TRACPHONE®

TracPhone V7

Image of 21M courtesy of Princess Yachts International plc, UK

TracPhone V7 User's Guide

TracPhone V7

mini-VSAT Broadband[sm] System

User's Guide

This user's guide provides all of the basic information you need to operate, set up, and troubleshoot the TracPhone V7 system. For detailed installation information, please refer to the *TracPhone V7 Installation Guide*.

Serial Numbers

Antenna

Control Unit

Modem

Please direct questions, comments, or suggestions to:

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Middletown, RI 02842-5279 USA
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If you have any comments regarding this manual, please e-mail them to manuals@kvh.com. Your input is greatly appreciated!

KVH Part # 54-0465 Rev. B

Trademark Information

Disclaimer

CE Declaration of Conformity

The undersigned declares that the following equipment complies with the specifications of EMC Directive 1999/5/EC Radio & Telecommunications Equipment. The general safety requirements in EMC Directive 2006/95/EC have not been tested.

Equipment Included in this Declaration

- TracPhone V7 Antenna (02-1563)
- TracPhone V7 Control Unit (02-1601)
- TracPhone V7 Modem (19-0487)

Equipment Applicability

The TracPhone V7 system provides broadband Internet connectivity and voice services between a ship and any destination in the world. The equipment is intended to be used on non-SOLAS vessels outside of GMDSS.

Declaration and Certification

KVH declares that the protection requirements with respect to the EMC Directive 2004/108/EC, and the effective use of spectrum as shown by 301-427, are fulfilled in conformity with the following standards:

- EN 301 427 V1.2.1
- EN 301 843-1 V1.2.1
- EN 301 843-6 V1.1.1
- EN 61000-3-2:2000
- EN 61000-3-3:1995
- EN 60945:2002

Manufacturer

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Middletown, RI 02842 USA

Authority

Brian Arthur, Director of Program Management

9/7/07

Date

Table of Contents

1. Introduction

This chapter provides a basic overview of this manual and your TracPhone system. It also provides important safety information you need to know before using the product.

Contents

Using this Manual

This manual provides complete operation, configuration, and troubleshooting information for your TracPhone V7 system.

Who Should Use this Manual

The **user** should refer to the "Operation" chapter to learn how to operate the system.

The **user** or **installer** should refer to the "Configuration" chapter for information on setting up the system for the desired preferences.

The **user** and/or **servicing technician** should refer to the "Troubleshooting" chapter to help identify the cause of a system problem.

Icons Used in this Manual

This manual uses the following icons:

Icon	Description
	This is a danger, warning, or caution notice. Be sure to read these carefully to avoid injury!

Icon

Description
This is an illustration of the buttons on the control unit. Gray shading indicates which button the user should press.

Typographical Conventions

This manual uses the following typographical conventions:

Text Example	Description
Press ▼MENUS to view the menu	Both the icon and the name of the button are provided
SELECT SATELLITES	Text as it appears on the control unit display
The display shows "BRIGHTNESS"	Text in quotes is shown on the control unit display
See *"Switching Satellites" on page 14*.	Cross-reference to another chapter in the manual or to a website

Related Documentation

In addition to this User's Guide, the following documents are provided with your TracPhone system:

Document	Description
Installation Guide	Complete installation instructions
Service Activation Form	Details on activating the system for mini-VSAT Broadband service
Antenna Mounting Template	Template that the installer uses to lay out the antenna mounting holes
Warranty Statement	Warranty terms and conditions
Contents List	List of every part supplied in the kit

Important Safety Information

For your own safety, and for the safety of your passengers and/or crew, be sure to read the following important notices.

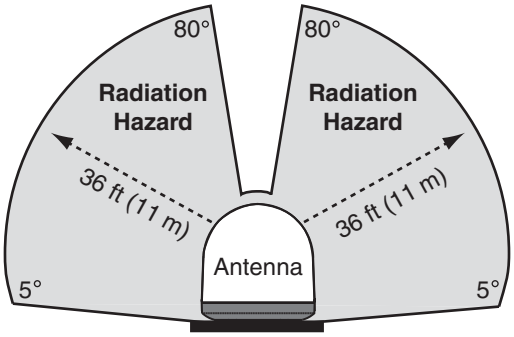
Warning - Risk of Electric Shock

Potentially lethal voltages are present within the control unit and the modem. To avoid electric shock, do not open the chassis enclosures of the belowdecks equipment. They contain no user-serviceable parts, and opening the enclosure(s) will void the product's warranty.

Caution - RF Radiation Hazard

The antenna transmits radio frequency (RF) energy that is potentially harmful. Whenever the system is powered on, make sure everyone stays more than 36 feet (11 m) away from the antenna within its 5°-80° elevation range. No hazard exists directly above the antenna and anywhere below the antenna's mounting plane.

Figure 1-1 Minimum Safe Distance to Avoid Risk of RF Radiation Exposure



- If a person is standing outside the antenna's main transmission beam, minimum safe distance is 1 foot (0.3 m). However, since a person may not know which direction the antenna is pointing, it is always best to observe the full 36 feet (11 m) minimum safe distance.

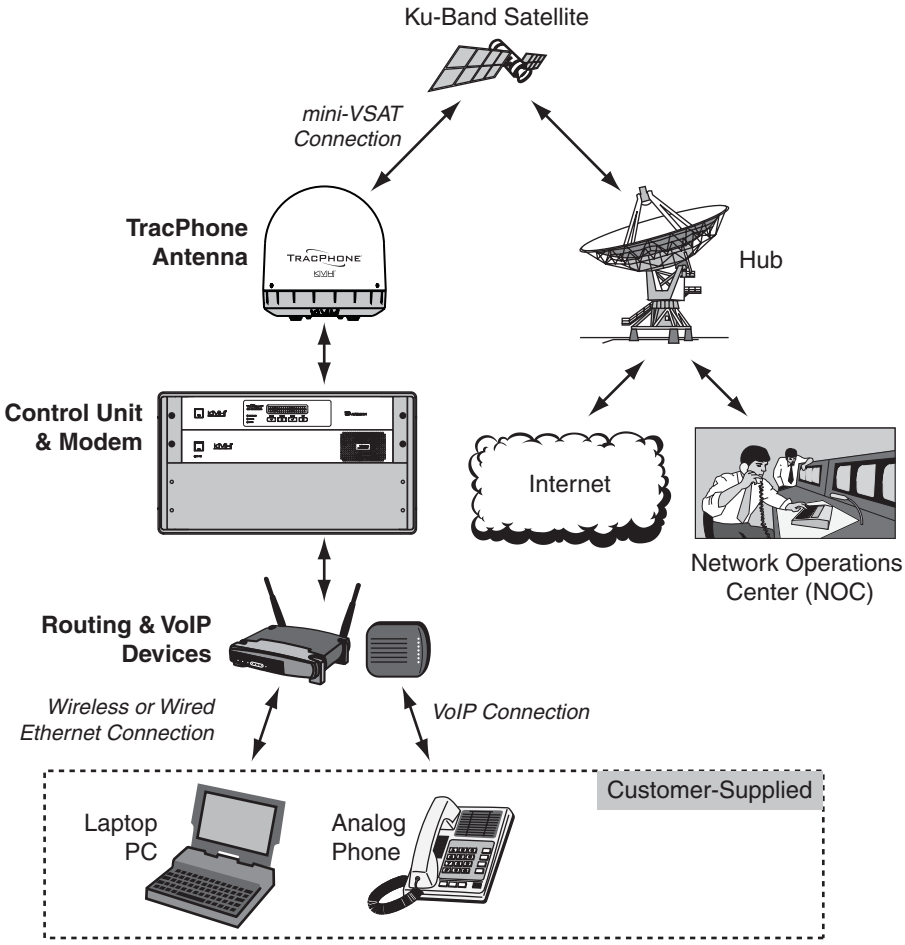
- Using the control unit, you can set up RF radiation hazard zones to inhibit transmissions within areas frequented by your passengers and/or crew. See *"Configuring RF Radiation Hazard Zones" on page 23* for details.

System Overview

Your TracPhone V7 is a complete mini-VSAT Broadband communications system for mariners on the move. Using cutting-edge spread spectrum technology, which was previously only available to the military and corporate jets, the TracPhone V7 delivers a seamless and consistent Internet experience. And it all comes with an antenna that is 85% smaller and 75% lighter than traditional VSAT antennas.

As shown in the basic diagram below, the system consists of an antenna system, control unit, and modem that connect to a land-based hub via a Ku-band satellite. The hub then provides the Internet link, as managed by the Network Operations Center. A brief description of each system component is provided on the following page. A detailed wiring diagram is provided in *"Wiring Diagram" on page 69*.

Figure 1-2 TracPhone V7 mini-VSAT Network Diagram



System Components

The TracPhone V7 system includes the following components:

The **antenna unit** provides the satellite link between the onboard modem and the land-based hub. Using its integrated GPS, advanced reflector technology, and gyro stabilization, the antenna automatically locates and tracks the correct satellite, even while your vessel is on the move.

The **control unit** supplies power to the antenna unit, links the antenna to the modem, and allows you to operate and configure all aspects of the system.

The **modem**, manufactured by ViaSat, is the transceiver and "brain" of the system. It processes all incoming and outgoing TCP/IP data between the antenna and the router using its proprietary spread spectrum technologies. It also powers the antenna's transmit and receive components (BUC and LNB).

The **multimedia terminal adapter (MTA)** is a Voice over IP (VoIP) device that allows you to connect up to two analog telephones and make and receive calls over the mini-VSAT Broadband connection.

The **router** links the system to your onboard local area network (LAN) via both wireless (WiFi) and wired Ethernet connections. It also offers several security options, including encryption, to protect your wireless network from outside intrusion.

The **remote service and support module** is a compact GPRS cellular modem. This unit allows KVH Technical Support to "dial in" to your system for troubleshooting purposes.

Service Activation

Before you can start using the TracPhone V7, you need to activate the system for mini-VSAT Broadband service. To activate, simply fill out the Activation Form provided in your Customer Welcome Kit. Then fax the completed form to KVH at one of the following numbers:

North/South America, Australia:
Fax: +1 401 851-3823

Europe, Middle East, Asia:
Fax: +45 45 160 181

Once KVH processes the form, a representative will call you to confirm your system is activated and ready for use.

2. Operation

This chapter explains how to turn on and use the TracPhone V7 system. It also explains how to interpret the startup screens.

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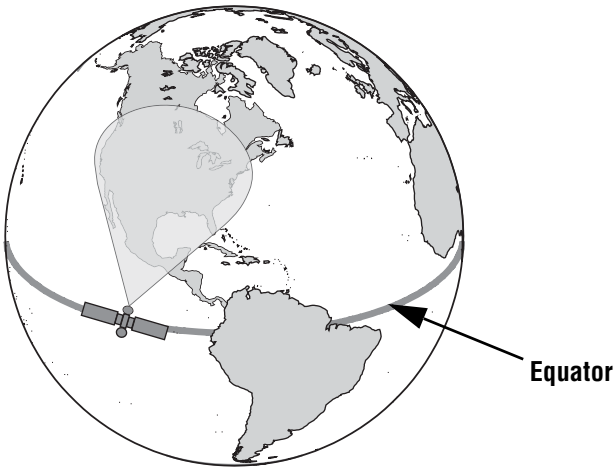
Satellite Communication Basics

Ku-band communications satellites are located in fixed positions above the Earth's equator and relay data to/from the earth within the regions that they serve. Therefore, to communicate via a given satellite, you must be located within that satellite's unique coverage area, also known as its "footprint."

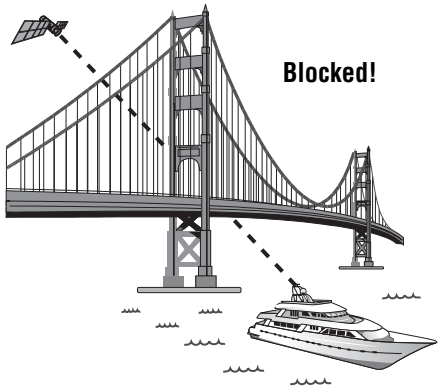
TIP: *To view the latest mini-VSAT Broadband satellite coverage map, visit our website at* ***www.kvh.com/footprint****.*

Figure 2-1 Example of a Satellite Footprint



In addition, since satellites are located 22,300 miles (35,900 km) above the equator, the TracPhone antenna must have a clear view of the sky to transmit and receive signals. Anything that stands between the antenna and the satellite can block signals, resulting in lost data. Common causes of blockage include trees, buildings, and bridges. Heavy rain, ice, or snow may also temporarily interrupt reception.

Figure 2-2 Example of Satellite Blockage

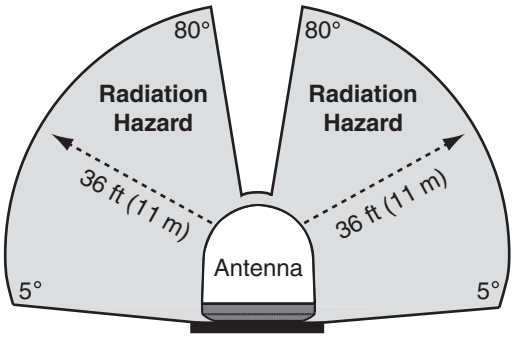


Turning On the System

Follow the steps below to turn on your TracPhone system.

CAUTION

The antenna transmits RF energy that is potentially harmful. Everyone must stay more than 36 feet (11 m) away from the antenna within its 5°-80° elevation range. No hazard exists directly above the antenna and anywhere below its mounting plane.

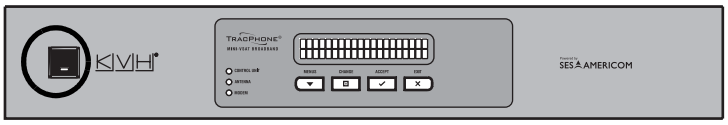


1. Make sure the antenna has a clear view of the sky.
2. Make sure power is applied to the modem, control unit, router, MTA, and computer(s).
3. Press the power button on the modem. The button's light should illuminate green.

Figure 2-3 Modem Front Panel Power Switch

4. Press the power button on the control unit. The button's light should illuminate green. The control unit supplies power to the antenna.

Figure 2-4 Control Unit Front Panel Power Switch



5. Turn on your networked computer(s).
6. Wait five minutes for system startup (see the next section for details).

Once the antenna finds the correct service satellite, all status lights on the control unit and the modem should be lit green. If any lights are not lit green, refer to *"Troubleshooting" on page 41*.

System Startup

The control unit shows the following screens during startup. If the display shows an error message, see *"Error Messages" on page 47*.

Control Unit Screen	Description
ANTENNA INITIALIZING	The antenna is running a self test routine
GPS: ACQUIRED 41.1N, 72.3W	When GPS acquires a fix, momentarily displays your latitude/longitude
WAITING FOR MODEM	The antenna is waiting for the modem to initialize
MODEM COMMS: OK	The modem is communicating with the control unit
RECEIVING SATELLITE INFO FROM MODEM	The modem is providing satellite identification data to the antenna
SEARCHING FOR 72W DVB-ASSIST SATELLITE *Note: Satellites will vary*	The antenna is searching for the DVB-assist satellite, which helps it find the correct service satellite
TRACKING 72W DVB-ASSIST SATELLITE	The antenna has found the DVB-assist satellite
SEARCHING FOR 22W SERVICE SATELLITE *Note: Satellites will vary*	The antenna is shifting to point at the mini-VSAT Broadband service satellite
TRACKING 22W SERVICE SATELLITE	The antenna is now tracking the service satellite
ONLINE TRACKING 22W	The modem has accessed the mini-VSAT Broadband service; the system is ready for use!

Using the mini-VSAT Broadband Service

Once the TracPhone V7 modem establishes a connection with the mini-VSAT Broadband service, you can perform all of the same Internet tasks you perform at home:

- E-mail
- Video conferencing
- Internet browsing
- Weather and chart updates
- Instant messaging
- Accessing corporate networks (VPNs)
- Data transfers

IMPORTANT!

Certain applications, such as continuous streaming video, web cams, and high-speed gaming, are not supported by fixed-rate service plans. For details, be sure to read all of the service terms and conditions, which can be found at ***www.kvh.com/Your_Account***, under "mini-VSAT Broadband Documents."

NOTE: *The system must be activated before you can use it. See* ***"Service Activation" on page 8*** *for details.*

Using KVH's Enhanced VoIP Service

The MTA and Enhanced Voice over IP (VoIP) Service allow you to make/receive telephone and fax calls via the mini-VSAT Broadband service. This section explains how to use basic VoIP functions.

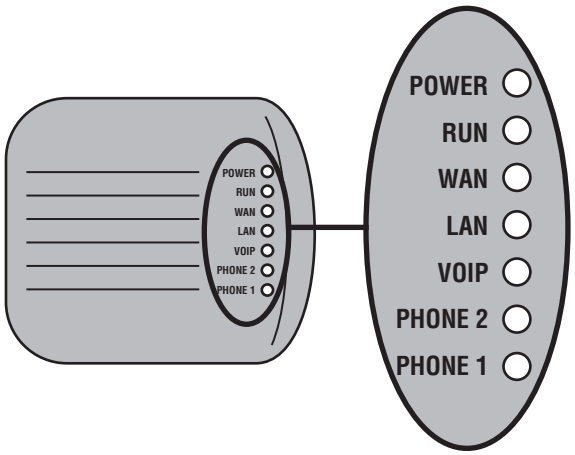
IMPORTANT!

The TracPhone V7 VoIP service will not provide Automatic Number Identification or Automatic Location Information capabilities associated with emergency **911** or **E911** services. In addition, the VoIP service will not work in the event of either a network service outage or a power failure. Therefore, it is critical that you maintain your vessel's separate distress and safety communications system for emergency calls. Be sure to inform anyone who may use the TracPhone V7 of the limitations of 911 and E911 emergency services. *The manufacturer, distributor, and service provider shall not be liable for, and expressly disclaim, any direct or indirect damages, claims, losses, expenses, liabilities, actions, risks, or harms arising out of or related to the services provided through this equipment, including without limitation, emergency 911 or E911 services.*

Turning On the MTA

The MTA has no on/off switch; simply make sure its power supply is plugged into vessel AC power. When you turn on the TracPhone V7 system, the MTA initializes, which may take up to 15 minutes. The MTA is ready once its "RUN" light is lit steady green (see Figure 2-5). *For complete details about the MTA device, refer to the MTA User's Guide.*

Figure 2-5 MTA Status Lights



Placing a Voice Call

Calls originating from a TracPhone V7 system are terminated in the United States. Therefore, to place a call, you will need to dial as if you are calling from the U.S., regardless of your vessel's location. Follow the steps below to place a call via the TracPhone V7.

1. Make sure the TracPhone V7 system is turned on and connected to the mini-VSAT Broadband service (the control unit shows "Online"). Also make sure the "RUN" light on the MTA is lit green.
2. Pick up the handset on any phone connected to the MTA. You should hear a dial tone.
3. Dial the phone number you wish to call.

   If you are calling within the U.S.:
   Dial **1 + Area Code + Local Phone Number**

   If you are calling outside of the U.S.:
   Dial **011 + Country Code + Area Code + Local Phone Number**

   For example, if the country code is 99, the city code is 77, and the local number is 555-8888, dial 01199775558888.

NOTE: *When you make a VoIP call via the mini-VSAT Broadband service, your voice travels 22,300 miles (35,900 km) into space, then 22,300 miles (35,900 km) back to Earth, just like any other satellite voice service. This lengthy transit will necessarily cause a brief delay (approximately 0.5 second) in your telephone conversations, even at the fastest speeds.*

Recording a VoiceMail Personal Greeting

Follow the steps below to record your VoiceMail personal greeting.

1. Pick up the handset on any phone connected to the MTA. You should hear a dial tone.
2. Dial **123** on the telephone keypad to connect to the VoiceMail system.
3. Press **2** to access your mailbox.
4. Press **1** to access your personal greeting.
5. Press **2** to change your greeting. You will be prompted to record your greeting.
6. Press **1** to listen to your personal greeting.
7. When you are satisfied with your greeting, press **3** to accept and activate your greeting. You will hear the message "Your personal greeting has been activated."

Listening to Your VoiceMail Messages

If the "PHONE 1" or "PHONE 2" light on the MTA is blinking orange when the telephone handset is on the hook, you have new VoiceMail messages (see Figure 2-5 on page 15). Follow the steps below to listen to your VoiceMail messages.

1. Pick up the handset on any phone connected to the MTA. You should hear a dial tone.
2. Dial **123** on the telephone keypad to connect to the VoiceMail system.
3. Press **1** to listen to your messages.
4. Follow the spoken instructions to listen to, save, and/or delete your messages.

NOTE: *You can also listen to your messages online at your VoIP account web page (see* ***"Managing Your VoIP Account Online" on page 18****). In addition, you can access VoiceMail from any regular landline telephone. Simply dial the number for your main U.S. VoIP phone line, press *, then enter your PIN (provided during service activation).*

Sending or Receiving a Fax

Faxing is easy via the TracPhone V7 Enhanced VoIP Service. Simply connect a fax machine to either "PHONE" jack on the MTA and dial as you would a voice call (see ***"Placing a Voice Call" on page 16***).

NOTE: *Faxing requires 70k bandwidth for sending and up to 90k bandwidth for receiving. When fax and voice are used simultaneously on both MTA ports, the bandwidth requirement increases to between 100k and 170k.*

Managing Your VoIP Account Online

You can manage your account online at your Enhanced VoIP account web page. You can view and configure all of the various calling features available to you, as well as view account information and listen to VoiceMails. To log onto the site, follow the steps below:

1. Go to ***www.kvh.com/Your_Account***.
2. At the Your Satellite Services Account web page, select "mini-VSAT Broadband" from the drop-down menu.
3. At the login page, enter your user name and password for the mini-VSAT Broadband service *(provided during service activation)*.
4. At your mini-VSAT Broadband account web page, click the "Enhanced VoIP Account" tab in the sidebar.
5. At the login page, enter your primary VoIP phone number and PIN *(provided during service activation).*

NOTE: *You can also contact Customer Support by dialing* ***611*** *on your telephone handset.*

3. Configuration

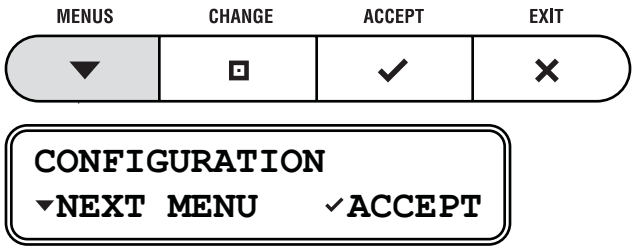
This chapter explains how to change the brightness of the control unit's display, set up an RF radiation hazard zone, and reset the system to its factory configuration. It also explains how to configure your computer for a wired Ethernet connection to the TracPhone V7 system. For details on setting up a wireless network, refer to the instructions provided with the router.

Contents

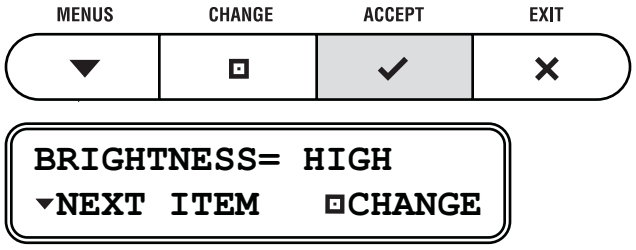
Adjusting the Control Unit Display Brightness

Follow the steps below to adjust the brightness of the control unit's front panel display.

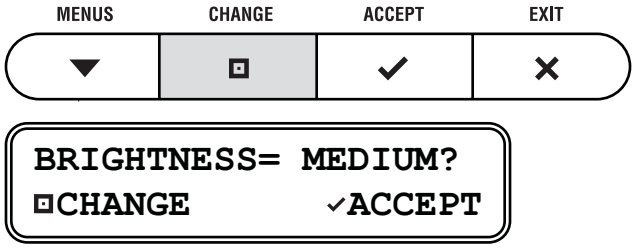
1. Press ▼MENUS until the display shows "CONFIGURATION."



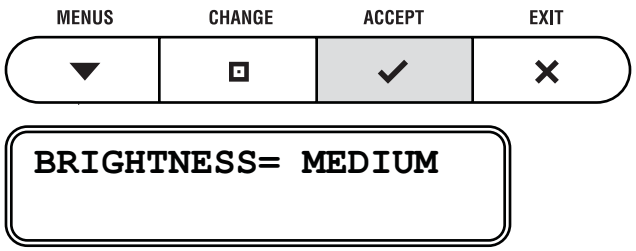
2. Press ✓ACCEPT.



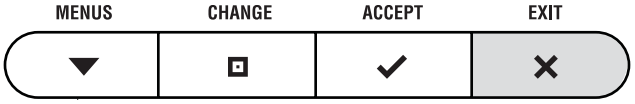
3. Press ⊡CHANGE until the display shows the desired brightness setting: **HIGH**, **MEDIUM**, or **LOW**.



4. Press ✓ACCEPT.



5. Press ×EXIT to exit the menu.

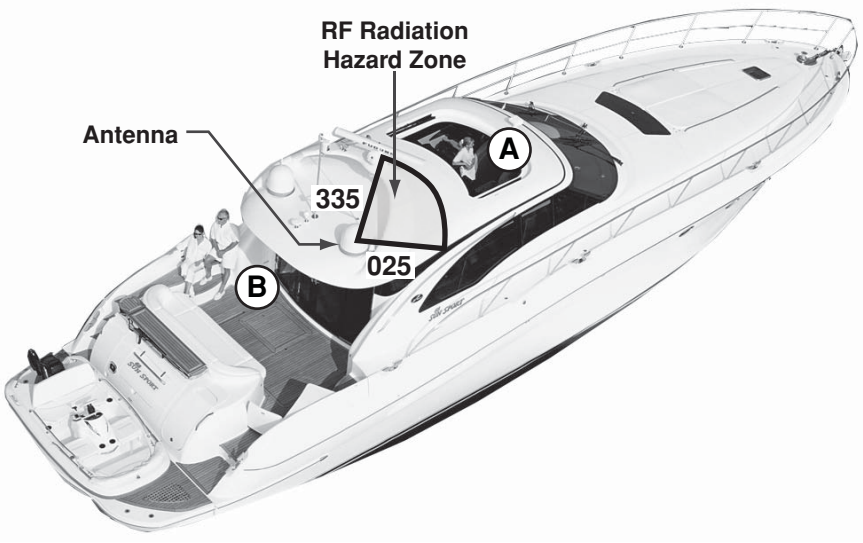


Configuring RF Radiation Hazard Zones

To prevent exposure to the antenna's radiated RF energy, you can configure up to two RF radiation hazard zones for areas where crew and/or passengers frequent. (See *"Important Safety Information" on page 5* for details on minimum safety distances.)

When determining the need for a hazard zone, keep in mind that the antenna transmits within an elevation range of 5°-80°. Therefore, you do not need to consider any areas that are below the antenna's mounting plane, since they are safe from radiation exposure. In the example below, Location A is both within 36 feet (11 m) of the antenna and within the operating range of the antenna. So a hazard zone to block transmissions in this direction might be appropriate. Location B, however, is well below the level of the antenna, so RF radiation is not a concern.

Figure 3-1 Example of an RF Radiation Hazard Zone



Whenever the antenna points within an RF radiation hazard zone, the system will disable the transmitter and the control unit will display the following message:

```
RF RADIATION HAZARD!
TRANSMIT INHIBITED
```

Once the antenna points outside the hazard zone, transmission capability will be restored.

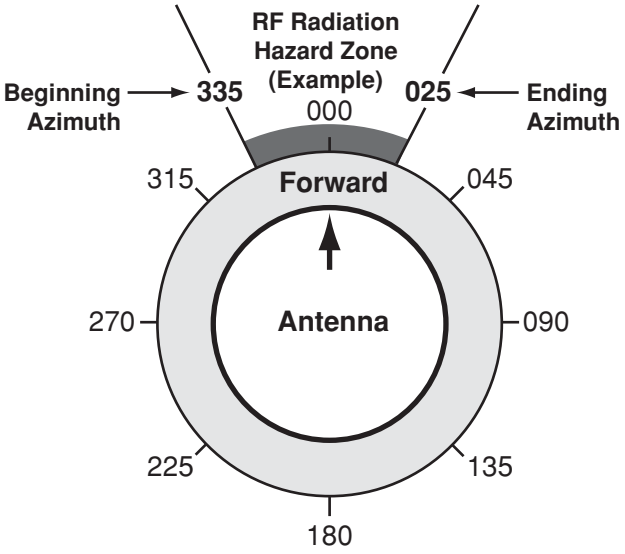
Defining an RF Radiation Hazard Zone

Follow the steps below to configure an RF radiation hazard zone.

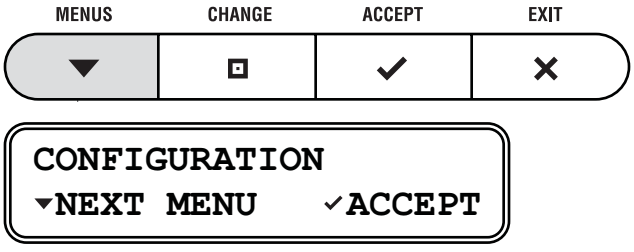
1. Determine the necessary azimuth range for the RF hazard zone. You will need to enter the beginning and ending azimuths that define the outer boundaries of the zone, **relative to the antenna's forward arrow**, which should be pointing toward the bow (see Figure 3-2).

   NOTE: *Each RF hazard zone must span at least 5°. Therefore, be sure to set beginning and ending azimuths at least 5° apart.*

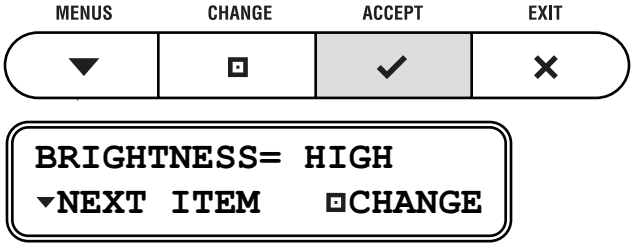
Figure 3-2 Beginning and Ending Azimuths Defining RF Radiation Hazard Zone



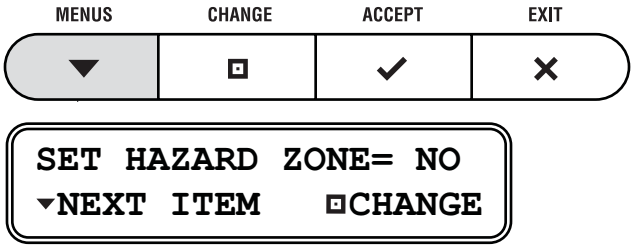
2. Press ▼MENUS until the display shows "CONFIGURATION."



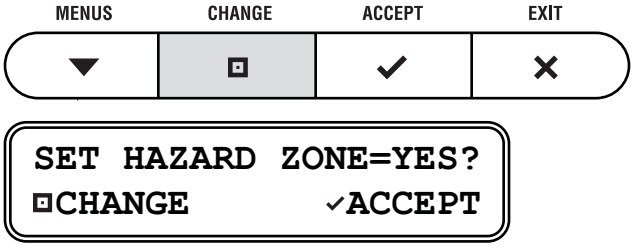
3. Press ✓ACCEPT.



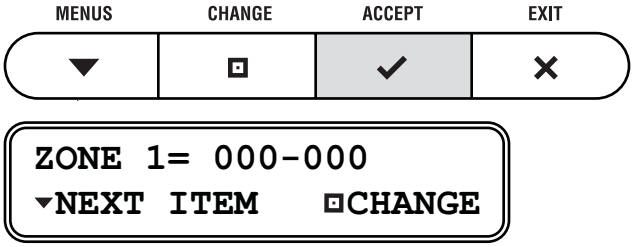
4. Press ▼MENUS until the display shows "SET HAZARD ZONE."



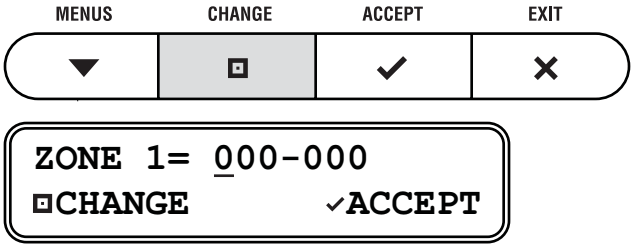
5. Press ⊡CHANGE until the display shows "SET HAZARD ZONE = YES."



6. Press ✓ACCEPT.

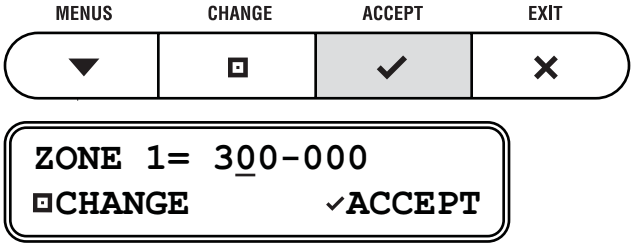


7. Press ⊡CHANGE. A cursor appears under the first number in the displayed azimuth range for RF radiation hazard zone #1.

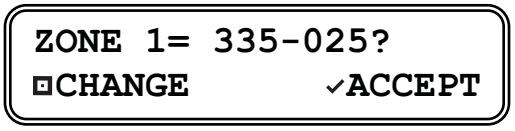


8. Press ⊡CHANGE until the number is set to the first digit of the beginning azimuth for zone #1. *If the azimuth value is less than 100°, set the first digit to zero.*

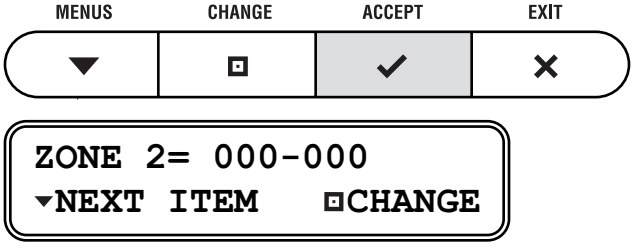
9. Press ✓ACCEPT. The cursor moves to the next number.



10. Repeat steps 8 and 9 to set the remaining digits of the range of azimuths for zone #1. Once you have set the entire range, the cursor disappears from the display.



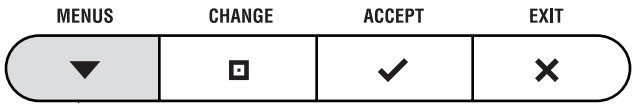
11. Press ✓ACCEPT. The display shows the current azimuth range for RF radiation hazard zone #2.

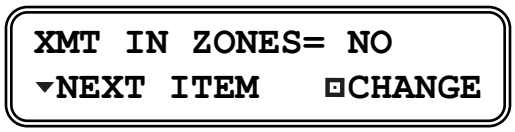


12. If you wish to set up a second RF radiation hazard zone, repeat steps 7-11. *(Be sure the second zone does not overlap the first.)* Otherwise, press ▼MENUS. The display shows the current setting for Transmit Inhibition ("XMT IN ZONES").

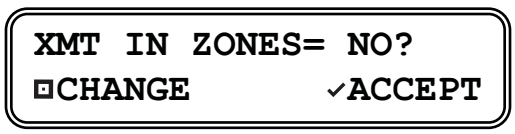
IMPORTANT!

Make sure "XMT IN ZONES" is set to **NO**, so the antenna will not transmit whenever it points within one of your configured RF radiation hazard zones. If "XMT IN ZONES" is set to YES, the zones are disabled, allowing the antenna to transmit within them.

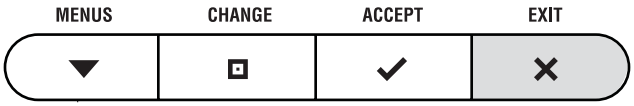




13. If the display shows "XMT IN ZONES = YES," press ⊡CHANGE until the display shows "XMT IN ZONES = NO." Then press ✓ACCEPT.



14. Press ×EXIT to exit the menu.



Disabling RF Radiation Hazard Zones

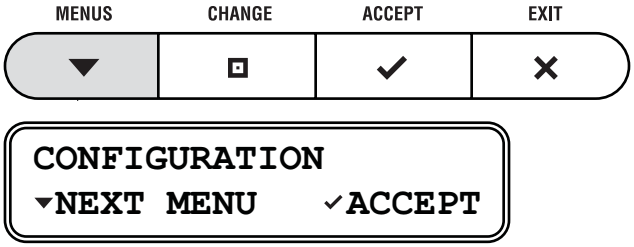
If you wish to remove all restrictions on transmissions, follow the steps below to disable your programmed RF radiation hazard zones. This function simply disables the hazard zones; it does not delete them from memory.

CAUTION

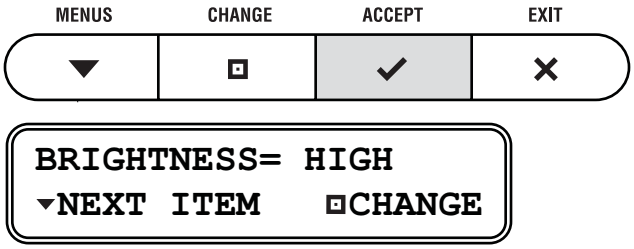
Disabling RF radiation hazard zones allows the antenna to transmit in any direction, even if the antenna is pointing in an area accessible to passengers and crew. Make certain that everyone stays a minimum safe distance away from the antenna before you transmit. Also be sure to return to this menu and restore the hazard zones when you are done transmitting.

NOTE: *You can view the currently programmed hazard zones in the control unit's Antenna Status menu (see* *"Antenna Status Information" on page 60**).*

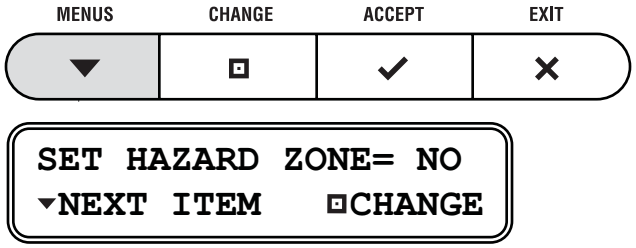
1. Press ▼MENUS until the display shows "CONFIGURATION."



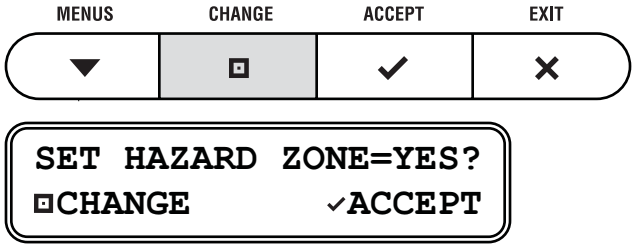
2. Press ✓ACCEPT.



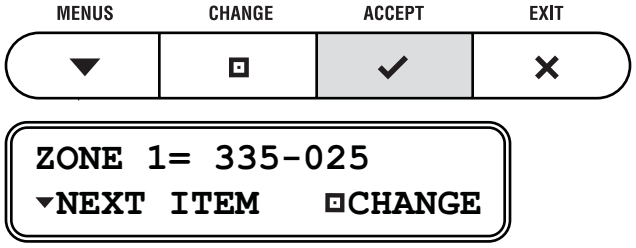
3. Press ▼MENUS until the display shows "SET HAZARD ZONE."



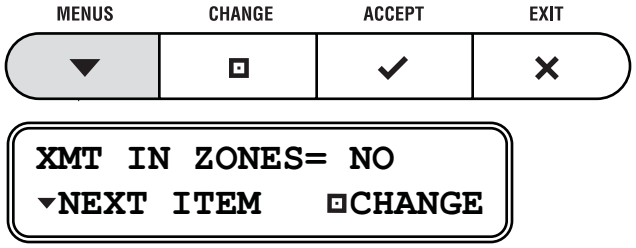
4. Press ⊡CHANGE until the display shows "SET HAZARD ZONE = YES."



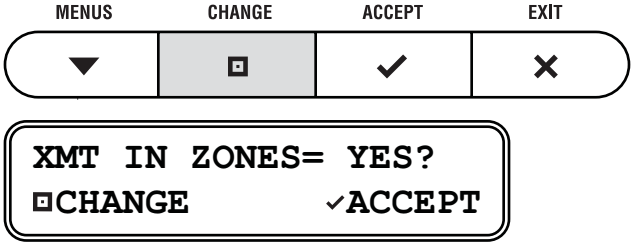
5. Press ✓ACCEPT.



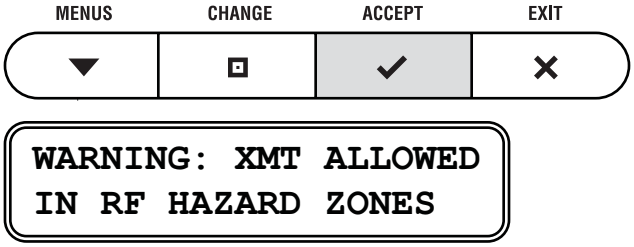
6. Press ▼MENUS until the display shows "XMT IN ZONES."



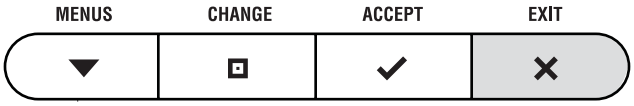
7. Press ⊡CHANGE until the display shows "XMT IN ZONES = YES."



8. Press ✓ACCEPT.



9. Press ×EXIT to exit the menu.



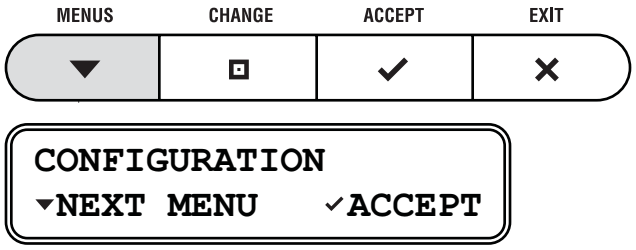
Resetting the System to Factory Conditions

Follow the steps below to reset the TracPhone system to its original factory configuration.

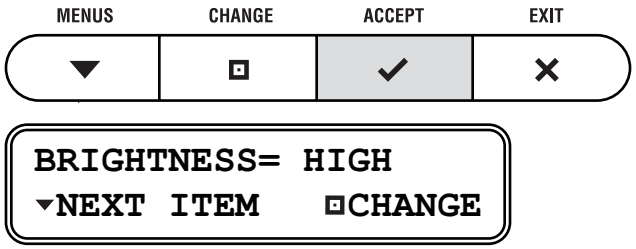
CAUTION

Resetting the system clears all RF radiation hazard zones. The antenna will be able to transmit in any direction until you reprogram the hazard zones into the antenna.

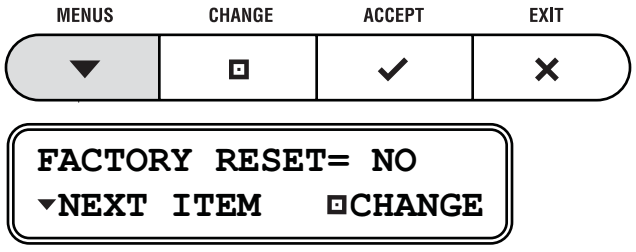
1. Press ▼MENUS until the display shows "CONFIGURATION."



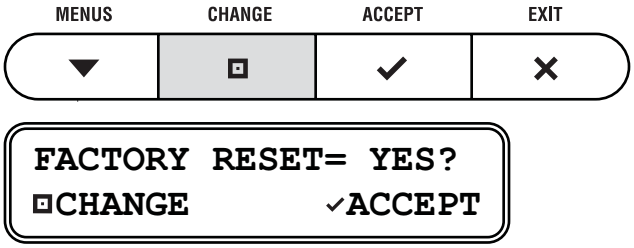
2. Press ✓ACCEPT.



3. Press ▼MENUS until the display shows "FACTORY RESET."

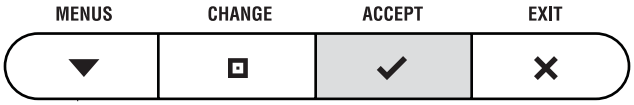


4. Press ⊡CHANGE until the display shows "FACTORY RESET= YES."



5. Press ✓ACCEPT.

6. Press ✓ACCEPT again to reset the system.



Configuring Your Computer for mini-VSAT Broadband

Follow the steps below to configure your computer for DHCP addressing. This will allow your computer to communicate with the modem via its Ethernet connection.

NOTE: *If you wish to set up a wireless connection, set up and test a wired Ethernet connection first. Then follow the wireless setup instructions provided with the router.*

IMPORTANT!

When setting up a wireless network, be sure to apply security settings, such as encryption, to protect your network from outside intrusion. If your network is not secure, outsiders within range of your wireless network will be able to use your wireless connection without your knowledge.

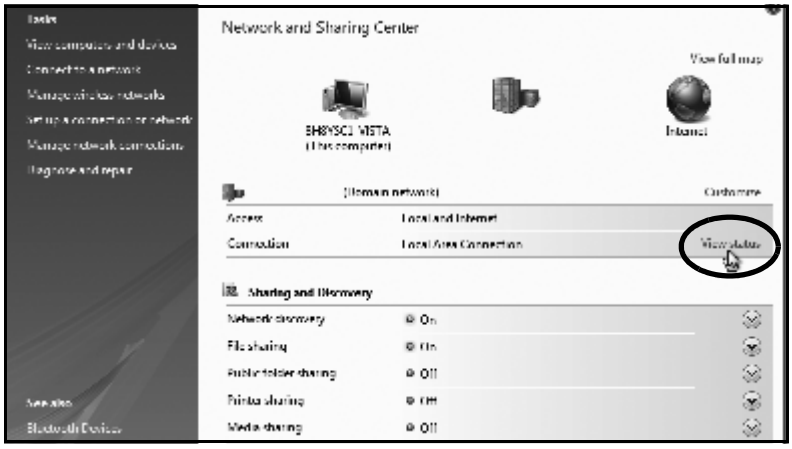
NOTE: *KVH Technical Support fully supports the three operating systems described here: Windows Vista™, Windows XP, and Macintosh® OS X.*

Windows Vista

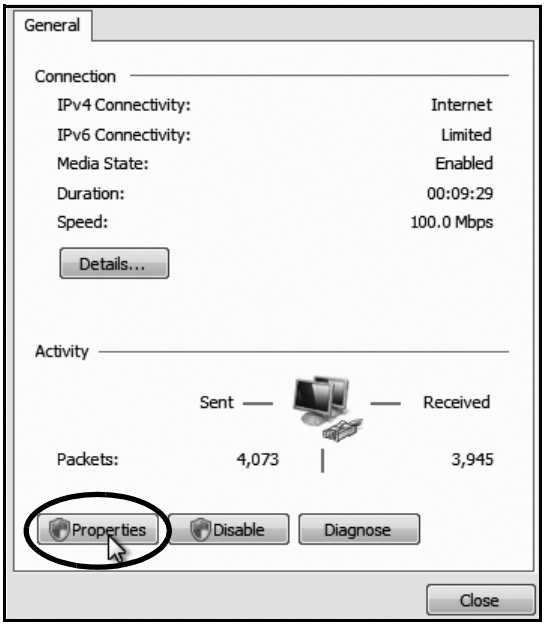
Follow the steps below to configure a Windows Vista computer.

1. At the Windows Control Panel, double-click the **Network and Sharing Center** icon. *You can find the Control Panel either through the Start menu or "My Computer."*

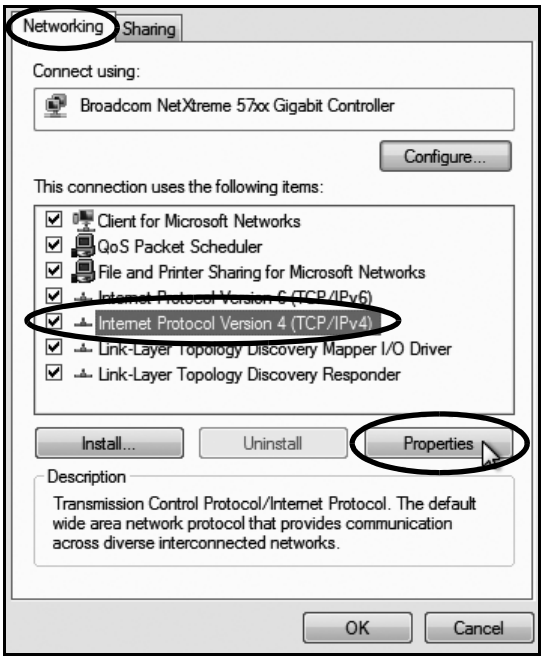
2. At the Network and Sharing Center window, double-click the **View Status** link for the Ethernet connection you are using for mini-VSAT Broadband.



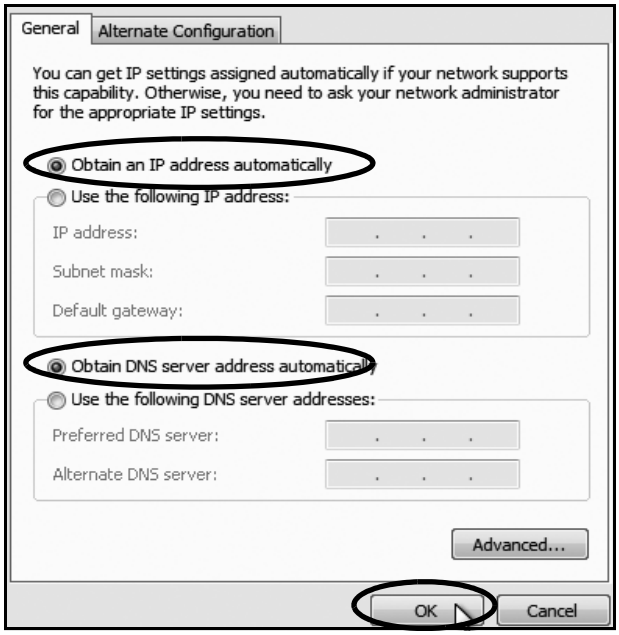
3. At the Local Area Connection Status window, click **Properties**. *If this screen doesn't appear, just skip to Step 4.*



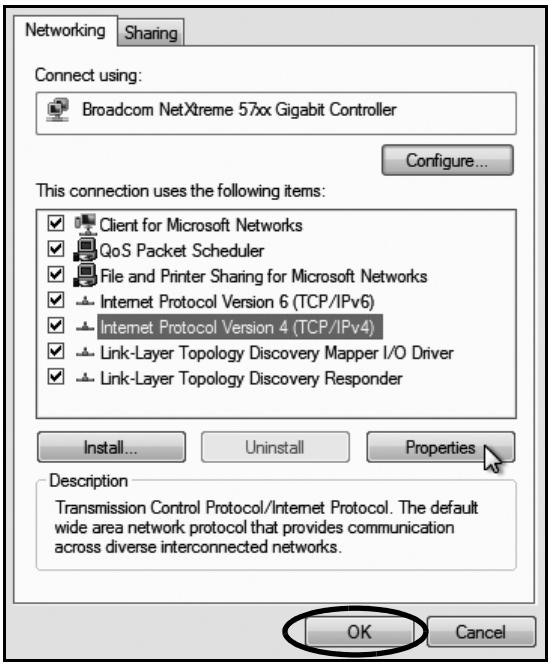
4. At the Local Area Connection Properties window, select the **Networking** tab. Then select **Internet Protocol Version 4** and click **Properties**.



5. At the Internet Protocol Properties window, select **Obtain an IP address automatically** and **Obtain DNS server address automatically**. Then click **OK**.



6. At Local Area Connection Properties, click **OK**.



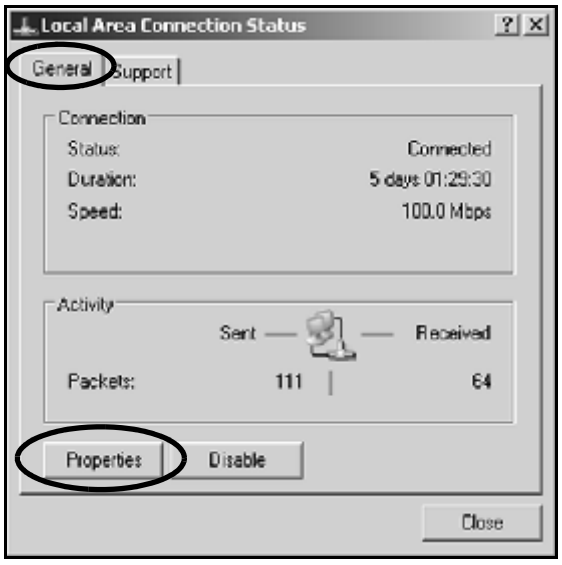
Windows XP

Follow the steps below to configure a Windows XP computer.

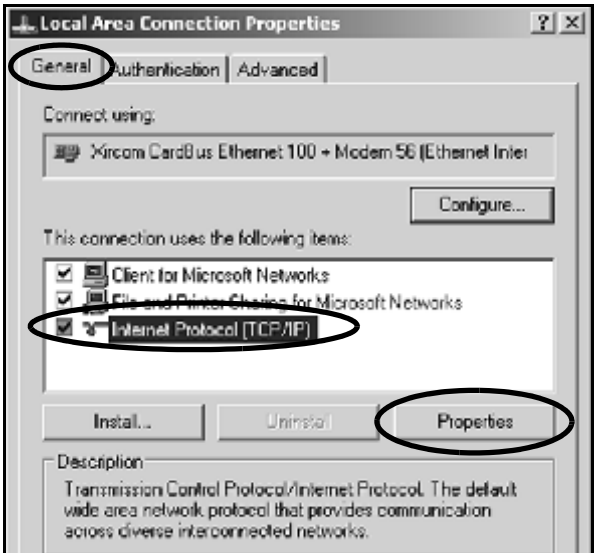
1. At the Windows Control Panel, double-click the **Network Connections** icon. *You can find the Control Panel either through the Start menu or "My Computer."*

2. At the Network Connections window, double-click the **Local Area Connection** icon for the Ethernet connection you are using for mini-VSAT Broadband.

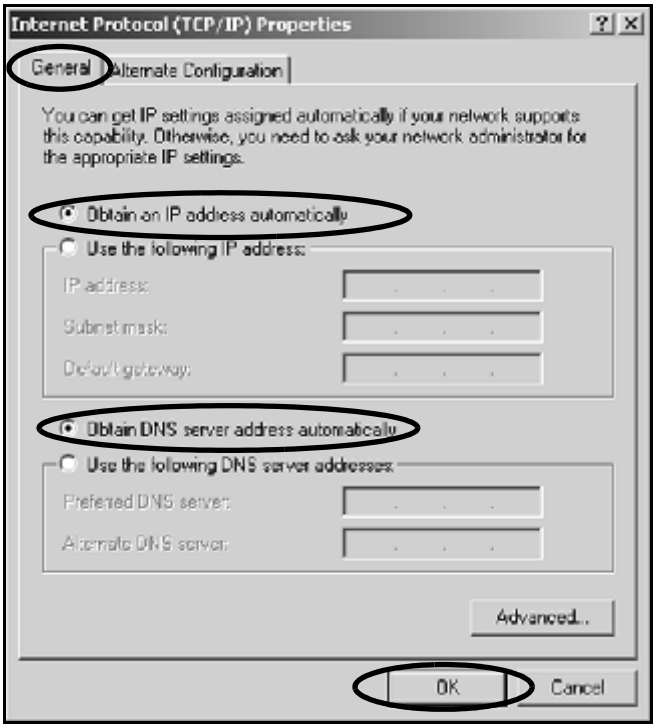
3. At the Local Area Connection Status window, select the General tab. Then click the **Properties** button. *If this screen doesn't appear, simply skip to Step 4.*



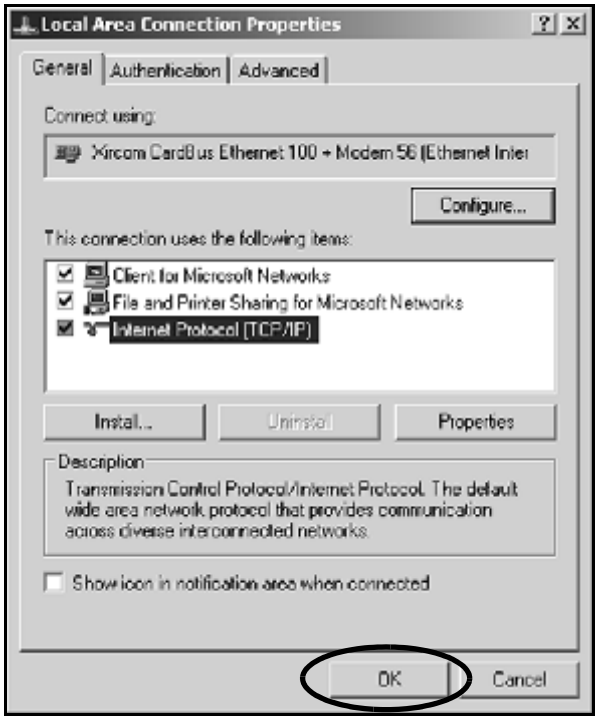
4. At the Local Area Connection Properties window, select the **General** tab. Then select **Internet Protocol (TCP/IP)** and click **Properties**.



5. At the Internet Protocol (TCP/IP) Properties window, select the **General** tab. Then select **Obtain an IP address automatically** and **Obtain DNS server address automatically**. Then click **OK**.



6. At Local Area Connection Properties, click **OK**.



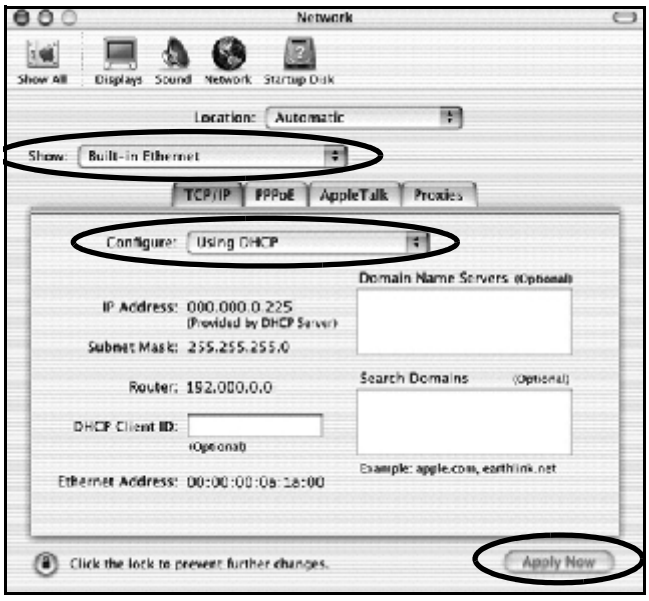
7. Restart your computer.

Mac OS X

Follow the steps below to configure a Mac OS X computer.

1. At System Preferences, click the **Network** icon.
2. At the Network window, select the following:

- Show: **Built-in Ethernet**
- Configure: **Using DHCP**
- Leave all text boxes blank.



3. Click **Apply Now**.

4. Troubleshooting

This chapter identifies basic problems along with their possible causes and solutions. It also explains what the status lights indicate, how to use the diagnostic functions, and how to get technical support.

Contents

Five Simple Checks

If you are experiencing a problem with your TracPhone system, first check the five simple things below. If these checks do not lead you to the problem, contact a KVH-certified technician (see *"Technical Support" on page 65*).

Are all lights on the control unit and modem lit green?

There are three status lights on the front panel of the control unit and one status light on the modem. If any of these lights is not lit green, see *"Control Unit Status Lights" on page 44* and *"Modem Status Light" on page 46* for failure indications.

Are any error messages displayed on the control panel?

If the control panel is showing an error message, see *"Error Messages" on page 47* for error definitions.

Is the antenna unable to find the satellite?

If the control panel shows the antenna is continuously searching for the satellite, check the area around the antenna for blockage. The antenna requires an unobstructed view of the sky to receive satellite signals. Common causes of blockage include trees, buildings, bridges, mountains, and nearby equipment on the vessel itself. You can find which direction the antenna is pointing by viewing the "AZ/EL" status on the control unit; see *"Antenna Status Messages" on page 61*.

Are all system components powered on and connected properly?

Make sure power is applied to all system components, including the modem, control unit, router, and MTA. Also make sure all of the interconnecting cables are connected tightly.

Are you able to access the Internet via a wired connection?

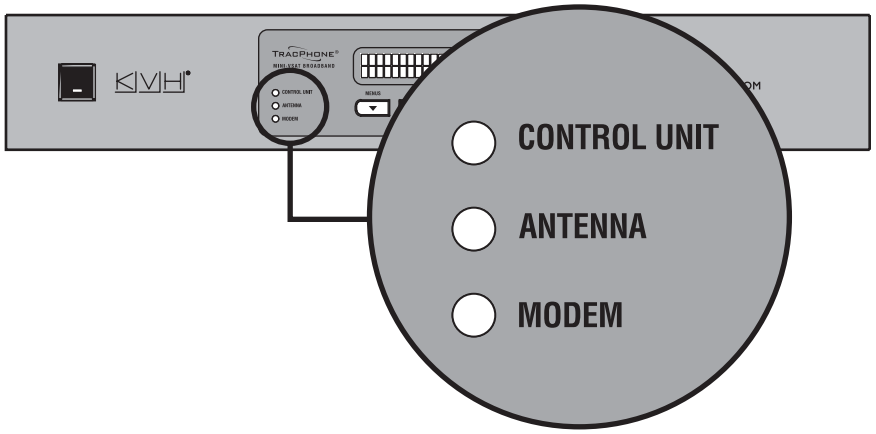
Try connecting your computer directly to the router via a standard (straight-through, not crossover) Ethernet cable, then restart your computer. If you can then access the Internet, there is a problem with your wireless network setup. Some possible causes include:

- Router is installed in a poor location for WiFi reception
- Security settings on the computer do not match the router's
- The wireless connection is disabled on the computer

Control Unit Status Lights

Three status lights on the front of the control unit indicate the current status of the system and can help you identify problems quickly.

Figure 4-1 Control Unit Status Lights



During normal operation, all three status lights should be lit green. The following tables explain what the different light conditions indicate.

CONTROL UNIT Light

The table below explains what the CONTROL UNIT light indicates.

Light is...	Indicates	Description
Off	Off	Control unit is powered off or no power input
Green	OK	Good input power; control unit is operational
Orange	Bad power	Insufficient input power
Red	Fault	Error detected during control unit self test

ANTENNA Light

The table below explains what the ANTENNA light indicates.

Light is...	Indicates	Description
Off	Off	No power input to the antenna
Green	Tracking	Antenna is tracking the satellite
Green, flashing	Searching	Antenna is searching for the satellite
Orange	No comms	Antenna has lost communications with the modem
Red	Fault	Error detected; see error message on display

MODEM Light

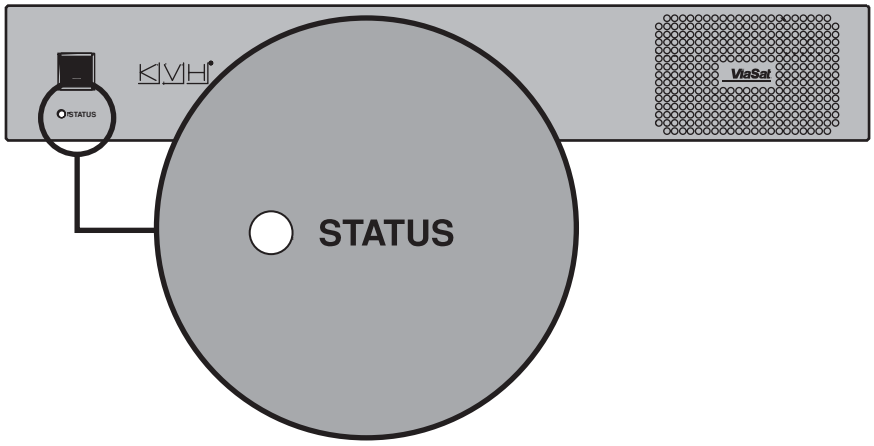
The table below explains what the MODEM light indicates.

Light is...	Indicates	Description
Off	Off	Modem powered off
Green	Online	Modem online and logged into the mini-VSAT Broadband service
Green, flashing	Comms OK	Modem is communicating with the antenna
Orange	Offline	Modem offline; see error message on display
Red	No comms	Control unit has lost communications with the modem

Modem Status Light

A status light on the front of the modem indicates the current status of the modem and can help you identify problems.

Figure 4-2 Modem Status Light



During normal operation, the status light should be lit green. The following table explains what the different light conditions indicate.

Light is...	Indicates	Description
Off	Off	Modem is powered off or no power input
Green	Online	Modem is logged into the mini-VSAT Broadband network
Green, flashing	Transmitting	Modem is transmitting data
Red	Fault	Error detected in modem

Error Messages

The table below lists error messages that might appear on the control unit display to indicate a system problem. Many of these faults should only be repaired by a KVH-certified technician. For details on finding a KVH-certified technician, see *"Technical Support" on page 65*.

Error Message	Description
WAITING FOR GPS	The system is not yet receiving valid position data from the GPS. It might take a few minutes for the GPS to acquire a fix. If this message does not clear, check for antenna blockage. You can also trying turning the control unit off, then back on.
ERROR: GPS FAILURE	The GPS is not communicating with the control unit. The GPS module inside the antenna might need to be replaced. Contact a KVH-certified technician.
OFFLINE OUTSIDE COVERAGE	Your vessel is located outside the mini-VSAT Broadband coverage area, where service is unavailable (or you are located within a governmentally restricted area). Service will be restored once you reenter the coverage area.
TRANSMIT INHIBITED BY CTRL UNIT	The transmitter is temporarily disabled due to severe sea conditions.
RF RADIATION HAZARD! TRANSMIT INHIBITED	The antenna is pointing within one of your programmed RF radiation hazard zones. See *"Configuring RF Radiation Hazard Zones" on page 23* for details.
ERROR: ANTENNA AZ ASSEMBLY	The antenna's azimuth motor or limit switch failed. Contact a KVH-certified technician.

Error Message	Description
ERROR: ANTENNA EL ASSEMBLY	The antenna's elevation motor or limit switch failed. Contact a KVH-certified technician.
ERROR: ANTENNA SKEW ASSMBLY	The antenna's skew motor or limit switch failed. Contact a KVH-certified technician.
ERROR: CTRL UNIT PWR SUPPLY	The control unit is not supplying enough power to the antenna. Contact a KVH-certified technician.
ERROR: ANTENNA POWER SUPPLY	The antenna's power supply might have failed. Contact a KVH-certified technician.
ERROR: ANTENNA POWER SHORT	There is a short circuit in the antenna power cable. Check the cable.
ERROR: ANTENNA POWER OPEN	There is an open circuit in the antenna power cable. Check the cable.
ERROR: BUC POWER SHORT	There is a short circuit in the BUC power cable (between the control unit and the modem) or the transmit (TX) RF cable. Check the cables.
ERROR: BUC POWER OPEN	There is an open circuit in the BUC power cable (between the control unit and the modem) or the transmit (TX) RF cable. Check the cables.
ERROR: MODEM OVERTEMP	The modem is disabled because its temperature has risen above 85ºC. Turn off the system and allow it to cool down. You might need to relocate the unit to an area that provides better ventilation.

Error Message	Description
ERROR: CTRL UNIT OVERTEMP	The control unit has stopped supplying antenna and BUC power because its temperature has risen above 85ºC. Turn off the system and allow it to cool down. You might need to relocate the unit to an area that provides better ventilation.
ERROR: ANTENNA OVERTEMP	The antenna is disabled because its temperature has risen above 85ºC. Turn off the system and allow it to cool down.
ERROR: MODEM COMM FAILURE	The control unit has lost communications with the modem. Ensure the modem is powered on and check the interconnecting cables.
ERROR: NO LNB POWER	The antenna's LNB (low noise block) is not receiving 12-18 VDC from the modem's "Rx RF" port. Check the RX RF cable.
WARNING: BAD DVB-ASSIST INFO	The modem is not providing valid data for identifying the DVB-assist satellite. Contact a KVH-certified technician.
WARNING: MODEM LAN LINK DOWN	The modem does not detect a local area network (LAN) on its "User Enet" port. Make sure the MTA is connected to the modem via a straight-through, not crossover, cable.
CABLE UNWRAP PLEASE WAIT	The antenna is unwrapping its internal cable; wait 30 seconds.

Troubleshooting an Enhanced VoIP Service Problem

If you can access the Internet via the TracPhone system, but you are unable to make a VoIP call, try the five simple steps below.

Make Sure You Are Dialing the Number Properly

As explained in *"Placing a Voice Call" on page 16*, you need to dial the appropriate prefix(es) in addition to the local phone number in order to complete the connection. If you are calling a U.S. phone number, you need to dial 1 + Area Code + Local Phone Number. If you are calling a number outside the U.S., you need to dial 011 + Country Code + Area Code + Local Phone Number.

Reboot the MTA

The MTA might need to download an updated configuration file from the VoIP network. Unplug the power cord from the MTA. Then plug it back in and wait for the device to initialize (it may take 15 minutes for the MTA to download the necessary configuration files). Once the "RUN" light on the MTA is lit steady green, try placing your call again.

Verify the MTA Obtained an IP Address

The MTA must receive an IP address from the modem in order to provide a VoIP connection. Pick up the handset on any phone connected to the MTA and press ***1** on the keypad. If you hear "0.0.0.0" in the handset, the MTA did not receive a valid IP address. Contact KVH Technical Support for assistance (see *"Technical Support" on page 65*).

Connect a Different Phone

Disconnect the phone from the MTA and connect another phone in its place (use a phone that you know is working properly). If you are then able to place a call with the new phone, the phone you were using is faulty.

Verify the Phone Is Connected Properly

Make sure your phone is connected to one of the RJ11 "PHONE" jacks on the MTA ("PHONE 1" is the primary port). Also verify that the MTA is connected to vessel AC power and all system wiring is correct.

Viewing Status Information on Your Web Browser

Complete system status information is available via the modem's local web interface. Simply open the web browser on any networked computer and enter the following web address:

http://192.168.0.1

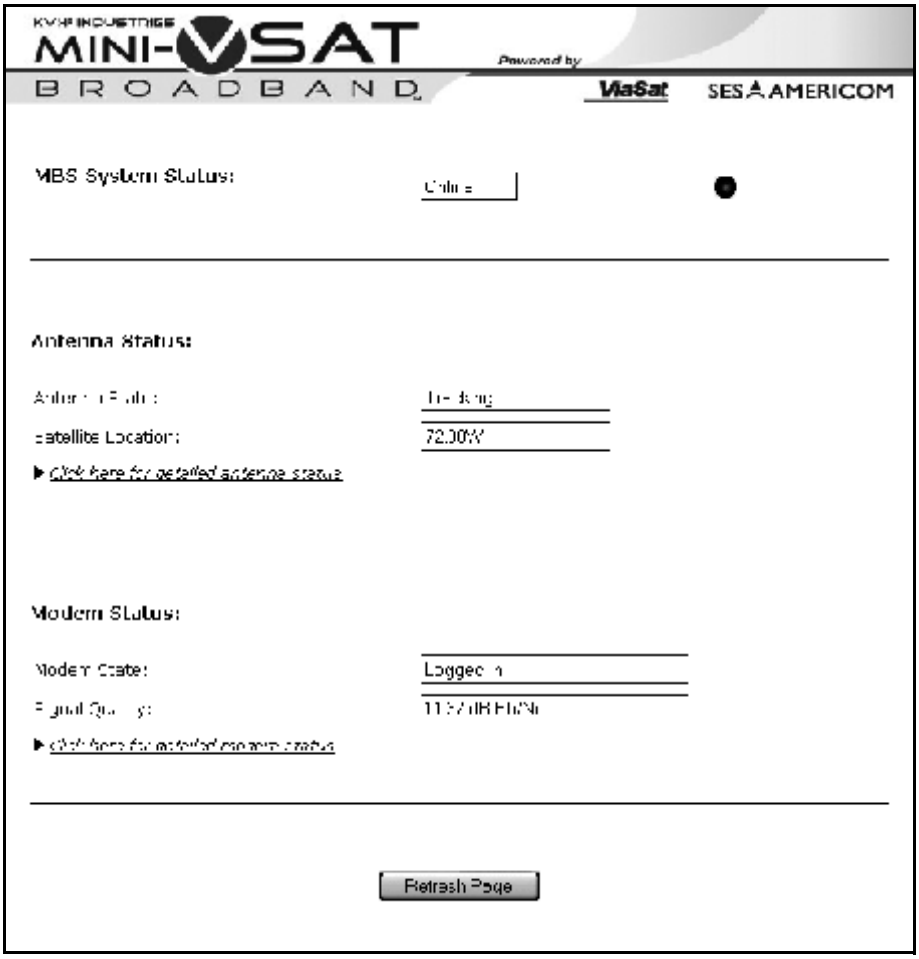
You will then need to enter the following user name and password:

User name: **KVH** (all caps)

Password: Leave blank

As long as the modem is connected and functioning properly, a system status page will display in your browser.

Figure 4-3 System Status Page Via Modem Web Interface



The System Status page provides the following information:

Status Message	Description
MBS System Status	• Online - Modem is connected to the mini-VSAT Broadband service • Offline - Modem is not connected to the service
Antenna State	General status of the antenna: • Tracking - Tracking the service satellite • Signal Acquisition - Searching the sky for the service satellite • Offline - Initializing • Tracking - Tx Inhibit - Tracking the service satellite, but inhibited from transmitting due to either an RF hazard zone or location within a restricted area • Error: ACU Fault - Error detected in the antenna or control unit
Satellite Location	Longitude of the currently tracked satellite
Modem State	Should be "Logged In" when the modem is online
Signal Quality	Must be greater than 2 dB for proper operation

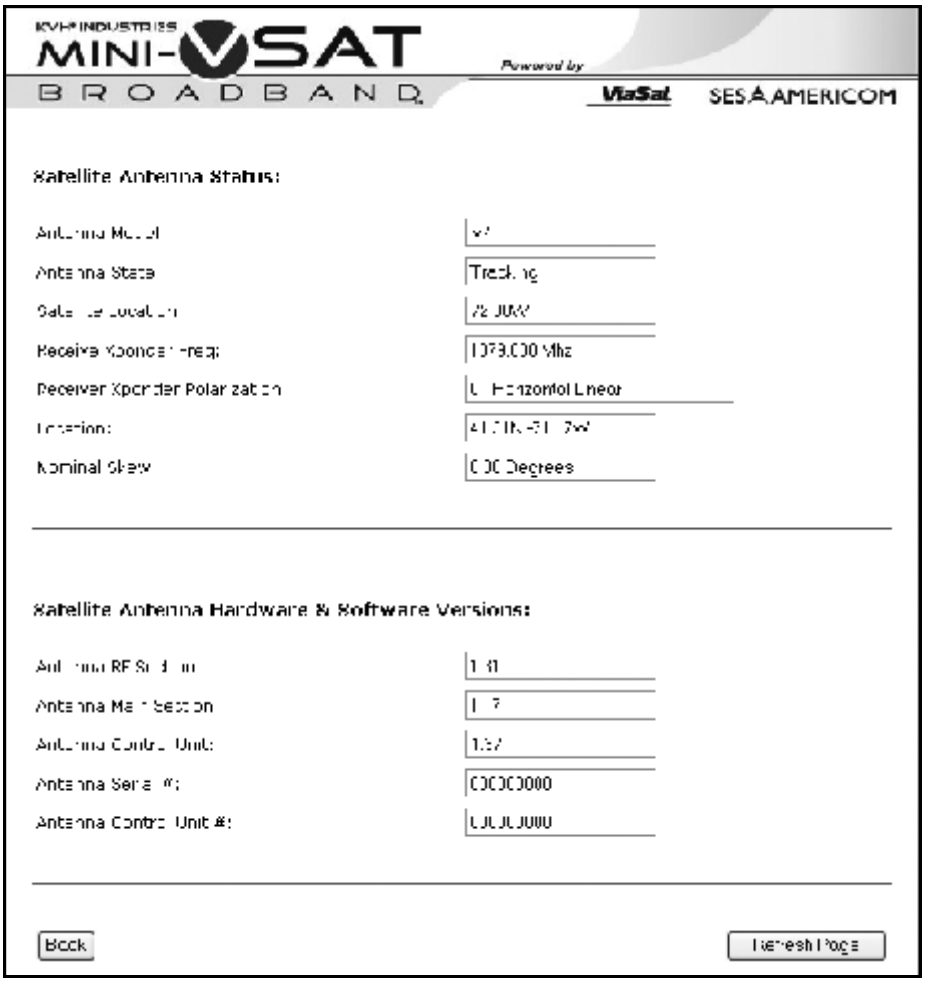
For additional antenna status information, click the link for "detailed antenna status" and refer to *"Detailed Antenna Status" on page 53*.

For additional modem status information, click the link for "detailed modem status" and refer to *"Detailed Modem Status" on page 55*.

Detailed Antenna Status

When you click the link for "detailed antenna status," the following web page is displayed.

Figure 4-4 Detailed Antenna Status Page



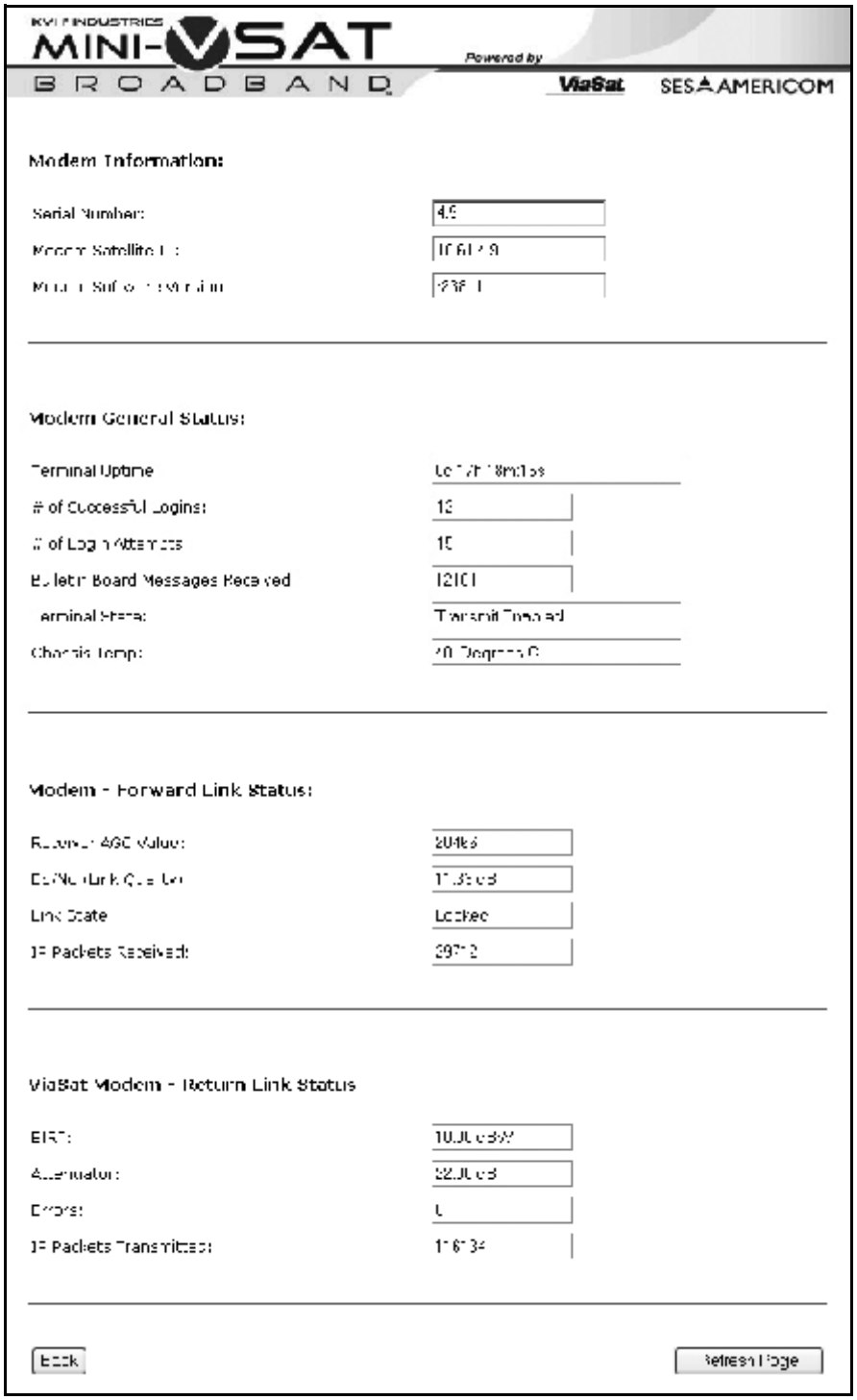
The Detailed Antenna Status page provides the following information:

Status Message	Description
Antenna Model	TracPhone V7
Antenna State	*Same as System Status page*
Satellite Location	*Same as System Status page*
Receive Xponder Freq	Frequency of the satellite downlink (in MHz)
Receiver Xponder Polarization	Polarization of the satellite downlink: • Horizontal Linear • Vertical Linear
Location	Vessel position reported by the antenna's GPS
Nominal Skew	LNB skew angle
Antenna RF Section	Antenna RF software version
Antenna Main Section	Antenna main software version
Antenna Control Unit	Control unit software version
Antenna Serial #	Antenna serial number
Antenna Control Unit #	Control unit serial number

Detailed Modem Status

When you click the link for "detailed modem status," the following web page is displayed.

Figure 4-5 Detailed Modem Status Page



The Detailed Modem Status page provides the following information:

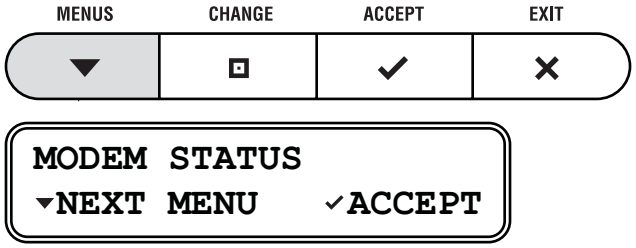
Status Message	Description
Serial Number	Modem serial number
Modem Satellite IP	External IP address of the modem; identity of the modem on mini-VSAT Broadband network
Modem Software Version	Modem software version
Terminal Uptime	Length of time (in days:minutes: hours:seconds) that the modem has been in operation since its last restart
# of Successful Logins	Number of times the modem has logged into the network
# of Login Attempts	Number of times the modem has attempted to log into the network
Bulletin Board Messages Received	Number of bulletin board messages the modem has received from the hub
Terminal State	Should be "Transmit Enabled" when tracking the service satellite
Chassis Temp	Temperature of the modem's chassis (in ºC)
Receiver AGC Value	Receiver gain; RF level indication
Eb/No	Quality of the received digital signal; should be greater than 2 dB
Link State	Should be "Locked" when tracking the service satellite
IP Packets Received	Data received by the modem
EIRP	Output power of the antenna
Attenuator	Set by the hub; should be greater than 12 dB
Errors	Dropped data packets; should not be incrementing in large numbers
IP Packets Transmitted	Data transmitted by the modem

Viewing Status Information on the Control Unit

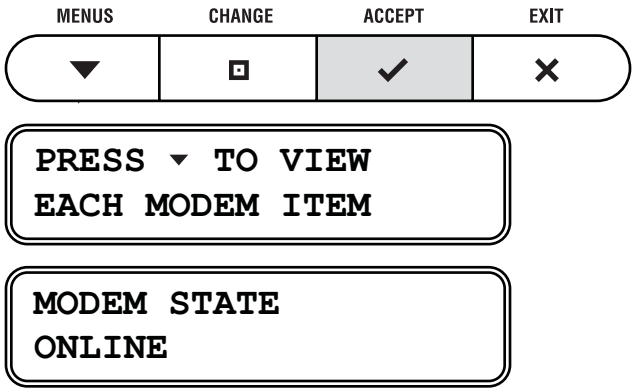
If you are unable to view the status information screens on the modem's web interface, you can also view system status information on the control unit's display. You can select either modem or antenna status information from the main menu.

Modem Status Information

1. Press ▼MENUS until the display shows "MODEM STATUS."



2. Press ✓ACCEPT to start viewing the modem status screens.



3. Press ▼MENUS to scroll forward through the status messages. Press ⊡CHANGE to scroll backward. When you are done reviewing status messages, press ×EXIT.

Modem Status Messages

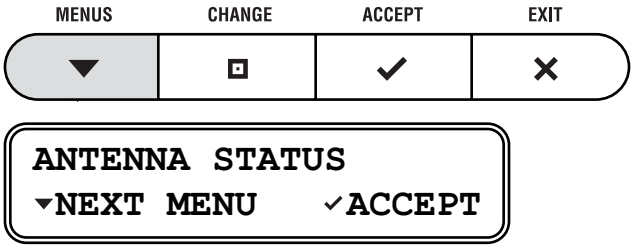
The table below lists all of the modem status messages.

Status Message	Description
MODEM STATE ONLINE	General status of the modem: • Online - Modem is connected to the mini-VSAT Broadband service • Offline - Modem is not connected to the service • Initializing • Attempting Login • Waiting for Hub Comm • Transmit Disabled
ETHERNET LAN STATUS LINK OK	Status of the Ethernet local area network (LAN) connection: • Link OK • Link Down
SERVICE SATELLITE 72.5W	Satellite currently selected for mini-VSAT Broadband service
DOWNLINK FREQUENCY 11.840 GHZ	Frequency of the satellite downlink (in GHz)
DOWNLNK POLARIZATION HORIZONTAL	Polarization of the satellite downlink: • Horizontal Linear • Vertical Linear
EB/NO 8.6 Db	Quality of the received signal; Eb/No = Energy per bit/noise power per Hertz; must be greater than 2 dB for operation
MODEM SATELLITE IP 10.61.4.9	External IP address of the modem; identity of the modem on the mini-VSAT Broadband network (10.61.4.0 - 10.61.7.255)

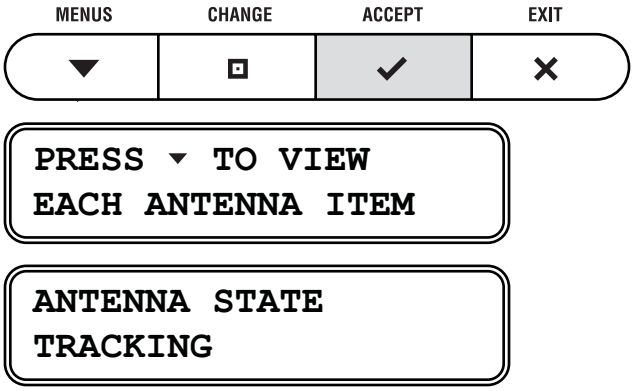
Status Message	Description
MODEM LAN IP 192.168.0.1	Local IP address of the modem on the vessel's LAN
MODEM SUBNET MASK 255.255.255.0	Subnet mask of the vessel's LAN that is connected to the modem
MODEM DHCP STATUS ENABLED	Status of the modem's DHCP server: • Enabled - Modem is assigning IP addresses to clients on the LAN • Disabled - IP addresses must be assigned manually to each client on the LAN
MODEM TEMPERATURE 50C	Temperature of the modem chassis
MODEM SERIAL # 4.9	Modem serial number
MODEM SW VERSION r12_34	Modem software version

Antenna Status Information

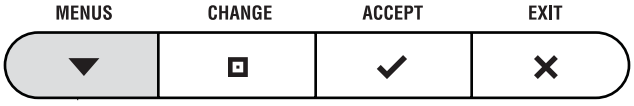
1. Press ▼MENUS until the display shows "ANTENNA STATUS."



2. Press ✓ACCEPT to start viewing the antenna status screens.



3. Press ▼MENUS to scroll forward through the status messages. Press ⊡CHANGE to scroll backward. When you are done reviewing status messages, press ×EXIT.



Antenna Status Messages

The table below lists all of the status messages.

Status Message	Description
ANTENNA STATE TRACKING	General status of the antenna: • Tracking • Searching • Initializing • Waiting for Modem • Cable Unwrap - Unwrapping the internal cable; the cable can wrap up to 720° • Idle • Error
CURRENT SATELLITE 72.5W	Satellite the antenna is currently tracking
AZ/EL TO SATELLITE AZ:234.5, EL:67.2	Azimuth and elevation to the service satellite, relative to the antenna's "Forward" arrow (bow)
SATELLITE SKEW -78.4	LNB skew angle required to receive linear satellite signals
GPS STATUS 41.2N, 123.5W	Status of the antenna's GPS: • Position data - Latitude/ longitude reported by the GPS • Acquiring • Comm Failure
RF HAZARD ZONE 1 335-025	Current setting for RF hazard zone #1
RF HAZARD ZONE 2 225-265	Current setting for RF hazard zone #2
XMT IN ZONES NO	Current setting for XMT in Zones: • No - Transmission is inhibited if antenna points within a zone • Yes - Transmission unrestricted

Status Message	Description
ANTENNA DC INPUT 41.2 VDC	DC voltage measured at the antenna's circuit board
CTRL UNIT DC INPUT 13.4 VDC	DC voltage measured at the control unit's power input
BUC POWER ON 18.4 VDC	Status of the antenna's BUC (transmit) power: • On - BUC power is applied; also reports actual measured power • Off - BUC power is disabled
ANTENNA MODEL TRACPHONE V7	Antenna model
ANTENNA SERIAL # 070901234	Antenna serial number
ANTENNA MAIN BOARD SW VERSION 2.34	Main software version
ANTENNA RF BOARD SW VERSION 1.23	RF software version
ANTENNA AZ/EL MOTOR SW VERSION 1.28	Azimuth/elevation motor software version
ANTENNA SKEW MOTOR SW VERSION 1.04	Skew motor software version
CTRL UNIT SERIAL # 070902147	Control unit serial number
CTRL UNIT SW VERSION 2.14	Control unit software version

Calibrating the Antenna Gyros

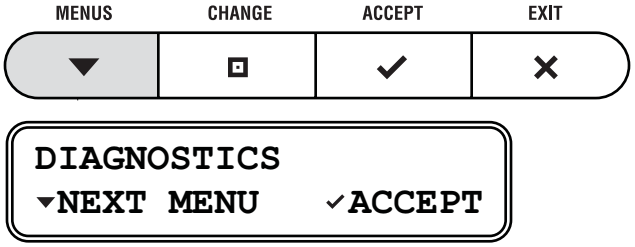
The TracPhone antenna's gyros continuously measure the motion of your vessel and send this data to the antenna's motor control circuitry to keep the antenna pointed at the satellite. At the factory, each antenna gyro is precisely calibrated to work with the antenna's circuit board. Therefore, if you ever have a gyro or circuit board replaced, you will need to recalibrate the gyros for the new part.

IMPORTANT!

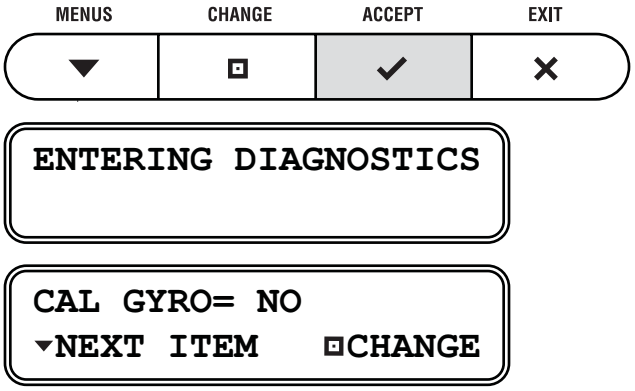
Calibrate the gyros only if directed by KVH Technical Support, and only while the vessel is stationary. A poor gyro calibration can reduce the performance of the antenna.

Follow the steps below to calibrate the gyros.

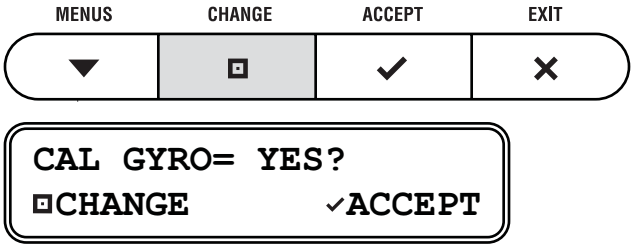
1. Press ▼MENUS until the display shows "DIAGNOSTICS."



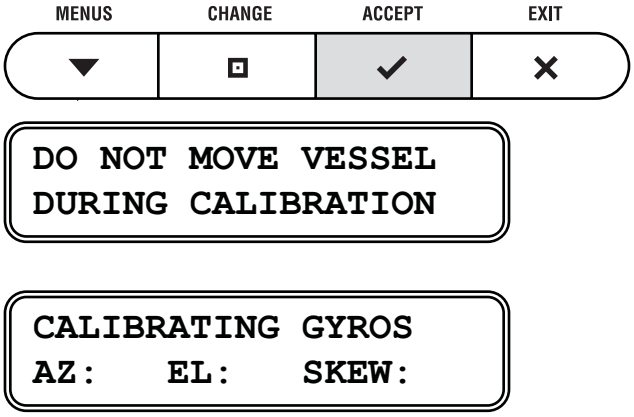
2. Press ✓ACCEPT to enter the Diagnostics menu.



3. Press ⊡CHANGE until the display shows "CAL GYRO= YES."



4. Press ✓ACCEPT to start gyro calibration.



5. Verify that the azimuth (AZ), elevation (EL), and skew gyros all pass ("P"). If any gyro fails ("F"), retry the calibration. If it continues to fail, please seek technical support (see *"Technical Support" on page 65*).

6. Once the gyros are calibrated, the antenna restarts. Wait five minutes for system startup.

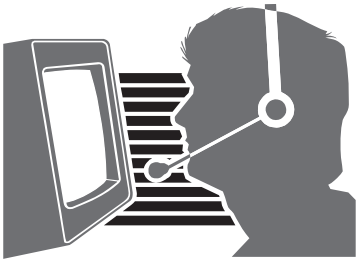
Technical Support

The TracPhone V7 system is a sophisticated electronic device; only specially trained KVH-certified technicians have the tools and expertise necessary to diagnose and repair a system fault. Therefore, if you experience an operating problem or require technical assistance, please call or visit your local authorized TracPhone V7 dealer or distributor. You can find a certified technician near you by visiting our website at *www.kvh.com/wheretogetservice*.

If you need help finding an authorized technician, please contact KVH Technical Support:

North/South America, Australia:
Phone: +1 401 847-3327
E-mail: techs@kvh.com

Europe, Middle East, Asia:
Phone: +45 45 160 180
E-mail: support@kvh.dk



Please have your system serial numbers handy before you call. You can get these serial numbers from the control unit's Modem Status and Antenna Status menus.

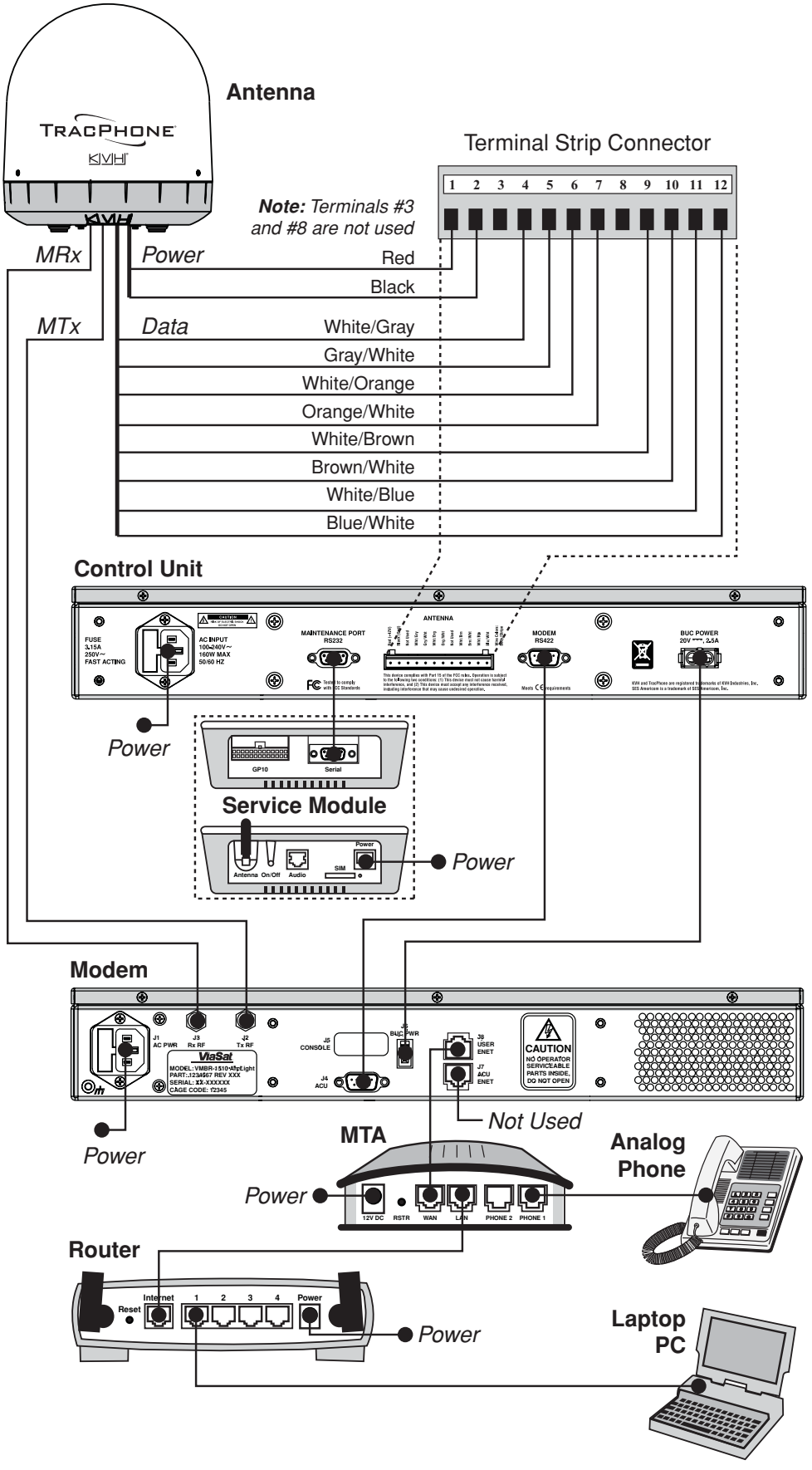
Appendix A
Wiring Diagram

This appendix provides a system wiring diagram. For detailed installation instructions, refer to the Installation Guide.

Contents

A

Wiring Diagram



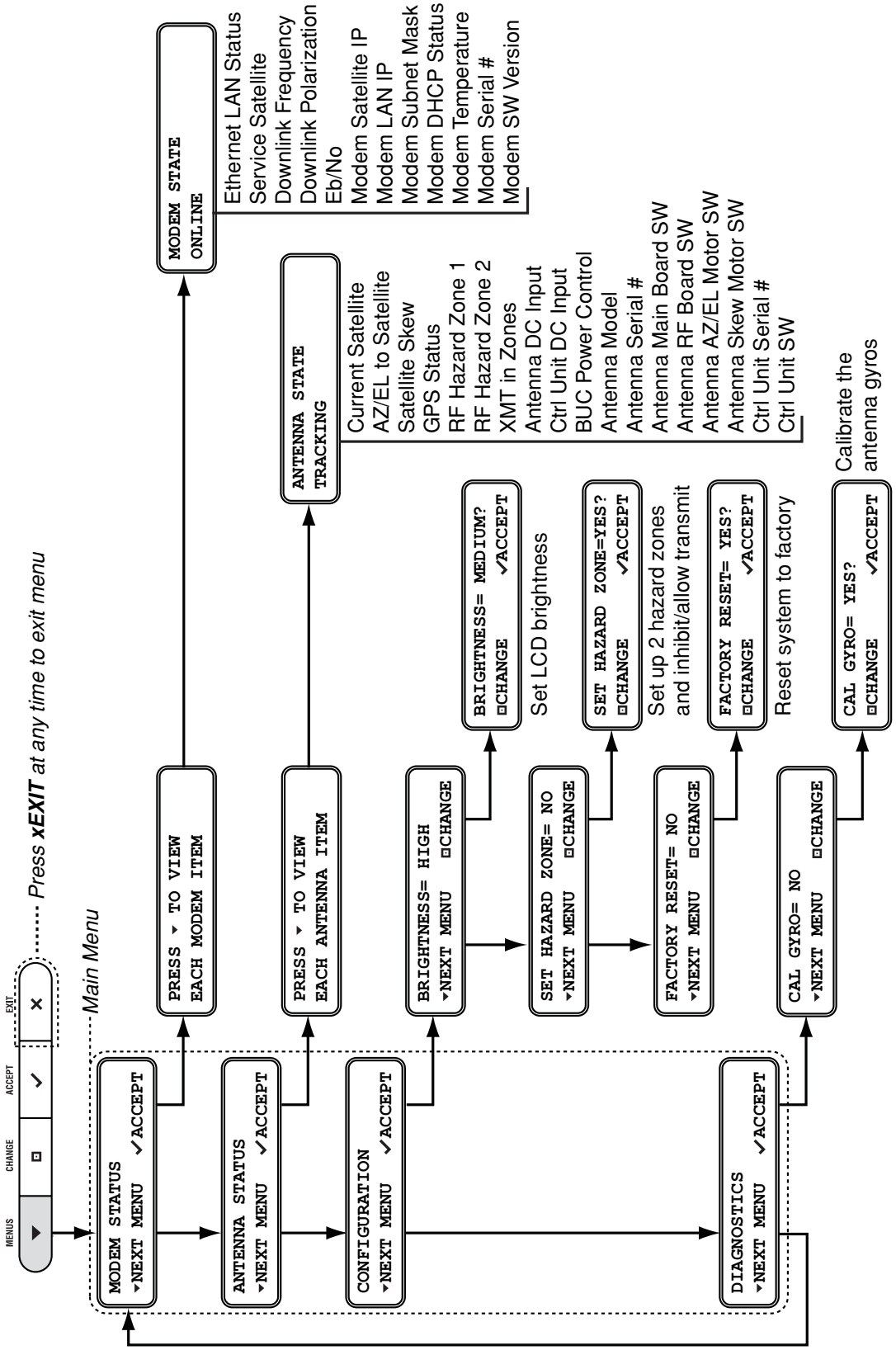
Appendix B Menus Quick Reference Guide

This appendix provides a quick reference guide to the control unit menus.

Contents

B

Menus Quick Reference Guide



Appendix C Glossary

This appendix provides a glossary of technical terms used throughout this manual.

Contents

C

Glossary

10BaseT

Ethernet standard using twisted pair cabling (such as CAT5). Supports a maximum data rate of 10 Mbps.

100BaseT

Fast Ethernet standard using twisted pair cabling (such as CAT5). Supports a maximum data rate of 100 Mbps.

802.11

Wireless network communications standard commonly used in LANs.

AC

Alternating Current.

AGC

Automatic Gain Control. Function that automatically boosts the gain of a received signal, as required, to maintain a constant output level. Indicates RF level.

Analog Phone

Standard telephone, also referred to as POTS (Plain Old Telephone Service). Voice signals are converted into electrical pulses by modulating a carrier signal.

AZ

Azimuth angle. Horizontal direction (0°-360°) in which the antenna points.

BUC

Block Up-Converter. Device that converts the intermediate frequency signal from the modem to a Ku-band frequency and amplifies it for transmission.

Bulletin Board

Communications from the hub to all terminals within its network.

CAT5

Category of twisted pair cable with a maximum data rate of 1,000 Mbps.

Chassis

The outside enclosure of an electronic device.

Crossover Cable

Cable in which the pins are reversed from one end to the other. Used for connecting two computers back-to-back without using an Ethernet hub.

Data Rate

Speed at which a communications path can transfer information, normally measured in bits per second (bps).

bps

Bits per second.

dB

Decibel. Ratio of one power level to another.

DC

Direct Current.

DHCP

Dynamic Host Configuration Protocol. IP protocol that allows a server to automatically assign IP addressing information to a networked computer or device.

DNS

Domain Name Service. IP service that translates domain names (such as "www.kvh.com") into IP addresses (such as "63.105.58.10").

Downlink

Communication path from the satellite to the antenna.

DVB

Digital Video Broadcasting project. Global standard of digital broadcasts.

Eb/No

Ratio of Energy-per-bit to Noise power spectral density. The signal-to-noise ratio of a digital signal.

EIRP

Effective Isotropic Radiated Power, measured in dBW.

EL

Elevation angle. Vertical direction (5°-80°) in which the antenna points.

Encryption

As it applies to WiFi, encoding of a wireless signal to protect it from unauthorized reception.

Ethernet

Network communications standard adopted by most LANs. Communicates via twisted pair cable at one of three maximum data rates: (1) Standard - 10 Mbps, (2) Fast - 100 Mbps, and (3) Gigabit - 1 Gbps (1,000 Mbps).

Firewall

Security mechanism that protects a network from unauthorized access.

Footprint

Coverage area of a satellite.

Forward Link

Communication path from the satellite hub to the user terminal. Another term for "Downlink."

Frequency

Number of cycles per second of a radio wave, measured in Hertz (Hz).

GPRS

General Packet Radio Service. High-speed wireless data communications standard.

GPS

Global Positioning System. Network of satellites that allow anyone with a GPS device to accurately fix their position on Earth.

Gyro

A device that precisely senses and measures motion in a single axis, such as elevation or azimuth.

Host

Any computer connected to a network.

HTTP

HyperText Transfer Protocol. The primary protocol for the World Wide Web.

Hub

Earth station that links the satellite network to the terrestrial network.

IF

Intermediate Frequency. As it applies to TracPhone V7, L-band output of an LNB, or input to a BUC.

Internet

Global network connecting a vast number of networks and computers.

IP Address

Unique network identifier assigned to a single computer or device on a network. Consists of four eight-bit numbers, each between 0 and 255 (for example, "195.172.7.2").

Kbps

Kilobits (1,000 bits) per second.

Ku-band

Range of frequencies from 12 GHz to 18 GHz.

LAN

Local Area Network. A relatively small group of computers and devices linked together within close proximity to each other and usually on the same IP network.

L-band

Range of frequencies from 950 MHz to 2150 MHz.

LNB

Low Noise Block down-converter. Device that converts and amplifies a Ku-band satellite signal into an intermediate frequency (IF) L-band signal.

MTA

Multimedia Terminal Adapter. Device that converts analog telephone signals into VoIP signals.

MAC Address

Media Access Control Address. Unique six-byte hardware identifier assigned to every network interface card (NIC). Used in most LAN configurations to ensure the correct addressing of data to specific hosts.

Mbps

Megabits (1,000,000 bits) per second.

Modem

Modulator-demodulator. Translates digital signals into analog signals and vice-versa.

Network

A group of computers and devices (such as printers) linked together.

Network Operations Center (NOC)

Station that maintains and manages a telecommunications network.

NIC

Network Interface Card. Expansion or built-in circuit card that provides a computer with network communication capabilities.

Packet

Part of a data message transmitted over a network. Also contains the address of the destination for routing purposes. *(Data messages are divided into packets, sent over a network, then reassembled in the correct order at the destination.)*

PCI

Peripheral Component Interconnect. Bus standard that supports high-speed connections between computers and peripheral devices.

PCMCIA

Personal Computer Memory Card International Association. Organization that establishes standards for PC cards, credit card-sized memory or input/output devices, primarily used in laptops.

Ping

Software utility used to check a network connection. Sends a test packet to the designated address and reports how long it takes to receive a response.

Polarization

Orientation of a satellite signal. Circular polarization, which has a "corkscrew" propagation path, consists of left-hand (LHCP) and right-hand (RHCP) signals. Linear polarization consists of vertical and horizontal signals offset by 90 degrees.

Protocol

Standard that establishes strict rules for how data is communicated over a network.

Return Link

Communication path from the antenna to the satellite. Another term for "Uplink."

RF

Radio Frequency.

RJ45

Registered Jack 45. Eight-wire network cable connector for LANs. Similar to a telephone jack.

Router

Device that connects multiple IP networks. For each data packet it receives that is destined for another IP network, determines the best path to reach its destination.

RSSI

Receive Signal Strength Indicator. Indicates the strength of the received satellite signal. The modem supplies this data to the control unit for tracking purposes.

Rx

Receive.

Skew

Adjustment angle to orient an LNB with a linearly polarized satellite signal.

Spread Spectrum

A type of communication method by which the information signal energy is spread over a frequency band much wider than the minimum bandwidth required for transmitting the information.

SSID

Service Set Identifier. Unique identifier shared by all computers and devices on a single wireless network.

Straight-through Cable

Cable in which the pins at one end match the pins at the other end.

Subnet

Subdivision of a network based on IP address. For example, with a subnet mask of "255.255.255.0," all computers and devices assigned an IP address starting with "195.172.8" belong to one subnet (there are 255 possible). An IP address starting with "195.172.9" designates a different subnet.

Subnet Mask

Divides the latter portion of an IP address into subnet and host designations. For example, in a regular class B network, the first two numbers in an IP address define the network ID while the last two numbers define the host ID (the individual computer or device on that network). A subnet mask changes the format of these last two numbers by designating the third number as the subnet ID and designating the last number as the host ID (the computer or device *within that subnet*).

SW

Software.

Switch

Device that connects two segments of a LAN. Routes data from one segment to another based on the MAC address of the destination.

TCP/IP

Transmission Control Protocol/Internet Protocol. Two communications protocols for the Internet. IP handles the delivery of data packets over the Internet; TCP ensures that all data packets are successfully delivered and assembled in the proper order.

Twisted Pair

Cable type consisting of multiple pairs of cable in which two wires are spiraled together to reduce electromagnetic noise. Can be either shielded (STP) or unshielded (UTP). Used extensively in LANs and telephone networks.

Tx

Transmit.

URL

Uniform Resource Locator. Address of a web page or file on the World Wide Web. Consists of three parts: (1) protocol (such as "http"), (2) IP address or domain name (such as "www.kvh.com"), and (3) name of the web page or file to be retrieved from that address (such as "index.html").

USB

Universal Serial Bus. Bus standard for connecting peripheral devices to a computer. Supports a data rate of 12 Mbps.

UTP

Unshielded Twisted Pair. Cable consisting of four twisted pairs (8 wires), usually terminated by RJ45 connectors. Commonly used in LANs.

VoIP

Voice over Internet Protocol. Allows telephone conversations to be routed via the Internet.

VSAT

Very Small Aperture (< 3m) Terminal. Communications system in which multiple users connect via satellite to a single land-based hub, which handles the routing of all network traffic.

WAN

Wide Area Network. A group of computers, devices, and possibly LANs, linked together over a large geographic area.

WAP

Wireless Network Access Point. Device that links computers wirelessly to a LAN. To communicate with the WAP, each computer needs a properly configured wireless network card.

WEP

Wired Equivalent Privacy. Security mechanism for wireless networks. Encrypts data to protect it from unauthorized interception.

WiFi

Wireless Fidelity. Refers to an 802.11 wireless network.

WINS Resolution

Windows Internet Naming Service Resolution. Organizes the names of all Windows computers in a network with their respective IP addresses. Similar function to DNS.

Wireless Network Card

PCI or PCMCIA card that provides a computer with wireless access to a LAN via a WAP.

Xponder

Transponder. Component of a satellite that receives radio transmissions from Earth, amplifies them, and retransmits them back to Earth on a different frequency.

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Kokkedal Industripark 2B 2980 Kokkedal Denmark
Phone: +45 45 160 180 Fax: +45 45 160 181
E-mail: info@kvh.dk Internet: www.kvh.com