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SS-10 C

FIXED CELLULAR TERMINAL – CDMA

USER MANUAL

Revision History:

Revision 01   Original document   08 October 2009
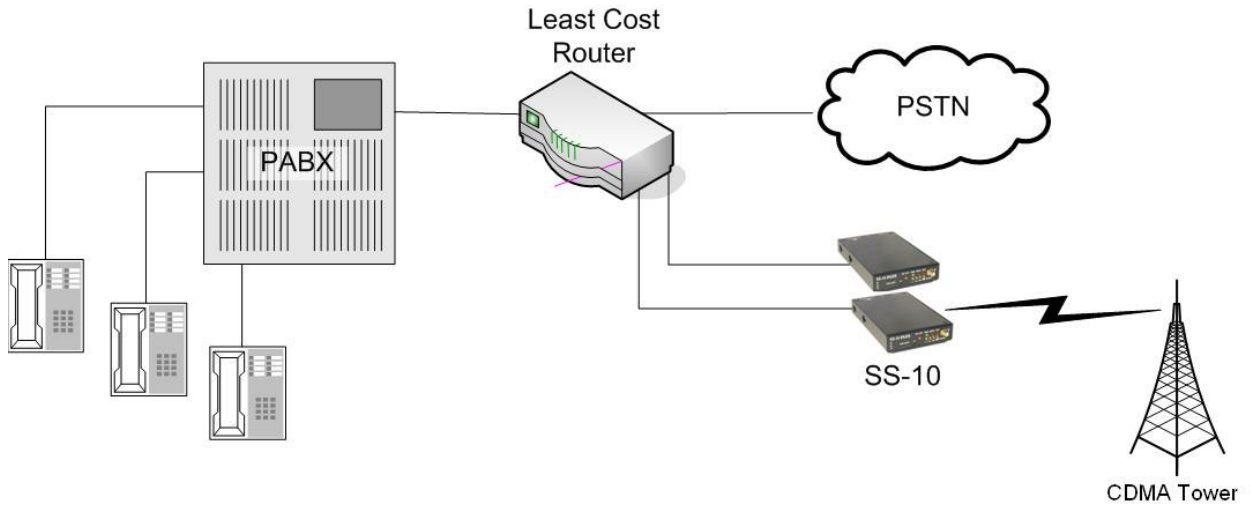Revision 02   Added Call Back   10 June 2010

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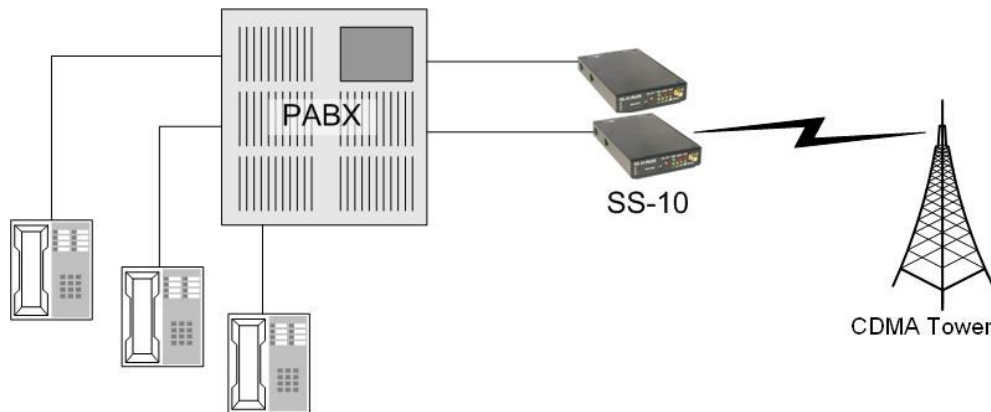
1   INTRODUCTION

The purpose of the SS-10 C Fixed Cellular Terminal (FCT) is to provide a means of making telephone calls via the CDMA infrastructure.

ARCHITECTURE

Least Cost Routing

Rural Telephony

2 FEATURES

2.1 PHYSICAL FEATURES

- Matches to complex line impedance
- Power saving feed-bridge
- Signal level indicator LEDs
- Busy indicator
- Network indicator
- SMA antenna connector
- CDMA module On/Off switch allows Network Detach
- Power supply 300mA at 12 VDC
- RJ11 connector for telephone
- DB9 connector for programming
- 800MHz operation
- RUIM/non-RUIM operation

2.2 SOFTWARE FEATURES

- Settable digit count
- Settable dial timeout
- Transmit & receive levels adjustable
- Optional line voltage reversal
- Optional line current break
- Optional periodic module reboot
- 4 minute timer to reset CDMA module if not registered on the network

2.3 MAINTENANCE FEATURES

- Routine periodic SMS reports
  - Feed bridge voltages
  - CDMA Module voltage
  - Failed calls
  - Total duration of calls
- SMS report on zero traffic (no calls made for specified interval)
- Request reports
- Request setting information
- Change set-up information by SMS
- 2 authorized maintainers
- Programmable by serial port, telephone or sms

3 DESCRIPTION

3.1 FRONT VIEW

ON/OFF button
Holding in the On/Off button while the
unit is powered up enables setup mode

Power Indicator
Busy Indicator
Network Indicator

RUIM CARD

RUIM card
tray

Press for
opening
RUIM tray

Signal strength
indicator

SMA antenna
connector

3.2 REAR VIEW

1   4

Line Connector
RJ-11 Connector

(Only pins 2 & 3
are used)

PC Connector
DB9 Female - Used for
setup purposes
*Use a standard PC
serial cable for
connecting the unit to
a PC*

DC Connector
Connects a DC voltage
between 12V and 18V to
the unit

Pin	Description
Inside	DC positive voltage
Outside	GROUND

4   SETUP

Setup of the SS-10C can be done by using one of the following methods:

- **SMS Setup Method:** Sending SMS commands to the unit;
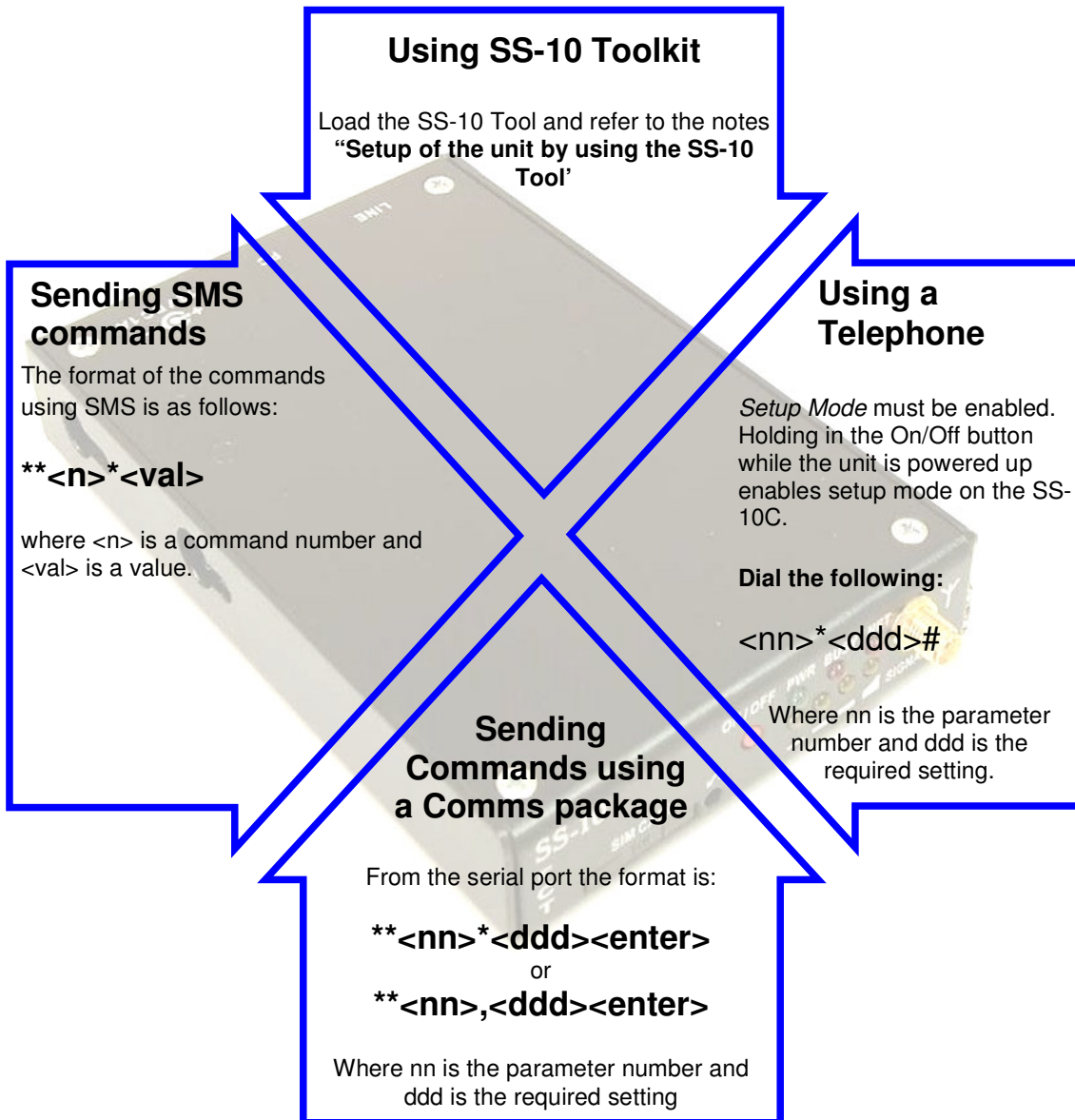- **Telephone Setup Method:** Using a telephone connected to the SS-10C;
- **PC Serial Port Setup Method:** Sending commands to the unit by connecting it to a PC and use a Comms package like HyperTerminal, or
- **PC Serial Port Setup Method:** Connect the unit to a PC using the **SS-10C Tool** package

Using SS-10 Toolkit

Load the SS-10 Tool and refer to the notes **"Setup of the unit by using the SS-10 Tool'**

Sending SMS commands

The format of the commands using SMS is as follows:

**<n>*<val>

where <n> is a command number and <val> is a value.

Using a Telephone

Setup Mode must be enabled. Holding in the On/Off button while the unit is powered up enables setup mode on the SS-10C.

Dial the following:

<nn>*<ddd>#

Where nn is the parameter number and ddd is the required setting.

Sending Commands using a Comms package

From the serial port the format is:

**<nn>*<ddd><enter>
or
**<nn>,<ddd><enter>

Where nn is the parameter number and ddd is the required setting

5   SETTABLE PARAMETERS

5.1	BASIC SETUP	
Parameter	**Description**	**Notes**
01	**Total Digit Count** Sets the total number of digits required before dialling. It is recommended that this parameter is set to 10.	
02	**Dial Timeout** Sets dial timeout in 10ths of a second. Normally 4 seconds This is the time taken before the call proceeds when numbers shorter than the total digit count or international digit count are dialled. The dial timeout may be overridden by entering '#' after the last dialled digit.	
04	**Polarity Reversal Signalling** Sets reversal time in 10ths of a second. To enable reversal on answer, add 100 to the number input. E.g. 04*20 sets the time to 2.0 seconds without reversal on answer and setting 04*120 sets it to 2.0 seconds WITH reversal on answer. Please see "Connection Alert Received (57)."	
05	**Break Pulse Signalling** Sets the break time in 10ths of a second. Some PABX systems require a current break to indicate that the call has terminated. The SS-10 can provide such a break. If it is not required then set this parameter to 0.	
06	**CLI Restriction** Sets the CLI Restriction status for outgoing calls. Setting this value to 1 will hide the caller's identity and setting this value to 0 will display the caller's identity.	**NB:** The CDMA network does not currently support International CLI.
07	**Transmit Levels** Set transmit levels 1 – 4 (2 normal) <table><tr><th>Relative Level</th><th>Value</th><th>Description</th></tr><tr><td>-12 dB</td><td>1</td><td>Soft</td></tr><tr><td>-6 dB</td><td>2</td><td>Factory Setting</td></tr><tr><td>0 dB</td><td>3</td><td>Louder</td></tr><tr><td>+6 dB</td><td>4</td><td>Loudest</td></tr></table>	**NB:** Unit must be reset before new audio settings take effect.
08	**Receive Levels** Set receive levels 1 – 4 (2 normal) <table><tr><th>Relative Level</th><th>Value</th><th>Description</th></tr><tr><td>-12 dB</td><td>1</td><td>Soft</td></tr><tr><td>-6 dB</td><td>2</td><td>Factory Setting</td></tr><tr><td>0 dB</td><td>3</td><td>Louder</td></tr><tr><td>+6 dB</td><td>4</td><td>Loudest</td></tr></table>	**NB:** Unit must be reset before new audio settings take effect.

5.2	REPORTING SETUP	
Parameter	**Description**	**Notes**
10	**No Call SMS Report** Sets the interval, in minutes, after which a report may be sent by SMS if no calls have taken place. Set to 0 to disable 'no call reporting'.	
11	**Routine Reports** Sets the interval, in minutes, between routine reports that will be sent by SMS to the pre-programmed destination. Set to 0 to disable routine reporting.	
12	**SMS Report Destination** Sets the destination number for SMS report. Please include country code. Eg. **+27**828221381	
13	**SS-10 Identity** This command is only available from the serial port. It is used to set a 16 character ID so that the SS-10 can identify itself in SMS messages that are sent.	
14	**International Digit Count** Sets the total number of digits needed before dialling if an international prefix "00" is detected.	

5.3	CALL DETAIL REPORTING	
Parameter	**Description**	**Notes**
20	**Call Record Prefix** Sets up a 2 digit number that will prefix call records that are output from the SS-10. The prefix is the line of the Extension or Trunk number to identify the SS-10 to which the CDR record belongs.	

5.4	AUTHORIZED USER	
Parameter	**Description**	**Notes**
32	**Authorised User 1** Gives authorisation to user 1 for controlling access to the SS-10 unit via SMS by entering the user's numbers. Country code to be included, e.g. **+27**828221381	
33	**Authorised User 2** Gives authorisation to user 2 for controlling access to the SS-10 unit via SMS by entering the user's numbers. Country code to be included, e.g. **+27**828221381	

5.5	HARDWARE SETTINGS	
Parameter	**Description**	**Notes**
40	**On-Hook Voltage** The On-Hook voltage can be set with this command. The allowed range is from 20 volts to 40 volts. Nominal value is 35 volts.	
41	**Off Hook Voltage** The Off-Hook voltage is set using this command. It can be set from 18 to 30 volts. The nominal value is 25 volts. This allows power usage to be reduced during conversations, which reduces heating in confined spaces.	
42	**Peak Ring Voltage** Sets the peak ring voltage. The range is 40 to 60 volts. The factory setting is 50 volts; normally this setting will not require adjustment.	

5.6 NETWORK AND SECURITY

Parameter	Description	Notes
55	**Power Down Time** Time in minutes between forced network logoffs.	
56	**Automatic Call Termination** This feature allows an outgoing call to be automatically disconnected after a user-defined time period. Enter 0 to disable this feature or enter the desired time period (in minutes) to enable the feature.	
57	**Connection Alert Received** This feature is used in conjunction with "Polarity Reversal Signalling (04)." The CDMA network does not currently send a connection alert as default. Connection is assumed on call setup. A true connection alert can be requested from the network if circumstances demand this for PABX configuration etc. Enter 0 if no connection alert is received (default) or enter 1 if arrangements have been made with the network to receive a connection alert.	
58	**RUIM / non-RUIM Mode** The SS-10C can be used with or without a RUIM card. Enter 0 for RUIM mode or 1 for non-RUIM mode (default). **NB**: The unit will refuse network connection if the mode used does not match the set mode. The unit will not function in non-RUIM mode if a RUIM card is inserted and vice versa. Please consider this before using the SMS programming functionality for this command.	**NB**: The unit must be rebooted for the new setting to take effect.

5.7	CALL BARRING	
Parameter	**Description**	**Notes**
60	**Incoming Calls** Prohibits incoming calls (0), allows incoming calls (1).	
61	**Display Number Table** Used to display the number list. An extra digit will precede the number. (2) Indicates an allowed number, (1) indicates a barred number. ***Note: Command will only work in serial setup mode***	
62	**Add Number** Add a '2' before the number to allow the number. Add a '1' before the number to bar the number.	
65	**Set 'Require Allowed'** When this is set to '1', all numbers will be barred by default and allowed numbers have to be explicitly enabled.	

5.8	*CALL BACK*	
Parameter	**Description**	**Notes**
70	**Erase Call Back Entries.** Erase all the call back entries by using **70*112233	
71	**Add Entry** Add a number to the call back list. E.g. **71*0821111111 **NB. Number must begin with the "0" digit.**	
72	**Delete Entry** Delete a number from the call back list. E.g. **72*0821111111	
73	**Allow Any Number** Set to 1 allows any number to be called back Set to 0 enforces the listed numbers	

5.9	MISCELLANEOUS	
Parameter	**Description**	**Notes**
80	**Clear Totals** Resets the report values	
81	**Set Report Timer** Sets the time interval for the report timer.	

5.10	SETUP INFORMATION	
Parameter	**Description**	**Notes**
96	**Reboot the CDMA Module** Should be used after level changes.	
97	Sends a report back to originator.	
98*1	Sends SMS back to originator displaying first section of settings.	
98*2	Sends SMS back to originator displaying second section of settings.	
98*3	Sends SMS back to originator displaying third section of settings.	
98*4	Sends SMS back to originator displaying fourth section of settings.	
99	Displays all the settings.	

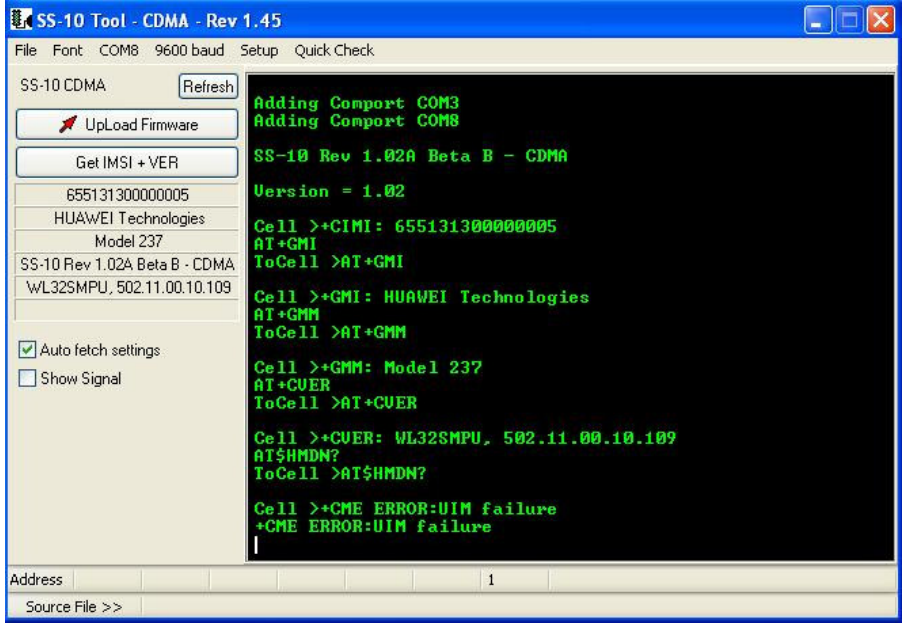## 6   SERIAL PORT COMMANDS

6.1   SIMPLIFIED SERIAL PORT COMMANDS

Simplified basic commands for entering via the serial port generally used for diagnostic or basic setup purposes.

Instruction	Description	Notes
DR<enter>	Gives a short report on state.	
AT<dddddddd><enter>	Sends the data dddd to the cell module.	
RESET<enter>	Resets the SS-10.	
DIAG<enter>	Toggles the diagnostic state of the SS-10.	
REP<enter>	Sends a report SMS to the pre-programmed destination.	
**<nn>*<ddd><enter>	Sets parameter nn to value ddd.	
SETID<space><sssss><enter>	Sets the ID of the SS-10 to sssss. This is used to identify the particular SS-10C (site name?) when automatic SMS messages are sent.	

7   SETUP OF THE UNIT BY USING THE SS-10 TOOL

7.1   MAIN WINDOW

SS-10 Tool Main Window Load the SS-10 Tool Click on **COM1,** then click on **Refresh** to do automatic baudrate detection	
IMSI +VER	**Displays the following:** IMSI, Software Revision and Hardware type of the CDMA engine SS-10 Firmware revision number.
UpLoad Firmware	To update the firmware, load the Firmware file from the **File** Menu. Use **UpLoad Firmware** button to load the Firmware into the unit. Refer to the **Upgrade Firmware** section for the complete procedure.
Show Signal	Tick the Show Signal box for a visual and measured indication of the signal strength.

7.2   CALL PARAMETERS

Click on SETUP to start with the setup of the SS-10.

| Call Parameters:	
Call setup, Audio and Line levels can be changed in this window.	

Call Setup	
Dial Timeout	Sets dial timeout in 10ths of a second This is the time taken before the call proceeds when numbers shorter than the total digit count are dialed. Nominal value is 4 seconds
Dialled Digit Count	Sets the total number of digits required before dialling. It is recommended that this parameter is set to 10.
Int. Digit Count	Sets the total number of digits needed before dialling if an international prefix "00" is detected. Also invoked if a "#" or "*" is dialled as the first digit.
CLI Restriction	Hides the number of origin when a call is made to an external party. Note: CLI is not supported for international calls.
Reversal Time	Sets reversal time in 10ths of a second.
Reversal on Answer	Enables or disables Reversal on Answer.
Break Time	Sets the break time in 10ths of a second. Some PABX systems require a current break to indicate that the call has terminated. If it is not required then set this to 0.
Audio Parameters	
TX Level	Sets Audio Transmit level. Nominal value is 2.
RX Level	Sets Audio Receive level. Nominal value is 2.
Line Settings	
On-Hook Voltage	The allowed range is from 20 to 40 volts. Nominal value is 35 volts.
Off-Hook Voltage	It can be set from 18 to 30 volts. The nominal value is 25 volts. This allows power usage to be reduced during conversations, which reduces heating in confined spaces.
Ring Voltage	The range is 40 to 60 volts. The factory setting is 50 volts, normally this setting will not require adjustment

7.3   CALL BACK

|	
Call Back: Call back numbers can be added in this window. **NB:** In some cases, the network does not issue a command to disconnect a busy call. If this is the case, the call should be manually terminated when the 'busy' tone is heard to allow for call back.	
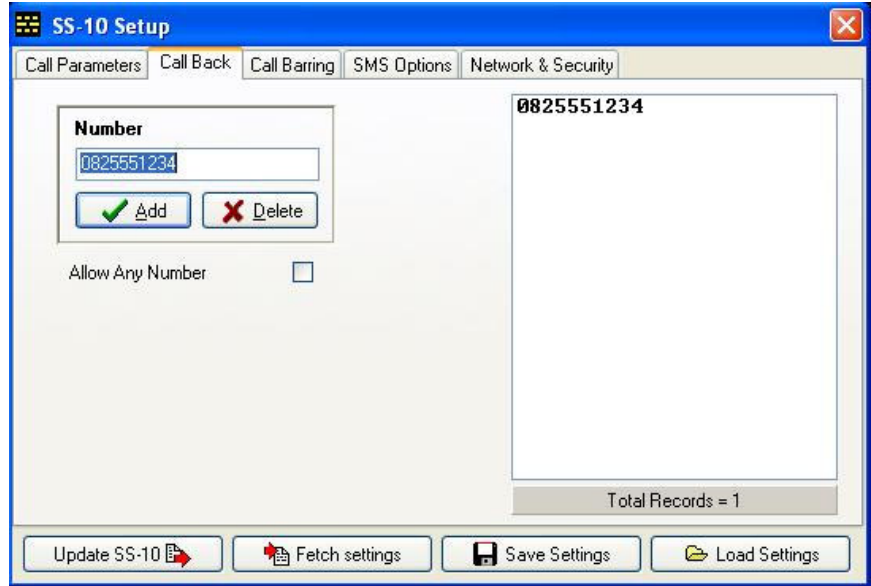
Click on Add or Delete to enter or remove the number from the list.	

Number	The call back number to be added to the list
Allow Any Number	When ticked, the call back list will be ignored and any incoming call number will be called back.

7.4 CALL BARRING

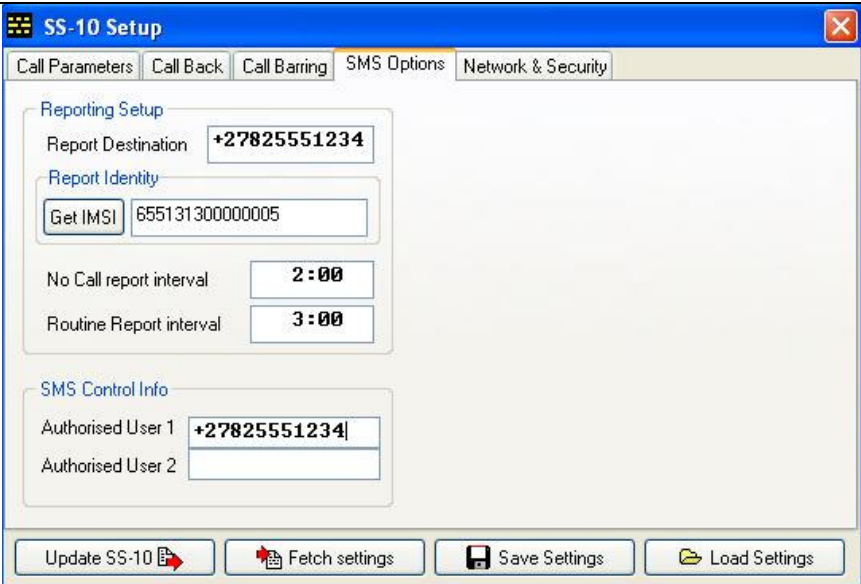|	
Call Barring: Calls can be barred or allowed	
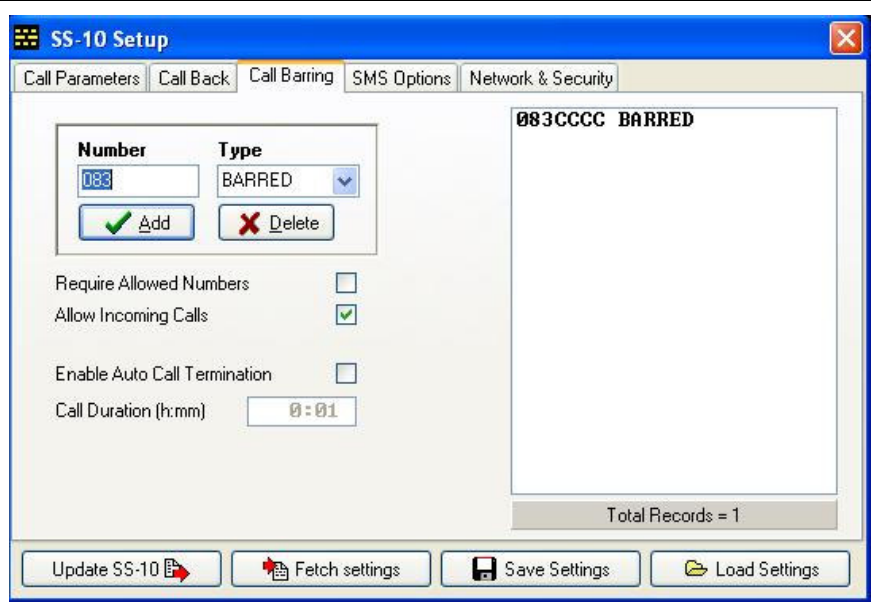
Enter the first digits of the number needed to recognise the number type.
Select the Type as BARRED or ALLOWED.
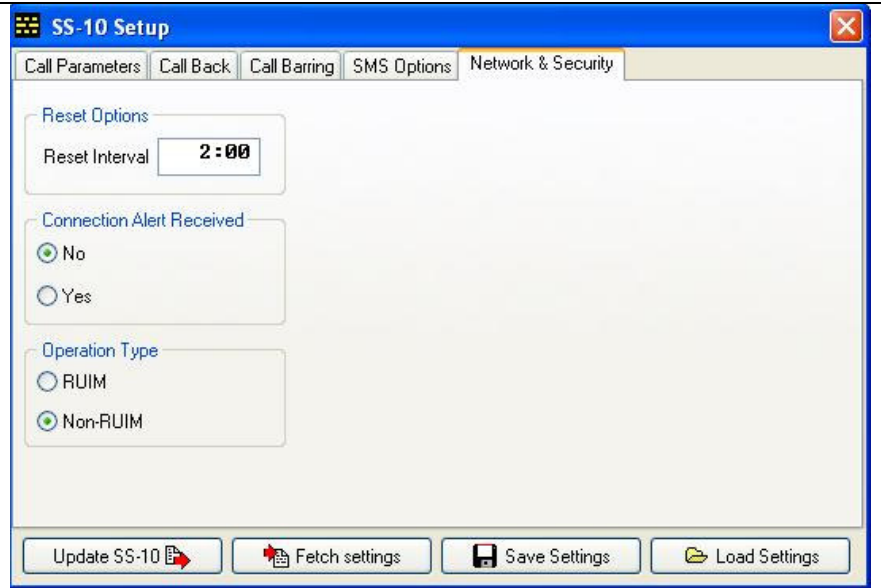Click on Add or Delete to enter or remove the number from the list.

Require Allowed Numbers	If the block is not ticked it will allow all the numbers that are not barred.
Allow Incoming Calls	The SS-10 can be set to allow or ignore incoming calls
Auto Call Termination	Automatically terminates an outgoing call after a user-defined "Call Period"

7.5 SMS OPTIONS

SMS Options: The SS-10 can be set to send fault reporting via SMS to a required destination number. It can authorise two users to control the unit via SMS.	
Reporting Setup	▪ Feed bridge voltages ▪ CDMA module voltage ▪ Number of failed calls ▪ Total duration of answered calls
Report Destination	Destination number for reports to be sent. Country code to be included, e.g. **+27**828221381
Report Identity	Identity to be sent with report for identifying the unit. Click on **Get IMSI** to retrieve the number from the unit or use any custom text as the identity.
No Call Report Interval	A report will be sent if no calls have been made for this period of time.
Routine Report Interval	Fixed intervals between sending of reports.
SMS Control Info	
Authorised User	Give authorisation to two users for controlling the access to the SS-10C unit via SMS by entering the user's numbers. Country code to be included, e.g. **+27**828221381

7.6   NETWORK

Network: Select the required Reset Interval if needed, as well as the Connection Alert and Operation Type	

Reset Interval	Set the interval in hours and minutes between forced network log-offs.
Connection Alert Received	This feature is used in conjunction with "Reversal on Answer." The Neotel network does not currently send a connection alert as default. Connection is assumed on call setup. A true connection alert can be requested from the network if circumstances demand this for PABX configuration etc. **NB.** Please ensure that the Connection Alert has been enabled by the network before setting the "Yes" option. This can be verified by the "$HFEEPO:" response in the command window when an outgoing call is connected.
Operation Type	The SS-10C can be used with or without a RUIM card. **NB:** As a security feature, the SS-10C will refuse to operate if the unit is set to non-RUIM mode and a RUIM is inserted and vice versa.

8   UPGRADE OF THE SS-10C FIRMWARE

Download Firmware

The latest firmware for the SS-10 is available from:
http://www.sstelecoms.com/

Connect unit to PC

Connect the SS-10 unit to the PC by using a serial cable and make sure it is switched on.

Upgrade the Firmware by using the SS-10 Tool

Load the SS-10 Tool Program:

- Click on **ComPort** to select the required COM.
- Set the **BaudRate** to 9600.
- From the **File** Menu choose **Open** and select the required Firmware file.
- Click the **UpLoad Firmware** button to upload the new firmware to the unit.
- Remove the serial cable from the unit after setup.

9 TECHNICAL SPECIFICATIONS

Housing	Black powder coated Aluminum 147 x 90 x 26 mm
LED indicators	POWER IN USE NETWORK SIGNAL STRENGTH
Connectors	PC connection: 9 way D-Type female LINE connectors: RJ11 POWER connection: 2.1 mm DC socket
Set-up	Set-up data is stored in non-volatile memory. Setup can be done by using a telephone or PC.
Compatibility	Compatible with most PABX's
Required voltage	10 VDC to 16 VDC
Current consumption	300 mA

10   CONTACT DETAILS

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