <x>

Name: **INPUT 1 PULSE TIMEOUT**

Description: Sets the time after which the OFF Trigger will become invalid. Used as a safety against spurious triggers if the power supply is unreliable or frequently switched.

Accepted Parameters: 10ms to 2500ms
Set in increments of 10ms e.g. 110 = 1100ms

Example: **137*110

Command: **138* <x>

Name: **INPUT 2 PULSE TIMEOUT**

Description: Sets the time after which the OFF Trigger will become invalid. Used as a safety against spurious triggers if the power supply is unreliable or frequently switched.

Accepted Parameters: 10ms to 2500ms
Set in increments of 10ms e.g. 110 = 1100ms

Example: **138*110

Command: **139*<x>

Name: **PULSE TEST**

Description: When enabled, the unit will activate relay 1 (subject to the relay's settings, see 3.2.3) when input 2 is activated (ON Trigger).

Accepted Parameters: Enable Pulse Test = 1
Disable Pulse Test = 0

Example: **139*0

Command: REPORT

Name: **STATUS REPORT**

Description: Solicits a status report from the unit via SMS. The device shall only respond to the destination from which the query originated.

Unit Response:

- Signal strength
- Power level
- Status of output ports
- Status of input ports

Command: BALANCE

Name: **AIRTIME BALANCE**

Description: Queries the airtime balance on the active SIM card via SMS. The unit solicits the airtime value from the network via USSD and sends an exact replication of the text string back to the destination from which the query originated. (See Balance USSD, **57)

Unit Response: USSD text string containing airtime value.

Command: HARDRESET

Name: **HARD RESET**

Description: Issues an assembler-level reset to the microcontroller

Unit Response: N/A

Command: GENSET<space><x>

Name: **GENERAL SETTINGS**

Description: Queries the general settings on the device. One of 10 settings lists may be queried, depending on which setting is required. The settings breakdown is as follows:
- GENSET 1: Settings 1, 2, 3, 4, 5, 6, 7, 8, 9
- GENSET 2: Settings 10, 11, 12, 13, 14
- GENSET 3: Settings 15, 16, 17, 18, 19, 20
- GENSET 4: Settings 21, 22, 23, 28, 29
- GENSET 5: Settings 30, 31, 32, 33
- GENSET 6: Settings 34, 35, 36, 37
- GENSET 7: Settings 38, 39, 40, 41, 42
- GENSET 8: Settings 43, 45, 46, 47, 48, 49
- GENSET 9: Settings 100, 101, 102, 103, 104, 105, 106
- GENSET 10: Settings 107, 108, 109, 110, 111
- GENSET 11: Settings 112, 113, 114, 115, 117
- GENSET 12: Settings 118, 119, 131, 132, 133, 134
- GENSET 13: Settings 135, 136, 137, 138, 139
- GENSET 14: Settings 140

Unit Response: The response contains the number of the setting, a brief description of the setting, as well as the setting value. E.g. 10-R1
STAT: 0

Example: genset 10

Command: PROFSET<space><x>

Name: **PROFILE SETTINGS**

Description: Queries the settings for one of 5 (x value) network profiles stored on the device.

Unit Response: The response fields are as follows:
-Profile Number
-Profile Name
-APN
-Username
-Password
-SSMI Number
-Message Centre Number
-USSD Balance Command

Example: profset 2

Command: MONI

Name: NETWORK PARAMETERS

Description: Queries the real-time status of the cellular network on which the device is operating.

Unit Response: The response fields are as follows:
- Network Name
- Base Station ID (BSIC)
- Reception Quality (RxQual)
- Local Area Code (LAC)
- Cell ID (Id)
- Radio Channel (ARFCN)
- Rx Signal Strength (PWR)
- Timing Advance (TA)

Command: REPCREDIT

Name: CREDIT REPORT

Description: Solicits a credit report from the device. Only applicable if Credit Mode is activated (see **21)

Unit Response: The response fields are as follows:
Credit Mode
Coin Count Value
Credit Balance
Last Action Taken (Addition or Deletion of Credit)
Low Balance Alert Status (see **22)
Low Credit Value (see **23)

Command: ADDCREDIT<space><x>

Name: ADD CREDIT

Description: Adds credits to the existing credit balance on the device. <x> may be any integer value from 0 to 65535

Unit Response: Credit report automatically issued when user changes credit value. (See REPCREDIT)

Command: DELCREDIT<space><x>

Name: **DELETE CREDIT**

Description: Deletes credits from the existing credit balance on the device. <x> may be any integer value from 0 to 65535. The credit balance may not become negative and any negative resultant value will automatically be increased to 0.

Unit Response: Credit report automatically issued when user changes credit value. (See REPCREDIT)

Command: CLRCREDIT

Name: **CLEAR CREDIT**

Description: Clears the credit balance on the device and sets the value to 0.

Unit Response: Credit report automatically issued when user changes credit value. (See REPCREDIT)

Command: RESETCOIN

Name: **RESET COIN COUNTER**

Description: Clears the coin count balance on the device and sets the value to 0.

Unit Response: Credit report automatically issued when user changes credit value. (See REPCREDIT)

Command: CLOSECASHUP

Name: **CLOSE CASH-UP**

Description: Clears the cash-up count and subtracts the cash-up value from the current coin count.

Unit Response: Credit report automatically issued when user issues command. (See REPCREDIT)

Command: ADDUSER<space><x>

Name: **ADD USER**

Description: Adds a user number to the "Authorised User" table. <x> is the telephone number to be added. E.g. 27827914321

Unit Response: No Response Issued

Command: DELUSER<space><x>
Name: DELETE USER
Description: Deletes a user number from the "Authorised User" table <x> is the telephone number to be deleted. E.g. 27827914321
Unit Response: No Response Issued

Command: CLRTBL
Name: CLEAR TABLE
Description: Deletes all entries from the "Authorised User" table
Unit Response: No Response Issued

Command: CHKUSER<space><x>
Name: CHECK USER
Description: Checks if a particular number is stored in the "Authorised User" table. <x> is the telephone number to be checked for. E.g. 27827914321
Unit Response: Returns the number that was checked for and the index in the table where the number is stored. If the number is not found then a "not found" status is returned.

Command: SERVICEON
Name: SERVICE ON
Description: Puts the device into "service" mode. In this mode, the unit will function normally in credit mode, but the coin count will not be incremented and the credit value will not be decremented. An alert will be generated and sent. The unit must be reset to exit this mode or the SERVICEOFF command may be issued.
Unit Response: LED flashes red in 20 msec intervals and alert sent

Command: SERVICEOFF
Name: SERVICE OFF
Description: Takes the device out of "service" mode. The GSM module will be restarted and an alert will be sent.
Unit Response: GSM module restarts and an alert is sent

Command: REPALL

Name: STATUS REPORT (ALL)

Description: Instructs the device to initiate a report to all parties set up in the report destination structure (see Report Destination).

Unit Response:

- Signal strength
- Power level
- Status of output ports
- Status of input ports

Command: GETTIME

Name: GET TIME

Description: Queries the date/time that is currently set on the unit. Note: the date/time that is returned is the value that was on the unit at the time of querying the device. When the device receives the GETTIME SMS, however, it will automatically extract the correct time from the network and reset the value. A second GETTIME query should result in the correct date/time value in all cases.

Unit Response: - Currently stored date/time value

Command: ADMIN<space><x>

Name: ADMIN

Description: Adds an Authorised User via SMS. This command ONLY works when **NO** authorised users have been added to the device. Any cell phone that sends through this string will have full access to the device. For this reason, the user is advised to have at least 1 authorised number loaded, this command may be used for this purpose. <x> denotes the telephone number that you wish to add as the authorised user. Type in the number in international format. E.g. 27825551234

Unit Response: The new Authorised Number (x) will be sent a SMS confirming that they have been successfully added to the unit.
