



User Manual

Satellite IP Modem

REGIONAL
Bgan


inmarsat

User Manual

Satellite IP Modem

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For your safety and protection, read this entire operations manual before you attempt to use the Regional BGAN Satellite IP Modem. In particular, read this safety section carefully. Keep this safety information where you can refer to it if necessary.

▶▶ | WARNING SYMBOLS USED IN THIS MANUAL

This section introduces the various types of warnings used in this document to alert you to possible safety hazards.



WARNING

Potential radio Frequency (RF) hazard. Where you see this alert symbol and WARNING heading, strictly follow the warning instructions to avoid injury to eyes or other personal injury.



WARNING

Where you see this alert symbol and WARNING heading, strictly follow the warning instructions to avoid personal injury.



DANGER

Electric shock hazard: Where you see this alert symbol and DANGER heading, strictly follow the warning instructions to avoid electric shock injury or death.

▶▶ | WARNINGS FOR THE SATELLITE IP MODEM



Do not stand in front of the Antenna.

This device emits radio frequency energy when in the transmit mode. To avoid injury, do not place head or other body parts in front of the satellite antenna when system is operational. Maintain a distance of one meter away from the front of the Satellite IP Modem's antenna.



Properly ground the Antenna

Failure to properly ground the optional external antenna may result in severe personal injury or death. Do not attempt to ground the optional external antenna unless you have the skills to do so in accordance with local electrical codes.



Do not operate during Electrical Storms

Operation of the Satellite IP Modem during electrical storms may result in severe personal injury or death. Disconnect the Satellite IP Modem from computer and store unit indoors if lightning is anticipated in the area of operation.



General

Handle your Satellite IP Modem with care. The enclosure is weather resistant per IEC 60529 IP44; however do not submerge the unit or expose it to severe rain storms. Avoid exposing your Satellite IP Modem to extreme hot or cold temperatures. The operating temperature range of the Satellite IP Modem is -10°C to +55°C.

Avoid placing your Satellite IP Modem close to cigarettes, open flames or any source of heat.

Changes or modifications to the Satellite IP Modem not expressly approved by Hughes Network Systems could void your authority to operate this equipment.

Only use a soft damp cloth to clean your Satellite IP Modem.

To avoid impaired Modem performance, please ensure your Satellite IP Modem's antenna is not damaged or covered with foreign material like paint or labelling.

When inserting the SIM, do not bend the SIM or damage the contacts in any way. When connecting the interface cables, do not use excessive force.



In the vicinity of blasting work and in explosive environments

Never use the Satellite IP Modem where blasting work is in progress. Observe all restrictions and follow any regulations or rules. Areas with a potentially explosive environment are often, but not always, clearly marked. Do not use the Satellite IP Modem while at a petrol filling station. Do not use near fuel or chemicals.



Qualified service

Do not attempt to disassemble your Satellite IP Modem. The Satellite IP Modem does not contain consumer serviceable components. Only qualified service personnel may install or repair equipment.



Batteries and accessories

Use approved batteries (HNS P/N 3003082-0001) and accessories only. Use of non-approved accessories may result in loss of performance, damage to the Satellite IP Modem, fire, electric shock or injury.

AC Mains power adapter (FRIWO Model SDA5012) is for indoor use only. It has an indoor operating temperature range of -10°C to +55°C and provides an output voltage of 12 VDC.

The storage capability of the battery decreases when operated below -10°C. If the battery is charged at too high a temperature, the battery light will flash red.



Connecting devices

Never connect incompatible products. When connecting the Satellite IP Modem to any other device, read the device's User Manual for detailed safety instructions.



Pacemakers

The various brands and models of cardiac pacemakers available exhibit a wide range of immunity levels to radio signals. Therefore, people who wear a cardiac pacemaker and who want to use a Satellite IP Modem should seek the advice of their cardiologist. If, as a pacemaker user, you are still concerned about interaction with the Satellite IP Modem, we suggest you follow these guidelines:

Maintain a distance of 15 cm between the Satellite IP Modem and your pacemaker;

Maintain a distance of one meter away from the front of the Satellite IP Modem's antenna;

Refer to your pacemaker product literature for information on your particular device.

If you have any reason to suspect that interference is taking place, turn off your Satellite IP Modem immediately!



Hearing aids

Most new models of hearing aids are immune to radio frequency interference from Satellite IP Modems that are more than 2 metres away. Many types of older hearing aids may be susceptible to interference, making it very difficult to use them near a Satellite IP Modem. Should interference be experienced, maintain additional separation between you and the Satellite IP Modem.

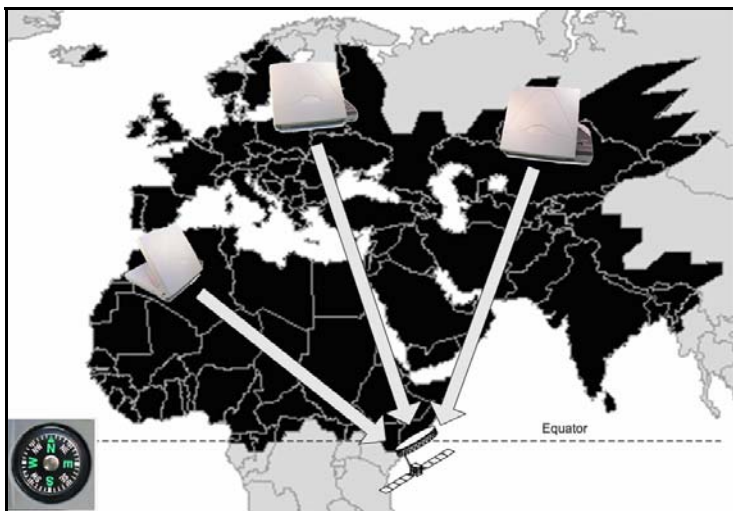
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INTRODUCTION

Your Inmarsat Regional BGAN Satellite IP Modem provides portable, high-speed data communications via satellite. Using “Always On” technology you can remain connected to the Internet while only sending or receiving the data that you need at speeds of up to 144kb/s, just as if you were sitting at your office desk. The Satellite IP Modem works with your computer using one of three common networking connections: Universal Serial Bus (USB), Ethernet or Bluetooth™ wireless technology. While the Satellite IP Modem is very similar to other wireless data modems that you may be familiar with, there are a few important operating differences to note. Please read this user manual carefully to understand all the aspects of operating your Satellite IP Modem.

▶▶ | COVERAGE



Regional BGAN Coverage Area

The coverage map shows the region where satellite coverage is possible and indicates the general direction of the satellite relative to your position on the ground. Note that the actual ability to get Regional BGAN service in this coverage area is dependent upon a variety of factors, including licensing conditions, and the figure does not represent a guarantee of service in any particular location (contact your Service Provider for the latest information on service coverage). At some point in the future, Inmarsat plans to make this service globally available. At that time you will be able to obtain an upgrade kit for your Satellite IP Modem to allow it to access multiple satellites around the world.

This section guides you through the process of setting up and configuring your Satellite IP Modem for the first time. The steps presented should be followed in the order given. When you are finished, your computer and Modem will both be set up and ready to use.



Regional BGAN Satellite IP Modem

▶▶ UNPACKING

Unpack the modem and accessory box items.

- Regional BGAN Satellite IP Modem
- AC Mains Power Adapter and cable (100 – 240 VAC)
- Rechargeable Lithium Ion Battery pack
- USB cable
- Ethernet cable
- Installation CD
- User Manual (this document)
- Tie-down Clips

Your Service Provider will supply a Subscriber Identification Module (SIM) and Modem configuration instructions – you will need those to access the network.



MINIMUM SYSTEM REQUIREMENTS AND SOFTWARE INSTALLATION

- ☒ You must have a desktop or laptop Personal Computer (PC) running one of the following supported versions of the Windows® operating system:
 - Windows® NT 4.0 (service pack 3)
 - Windows 98 second edition
 - Windows 2000
 - Windows ME
 - Windows XP
- ☒ Your PC must have a CD-ROM drive in order to run the software installation programme.
- ☒ The computer must also have one of the following supported Internet browsers. If you do not currently have a browser, the installation process will allow you to install one.
 - **Microsoft Internet Explorer version 5.5 or later.** Java Runtime Environment (JRE) 1.4.1 or later must be installed (this will be installed for you by the installation CD).
 - **Netscape Communicator version 7.0 or later.** Java must be active.
- ☒ Your PC must support one of the following interfaces:
 - Universal Serial Bus (USB)
 - Ethernet (RJ45)
 - Bluetooth™ wireless technology running the IP protocol



Notes

You must disconnect any existing LAN connections on your PC before proceeding with installation. This avoids any conflict with the network configuration that you are setting up for the Satellite IP Modem.

You must verify that the proxy server settings in your browser are disabled. For Microsoft Internet Explorer, select Tools / Internet Options / Connections / LAN Settings and uncheck the box labeled 'Use a proxy server for your LAN'. For Netscape, go to Advanced Preferences and select 'Direct connection to the Internet'. When complete please close your browser. **DO NOT FORGET YOU MAY NEED TO RECHECK THIS BOX ON RETURN TO YOUR OTHER INTERNET CONNECTION.**



Notes

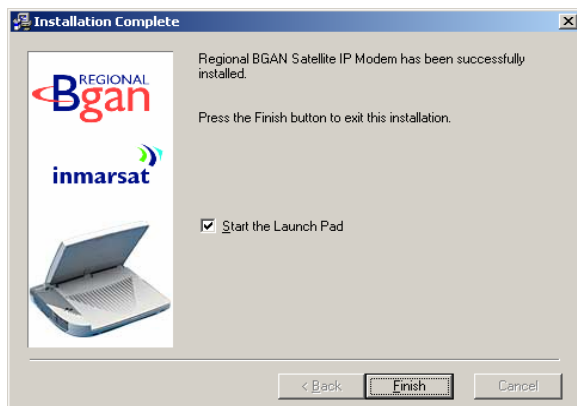
The USB and Bluetooth interfaces are not supported with Windows NT.

The Bluetooth control software on your computer must allow the direct entry of DNS information. Please consult your Bluetooth device vendor to confirm that DNS entry is possible with your device.

SATELLITE IP MODEM SOFTWARE INSTALLATION

Insert the installation CD into your PC's CD-ROM drive to initiate the software installation. If the programme does not automatically begin, use your Windows® **Explorer** utility to find **setup.exe** on the installation CD. Double-click that programme to start the installation process. Follow the steps provided by the Installation Wizard.

The following figure illustrates the final screen of the Installation Wizard:



Finish Installation Screen

If you are ready to start working with your Satellite IP Modem, leave the **Start the Launch Pad** option enabled. Just click on the **Finish** button to complete the software installation and begin the next phase of setting up your Satellite IP Modem. If you wish to defer this activity until later, uncheck this option and click on the **Finish** button. You will find a **Satellite IP Modem** icon on your Windows desktop that allows you to start the next phase of setup whenever you are ready.

▶▶ LAUNCH PAD -- QUICKSTART WIZARD



Desktop Icon

The Satellite IP Modem **Launch Pad** menu is displayed once you complete the installation steps and click the Installation Wizard **Finish** button with **Start the Launch Pad** enabled. Alternately, the Launch Pad can be started by double-clicking on the **Satellite IP Modem** desktop icon.

Choose **View QuickStart Wizard** from the Launch Pad menu. This option leads you through the steps necessary to connect your Satellite IP Modem with the Regional BGAN network. Note that you will need to follow the configuration instructions supplied by your Service Provider (supplier of your SIM) to ensure that you have the correct configuration information.



Launch Pad Screen

QUICKSTART WIZARD OVERVIEW

There are 12 basic steps to getting your Modem up and running:

- Step 1: Unpack the Satellite IP Modem
- Step 2: Unpack the Satellite IP Modem – Power
- Step 3: Connecting the Satellite IP Modem to your PC
- Step 4: Connecting Using USB, Ethernet or Bluetooth
- Step 5: GPS Location
- Step 6: Rough Pointing to Satellite
- Step 7: Rough Pointing to Satellite
- Step 8: Rough Pointing to the Satellite – Compass Direction
- Step 9: Rough Pointing to the Satellite – Antenna Angle
- Step 10: Fine Pointing to the Satellite
- Step 11: Fine Pointing to the Satellite
- Step 12: Exiting Pointing Mode

STEP 1: UNPACK THE SATELLITE IP MODEM

1. Unpack the modem and accessories. Battery, AC mains power adapter, USB and Ethernet cables are included with the modem.
2. Your service provider will have provided a SIM and configuration instructions separately.
3. Insert SIM in SIM holder, then insert the SIM holder into the modem as shown below.



STEP 2: UNPACK THE SATELLITE IP MODEM – POWER

1. Insert Battery after the SIM has been installed.

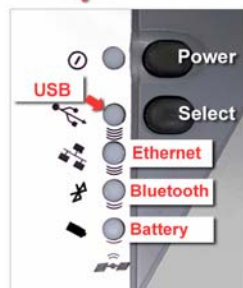


2. Plug in Power cable and charge the battery for 3 hours.



STEP 3: CONNECTING THE SATELLITE IP MODEM TO YOUR PC

1. Place Satellite IP Modem outside on a flat surface with a clear view of the sky.
2. Power up Satellite IP Modem by pressing the Power button.
3. Choose one of the following options to connect your PC to the Satellite IP Modem:
 - USB
 - Ethernet
 - Bluetooth



IMPORTANT: You must disconnect any existing LAN connections on your PC before proceeding with installation. You must verify that the proxy server settings in your browser are disabled. For Microsoft Internet Explorer, select Tools / Internet Options / Connections / LAN Settings and uncheck the box labelled 'Use a proxy server for your LAN'. For Netscape, go to Advanced Preferences and select 'Direct connection to the Internet'. When complete please close your browser. **DO NOT FORGET YOU MAY NEED TO RECHECK THIS BOX ON RETURN TO YOUR OTHER INTERNET CONNECTION.**

STEP 4: CONNECTING USING USB

1. Connect the white USB cable to your computer, and insert the other end of the connector into the Satellite IP Modem.
2. To check the active interface, press and hold the SELECT button for a few seconds. If the USB light flashes red then USB is already selected. If not, press the SELECT button once or twice as needed to change the selection to USB. After a short pause, the Satellite IP Modem will restart with the USB interface selected. If the Satellite IP Modem is under battery power it will power down; press and hold power button to reapply power.



Note: When plugging in the USB cable for the first time, you will see Windows installing a new driver for the device.

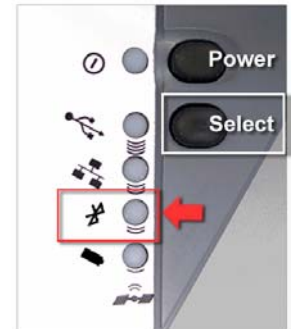
STEP 4: CONNECTING USING ETHERNET

1. Connect the blue Ethernet cable to your laptop's network interface and insert the other end of the connector into the Satellite IP Modem.
2. To check the active interface, press and hold the SELECT button for a few seconds. If the Ethernet light flashes red then Ethernet is already selected. If not, press the SELECT button once or twice as needed to change the selection to Ethernet. After a short pause, the Satellite IP Modem will restart with the Ethernet interface selected. If the Satellite IP Modem is under battery power it will power down; press and hold power button to reapply power.



STEP 4: CONNECTING USING BLUETOOTH

1. To check the active interface, press and hold the SELECT button for a few seconds. If the Bluetooth light flashes red then Bluetooth is already selected. If not, press the SELECT button once or twice as needed to change the selection to Bluetooth. After a short pause, the Satellite IP Modem will restart with the Bluetooth interface selected. If the Satellite IP Modem is under battery power it will power down; press and hold power button to reapply power.
2. Place your Bluetooth enabled PC in proximity to the Satellite IP Modem so the PC can bond to it. Use the factory default Bluetooth passkey "blue" when prompted for it by the Bluetooth control application on your PC.
3. Enter into the Bluetooth control application the DNS values from the configuration instructions given to you by your service provider. This must be done even if those values are already entered into the Satellite IP Modem previously. You may need to consult with your PC's Bluetooth Device vendor regarding how DNS values can be entered into their Bluetooth Control application.



STEP 5: GPS LOCATION

1. The Satellite IP Modem is now attempting to locate itself using GPS. This may take up to five minutes. It is important that the Satellite IP Modem is placed away from buildings, trees and other obstacles that might block a clear view of the sky.



Wait – Power light alternating red / amber

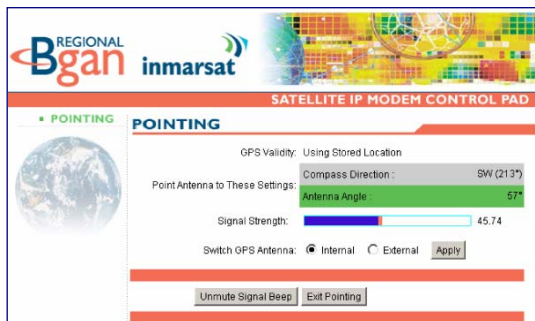


Proceed – Power light alternating green / amber

2. When the power light changes from a red/amber flash to an amber/green flash proceed to the next step. If the power light is solid green or flashing green, the Satellite IP Modem is not in antenna pointing mode. Turn the Satellite IP Modem off and then back on.

STEP 6: ROUGH POINTING TO SATELLITE

1. The Satellite IP Modem is controlled through a web browser interface called the Control Pad. To activate the Control Pad, click the 'Launch Control Pad' button. This will launch your browser with the correct page setting to access the Control Pad.



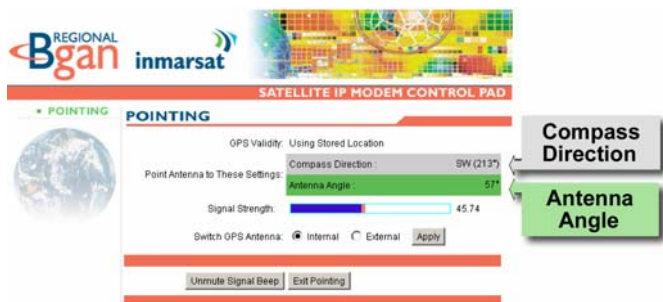
IMPORTANT: Before launching the Control Pad, you must verify that the proxy server settings in your browser are disabled. For Microsoft Internet Explorer, go to LAN Settings under the Connections tab and uncheck the box next to 'Use a proxy server for your LAN'. For Netscape, go to Advanced Preferences and select 'Direct connection to the Internet'.

2. If you have PIN security enabled on your SIM, you will be prompted to enter your PIN before proceeding.

HINT: Once you are familiar with the operation of the Satellite IP Modem you can go directly to the Control Pad by clicking “Launch Control Pad” on the Launch Pad window where you started this wizard.

STEP 7: ROUGH POINTING TO SATELLITE

Note: You must have a valid GPS location for the compass direction and Antenna Angle to be displayed. If the GPS is not valid, go back to step 5 and allow the Satellite IP Modem to obtain a GPS location.



1. Note the Compass Direction and Antenna Angle from the Control Pad interface as shown above; these will be used to assist you in roughly pointing the Satellite IP Modem antenna towards the satellite. Rough pointing consists of determining the rough direction and elevation angle that the antenna needs to “see” the Regional BGAN Satellite.

STEP 8: ROUGH POINTING TO THE SATELLITE – COMPASS DIRECTION

1. Look at the Control Pad Pointing display and determine the Compass Direction needed for the antenna. Rotate the Satellite IP Modem left and right to the correct compass direction.



Rotate left and right

Following are sample compass directions.



South



Southwest



Southeast

STEP 9: ROUGH POINTING TO THE SATELLITE – ANTENNA ANGLE

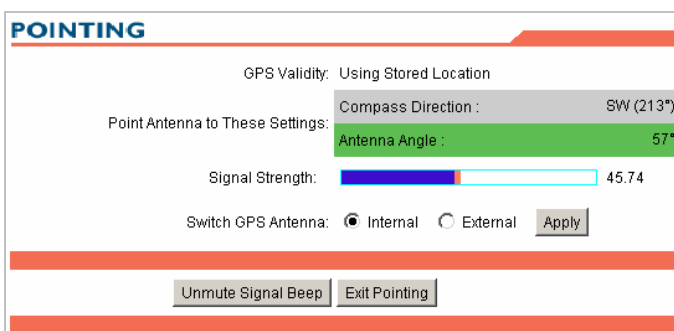
The Protractor should match the number off of the Control Pad as shown in the sample to the right.

1. Look at the Control Pad Pointing display and determine the elevation angle needed for the antenna. Tilt antenna up and down to the correct antenna angle.
2. The small arrow on the Satellite IP Modem Protractor should point to the number that was read off the Control Pad.



STEP 10: FINE POINTING TO THE SATELLITE

IMPORTANT: The reliability and speed of your connection to the network will be adversely impacted unless the antenna is correctly pointed towards the satellite. Please follow these directions closely so that your Satellite IP Modem is optimally pointed.



Pointing Interface

Use the Control Pad to optimally fine point the antenna. The Control Pad pointing screen has a signal strength bar graph and numeric value to assist in accurate antenna pointing. The orange peak-hold bar at the end of the blue bar identifies the highest signal strength measured during antenna pointing and will help you optimize the pointing direction.



Signal Strength Bar Graph

Note: The power light must be flashing red/amber or amber/green. If this is not the case, turn the Satellite IP Modem off and then back on to re-enter the pointing display.

STEP 11: FINE POINTING TO THE SATELLITE

1. To find the optimal antenna pointing direction, rotate the Satellite IP Modem slowly left and right a small amount. Find the centre peak of the signal strength using one of the methods described on the prior pages. Once a peak has been found, keep the Satellite IP Modem pointing in that direction.
2. To find the optimal antenna pointing elevation, tilt the antenna slowly up and down a small amount. Find the centre peak of the signal strength using one of the methods described on the prior page. Once a peak has been found keep the Satellite IP Modem antenna at that angle.



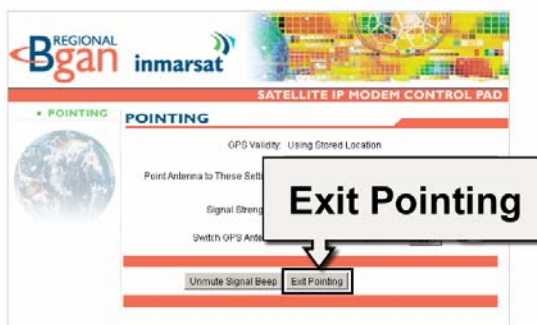
Rotate left and right slowly



Tilt antenna up and down

STEP 12: EXITING POINTING MODE

1. Your antenna is now optimally pointed. Exit the pointing mode by selecting the “Exit pointing” option on your Control Pad.



2. Your service provider may have supplied additional instructions for configuring your Satellite IP Modem along with your SIM card. If provided, please refer to the configuration instructions and make the required changes now. If you are unable to successfully connect to the Internet, please see the troubleshooting section of the *Regional BGAN Satellite IP Modem User Manual*.
3. Congratulations your modem is successfully connected.

This section serves as a reference guide, identifying the key operational aspects of using the Regional BGAN system, the **Controls and Indicators** on the Satellite IP Modem and the functions of the **Launch Pad** software.

▶▶ GLOBAL POSITIONING SYSTEM OPERATION

Your Satellite IP Modem contains an integrated Global Positioning System (GPS) receiver that is used to provide location information to the Regional BGAN system. GPS location information is required for system access and the reception of a new GPS location is attempted automatically every time the Satellite IP Modem is powered on.

For optimum GPS signal reception, make sure the Satellite IP Modem is positioned in a roughly horizontal placement with the lid closed. Since GPS receivers must “see” a large part of the sky without obstructions from buildings, mountains or trees, it may be necessary to take your Satellite IP Modem out to a clear space to obtain a new GPS location. It may be possible to obtain a new GPS location in a less favourable circumstance, but the time to completion may be longer.

Once updated, the Satellite IP Modem remembers your location so the unit can be relocated to a more convenient working area, such as inside a building by a window facing toward the satellite.

Once you have established a session on the Regional BGAN system you will not need another GPS location while you remain connected in the “Always On” condition. This is convenient if you intend to operate from one location for an extended period of time since there is no need to move the Satellite IP Modem to refresh the GPS receiver. Also, your stored GPS location remains good for a period of time (consult with your service provider for this information) even if you power down and move a short distance between sessions. When you believe this is the case, simply skip the GPS location step and complete the Regional BGAN satellite pointing operation prior to going directly onto the network. Be sure to carefully point your unit after every time it is moved.

STORED GPS LOCATION

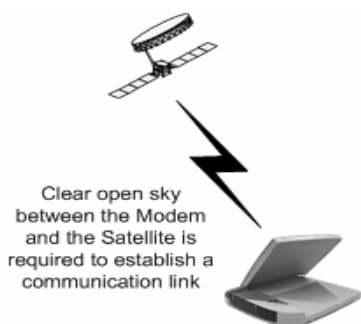
The most recent GPS location is stored in the Satellite IP Modem even when powered down. Upon power up, if this stored GPS location is available the display indicates “Using Stored Location.” Even so, the Satellite IP Modem will attempt to update this GPS location since the Regional BGAN system will only allow access if your GPS location is not too old. If the Satellite IP Modem is able to update the GPS location, the status changes from “Stored” to “Valid.” GPS location is shown as “Invalid” only under special circumstances when the stored information has been erased. In any case, you may wish to attempt network access to see if service will be granted.

▶▶ | ANTENNA POINTING

Establishing a new connection requires the careful orientation of the Satellite IP Modem towards the Regional BGAN Satellite. The more precise this alignment, the faster your data will be able to travel over the network. To ensure precise alignment, the pointing operation is divided into a rough pointing operation followed by a fine pointing operation.

To assist in rough Satellite IP Modem orientation, the stored GPS location is used to obtain your location relative to the satellite. Using this geographic location data, direction and elevation angle information is supplied to you on your computer's display. You can use this information in conjunction with the Satellite IP Modem's compass and elevation angle scale to obtain an initial orientation towards the satellite.

Once you have done this, station yourself with your Satellite IP Modem's "lid" (the antenna) opened away from you (like the display screen of a laptop computer) and look out and over it to ensure that nothing but open sky is between the Modem's lid and the Regional BGAN Satellite. If the view is blocked by trees, mountains, buildings or similar objects then you must relocate the Satellite IP Modem. This manipulation is called the Rough Pointing procedure.



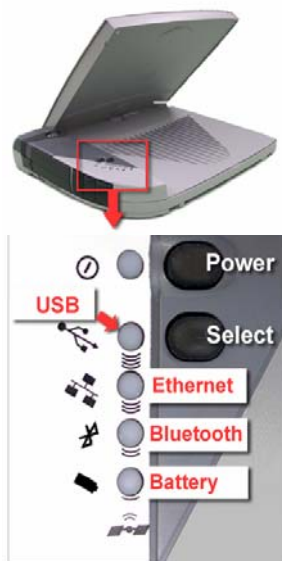
Do not stand in front of the Antenna

The Satellite IP Modem emits radio frequency energy when in the transmit mode. To avoid injury, do not place head or other body parts in front of the antenna when system is operational.

Once you have completed rough pointing, the connection can be "tuned" using the fine pointing procedure. The tuning consists of small changes in direction (rotation of the modem) and small changes in elevation angle (small up and down movement of the modem's lid). Signal meters are located on the modem and computer display; you can use either one to maximize your signal strength. Finding the maximum for both the direction and elevation angle settings ensures the best performance from your modem.

▶▶ | CONTROLS AND INDICATORS

The figures below illustrate where the Control Buttons and Lights are located on the Satellite IP Modem and the functions of each.



POWER BUTTON

The Power Button turns the Satellite IP Modem power on and off. To turn on the Regional BGAN Satellite IP Modem, push the Power button down until the Power Light illuminates. To turn off the Satellite IP Modem, push the Power button down until the Power Light darkens (at least two seconds). The Modem will shut off a few seconds later.

When the Satellite IP Modem is first connected to AC Mains power, the Modem will power on immediately. Note that when the Satellite IP Modem is attached to AC Mains power, the Modem still supports battery charging while the Modem is turned off.

POWER LIGHT

When the Satellite IP Modem is powered down, the Power Light is **off**.

Normal Operational Mode: The Power Light is **green** if the Modem is running on AC Mains power and **flashing green** if the Modem is on battery power.

Pointing Mode: The Power Light displays as one of two “switching colour” states related to GPS acquisition. If the Light is switching between **red** and **amber**, then the

GPS location has not been updated since power up. If the Light is switching between **amber** and **green**, then the **GPS location has been updated** since power up.

In any mode, if the Power Light is **flashing red**, there is a fault or error in the Satellite IP Modem.

SELECT BUTTON

The Select Button controls the selection of the interface between your computer and the Satellite IP Modem.

All Operational Modes: Pressing and holding this button down for two seconds will display the current selected interface and battery state. Pressing this button again changes from the active interface to the next one, cycling through Universal Serial Bus (USB), Ethernet, and Bluetooth until you have made the desired selection (indicated by the illumination of the selected interface Light).

Once you have selected the new interface, the Modem will shut itself off after approximately three seconds. If AC Mains is connected to the Modem, it will restart itself. If the Modem is under battery power, you will need to restart the modem by pressing the Power Button

INTERFACE LIGHTS

The USB, Ethernet, and Bluetooth Lights indicate the state of the currently-active interface.

Normal Operational Mode: Only the Light of the selected, active interface is lit. If the Interface Light is **green**, the Satellite IP Modem is properly connected to the Regional BGAN network. If the Interface Light is **amber**, the appropriate interface has been selected but a connection to the network has not yet been established. If the Interface Light is **flashing red**, there is a fault or error in the Satellite IP Modem.

Pointing Mode: In this mode, **all** Interface Lights are lit and used as a bar graph to indicate relative signal strength. The Lights turn from **red** (poor signal strength) to **amber** (better signal strength) to **green** (best signal strength) as the antenna is manipulated to get the optimum signal.

BATTERY LIGHT

The Battery Light is **off** when the Satellite IP Modem is powered down.

Normal Operational Mode: If the Battery Light is **flashing amber**, the Satellite IP Modem is powered on and not connected to AC mains power. If the Light is **flashing green**, the Modem is connected to AC mains power and the battery is charging. If the Light is **green**, the Modem is connected to AC mains power and the battery is fully charged. If the Light is **flashing red**, the battery is low and is not charging.

Pointing Mode: In this mode, the Battery Light is lit along with the interface lights to be used as a bar graph to indicate relative signal strength. The Light turns from **red**

(poor signal strength) to **amber** (better signal strength) to **green** (best signal strength) as the antenna is manipulated to get the optimum signal.



Note

When the Satellite IP Modem is on battery power (no AC Mains) the Power, Interface, and Battery Lights will flash to conserve power.

SATELLITE IP MODEM ANTENNA PROTRACTOR



When you are positioning the antenna during the Antenna Pointing process, the protractor provides the current angle of the antenna so that you can adjust it to the Antenna Angle specified on the pointing screen.

COMPASS



Reference the compass during the Antenna Pointing process to get the correct Compass Direction needed for the antenna. The illustration shows an example of a South-West orientation.



Note

The compass can be affected when close to magnetic fields or metallic objects.

LAUNCH PAD

The Satellite IP Modem **Launch Pad** menu will appear after you have completed the installation steps above and clicked the Finish button on the last Installation panel. Alternately the Launch Pad can be started by a double click on the **Satellite IP Modem** desktop icon.

VIEW QUICKSTART WIZARD

The **QuickStart Wizard** is always there to guide you through the Satellite IP Modem setup procedures. Should you experience problems after the initial setup or if you are required to set up or reinitialize the Satellite IP Modem from scratch, you can again run through the steps outlined in the Wizard to ensure correct Modem performance.

LAUNCH CONTROL PAD

The **Control Pad** is used for modem administration tasks. This programme gives you the ability to check the current Satellite IP Modem status and performance, manage Modem security, initialize and update network parameters, and review the “properties” of your system. You can also access the Control Pad by typing 192.168.128.100 in your browser’s address window.

UPGRADE SATELLITE IP MODEM

The **Upgrade Satellite IP Modem** option allows you to connect to the Regional BGAN website and compare the software version currently installed in your Satellite IP Modem with the latest version available for use. You can then download and install the latest version at your convenience.

VIEW DOCUMENTATION

The **View Documentation** option allows you to view this and other documents on-line rather than having to search for the printed versions.

EXIT

Choosing the **Exit** option ends the Launch Pad programme and returns you to your computer desktop.

▶▶ CONTROL PAD

The **Control Pad** is used for Satellite IP Modem administration. For the Control Pad to execute correctly, you must have your computer properly connected to the Satellite IP Modem and have a supported web browser that is **java-enabled**.



Note

Selecting the **Apply Button** implements any modifications you make on the Control Pad screens, and selecting the **Cancel Button** undoes any current (not yet applied) modifications. After making any changes to the configuration settings, you must turn the Satellite IP Modem off and then on again.

POINTING

The **Pointing Screen** provides the best way to orient the Satellite IP Modem towards the satellite. The screen comes up automatically on the Control Pad when the Satellite IP Modem is powered up.

If you enable a **SIM Personal Identification Number (PIN)** and a **Security Code**, you are prompted to enter these values before advancing to other Modem Administration pages in the Control Pad.

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SATELLITE IP MODEM CONTROL PAD

POINTING

GPS Validity: Using Stored Location

Point Antenna to These Settings:

Compass Direction : SW (213°)

Antenna Angle : 57°

Signal Strength: 45.74

Switch GPS Antenna: ☒ Internal ☐ External

Pointing Screen



Note

If Antenna Pointing is disabled, the Pointing Screen will be bypassed. See the **Advanced Settings** section for additional information.

Follow the directions in the QuickStart Wizard for using this screen while going through the Pointing process.

GPS Validity: Invalid, Stored or Valid. See the Global Positioning System Operation section for more details on GPS.

Point Antenna to These Settings: Compass Direction and Antenna Angle to help orient the Satellite IP Modem toward the satellite. Once this rough pointing is accomplished, use the Signal Strength meter below to optimise the pointing direction.

Signal Strength: This blue bar moves to the right as the signal received from the satellite gets stronger. The numeric display to the right of the bar is simply a digital representation of the bar. The orange peak-hold bar at the end of the blue bar identifies the highest signal strength measured during antenna pointing and will help you optimise the pointing direction. Use this display when fine tuning the Satellite IP Modem's orientation to the satellite. Signal strength is only a relative measure of the satellite signal strength and may vary from location to location.

Switch GPS Antenna: You can switch between an **Internal** and **External** GPS Antenna by selecting one of these two radio buttons. Once you have made the change, select the **Apply** button to implement the change. The **External** option should only be selected when using the optional external GPS antenna accessory. Instructions on how to connect the optional external GPS antenna accessory are included with the accessory package.

Mute/Unmute Signal Beep: An audible beep to provide a relative indicator of signal status (faster beep = higher signal quality) can be emitted from your computer speaker during the Pointing Process. Select this button to Mute or Unmute the sound.

Exit Pointing: Select this button to leave the screen after optimum signal strength has been achieved. This action will take you to the home screen on the Control Pad.

SECURITY MANAGEMENT

The **Security Management** screen allows you to impose a tighter level of security on your Satellite IP Modem.

SIM PIN Enable: If this box is **not checked**, there is no prompt for a SIM PIN after you invoke the Control Pad. If this box is **checked**, a prompt requests you to enter the SIM PIN each time you run the Control Pad. This helps prevent unauthorised use of your SIM. To change the setting, simply modify the check box as desired, enter the current SIM PIN, and click on the **Apply** button.

Change SIM PIN: If the SIM PIN Enable box is **checked**, and you would like to change the existing PIN, click this link or choose the **CHANGE SIM PIN** option on the menu. You will be required to enter the Old PIN, the New PIN, and the New PIN again for confirmation. **Apply** or **Cancel** the changes.

Security Code Enable: If this box is not checked, there is no prompt for a Security Code after you invoke Control Pad. If this box is checked, a prompt displays for the Security Code entry each time you run the Control Pad with a different SIM than the

one that was in the Modem when the Security Code was enabled. By default, the Security Code is not enabled.

Change Security Code: If the Security Code Enable box is checked, and you would like to enter the Code for the first time or change an existing Code, click this option. You will be required to enter the Old Code, the New Code, and the New Code again for confirmation. **Apply** or **Cancel** the changes.



Notes

If you forget the security code you will not be able to use the Satellite IP Modem with a different SIM.

When you enter the Security Code for the first time, no old Security Code entry is required. Whenever you enter or modify the Security Code, you must exit the Control Pad, exit the Launch Pad, and turn the Satellite IP Modem off and then on again so that the new settings can take effect.

HOME

The **Home** screen displays summary status information about the Satellite IP Modem.

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SATELLITE IP MODEM CONTROL PAD

HOME

Network Status: Acquiring

Connection Type: Ethernet

Please use your browser's 'Refresh' button for updated status.
For more frequent updates, open [status window](#).

Fault Status	
Fault Code	Description
0	None

Signal Quality
Battery Level

HOME
SECURITY MANAGEMENT
NETWORK SETTINGS
BLUETOOTH
PROPERTIES
OPEN STATUS WINDOW

Globe image

Home Screen

You can navigate among all the various Control Pad functions by selecting them from the menu on the left side of the screen.

Signal Quality: Displayed on all Control Pad screens, this bar graph provides an indication of satellite signal quality. To save power, this indication updates slowly over time. To ensure you have fresh information, press the reload button on your browser to update the page display.



Note

The Signal Quality status is a different measure of the received satellite signal than the Signal Strength status shown on the pointing screen. Seeing differences between these two levels is normal and not an indication of a problem with your Satellite IP Modem.

Battery Level: Displayed on all Control Pad screens, this bar graphs provides an indication of remaining battery capacity.

- **Green:** normal indication of battery level
- **Red:** almost fully discharged
- **Amber:** charging under external power

To save power, this indication updates slowly over time. To ensure you have fresh information, press the reload button on your browser to update the page display.

Fault Status: Any faults or errors detected by Control Pad are displayed near the bottom of the screen.

Network Status: Available, Acquiring, or Unavailable. If the status is Available then the Satellite IP Modem is ready to send and receive your data over the network. If the status is Unavailable then see the Fault Status for an indication of why a network connection is not available.

Connection Type: USB (default), Ethernet, or Bluetooth.

STATUS WINDOW

The **Status Window** is displayed as a separate window to provide a concise summary of Satellite IP Modem status.

Satellite IP Modem Status

Network Status:

Acquiring Network

Connection Type:

Ethernet

Battery Status:

Battery Fully Charged

Signal Quality:

80.0

Battery Level:

GPS Antenna Type:

Internal

Fault Status

0 - None

Status Window

This window gives you a summary of current Satellite IP Modem system configuration and performance. When the Status Window is open, its information is updated every minute. If you are running on battery power this will reduce the available operating time.

Network Status: Available or Unavailable. If the status is Available then the Satellite IP Modem is ready to send and receive your data over the network. If the status is Unavailable then see the Fault Status for an indication as to why a network connection is not available.

Connection Type: USB, Ethernet, or Bluetooth.

Battery Status: Battery, charging on AC Mains, or charged on AC Mains.

Signal Quality: This bar graph provides an indication of satellite signal quality.



Note

The Signal Quality status is a different measure of the received satellite signal than the Signal Strength status shown on the pointing screen. Seeing differences between these two levels is normal and not an indication of a problem with your Satellite IP Modem.

Battery Level: This bar graph provides an indication of remaining battery capacity.

- **Green:** normal indication of battery level
- **Red:** almost fully discharged
- **Amber:** charging under external power

GPS Antenna: Internal or External.

FAULT STATUS: ANY CURRENT SYSTEM FAULTS OR ERRORS.

NETWORK SETTINGS

After executing the necessary QuickStart Wizard steps to set up and configure the Satellite IP Modem, you must select the **Network Settings** screen to complete your network configuration. On this screen, you enter the appropriate Domain Name Service (DNS) and the Access Point Name (APN) information given to you by your Service Provider.



Notes

Your Service Provider may have already performed this configuration step for you.

Your Service Provider must give you all the information necessary to complete these fields accurately. Do not attempt to input any of these settings without Service Provider information.

Whenever you modify the DNS addresses on the Network Settings screen, you must exit the Control Pad, exit the Launch Pad, reboot your computer, and power the Satellite IP Modem off and then back on so that the new settings can take effect.

Use Static Public Network IP Address: If this box is **not checked**, the Satellite IP Modem uses an IP address automatically assigned by the network during the period when the Modem connects to the network. This setting is the default. If this box is **checked**, the Modem uses the IP address you enter in the Static Public Network IP Address field that follows. You should only check this box and enter an IP address if directed to do so by your Service Provider.

DNS Host 1: Primary Host Domain Name Service (DNS) Address. An IP address is required in this field and will be supplied by your Service Provider.

DNS Host 2: Secondary Host DNS Address.

Service Provider Security Enable: If this box is **checked**, you can enter a **User ID** and **Password** for authentication between the Satellite IP Modem and your Service Provider. Your Service Provider will let you know if this step is required and give you the necessary information.

APN Enable: If use of multiple Internet Service Providers is required, you can **check** this box and enter the appropriate **Access Point Name (APN) value**. You should modify these fields only if directed to do so by your Service Provider.

Apply / Cancel: If you want the values you have entered to be processed, click the **Apply** button, **exit** the Control Pad and Launch Pad, and **reboot** your computer. You will also need to turn the Satellite IP Modem off and then on again so that the new settings can take effect. If you want the values you have entered to be ignored because of error or uncertainty, click the **Cancel** button and the Network Settings remain as they were with no reboot required.

CHANGE SERVICE PROVIDER LOGIN INFORMATION

The **Service Provider Login Information** screen is a subset of Network Settings. Utilize this screen only if you have been given the necessary information from your Service Provider.

To change the Service Provider Password, you are required to enter the **Old Service Provider Password**, the **New Password**, and the **New Password again** for confirmation. **Apply** or **Cancel** the changes.

ADVANCED SETTINGS

The **Advanced Settings** screen is a subset of Network Settings.

Satellite Search Method: These are two radio buttons which determine the method of locking onto the satellite. The default method is **normal**. ***This is the method to use unless your Service Provider specifies the full method.*** The **full method** takes longer and utilizes more resources since it will search all possible frequencies for Regional BGAN service. This full search can take up to 20 minutes.

Enable Antenna Pointing Display: This checkbox determines whether the Pointing Display comes up each time the Satellite IP Modem is booted. If the Modem is not moved between sessions, this option can be **deselected** to **bypass** the pointing state upon power up. However, if the Satellite IP Modem is moved, antenna pointing must be enabled to ensure optimum data throughput and performance.

Enable Antenna Pointing Audio Signal: This checkbox, associated with the Antenna Pointing display, enables or mutes audio through your computer speakers during pointing.

Switch GPS antenna: This radio button should be set to whatever type of GPS antenna is installed in your Satellite IP Modem, **Internal** or **External**. The External option should be selected only when using the optional external GPS antenna accessory.

Select the **Apply** button to implement your modifications.



Note

Whenever you modify any settings on the Advanced Network Settings screen, you must exit the Control Pad, exit the Launch Pad, and power the Satellite IP Modem off and then back on so that the new settings can take effect.

BLUETOOTH

The **Bluetooth** screen is limited to use with the Bluetooth interface.

Note the following warnings before you attempt to modify the interface parameters:

- Utilize this screen only if you are using the Bluetooth interface
- **The Bluetooth control software on your computer must allow the direct entry of DNS information.** Please consult your Bluetooth device vendor to confirm that DNS entry is possible with your device.
- Ensure that your Bluetooth device supports LAN access profile. For configuration of LAN access profile please refer to your Bluetooth device user manual.

Bluetooth Device Address: System-assigned, display-only.

Bluetooth Device Name: The default name is “Regional BGAN Satellite IP Modem.” Click on and select the current name field, enter the new name, then select the Change Name button to apply the new name.

Discoverability: These radio buttons determine whether the Satellite IP Modem is **discoverable** or **not discoverable** by other devices using Bluetooth. The default setting is **discoverable**, which means that other Bluetooth devices can find the Satellite IP modem when they are in the same proximity.

Bonding: These radio buttons that determine whether the Satellite IP Modem **accepts bonding** or **does not accept bonding** with other devices using Bluetooth. The default setting is **accepts bonding** (bonding may sometimes be referred to as

“pairing”), which means that other Bluetooth devices can establish a connection to the Satellite IP Modem. Generally, the Bluetooth Passkey must be entered on the bonding Bluetooth device for bonding to be successful. Bonding must occur before data exchange can occur between two Bluetooth devices.

List of up to the last four devices bonded to the Satellite IP Modem, their description and current connection status. These are display-only fields. You can click on the **Unbond** button next to each entry to remove the device information from memory. Once a Bluetooth device is in the Known Devices table, the device information is “known” to the Satellite IP Modem. If you want to prevent other devices (e.g., other laptops or PDAs within Bluetooth RF range of the Satellite IP Modem) from communicating with the Modem, you can disable Discoverability and Bonding as explained in the previous paragraph. You should only do this if the devices you wish to use with the Modem are already in the Known Devices table.



Note

Whenever you modify any settings on the Bluetooth screen, you must exit the Control Pad, exit the Launch Pad, and power the Satellite IP Modem off and then back on so that the new settings can take effect.

BLUETOOTH PASKEY

The **Bluetooth Passkey** screen is accessed from the main Bluetooth screen. The Bluetooth Passkey is used to prevent unauthorised Bluetooth devices from bonding with your Satellite IP Modem. The default passkey is “blue.” To increase security, you should change this passkey to a sequence of letters and numbers of your choosing up to a maximum of 10 characters.

On the screen, you are shown the current Bluetooth Passkey and prompted to enter the new one. **Apply** or **Cancel** the change.

PROPERTIES

The **Properties** screen displays a summary of current communications parameter settings.

Current Settings: Software Version, Interface Mode, Public Network IP Address, Private Satellite Modem IP Address, Satellite Modem International Mobile Equipment Identity (IMEI), and Satellite Modem Media Access Control (MAC) Address.

RESTORE FACTORY DEFAULTS

The **Restore Factory Defaults** screen is a subset of Properties.

Restoring the factory defaults returns the Satellite IP Modem's settings to their original, just out-of-the-box state. This does not change the security code or SIM parameters. Please exercise caution when proceeding. If you Restore Factory Defaults, you will need to re-enter any configuration information supplied by your Service Provider.

▶▶ UPGRADE SATELLITE IP MODEM

On occasion, Satellite IP Modem software upgrades are made available to you. These upgrades may add new features or fix minor problems. The Launch Pad provides an option to upgrade the software. The software can be downloaded directly from the Internet using any available access method, including the Satellite IP Modem.

UPGRADING SOFTWARE

In order to upgrade software **you must first connect to the Internet**. You can connect to the Internet using the Satellite IP Modem, dial-up, or LAN connection.

Once connected to the Internet, choose the **Upgrade Satellite IP Modem** option from the Launch Pad. The upgrade programme first checks if your computer has a copy of the Satellite IP Modem software – the **Local Copy**.



Note

Each time you upgrade the Satellite IP Modem, a local copy of the software is placed on your computer.

NO LOCAL COPY PRESENT

If no local copy is present on your computer, the upgrade programme connects to the Internet. If an upgrade is available, you are prompted to download the upgrade to your PC. Once the upgrade has been downloaded, a dialogue box displays prompting you to disconnect the LAN or Dial-Up and connect the Satellite IP Modem to your PC (With some Windows Operating Systems, you may need to reboot your PC after connecting to the Satellite IP Modem to enable the communications link.). If the Satellite IP Modem was used to access the Internet, you do not need to disconnect. If you are not ready to complete the upgrade by connecting the Satellite IP Modem to your PC, you can click the **Complete Upgrade Later** button. If you are ready to complete the upgrade and the Satellite IP Modem is connected to the PC, click the **Complete Upgrade Now** button.

The upgrade programme then launches the Satellite IP Modem **Upgrader** to install the new software on the Satellite IP Modem. The Upgrader shows you the versions of the local copy software and the software currently installed on the Satellite IP Modem. If the version stored locally is newer (higher numbered version) than the installed Satellite IP Modem software, click the **Upgrade** button. The Upgrader then completes the upgrade process.

LOCAL COPY PRESENT

If a local copy is already present on the PC, a dialogue box displays asking you if you want to check the Internet for a newer version. If you click **Yes**, the upgrade programme connects to the Internet to check for a newer version. If a newer version is not available, a dialogue box displays stating that the local version is the latest

version. You can then choose to complete the upgrade by clicking the **Complete Upgrade Now** button. Click the **Complete Upgrade Later** button to stop the upgrade process.

If a newer version on the Internet is available, you are prompted to download the upgrade to your PC. Once the upgrade has been downloaded, a dialogue box displays prompting you to disconnect the LAN or Dial-Up and connect the Satellite IP Modem to the PC (With some Windows Operating Systems, you may need to reboot your PC after connecting to the Satellite IP Modem to enable the communications link.). If you are not ready to complete the upgrade by connecting the Satellite IP Modem to your PC, you can click the **Complete Upgrade Later** button. If you are ready to complete the upgrade and the Satellite IP Modem is connected to the PC, click the **Complete Upgrade Now** button to perform the upgrade.

This section details the following:

- Some general hardware and software problems you may encounter in the installation and operation of the Satellite IP Modem along with the possible source of these problems and how to correct them.
- System fault codes and descriptions reported to you by the Satellite IP Modem on the Control Pad screens, along with their possible causes and solutions.

▶▶ GENERAL TROUBLESHOOTING

Problem	Possible Cause	Action
Satellite IP Modem will not switch on, or will not stay on when under battery power.	Battery needs recharging.	Charge the battery. Check Battery Light or Control Pad for charging indication.
	The battery is not inserted properly.	Remove and reinsert the battery. Make sure the battery latch is in its farthest right hand position after the battery is inserted.
	The battery contacts are dirty or damaged.	Check the battery contacts. Clean them if necessary. If you find any damage, replace battery.
	The Modem was reset while under battery power	When the Modem is reset while under battery power (no AC Mains connected), you must turn it back on manually. This is a normal operation for the Modem.
SIM card error.	SIM card or SIM card contacts may be damaged.	Visually inspect the SIM card and SIM card contacts and return SIM card to your Service Provider if it is damaged.
	SIM card may not be present.	Remove the SIM boot according to the instructions in QuickStart Wizard and verify that the SIM card is present.
	SIM card may be inserted incorrectly.	Remove the SIM card and make sure that it is inserted according to the instructions in QuickStart Wizard.

Problem	Possible Cause	Action
	SIM card contacts may be dirty.	Clean the SIM card contacts with a dry cloth.
The Control Pad will not launch when the 'Launch Control Pad' option is selected from the Launch Pad window.	The correct interface (USB, Ethernet, Bluetooth) was not chosen.	Follow the instructions in the QuickStart Wizard to select the correct interface on the Satellite IP Modem.
	If the correct interface was chosen, the PC may not have been able to discover the Satellite IP LAN connection.	Reboot the PC or go to a Command Prompt and enter "ipconfig /release" followed by "ipconfig /renew."
	The browser may not be correctly configured.	For Netscape, go to Advanced Preferences and select 'Direct connection to the Internet'. For Microsoft Internet Explorer, select Tools / Internet Options / Connections / LAN Settings and uncheck the box labelled 'Use a proxy server for your LAN'. YOU MAY NEED TO RECHECK THIS BOX UPON RETURNING TO YOUR OTHER INTERNET CONNECTION.
The Control Pad appears to "lock up" after it has been successfully launched.	Java is not enabled on your browser.	If using Netscape, enable Java. If using Internet Explorer, download the latest version of the Java Runtime Environment (JRE) from http://java.sun.com .
Primary LAN connection to the Modem does not function.	The interface cable is not plugged in correctly.	Remove and reinsert the interface cable from both the PC and the Modem.
	The PC Windows network settings may not be configured correctly.	Make sure the Windows network settings in the PC are set to choose IP settings automatically (DHCP). Then reboot the PC.
	The PC can only have one active LAN connection. When connected to the PC, the Modem must be the only active LAN connection.	Disconnect all other LAN connections. Make sure the Modem is the only active LAN connection. Windows limits the number of network bindings to six. If you have more than six, you must remove one in order for the PC to communicate with the Modem.

Problem	Possible Cause	Action
The compass does not appear to work correctly.	The compass is not level or is near metal.	Place the Satellite IP Modem on a flat and level surface away from metallic objects.
The Security Code appears to be invalid.	The code may have been changed.	After three failed attempts to enter the Security Code, you must switch the Modem off and on again. If you forgot the Security Code, contact your Service Provider.
The SIM PIN code appears to be invalid.	The code may have been changed.	If the SIM PIN is blocked, contact your Service Provider to obtain the PUK (PIN Unlock Key) code. Enter the PUK when prompted.
The Satellite IP Modem cannot locate itself using GPS.	No signal or weak signal.	Make sure no obstruction is blocking the GPS antenna and that the Modem has a clear view of at least 3/4 of the sky. Make sure that you do not place your hand or another object over the GPS antenna.
	Determining GPS position can take up to 5 minutes.	Wait for 5 minutes. Switch the Modem off and on again.
	The Modem is configured to use an external GPS antenna.	Go to the Advanced Network Settings page on the Control Pad and set 'Switch GPS Antenna' to 'internal.'
The Signal Strength meter on the pointing screen does not change when moving the antenna.	Java not enabled on the browser.	Enable Java applications on the browser.
	Rough pointing not completed correctly.	Follow the instructions in the QuickStart Wizard to correctly complete rough pointing
The Satellite IP Modem cannot find the satellite.	No signal or weak signal.	Make sure no obstruction is blocking the satellite signal. Make sure that the Modem has a clear view of the sky in the direction of the satellite. Be aware that window glass may reduce the signal level. Check that the antenna is pointed using the correct compass direction and antenna angle from the Control Pad Pointing screen. Check the antenna switch to make sure that 'L' is selected for Regional BGAN service.

Problem	Possible Cause	Action
The Control Pad can be successfully activated, but the Satellite IP Modem cannot access the internet after successful pointing.	You did not exit antenna pointing mode.	Click on the 'Exit Pointing' button from the Pointing page. Briefly press the Modem power button to exit antenna pointing mode.
	The antenna may not be pointed properly.	Turn the Satellite IP Modem off and then back on again, and attempt antenna pointing again to improve the signal strength. You may need to reposition the Satellite IP Modem, verifying that there are no obstructions blocking the satellite signal and that the Modem has a clear view of the sky in the direction of the satellite.
	The Modem network settings may not be correctly configured.	Refer to the network settings supplied by your Service Provider. If the DNS Host settings are changed, the PC must be rebooted.
	The browser may not be correctly configured.	For Netscape, go to Advanced Preferences and select 'Direct connection to the Internet'. For Microsoft Internet Explorer, select Tools / Internet Options / Connections / LAN Settings and uncheck the box labelled 'Use a proxy server for your LAN'. YOU MAY NEED TO RECHECK THIS BOX UPON RETURNING TO YOUR OTHER INTERNET CONNECTION.
No network access or poor network performance.	Interference from other satellite mobile terminals.	If you are near another satellite mobile terminal, switch the other satellite mobile terminal off or move as far away as possible to avoid interference.
The battery will not charge.	The battery is defective.	Replace the battery. After several years of average use, a gradual decline may be expected.
	The battery contacts are dirty or damaged.	Check the battery contacts. Clean them if necessary. If the battery is damaged, replace it.

Problem	Possible Cause	Action
Satellite IP Modem stops sending data even with good network connection and sufficiently charged battery. The indicator lights blink red.	Modem/battery is overheated.	Let the Modem/battery cool down. Wait until the Indicator Lights stop blinking red to continue.
The Satellite IP Modem cannot enter antenna pointing mode while you are trying to reposition the antenna.	Antenna pointing mode cannot be accessed without power cycling the Modem.	Turn the Modem off and on again to enter antenna pointing mode.
	The Modem is configured to skip antenna pointing.	Go to the Advanced Network Settings page on the Control Pad and check 'Enable Antenna Pointing Display.'
After Satellite IP Modem exits antenna pointing mode, the Signal Quality meter on the Control Pad changes from time to time.	Normal behaviour.	There are several types of channels used by the Modem, each with different signal strengths. Because the Signal Quality meter measures the channel currently in use, there may be slight differences in what the meter shows as channels are changed from one type to another.
Antenna moves after pointing.	The Satellite IP Modem was moved by the wind.	Use tie-down clips provided with the Modem to fix the unit in place.

FAULT CODES

Number and Description	Cause	Solution
1 SIM card is not installed. Power down, install SIM card properly and try again.	Absence or incorrect installation of the SIM card.	SIM card may not be present. Remove the SIM boot according to the instructions in the User Manual and verify that the SIM card is present. SIM card may be inserted incorrectly. Remove SIM card and make sure it is inserted according to the instructions in the User Manual. SIM card may be damaged. Visually inspect the SIM card and return it to your Service Provider if damaged. SIM card contacts may be dirty. Clean the SIM card contacts with a dry cloth. If problem continues, replace SIM card with a known good SIM card. If problem persists, return the unit to your Service Provider for service.
2 SIM card read/write error. Power down and try again.	Failure to read from or write to the SIM card.	Power down the Satellite IP Modem and try again. SIM card may be damaged. Visually inspect the SIM card and return it to your Service Provider if damaged. SIM card contacts may be dirty. Clean the SIM card contacts with a dry cloth. If the problem continues, replace SIM card with a known good SIM card. If the problem persists, return the unit to your Service Provider for service.

Number and Description	Cause	Solution
3 SIM card access has been blocked. Please contact your Service Provider.	Failure to access the SIM card due to too many failed attempts with an invalid PIN.	This occurs after 3 failed attempts to enter the PIN. The SIM card is locked. Enter the PUK to unlock the SIM card.
4 SIM card has been improperly changed during an active session. Power down and try again.	You replaced a SIM card with another after the Modem was turned on.	The SIM card must be replaced when the unit is turned off. Make sure the unit is turned off before replacing the SIM.
5 SIM card is not responding. Power down and try again.	Hardware failure to access the SIM card.	Power down the Satellite IP Modem and try again. SIM card may be damaged. Visually inspect the SIM card and return it to your Service Provider if damaged. SIM card contacts may be dirty. Clean the SIM card contacts with a dry cloth. If problem continues, replace SIM card with a known good SIM card. If problem persists, return the unit to your Service Provider for service.
6 A required data field is missing from the SIM card. Please contact your Service Provider.	Absence of a required data field on the SIM card.	SIM card was incorrectly programmed and is missing one or more required fields. The SIM card must be replaced by another from your Service Provider.
7 This subscriber is not allowed to connect to the network. Please contact your Service Provider.	Network connection failure because the user is not allowed to connect to the Network.	Your authorisation has been removed by your Service Provider (SIM card IMSI is not authorised). Contact your Service Provider to regain service.
8 This terminal is not allowed to connect to the network. Please contact your Service Provider.	Network connection failure because the Modem is not allowed to connect to the Network.	The Modem authorisation has been removed by your Service Provider (Modem IMEI is not authorised). Contact your Service Provider to regain authorised service.

Number and Description	Cause	Solution
9 This user has no subscription, service is not allowed. Please contact your Service Provider.	Network connection failure because you are not identified as a subscriber to the service.	Contact your Service Provider to receive authorised service. Your Service Provider should check the subscription entries in the Home Location Registry.
10 This user terminal was detached by the network. Cause unknown. Power down and try again.	Network connection broken with an unknown cause.	Power down the Satellite IP Modem and try again. If the problem continues, contact your Service Provider.
11 Network connection failure – Invalid parameters used for network attach procedure. Please contact your Service Provider.	Network connection failure due to use of invalid parameters.	Contact your Service Provider.
12 Network connection failure - LLC or SNDCP failure. Power down and try again.	Network connection failure caused by LLC or SNDCP failure.	Power down the Satellite IP Modem and try again. If the problem continues, contact your Service Provider.
13 Network connection failure – Unknown PDP type. Please contact your Service Provider.	Network connection failure.	Power down the Satellite IP Modem and try again. If the problem continues, contact your Service Provider.
14 Network connection failure - User authorisation failed. Please contact your Service Provider.	Network connection failure because the user is not authorised for service.	Contact your Service Provider to regain authorised service. Your Service Provider should check the subscription entries in the Home Location Registry.
15 Network connection failure – Service option not supported. Please contact your Service Provider.	Network connection failure because the service option is not supported.	Contact your Service Provider to regain authorised service. The Service Provider should check the subscription entries in the Home Location Registry.
16 Network connection failure - Service option not subscribed. Please contact your Service Provider.	Network connection failure because user was not was not subscribed to the service option.	Contact your Service Provider to regain authorised service. The Service Provider should check the subscription entries in the Home Location Registry.

Number and Description	Cause	Solution
17 Network connection failure - N-SAPI has already been used. Power down and try again.	Network connection failure because network assigned an N-SAPI that is already being used.	Power down the Satellite IP Modem and try again. If the problem continues, contact your Service Provider.
18 Network connection failure – Regular PDP deactivation by network. Power down and try again.	The connection was deactivated by the Network.	Power down the Satellite IP Modem and try again. If the problem continues, contact your Service Provider.
19 Network connection failure - SM network failure. Power down and try again.	Connection failure due to SM network failure.	Power down the Satellite IP Modem and try again. If the problem continues, contact your Service Provider.
20 Network connection failure – Too many failures to activate PDP context. Power down and try again.	Too many failed attempts (4) to connect to the Network.	This failure may occur because of a weak signal due to obstructions or geographic position (such as extreme latitude or longitude). Contact your Service Provider to verify coverage for your location.
21 Network connection failure - Network assigned an invalid IP address. Power down and try again.	Assignment of an invalid IP address by the network during connection.	Power down the Satellite IP Modem and try again. If the problem continues, contact your Service Provider. The Service Provider should verify that you have the correct network settings.
22 Network connection failure – No response from network. Power down and try again.	Network connection failure due to lack of a response from the network.	Power down the Satellite IP Modem and try again. If the problem continues, contact your Service Provider.
23 Network connection failure – Protocol error received from network. Power down and try again.	Network connection failure due to a protocol error.	Power down the Satellite IP Modem and try again. If the problem continues, contact your Service Provider.
24 Network connection failure – GPRS stack could not attach to MUX interface. Power down and try again.	Internal software error.	Power down the Satellite IP Modem and try again. If the problem continues, contact your Service Provider.

Number and Description	Cause	Solution
25 Network connection failure - GPRS stack could not detach from MUX interface. Power down and try again.	Internal software error.	Power down the Satellite IP Modem and try again. If the problem continues, contact your Service Provider.
26 SIM card error - IMSI field is longer than 8 bytes and is invalid. Please contact your Service Provider.	SIM card may have been programmed incorrectly.	SIM card was incorrectly programmed. The SIM card must be replaced by another from your Service Provider.
27 GPRS software internal failure - GPRS stack message subscription failure. Please contact your Service Provider.	Internal software error.	Power down the Satellite IP Modem and try again. If the problem continues, contact your Service Provider.
101 This user was detached by the network. Trying to reattach...	Connection broken by the Network.	Power down the Satellite IP Modem and try again. If the problem continues, contact your Service Provider.
103 Network connection failure – PLMN is not allowed. Reacquiring connection.	Network connection failure due to PLMN not allowed.	If the problem continues, contact your Service Provider.
104 Network connection failure - LA is not allowed. Reacquiring connection...	Network connection failure because the Satellite IP Modem is in a Location Area (LA) where service is not allowed.	If the problem continues in other areas where service is allowed, contact your Service Provider.
105 Network connection failure – Roaming is not allowed. Reacquiring connection.	You are using a SIM card from a carrier that does not have a roaming agreement with your Service Provider.	If the problem continues with an authorised SIM card, contact your Service Provider.

Number and Description	Cause	Solution
I06 Network connection failure - User terminal implicitly detached by the network. Reacquiring connection...	Network connection failure because Modem was implicitly detached by the Network.	If the problem continues, contact your Service Provider.
I07 Network service is not available – Network resources not available. Reacquiring connection...	Network service not available due to lack of network resources.	The spot beam is dark and cannot be illuminated for Regional BGAN service. If the problem continues, contact your Service Provider.
I08 Network service is not available. Reacquiring connection...	Network service not available.	The spot beam is dark and cannot be illuminated for Regional BGAN service. If the problem continues, contact your Service Provider.
I09 Network service is not available – No network. Reacquiring connection...	Network service not available.	If the problem continues, contact your Service Provider.
I10 Network service is not available - Cell access barred. Reacquiring connection...	Network service not available because cell access is barred.	If the problem continues, contact your Service Provider.
I11 Network service is not available – Limited network service. Reacquiring connection...	Network service not available due to limited service.	If the problem continues, contact your Service Provider.
I12 Network service is not available - Invalid position. Reacquiring connection...	Network service not available because the GPS position is not valid.	You should verify that the Modem has an open view of the sky to get a GPS fix. If the problem continues, contact your Service Provider.
I13 Network service is not available – Invalid position for the selected Service Provider. Reacquiring connection...	Network connection failure because the of an invalid GPS position.	Verify that the Modem has an open view of the sky to get a GPS fix. If the problem continues, contact your Service Provider.

Number and Description	Cause	Solution
I14 Network service is not available - Invalid position for selected RAI. Reacquiring connection...	The GPS fix does not match the selected Routing Area Information (RAI).	You should verify that the terminal has an open view of the sky to get a current GPS fix. If the problem continues, contact your Service Provider.
I15 Network service is not available – Unknown cause. Reacquiring connection...	Network service not available – cause unknown.	If the problem continues, contact your Service Provider.
I16 Network connection failure - Insufficient resources. Reacquiring connection...	Network connection failure due to insufficient resources.	If the problem continues, contact your Service Provider. Network may be down.
I17 Network connection failure – PDP rejected for unspecified reason. Reacquiring connection...	Network connection failure – unknown cause.	If the problem continues, contact your Service Provider. Network may be down.
I18 Network connection failure - Service option temporarily out of order. Reacquiring connection...	Network connection failure because service option is temporarily out of order.	If the problem continues, contact your Service Provider. Network may be down.
I19 Network connection failure - PDP deactivated by network. Reacquiring connection...	Network connection failure.	If the problem continues, contact your Service Provider. Network may be down.
I20 No network connection - User initiated PDP deactivation.	The Modem was powered down while connected to the network.	You will generally not see this code. In order for you to deactivate the PDP, you must power down the terminal. If the problem continues, contact your Service Provider.
I21 Network connection failure - Missing or invalid APN. Please provide correct information and try again.	Network connection failure because the APN is missing or invalid.	Contact your Service Provider to get the correct network settings.

Number and Description	Cause	Solution
I22 Network connection failure - Rejected by GGSN. Please re-enter User ID/Password and try again.	Network connection failure due to rejection by the GGSN.	Verify that your Service Provider User ID and password are correctly set on the Network Settings screen. If they are correct and the problem continues, contact your Service Provider.
I23 Network connection failure - Requested QoS rejected by network. Please modify parameters and try again.	Network connection failure because the requested QoS was rejected by the Network.	Modify the QoS settings and try again. If the problem continues, set all QoS settings to the default values and try again. If the problem continues with the default values, contact your Service Provider.
I24 Network connection failure - Invalid transaction id. Reacquiring connection...	Network connection failure due to invalid transaction ID.	If the problem continues, contact your Service Provider.
I25 Network connection failure – Unknown Session Manager error. Reacquiring connection...	Network connection failure due to unknown session manager error.	If the problem continues, contact your Service Provider.
I26 Network access blocked - UT will attempt to reacquire connection.	Network connection failure because network access is blocked.	Network access is blocked. The network will send the Modem a timer value, and the Modem will attempt to connect again when the timer is complete. If the problem continues, contact your Service Provider.
I27 Network access blocked – Radio priority is less than threshold. UT will attempt to reacquire connection.	Network access is blocked due to the user's priority.	You are blocked from Network access due to your network priority. If the problem continues, contact your Service Provider.

Number and Description	Cause	Solution
I28 GPS fix is too old. Modem will attempt to reacquire connection after receiving a new GPS fix.	Notification of a GPS fix during or after Network connection procedure.	A new GPS fix is sent to the network that is more current than the one sent when the connection was acquired. The Modem will reacquire the connection. If the problem continues and a new connection cannot be made, contact your Service Provider.

- APN:** Access Point Name. APNs can be assigned to each external network interface to allow communications among multiple Internet Service Providers (ISPs). If use of multiple ISPs is required in your network, on the Satellite IP Modem Control Pad Network Settings screen you can enable APN and enter the value supplied by your Service Provider.
- Bluetooth:** Bluetooth is a wireless technology interface method aimed at simplifying the communications among devices such as computers, modems, and mobile phones. It is one of the three communications interfaces supported by the Satellite IP Modem.
- Bluetooth Device Name:** A text label given to Bluetooth-based devices. On the Satellite IP Modem Control Pad Bluetooth screen, the default name of the Modem is “Regional BGAN Satellite IP Modem.” You can click on and select the current name field, enter a new name, then select the Change Name button to apply the new name.
- Bluetooth Passkey:** A kind of Personal Identification Number given to a Bluetooth-based device is used to prevent unauthorised Bluetooth devices from bonding with it. On the Satellite IP Modem Control Pad Bluetooth Passkey screen, the default passkey is “blue.” To increase security, you should change this passkey to a sequence of letters and numbers of your choosing up to a maximum of 10 characters. For another device to bond to the Modem with a Bluetooth Passkey, that passkey must be entered on the other device.
- Bonding:** In the Bluetooth interface, this term (sometimes referred to as “pairing”) refers to the ability of Bluetooth-based devices to establish a connection with each other. On the Satellite IP Modem Control Pad Bluetooth screen, by enabling or disabling bonding, you can determine whether other Bluetooth devices can or cannot bond with the Modem. If bonding is enabled, the other device must have the Modem’s Bluetooth Passkey.
- Compass:** When going through the antenna Pointing Process, you reference the compass on the Satellite IP Modem to get the correct direction needed for the antenna.
- Control Pad:** The Satellite IP Modem Control Pad program leads you to a series of menus used for Modem administration tasks, such as checking the current Modem status or setting network parameters.

DHCP: Dynamic Host Configuration Protocol. DHCP is a communications protocol that lets network administrators manage centrally and automate the assignment of IP addresses in an organization's network. Using the Internet Protocol, each machine that can connect to the Internet needs a unique IP address. You must make sure that the Windows network settings on your PC are set to allow the network to choose IP settings automatically.

Discoverability: In the Bluetooth interface, this term refers to the ability of Bluetooth-based devices to “find” each other when they are in the same proximity. On the Satellite IP Modem Control Pad Bluetooth screen, by enabling or disabling discoverability, you can determine whether the Satellite IP Modem is discoverable or not discoverable by other devices using Bluetooth.

DNS: Domain Name Service, a static, hierarchical name service for TCP/IP hosts. The network administrator configures the DNS with a list of host names and IP addresses, allowing users of workstations configured to query the DNS to specify remote systems by host names rather than IP addresses. On the Satellite IP Modem Control Pad Network Settings screen, a primary and possibly a secondary DNS address supplied by your Service Provider must be assigned.

Ethernet: Ethernet is a local area networking method used widely throughout the computer industry. It is one of the three communications interfaces supported by the Satellite IP Modem.

Fault Code: A number which uniquely references an error in a hardware or software system. In the Satellite IP Modem, if there is a fault detected, the fault code and a description are displayed at the bottom of the Modem Control Pad Home and Status screens.

GPS: Global Positioning System. When the GPS receiver in the Satellite IP Modem gets a bearing on a GPS satellite, the receiver computes and stores the Modem's location on earth. That location is used in the Pointing Process to obtain your location relative to the Regional BGAN Satellite.

Inmarsat Regional BGAN Satellite IP Modem: Referenced throughout this document as the **Satellite IP Modem**, this device implements and manages Regional BGAN satellite communications between your computer and Service Provider's network via one of the three supported interface methods – USB, Ethernet, or Bluetooth.

Interface Lights: The interface lights on the Satellite IP Modem panel – USB, Ethernet, and Bluetooth – 1) indicate the state of the currently-active interface during Normal Operational Mode, or 2) serve as a bar graph to indicate relative signal strength during Pointing Mode.

Launch Pad: The Satellite IP Modem Launch Pad, displayed on your computer, is a list of options that allow you to set up or modify Modem network and communications parameters, monitor Modem system performance, and upgrade Modem software.

Normal Operational Mode: In this mode, the Satellite IP Modem is connected to your network, allowing you to perform standard system activities such as Internet browsing. The other mode of Modem operation is **Pointing Mode**.

Pointing Mode: In this mode, using the Satellite IP Modem Protractor and Compass, and referencing the Pointing Screen for indications of signal strength, you manipulate the Modem antenna to get the optimum GPS location and Inmarsat Regional BGAN Satellite signal strength for your network connection. Pointing is required during Modem setup or if the Modem has been moved from its previous location. Once you have obtained the best antenna position, you can enter Normal Operational Mode and be ready to perform standard activities.

Protractor: An instrument that measures angles, the Satellite IP Modem protractor provides the current angle of the antenna so that you can adjust it to the antenna angle specified on the Pointing Screen.

QuickStart Wizard: Displayed on your computer, the Satellite IP Modem QuickStart Wizard is a programme that guides you through the Modem installation and setup procedures, including interface selection and antenna pointing.

SIM: Subscriber Identification Module. Your Service Provider issues you a SIM, containing your SIM Personal Identification Number (PIN) and other security-related information. You insert the SIM into the Satellite IP Modem SIM holder as part of Modem hardware setup. If you configure the Modem to enable SIM PIN security, each time you invoke the Modem Control Pad after turning on the Modem, PIN authorisation is required in order to use the system.

SIM PIN: A Subscriber Identification Module (SIM) Personal Identification Number (PIN) may be supplied by your Service Provider. If SIM PIN entry is enabled on the Satellite IP Modem Control Pad Security Management screen, a prompt requests you to enter the SIM PIN each time you run the Control Pad. This helps prevent unauthorised use of your SIM.

Static IP Address: A static Internet Protocol (IP) address is a number that is assigned to a computer by an Internet Service Provider (ISP) to be its permanent address on the Internet. Computers use IP addresses to locate and talk to each other on the Internet. If Static IP addressing is enabled on the Satellite IP Modem Control Pad Network Settings screen, you must enter an IP address supplied by your Service Provider in the Static Public Network IP Address field that follows.

USB: The Universal Serial Bus interface is a standard protocol for many computer peripheral devices, including modems, scanners, digital cameras, printers, and others. It is one of the three communications interfaces supported by the Satellite IP Modem.

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