USER MANUAL
FOR SEA TEL MODEL
FX 500 FLEETBROADBAND
ANTENNA SYSTEM

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Sea Tel Inc is also doing business as Cobham Antenna Systems

March 26, 2012 **Document. No. 136326 Revision X1**

Sea Tel Marine Stabilized Antenna systems are manufactured in the United States of America.

Sea Tel is an ISO 9001:2000 registered company. Certificate Number 19.2867 was issued August 12, 2005. Sea Tel was originally registered on November 09, 1998.

CE

The Series 03/06 Family of Marine Stabilized Antenna Pedestals with DAC-03 Antenna Control Unit complies with the requirements of European Norms and European Standards EN 60945 (1997) and prETS 300 339 (1998-03). Sea Tel European Union Declaration of Conformity for this equipment is contained in this manual.

CE Document here

Revision History

REV	ECO#	Date	Description	By
X1	N/A	March 26, 2012	Initial Release.	HFW

Regulatory Information

Federal Communication Commission Notice

FCC Identifier: BJF-STFX500BDE

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 FleetBroadband System Sea Tel FX 500.

Industry Canada Statement:

IC: 10236A-FX500BDE

This device complies with Radio standard specification RSS -170 and RSS-210 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.

EC Declaration of Conformity:

Sea Tel Inc., 4030 Nelson Avenue, Concord, California 94520, United States of America, declares under our sole responsibility that the Product, brand name as **Sea Tel** and model: FX500 Fleet broadband satellite communication system, to which this declaration relates, is in conformity with the following standards and/or other normative documents:

ETSI EN 301 444, ETSI EN 301 489-1, -17,-19 & -20, ETSI EN 300 328 IEC 60945 / EN 60945,

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, NEWBERRY, FLORIDA 32669.
Identification mark: 1177 (Notified Body number)

CE 1177 !

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

Sea Tel Inc. , 4030 Nelson Avenue , Concord, California 94520, USA

Signed by Mr. John Phillips (VP Engineering , 26 March , 2012) and

Mr. Richard C. Dean (Supervisor of Electronics Engineering, 26 March, 2012).

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1. Introduction

1.1. Safety

For the sake of safety and protection, read this manual before attempting to use the FleetBroadband System.

The following general safety precautions must be observed during all phases of operation, service, and repair of this equipment. Failure to comply with these precautions, or with specific warnings elsewhere in this user guide, violates the safety standards of the intended use of the system.

Sea Tel Inc. assumes no liability for the customer's failure to comply with these requirements.

1.2. Hazard Symbols

Be certain that you are aware of and heed these symbols.

Heated Surfaces 	• Avoid touching areas of the equipment that are marked with this symbol, otherwise it may result in heat related injury.
Antenna Radiation Warning and Distance to other Radiation Equipment 	• For safety reasons, all personnel must keep at least 2 meters from the ADU. o This is based on the IEEE/ANSI C95 Standard (1.4 meters).
Power Supply 	• Turn off the power at the mains switchboard before beginning installation. • Confirm that the power voltage is compatible with the voltage rating of the equipment. It is highly recommended to use a +24V DC power line, if it is available on the vessel. • If there is no +24V DC power line provided by the vessel, an external AC/DC power supply with an input of 115/230V AC and an output of +24V DC can be used. • Note: Be certain that the AC/DC power supply is adequate to handle a high surge current of 25A at 24V DC for 1ms.

Grounding, cables and connections 	• The chassis of the equipment must be connected to an electrical ground. This will minimize the possibility of electric shock and mutual interference. In short, the equipment must be grounded to the vessel.
Service 	• Do not attempt to access the interior of the equipment. Only qualified personnel are authorized to perform service on it. Failure to comply with this rule will result in the warranty being void. • Under certain conditions, dangerous voltages may exist even with the power cable removed. To avoid injuries, always disconnect power before accessing the equipment.

1.3. Equipment Ventilation

To ensure adequate cooling of the transceiver, 5-centimeters of unobstructed space must be maintained around all sides of the unit except the bottom side. The ambient temperature range of the transceiver is: -25˚C to +55˚C.

1.4. Fire Precautions

The equipment must not be operated in the presence of flammable gases or fumes or any explosive atmosphere. Operation of any electrical equipment in such an environment constitutes a definite safety hazard.

1.5. Obtaining Licensing For Inmarsat Transceivers

Under rights given under ITU Radio Regulations, local telecommunications administrations establish and enforce national rules and regulations governing types of emissions, power levels, and other parameters that affect the quality of the signal that may be radiated in the various frequency bands of the radio spectrum.

To legally operate Inmarsat equipment it is necessary to obtain permission from the local telecommunications regulatory authorities of the country you are operating from. Using your equipment in any country without permission causes you to run the risk of confiscation of the equipment by the local authorities. The normal procedure to bring such equipment into another country is to apply for a license before travel. If a license has not been obtained before travel the equipment may be put in to storage by local authorities until such time as a license is obtained.

1.6. Basic Description

The FX 500 User Equipment (UE) is a dedicated compact solution specifically designed to meet the FleetBroadband (FBB) services for the maritime environment, providing seamless ocean coverage from 76˚ North to 76˚ South. FBB is the marine version of the highly successful BGAN (Broadband Global Area Network) from Inmarsat.

Using a maritime BGAN antenna, this equipment provides constant, simultaneous access to voice and high-speed data in a compact solution. This allows you to run an online operational system and still have access to email, intranet, and voice calls, achieving greater operational efficiencies and significantly reducing the cost of both business and crew communications.

1.7. Range of Services

- Email and webmail
- Secure communications
- Intranet and internet access
- SMS and instant messaging
- Videoconferencing and streaming
- Phone and fax* services
- Large file transfers

1.8. Features

The FX 500 offers the following features:

Coverage	Voice, fax and data are available globally, except for the extreme polar regions
Voice	4kbps AMBE+2 3.1KHz Audio
Fax	Group 3 fax via 3.1KHz Audio.
SMS	Standard 3G (up to 160 characters) per SMS. Maximum of 4 chained SMS.
Data	Standard IP: Up to 432 kbps Streaming IP: 32, 64, 128, 256 kbps

The UE has a built-in Web Console, allowing you to manage your phone book, messages, and calls, as well as customize the terminal to your specific needs.

1.9. Interfaces

The FX 500 has the following connecting interfaces:

- +12V/24V DC Power Input Connector
- Antenna Connector (N-Type)
- SIM Card Slot for FBB SIM card
- Dedicated Primary Handset port
- I/O Port
- GPS Output Port

The number of RJ45 Ethernet ports and RJ11 ports for the BDUs of the FX 500 are illustrated below:

RJ45 Ethernet Ports for PC and router	4 LAN Ports (including 2 PoE)
RJ11 Phone	Yes
RJ11 Fax	Yes
Built-in WiFi	Yes

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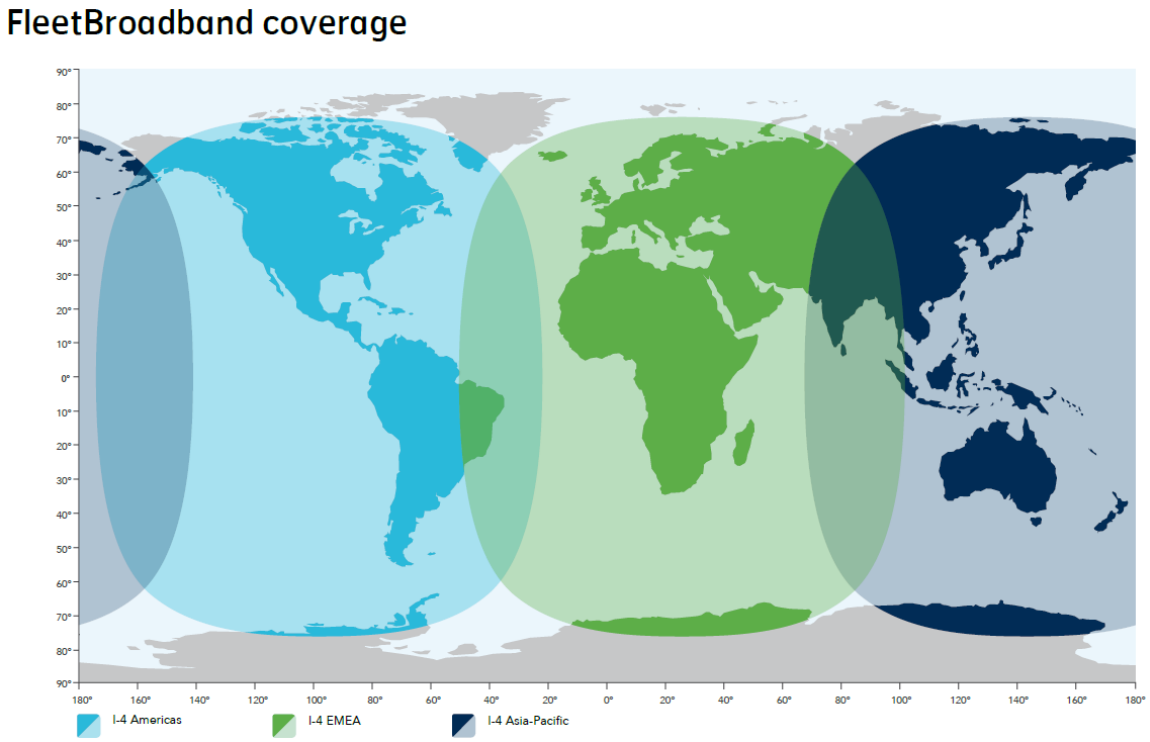
2. Overview of the FleetBroadband system

BGAN Services

The Broadband Global Area Network (BGAN) is a global Satellite Internet Network using portable terminals. The terminals are usually connected to a laptop computer to access broadband Internet in remote locations, where a line-of-sight to the satellite exists. The user can make phone calls, access the Internet, check e-mail, download files, or perform any other Internet activity using the terminals. The network is provided by Inmarsat and uses three geostationary satellites called I-4 to provide almost global coverage.

The map below shows the three I-4 satellite coverage regions.



Note: The above map depicts Inmarsat's expectations of coverage, but does not represent a guarantee of service. The availability of service at the edge of coverage areas fluctuates depending on various conditions.

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3. Main Units

3.1.1. Above Deck Unit (ADU), the antenna unit

The FX 500 ADU is maritime FBB Class 8, 3-axis controlled antenna.

The antenna is self-tracking, based on patented beam squint technology.

- The simple and robust electromechanical system, with one motor per free axis, provides full coverage in azimuth and elevation.
- Tracking is accomplished by measuring signals being continuously broadcast from the satellite.

The radome covers the antenna equipment, which is comprised of: • Antenna Unit • RF and GPS circuit • Rotary joint • Antenna pedestal The antenna unit includes an LNA (low noise amplifier), HPA (high power amplifier), and tracking receiver circuitry to ensure communication even in adverse circumstances.	

Height: 29.87" (758.8 mm)	Diameter: 28.85" (732.8 mm)	Weight: 42.5 lbs (16kg)

All signals (and power) pass through a single coaxial antenna cable, which connects the ADU to the BDU.

3.1.2. Below Deck Unit (BDU), the communication unit

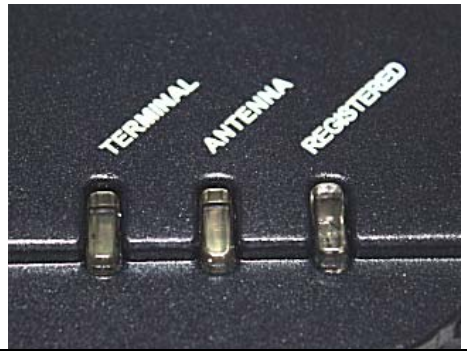
The BDU is the central unit of the FleetBroadband equipment.

It has been developed for maximum flexibility and is the controlling unit for the FX 500. It features a reliable industry standard interfacing field and enables users to have optimal connectivity no matter what the conditions or your position at sea.

The BDU has a built-in Web Console, which can be accessed from a computer connected to the BDU, using an Internet browser. The Web Console provides easy configuration of the BDU, firmware upgrade, and daily use. For more information see Chapter 4, Using the Web Console.

The BDU is supplied by a +12V or +24V DC power supply, and it supplies power to the ADU via a single RF /coaxial antenna cable.

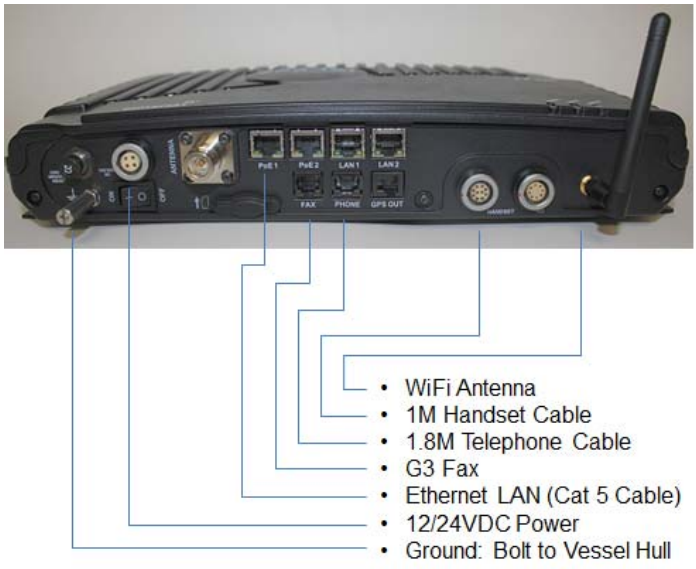
Status LEDs

There are 3 Status LEDs to indicate the operational status of the BDU at a glance. These LEDs are assigned to the following functions: • BDU Terminal Status • ADU Status • Registered to Network Status	

SIM Card Slot

The BDU has a SIM (Subscriber Identity Module) card slot located at the connector panel behind a small cover plate. The UE requires a dedicated FBB SIM card to access the FBB network and configure the settings of the UE.	

The BDU has several interface ports. It handles all communication links between the ADU, the primary handset, and the local communication devices, such as analog telephone, computer, network equipment, navigation equipment, etc.



Front Panel Connections

Resettable Circuit Breaker	LAN Ports (RJ45)
Grounding Stud	Fax Port (RJ11)
DC Power Connector	Phone Port (RJ11)
Power Switch	GPS Output Port
Antenna (N-Type) Connector	Primary Handset Port
SIM Card Slot	GPIO Port
PoE Ports (RJ45)	WiFi Antenna

3.1.3. Wired Primary handset with cradle

The wired Primary Handset has a color liquid crystal display (LCD) and keypad for making and receiving normal voice calls and sending SMS. Both are similar to any mobile phone.

The handset can serve as a remote access for a user to access various BDU functions. The Primary Handset's connector is plugged into the BDU's primary handset port. It is powered directly from the BDU. A cradle is provided with the handset. The ringer is located at the back of the handset.	

Primary Handset

The Primary Handset (corded) has a color LCD and keypad for making voice calls and sending SMS using an interface similar to that of a mobile phone. It can be used to control and configure the BDU.

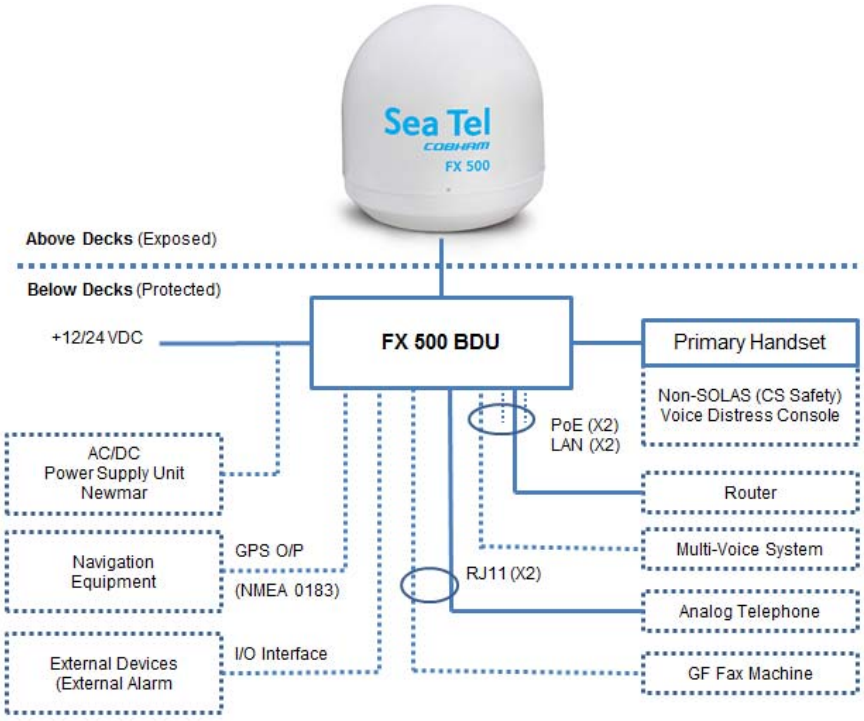
4. Simplified System Diagram

This system consists of the antenna, above decks, and the "BDU" (Below Deck Unit) below decks.

+12VDC or +24VDC is required. This may be supplied by the vessel, or an optional NewMar power supply may be purchased from Sea Tel Inc..

The Primary Handset functions as both a phone and as a remote control unit.

Other devices may be interfaced, as shown below.



(The solid lines refer to the basic configuration.)

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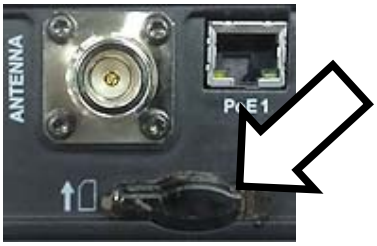
5. Preparation for Operation

5.1. Install the SIM card.

The system requires a SIM card to access the Inmarsat's FleetBroadband network and it is provided by your Airtime Service Provider.

5.1.1. Insert the SIM card to the BDU as follows:

1. Tilt up the SIM card slot's rubber cover	
2. Position the SIM card with its gold-contacts facing down. (There is a symbol of a SIM Card with its arrow on the front panel to ensure the correct orientation of the SIM Card when it is being inserted.)	
3. Push the SIM card gently until it clicks and is locked in place.	
4. Tilt down the SIM card cover to its original position.	

5.2. Powering up the system

1. Use the ON/OFF switch on the BDU's front panel. It normally takes about 1.5 to 3 minutes for the UE to be completely powered up.	
2. Wait for all LED indicators to turn green.	

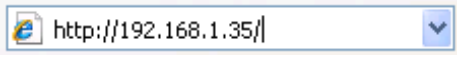
LED Name	Status	Meaning
TERMINAL	Steady Amber	BDU is powering up
	Steady Green	BDU has powered up successfully.
	Steady Red	BDU detects failure.
	Blinking Amber	Switching OFF BDU
ANTENNA	Steady Amber	ADU is powering up.
	Steady Red	ADU is not OK/Error
	Blinking Amber	ADU is calibrating.
	Blinking Green	System performs satellite search
	Steady Green	ADU has locked on to the satellite
REGISTERED	Steady Amber	Attempting network registration
	Steady Red	Network failure/Error
	Blinking Amber	Ready for voice only
	Blinking Green	Ready for packet data only
	Steady Green	Ready for all (Voice and Data)

6. Using the web console

6.1. 4.1 Register to the Network

1. Connect your computer to the FBB BDU using a LAN cable.

2. When the connection has been established, open the web browser.
3. Type **http://192.168.1.35** in the Address field and press **Enter**.

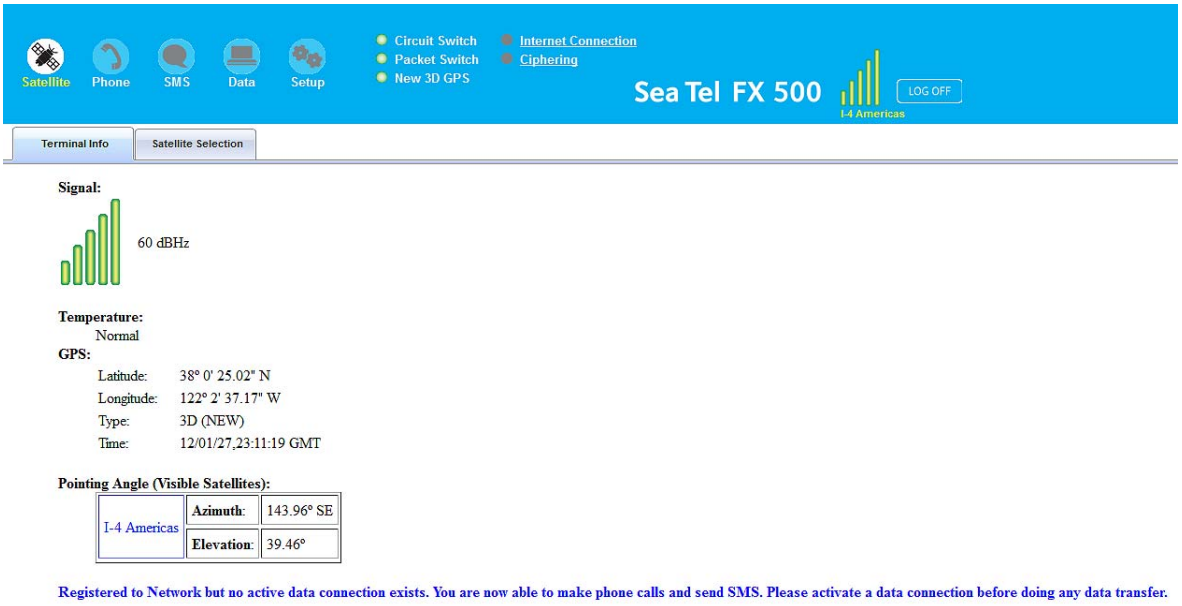


The Login screen appears.

4. Type in **admin** in the Username field and **1234** in the password field,

5. Click the **Login** button.

The FBB BDU Web Console will appear on your screen.



The FBB BDU will automatically register to the network. This process will include GPS acquisition, satellite tracking and registration with the network, which will take a few minutes.

Once the process is completed, you will see the following message appearing at the bottom line of the Web Console:

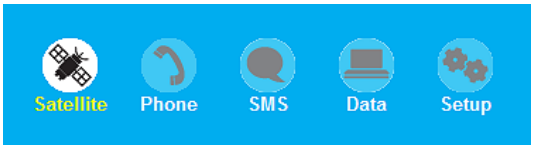
"Registered to Network but no active data connection exists. You are now able to make phone calls and send SMS. Please activate a data connection before doing any data transfer"

Upon successful registration, with all three BDU's LED indicators lit in green, the UE will be ready for normal operation.

6.2. Navigating the Web Console

6.2.1. Menu Overview

There are five main menu icons:

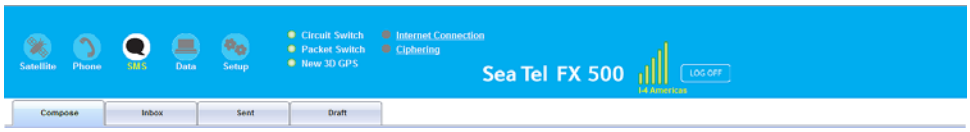


Below you can see all of the sub menu tabs, under each icon menu item.

Satellite

Phone

SMS



Data

Setup

6.3. Status/Action Indicators

These icons indicate the status of the FBB BDU.
Clicking on these icons gives you a shortcut to the desired menu.

- **Green** indicates the item is active.
- **Grey** indicates the item is inactive.

Status Icons

- **Circuit Switch**
  - Shows the Circuit Switch service status (Voice calls, SMS, FAX).
- **Packet Switch**
  - Shows the Packet Switch service status (Internet Browsing, FTP, email).
- **New 3D GPS**
  - Indicates whether a new GPS fix is available or not.
- **Internet Connection**
  - Shows that the unit is currently connected to the internet.
- **Ciphering**
  - Shows that ciphering is enabled or disabled.
  - Click on this icon to enable or disable ciphering.
- **Log Off Button**
  - The user can log out from the web console.

Action Status Icons

Internet icon: White icon indicates an active data connection. Click on this icon to activate or deactivate data connection (to browse Internet, FTP, email).

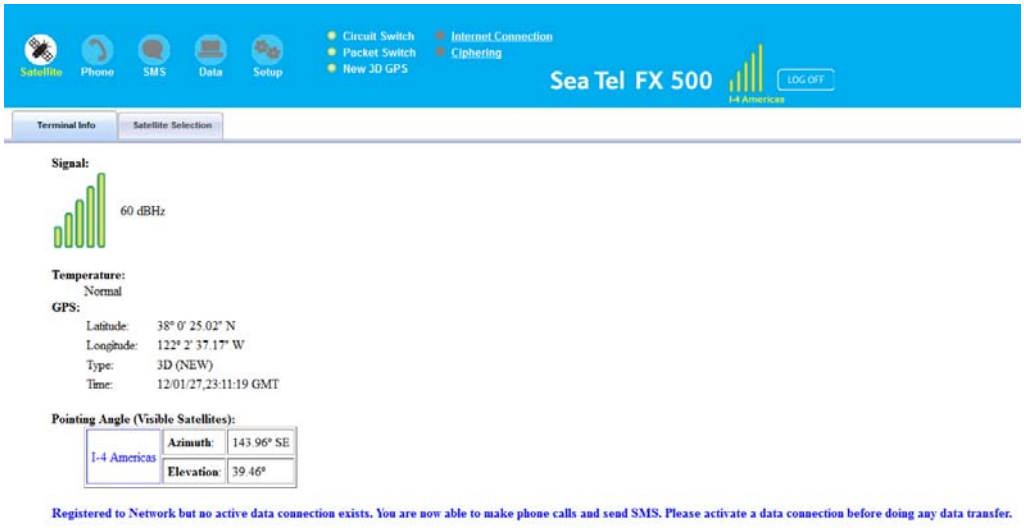

Radio silence icon: Indicates if radio silence is enabled or disabled.

6.4. Viewing Terminal Information

1. Click 

.
2. Click **Terminal Info**.

The terminal information tab shows Signal strength, Temperature, GPS Status, Elevation angle and Registration status.



Signal	Indicates the received signal strength (C/No in dB Hz)
Temperature	Indicates the TU's current operating temperature status
GPS	Indicates the latitude, longitude, type and time of the GPS acquisition
Pointing Angle	Indicates the azimuth and elevation angle of the antenna with the corresponding satellite in view

6.5. Satellite Selection

The latest generation of Inmarsat FleetBroadband satellites are located directly over the equator at:

- I-4 Americas Satellite at 98˚ W Longitude
- I-4 Asia-Pacific Satellite at 143.5˚ E Longitude
- I-4 EMEA Satellite at 25˚ E Longitude

The default Satellite Selection is in **Auto** mode. In **Auto** mode, the UE will scan all the visible satellites and track the satellite with the most optimum elevation angle or the last used satellite.

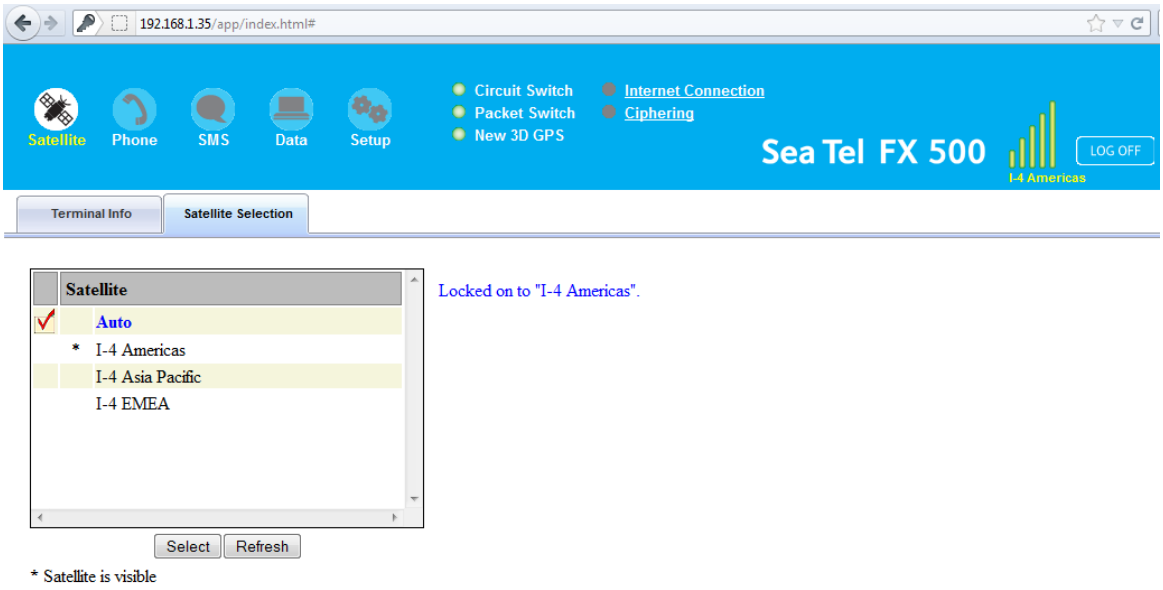
Note: **Changing the satellite selection will terminate any existing active voice/fax call or data connections.**

Follow these steps to change your satellite selection:

1. Click 

.
2. Click the **Satellite Selection** tab to view the visible satellites.

- The visible satellites will be displayed for your selection.
- Also displayed is the satellite information for the satellite that you are locked on to.



3. Click on your choice of visible satellites.

4. Click the **Select** button to point the antenna to the selected satellite in exclusive mode.
   - The satellite selection will be saved, and each time you power up the UE, the satellite selection choice will remain until you make the next selection change.
   - The UE will track the newly selected satellite even if the elevation angle is not optimum.
5. Click **Refresh** to refresh the Satellite list.

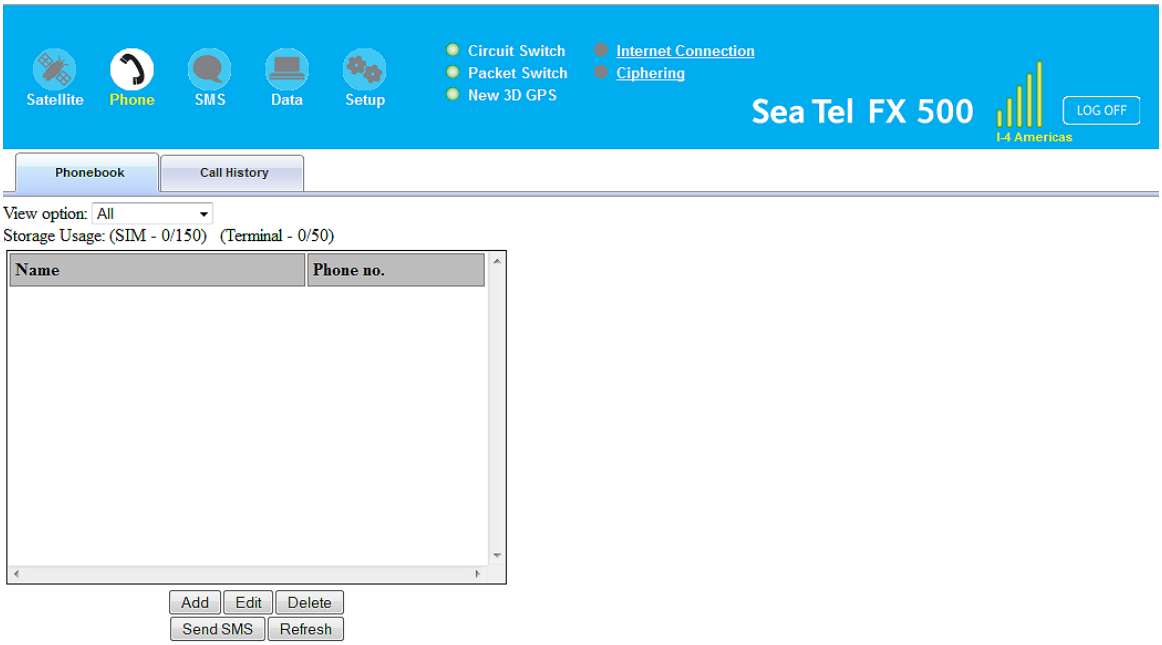
6.6. Phone Menu

1. Click 

.
   - The Phone menu provides the following options:

6.6.1. Phonebook

- Allows you to view, add, edit and delete entries on your Phonebook list.
- You can make and send SMS messages directly from your Phonebook entries.
- The Phonebook entries can be stored on the SIM card or the FBB BDU.



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 FBB BDU.
SIM only	To view the entries stored in the SIM card.
Transceiver only	To view the entries stored in the FBB BDU TU.

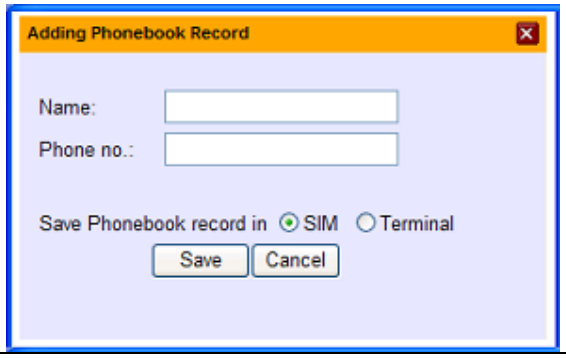
Storage Usage

Shows the number for Phonebook entries used in the SIM card and TU locations.

- For example: **(SIM –2/150)** indicates:
  - Storage location – **SIM** card
  - Total number of entries used = **2**
  - Total number of entries available = **150**

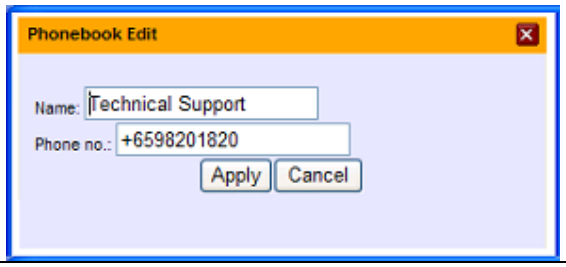
Adding a new Phonebook entry

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



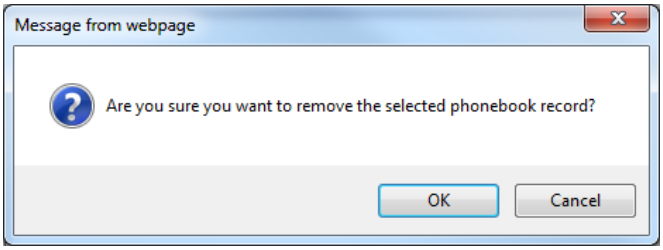
Editing a Phonebook entry

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



Deleting a Phonebook entry

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

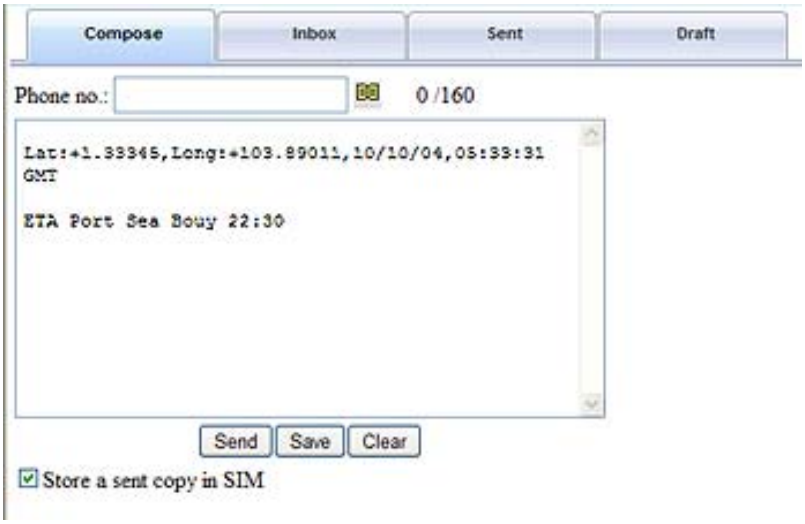


If you do **not** want to delete the entry click the Cancel button.

Sending SMS from the Phonebook

Follow these steps to send SMS from the Phonebook:

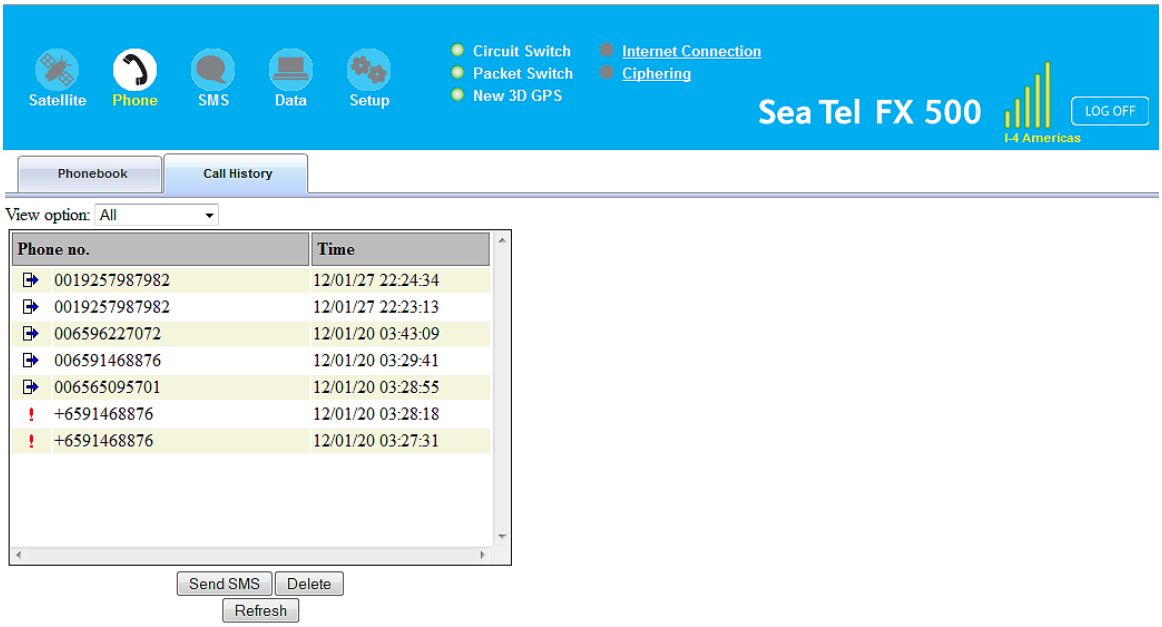
1. Select the entry from the Phonebook list.
2. Click the **Send SMS** button.
3. The Phonebook console switches over to the Compose SMS console.



4. Type in the text message and click the **Send** button.

6.6.2. Call History

To check on the history log of calls made and received.



View option

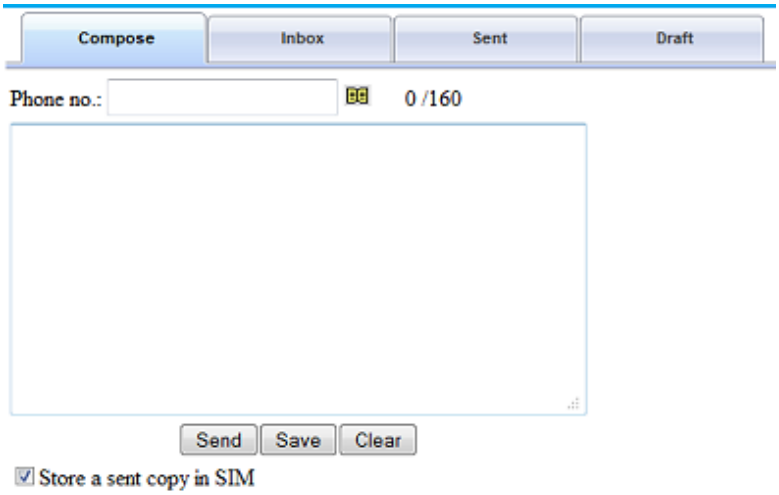
To view the Call History entries.

1. From the drop-down menu, select:

All	To view the list of the dialed, received and missed calls.
Dialed Call	To view the list of dialed calls only.
Received Call	To view the list of received calls only.
Missed Call	To view the list of missed calls only.

Sending SMS from the Call History list

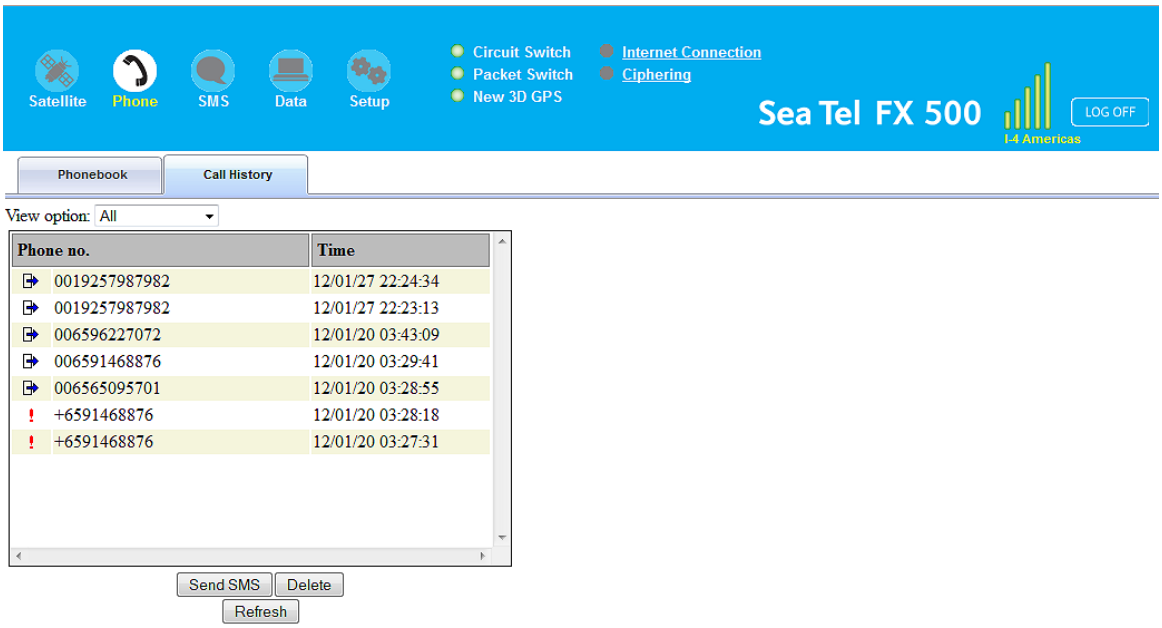
1. Select the entry from the list.
2. Click the **Send SMS** button.
3. The Call History console switches over to the Compose SMS console.



4. Type in the text message and click Send.

Deleting a Call History entry

1. Select the entry from the Call History list.



2. Click the **Delete** button.
3. Click the **OK** button to confirm or click **Cancel** to abort deleting the entry.
4. Click the **Refresh** button to refresh the Call History list.

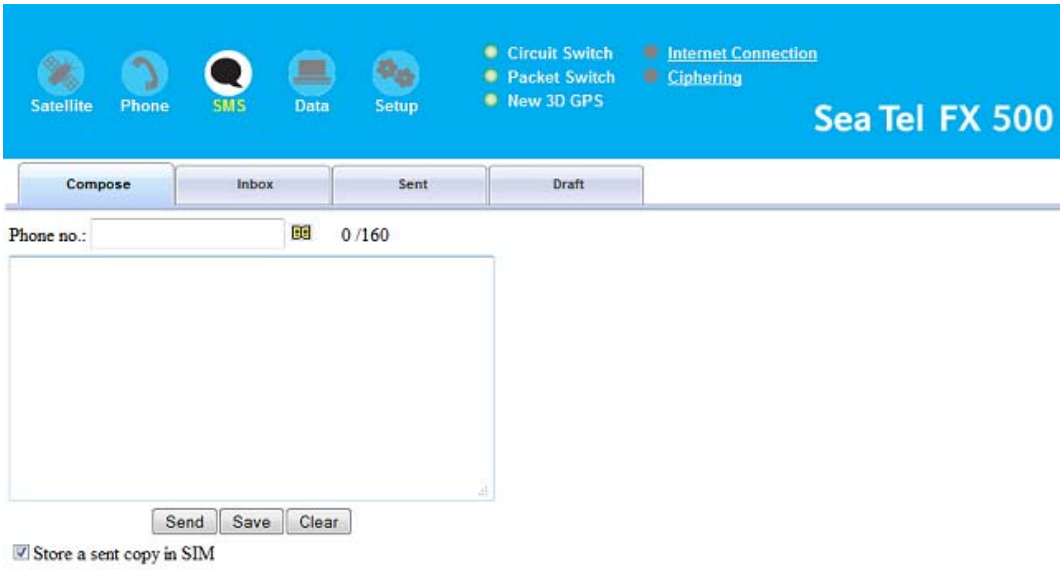
6.7. SMS Menu

1. Click 

.

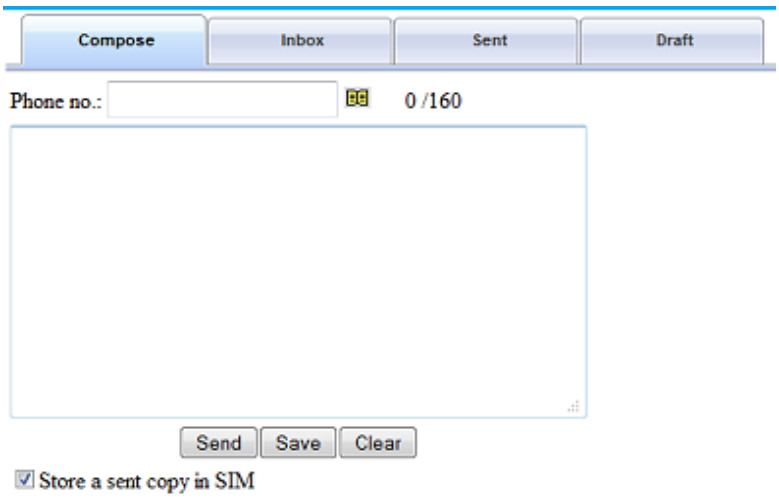
The SMS menu provides the following options:

- **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 sent.
- **Draft**
  - Stores unsent messages for retrieval later.



6.7.1. Composing a New Message

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.



Notes:

The message is limited to 160 characters (using 7 bit encoded default alphabets), including spaces between words. But it is limited to 70 characters per message using Unicode (UCS2) text message (such as message typed in Chinese, Japanese, etc).

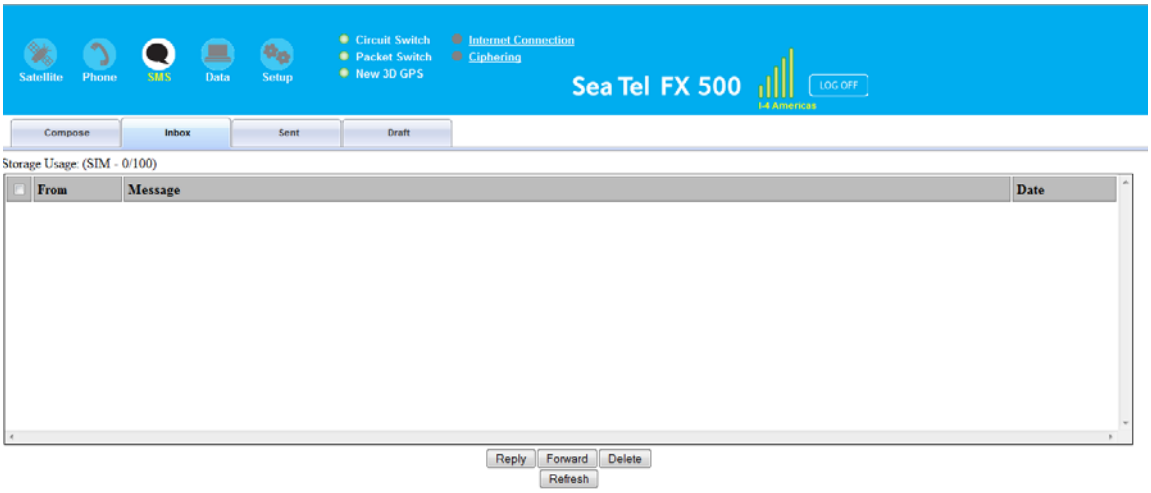
For sending a long SMS to another BGAN transceiver, the message is limited to 608 characters (using 7 bit encoded default alphabet) or 266 characters using Unicode (UCS2) text messages including spaces between words.

If you do not wish to store a copy of the sent SMS into SIM card uncheck **Store a copy** in the SIM checkbox.

3. Click the **Send** button to send the SMS.
4. To save an unsent SMS, click the **Save** button and the unsent SMS will be saved in Draft.
5. To clear the typed message on the text editor, click the Clear button.

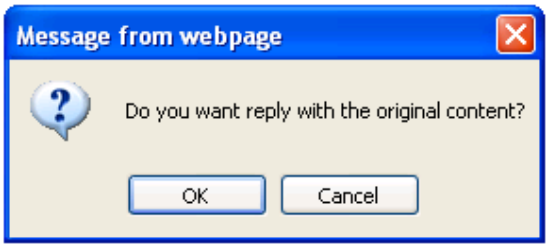
6.7.2. Inbox

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



Replying to a SMS

1. Click on an 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.



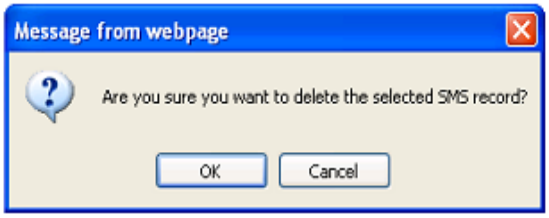
   - The Inbox console switches over to the Compose console.
4. Enter your reply in the text editor.
5. Click **Send** to send your reply SMS. The reply SMS will be sent to the recipient.

Forwarding an SMS

1. Click on an SMS to select it.
2. The selected SMS will be highlighted in light blue.
3. Click the **Forward** button.
4. The Inbox console switches over to the Compose console.
5. Enter the receiver's number in the **Phone No.** field.
6. Click **Send** to forward the SMS. The SMS will be sent to the recipient.

Deleting a single SMS from the Inbox list

1. Click on an SMS to select it.
2. Click the **Delete** button.
3. Click the **OK** button to confirm, or click **Cancel** to abort deleting the SMS.

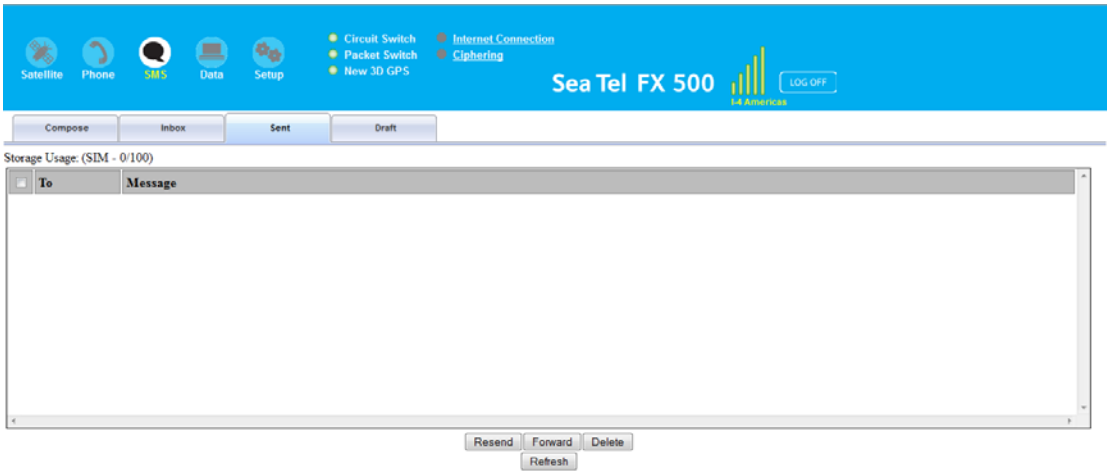


Deleting multiple SMS from the Inbox list

1. Select the message by checking the checkboxes beside each SMS.
2. Click Delete.
3. Click OK to confirm the delete, or Cancel to abort the delete.
4. Click Refresh to refresh the Inbox list.

6.7.3. Sent

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



Resending a sent SMS

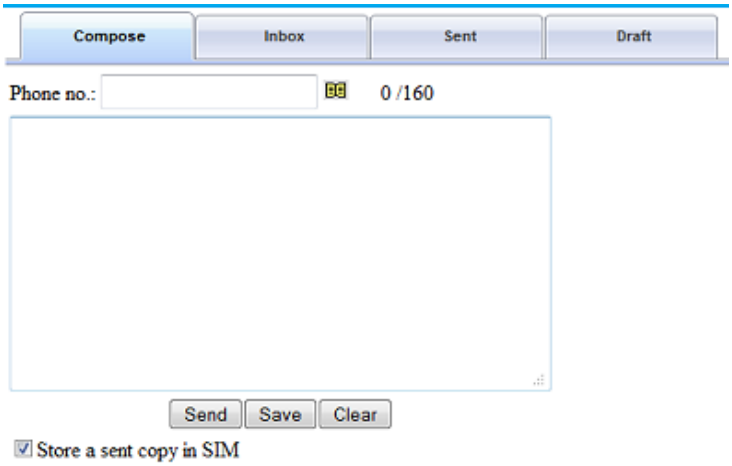
(sending the same SMS to the same receiver)

1. Click on an SMS to select it.
2. Click Resend.
   - The SMS will be sent to the recipient.

Forwarding a sent SMS

To forward a sent SMS to another recipient

1. Click on a SMS to select it.
2. Click Forward.
   - The Sent console switches over to the Compose console.

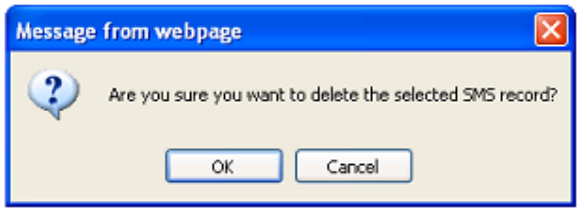


3. Enter the receiver's number in the Phone No. field.
4. Click Send.
   - The SMS will be sent to the recipient.

Deleting a SMS from the Sent list

To delete a single SMS from the Sent list:

1. Click on a SMS to select it.
2. Click Delete.
3. Click OK to confirm or click Cancel to abort deleting the SMS.



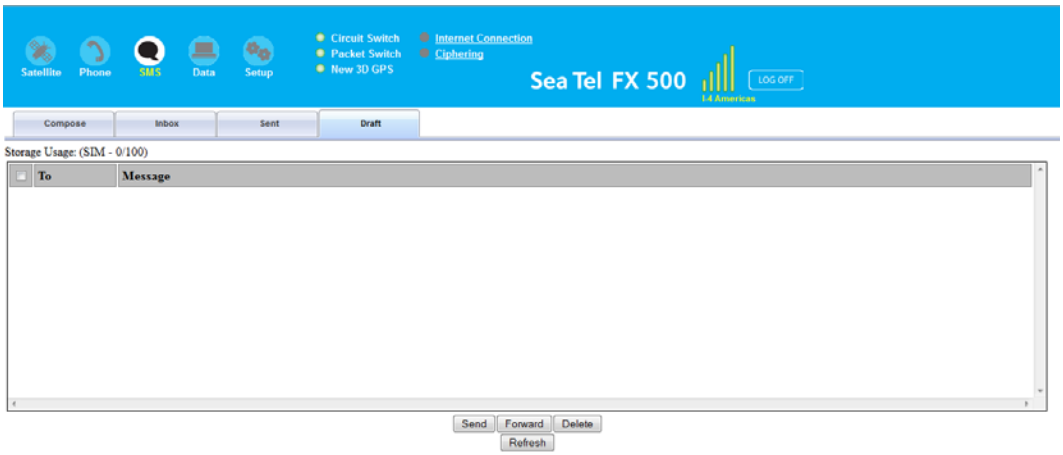
Deleting multiple SMS from the Sent list

To delete multiple SMS from the from the Sent list

1. Select the message by checking the checkboxes beside each SMS.
2. Click Delete.
3. Click OK to confirm the delete, or Cancel to abort the delete.
4. Click Refresh to refresh the Sent list.

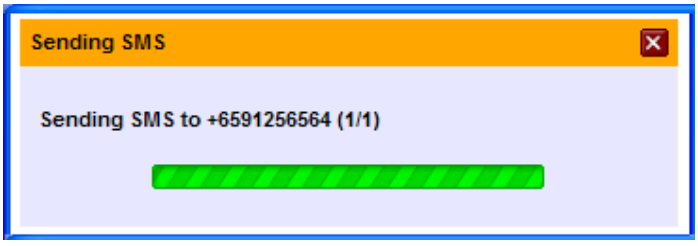
6.7.4. Draft

Stores SMS saved from the Compose console.



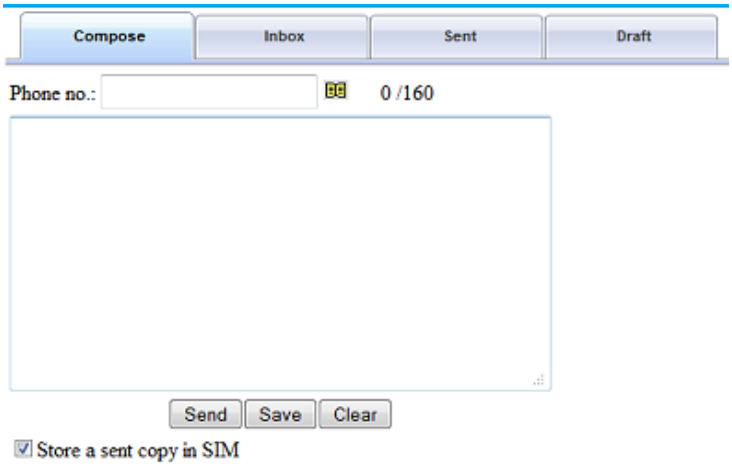
Follow these steps to send a draft SMS:

1. Click on a SMS to select it.
2. Click Send.
   - The SMS will be sent to the recipient.



Forwarding a draft SMS to another recipient

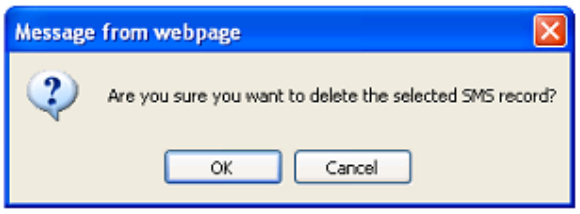
1. Click on a SMS to select it.
2. Click Forward.
   - The Draft console switches over to the Compose console.



3. Enter the receiver's number in the Phone No. Field.
4. Click the **Send** button to forward the SMS.
   - The SMS will be forwarded to the recipient.

Deleting a SMS from the Draft list

1. Click on an SMS to select it.
2. Click the **Delete** button.
3. Click **OK** to confirm, or click **Cancel** to abort deleting the SMS.



Deleting multiple SMS from the Draft list

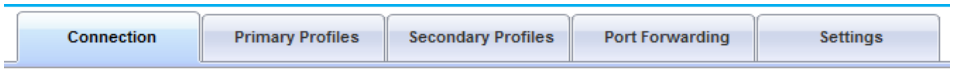
1. Select the message by checking the checkboxes beside each SMS.
2. Click the Delete button.
3. Click OK to confirm the delete, or Cancel to abort the delete.
4. Click Refresh to refresh the Draft list.

6.8. Data Menu

1. Click the 

Data Menu icon.

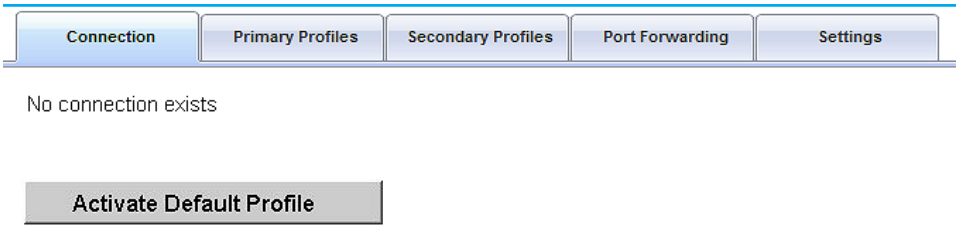
Data menu provides the following options:



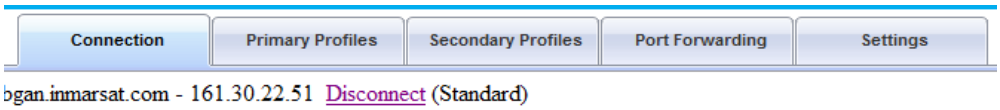
6.8.1. Connection

To activate the default profile, click the Activate Default Profile button.

2. The PDP context will be activated.

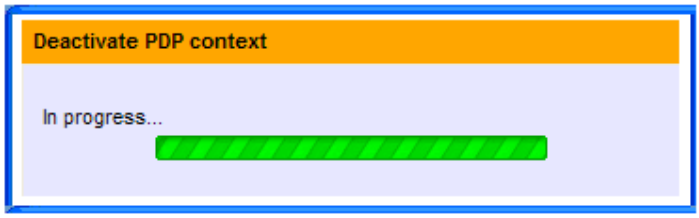


When connected, APN and the assigned public IP Address details will be displayed.
You can proceed to access the Internet and use the related features.



To disconnect the data connection, click **Disconnect**.

- The PDP context will be deactivated.

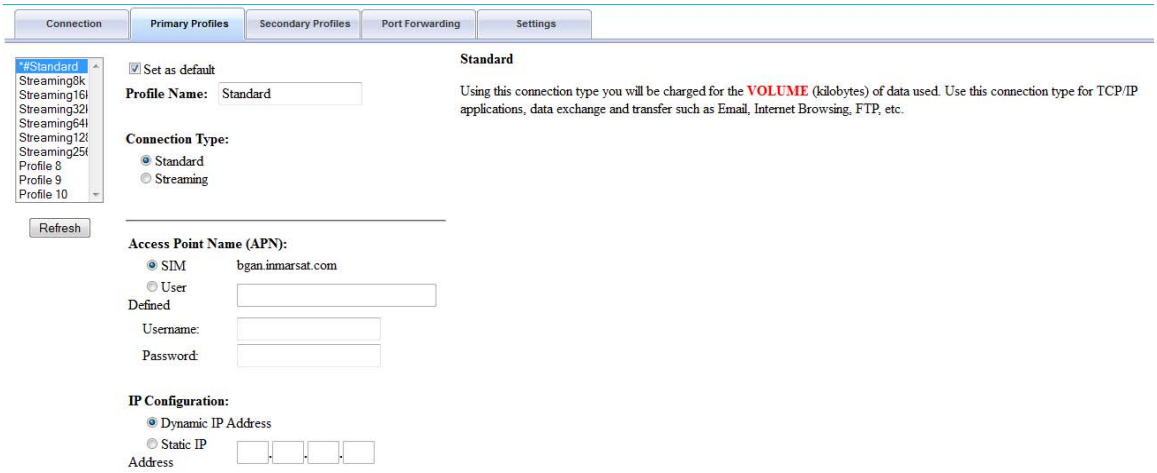


6.8.2. Primary Profiles

Primary profiles define the connection type.

You can select from a list of profiles to be the default primary profile and connection type.

From Profile 7 to Profile 10, you can create your own customized primary profile.



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

Change the type of connection. By default the connection type will be standard.

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

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

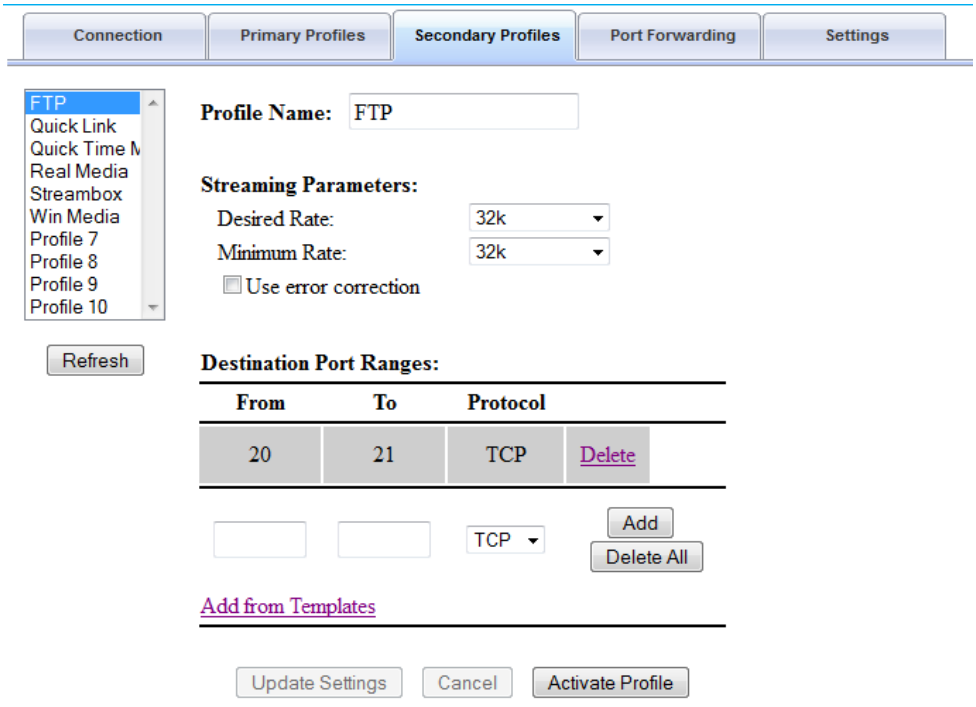
1. Select User Defined.
2. Enter the new APN in the field space provided (e.g. BGAN inmarsat.com).
3. Enter the username and password if required.

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

Follow these steps to use Static IP Address:

1. Select Static IP Address and enter the IP Address in the space provided.
2. Check the Header Compression checkbox if it is required to use Header Compression.

6.8.3. Secondary Profiles



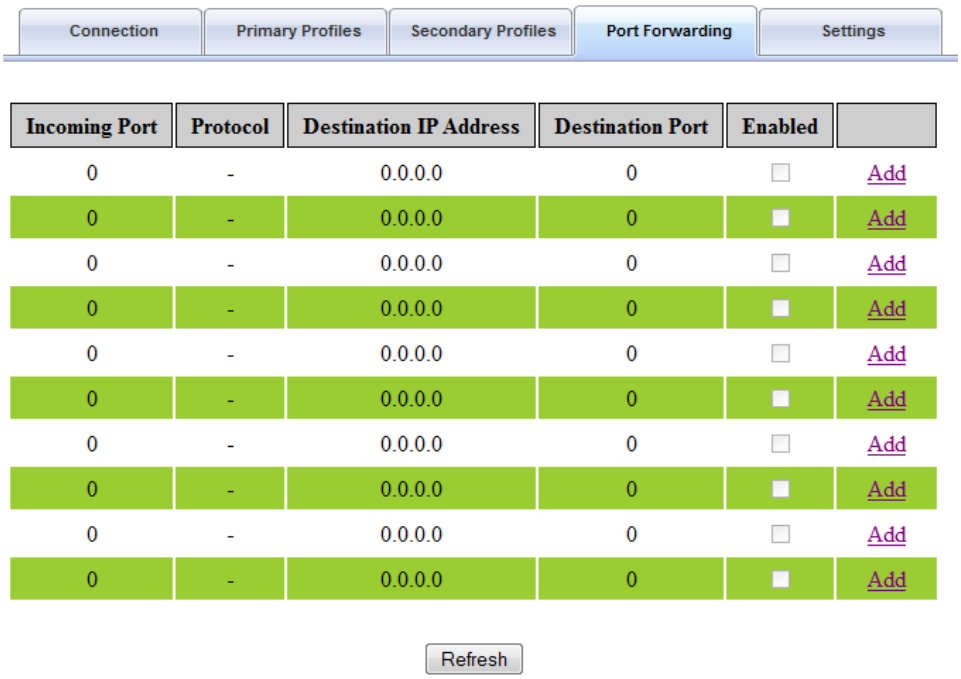
Secondary profiles setting are used mainly for streaming connection. You may select one of the secondary profiles to be used during streaming connection. You may also create a customized secondary profile; choose from profile 7 to 10.

It also had the same time/volume limited data connection feature as the Primary Profiles.

6.8.4. Port Forwarding

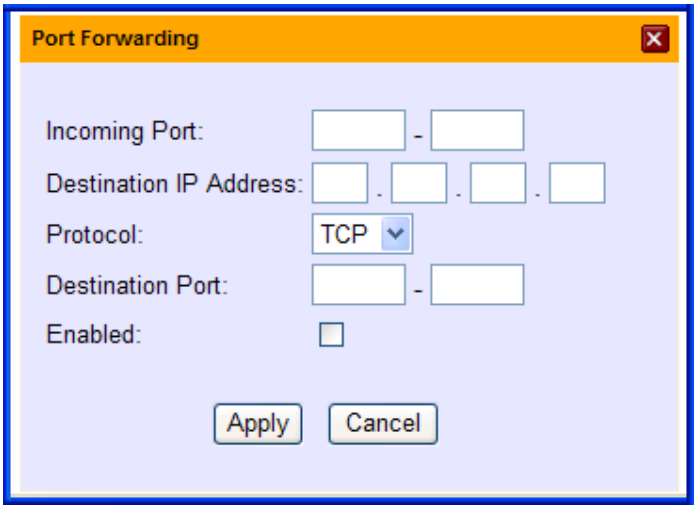
Port Forwarding is a feature for Router (multiple-user) mode.

This feature sets the FBB BDU 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:

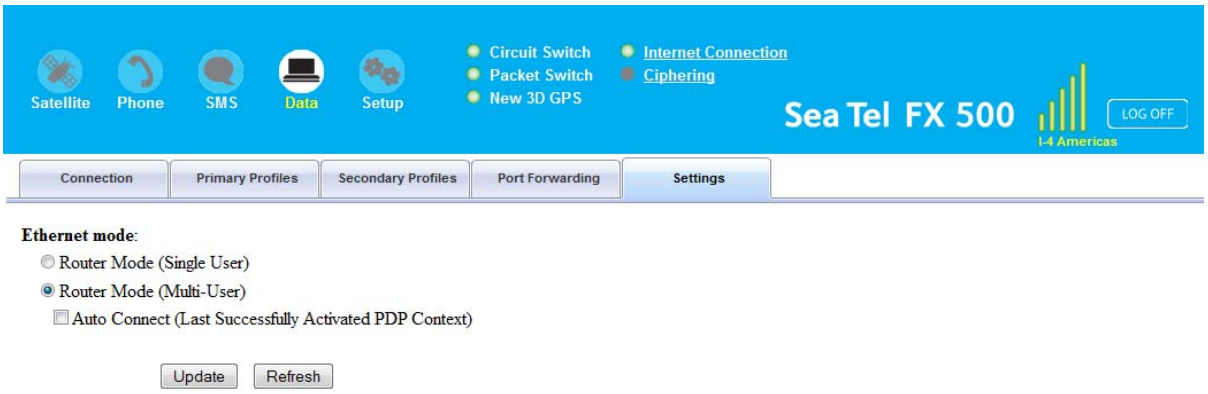
1. Click the **Add** button.



2. Enter the Incoming Port number in the space provided.
   (For example, the user expecting HTTP traffic, the port is 80).
3. Enter the Destination IP Address.
   (For example, the IP Address of the PC that is connected to the FBB BDU).
4. Select the Protocol type TCP (e.g. 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 (for example TCP port 80 for web server) on the PC that is connected to the FBB BDU).
6. Click Apply to allow the settings to take effect.

6.8.5. Settings

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



Follow these steps to select the **Ethernet** mode:

1. Select the desired mode to be used during the data connection:
   - Router (Single User) is with NAT/PAT disabled
   - Router (Multi-User) is with NAT/PAT enabled for multi-user.

Note:

You **cannot** change the **Router** settings while a Data connection is active, you must first **disconnect** your **Data session**.

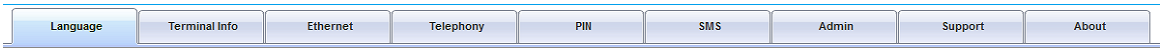
2. Check ☑ "Always On (Auto PDP Context Activation)" if required.
3. Click Update to allow the selection to take effect.
4. Click Refresh to query the current mode.

6.9. Setup Menu

1. Click on the 

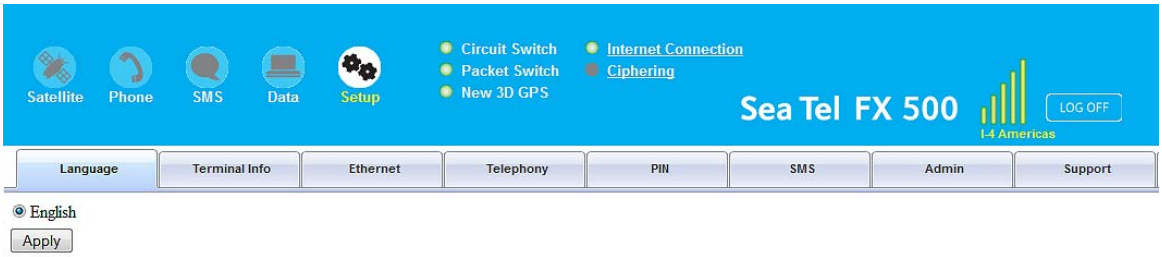
icon.

There are nine sub-menu tabs under the Setup icon.



6.9.1. Language

Select the desired language for the Web Console to be displayed. (Spanish, Chinese-Simplified and Chinese-Traditional may not be an option that is available at the time of purchase).



6.9.2. Terminal Info

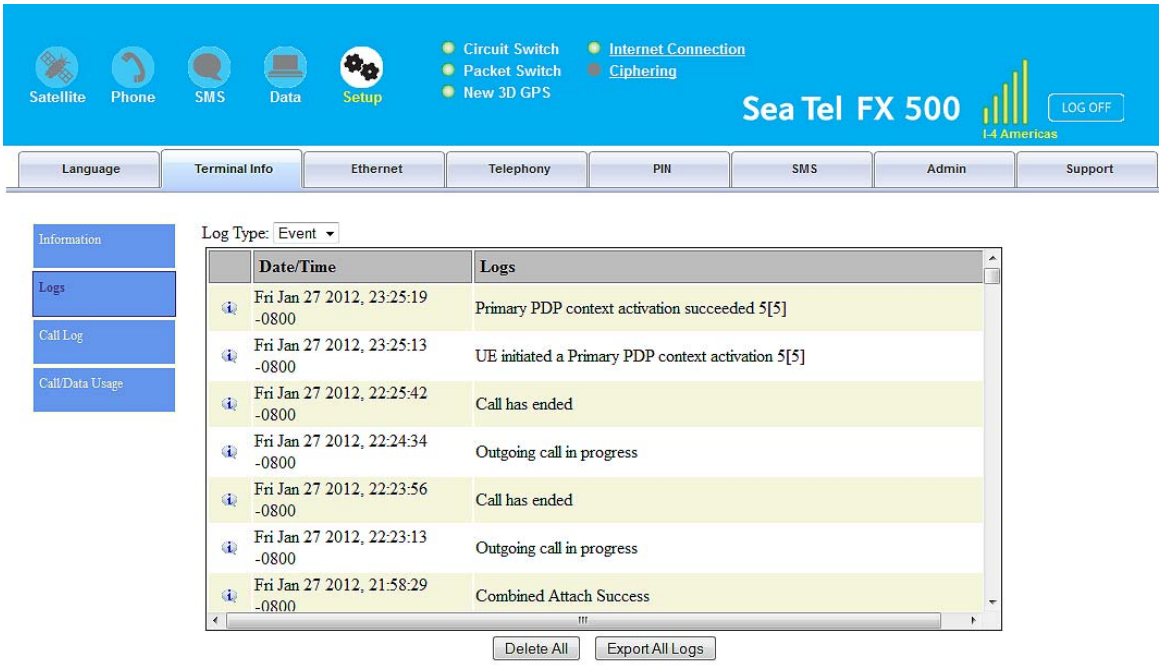
This tab shows general information about the TU, Error/Event Logs and Call Logs.

6.9.2.1. Information

Displays information about the Manufacture ID, Software version, Model ID, IMEI number, IMSI number (only when a SIM card is inserted), Subscriber number and Antenna Unit's serial Number.

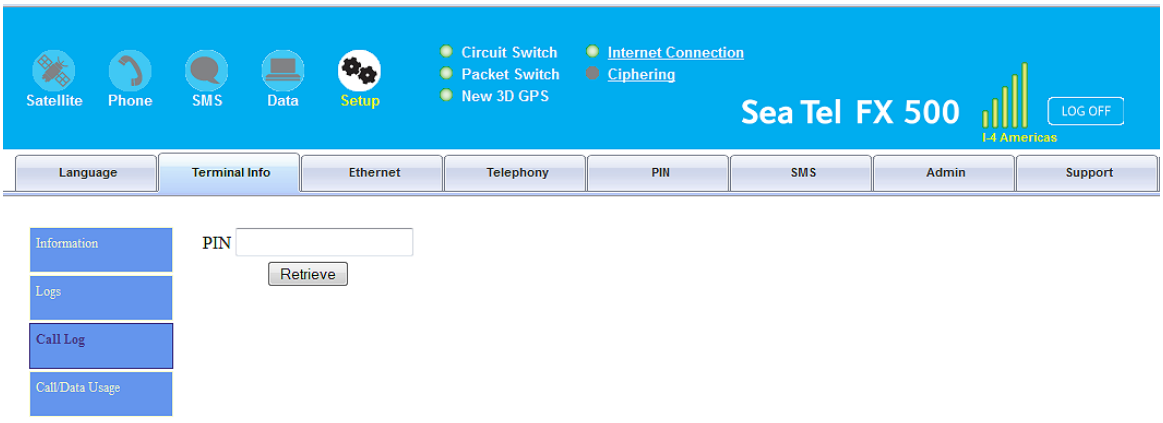
6.9.3. Logs

Displays event and error logs of the TU.



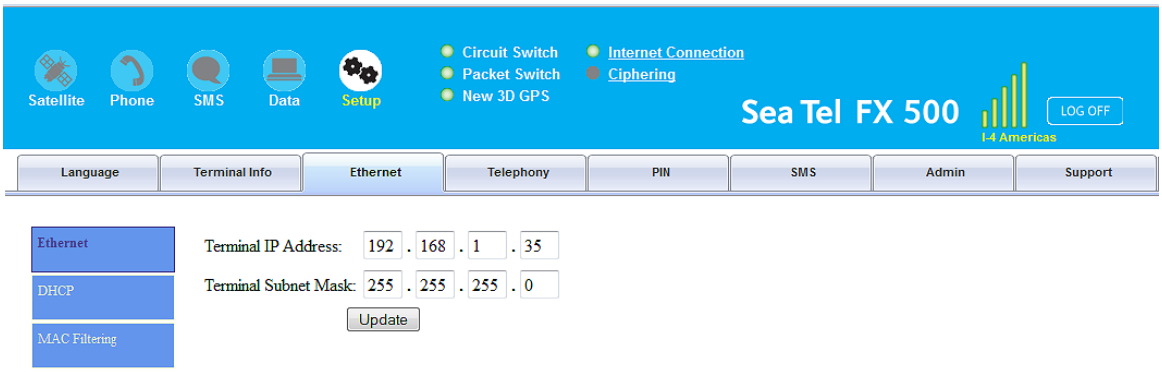
6.9.4. Call Log

Displays the call history including standard voice calls, high-quality/fax calls, standard data sessions and streaming data sessions.



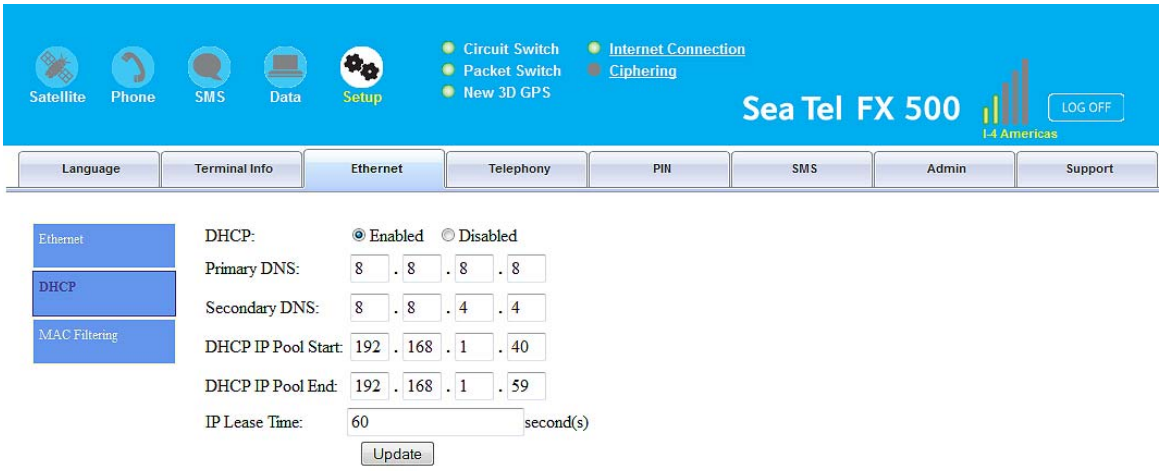
6.10. Ethernet

2. Click the **Ethernet** tab to view and edit the Ethernet settings.
3. Click the **Update** button to allow the settings to take effect.



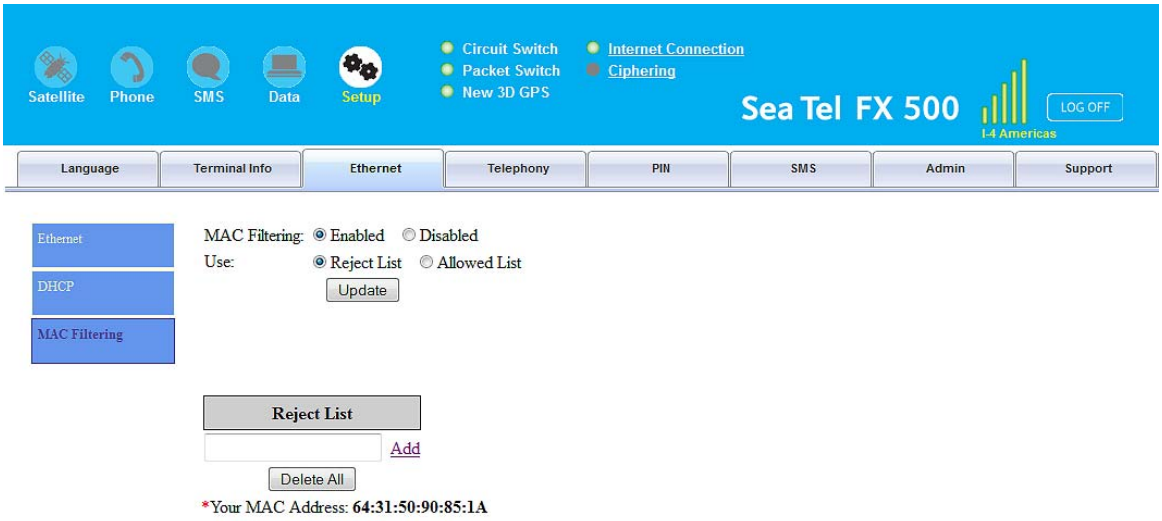
6.10.1. DHCP

1. Click DHCP to view and edit the DHCP settings.
2. Click Update to allow the settings to take effect.



6.10.2. Mac Address Filtering

1. Click Mac Filtering to view and edit the Mac Filtering settings.
2. Click Update to allow the settings to take effect.



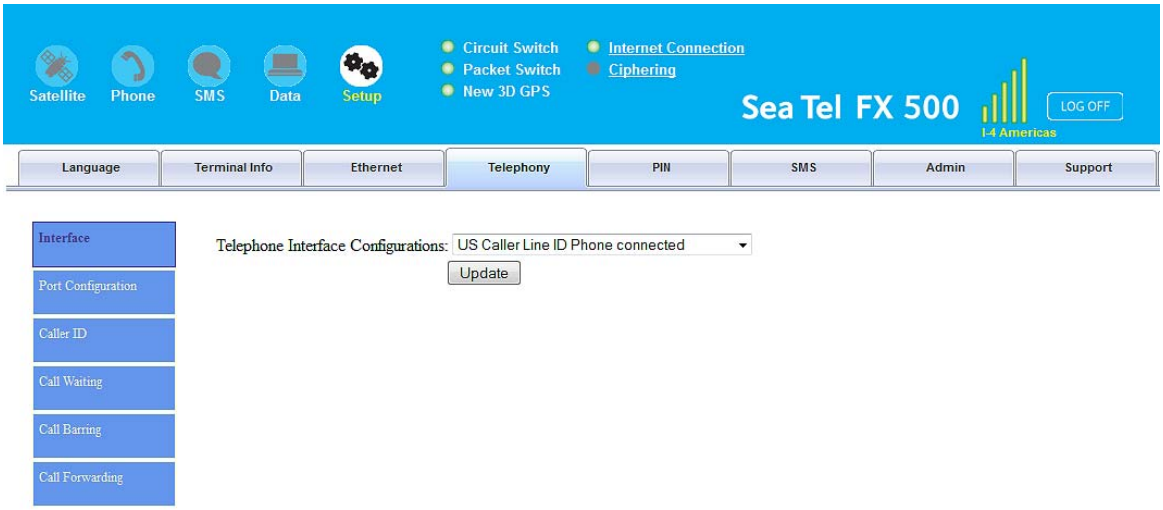
Reject List

All PCs/Laptops will be allowed to access the TU except for those (MAC addresses) listed in the Reject List.

Allow List

All PCs/Laptops will be denied access to the TU except for those (MAC addresses) listed in the Allow List. When selecting this list, at least one entry should be there to access the TU.

6.11. Telephony



6.11.1. Interface

1. Select European Caller Line ID Phone connected or US Caller Line ID Phone connected from the Telephone Interface Configuration drop-down menu.
2. Click Update to allow the setting to take effect.

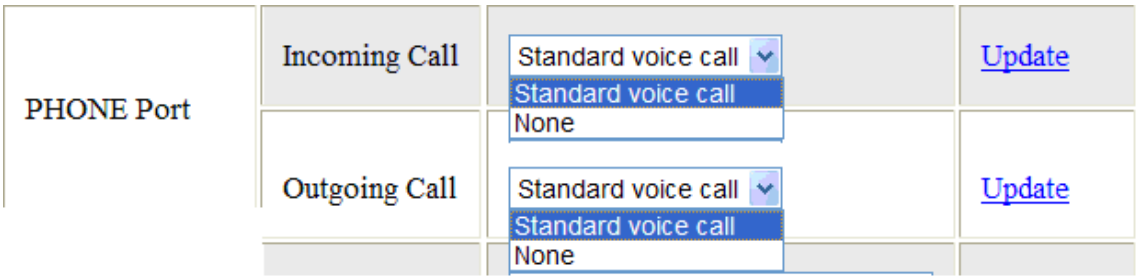
6.11.2. PORT CONFIGURATION

For each of the 3 ports, a choice of the quality calls can be selected. Select your ideal call quality and click Update.

Primary Handset

Port	Call Type	Service Type	
Primary Handset	Incoming Call	Standard voice call Standard voice call None	Update
	Outgoing Call	Standard voice call Standard voice call None	Update

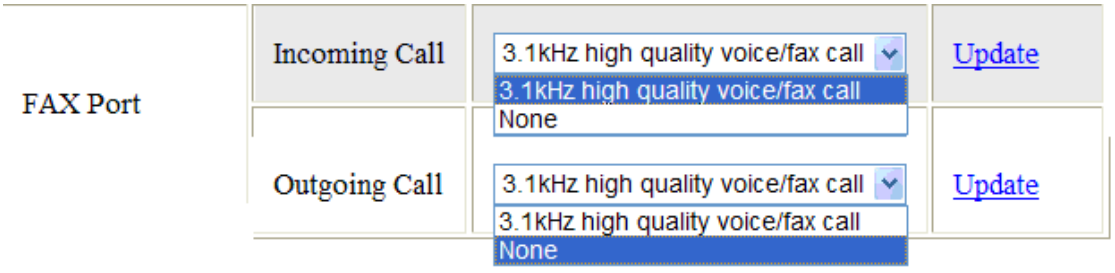
Phone Port



Fax Port

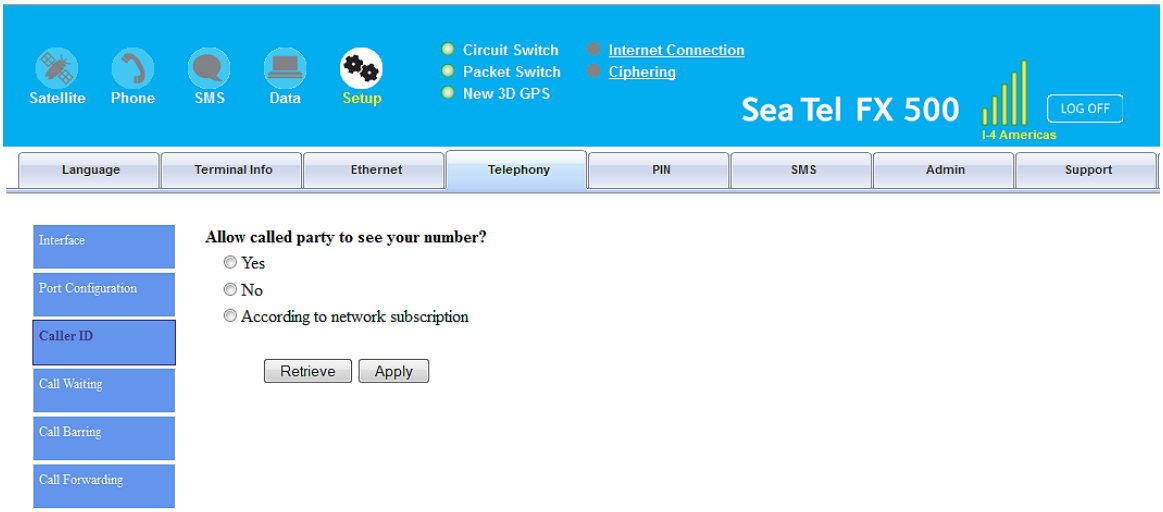
For the fax port, if no subscription is made, there will be no choices.

If fax subscription is made, 3.1KHz high quality fax call will be available.



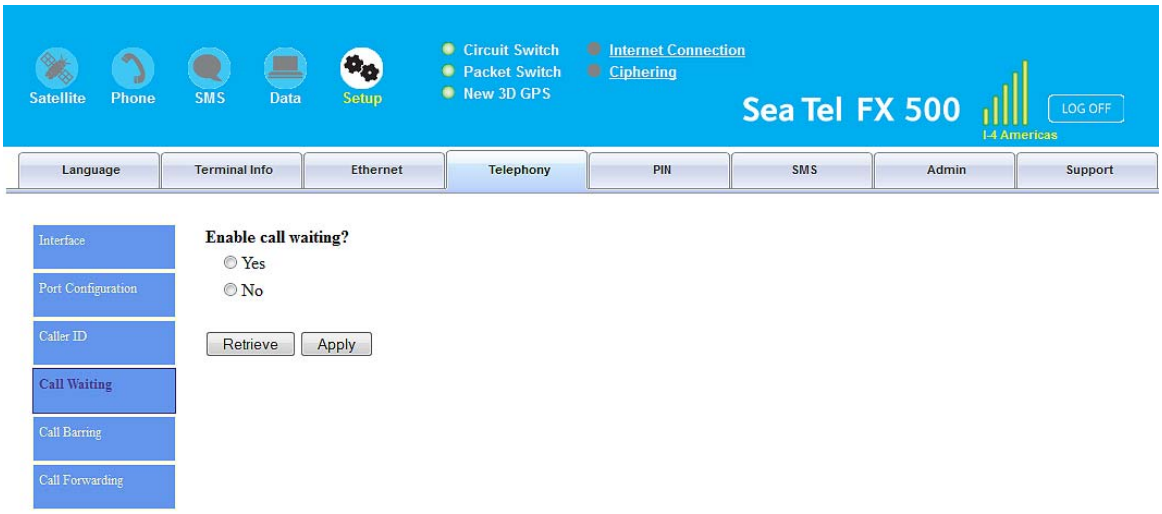
6.11.3. Caller ID

1. Click Retrieve to get current setting of the Allow called party to see your number configuration.
2. To change the setting, select Yes, No, or According to network subscription for the Allow called party to see your number configuration.
3. Click Apply to allow the setting to take effect.



6.11.4. Call Waiting

1. Click Retrieve to get current setting of the Enable call-waiting configuration.
2. To change the setting, select Yes or No for the Enable call waiting configuration.
3. Click Apply to allow the new setting to take effect.

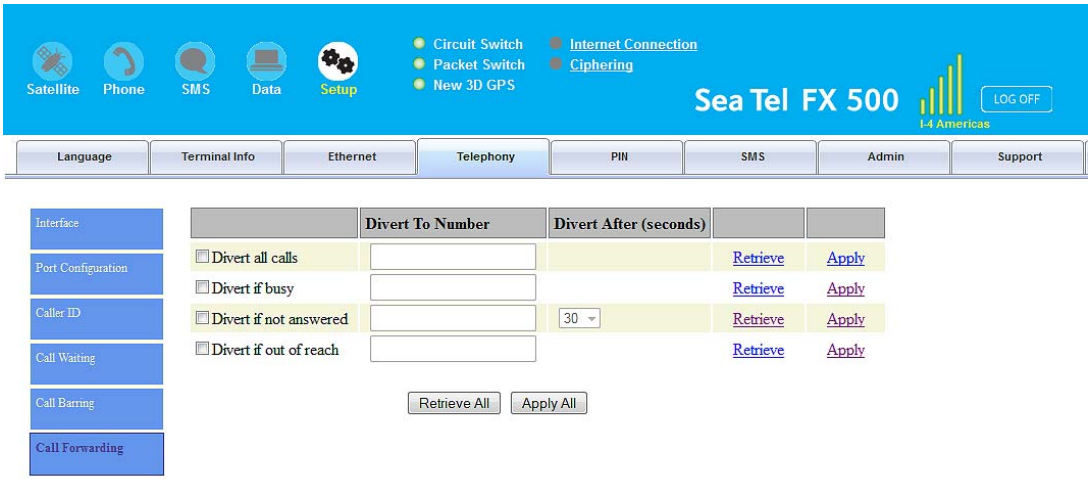


6.11.5. Call Barring

1. Click any individual Retrieve option to get the current setting of the corresponding scenario in which the calls would be barred.
2. Select the scenario in which the calls would be barred, or deselect the scenario to disable the corresponding call barring.
3. In the Barring PIN field, input a PIN for call barring setup.
4. Click Apply to allow the corresponding setting to take effect.
5. Clicking Retriever All will retrieve the current settings of all four call barring scenarios at the same time.
6. Clicking Apply All will allow the settings of all four call barring scenarios to take effect at the same time.

6.11.6. Call Forwarding

1. Click any individual Retrieve option to get current setting of the corresponding scenario in which incoming calls would be forwarded.
2. Select the scenario in which the calls should be forwarded, or deselect the scenario to disable the corresponding call forwarding setting.
3. In the Divert to Number field, input the phone number where the incoming calls should be forwarded to (+<country code><telephone number>).
4. If the Divert if not answered option is selected, select from the Divert After (seconds) drop-down list, the period of time the network should wait before forwarding the calls.
5. Click Apply to allow the setting to take effect.
6. Clicking Retrieve All will retrieve the current settings of all four scenarios in which the calls would be forwarded, at the same time.
7. Clicking Apply All will allow the settings of all four scenarios to take effect at the same time.



6.12. PIN

6.12.1. Transceiver PIN

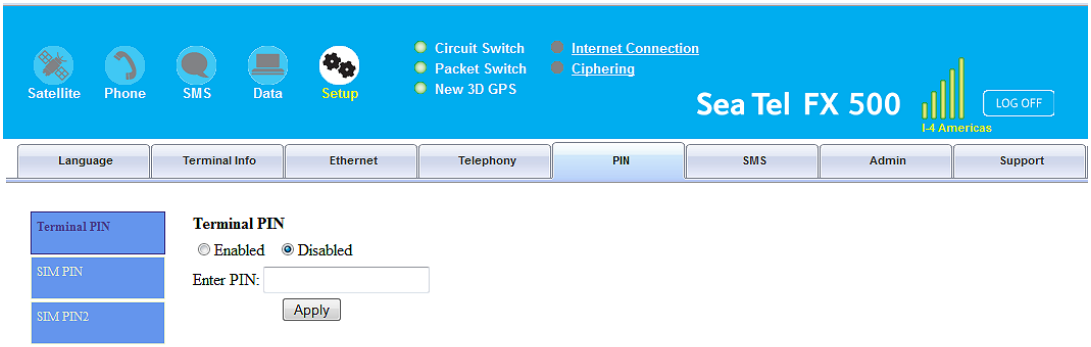
1. Click Transceiver PIN to configure the Transceiver PIN settings.
2. Select Disabled if you do not need to set the Transceiver PIN.
3. Select Enabled to set the Transceiver PIN.
4. Enter the PIN number in the Enter PIN filed and click Update PIN.

Follow these steps to change the Transceiver PIN:

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 Transceiver PIN is now changed.

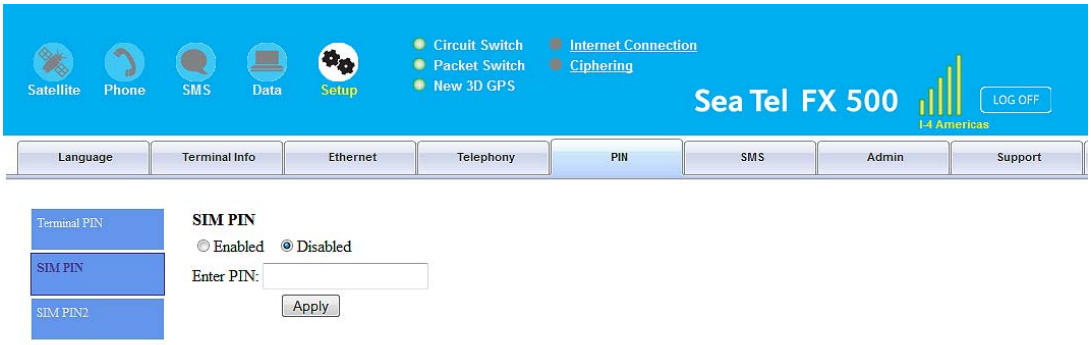
Note: The default Transceiver PIN is "0000"



6.12.2. SIM PIN

1. Click SIM PIN to configure the SIM PIN settings.
2. Select Disabled if you do not need to set the SIM PIN.
3. Select Enabled to set the SIM PIN.
4. Enter the PIN number in the space provided and click Update PIN.

Note: The SIM PIN depends on the SIM card. Consult your equipment distributor if necessary.



6.12.3. SIM PIN2

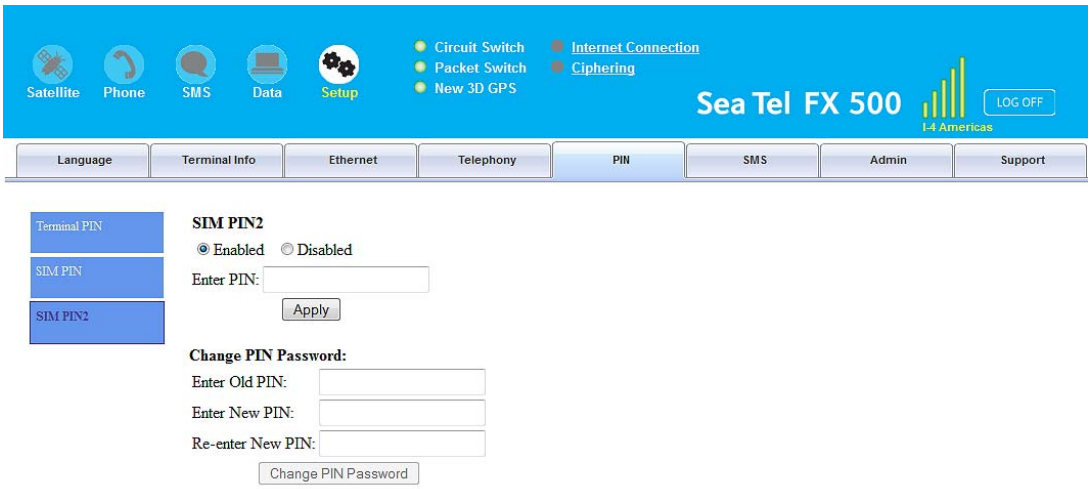
1. Click SIM PIN2 to configure the SIM PIN2 settings.
2. Select Disabled if you do not need to set the SIM PIN2.
3. Select Enabled to set the SIM PIN2.
4. Enter the PIN number in the space provided and click Update PIN.

Follow these steps 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.

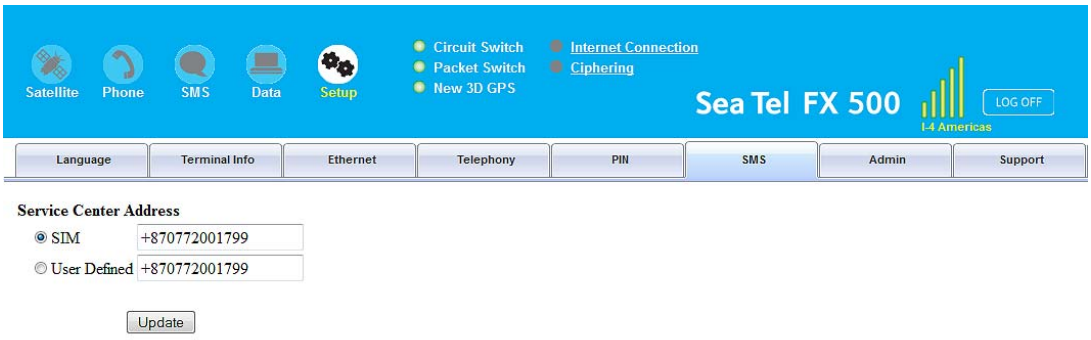
The Transceiver PIN is now changed.

Note: The SIM PIN2 depends on the SIM card. Consult your equipment distributor if necessary.



6.13. SMS

To change the SMS service Center Address number, enter the new number in the space provided and click Update.



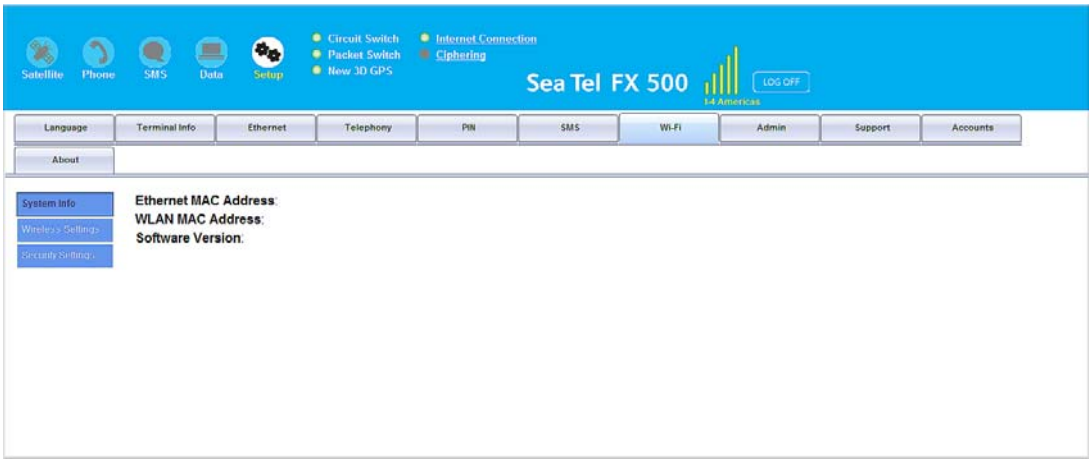
Note:

Please contact your distributor or service provider if you do not know the Service Center Address.

6.14. Wi-Fi Module Configuration

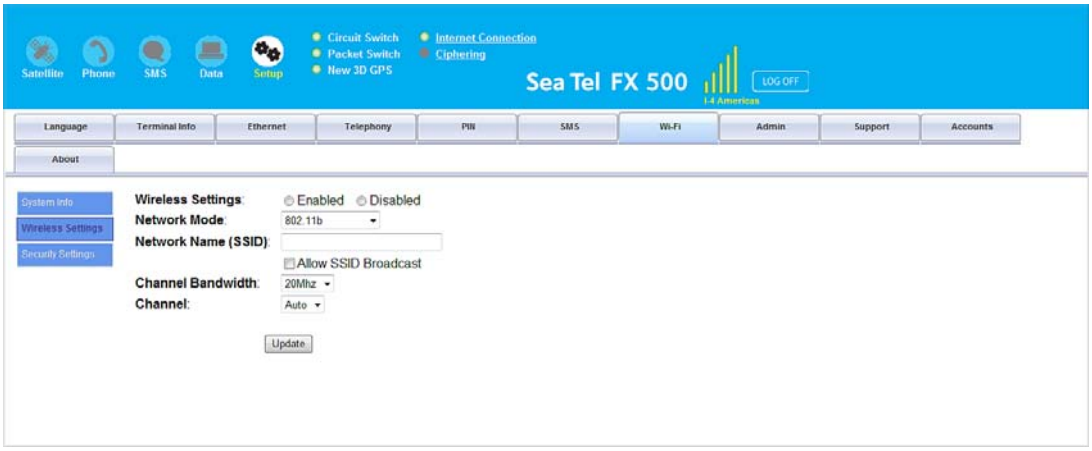
6.14.1. System info

Shows you software version and mac address.



6.14.2. Wireless Settings

- Allow you to enable/disable wireless connection.
- Choose ideal network mode, channel bandwidth and channel.
- Allow you to name your network.



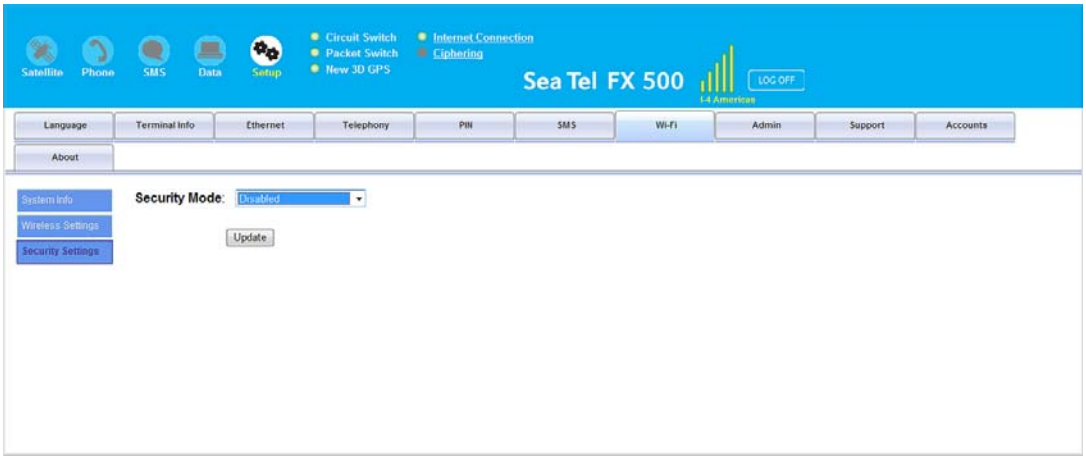
Security Settings

Follow the steps to configure the security settings of the Wi-Fi module.

1. Select the security mode and authentication key.

Note: There are four sets of security passwords available for your security configuration and you can only select one set of password.

Select the default key to enable the desire password from Key 1 to Key 4 respectively.



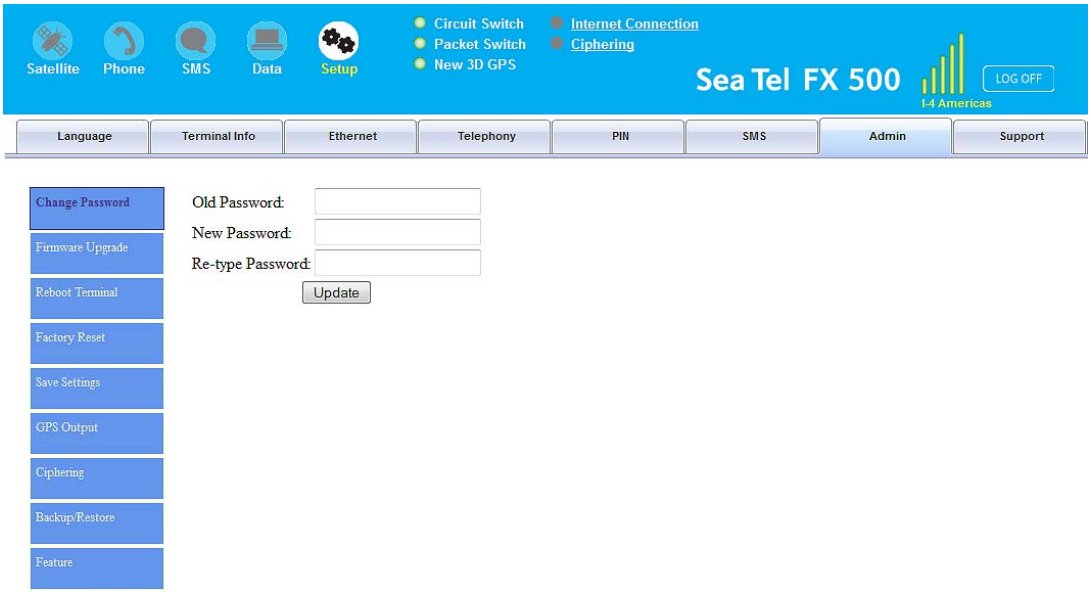
6.15. Admin

6.15.1. Change Password

Follow these steps to change the Web Console login Password:

1. Enter the old password in the Old Password field.
2. Enter the new password in the New Password field.
3. Re-enter the new password in the Re-type Password field.
4. Click Update.

The Web Console login password is now changed.



6.15.2. Firmware Upgrade

Firmware upgrade is to update your FBB BDU with the latest firmware. Please refer to your respective distributor for your firmware download.

Warning:

DO NOT abort the upgrading process or unplug the power of the FBB BDU during the firmware upgrade process at any time. Doing so will corrupt the existing firmware loaded onto the FBB BDU.

Follow these steps to upgrade the firmware for your FBB BDU:

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

Note:
Make sure the FBB BDU is switched on and connected to the desktop/laptop computer using the LAN cable.

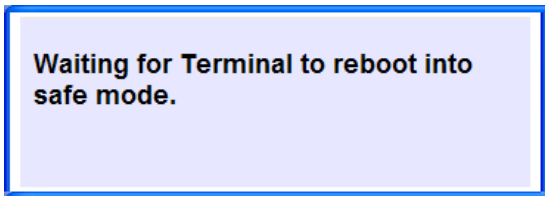
2. Select Firmware Upgrade.

Read the Disclaimer message carefully before proceeding with the Firmware Upgrade.

3. Click Firmware Upgrade.

The FBB BDU will reboot into Safe mode.

Note: All LEDs will turn to amber color and start blinking, which means it's on Safe mode.

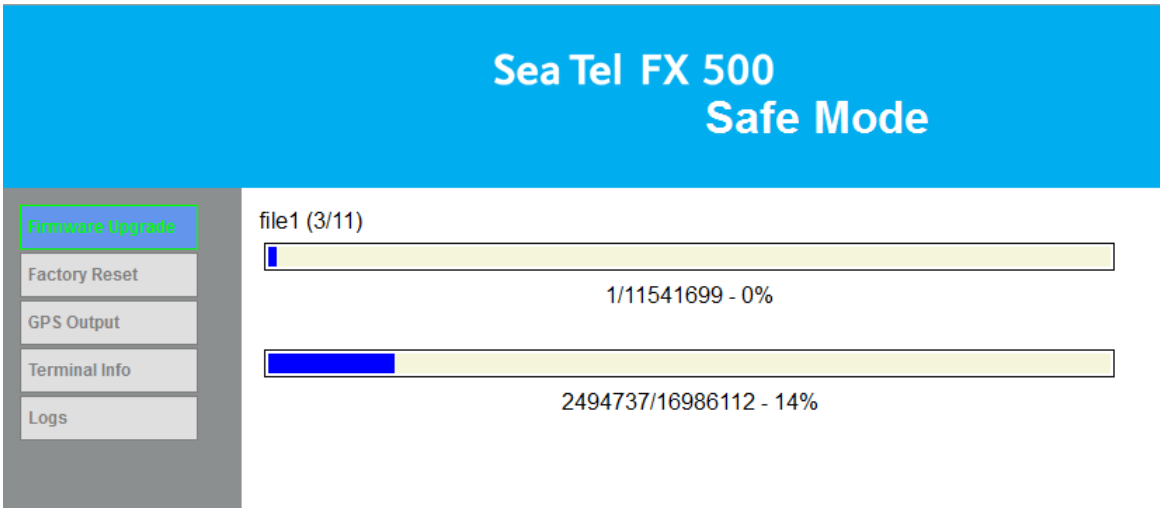


The FBB Web console will appear. Re-log in using the provided username and password.

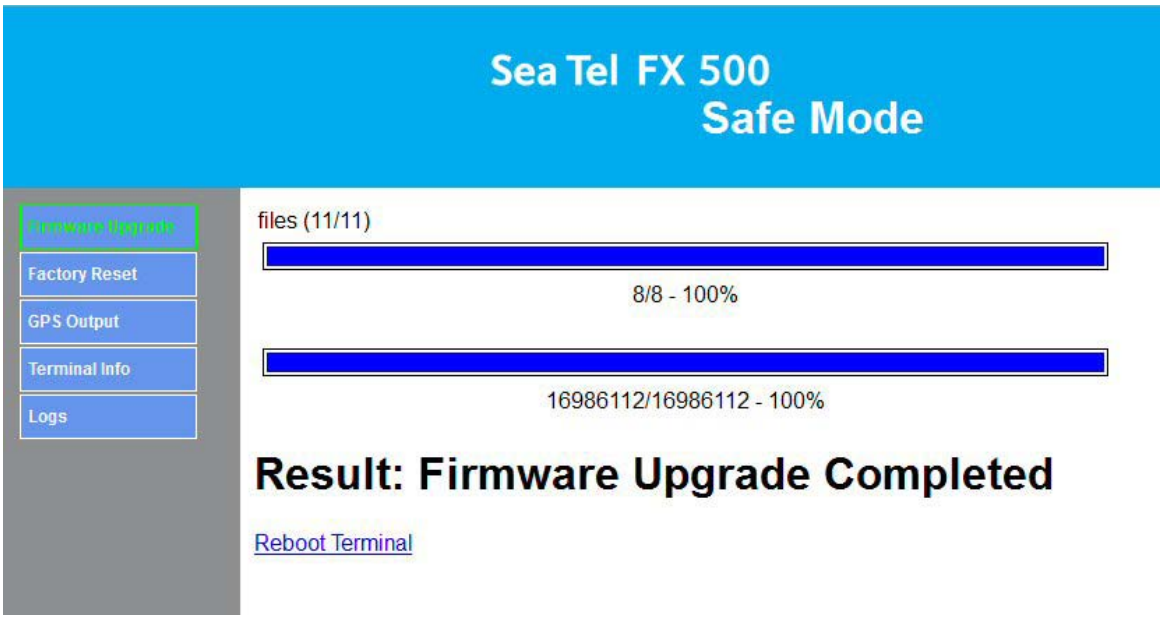
Note: If the FBB BDU web console didn't appear, you can manually refresh the web console by clicking the F5 on your keyboard.

4. Browse to the location of the new firmware, select, and click Upload.
5. Firmware upgrade will take approximately 10 to 12 minutes to complete.

You will be prompted with the Result: Firmware Upgrade Completed message.

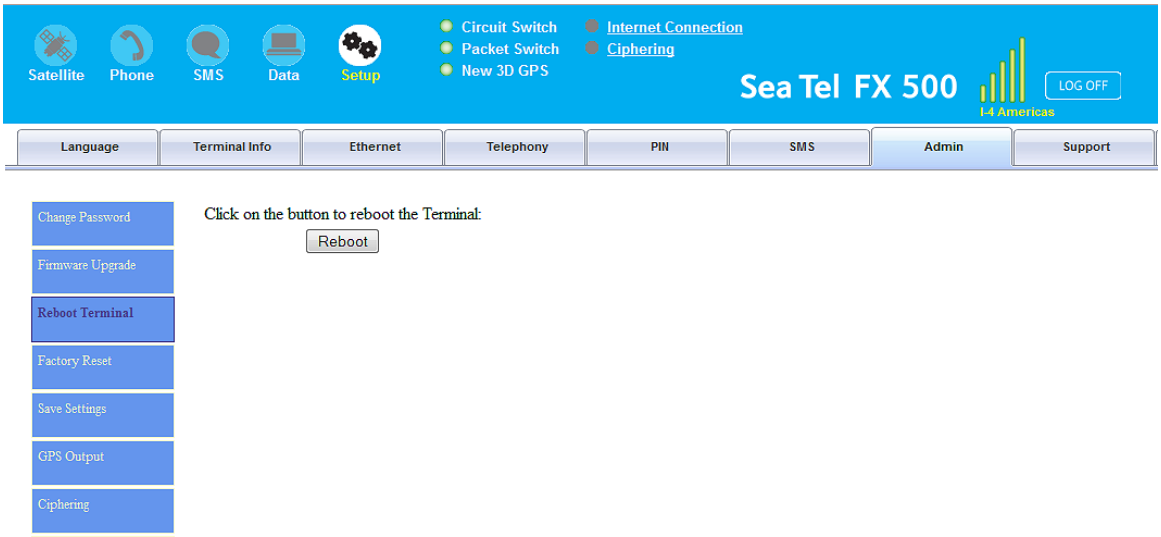


6. Click Reboot Terminal to reboot the FBB BDU.



6.15.3. Reboot Terminal

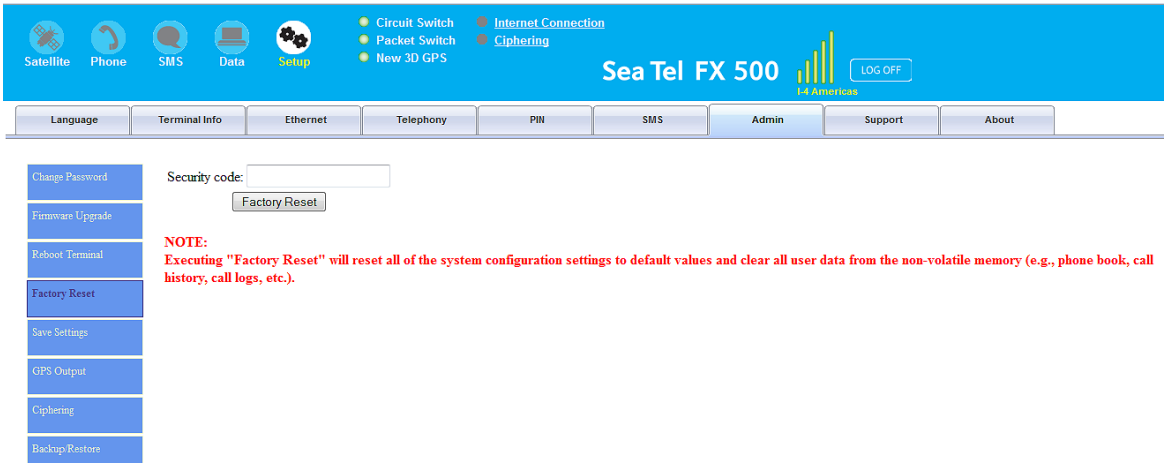
If you wish to reboot the FBB BDU, click Reboot Terminal. Click Reboot and wait for a few minutes to allow the TU to reboot. Refresh your browser to update the Web Console page after reboot.



6.15.4. Factory Reset

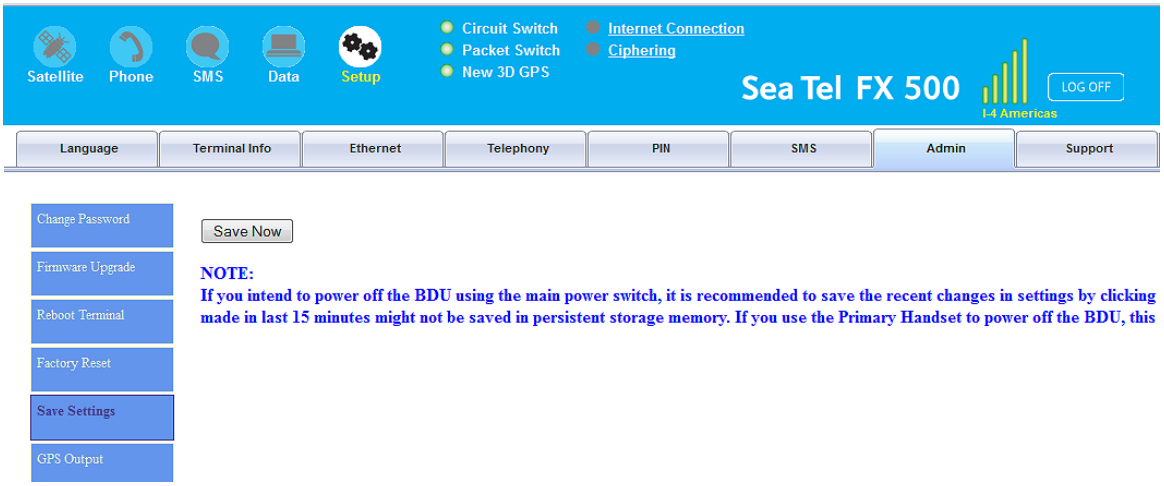
To perform a Factory Reset, enter the Security code 0000 and click Factory Reset.

Warning:
All the settings and user data (e.g., Phone Book, GPS, etc.) of the FBB BDU will be cleared and reset to the default settings. If you do not wish to lose critical user data such as Phone Book, please use limited reset option available via Primary Handset



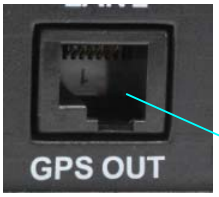
6.15.5. Save Settings

To power down the FBB BDU Transceiver Unit using the main power switch, it is recommended to save the recent setting changes. To save the recent changes, click Save Now.

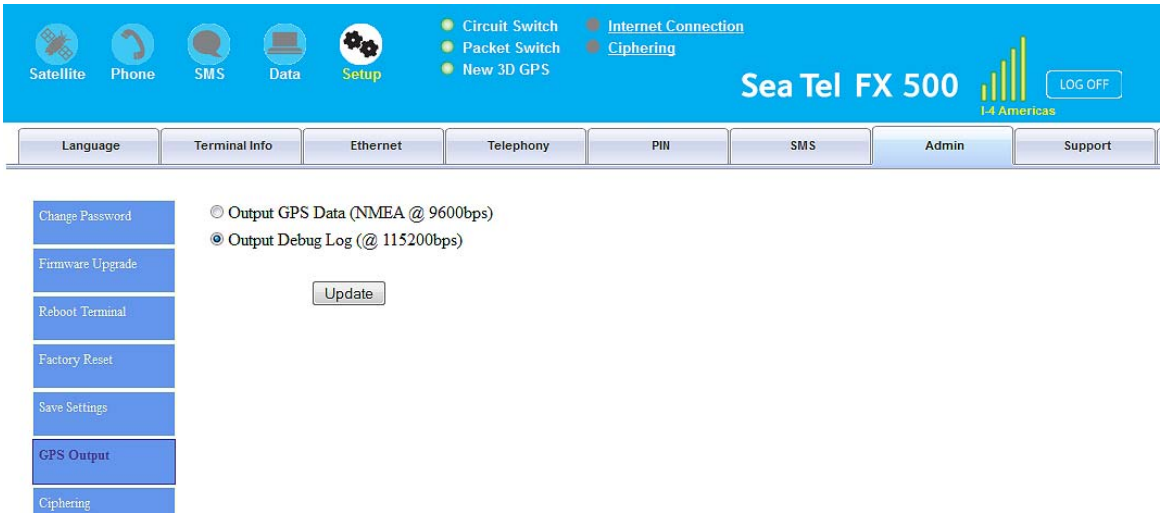


6.15.6. GPS Output

By default, FBB BDU Transceiver Unit outputs the GPS data in NMEA format (at 9600bps) via the NMEA 0183 Connector for GPS output. For technician who wants to diagnose the system, he/she may collect the debug log messages by selecting Output Debug Log. Since the debug mode is not required for normal users, it is recommended not to make any changes to this setting.

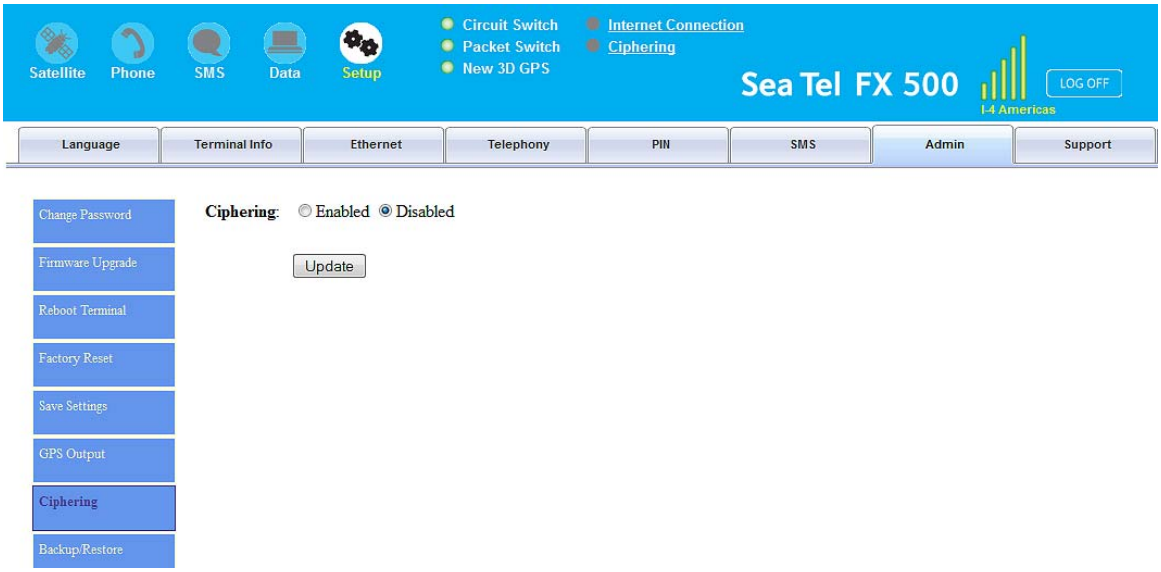


GPS output



6.15.7. Ciphering

Enabling the Ciphering option will make the FBB BDU to exchange voice and data in secure mode by encrypting them over the air. To enable/disable the Ciphering, select the option Enabled or Disabled respectively and click Update to make the change to take effect.

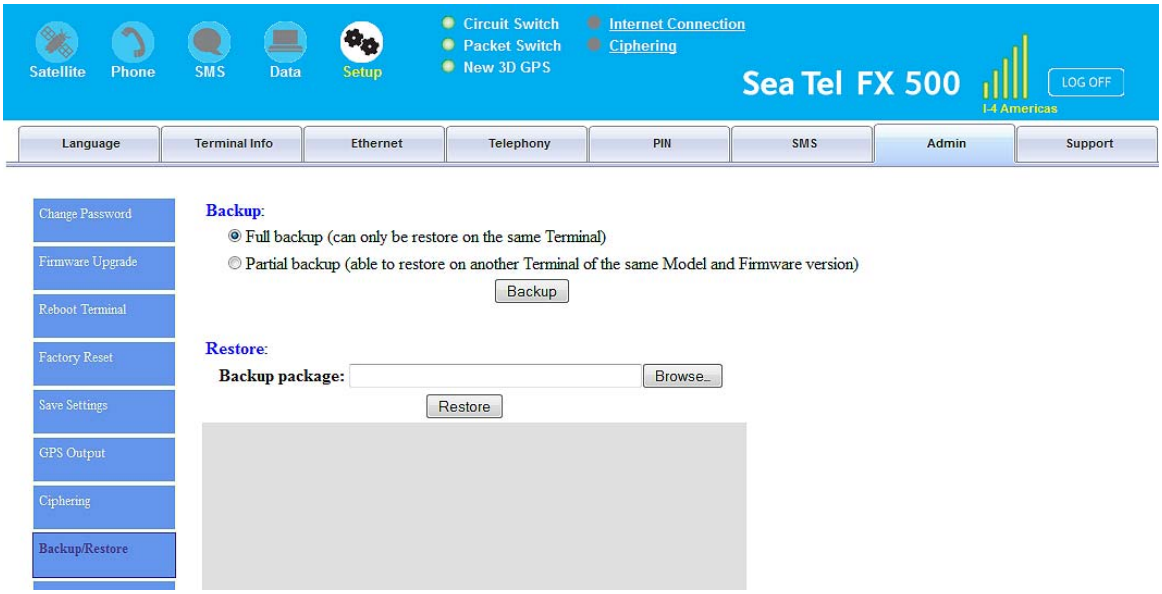


6.15.8. Backup/Restore

If you wish to backup your current settings, you may choose Full backup or Partial Backup:

1. Full backup – This apply only on the same terminal and not for distribution.
2. Partial backup – It allows distribution of certain settings to many terminals of the same Model and Firmware version.

To restore the previous backup settings, you may click on Browse to locate the backup file and restore accordingly.

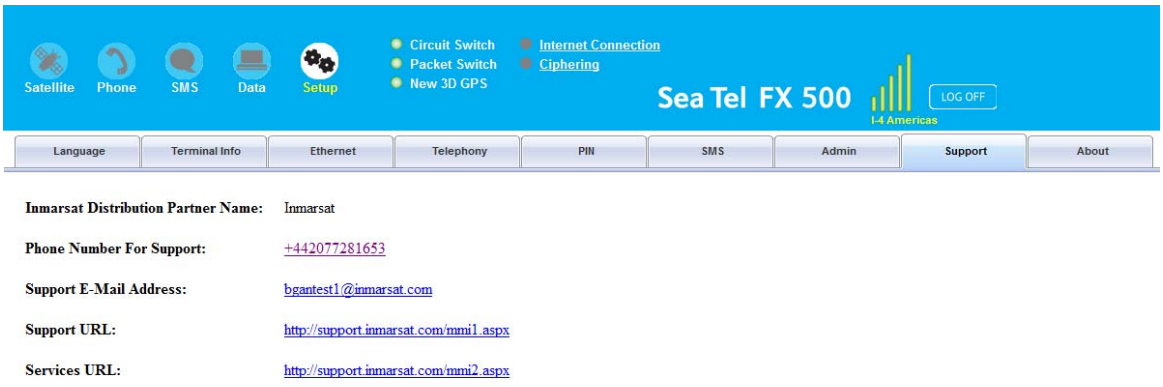


6.15.9. Feature

Displays the Optional Feature for Fax enabled. To activate the Fax feature, activation PIN is required. Please contact your DP for assistance.

6.16. Support

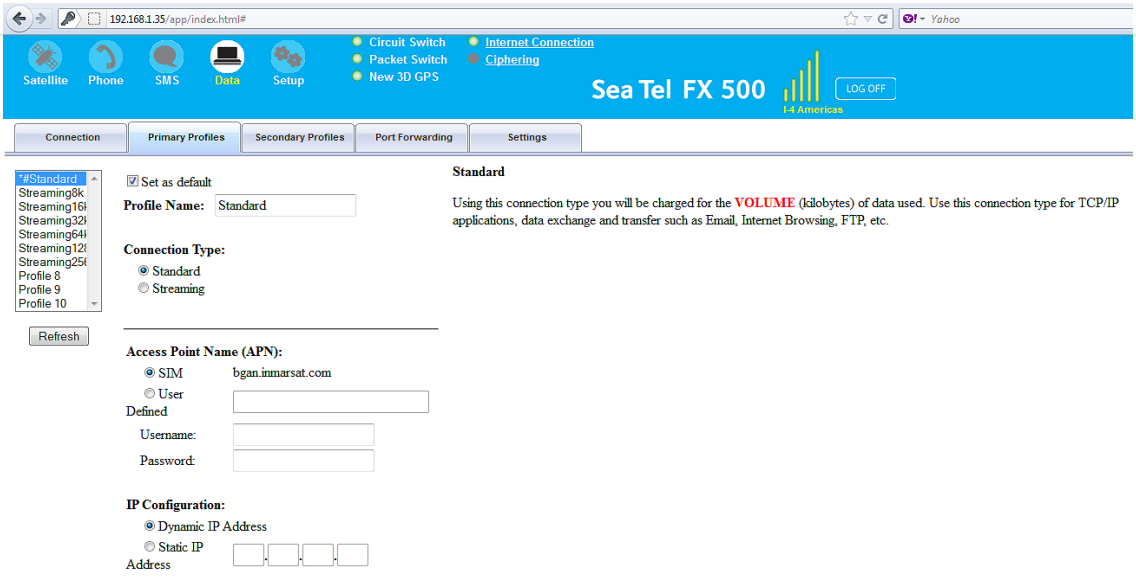
Display information of the support telephone number, support email address, Support URL and Services URL. (The information shown is for sample purpose only.)



6.17. Data Connection Settings

1. Click 

on the web console.
2. Click the **Primary Profiles** tab, and set the following:
3. Enable the checkbox of "**Set as default**", and ensure "**Standard**" in the Profile Name.
4. Enable the radio button of "**SIM**" of Access Point Name (APN).
5. Enable radio button of "**Dynamic IP address**" and "**User Header Compression**" of IP configuration.



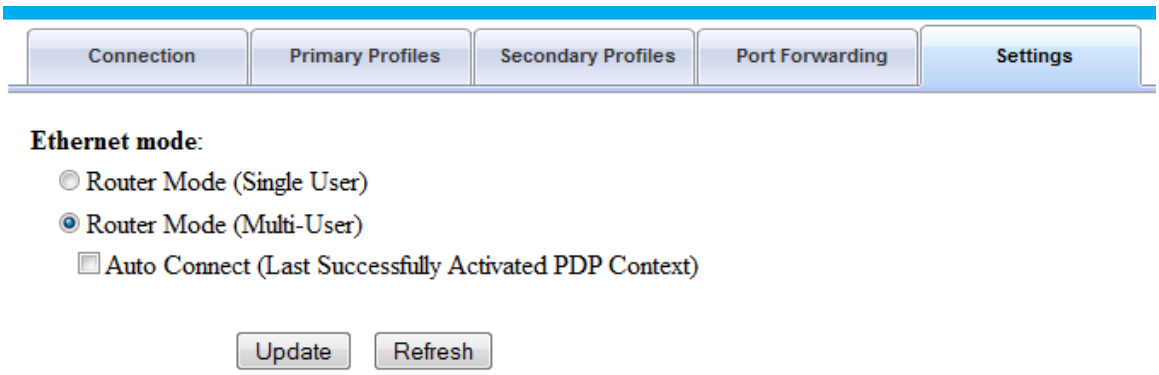
Note:

The Standard profile is set as the default primary profile, and the default connection type is standard.

This is charged by the volume of data used (in Megabytes or voume divisions) as designated by your airtime service provider.

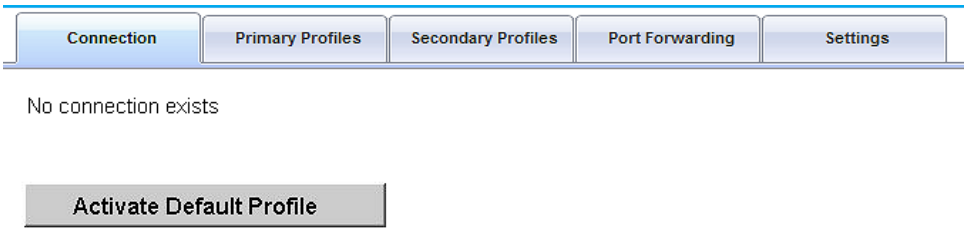
Under IP Configuration, the Dynamic IP Address is selected by default and the Header Compression checkbox is enabled as default.

6. Click the **Settings** tab, and set the following:
   - For the data connection, under the Ethernet mode, enable the radio button "**Router Mode (Multi-User)**" which is with NAT/PAT enabled for multi-users.



Note:
The Router settings cannot be changed while the Data connection is active. The Data session must, first, be disconnected.

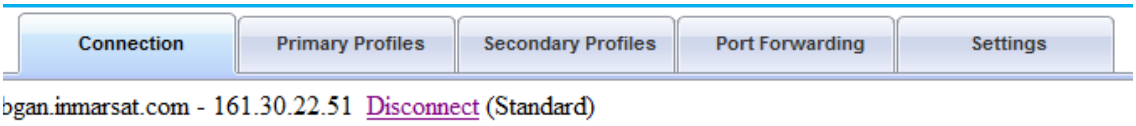
1. Click "**Always On (Auto PDP Context Activation)**" checkbox if it is required to get the standard IP Data connection to be reconnected automatically, in the event that the connection is disconnected without user intervention, i.e. antenna blockage, etc.
2. Click the **Update** button to allow the selection to take effect.
3. Click the **Refresh** button to query the current mode.
4. Click the **Connection** tab.
5. To activate the PDP context, click the **Activate Default Profile** button.



- After about 30 to 40 seconds, the data connection will be activated with a notification of the public IP address assigned to the active data connection.
- A user may then be able to browse the internet, do file transfer (FTP) or run any IP-based application services.

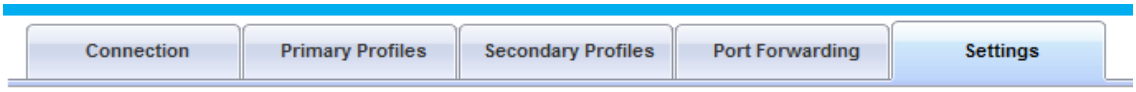
6. To disconnect the data connection, click Disconnect.

- The PDP context will be deactivated.

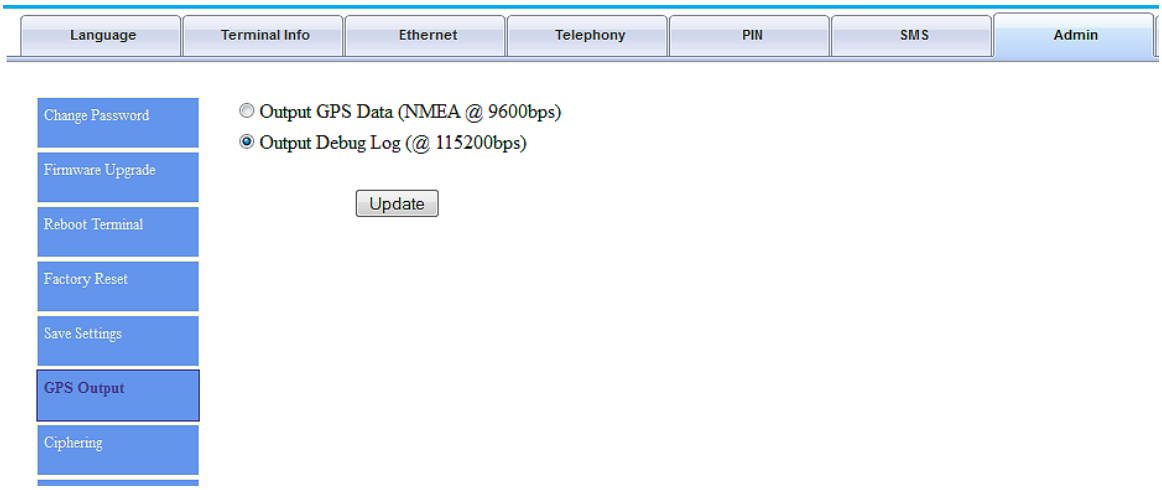


6.17.1. GPS Setting

1. Click the Settings tab.



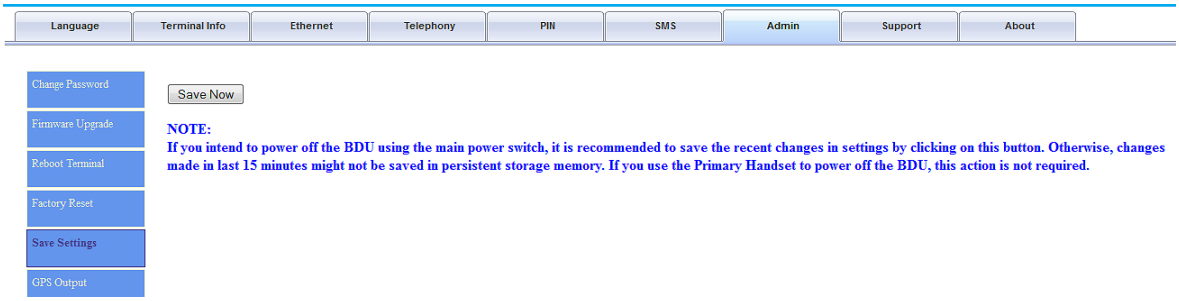
2. Then click the Admin tab.
3. Click the GPS Output button, and ensure that the radio button "Output GPS Data (NMEA @ 9600bps) is enabled.



- By default, the BDU outputs the GPS data in NMEA format via the NMEA 0183 Connector for GPS output.

6.17.2. Save Setting

It is recommended to save the recent setting changes. To save the recent changes, click the **Save Now** button.



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7. GLOSSARY

ADU	*Above Deck Unit*
BDU	*Below Deck Unit*
DC	*Direct Current*
FBB	*Fleetbroadband*
GPS	*Global Position System*
GPIO	*General Purpose Input/Ouput*
UE	*User Equipment*

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8. DRAWINGS

136103 KIT, HARDWARE, INSTALL ARRANGEMENT L BAND, FX 500

136320 INSTALLATION ARRANGEMENT

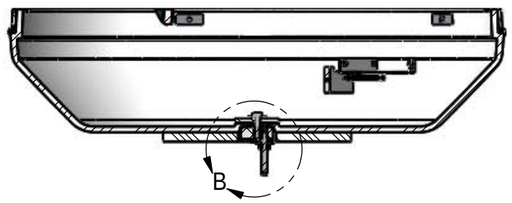
136484 FX INSTALLATION TEMPLATE

BDU Outline Dimensions

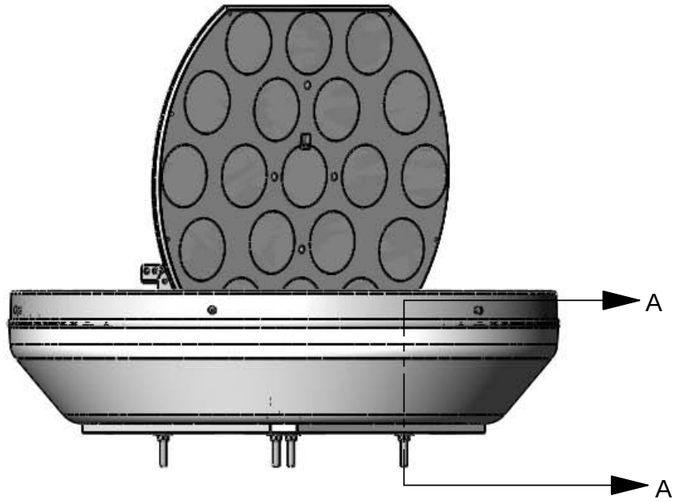
Primary Handset Outline Dimension

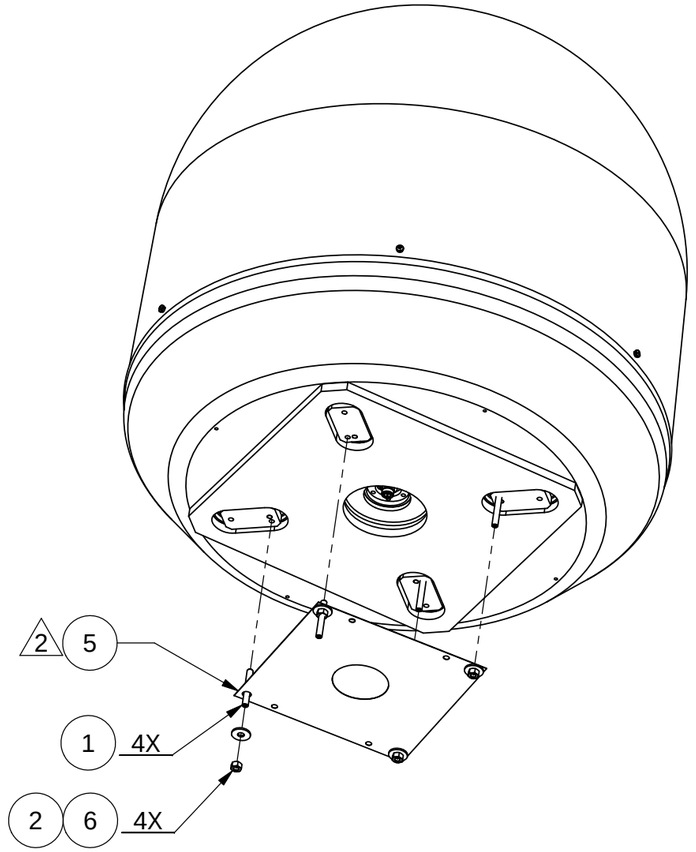
ADU Outline Dimensions

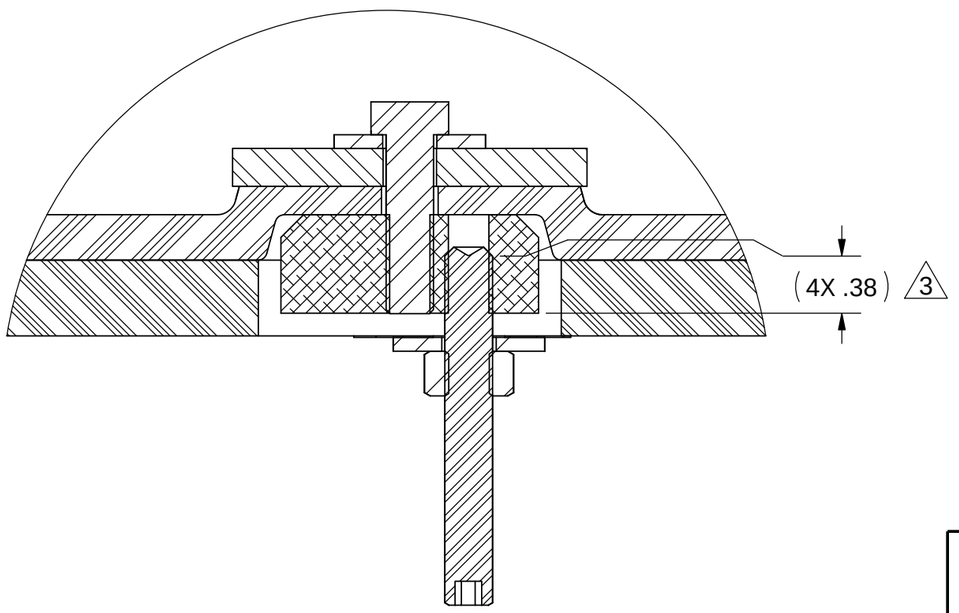
REVISION HISTORY				
REV	ECO#	DATE	DESCRIPTION	BY
A	9352	03-09-12	RELEASED TO PRODUCTION, WAS REVISION X4; CHANGE VIEW, SECTION; ADD DETAIL VIEW AND NOTE 4.	HT



SECTION A-A
SCALE 1 : 8







DETAIL B
SCALE 1 : 1

NOTES: UNLESS OTHERWISE SPECIFIED

1. MANUFACTURE PER SEA TEL STANDARD 122298.

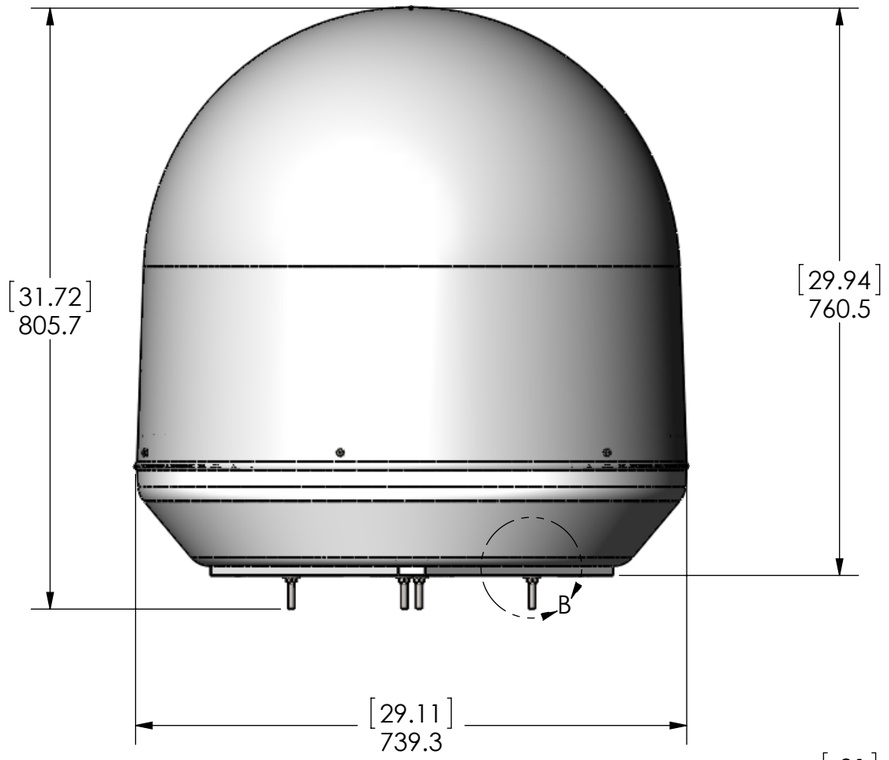
2 SHOWN FOR REFERENCE ONLY

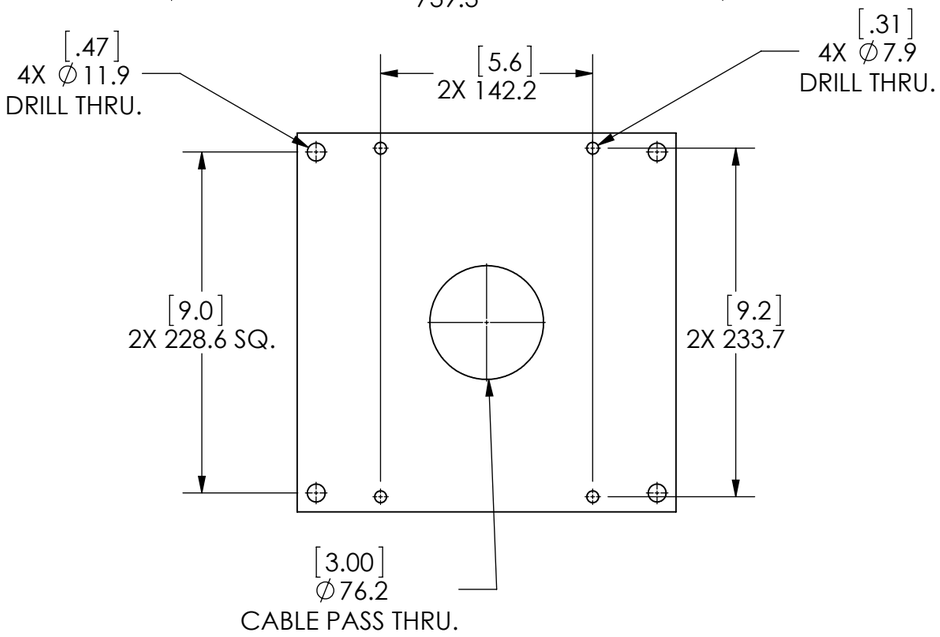
3 FULLY THREAD ENGAGE.

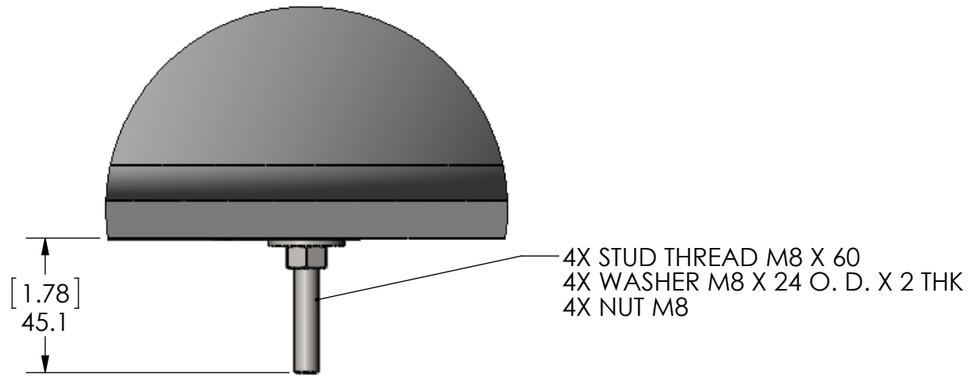
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
X.X = ±.050
X.XX = ±.020
X.XXX = ±.005
ANGLES: ±.5°
INTERPRET TOLERANCING PER ASME Y14.5 - 2009

DESIGNER/ENGINEER: HTN	DRAWN BY: HTN	Sea Tel COBHAM	
WEIGHT: 42.5 lbs	DRAWN DATE: 11/21/2011	Tel. 925-798-7979 Fax. 925-798-7986	
MATERIAL: NA	APPROVED BY:	TITLE: KIT, HARDWARE, INSTALL ARRANGEMENT L BAND, FX 500	
FINISH: NA	APPROVED DATE:		
SURFACE ROUGHNESS:	SIZE: B	SCALE: NA	DRAWING NUMBER: 136103 REV: A
3rd ANGLE PROJECTION	FIRST USED: L BAND		SHEET NUMBER: 1 OF 1

REVISION HISTORY				
REV	ECO#	DATE	DESCRIPTION	BY
A	9352	3/26/12	RELEASE TO PRODUCTION, WAS X4 REV.	HTN







DETAIL B
SCALE 1 : 2

REFERENCE DRAWINGS

136319-1 SYSTEM BLOCK DIAGRAM FX500
136103 KIT HARDWARE, INSTALL ARRANGEMENT
136484 INSTALLATION TEMPLATE

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS.
X = ±1.50
X.X = ±0.50
X.XX = ±0.15
ANGLES: ±.5°
INTERPRET TOLERANCING PER ASME Y14.5 - 2009

DESIGNER/ENGINEER: HTN	DRAWN BY: HTN
WEIGHT: 42.5 LBS	DRAWN DATE: 12/15/2011
MATERIAL: NA	APPROVED BY:
FINISH: NA	APPROVED DATE:
SURFACE ROUGHNESS:	SIZE: B / SCALE: NA
3rd ANGLE PROJECTION	FIRST USED: L BAND

Sea Tel
COBHAM
Tel. 925-798-7979 Fax. 925-798-7986

TITLE: INSTALL ARRANGEMENT DOCS, FX SYSTEM

DRAWING NUMBER: 136320 REV: A

SHEET NUMBER: 1 OF 1

REVISION HISTORY				
REV	ECO#	DATE	DESCRIPTION	BY
A	9352	02-08-12	RELEASE TO PRODUCTION, WAS X2 REV.	HT

	CABLE PASSAGE CUT OUT	DISTANCE BETWEEN HOLES	RADOME OUT LINE
FX 500	**3" ∅**	**9" X 9"**	**29.13" ∅**
FX 250	**3" ∅**	**9" X 9"**	**20" ∅**
FX 150	**3" ∅**	**5.6" X 9.2"**	**16.5" ∅**

NOTES: UNLESS OTHERWISE SPECIFIED

1. FOLD PAPER TO SIZE 8.5" X 11"
2. AFTER COPY, VERIFY DIMENSIONS BETWEEN HOLES 9", 5.6", AND 9.2" AT SHEET 2 OF 2
3. MANUFACTURE PER SEA TEL STANDARD 122298.

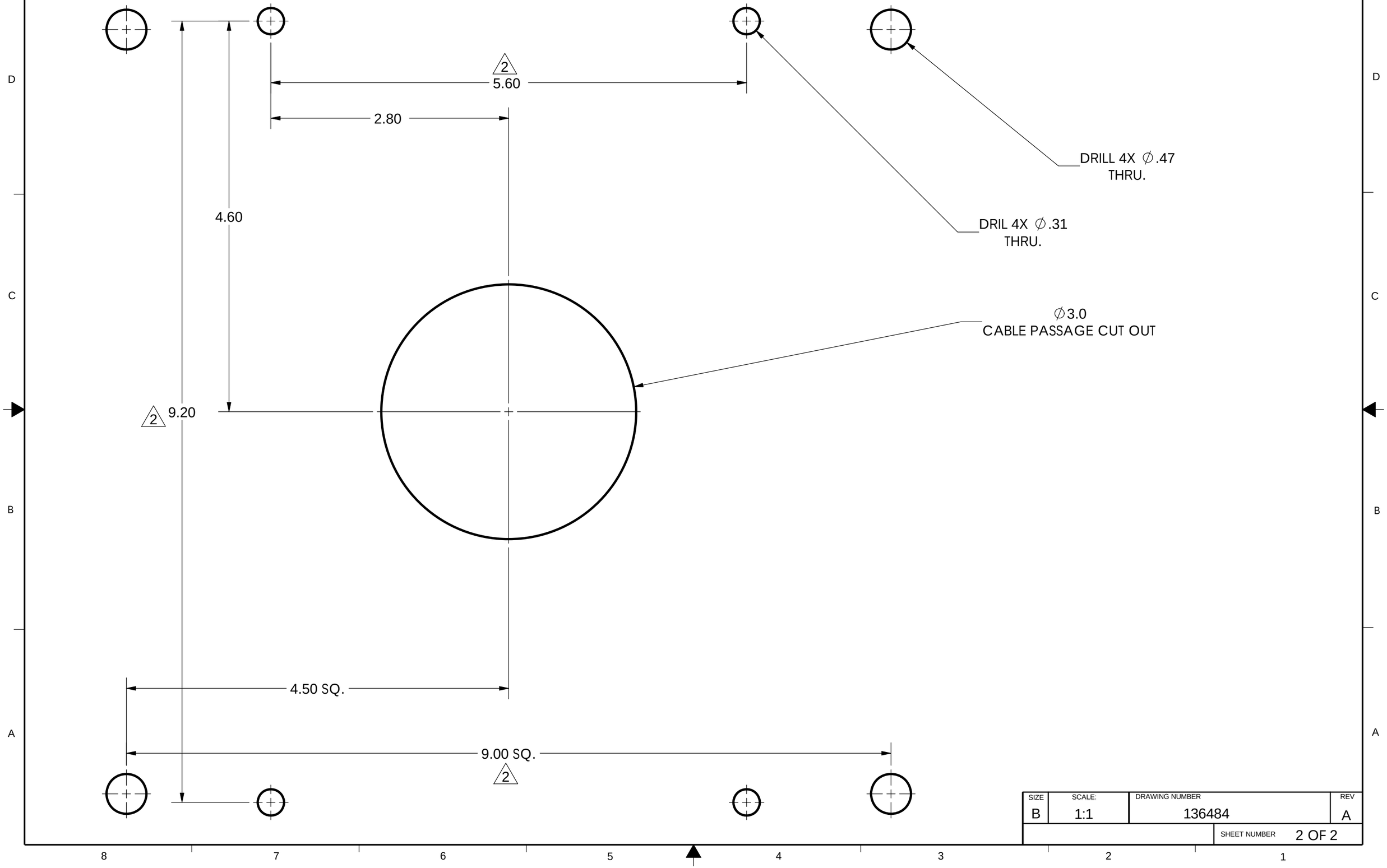
UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
X.X = ±.050
X.XX = ±.020
X.XXX = ±.005
ANGLES: ±.5°
INTERPRET TOLERANCING PER ASME Y14.5 - 2009

DESIGNER/ENGINEER: HTN	DRAWN BY: HTN
WEIGHT: NA	DRAWN DATE: 1/12/12
MATERIAL: PAPER -	APPROVED BY:
FINISH: NA -	APPROVED DATE:
SURFACE ROUGHNESS:	SIZE: B / SCALE: 1:1
3rd ANGLE PROJECTION	FIRST USED: L BAND

Sea Tel
COBHAM
Tel. 925-798-7979 Fax. 925-798-7986

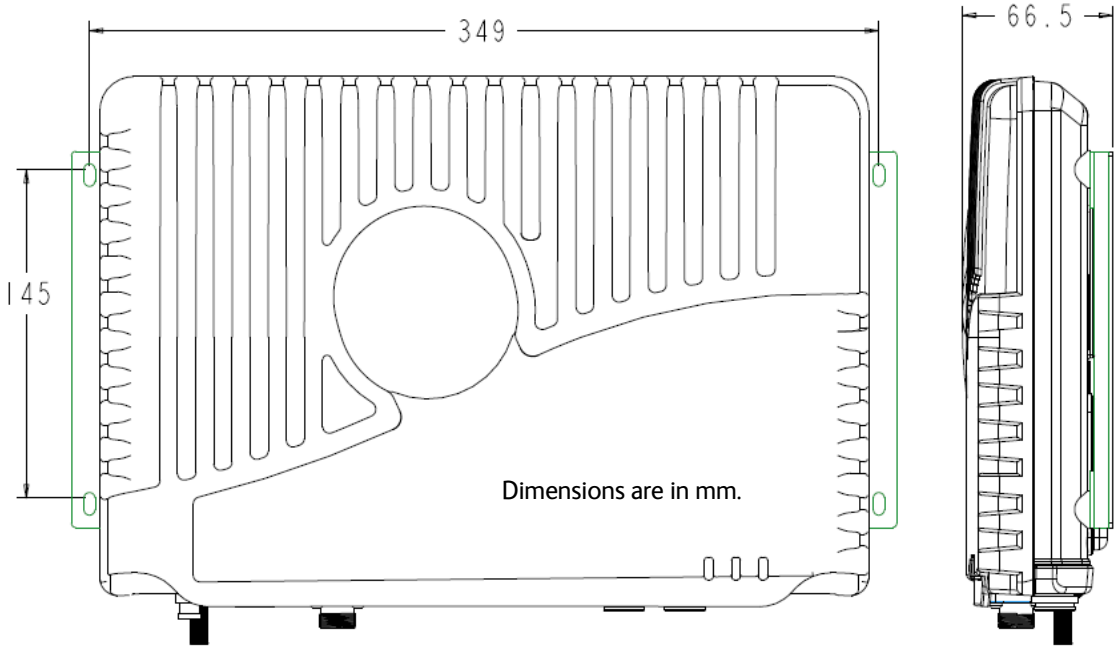
TITLE: FX INSTALLATION TEMPLATE
-

DRAWING NUMBER: 136484
REV: A
SHEET NUMBER: 1 OF 2

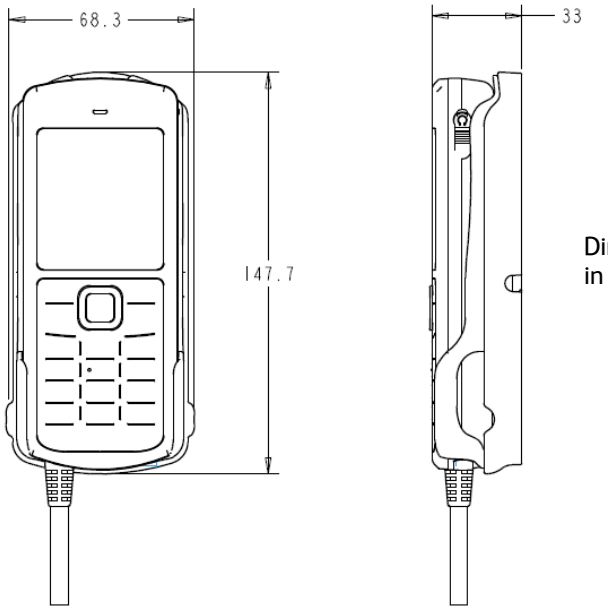


SIZE	SCALE:	DRAWING NUMBER	REV
B	1:1	136484	A
		SHEET NUMBER 2 OF 2	

BDU Outline Dimensions



Primary Handset Outline Dimensions



Dimensions are in mm.

ADU Outline Dimensions

[To be completed]