

A Guide to Tracphone 252/50

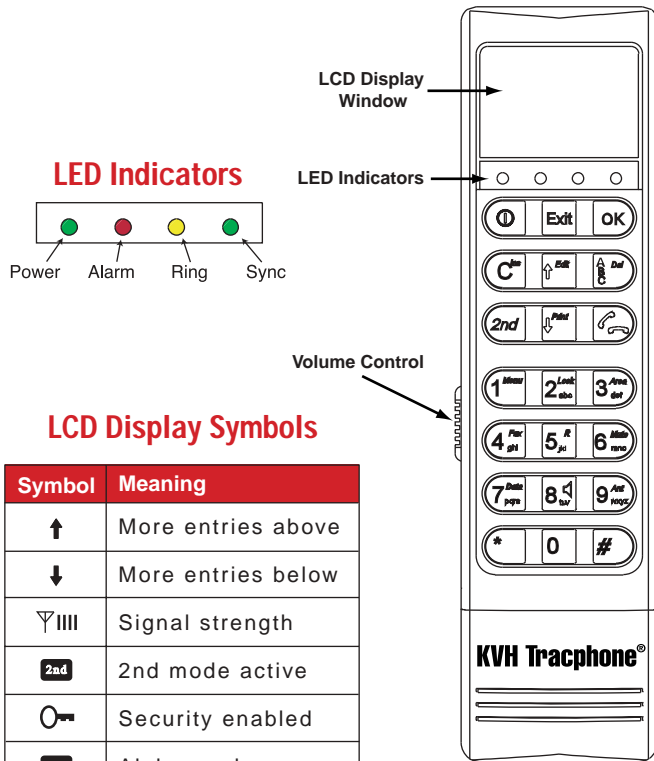
user's guide

- Operating Instructions



KVH Tracphone® 252/50

KVH Tracphone 252/50 Quick Reference Guide



LCD Display Symbols

Symbol	Meaning
↑	More entries above
↓	More entries below
∇ IIII	Signal strength
2nd	2nd mode active
Key icon	Security enabled
ABC	Alpha mode on
↕	Toggle field
Speaker icon	Speaker on
Phone icon	Hook off
Envelope icon	New message

Key	Normal Mode	2nd Mode
Power	Power on/off	
Exit	Exit menu/cancel selection	
OK	Accept selection	
Clear/Backspace	Clear/backspace	Insert entry
Move Up	Move up one selection	Edit entry
Enter/Exit Alpha mode	Enter or exit Alpha mode	Delete entry
2nd	Enter or exit 2nd mode	
Move Down	Move down one selection	Print current topic
Answer/End Call	Answer or end a call	
1 Menu	1	Enter the main menu
2 Lock	2	Enter or exit Lock mode
3 Area	3	Select an ocean area
4 Fax	4	Start a fax call
5 R	5	Re-route (transfer) a call
6 Mute	6	Mute
7 Data	7	Start a data call
8 Speaker	8	Turn speaker on/off
9 Ant	9	Not used

Making a Telephone Call

Step:

- Turn on the system.
- Enter the prefix for an international call.
- Enter the country dial-in code.
- Enter the area/city code and phone #.
- Start the call.
- End the call.

Example:

①

0 0

1 Menu

4 Fax 0 1 Menu 5 R 5 R
5 R 1 Menu 2 Lock 3 Area 4 Fax
gh gh jci jci abc det gh

#

Phone icon

Sending a Fax

Step:

- Turn on the system.
- Get a dial tone.
- Enter the prefix for an international call.
- Enter the country dial-in code.
- Enter the area/city code and phone #.
- Start the call.
- Start sending the fax.
- End the call.

Example:

①

Press the fax machine's hook-key.

0 0

4 Fax 5 R
gh jci

4 Fax 5 R 1 Menu 6 Mute 0
gh jci jci menu

1 Menu 9 Ant 8 Speaker
Menu key speaker

(on fax machine) - or -
2nd 4 Fax (on handset)
gh

Press START on the fax machine.

Hang up the fax machine.

Calling a Number from the Phone Book

Step:

- Turn on the system.
- Enter the short code prefix.
- Enter the short code for □ desired phone #.
- View the phone #.
- Start the call.
- End the call.

Example:

①

*

0 5 R
gh jci

#

#

Phone icon

Tracphone 252 & 50

User's Guide

Congratulations on your choice of the Tracphone 252/50, one of the most advanced mobile Inmarsat mini-M satellite communications systems available today. This user guide provides all of the basic information required to use your system and to communicate via voice, fax, or e-mail. Detailed installation, configuration, and maintenance information is provided in the *Installation and Technical Manual*.

Throughout this manual, important information is marked for your attention by these icons:



A helpful tip that either directs you to a related area within the manual or offers suggestions on getting the highest quality out of your system.



An alert to important information regarding procedures, product specifications, or product use.



Information about installation, maintenance, troubleshooting, or other mechanical issues.



An electrical safety warning to help identify electrical issues that can be a hazard to either this KVH product or a user.

Direct questions, comments, or suggestions to:

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E-mail: info@kvh.dk
Internet: www.kvh.com



Tracphone 252/50
Serial Number



This serial number will be required for all troubleshooting or service calls made regarding this product.

[Click here to go to our state-of-the-art Customer Support web page...the fastest and easiest way to get all of your questions answered!](#)



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Table of Contents

1	Introduction	1-1
1.1	Tracphone 252/50 System Overview	1-1
1.1.1	Tracphone Components.....	1-1
1.1.2	Tracphone System Configurations	1-2
1.2	Materials Provided with Tracphone System	1-4
2	Using Your Tracphone 252/50	2-1
2.1	Using the Handset.....	2-1
2.2	Turning the System On/Off.....	2-3
2.3	Making and Receiving Voice Calls.....	2-4
2.3.1	Making a Telephone Call.....	2-4
2.3.2	Receiving a Telephone Call.....	2-5
2.3.3	Transferring a Call.....	2-5
2.3.4	Local Calling.....	2-5
2.4	Sending and Receiving a Fax.....	2-6
2.4.1	Sending a Fax.....	2-6
2.4.2	Receiving a Fax.....	2-7
2.5	Calling Another Inmarsat Subscriber	2-7
2.6	Sending and Receiving E-mail	2-7
2.7	Using the Phone Book	2-8
2.7.1	Dialing a Number from the Phone Book	2-8
2.7.2	Dialing a Number Using the Short Code	2-8
2.7.3	Adding an Entry to the Phone Book	2-9
2.7.4	Editing an Entry in the Phone Book.....	2-10
2.7.5	Deleting an Entry from the Phone Book	2-10
2.7.6	Printing the Phone Book.....	2-10
2.8	Emergency Calls	2-11
2.9	Service Codes.....	2-11
2.10	Using the Mailbox.....	2-11

2.11	Security Features	2-12
2.11.1	SIM Cards	2-12
2.11.2	Terminal PIN codes	2-13
2.12	The Call Log	2-13
3	Troubleshooting	3-1
3.1	Causes and Remedies for Common Operational Issues	3-1
3.1.1	Satellite Signal Blocked	3-2
3.1.2	Outside Satellite Coverage Zone	3-2
3.1.3	Incorrect LES Selected	3-2
3.1.4	Equipment and/or Connection Problem	3-3
3.1.5	Change in Satellite Download Data	3-3
3.1.6	System-defined Problems	3-3
3.1.7	Service Provider Issues	3-3
Appendix A	Ocean Region Coverage Maps	A-1
Appendix B	LES Service Codes	B-1

List of Figures

Figure 1-1	Tracphone Identifies and Compensates for Vessel Motion	1-1
Figure 1-2	Tracphone Antenna Units	1-1
Figure 1-3	Tracphone 252 System Configuration.....	1-3
Figure 1-4	Tracphone 50 System Configuration.....	1-3
Figure 2-1	Tracphone Handset	2-1
Figure 2-2	Handset LED Indicators	2-2
Figure 3-1	Troubleshooting Matrix	3-1

List of Tables

Table 2-1 Handset LCD Display Symbols 2-2

Table 2-2 Handset Key Functions 2-3

Table 2-3 Ocean Regions..... 2-3

Table 2-4 Ocean Region Codes 2-7

Table 2-5 Sample Call Log Entry Data 2-14

Table B-1 LES Service Codes B-1

1 Introduction

Your new Tracphone 252/50 satellite communications system links you to the Inmarsat mini-M network, the worldwide leader for maritime satellite communications. With Inmarsat mini-M's near-global coverage, you can reliably communicate via voice, fax, or data from nearly anywhere on earth.

1.1 Tracphone 252/50 System Overview

Your KVH Tracphone employs a state-of-the-art actively stabilized antenna system. Once the correct satellite is acquired, the system continuously measures the vessel's heading, pitch, and roll. Using this data, it transmits commands to the antenna motors to keep the antenna pointed at the satellite.

1.1.1 Tracphone Components

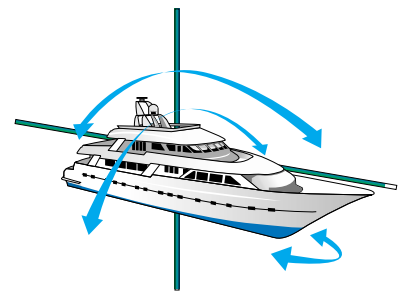
There are four key components in your Tracphone system:

1. The Antenna Unit
2. The RF Transceiver
3. The Handset and Cradle Assembly
4. The Fax/Phone Switch

Antenna Unit

The antenna unit includes the antenna positioning mechanism, transmit/receive amplifier, sensor, and control elements. A molded ABS radome encloses the baseplate, sealed by a neoprene foam gasket. Weathertight connectors on the baseplate connect the antenna to below-decks equipment.

*Figure 1-1
Tracphone Identifies and
Compensates for Vessel Motion*



*Figure 1-2
Tracphone Antenna Units*



RF Transceiver

The RF transceiver (transmitter/receiver) is the hub of the Tracphone system. It interfaces all communication devices to the RF transmission/reception components, initiates the satellite search, and in Tracphone 252 systems, provides power to the antenna unit. It also includes a slot for Subscriber Identity Module (SIM) card use.

Handset and Cradle Assembly

The handset is the Tracphone's user interface. Its liquid crystal display, LED indicators, and pushbuttons allow you to configure and operate all aspects of the system.

Fax/Phone Switch

The Fax/Phone Switch connects all peripheral devices, such as an auxiliary phone (PABX), fax machine, and computer, to the communications system.

1.1.2 Tracphone System Configurations

The configurations of the Tracphone 252 and Tracphone 50 systems are nearly identical. The only difference is the Tracphone 252 antenna receives its power through the transceiver connection, while the Tracphone 50 requires a separate connection to vessel power.

Figures 1-3 and 1-4 on the next page illustrate the system configurations.

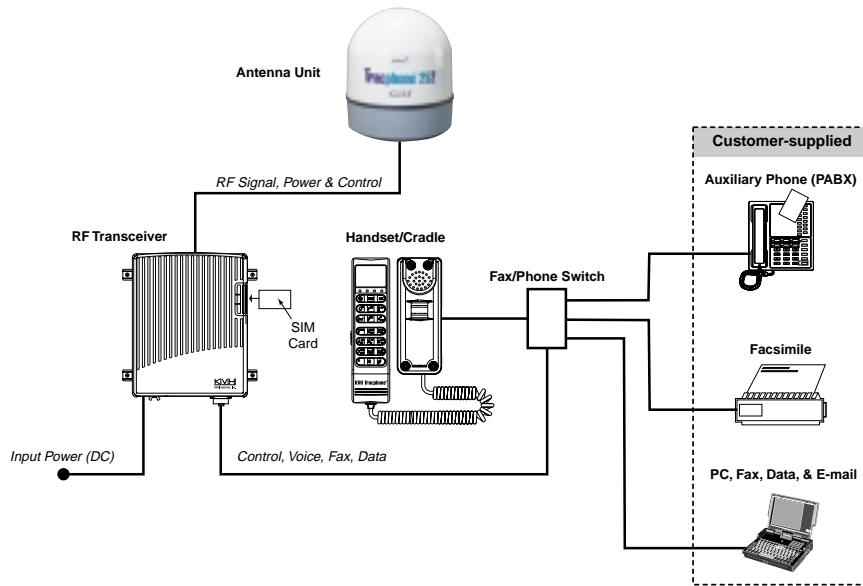


Figure 1-3
Tracphone 252 System
Configuration

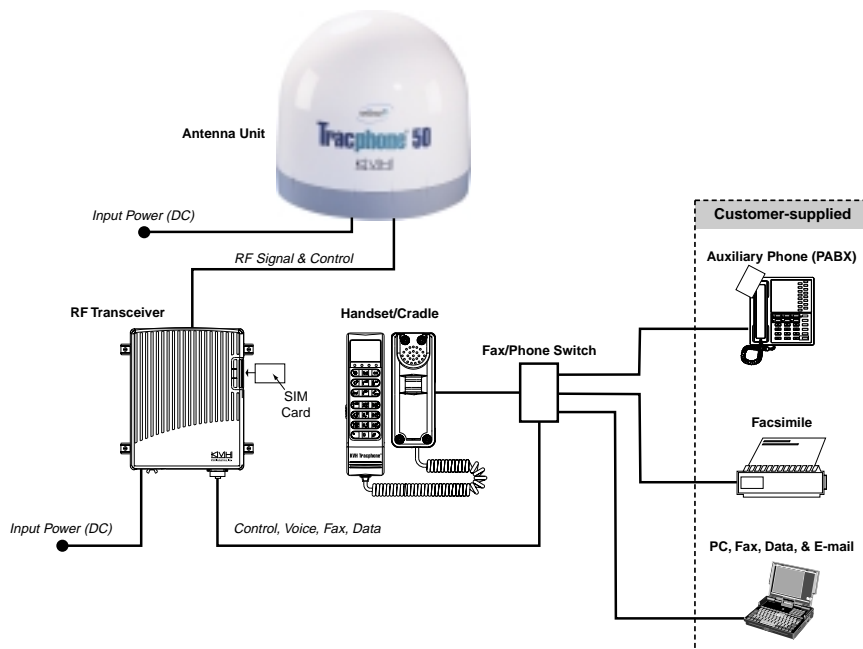


Figure 1-4
Tracphone 50 System
Configuration

1.2 Materials Provided with Tracphone System

Your Tracphone is shipped with the following components:

- Antenna Unit
- Transceiver
- Handset
- Cradle
- Fax/Phone Switch
- RF Cable (*Tracphone 252 only*)
- *Tracphone 252/50 User's Guide*
- *Tracphone 252 Technical Manual or Tracphone 50 Technical Manual*
- Installation Kitpack



Your installer should provide the necessary DC power cables.

2 Using Your Tracphone 252/50

The Tracphone system is easy to use. In fact, satellite communication is similar to placing an international call from a cellular telephone. The difference is your call takes a different path, namely through a satellite, Network Coordinating Station (NCS), and Land Earth Station (LES). The antenna unit initializes and acquires the satellite automatically, requiring no operator intervention. And as long as a clear line of sight to the satellite is maintained, the antenna will continue to track the proper satellite.

2.1 Using the Handset

You can operate and configure the Tracphone system using just the handset.

The LCD Display

The LCD display uses messages and icons to convey the Tracphone's current status. For example, when you're making a phone call, the display shows the number to be called, then the connection process, and lastly the call's duration. When you're using the menu system, the display indicates the current menu item and any corresponding data or selections.

In addition to plain text messages, the LCD display includes symbols that illuminate when certain conditions exist. Table 2-1 on the next page lists all of these symbols and their meanings.

Figure 2-1
Tracphone Handset

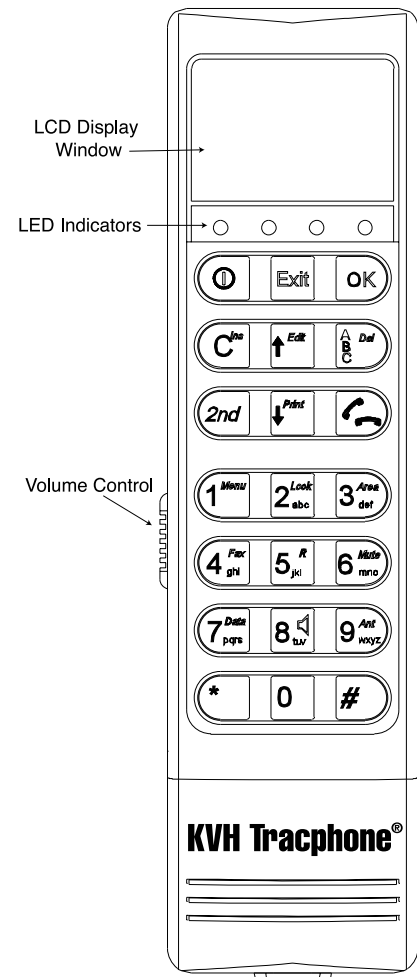


Table 2-1
Handset LCD Display Symbols











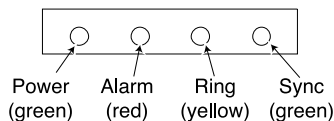
Symbol	Description
↑	More entries above (Press  to access)
↓	More entries below (Press  to access)
∇ III	Signal strength
	 mode active
	Security enabled (Must enter a PIN code to operate)
	Alpha mode on (Alphabetic text may be entered)
↕	Toggle field (Use   keys to scroll)
◀	Speaker on
	Handset is off-hook
	New message (The LES has a message for you)

Figure 2-2
Handset LED Indicators



LED Indicators

Under the LCD display are four LED indicators (see Figure 2-2):

1. POWER – Lights steadily when the power is on.
2. ALARM – Lights steadily when an alarm condition exists.
3. RING – Flashes when the terminal is ringing. Lights steadily during a call.
4. SYNC – Lights when the terminal is synchronized with the satellite network.

The Handset Keypad

The handset keypad is the Tracphone's primary user interface. You use it not only to make voice calls, but also to navigate through the menu system. Alphanumeric data, telephone numbers, configuration options, and menu selections can all be entered through the keypad.



Most of the keys have several functions, depending on the mode. To enter letters instead of numbers, press the  button first, then the numeric key until the desired letter is displayed. After a two-second delay, the display advances to the next available space.

Table 2-2 lists all the main keys and their functions. *To activate the 2nd mode, press .*




















Key	Normal Mode	2 nd Mode
	Power on/off	
	Exit menu/cancel selection	
	Accept selection	
	Clear/backspace	Insert entry
	Move up one selection	Edit entry
	Enter or exit Alpha mode	Delete entry
	Enter or exit 2 nd mode	
	Move down one selection	Print current topic
	Answer or end a call	
	1	Enter the main menu
	2	Enter or exit Lock mode
	3	Select an ocean area
	4	Start a fax call
	5	Re-route (transfer) a call
	6	Mute
	7	Start a data call
	8	Turn speaker on/off
	9	Not used
	0	Emergency menu

Table 2-2
Handset Key Functions

2.2 Turning the System On/Off

Turning On the Tracphone System



1. Press the  key on the handset (see Figure 2-1).
2. If your system's security feature is enabled, the handset display prompts you for the Personal Identification Number (PIN) code. Using the handset keypad, enter the PIN code. If the code is less than eight digits, press  when done.
3. In three minutes, the handset should indicate the selected Ocean Region and LES Station. If the handset continues to display "Wait for NCS," try switching to the best Ocean Region for your position (see [Appendix A](#) for Ocean Region coverage maps).

Table 2-3
Ocean Regions

Ocean Region	Code
Atlantic Ocean Region-West	AORW
Atlantic Ocean Region-East	AORE
Pacific Ocean Region	POR
Indian Ocean Region	IOR

To change the Ocean Region:

- A. Press **[2nd]** **[3^{Area}_{def}]** to bring up the Ocean Region list. An asterisk (*) indicates the current selection.
- B. Using the **[Left]** **[Right]** keys, scroll to place the asterisk next to the desired region.
- C. Press **[OK]** to accept your selection.
- D. The antenna re-initializes and searches for the proper satellite.

Once the Ocean Region and LES Station appear in the handset window, and the green SYNC indicator illuminates, the system is ready for use.

Turning Off the Tracphone System

Press and hold the handset's **[Power]** key for three seconds. The handset will display a countdown before powering off.

2.3 Making and Receiving Voice Calls

You can use the handset to make and receive calls, or you may use any phone connected to the system.

2.3.1 Making a Telephone Call

1. Enter the prefix for an international call (**[0]** **[0]**).
2. Enter the country dial-in code (e.g., **[1]** for USA).
3. Enter the area/city code and telephone number (e.g., **[4]** **[0]** **[1]** **[5]** **[5]** **[5]** **[1]** **[2]** **[3]** **[4]**).
4. Press **[#]** to start the call.

The handset display shows the status of the call:

Handset
calling

Handset-LES
connected

Example:

To call KVH on the Tracphone:
Dial 00-1-401-847-3327



To enable/disable the external speaker (if connected), press **[2nd]** **[8^{Spe}_{lvr}]**. To mute/reactivate the hands-free microphone (if connected), press **[2nd]** **[0^{Mute}_{mic}]**.

Handset-Ph.
connected

5. Press  to end the call.

The handset display shows the duration of the call:

Call logged
0:02:24





You can store frequently dialed phone numbers in the system's phone book. These numbers may later be auto-dialed by entering a two-digit short code. [Section 2.7, "Using the Phone Book"](#) provides details.

2.3.2 Receiving a Telephone Call

The handset rings and the yellow RING indicator flashes.

1. To answer the call, lift the handset off the cradle.
2. To end the call, replace the handset on the cradle.




2.3.3 Transferring a Call

You can transfer an incoming or outgoing call from the handset to an auxiliary telephone. Simply press   on the handset. To transfer a call from the auxiliary phone to the handset, flash the hook switch (i.e., very quickly disconnect/reconnect the phone connection).

2.3.4 Local Calling

You can call the connected auxiliary phone from the handset and vice versa. These local calls are not billed by your service provider and are not logged in the system's call log.

Calling Another Onboard Location:

1. Enter the local call code ( for the handset,  for the auxiliary phone).
2. Press  to start the call.



Your fax machine may operate differently from the general procedure outlined below. Refer to your fax machine's user manual for additional information.

Example:

To fax KVH using the Tracphone:
Dial 00-1-401-849-0045

2.4 Sending and Receiving a Fax

2.4.1 Sending a Fax

If your fax machine has its own keypad, you can send a fax directly from the machine (as long as the fax machine is connected to the system). Follow the procedure below. If your fax machine does not have its own keypad, you can use the Tracphone handset to start a fax call.

1. Press the fax machine's hook-key to get a dial tone.
2. Enter the prefix for an international call (0 0).
3. Enter the country dial-in code (e.g., 4 5 for Denmark).
4. Enter the area/city code and fax number (e.g., 4 5 1 6 0 1 9 8).
5. To start the call:

Press # if using the fax machine's keypad.

- or -

Press 2nd 4^{Fax} if using the Tracphone handset.

6. Press the fax machine's **Start** key to start sending the fax.
The Tracphone handset display shows the status of the fax:

Fax c <u>alling</u>

Fax-LES c <u>on</u> nected

Fax-Fax c <u>on</u> nected

Negotiating -

Sending page 1

Page 1 c <u>on</u> firm <u>e</u> d

Sending
successful

- Place the fax machine on the hook to end the call.

The handset display shows the duration of the call:

Call logged
0:02:24

2.4.2 Receiving a Fax

The Tracphone normally handles an incoming fax call automatically. The handset displays status messages while receiving the fax.

2.5 Calling Another Inmarsat Subscriber

Making a voice or fax call to another Inmarsat subscriber is just like any other international call. Follow the procedure below to start a voice or fax call:

- Enter the prefix for an international call (0 0).
- Enter the Ocean Region Code (e.g., 8 7 1). See Table 2-4 for a listing.
- Enter the Inmarsat Mobile Number (IMN) (e.g., 7 X X X X X X X X).
- Press # to start the call.

The rest of the calling procedures, detailed in Sections 2.3 and 2.4, are unchanged.

2.6 Sending and Receiving E-mail

A PC (or other terminal) connected to the Fax/Phone switch or handset cradle may be used to send and receive computer data, such as e-mail. During the installation process, your computer's software should have been configured to send and receive e-mail via satellite. If so, connect to your e-mail service provider just as you normally would on land.

Table 2-4
Ocean Region Codes

Region	Code
Atlantic Ocean-East	871
Pacific Ocean	872
Indian Ocean	873
Atlantic Ocean-West	874



To set up your computer for satellite Internet access, refer to Appendix E of the Tracphone Technical Manual.


2.7 Using the Phone Book

The Tracphone's phone book contains 99 memory locations for storing names and phone numbers. These numbers can be dialed either directly from the phone book or by using the entries' 2-digit short codes. *Short codes one through nine require a preceding zero.*

2.7.1 Dialing a Number from the Phone Book

You can enter the phone book only if it contains at least one entry.



To change the display from names to phone numbers, and vice-versa, press the  button.

1. Press  to enter the phone book.





The handset displays a list of stored numbers:

Alpha mode on

Alpha mode off








01 MOM
<u>02</u> OFFICE

01 015551212
<u>02</u> 015551234

2. Using the   keys, scroll to the desired entry.
3. Press  to bring up the phone number.
4. Press  to start the call.

2.7.2 Dialing a Number Using the Short Code

If you know an entry's 2-digit short code, you can dial it without entering the phone book.

1. Press .
2. Enter the short code for the desired phone number (e.g.,  ). If the short code is between one and nine, a zero must precede it (e.g.,   for short code number three).
3. Press  to display the phone number.
4. Press  to start the call.

2.7.3 Adding an Entry to the Phone Book

You cannot access the phone book if it is empty. To add an initial entry, you must use the direct method explained below. Once the phone book contains at least one entry, you may either add a number directly, or you may enter the phone book to add the number.

Inserting a Number Directly

1. Enter the complete number, including all applicable prefixes (e.g., .
2. Press to select the Insert function.
3. Enter the name (e.g., OFFICE). To enter a space, press the button.
4. Press .
5. Enter the short code (e.g., .
6. Press . "Entry Stored" appears on the display.

Adding an entry from the Phone Book Display

1. Press to enter the main menu.
2. Using the keys, scroll to "Phone Book."
3. Press to enter the phone book.
4. Press to select the Insert function.
5. Enter the complete number, including all applicable prefixes (e.g., .
6. Press .
7. Enter the name (e.g., OFFICE). To enter a space, press the button.
8. Press .
9. Enter the short code (e.g., .
10. Press . "Entry Stored" appears on the display.



Each phone number is limited to 22 digits; each name is limited to 16 characters.



Each button on the handset's keypad contains 3 or 4 characters, like a telephone. To type in a character, press the button until the desired letter appears in the display. Then wait two seconds until the cursor shifts to the next empty space.



At any point in the process, you may press **[Exit]** to cancel.

2.7.4 Editing an Entry in the Phone Book

1. Press **[Prim]** to enter the phone book.
2. Using the **[Edit]** **[Prim]** keys, scroll to the desired entry.
3. Press **[2nd]** **[Edit]** to select the Edit function.
4. The phone number appears in the display. If you need to change the number, use the **[C^{Ins}]** key as a Backspace and make the change.
5. Press **[OK]**.
6. The name appears in the display. If you need to change the name, use the **[C^{Ins}]** key as a Backspace and make the change.
7. Press **[OK]**.
8. The short code appears in the display. If you need to change the short code, use the **[C^{Ins}]** key as a Backspace and make the change.
9. Press **[OK]**. "Entry Stored" appears on the display.

2.7.5 Deleting an Entry from the Phone Book

1. Press **[Prim]** to enter the phone book.
2. Using the **[Edit]** **[Prim]** keys, scroll to the desired entry.
3. Press **[2nd]** **[Del]** to select the Delete function.
The handset display requests confirmation:

Delete entry <u>N</u> o

4. Press **[Edit]** or **[Prim]** to change to "Yes."
5. Press **[OK]** to accept. "Entry Deleted" appears on the display.

2.7.6 Printing the Phone Book

If you have a computer connected to the system, you can print all the entries in the phone book. Start the computer's HyperTerminal program. Then press **[2nd]** **[Prim]** on the handset to download the phone book to your computer. You can then print the resulting data file to any printer connected to the computer.

2.8 Emergency Calls

Your installer may have set up emergency numbers in the Tracphone's Help Desk. You can dial these numbers at any time, regardless of the system's security configuration.

Dialing an Emergency Number

1. Press **[2nd] [0]** to access the Help Desk.
2. Using the **[↑^{Exit}] [↓^{Prm}]** keys, scroll to the desired emergency number.
3. Press **[OK]** to display the phone number.
4. Press **[#]** to start the call.



If you are using a SIM card, remove it before making any emergency calls. You cannot place an emergency call with a SIM card inserted.

2.9 Service Codes

You may dial a service code to request a special service from the LES. While a complete list of service codes is provided in [Appendix B](#), your LES may support all, some, or none of these services.

Dialing a Service Code

1. Enter the service code (e.g., **[3] [5]** for "Collect Call").
2. Press **[#]** to send the request to the LES.

2.10 Using the Mailbox





If your Tracphone is turned off or busy when someone calls, the LES may record a short message. Once the system is available again, the LES will send you an alert to notify you of the waiting message. The Tracphone stores this alert in its mailbox and displays the **[✉]** symbol on the handset display, indicating there are unchecked messages.

Viewing an Alert

1. Press **[2nd] [1^{Menu}]** to enter the main menu.
2. Using the **[↑^{Exit}] [↓^{Prm}]** keys, scroll to "Mailbox."
3. Press **[OK]**.






*If your system uses a SIM card, check for new messages **before** removing the card. Mailbox alerts received while the SIM card is inserted are automatically deleted once the card is removed.*

4. Use the   keys to scroll through the list of alerts. Each entry includes the LES Access Code and the Service Type (voice, fax, or data).
5. To delete an alert, press  .

Retrieving Mailbox Messages


To retrieve messages in your mailbox, you must dial the LES service code as follows:

1. Enter the mailbox message retrieval code:  .
2. Press  to send your retrieval request to the LES.

2.11 Security Features

Your Tracphone system operates normally without any security features activated. But if you wish to protect your phone from unauthorized use, your system can be configured to accept SIM cards or terminal PIN codes.



If the  indicator is lit on the handset display, you must enter a PIN code to operate the system.

2.11.1 SIM Cards

Some service providers offer a SIM card as a security option. If your Tracphone is configured to require SIM cards, you must insert the card into the transceiver and type in its PIN code before making a call. This prevents any unauthorized use of the phone.



KVH recommends you record the SIM card's PIN and Unlock SIM PIN numbers as soon as possible. Keep these numbers in a safe place, away from prying eyes, so that you may refer to them later in case you forget.

For your own protection, you are not allowed to enter an incorrect code numerous times. After three unsuccessful attempts, the Tracphone handset locks up. At that point, it will only accept the Unlock SIM PIN code, a secondary code programmed into the card. If ten further wrong codes are entered, the SIM card is rendered unusable. The card must be returned to your service provider for replacement.

A SIM card stores its own phone book numbers. Once the card is inserted, the phone book exclusively references that card's particular entries.

2.11.2 Terminal PIN Codes

Your Tracphone system can also be configured to accept different PIN codes for different levels of access. For instance, one code may be required to access basic menu options, while another may be needed for more sensitive options. Refer to your installer for more details.

2.12 The Call Log

The Tracphone keeps a record of all outgoing calls in its call log.

Accessing the Call Log

1. Press **[2nd]** **[Menu]** to enter the main menu.
2. Using **[Up]** **[Print]** keys, scroll to “Call log.”
3. Press **[OK]**.
4. Use the **[Up]** **[Print]** keys to scroll through the log’s entries.

Each entry shows the call’s duration and the last six digits of the dialed phone number. To view more information, press the **[OK]** button. The handset will display the following data:

- Call Duration: Shown in minutes/seconds or hours/minutes
- Call Type: V – voice, F – fax, D – data (e-mail)
- Ocean Region: W – Atlantic Region West, E – Atlantic Region East, P – Pacific Ocean, I – Indian Ocean
- LES Access Code: The LES that routed the call
- Terrestrial Network ID
- Call Date: Shown in year-month-day format (YYYY-MM-DD)
- Call Time: Shown in hour:minute format, 24-hour time (HHMM)



If a SIM card is inserted, the call log will display just the calls that were made from the SIM card.

For example, the call log would display an entry as follows:

3M45VW001:0 2001-02-13 22:35

Table 2-5
Sample Call Log Entry Data

Log Entry	Definition
3M45	The call lasted 3 minutes and 45 seconds
V	Voice call
W	Atlantic Ocean Region West
001	LES that handled the call
0	Terrestrial network ID
2001-02-13	The call was made on February 13, 2001
22:35	The call was made at 10:35 p.m.

Printing the Call Log

If you have a computer connected to the system, you can print all the entries in the call log. Start the computer's HyperTerminal program. Then press **[2nd][Print]** on the handset to download the call log to your computer. You can then print the resulting data file to any printer connected to your computer.

Viewing the Accumulated Time of All Outgoing Calls:

1. From the main menu, use the **[Up][Print]** keys to scroll to "Calls Total."
2. Press **[OK]**. The time is displayed in hours:minutes:seconds (HHMMSS) format.

3 Troubleshooting

The troubleshooting matrix shown in Figure 3-1 identifies some trouble symptoms, their possible causes, and references to troubleshooting solutions.

Figure 3-1
Troubleshooting Matrix

SYMPTOM	POSSIBLE CAUSE (AND SOLUTION)						
	Satellite signal blocked (Section 3.1.1)	Outside satellite coverage zone (Section 3.1.2)	Incorrect LES selected (Section 3.1.3)	Equipment and/or connection problem (Section 3.1.4)	Change in satellite download data (Section 3.1.5)	System-defined problems (Section 3.1.6)	Service provider issues (Section 3.1.7)
Intermittent communications	X	X		X			
No sync with NCS				X		X	
Signal strength indicator low	X	X		X			
Initialization delay					X		
Handset-displayed error message:							
Antenna Link Down				X			
Handset Link Down				X			
Invalid LES			X				
MES Not Authorized							X
MES Time Out				X			X
Any other error message						X	

3.1 Causes and Remedies for Common Operational Issues

There are a number of common issues that can affect the operation of the Tracphone. The following sections address these issues and potential solutions.

3.1.1 Satellite Signal Blocked

Satellite signals can be blocked or degraded by buildings, other vessels, or equipment on the vessel itself. Simply moving the vessel or obstruction should clear the signal.

3.1.2 Outside Satellite Coverage Zone

Tracphone will provide outstanding communications within the satellite's coverage area. But if you approach the satellite's coverage limits, the signal level will gradually degrade.



For a map of satellite coverage areas, refer to [Appendix A](#), "Ocean Region Coverage Maps."

If you find yourself entering a fringe area, try switching to another satellite by choosing a different ocean region:

1. Press **[2nd]** **[3^{Area}/_{def}]** on the handset to bring up the area list.
2. An asterisk (*) indicates the currently selected ocean region. Using the **[↑^{Edit}]** **[↓^{Prim}]** keys, scroll to a different ocean region.
3. Once the asterisk is placed next to the desired area, press **[OK]**. The antenna searches for the new satellite.

3.1.3 Incorrect LES Selected

An LES routes all your calls from the satellite to their land-based destinations. If your system indicates an "Invalid LES," you may need to switch to an alternate LES to get the proper service. To change the default LES, follow these steps:

1. Press **[2nd]** **[1^{Menu}]** to enter the main menu.
2. Using the **[↑^{Edit}]** **[↓^{Prim}]** keys, scroll to "Default LES."
3. Press **[OK]**.
4. An asterisk (*) indicates the currently selected LES. Using the **[↑^{Edit}]** **[↓^{Prim}]** keys, scroll to the desired LES.
5. Once the asterisk is placed next to the LES you want, press **[OK]**.

3.1.4 Equipment and/or Connection Problem

If any of the equipment cables are loose or disconnected, the system will display an error message. Check all the connections at the handset, cradle, transceiver, Fax/Phone switch, and antenna. Reconnect the cable and restart the system.

3.1.5 Change in Satellite Download Data

Normally, the Tracphone antenna initializes with the satellite network in three minutes. Sometimes, however, the satellite's download data changes, causing a delay in initialization. Simply press **Exit** on the handset until "Wait for NCS" is displayed. Then wait a few minutes for initialization to occur.

3.1.6 System-defined Problems

If the handset displays a system error message, note the error code and contact your authorized Tracphone dealer or installer.

3.1.7 Service Provider Issues

If you are unable to link to the Inmarsat mini-M network, your system may not be fully activated. Contact your service provider for assistance.

Appendix A

Ocean Region Coverage Maps

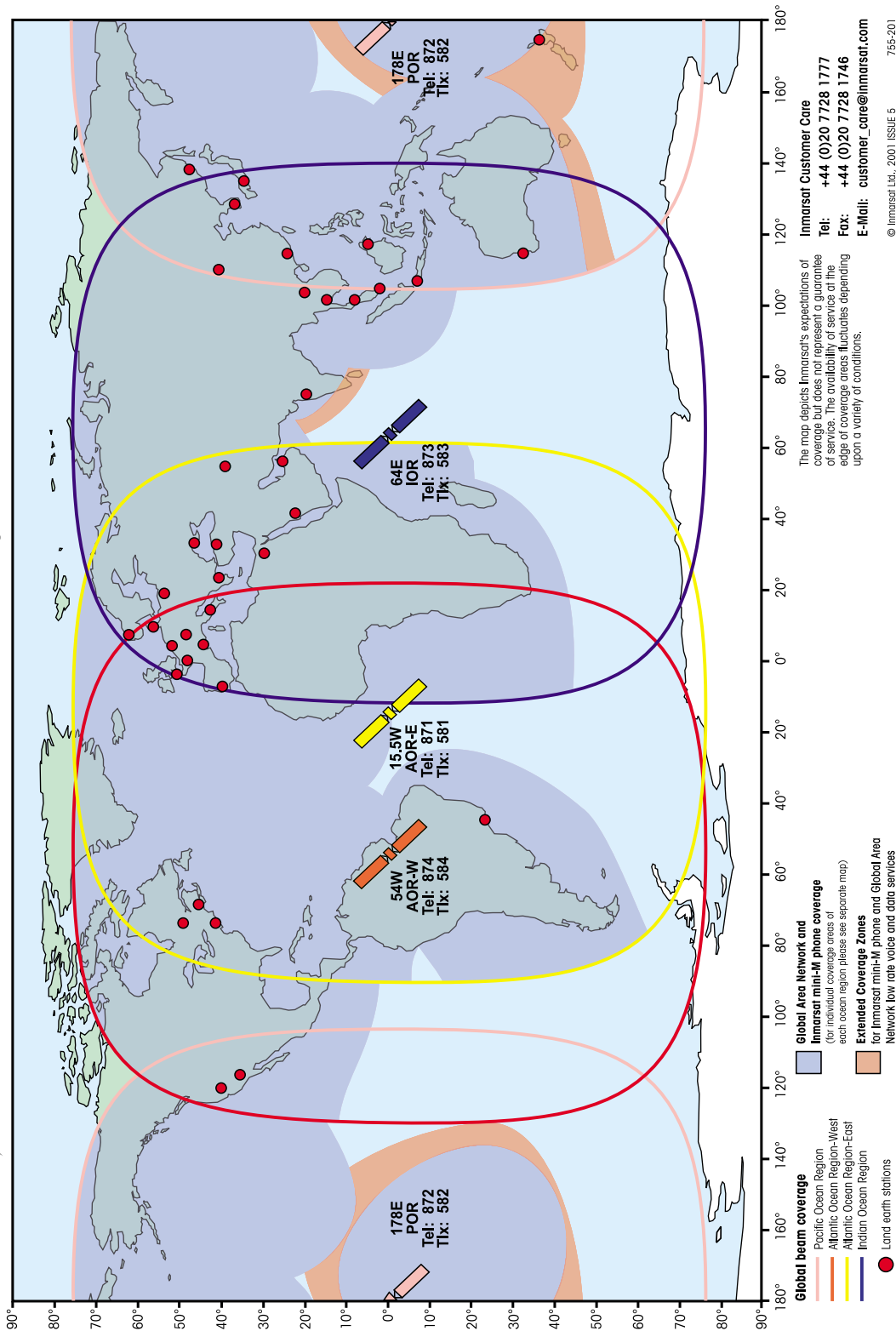
The Inmarsat mini-M satellite system consists of four satellites in geostationary orbit over four different ocean regions:

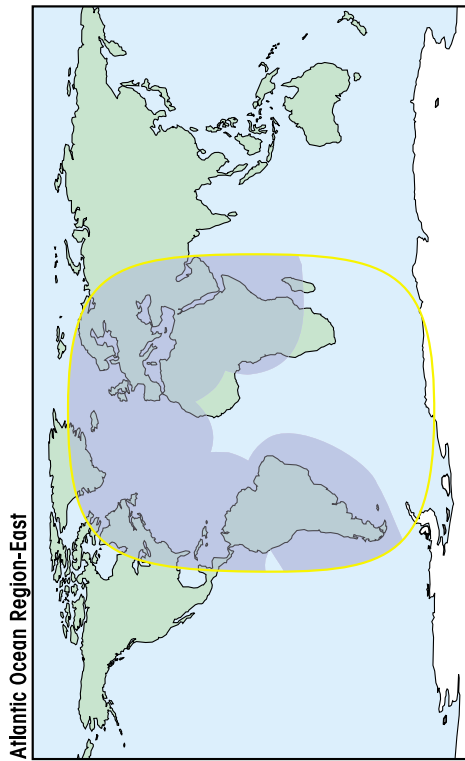
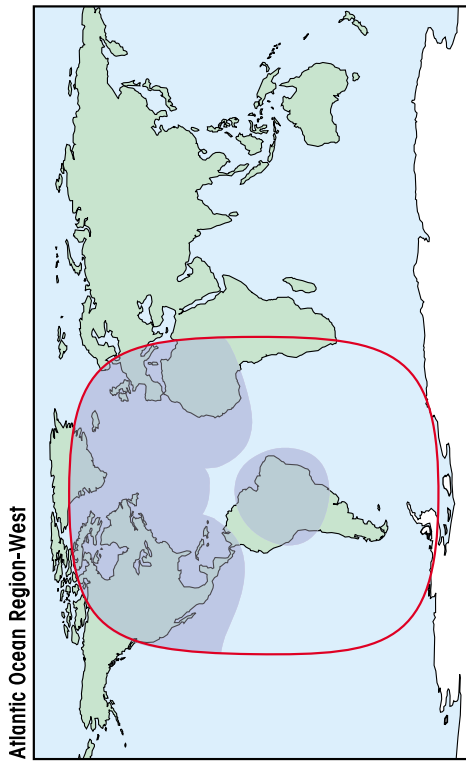
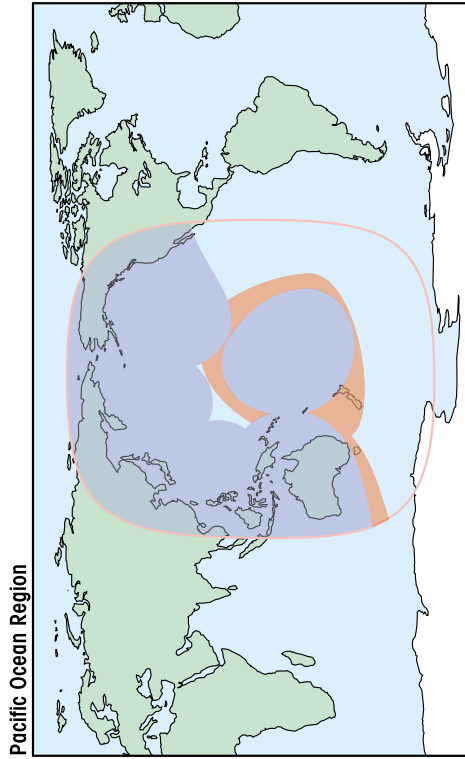
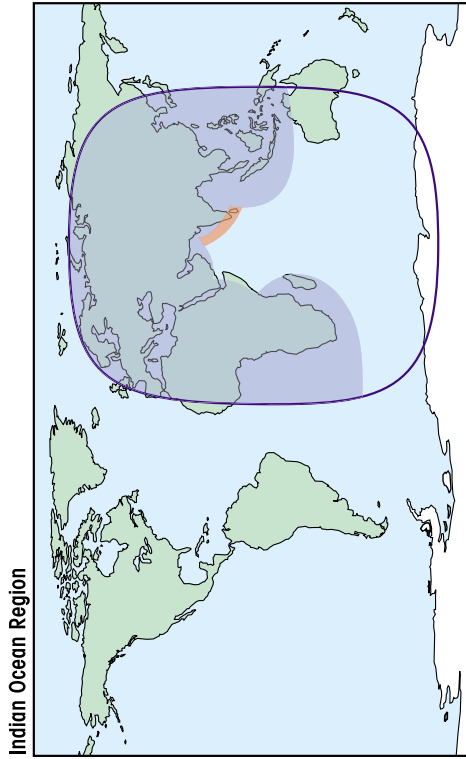
1. Atlantic Ocean-East
2. Atlantic Ocean-West
3. Indian Ocean
4. Pacific Ocean

A satellite concentrates its energy in the selected area by using spot beams, which boost the signal strength. If you use your Tracphone within a spot beam coverage area, you should experience no communications problems. However, if you travel beyond the spot beam's range, communications will degrade.

The following maps show each satellite's approximate spot beam coverage area.

Mobile Satellite Communication Worldwide Coverage Map





The maps depict Inmarsat's expectations of coverage but do not represent a guarantee of service. The availability of service at the edge of coverage areas fluctuates depending upon a variety of conditions.

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Global beam coverage

- Pacific Ocean Region
- Atlantic Ocean Region-West
- Atlantic Ocean Region-East
- Indian Ocean Region

Global Area Network and Inmarsat mini-M phone coverage

- Extended Coverage Zones for Inmarsat mini-M phone and Global Area Network low rate voice and data services
-

Appendix B

LES Service Codes

A service code is a 2-digit number you may send to the LES to request a special service. Remember: your particular LES may support all, some, or none of these services.

2-digit Code	Service Requested
00	Automatic Calls
11	International Operator
12	International Information
13	National Operator
14	National Information
17	Telephone Call Booking
20	Access to a Maritime PAD
23	Abbreviated Dialing
24	Post Fax
31	Maritime Inquiries
32	Medical Advice
33	Technical Assistance
34	Person-to-Person Call
35	Collect Call
36	Credit Card Call
37	Time and Duration
38	Medical Assistance
39	Maritime Assistance
41	Meteorological Reports
42	Navigational Hazards and Warnings
43	Ship Position Reports
57	Retrieval of Mailbox Messages
6x	Administration, Specialized Use
70	Databases
91	Automatic Line Test
92	Commissioning Tests

Table B-1
LES Service Codes

KVH Industries Limited Warranty

Tracphone 252/50

Limited Warranty on Hardware

KVH Industries, Inc. warrants the KVH product purchased against defects in materials for a period of TWO (2) years and against factory labor costs for a period of ONE (1) year from the date of original retail purchase by the original purchaser. It is the customer's responsibility to verify the date of purchase by returning the warranty card included with the product to KVH within 30 days of purchase, or by providing a copy of a dated sales receipt for the KVH product under warranty with the warranty claim. If this date cannot be verified, the warranty period will begin 30 days after the date of manufacture of the original product purchased.

If you discover a defect, KVH will, at its option, repair, replace or refund the purchase price of the product at no charge to you, provided you return it during the warranty period, transportation charges prepaid, to the factory direct. Please attach your name, address, telephone number, a description of the problem and a copy of the bill of sale or sales receipt as proof of date of original retail purchase, to each product returned to warranty service. Alternatively, you may bring the product to an Authorized KVH dealer/distributor for repair. During the first year, and if the product was installed by an Authorized KVH dealer/distributor (identified with the KVH Authorized dealer/distributor list), KVH will cover the dealer's/distributor's labor charges for warranty repairs, provided the dealer/distributor contacts KVH for pre-approval of the charges. Approval of charges is at KVH's sole discretion.

This Limited Warranty does not apply if the product has been damaged by accident, abuse, misuse or misapplication or has been modified without the written permission of KVH; if any KVH serial number has been removed or defaced; or if any factory-sealed part of the system has been opened without authorization.

Return Authorization

A Return Material Authorization is required prior to returning the product to KVH Industries. Please call our Technical Support Department at +1 401 847-3327 or send an e-mail to techs@kvh.com to obtain the RMA number. Write the number in large, clear characters on the outside of the box. To avoid confusion and misunderstandings, shipments without an RMA number clearly visible on the outside box will be refused and returned to you at your expense. If possible, use the original box and packing material to protect the equipment from damage in shipment. KVH assumes no responsibility for warranty shipments from the customer to the factory if not shipped in the manner prescribed above.

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If any implied warranty, including implied warranties of merchantability and fitness for a particular purpose, cannot be excluded under applicable law, then such implied warranty shall be limited in duration to ONE (1) YEAR from the date of the original retail purchase of this product by the original purchaser.

Some states/countries do not allow the exclusion or limitation of implied warranties or liability for incidental or consequential damages, so the above limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state/country to state/country.



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