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SABRE™ RANGER m2m

User Guide

Rev 1.0

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www.discoverytelecom.eu

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Warranty

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SABRE™ Ranger M2M User's Guide [October 2013]

Regulatory Information

Federal Communication Commission Notice

FCC Identifier: QY9-SBRANGER

USE CONDITIONS:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two Conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

NOTE:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

IMPORTANT NOTE: EXPOSURE TO RADIO FREQUENCY RADIATION

This Device complies with FCC & IC radiation exposure limits set forth for an uncontrolled environment. The Antenna used for this transmitter must be installed to provide a separation distance of at least 100cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

FCC CAUTION:

Any Changes or modifications not expressly approved by the manufacturer could void the user's authority, which is granted by FCC, to operate this satellite terminal SABRE™ Ranger.

Industry Canada Statement:

IC Identifier: 5023A-SBRANGER

This device complies with Radio standard specification RSS -170 of Industry Canada Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE: Radiation Exposure Statement

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This antenna used for this transmitter must be installed to provide a separation distance of at least 100cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Declaration of Conformity:

Addvalue Communications Pte Ltd, 28 Tai Seng Street #06-02, Singapore 534106 declares under our sole responsibility that the Product, brand name as Wideye and model: SABRE™ Ranger (Satellite Broadband Communicator) a GMPCS Terminal to which this declaration relates, is in conformity with the following standards and/or other normative documents:

ETSI EN 301 489-1 , ETSI EN 301 489-20, ETSI EN 301 681, ETSI EN 300 328 , EN 50385 , EN 50371
IEC 60950 – 1 AND EN 60950-1, ITU-R M.1480

We hereby declare that all essential radio test suite have been carried out and that the above named product is in conformity to all the essential requirements of Directive 1999/5/EC.

The Conformity Assessment procedure referred to Article 10 and detailed in Annex [III] or [IV] of Directive 1999/5/EC has been followed with involvement of the following notified body(ies):

TIMCO ENGINEERING, INC., P.O BOX 370,NEW BERRY, FLORIDA 32669.
Identification mark: 1177 (Notified Body number)

The technical documentation relevant to the above equipment are held at:

- Addvalue Communications Pte Ltd, 28 Tai Seng Street #06-02 Singapore 534106.
- Signed by Mr. Tan Khai Pang (Chief Technology Officer, November 17, 2009) and Mr. Prabakar Kuttaniseeri (Manager-Quality Engineering, November 17, 2009).

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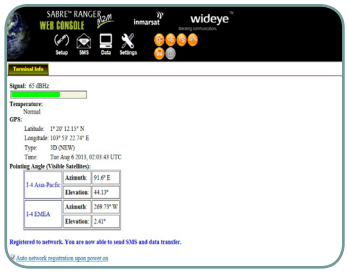
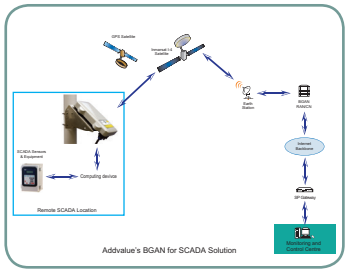


Appendices



About the User's Guide

Intended readers

This user's guide is for the installation and operation of the SABRE™ Ranger M2M terminal. The readers of the user's guide include anyone who is using or intends to use the SABRE™ Ranger M2M terminal. No specific skills are required to operate the SABRE™ Ranger M2M terminal. However, it is important that you observe all safety requirements listed in the Safety Information and in the Antenna safety instructions in the Installation guide, and operate the SABRE™ Ranger M2M terminal according to the guidelines in this user's guide.

User's guide overview

This user's guide may not always reflect the latest software functionality of your SABRE™ Ranger M2M terminal. To obtain the latest version of the user's guide, please download the latest version from your respective distributor.

The user's guide has the following chapters:

Chapter 1 - Product Overview
Provides an overview introduction, key features and system requirements for the SABRE™ Ranger M2M terminal.

Chapter 2 - Setting Up the SABRE™ Ranger M2M
Setting up explains how to insert SIM card, connect the Multi-function cable, mounting and powering the terminal; and connecting to your computer using a Ethernet cable.

Chapter 3 - Using SABRE™ Ranger M2M Web Console
This chapter explains how to use the built-in Web Interface of the SABRE™ Ranger M2M terminal, and describes available menus and settings. It also explains how to configure settings for the SABRE™ Ranger M2M terminal using this interface.

Appendices

The appendices list contains the following sections:

- Troubleshooting: Contains a short troubleshooting guide.
- Temperature Warnings: A guide to temperature warnings.
- Error Messages: Contains a list of error messages that may appear.
- Firmware upgrade: Explains how to perform local and remote firmware upgrade.
- The BGAN System: Provides an overview of the BGAN system and services.
- AT Commands List: A list of all the commands that you can use with the SABRE™ Ranger M2M terminal.
- Technical Specifications: Contains technical specifications for the SABRE™ Ranger M2M terminal and information on conformity.

Typography

In this user's guide, the following typography is used as indicated below:

Bold is used for the following purposes:

To emphasize words.

Example:
"**Do not touch the antenna front during pointing**".

To indicate what the user should select in the user interface.

Example:
"Select **European Caller Line ID Phone Connected** or **US Caller Line ID Phone Connected** from the **Telephone Interface Configuration** drop-down menu.".

Italic is used to emphasize the paragraph title in cross-references.

Example:
"For further information, see *Connecting Cables* on page...".

Product Overview

The SABRE™ Ranger M2M is a BGAN Terminal specifically designed for permanent outdoor remote unmanned SCADA applications. The ruggedized design allows the terminal to be installed outdoors to withstand extreme weather conditions for extended periods of time. The SABRE™ Ranger M2M provides built-in Ethernet and RS-232 ports, providing SMS and data services.

Control Interface
The SABRE™ RANGER M2M can be controlled using SABRE™ Ranger M2M's Web-Console with a computer connected via the Ethernet interface. The Web-Console provides full configuration and setup functions for the terminal.

AT Commands Interface
The SABRE™ Ranger M2M terminal can be controlled using AT commands sent from a computing device via Ethernet.

Key Features

Standard BGAN features

- Data rate of up to 384 kbps
- Supports, email, messaging, VPN, FTP, VoIP, FoIP and video media streaming
- IP Watchdog / Link monitor

Ruggedized Mechanical Enclosure features

- Enhanced vibration and shock resistance

SMS Activation features

- PDP activation/deactivation
- Reboot terminal
- Read/Write default APN

Compliance

- IP65 certified
- FCC
- CE
- RoHS
- IC (Industry Canada)
- CSA (Safety mark - cCSAus)
- NEMA "Type 4X" enclosure
- Class | Div.2 and ATEX Zone 2, Group II, Category 3

Inmarsat Service Features

- Qualified for special Inmarsat M2M pricing plans
- No connection charges (Unlike BGAN which charges 100KB)
- No charge for over-the-air firmware upgrades
- Billing increment step size: 1KB (Compared to BGAN which is 10KB)

System Requirements

These are the minimum desktop or laptop computer system requirements for successful interface with the SABRE™ Ranger M2M terminal:

- Intel Pentium III CPU (or above)
- 200 MB of free hard disk space
- 256 MB of RAM
- Ethernet port (RJ45)

For data connection using Ethernet (Router Mode):

1. A desktop or laptop computer running one of the following operating systems:
   - Microsoft® Windows®
   - Mac OS® X
   - Linux-based OS
2. Your desktop or laptop computer must support RJ45 Ethernet interface.
3. A desktop or laptop computer installed with JAVA-enabled Internet browsers.

Unpacking your SABRE™ Ranger M2M

Congratulations on the purchase of your SABRE™ Ranger M2M terminal.

When you unpack the package, please check that the following items are present:

- SABRE™ Ranger M2M terminal
- Mounting frame (including four allen screws with washers, four bolts with nuts and washers)
- Two U-bolts with four washers and nuts
- Ethernet cable (RJ45, Cat 5 Straight, 1.5m)
- Serial cable (DB9 to RS232, 1.8m)
- DC power cable (DC Plug to open end wires, 1.5m)

  RED wire: Positive DC supply

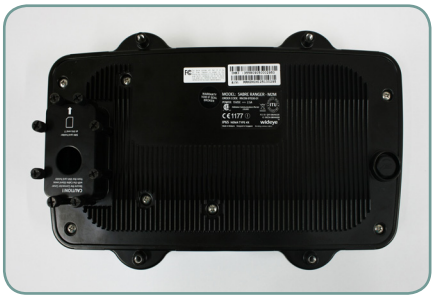
  BLACK wire: Negative DC supply
- Multi-function cable (10m)

If any of the items are missing from the package, please contact your reseller where you have purchased the satellite terminal package.

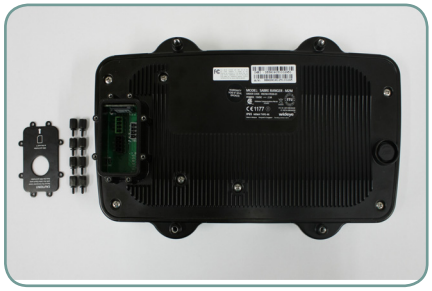
SABRE™ Ranger M2M:
Terminal with IECEx Zone 2 certification has one cable gland hole on the connector cover to connect the multi-function cable.

Getting to know your SABRE™ Ranger M2M

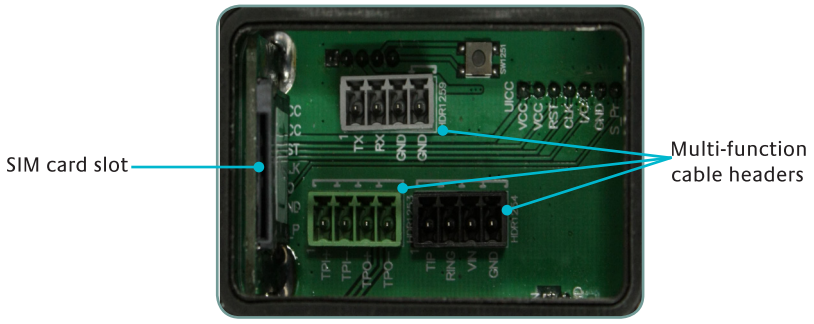
SABRE™ Ranger M2M Terminal
Top View



SABRE™ Ranger M2M Terminal
Rear View

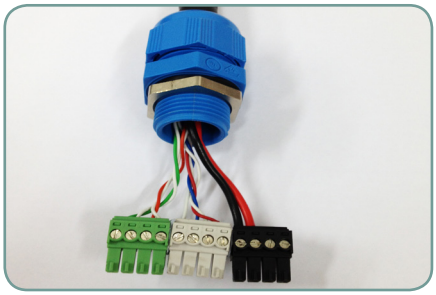


SABRE™ Ranger M2M Terminal
Connector cover and thumb-screws

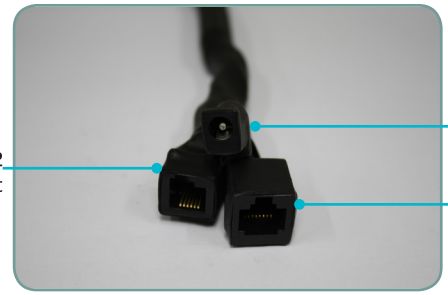


SABRE™ Ranger M2M
Connector headers and SIM Card Slot

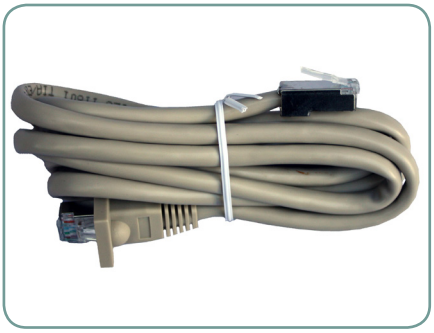
SABRE™ Ranger M2M
Multi function cable (10m)



SABRE™ Ranger M2M
Multi function cable plugs

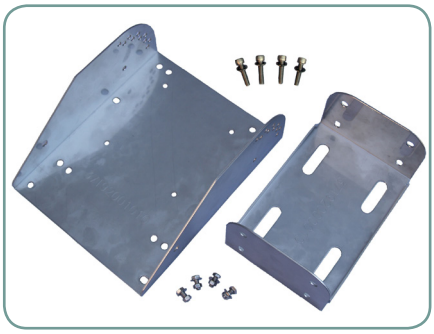


DC power cable
DC plug to open end (1.5m)



Cat. 5 Network/Ethernet Cable
IP54-Compliant 8P4C RJ45 (1.5m)

Serial cable
DB9 to RS232 (1.5m)



Mounting Frame
(with four allen screws, eight washers and four bolts with nuts and washers)

U-Bolts
(with four split washers, flat washers and nuts)

Setting Up the SABRE™ Ranger M2M

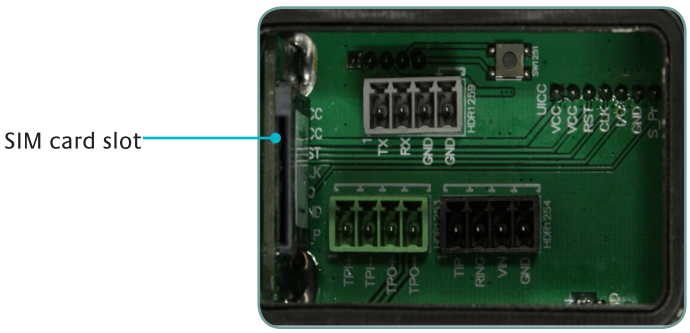
Installing the SIM Card

Follow these steps to install the SIM card:

1. Remove the eight thumb screws securing the connector cover.

2. Remove the connector cover and keep the eight thumb screws in a safe location.

3. Slot the SIM card into the SIM card holder in the orientation indicated on the holder. Push the SIM card in until it ‘clicks’ into place.

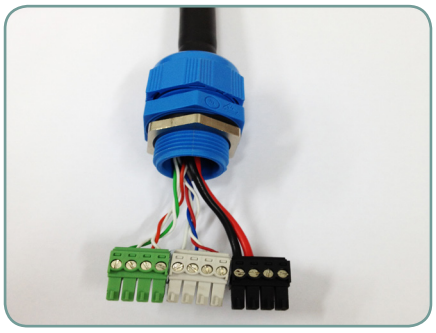


Location of the SIM card slot

Connecting the Multi-function Cable

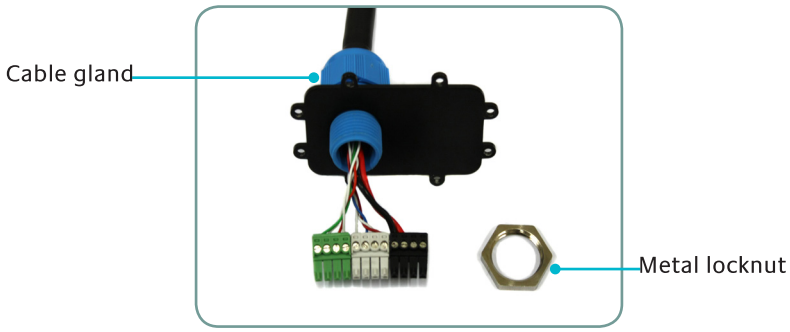
Follow these steps to connect the Multi-function cable:

1. Use the adjustable spanner to loosen the metal locknut from the cable gland.



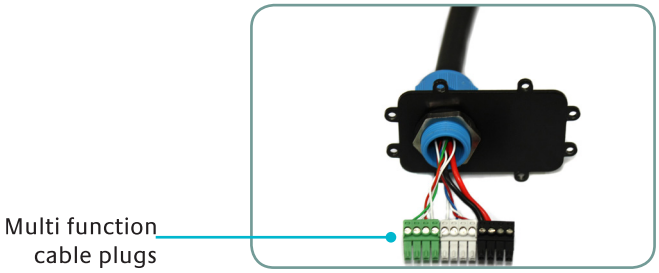
SABRE™ Ranger M2M
Multi function cable

2. Remove the metal locknut carefully and set aside.
3. Thread the connectors of the Multi-function cable through the connector cover.



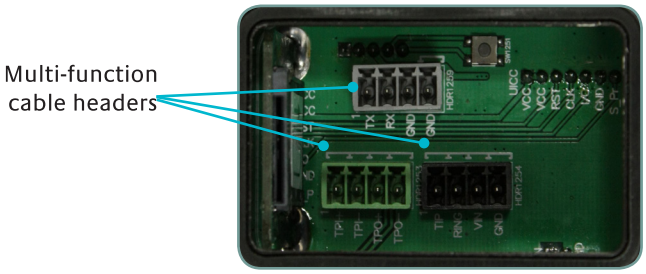
4. Now replace the metal locknut to secure the Multi-function cable to the connector cover.

   Note: Put the green plug through the metal locknut first. Repeat the same procedure for the grey and black plugs.



SABRE™ Ranger M2M
Multi function cable plugs

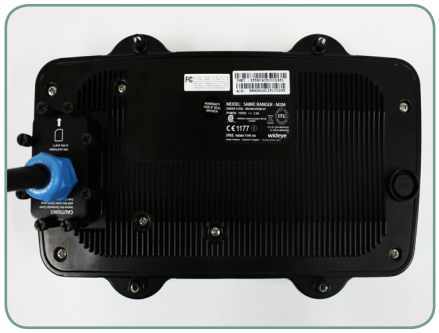
5. Insert the green plug into the green header, then connect the grey and the black ones.



SABRE™ Ranger M2M
Multi function cable headers

6. Install and secure the connector cover with the eight thumb screws.

   Note: Ensure the cover with cable gland is oriented correctly on the opposite end to the SIM card slot. The SIM card slot may be damaged if the connector cover is secured in the wrong orientation.

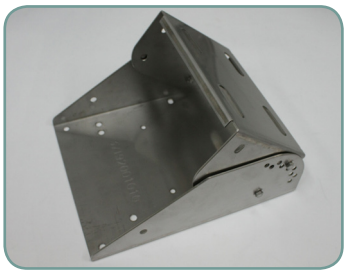


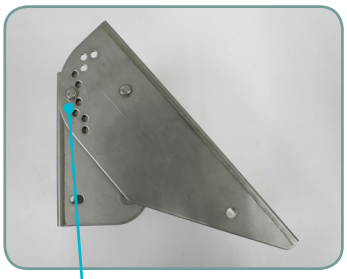
Setting Up the Mounting Frame

Follow these steps to setup the mounting frame:

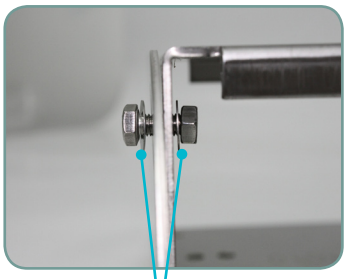
1. Align the two parts of the mounting frame together.

2. Install two of the bolts with washers to secure the mounting frame together as a hinge.





Bolt at 50° elevation angle



Bolts and washers

3. The mounting bracket has a series of position holes where there is a 10° interval in between each of them. It represents 0° when horizontally mounted and 90° when vertically mounted. It is recommended to set the elevation angle on the ground prior to the installation to the pole.

4. Now lock the elevation angle with the two remaining bolts, washers and nuts.

Note: The elevation angle for your location should have been pre-calculated by software tools and it can be found in the Web console under **Setup>Terminal Info**.

Installing the Mounting Frame

Follow these steps to install the mounting frame:

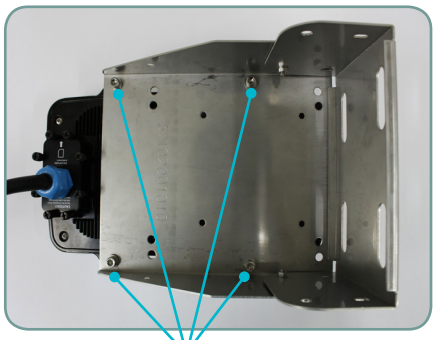
1. Place mounting frame on the underside of the SABRE™ Ranger M2M terminal.

2. Orientate the mounting frame to desired position.

3. Install four allen-screws with washers to secure mounting frame to the SABRE™ Ranger M2M terminal.

Note: It is recommended to prepare all the necessary cabling and connection on the ground before proceed for the mounting of the SABRE™ Ranger M2M Terminal.

Position of the U-bolts, nuts and washers



Mounting the SABRE™ Ranger M2M

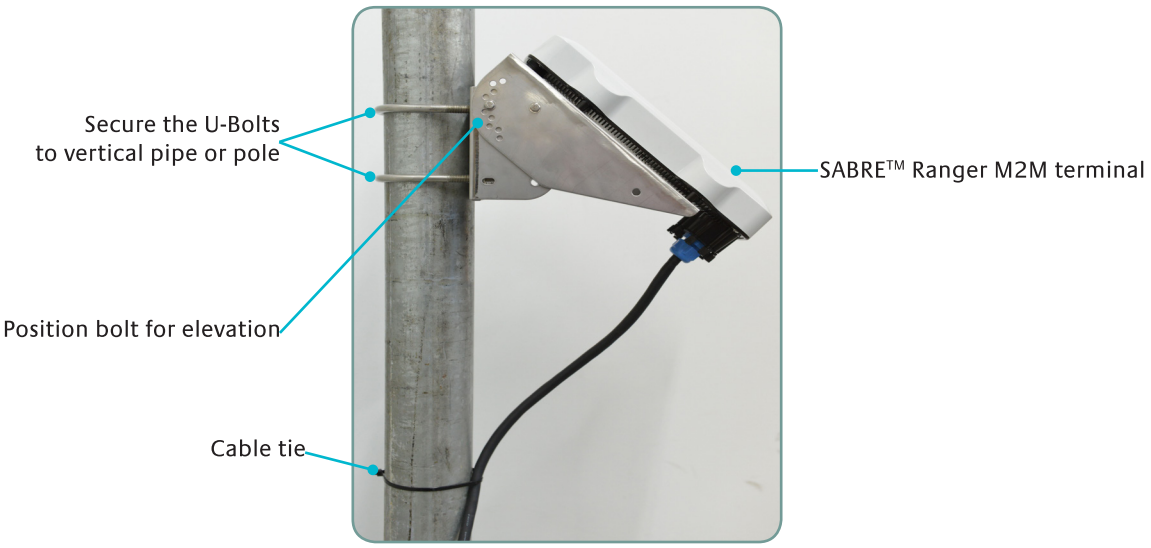
Follow these steps to mount the SABRE™ Ranger M2M terminal:

1. Locate a vertical pole or column to mount the SABRE™ Ranger M2M terminal.

   Note: The diameter of the pole can range from 75 to 88mm.

2. Mount the SABRE™ Ranger terminal M2M to the vertical pole or column using two U-bolts, four nuts and washers.

3. Tighten the four nuts evenly to secure the SABRE™ Ranger M2M terminal to the vertical pole or column.



4. Secure the Multi-function cable to the pole or column using sufficient cable tie at apprioriate intervals.

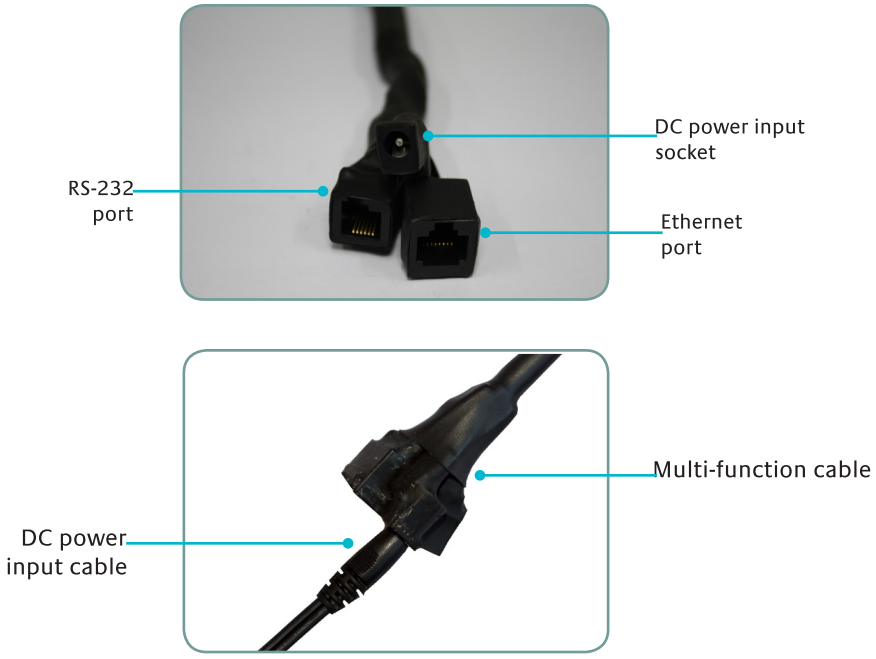
Note: Ensure there is some slack at both ends of the Multi-function cable to avoid any stress to the cable, which may damage the cable gland.

Powering Up the SABRE™ Ranger M2M

Follow these steps to power up the SABRE™ Ranger M2M terminal:

1. Connect the DC power cable to a suitable power supply.

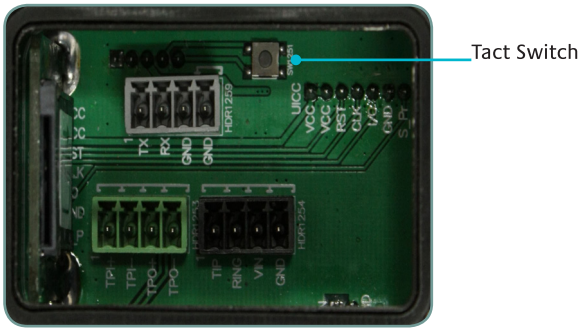
2. Insert the power plug into the DC power input socket on the Multi-function cable.



3. Turn on the power to power up the SABRE™ Ranger M2M terminal

Powering Up the SABRE™ Ranger M2M in Safe Mode

Tact switch will be used only if firmware recovery under Safe Mode is required, after an unexpected firmware corruption during firmware upgrade.

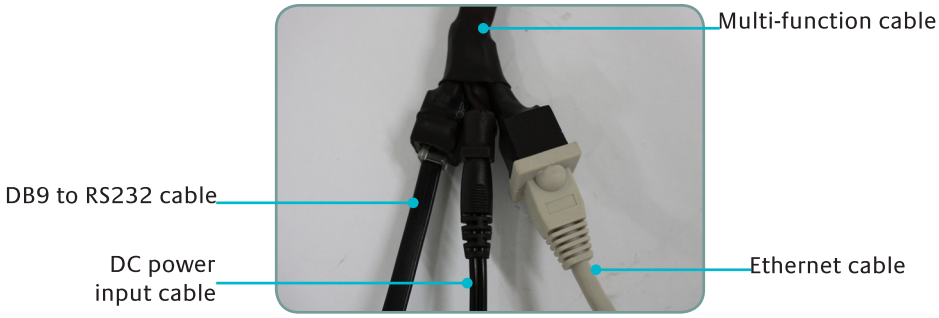


SABRE™ Ranger M2M
Tact Switch

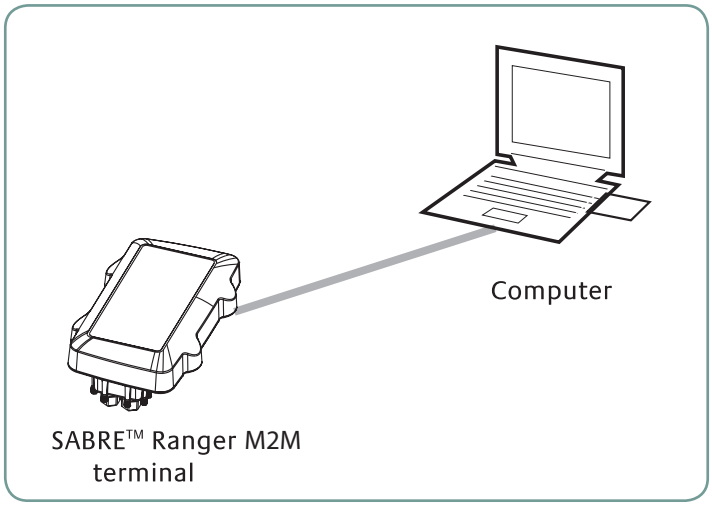
Connecting to your Computer using Ethernet

Follow these steps to connect the SABRE™ Ranger M2M terminal to your computer using Ethernet:

1. Insert one connector end of the Ethernet cable to the Multi-function cable's Ethernet port.



2. Insert the other end of the Ethernet cable to your computer's Ethernet port.
   A message confirming connection is displayed on your computer (Operating system dependent).



Chapter 3

Using SABRE™ Ranger M2M Web Console

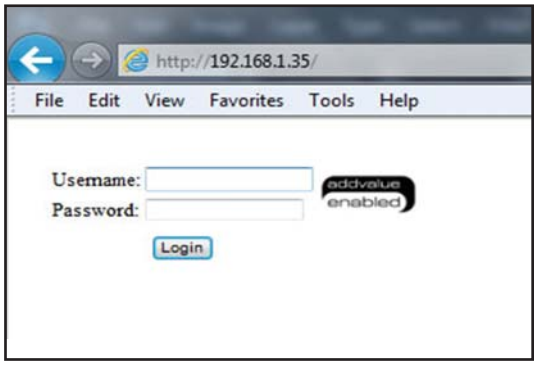
SABRE™ Ranger M2M Web Console provides a convenient way for user to configure a setting, and to ensure that the configuration will be saved permanently, please reboot the terminal after a setting is changed.

Activating SABRE™ Ranger M2M Web Console

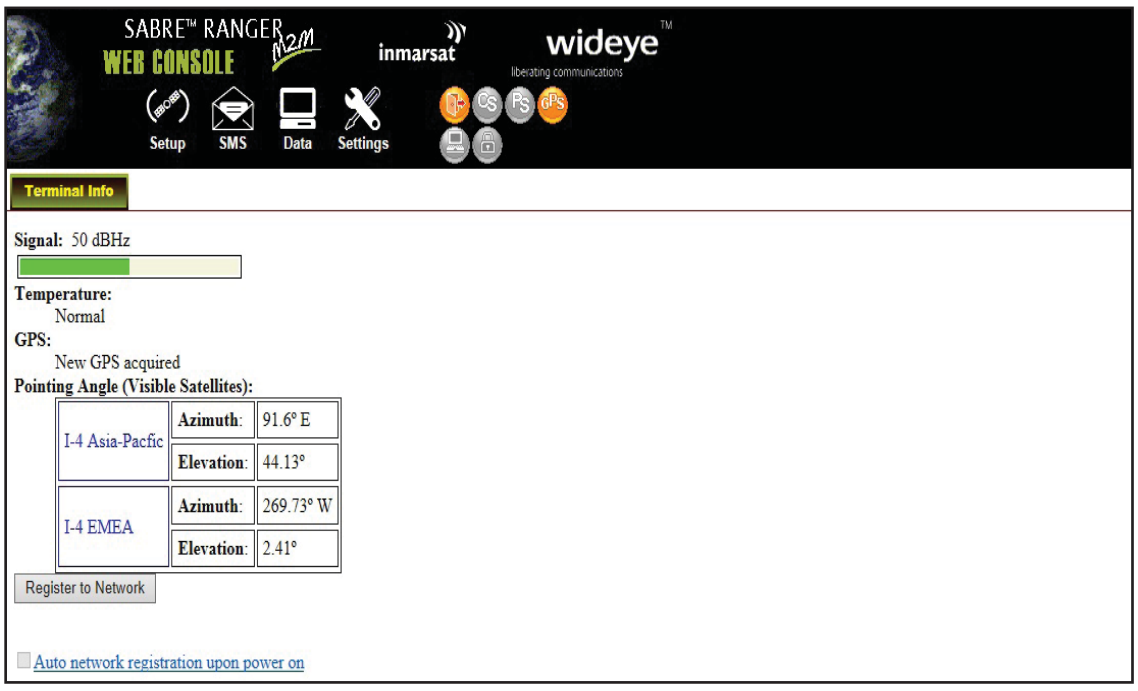
1. When the Ethernet connection between the SABRE™ Ranger M2M terminal and your computer has been setup, start your Internet browser.
2. Type **http://192.168.1.35** in the Address field and press Enter.

   The login screen appears.

3. At the login screen, type in **admin** in the **Username** field and **wideye** in the **Password** field. Click **Login**.



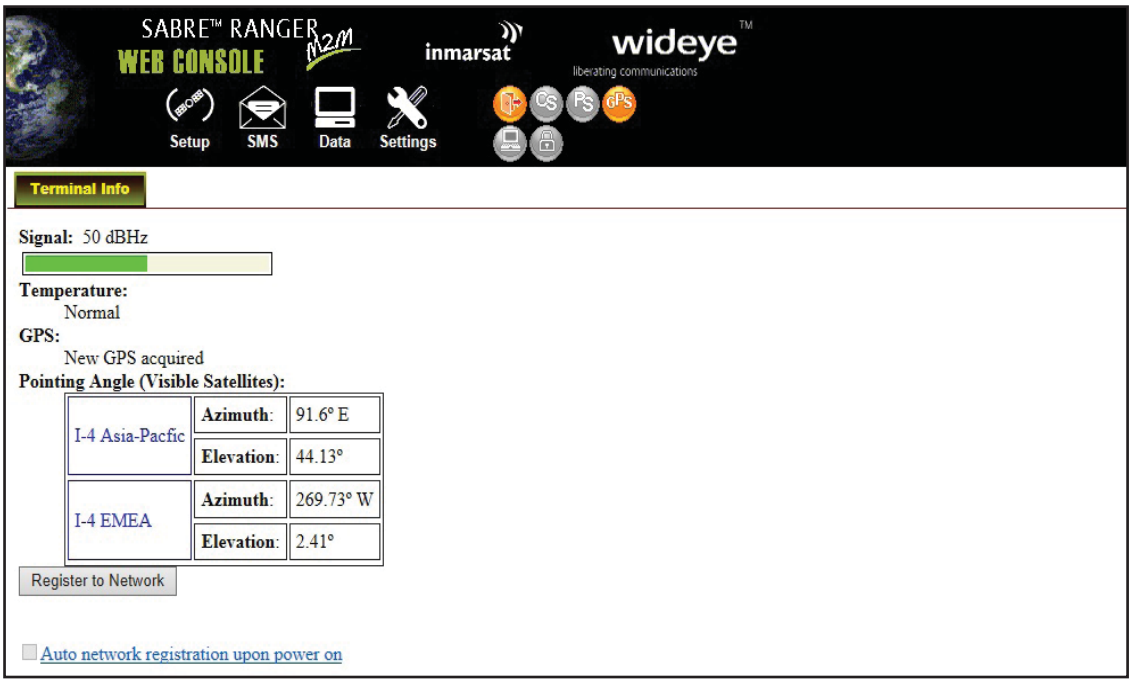
4. The SABRE™ Ranger M2M Web Console will appear on your screen.



5. Allow the terminal a few minutes to acquire the GPS co-ordinates.
   Once the GPS co-ordinates is acquired, the **New GPS acquired** message is displayed.

   Note:
   The GPS co-ordinates will not be displayed until you click **Register to Network** to register to Inmarsat's BGAN network. The **GPS display prohibited** message will be displayed if the GPS coordinates are prohibited by the BGAN network.

   It is recommended to register to the BGAN network after acquiring new GPS co-ordinates before powering down the terminal. This will ensure the GPS co-ordinates are stored in the terminal's memory.



Registering with the BGAN Network

Establishing a connection with the BGAN network requires the careful orientation of the SABRE™ Ranger M2M terminal towards the satellite, a process called antenna pointing.

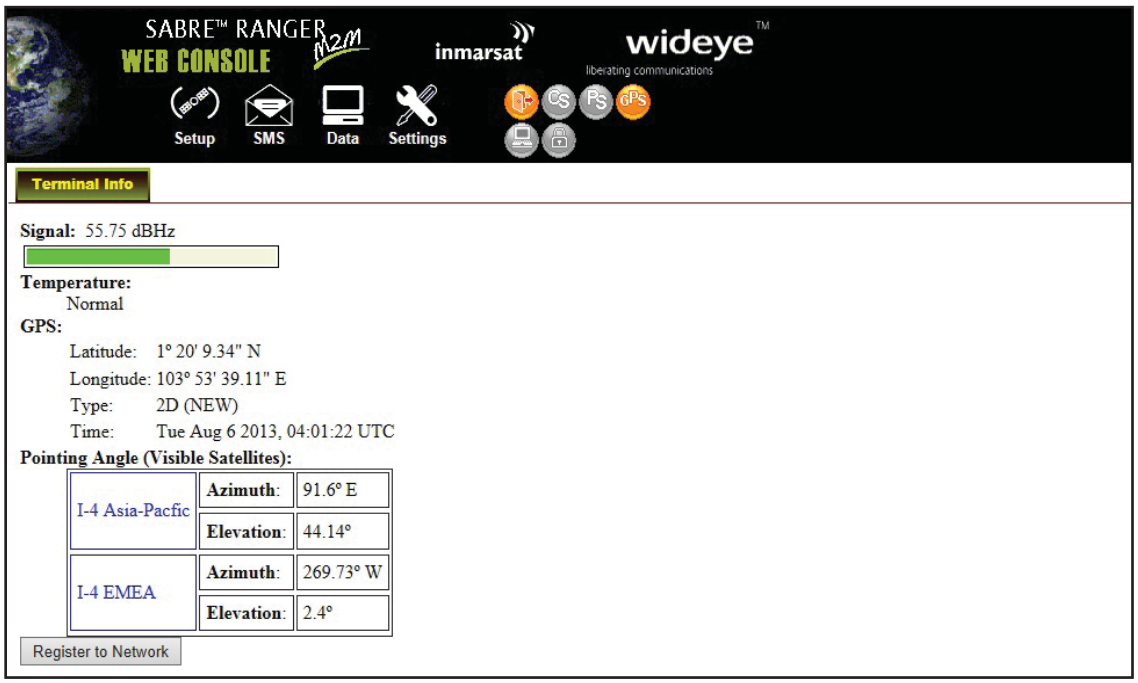
Note:
SABRE™ Ranger M2M is set to auto network registration by default. For the first antenna pointing, we suggest that user should turn off the auto network registration and follow the instruction below to obtain the maximum signal strength. To turn off the auto network registration, simple click on the Settings icon and select Network.

To perform antenna pointing, you will need a compass and the following information from the Web Console:

- Pointing Angle (Azimuth and Elevation)
- Signal stength indicator bar

With the SABRE™ Ranger M2M Web Console launched, follow these steps to register with the network:

1. Select the satellite you want the SABRE™ Ranger M2M terminal to point to.
2. Rotate the terminal left or right until it points in the correct horizontal direction as indicated in the **Azimuth** reading with the aid of a compass.
3. Tilt the terminal slowly up or down until it points in the correct vertical direction as indicated in the **Elevation** reading.
4. With the aid of the Signal indicator bar on the Web Console, fine tune the pointing direction to obtain the maximum signal strength.



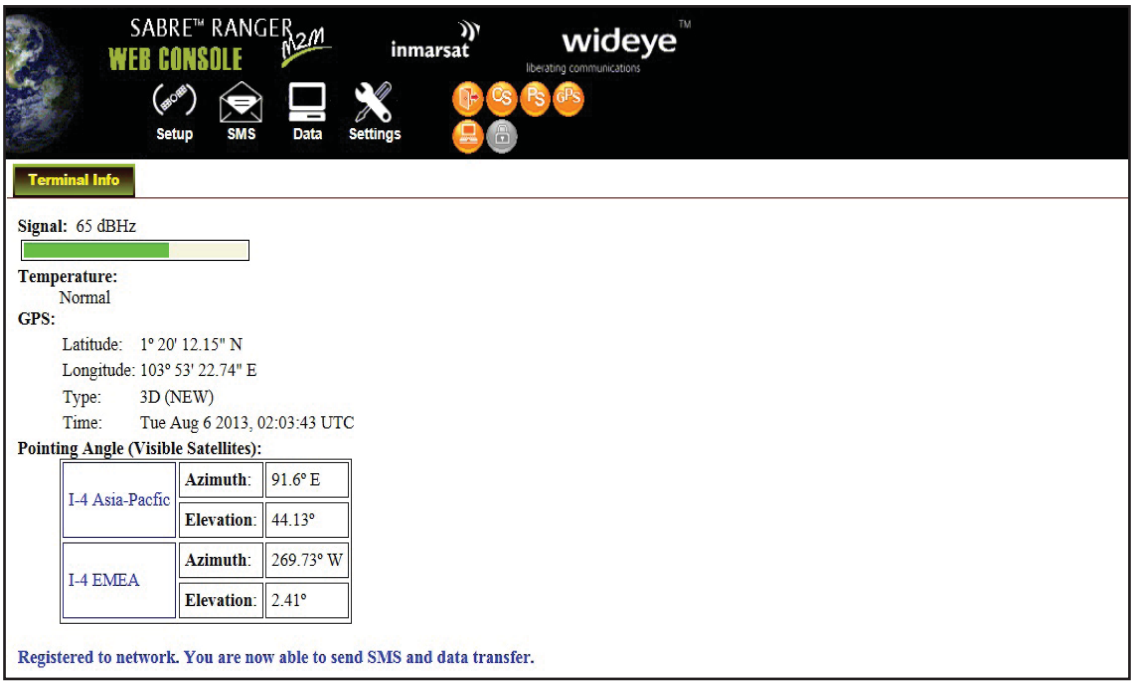
5. Secure the mounting after obtaining maximum signal strength.

   Note:
   For any service to commence, minimum 45dBHz signal strength is required.

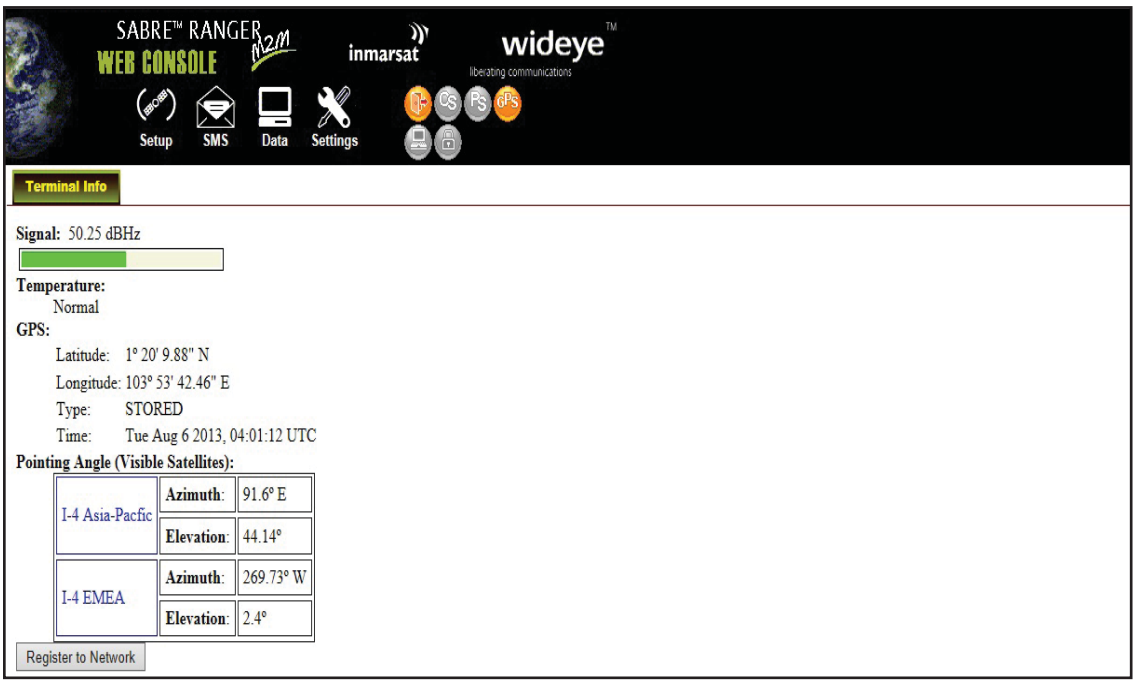
6. Click **Register Network** to register to the BGAN network.

   Once network registration is completed, the **"Registered to network. You are now able to send SMS and data transfer."** message will be displayed.

   Note:
   The GPS co-ordinates will not be displayed until you click **Register Network** to register to Inmarsat's BGAN network. The **GPS display prohibited** message will be displayed if the GPS coordinates are prohibited by the BGAN network.

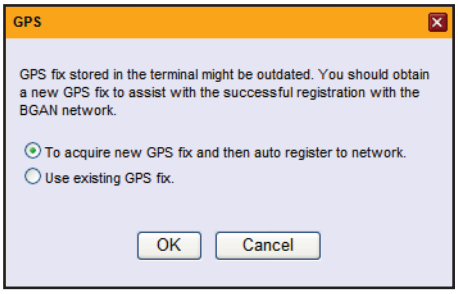


When you power up the SABRE™ Ranger M2M terminal the next time, the previous acquired GPS co-ordinates will be displayed.

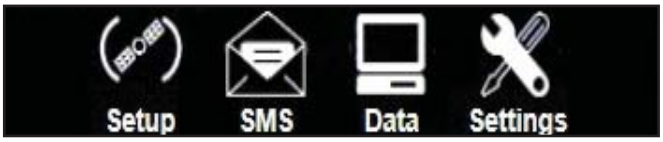


When you click **Register Network** you will be prompted to:

- **To acquire new GPS fix and then auto register to network**
- **Use existing GPS fix**



Note:
It is recommended to register to the BGAN network after acquiring new GPS co-ordinates before powering down the terminal. This will ensure the GPS co-ordinates are stored in the terminal's memory.



Menu Overview

Setup	SMS	Data	Settings
Terminal Info	Compose	Connection	Language
	Inbox	Primary Profiles	Terminal Info
	Sent	Port Forwarding	Ethernet
	Draft	Settings	PIN
	Phonebook		SMS
			Network
			Admin
			Support
			Accounts
			About

Status Indicators

Orange indicates the item is activated.
Grey indicates the item is not activated.

Viewing Terminal Information

Click 

to view the SABRE™ Ranger M2M terminal information.

The terminal information is displayed according to the Antenna Pointing mode (before registering to the Inmarsat BGAN network).

Signal	Indicates the signal strength during antenna pointing. (Adjust the antenna to ensure that the signal strength is at least 45dBHz.)
Temperature	Indicates the Terminal's current operating temperature.
GPS	Indicates the latitude, longitude, type and time of the GPS acquisition.
Pointing Angle	Indicates the azimuth and elevation angle, which the Terminal should be positioned.

SMS Menu

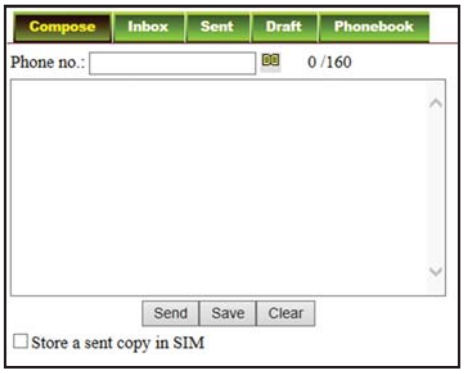
Click 

to to select the **SMS** menu.

SMS menu provide the following options:

Compose	To compose and send text messages. Simply enter a mobile number, type your message and click Send.
Inbox	Shows the details (Sender information, Message, Date and Time stamp) of all SMS received.
Sent	Shows the details (Receiver information, Message, Date and Time stamp) of all SMS send.
Draft	Stores unsent messages for retrieval later.
Phonebook	Allow you to view, add, edit and delete entries on your Phonebook list. You can make calls or send SMS directly from your Phonebook entries. The Phonebook entries can be stored on the SIM card or the Sabre™ Ranger terminal.

Compose



To Compose a New SMS

Follow these steps to compose a new SMS:

1. Enter the receiver's phone number in the Phone no. field or click the Phonebook icon if the receiver's number is listed in the Phonebook.
2. Type the message in the text editor box.

   Note:
   The SABRE™ Ranger M2M terminal supports unicode SMS.
   Message is limited to 608 characters including spacing between words. This is equivalent to 4 messages.

   Check **Store a copy in SIM** checkbox if you wish to store a sent SMS into SIM card.

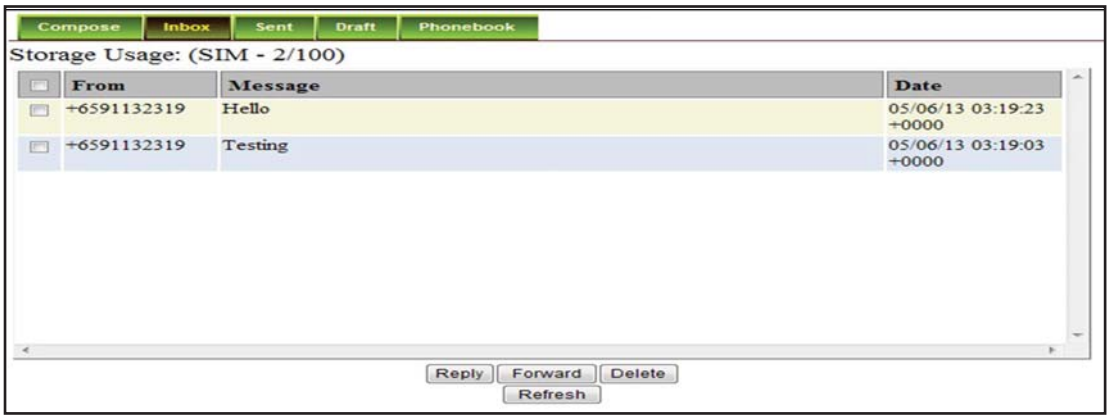
3. Click **Send** to send the SMS.

- To save an unsent SMS, click **Save** and the unsent SMS will be saved in **Draft**.
- To clear the typed message on the text editor, click **Clear**.

Inbox

Shows the details (Sender information, Message, Date and Time stamp) of all SMS received.

To Reply a SMS



Follow these steps to reply a SMS:

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.

2. Click **Reply**.

3. Click **OK** to reply with the original contents or **Cancel** to reply without the original content.
   The Inbox console switches over to the Compose console.

4. Enter your reply in the text editor.

5. Click **Send** to send your reply SMS.

To Forward a SMS

Follow these steps to forward a SMS:

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.

2. Click **Forward**.
   The Inbox console switches over to the Compose console.

3. Enter the receiver's number in the **Phone No.** field.

4. Click **Send** to forward the SMS.

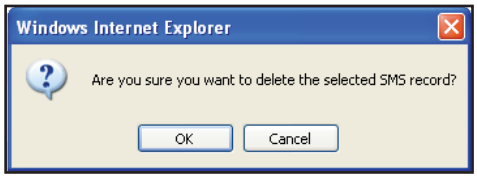
To Delete a Single SMS from the Inbox List

Follow these steps to delete a single SMS from the Inbox list:

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.

2. Click **Delete**.

3. Click **OK** to confirm or click **Cancel** to abort deleting the SMS.



To Delete Multiple SMS from the Inbox List

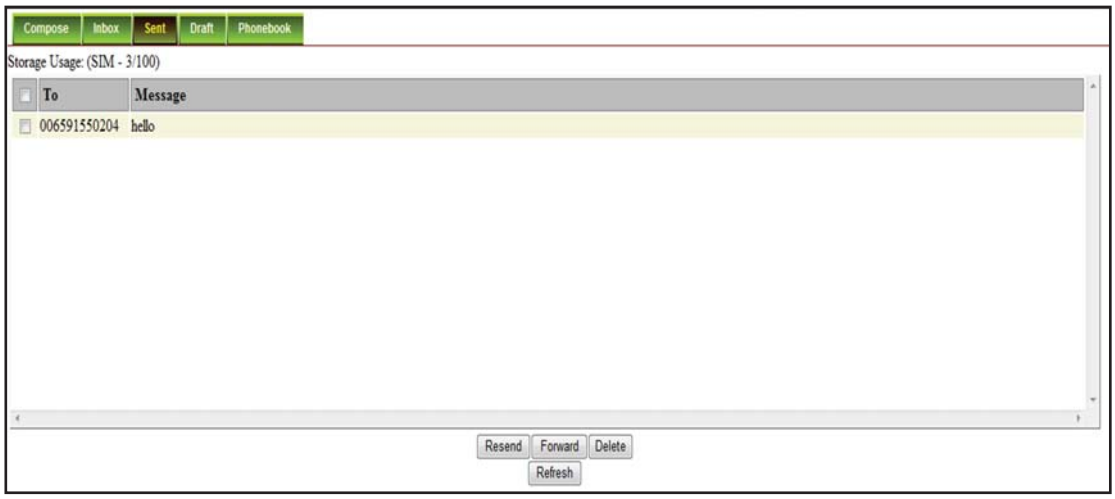
Follow these steps to delete multiple SMS from the Inbox list:

1. Select the message by checking the checkboxes beside each SMS.

2. Click **OK** to confirm the delete, or **Cancel** to abort the delete.

- Click **Refresh** to refresh the **Inbox** list.

Sent
Shows the details (Receiver information and Message) of all SMS sent.



To Resend a Sent SMS

Follow these steps to resend a sent SMS (sending the same SMS to the same receiver):

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.

2. Click **Resend**.
   The SMS will be sent to the receiver immediately.

To Forward a Sent SMS

Follow these steps to forward a sent SMS to another recipient:

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.

2. Click **Forward**.
   The Sent console switches over to the Compose console.

3. Enter the receiver's number in the **Phone No.** field.

4. Click **Send**.
   The SMS will be sent to the receiver immediately.

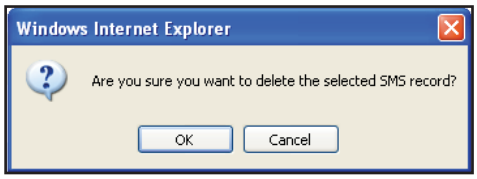
To Delete a Single SMS from the Sent List

Follow these steps to delete a single SMS from the Sent list:

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.

2. Click **Delete**.

3. Click **OK** to confirm or click **Cancel** to abort deleting the SMS.



To Delete Multiple SMS from the Sent List

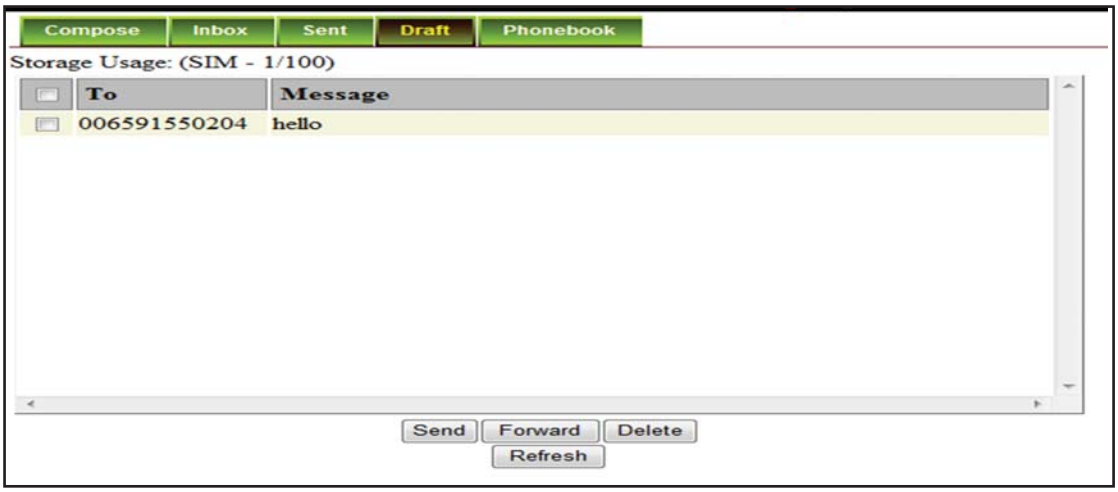
Follow these steps to delete multiple SMS from the Sent list:

1. Select the message by checking the checkboxes beside each SMS.

2. Click **OK** to confirm the delete, or **Cancel** to abort the delete.

- Click **Refresh** to refresh the Sent list.

Draft
Stores SMS saved from the Compose console.

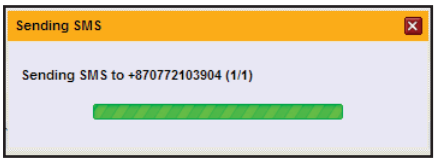


To Send a Draft SMS

Follow these steps to send a draft SMS:

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.

2. Click **Send**.
   The SMS will be sent to the receiver immediately.



To Forward a Draft SMS to Another Recipient

Follow these steps to forward a draft SMS to another recipient:

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.

2. Click **Forward**.
   The Draft console switches over to the Compose console.

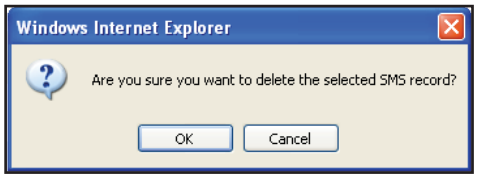
3. Enter the receiver's number in the Phone No. field.

4. Click **Send** to forward the SMS.

To Delete a SMS from the Draft List

Follow these steps to delete a SMS from the Draft list:

1. Click on a SMS to select it.
   The selected SMS will be highlighted in light blue.
2. Click **Delete**.
3. Click **OK** to confirm or click **Cancel** to abort deleting the SMS.



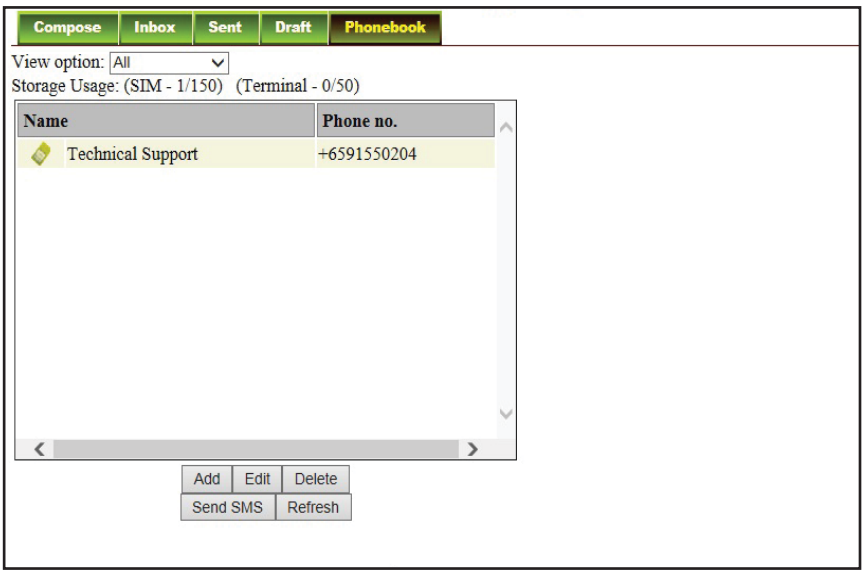
To Delete Multiple SMS from the Draft List

Follow these steps to delete multiple SMS from the Draft list:

1. Select the message by checking the checkboxes beside each SMS.
2. Click **OK** to confirm the delete, or **Cancel** to abort the delete.

- Click **Refresh** to refresh the Draft list.

Phonebook



- **View option**
  The View option allows you to view the Phonebook entries from the different storage locations. From the drop-down menu, select:

All	To view the entries stored in the SIM card and SABRE™ Ranger terminal.
SIM only	To view the entries stored in the SIM card.
Terminal only	To view the entries stored in the SABRE™ Ranger terminal.

- **Storage Usage**
  Shows the number for Phonebook entries used in the SIM card and Terminal locations.

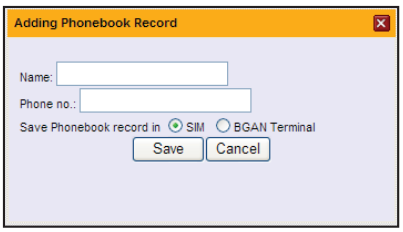
  For example: (SIM – 5/150) indicates:

  Storage location – SIM card
  Total number of entries used = 5
  Total number of entries available = 150

To Add a New Phonebook Entry

Follow these steps to add a new Phonebook entry:

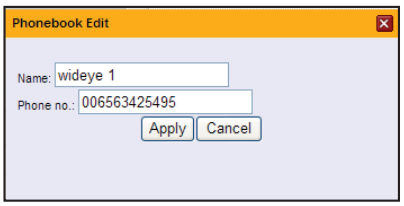
1. Click **Add**.
2. Enter the Name and Phone number.
3. Select the storage location and click **Save**.



To Edit A Phonebook Entry

Follow these steps to edit a Phonebook entry:

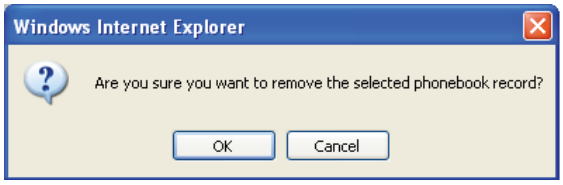
1. Select the entry from the Phonebook list.
2. Click **Edit**.
3. Proceed to change the Name and/or Phone number.
4. Click **Apply**.



To Delete a Phonebook Entry

Follow these steps to delete a Phonebook entry:

1. Select the entry from the Phonebook list.
2. Click **Delete**.
3. Click **OK** to confirm to delete the entry. Click **Cancel** to abort delete.



To Send SMS to a Phonebook Entry

Follow these steps to send an SMS to a Phonebook entry:

1. Select the entry from the Phonebook list.
2. Click **Send SMS**.
   The Phonebook console switches over to the Compose SMS console.
3. Type in the text message and click **Send**.

- Click **Refresh** to refresh the Phonebook list.

Data Menu

Click 

to select the **Data** menu.

Data menu provide the following options:

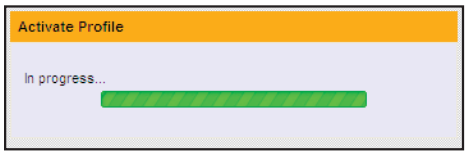
- Connection
- Primary Profiles
- Port Forwarding
- Settings

Note: By default, the Auto PDP context is set to auto activation.

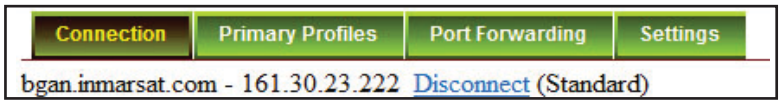
Connection

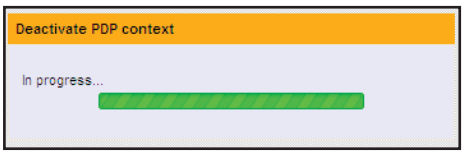
To activate the default profile, click **Activate Default Profile**.
The PDP context will be activated.

When connected, **APN** and **IP Address** details will be displayed.
You can proceed to use the Internet features.



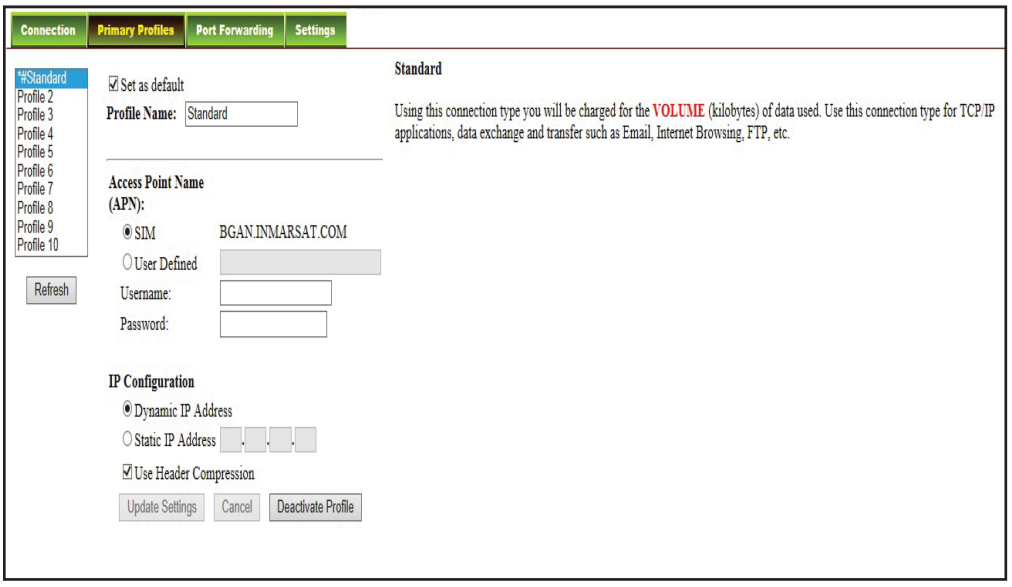
To disconnect the data connection, click **Disconnect**.
The PDP context will be deactivated.





Primary Profiles

Primary profiles define the connection type. You can select from a list of profiles to be the default primary profile and connection type. You can customized all the 10 primary profiles available on the list.



Note:
The Standard profile is set as the default primary profile and the default connection type is standard (this is charged by the volume [in kilobytes] of data used).

- **Profile Name**
  Change the profile name as desired.

- **Connection Type**
  Select the connection type to be used during the connection:

  Standard – Charged by the volume (in kilobytes) of data used.

- **Access Point Name (APN)**
  By default, the APN from the SIM will be selected.

  Follow these steps to change the **Access Point Name** (APN):

  1. Select **User Defined.**
  2. Enter the new APN in the field space provided.

  Static IP Address

  The user can purchase the Static IP address from the DP, where username and password will be provided. Enter them in the field under APN to set Static IP Address.

- **IP Configuration**
  By default, the **Dynamic IP Address** is selected.

  Refer to **Static IP Address** section above to set Static IP Address.

  Check the **Header Compression** checkbox if it is required to use Header Compression.

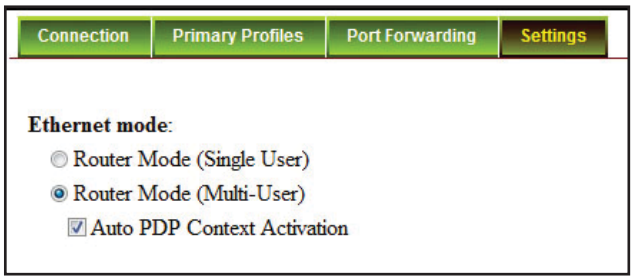
Port Forwarding

Port Forwarding is a feature for Router (multiple-user) mode. This feature sets the SABRE™ Ranger M2M terminal to direct incoming traffic on certain TCP/UDP port to a specific port on a local PC (IP Address).

Follow these steps to add a new forwarding rule:

1. Click **Add**.
2. Enter the **Incoming Port** number in the space provided.
   (For example: the user expecting HTTP, the port is 80).
3. Enter the **Destination IP Address**.
   (For example: the IP Address of the PC that is connected to the SABRE™ Ranger M2M terminal).
4. Select the **Protocol** type:
   - **TCP** (for HTTP, it will be TCP)
   - **UDP**
5. Enter the **Destination Port** number in the space provided.
   [For example: listening port of the particular service (TCP port 80 for web server) on the PC that is connected to the SABRE™ Ranger M2M terminal].
6. Click **Apply** to save the settings.
7. Check **Enabled** to allow the rule to take effect.

Settings
You can select the Ethernet mode to be used for data connection.



Follow these steps to select the Ethernet mode:

1. Select the mode to be used during the data connection.
2. Check the **Auto PDP Context Activation** checkbox if it is required to use Auto PDP Context Activation.
3. Reboot terminal after a change of mode or auto PDP context setting.

Note:
If the **Auto PDP Context Activation** is enabled, the terminal will establish a PDP connection upon power up. After that, if the PDP connection is lost due to network deregistration or reasons other than user intervention, the terminal will reestablish the PDP connection automatically.

Settings Menu

Click 

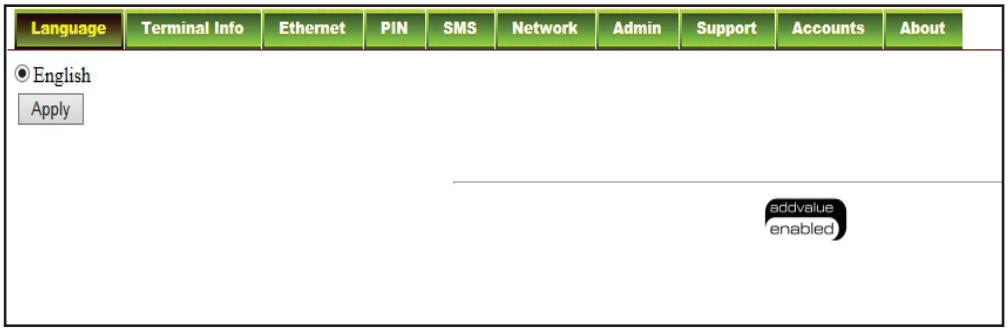
to select the Data menu.

Click the following tabs to view and edit the configuration settings for the SABRE™ Ranger M2M terminal.:

- Language
- Terminal Info
- Ethernet
- PIN
- SMS
- Network
- Admin
- Support
- Accounts
- About

Language

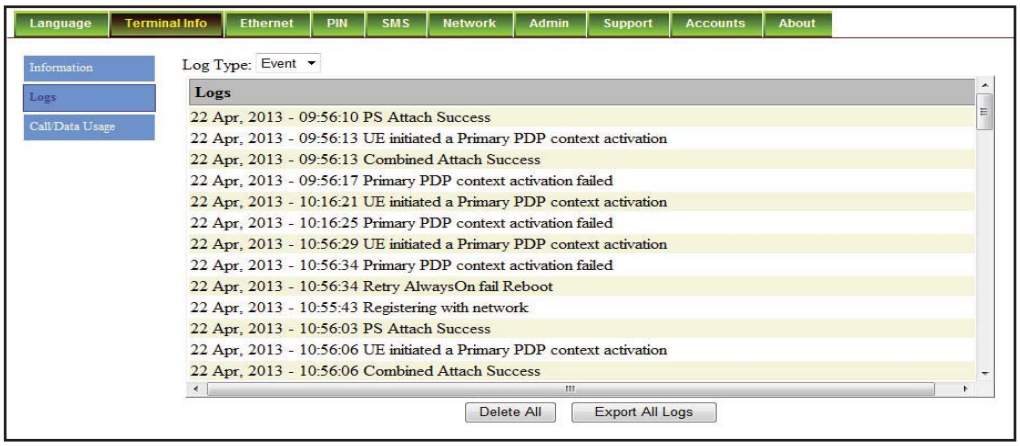
- User can select the language of the interface from this settings.



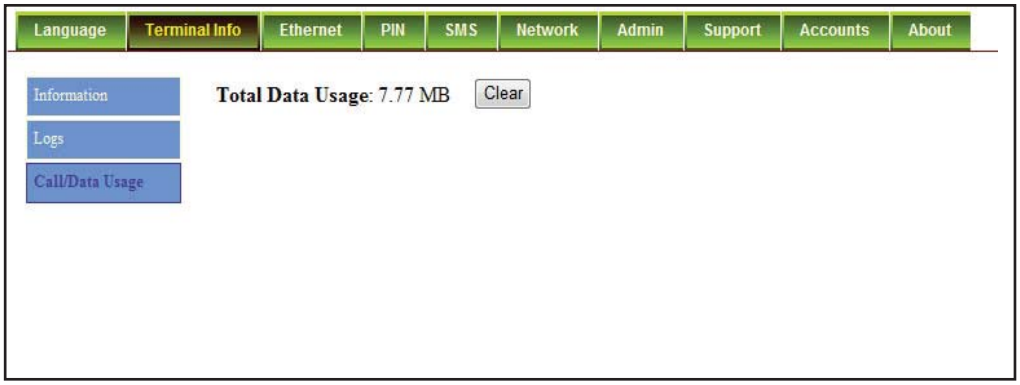
Terminal Info

- Information
  - Displays information about the Manufacture ID, Software version, Model ID, IMEI number, IMSI number (only when a SIM card is inserted) and Subscriber number.

- Logs
  - Displays event logs and error logs.

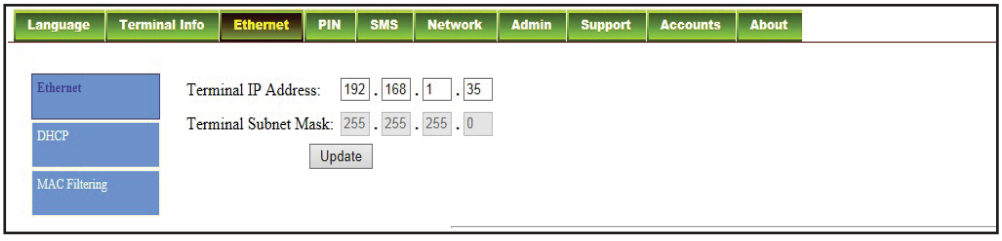


- Call/Data Usage
  - Displays information on the call and data usage.

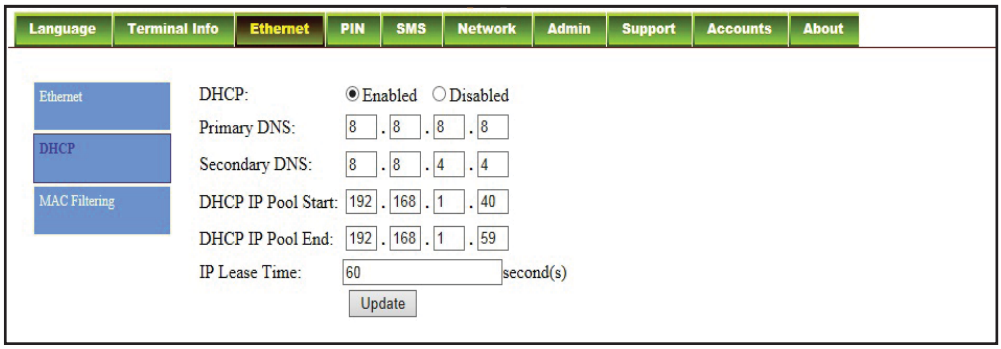


Ethernet

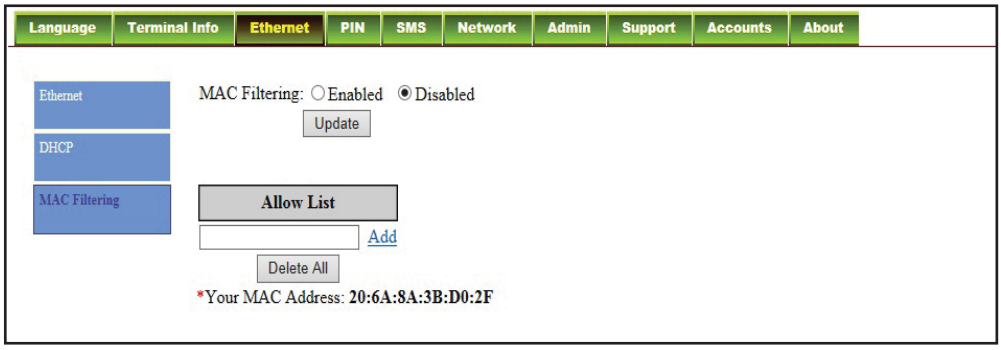
- Click **Ethernet** to view and edit the Ethernet settings.
- Click **Update** to allow the settings to take effect.



- Click **DHCP** to view and edit the DHCP settings.
- Click **Update** to allow the settings to take effect.

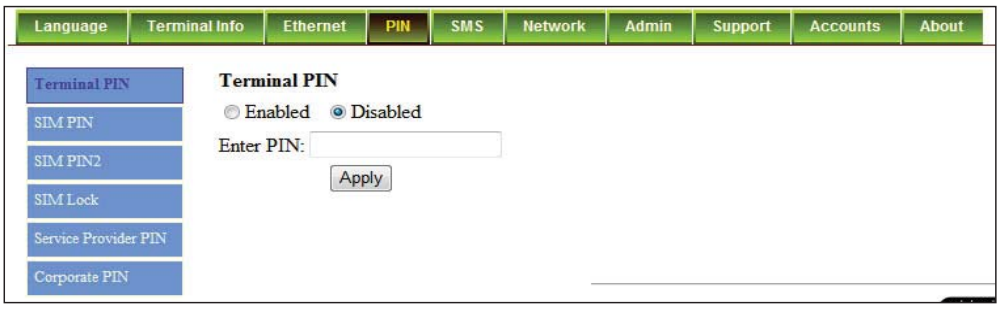


- Click **MAC Filtering** to view and edit the MAC Filtering settings.
- Click **Update** to allow the settings to take effect.



PIN

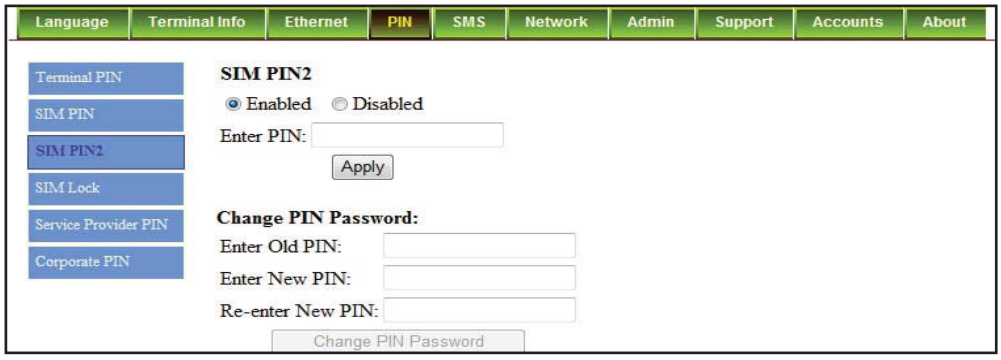
- Terminal PIN
  - Click **Terminal PIN** to configure the Terminal PIN settings.
  - Select **Disabled** if you do not need to set the Terminal PIN.



  - Select **Enabled** to set the terminal PIN.
  - Enter the PIN number in the **Enter PIN** field and click **Apply**.

- SIM PIN
  - Click SIM PIN to configure the SIM PIN settings.
  - Select Disabled if you do not need to set the SIM PIN.

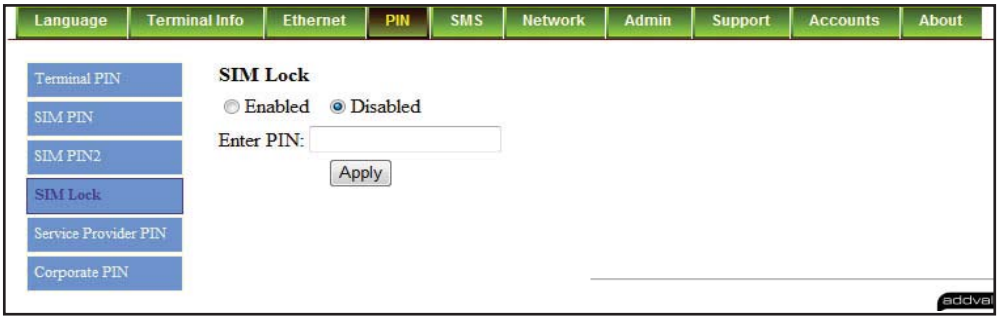
  - Select Enabled to set the SIM PIN.
  - Enter the PIN number in the space provided and click **Apply.**
- SIM PIN2
  - Click SIM PIN2 to configure the SIM PIN2 settings.
  - Select Disabled if you do not need to set the SIM PIN2.
  - Select Enabled to set the SIM PIN2.
    Enter the PIN number in the space provided and click Apply.



To change the PIN Password:

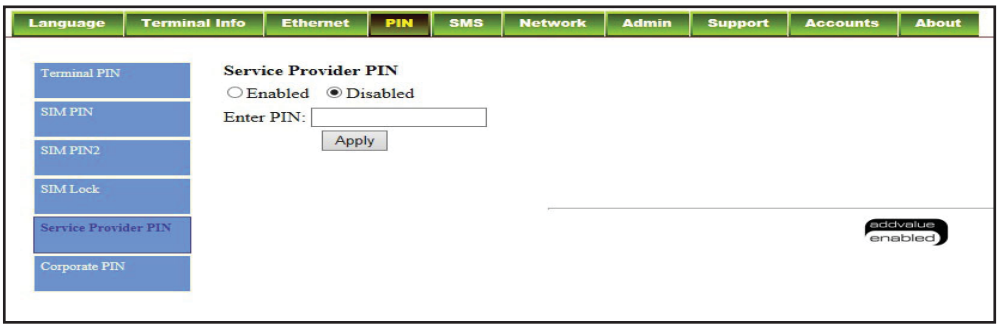
1. Enter the old PIN number in the **Enter Old PIN** field.
2. Enter the new PIN number in the **Enter New PIN** field.
3. Re-enter the new PIN number in the **Re-enter New PIN** field.
4. Click **Change PIN Password.**
   The Terminal PIN is now changed.

- SIM Lock
  - Click **SIM Lock** to configure the SIM Lock settings.



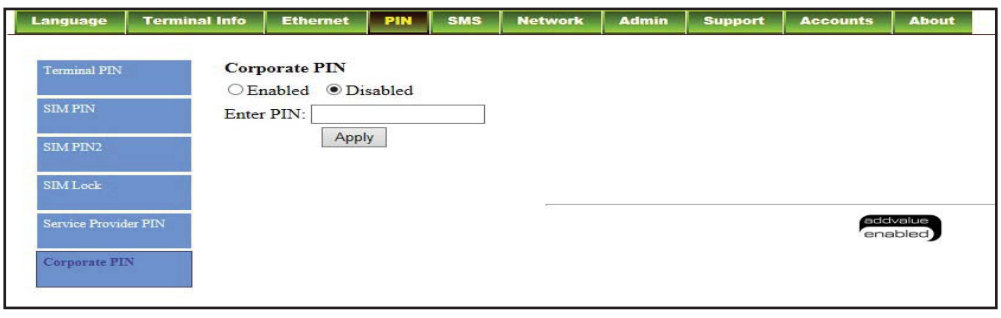
  - Select **Disabled** if you do not need to set the SIM Lock.
  - Select **Enabled** to set the SIM Lock.
  - Enter the PIN number in the space provided and click **Apply**.

- Service Provider PIN
  - Click **Service Provider PIN** to configure the Service Provider PIN settings.



  - Select **Disabled** if you do not need to set the Service Provider PIN.
  - Select **Enabled** to set the Service Provider PIN.
  - Enter the PIN number in the space provided and click **Apply**.

- Corporate PIN
  - Click **Corporate PIN** to configure the Corporate PIN settings.



  - Select **Disabled** if you do not need to set the Corporate PIN.
  - Select **Enabled** to set the Corporate PIN.
  - Enter the PIN number in the space provided and click **Apply**.

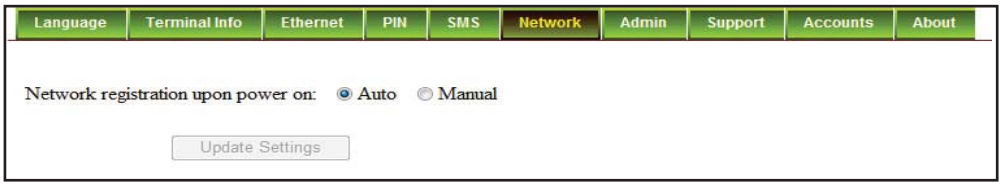
SMS

- SMSC
  - To change the SMS service Centre Address number, enter the new number in the space provided and click **Update.**

- Remote Control
  - User can control the SABRE™ Ranger M2M remotely via SMS.
  - In this section, user can configure such that the SABRE™ Ranger M2M respond to all SMS, or only SMS from the authorized phone number.
  - If “Allow only listed numbers” is selected, SMS command sent by phone number out of the list will be ignored and will not be executed by SABRE™ Ranger M2M.
  - For Inmarsat Specific AT commands, the password must tally with the password under the SMS Password field. The default password is **0000**.

Network

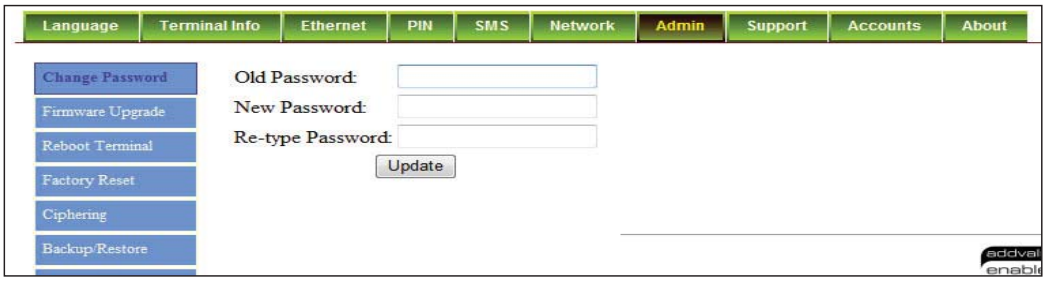
Select **Auto** or **Manual** for Network registration when SABRE™ Ranger M2M terminal is powered up.



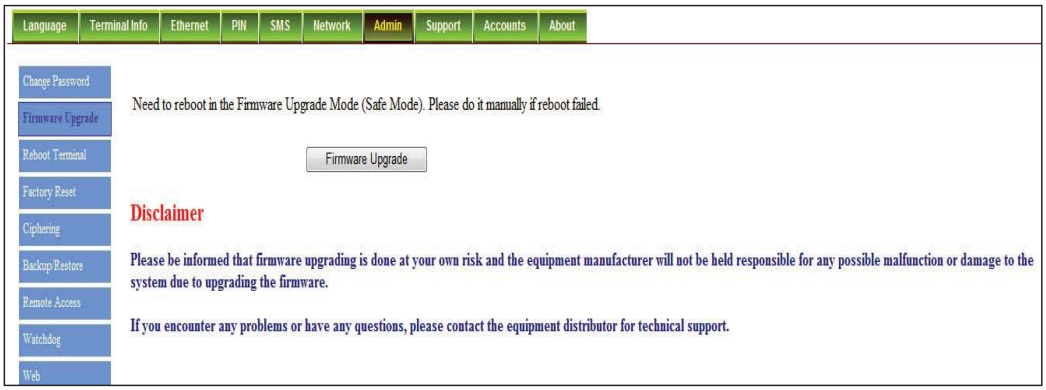
- **Auto**: SABRE™ Ranger M2M terminal will automatically register to the network when it is powered up.
- **Manual**: You will need to click **Network Registration** on the **Setup** page to register to the network.
- Click **Update Settings** after you have made your selection.

Admin

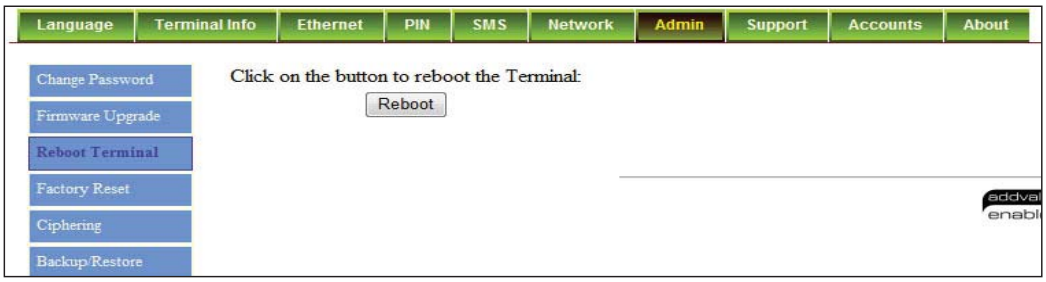
- Change password
  - User can change the password of admin by keying in the new password here.
  - The default password is **wideye.**



- Firmware Upgrade
  - Click on **Firmware Upgrade** to reboot the terminal in Safe mode whereby you can browse to choose the desired firmware to upload.

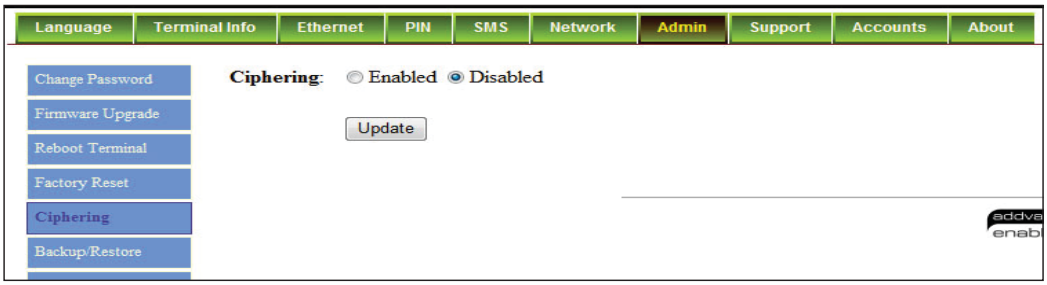


- Reboot Terminal
  - Click **Reboot** to reboot the SABRE™ Ranger M2M terminal.

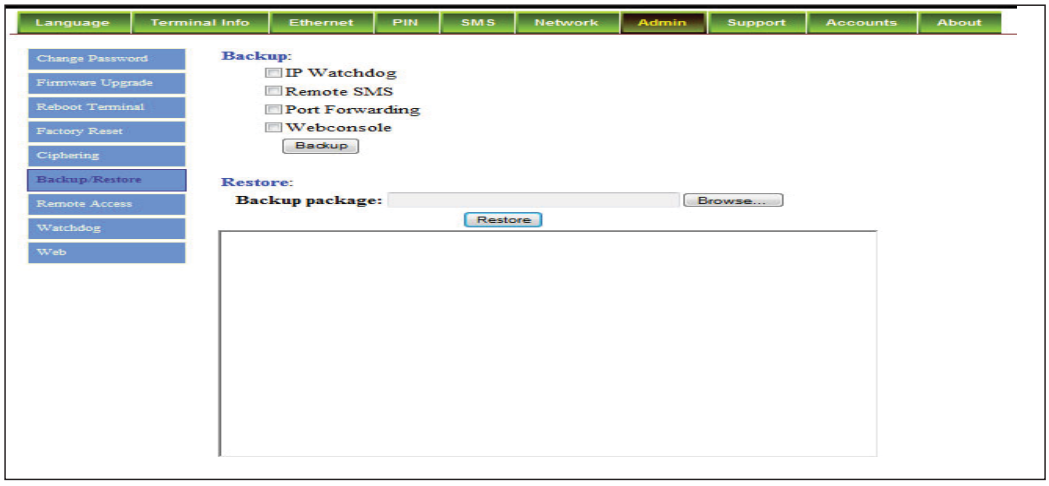


- Factory Reset
  - To perform a factory reset, enter the Security code **0000** and click **Factory Reset.**
  - The settings of the SABRE™ Ranger M2M terminal will be reset to the default settings.

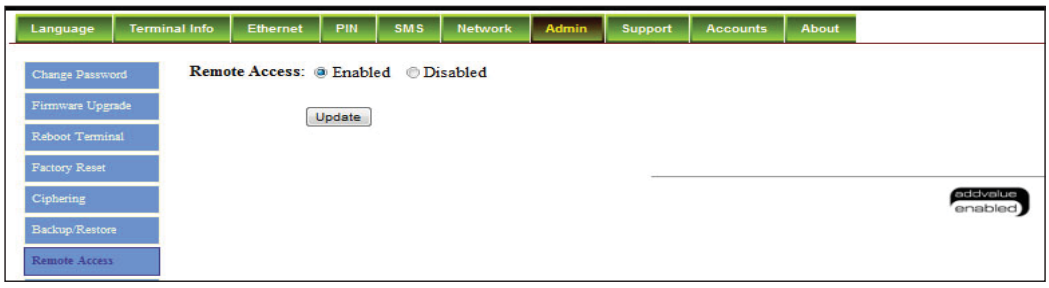
- Ciphering
  - For added security, user can choose to enable Ciphering mode, and any data transferred via the terminal will be encrypted.
  - To enable ciphering, Select **Enabled** and click on **Update.**



- Backup/Restore
  - Select on the desired item/items that you wish to backup and click on **Backup.** It will prompt you to save the file.
  - To restore, **browse** for the desired backup package and click on **Restore.**



- Remote Access
  - If remote access is enabled, user can login via the webconsole remotely.
  - To enable remote access, select **Enabled** and click on **Update.**

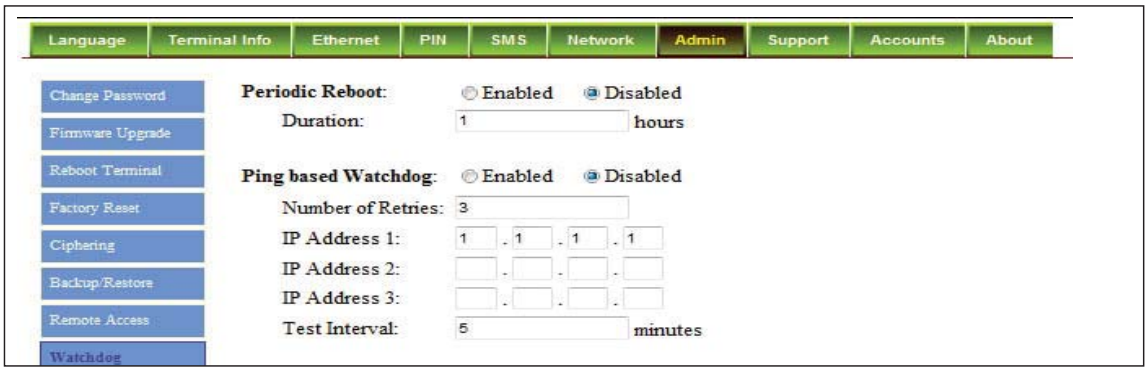


- Watchdog
  - Periodic reboot

    - Periodic reboot is used for maintenance purpose
    - User can set a duration for periodic reboot

  - Ping based Watchdog

    - User can set IP watchdog up to 3 IP address with a number of trial and interval time
    - Must be in multi-user mode



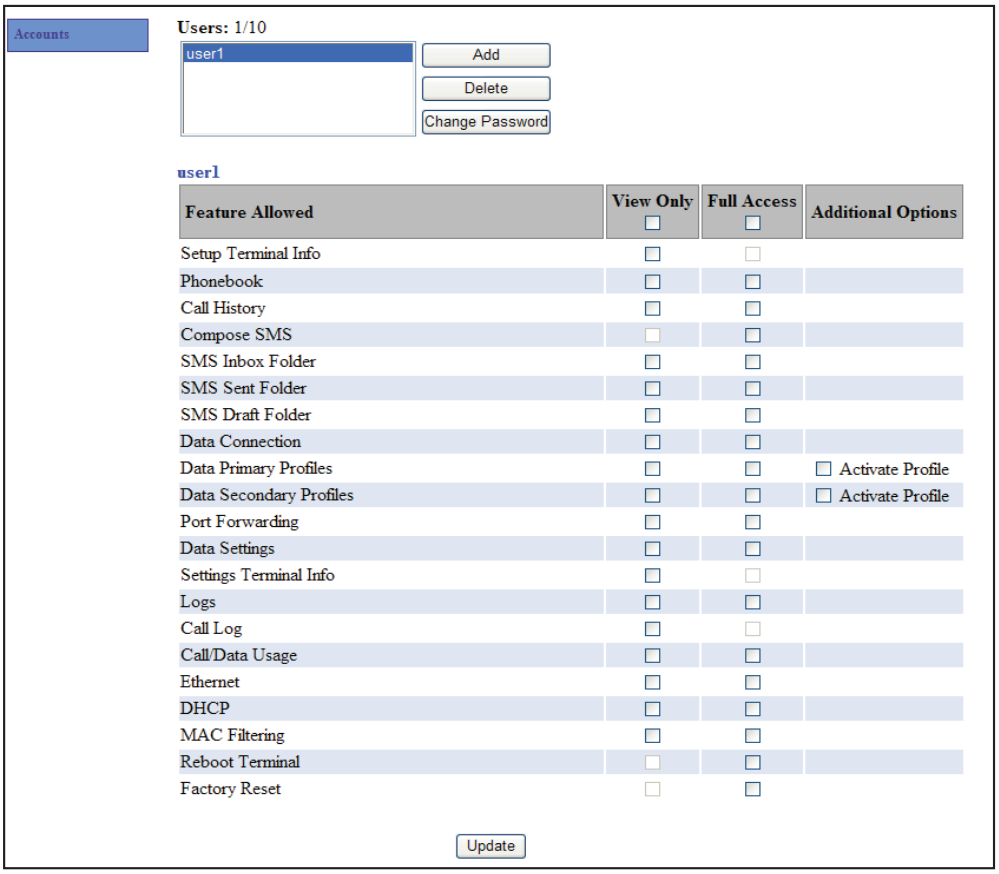
Support

- Display information of the support telephone number, support email address, Support URL and Services URL.
- (The information shown are for sample purpose only.)

Accounts

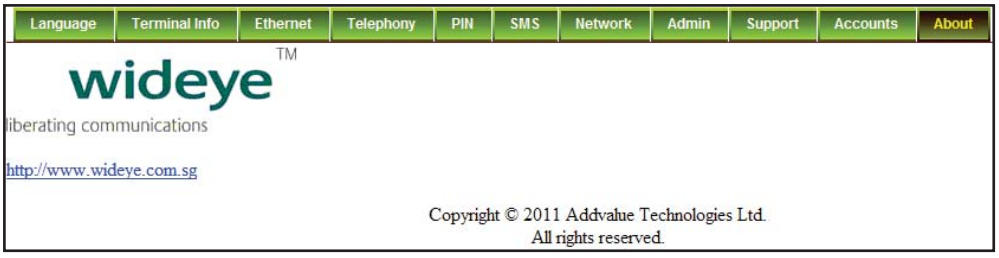
- User can create up to 10 user profiles, each with different access right.
- Click on Add to create a username secured with password.

- Once a user profile is created, user will be prompted to configure the access right of the account, as shown in the figure below. After selecting the access for the created account, click on **Update to allow settings to take effect.**



About

- Displays the **wideye web address** and **copyright information.**



Troubleshooting

Problem	Probable Cause	Solution
SABRE™ RANGER M2M terminal fails to turn on, or functions intermittently.	Multi-function cable not connected properly to the SABRE™ RANGER M2M terminal.	Turn on SABRE™ RANGER M2M terminal using the power from the mains via the power adapter.
	Power adapter output connector on the multi-function cable has come loose.	Check that the adapter output connector on the multi-function cable is properly connected.
	The power adapter (AC adapter) is not plugged in properly.	Check that the power adapter is plugged in properly.
	The power adapter (AC adapter) has no power from the AC outlet.	Move the AC cord to a different outlet, check for a line switch or tripped circuit breaker for the AC outlet.
	The power adapter (AC adapter) is faulty.	Try using a different power adapter.
SABRE™ RANGER M2M terminal fails to obtain a GPS co-ordinates.	Extend GPS co-ordinates acquisition time. (Up to 10 minutes.)	Re-orientate the position and adjust the elevation of the SABRE™ RANGER M2M terminal to the appropriate direction with a clear view to the open sky.
		If the SABRE™ RANGER M2M terminal is placed at an obstructed open area, it is recommended to level the SABRE™ RANGER M2M terminal horizontally with an unobstructed view of the sky.
SABRE™ RANGER M2M terminal is unable to receive a signal or the signal that is received from the BGAN satellite is weak.	The SABRE™ RANGER M2M terminal is not aligned in the direction of the BGAN satellite.	With the help of a compass and using Web Console, ensure that the SABRE™ RANGER M2M terminal is pointing towards the direction of the BGAN satellite. Re-orientate the position and adjust the elevation of the SABRE™ RANGER M2M terminal to receive maximum signal strength.
	Presence of obstructions between SABRE™ RANGER M2M terminal and the BGAN satellite.	Ensure that there are no obstructions between SABRE™ RANGER M2M terminal and the BGAN satellite.

Problem	Probable Cause	Solution
Unable to start firmware upgrade with the SABRE™ RANGER M2M terminal.	The Ethernet cable has come loose.	Ensure the Ethernet cable is securely connected. Perform firmware upgrade after restarting the SABRE™ RANGER M2M terminal.
Time out when transferring file to SABRE™ RANGER M2M terminal during firmware upgrade.		
Fail to transfer file to the SABRE™ RANGER M2M terminal during firmware upgrade.	Incorrect upgrade package/file is selected.	Ensure the correct upgrade package/file is selected. Perform firmware upgrade after restarting the SABRE™ RANGER M2M terminal.
The SABRE™ RANGER M2M terminal is registered to the network but fails to make data connection.	The stored GPS co-ordinates is outdated if the SABRE™ RANGER M2M terminal is not used for a few days or the GPS position is not matching with the current geographic location (this is true especially if the terminal was moved from one location to another location.	Turn on SABRE™ RANGER M2M terminal and select New GPS to obtain new GPS co-ordinates. Point SABRE™ RANGER M2M terminal to the appropriate direction with a clear view to the open sky.
		If the SABRE™ RANGER M2M terminal is placed at an obstructed open area, it is recommended to level the SABRE™ RANGER M2M terminal horizontally with an unobstructed view of the sky.

Temperature Warnings

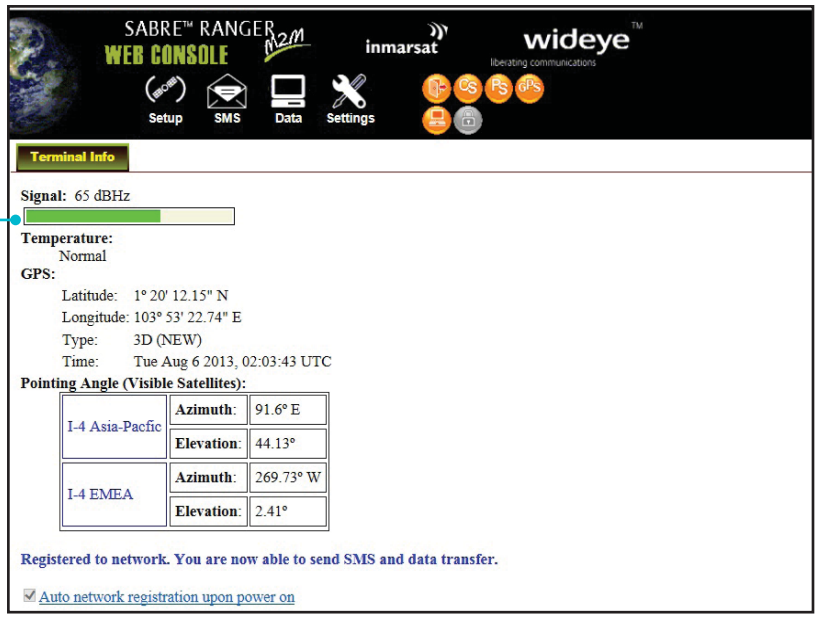
The table below shows the response of SABRE™ Ranger M2M to internal temperature transitions:

From	To	Action
Normal	Hot	Display warning message.
	Cold	No action needed.
Hot	Hotter	Block new call (excluding existing calls) and no reduction on PS speed.
	Normal	No action needed.
Hotter	Hottest	Blocks new CS calls and terminates existing calls. No reduction on PS speed.
	Hot	Display warning message.
Hottest	Extremely Hot	Terminal reboot
	Hotter	Block new call (excluding existing calls) and no reduction on PS speed.

The table below lists the temperature range and definitions for SABRE™ Ranger M2M:

Internal Terminal Temperature (T)	Temperature Range Definition
0 °C ≤ T < 70 °C	Normal
70 °C ≤ T < 80 °C	Hot
80 °C ≤ T < 85 °C	Hotter
85 °C ≤ T < 90 °C	Hottest
90°C - T	Extremely Hot

Normal Temperture



Error Messages

Numeric Text	Description
0	phone failure
1	no connection to phone
2	phoneadaptor link reserved
3	operation not allowed
4	operation not supported
5	PHSIM PIN required
6	PH-FSIM PIN required
7	PH-FSIM PUK required
10	SIM not inserted
11	SIM PIN required
12	SIM PUK required
13	SIM failure
14	SIM busy
15	SIM wrong
16	incorrect password
17	SIM PIN2 required
18	SIM PUK2 required
20	memory full
21	invalid index
22	not found
23	memory failure
24	text string too long
25	invalid characters in text string
26	dial string too long
27	invalid characters in dial string
30	no network service
31	network timeout
32	network not allowed - emergency calls only
40	network personalization PIN required
41	network personalization PUK required
42	network subset personalization PIN required
43	network subset personalization PUK required
44	service provider personalization PIN required
45	service provider personalization PUK required
46	corporate personalization PIN required
47	corporate personalization PUK required
48	hidden key required (NOTE: This key is required when accessing hidden phonebook entries.)
132	service option not supported (#32)
133	requested service option not subscribed (#33)
134	service option temporarily out of order (#34)
149	PDP authentication failure

Firmware Upgrade

Firmware upgrade is to update your SABRE™ Ranger M2M terminal with the latest firmware. Please refer to your respective distributor for your firmware download.

Local firmware upgrade

Note:
Before upgrading the SABRE™ Ranger M2M terminal with the new firmware, please read through the release notes that is provided with the new firmware.

Follow these steps to perform local firmware upgrade for your SABRE™ Ranger M2M terminal:

1. Download or acquire the new firmware from your respective distributor and save it in your computer's hard drive.

   Note:
   Make sure the SABRE™ Ranger M2M terminal is switched on and connected to the desktop/laptop computer via the Ethernet cable.

2. Navigate to Firmware Upgrade function in the Web Console. Settings>Admin>Firmware Upgrade

3. Click on "Firmware Upgrade". SABRE™ Ranger M2M terminal will then automatically reboot in to SAFE mode. Wait for the SAFE mode WebConsole login page to appear. If you do not see the WebConsole login page appearing within 2 ~ 3 minutes, refresh the webpage to get to the WebConsole login page.

4. Click on "Firmware Upgrade" and select the downloaded new firmware (with the file name extension ".sb1", e.g., sb1) and click **Upload**. Firmware upgrade will take approximately 10 to 12 minutes to complete.

5. After that, the terminal will reboot. When the terminal is up, do a factory reset to complete the upgrading process.

   Note:
   If you encounter any errors (such as timeout errors) during the firmware upgrade process, power down the SABRE™ Ranger M2M terminal and unplug the power supply. Next, connect the power supply and power up the SABRE™ Ranger M2M terminal. Attempt the firmware upgrade process from the beginning.

6. If you encountered firmware corruption during the process of firmware upgrade, please reboot the terminal while pressing on the tact switch. Firmware upgrade can be continued after boot up in Safe Mode operation.

Remote firmware upgrade

The Sabre Ranger M2M terminal can be upgraded remotely via AT command or SMS command message. They get firmware from the updated server with specified APN and update depending on the mode. The two AT commands

to be used are IGETFW and IUPDFW(depending on the firmware upgrade mode).

For the detailed explanation of the local and remote firmware upgrade process, please refer to the ***System Integrators Guide Appendix Usage Example 2.***

The BGAN System

Inmarsat's Broadband Global Area Network (BGAN) is the world's first mobile communications service of any kind to provide both voice and broadband data simultaneously through a single, truly portable device on a global basis.

It is also the first mobile communication service to offer guaranteed data rates on demand.

Delivered via the world's most sophisticated commercial communication satellites, BGAN provides affordable, mobile broadband services at speeds up to half a megabit in a highly portable, easy to use form.

Delivering the global broadband mobile office
BGAN extends the boundaries of the broadband mobile office that 3G services are beginning to deliver.

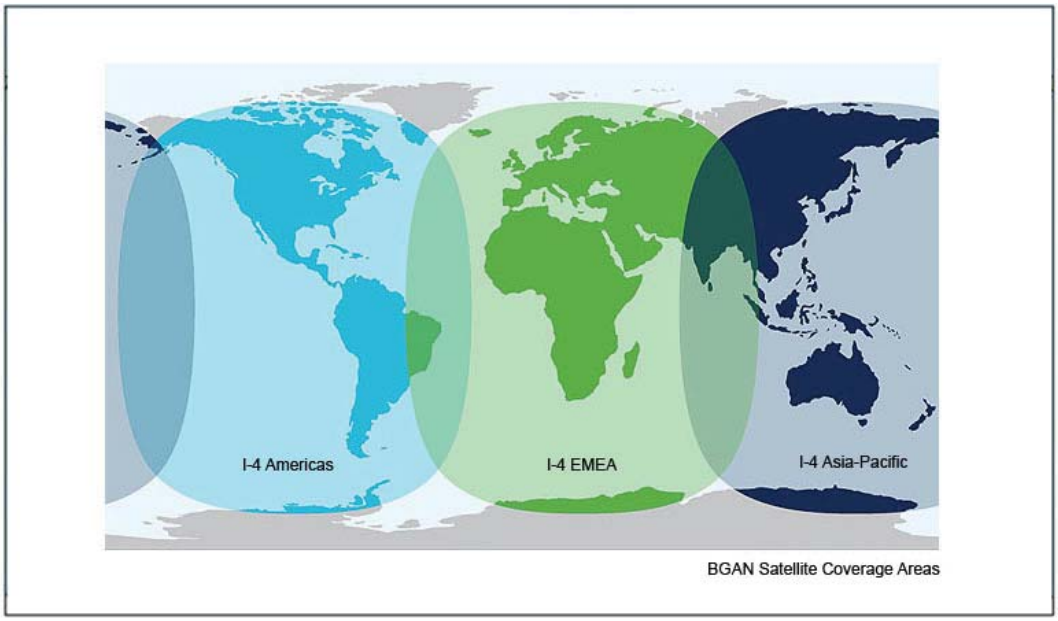
Data
With the Standard IP service you can access your corporate network via a secure VPN connection at speeds up to 492 kbps, to use e-mail and other office applications, browse the Internet and send large file attachments.

Streaming IP
For applications where quality of service is paramount, such as live video or video-conferencing, BGAN offers a Streaming IP service up to 256 kbps on demand. You have the flexibility to choose the data rate on a case-by-case basis, depending on your application.

Phone
With BGAN, you can make a phone call at the same time as accessing your data applications. You can use a standard desktop phone or custom handset. Voicemail and other standard 3G mobile supplementary services are also available.

Text
BGAN enables you to send and receive text messages via your laptop - up to the standard 160 characters - to or from any mobile phone.

BGAN coverage
BGAN delivers seamless network coverage across most of the world's landmass. It enables you to get broadband connectivity wherever you go - not just in major cities or at the airport. The BGAN service is accessible throughout Europe, Africa, the Middle East, Asia, North, South and Central America.



BGAN Satellite Coverage Areas

AT Commands List

General commands (3GPP TS 27.007)	
Request manufacturer identification	+CGMI
Request model identification	+CGMM
Request revision identification	+CGMR
Request product serial number identification	+CGSN
Request international mobile subscriber identity	+CIMI

Generic TE-TA Interface & TA Control Commands (ITUT V.25ter)

Call control commands and methods (3GPP TS 27.007)	
ITUT V.25ter dial command	D
Hangup call	+CHUP
Extended error report	+CEER
Silence Command	+CSIL

Network service related commands (3GPP TS 27.007)	
Subscriber number	+CNUM
Network registration	+CREG
PLMN selection	+COPS
Facility lock	+CLCK
Change password	+CPWD
Calling line identification presentation	+CLIP
Calling line identification restriction	+CLIR
Connected line identification presentation	+COLP
Closed user group	+CCUG
Call forwarding number and conditions	+CCFC
Call waiting	+CCWA
Call related supplementary services	+CHLD
Call deflection	+CTFR
Unstructured supplementary service data	+CUSD
Supplementary service notifications	+CSSN
List current calls	+CLCC
Read operator names	+COPN
eMLPP Priority Registration and Interrogation	+CAEMLPP
eMLPP subscriptions	+CPPS
Fast call setup conditions	+CFCS
Automatic answer for eMLPP Service	+CAAP

Mobile Termination control and status commands (3GPP TS 27.007)	
Phone activity status	+CPAS
Set phone functionality	+CFUN
Enter PIN	+CPIN
Battery charge	+CBC
Mobile Termination event reporting	+CMER
Select phonebook memory storage	+CPBS
Read phonebook entries	+CPBR
Find phonebook entries	+CPBF
Write phonebook entry	+CPBW
Generic SIM access	+CSIM
Restricted SIM access	+CRSM
Secure control command	+CSCC
Set Voice Mail Number	+CSVM
Master Reset	+CMAR
Mobile Termination errors - Report Mobile Termination error	+CMEE

Commands for the Packet Domain (3GPP TS 27.007)	
Define PDP Context	+CGDCONT
Define Secondary PDP Context	+CGDSCONT
Traffic Flow Template	+CGTFT
Quality of Service Profile (Requested)	+CGQREQ
Quality of Service Profile (Minimum acceptable)	+CGQMIN
3G Quality of Service Profile (Requested)	+CGEQREQ
3G Quality of Service Profile (Minimum acceptable)	+CGEQMIN
Network Attach or Detach	+CGATT
PDP context activate or deactivate	+CGACT
PDP Context Modify	+CGCMOD
Show PDP address	+CGPADDR
Packet Domain event reporting	+CGEREP
GPRS network registration status	+CGREG
Select service for MO SMS messages	+CGSMS

Generic TE-TA interface & TA control commands (ITUT V.25ter)	
Command line termination character	S3
Response formatting character	S4
Command line editing character	S5
Command echo	E
Result code suppression	Q
Command response (verbose format)	V
CONNECT result code format (values manufacturer specific)	X
Soft reset (clears memory and retrieves the stored values)	Z
Factory Reset	&F

Modem compatibility commands (3GPP TS 27.007)	
Request Packet Domain IP service	D

DTMF and tone generation (3GPP TS 27.007)	+VTS

SMS Service (3GPP TS 27.005)

General Configuration AT-Commands	
Select Message Service	+CSMS
Preferred Message Storage	+CPMS
Message Format	+CMGF
Message Service Failure Result Code	+CMS ERROR

Message Configuration Commands (3GPP TS 27.005)	
Service Centre Address	+CSCA
Set Text Mode Parameters	+CSMP
Show Text Mode Parameters	+CSDH
Save Settings	+CSAS
Restore Settings	+CRES

Message Receiving and Reading Commands	
New Message Indications to TE	+CNMI
List Messages	+CMGL
Read Message	+CMGR
New Message Acknowledgement to ME/TA	+CNMA

Message Sending and Writing Commands	
Send Message	+CMGS
Send Message from Storage	+CMSS
Write Message to Memory	+CMGW
Delete Message	+CMGD
Send Command	+CMGC

Inmarsat Proprietary Commands

BGAN Specific AT-Commands	
_IPOINT	Antenna Pointing
_INIS	Network Interface Status
_ITFT	UT Traffic Flow Template
_ITEMP	UT Temperature
_ILOG	Retrieve UT log file
_IMETER	Call Metering
_SIG	Signal quality indication
_IBNOTIFY	Control the sending of unsolicited result codes

Inmarsat M2M Specific AT-Commands	
_IGETFW	Get firmware file from update server with specified APN
_IUPDFW	Update firmware after file download
_ISENDFILE	Upload event/error file to server with specified APN
_IGETFILE	Get file from server with specified APN
_IUPDCFG	Update the configuration file
_IUPDCFG?	Read the configuration file
_IMACLOC	Enable/Disable MAC address locking
_IMACLOCAD	Set the allowed MAC address list
_ICLCK	Enable/Disable the remote facility commands
_ICPWS	Set/Reset the facility password
_ISMSRMT	Enable/Disable remote SMS commands
_IREMWEBL	Enable/Disable remote access to the WebConsole
ADPWRST	Resets the admin password

The SABRE™ Ranger M2M terminal includes a FTP client. The operator can send SMS messages or AT commands to command the SABRE™ Ranger M2M to send or retrieve files from a FTP server in the network or Internet. This allows the SABRE™ Ranger M2M to be upgraded, reconfigured and also allows log files to be sent back to the server.

The remote upgrade process uses download firmware and firmware upgrade commands (see “System Integrators Guide”).

Addvalue Propietary SMS Commands

CONNECT	To establish an IP data connection
DISCONNECT	To terminate an IP data connection
RESET	To soft-reboot the User Terminal
READDEFAULTAPN	To read default APN name
WRITEDEFAULTAPN	To update new default APN name

All commands are encoded in ASCII text format, as shown below:

SABRE, <COMMAND> [,<Parameter>]

where, the keyword, command and password are delimited with comma.

SABRE: A fixed prefix keyword to indicate that the message contain an SMS command.

<COMMAND>: A string indicating the SMS command. It must be in upper case.

<Parameter>: COMMAND specific parameter. One or more of this field may present depending on the COMMAND being used.

The detailed syntax of the messages is covered in the “System Integrators Guide”.

Technical Specifications

Air Interface

Inmarsat-4 Air Interface:	
Frequency Band	Receive: 1525MHz - 1559MHz Transmit: 1626.5MHz - 1660.5MHz
Channel Modulation	Receive: QPSK and 16QAM Transmit: π/4 QPSK
Antenna	Built-in Patch Antenna, 8dBic
Transmitting Power	EIRP 10dBW +/- 1dB accuracy
GPS Air Interface	Integrated GPS receiver & antenna
Maximum Bearer Data Rate	Receive: Up to 384 kbps Transmit: Up to 240 kbps

Hardware Interface

Ethernet/LAN	1 x Ethernet port (RJ45) Standard: IEEE 802.3 10Base-T Data Rate: 10Mbps Transmission Mode: Full/Half Duplex Maximum Cable Length: Up to 100 meters or 328 feet

User Interface

SABRE™ Ranger M2M Web Console	The Web Console allows the SABRE™ Ranger M2M terminal to be accessed via a PC or laptop. Functions supported by Web Console are as follows: • System setup: Assists the user in accurately pointing the terminal at the Inmarsat-4 satellite for maximum signal strength. • Security settings • Data logging • SMS • GPS • Network services • Usage tracking • IP watchdog

Environmental - SABRE™ Ranger M2M

Operating Temperature (Ambient): **SABRE™ Ranger M2M**	-40°C to +75°C, -40°F to +167°F
Storage Temperature (Ambient): Terminal	-40°C to +80°C, -40°F to +176°F
Operating Humidity	95% non-condensing at +40°C or +104°F
Storage Humidity	5% RH to 95%RH

Compliance Approvals

FCC IDENTIFIER	QY9-SBRANGER
FCC Rules	Parts 2, 15 and 25: 2008
Industry Canada	RSS – 170 Issue 1, Revision 1: Nov. 1999
IC IDENTIFIER	IC: 5023A-SBRANGER
CE Marked	Notified body number 1177
	Statement of Opinion number – TCF-471SC9
IEC CB Certification	IEC 60950 – 1 AND EN 60950-1
R&TTE Directive 1999/5/EC	ETSI EN 301 489-1 , ETSI EN 301 489-20, ETSI EN 301 681, ETSI EN 300 328 , EN 50385 , EN 50371, ITU-R M.1480
CSA Safety	cCSAus , CAN/CSA C22.2 No.60950-1 , ANSI/UL 60950-1 and CAN/CSA C22.2 No.60950-22 , ANSI/UL 60950-22
Inmarsat Type Approved	B3AD01
RoHS-EU Directive 2002/95/EC	Tested to IEC 62321 Ed1 – Part 6.
Ingress Protection	IP 65 (IEC 60529: 2001)
Hazardous Location	Class I Division 2, GR. ABCD T4 Ta= -40°C to +75°C; 15 Vdc, 2.5A
	ATEX Zone2, Grii Cat3 (Manufacturer DoC)

Electrical Characteristics

SABRE™ Ranger M2M:	
DC Input	12V - 18V DC min 2A
Power Consumption: Standby Operating	 6 watts 22 watts

Physical Characteristics

Weight	1.5 kg 3.3 lbs
Dimensions	305 x 186 x 49 mm 12 x 7.32 x 1.93 in.