

Thrane IP Handset



Thrane & Thrane A/S

IP Handset

User Manual

Document number: 98-126059-B

Release date: December 13, 2007

Information in this document is subject to change without notice and does not represent a commitment on the part of Thrane & Thrane A/S. We recommend downloading the latest version of the manual from the Thrane & Thrane Extranet.

Copyright © 2007 Thrane & Thrane A/S. All rights reserved.

Trademark Acknowledgements:

- **Thrane & Thrane** is a registered trademark of Thrane & Thrane A/S in the European Union and the United States.
- **Windows** and **Outlook** are registered trademarks of Microsoft Corporation in the United States and other countries.
- **Inmarsat** is a registered trademark of International Maritime Satellite Organisation (IMSO) and is licensed by IMSO to Inmarsat Limited and Inmarsat Ventures plc.
- Inmarsat's product names are trademarks or registered trademarks of Inmarsat.
- Other product and company names mentioned in this manual may be trademarks or trade names of their respective owners.

Company Addresses

www.thrane.com

Denmark

Thrane & Thrane Aalborg A/S

Porsvej 2
DK-9200 Aalborg SV
Denmark

Denmark

Company headquarters

Thrane & Thrane A/S

Lundtoftegårdsvej 93 D
DK-2800 Kgs. Lyngby
Denmark

Norway

Thrane & Thrane Norway

Bergerveien 12
PO Box 91
1375 Billingstad,
Norway

USA

Thrane & Thrane, Inc.
509 Viking Drive, Suites
K, L and M
Virginia Beach, VA 23452
USA

China

Thrane & Thrane Shanghai
Unit 602 - Building 4,
289 Bisheng Rd.
Zhangjiang High-tech Park,
Pudong
201204 Shanghai
P. R. China

Safety Summary

The following general safety precautions must be observed during all phases of operation, service and repair of this equipment. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture and intended use of the equipment. Thrane & Thrane A/S assumes no liability for the customer's failure to comply with these requirements.

DO NOT OPERATE IN AN EXPLOSIVE ATMOSPHERE

Do not operate the IP Handset in the presence of flammable gases or fumes. Operation of any electrical equipment in such an environment constitutes a definite safety hazard.

KEEP AWAY FROM LIVE CIRCUITS

Operating personnel must not remove equipment covers. Component replacement and internal adjustment must be made by qualified maintenance personnel. Do not replace components with the cable connected. Always disconnect power and discharge circuits before touching them.

About the Manual

Intended Readers

This manual is a user manual for the Thrane & Thrane IP Handset. The readers of the manual include anyone who is using or intends to use the IP Handset. No specific skills are required to operate the IP Handset. However, it is important that you observe all safety requirements listed in the beginning of this manual, and operate the handset according to the guidelines in this manual.

Manual Overview

This manual has the following chapters:

- **Introduction** contains an overview and a brief description of the IP Handset.
- **Getting started** explains how to connect and start up the handset and gives an overview of the display and keypad. It also contains a short guide to initial configuration and to making the first call.
- **Operating the IP Handset** describes how to use and configure the handset and explains the display menus.
- **Using the web server** explains how to use the built-in web server of the IP Handset.
- **Troubleshooting** contains a short troubleshooting guide and gives information on where to get further help if needed.

This manual may not always reflect the latest software functionality of your IP Handset. To obtain the latest version of the manual, please enter the Thrane & Thrane Extranet and download the latest version, or acquire it from your distributor.

Typography

In this manual, typography is used as indicated below:

Bold is used for the following purposes:

- To emphasize words.
Example: “Do **not** touch the antenna”.
- To indicate what the user should select in the user interface.
Example: “Select **Settings** > **Display**”.

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

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

COURIER is used to indicate display text.

Example: “The display shows **39558880**”.

Table of Contents

	Safety Summary	iii
	About the Manual	iv
Chapter 1	Introduction	
	Welcome	1
	In this chapter	1
	Your IP Handset	2
	Features	3
	What's next?	3
Chapter 2	Getting started	
	In this chapter	5
	Connecting the IP Handset	5
	Using a BGAN terminal	5
	Connectors	6
	Connecting the cables to the IP cradle	7
	Installing the cradle	9
	Connecting the handset to a BGAN terminal	10
	Starting up the IP Handset	11
	Powering the IP Handset	11
	Establishing a connection using BGAN terminal	12
	Making the first call	13
	The handset keypad and display	14
	The keypad	14
	The display	20
	What's next?	24
Chapter 3	Operating the IP Handset	
	In this chapter	25
	User interfaces	25

Handset functions	26
Making calls	26
Making a call using a BGAN terminal	29
Quick settings	31
Writing text in the handset	33
The menu system	34
Accessing the menu system	34
Menu overview	34
Call log	35
Contacts	37
Status	39
Network	40
Settings	41
SIP	48
BGAN	52
What's next?	53

Chapter 4 Using the web server

In this chapter	55
Introduction	55
The web server	55
Browser settings	55
Accessing and navigating the web server	57
The Home page	59
Contacts	60
Call log	61
SIP settings	62
Uploading firmware	64
Help	65
What's next?	66

Chapter 5 Troubleshooting

In this chapter	67
Getting support	67
Troubleshooting guide	68

App. A	Technical specifications	
	In this appendix	69
	Specifications	69
	IP Handset outline dimensions	71
	IP cradle outline dimensions	73
Glossary	75
Index	79

Introduction

Welcome

Congratulations on the purchase of your IP Handset!

The IP Handset communicates using Voice over Internet Protocol (VoIP), which means that voice conversations are routed over the Internet or through an IP-based network. The handset is powered directly from the LAN interface using Power over Ethernet (PoE), which eliminates the need for an external power supply.

The IP Handset, TT-3670A, includes the following main units:

- TT-3672A IP Handset
- TT-3674A IP cradle

The IP Handset connects to the cradle with a coil cord. The cradle connects with a fixed LAN cable to a LAN port with PoE, for example in a BGAN terminal (Broadband Global Area Network).



In this chapter

This chapter introduces the IP Handset and gives an overview of its features and functions.

Your IP Handset

The IP Handset is used for making phone calls over an IP based network. When used with a BGAN terminal, the communication is only IP based between the handset and the BGAN terminal. From the BGAN terminal, the call is transmitted as a normal circuit-switched call.

The handset is designed specifically for use in harsh environments and it is dust proof and splash proof.

Excellent sound quality is achieved by including a state-of-the-art echo canceller and noise suppression software.

On the large 2.2" color TFT screen, a graphical user interface provides easy access to all functions including contacts and settings. The user interface also provides direct access to certain features of a connected BGAN terminal.

The handset is based on a 260 MHz processor running Windows CE 6.0.



Features

The IP Handset offers the following features:

- Voice communication over Internet or IP based network
- Contacts list with up to 100 entries
- Intuitive user interface and menu system
- Built-in web interface
- High quality color display QVGA
- Rugged but elegant design
- Splash proof and dust proof
- Connectivity to Broadband Global Area Network (BGAN) terminal
- Dedicated menu for BGAN terminals

What's next?

This chapter has provided an overview of the IP Handset.

The next chapters will go into more detail about how to set up and use your handset. The following chapter, *Getting started*, explains how to start up the handset and make the first call.

Getting started

In this chapter

This chapter describes how to install and start up the handset and make the first call. It also gives an overview of the display and keypad and explains how to navigate with the keypad.

Connecting the IP Handset

Using a BGAN terminal

By connecting the handset to a BGAN terminal you gain access to the BGAN satellite network with your IP Handset.

When the IP Handset is used with the BGAN terminal, it communicates using Internet protocol between the handset and the terminal. However, on the BGAN network side of the terminal the call is transmitted as a circuit switched 3.1 kHz or Standard call.

The IP Handset is power supplied directly from the LAN interface of the BGAN terminal using Power over Ethernet (PoE).

When connected with the BGAN terminal the IP Handset provides a dedicated menu for the terminal.

Connectors

IP Handset connectors (future use)

The handset has two connectors on the side of the handset, for future use:

- one connector for connecting a headset.
- one Mini-USB connector.

Note

These connectors are currently not functional; they are for future use.

The IP Handset also has a coil cord with a LAN connector for connecting to the IP cradle or directly to a LAN (PoE) interface.

IP cradle connectors

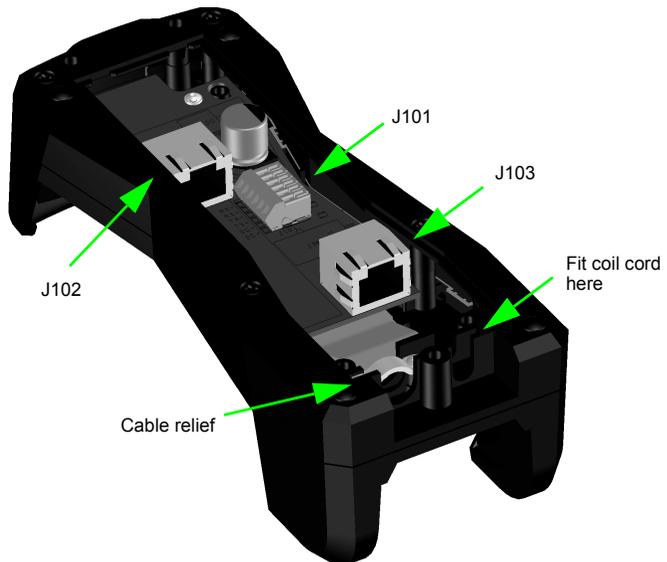
The IP cradle has two internal LAN connectors and an alternative terminal block for the LAN connection:

- One LAN connector connects to the coil cord from the IP Handset.
- The other LAN connector, or the terminal block, connects to your LAN cable between the cradle and the BGAN terminal.

Connecting the cables to the IP cradle

Do as follows:

1. Remove the two screws holding the center cover in the bottom of the cradle and take off the cover.



2. Connect the coil cord from the IP Handset to the cradle connector marked J103. Then fit the cable relief mounted on the coil cord into the groove at the cradle exit.
3. To mount the external LAN cable, do one of the following:
 - Connect a standard LAN cable to the connector marked J102 in the cradle. This is the cable for connecting to the BGAN terminal or other LAN (PoE) interface.

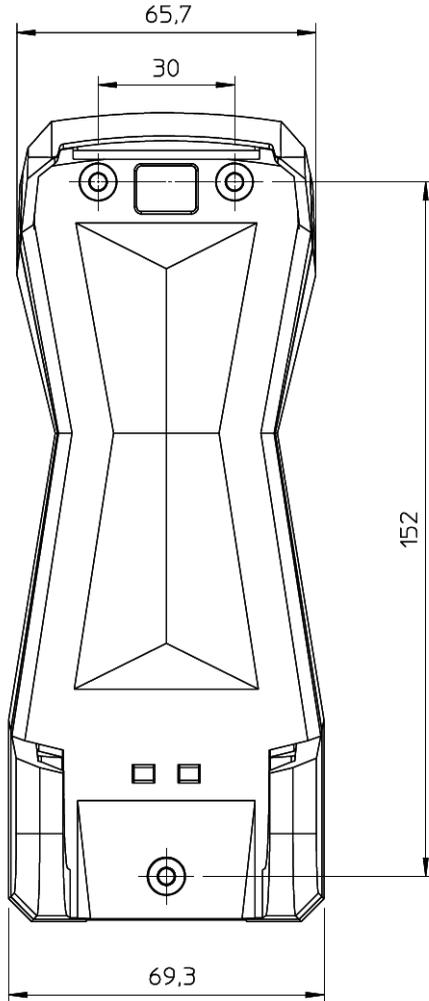
Important

The space between the cable LAN connector and the PCB is very scarce - make sure the housing of the cable connector is not too thick to allow for the connectors to fit properly.

- Connect the wires of a LAN cable to the terminal block marked J101. The text next to the terminal block indicates which signal goes where.
4. Mount cable relief at the cable exit from the IP cradle.
 5. Mount the cover and fasten the two screws.

Installing the cradle

Mount the cradle on a wall or a desktop with 3 screws fitting in the holes indicated in the drawing below (front view).



Connecting the handset to a BGAN terminal

Note

The LAN interface on the BGAN terminal must have Power over Ethernet.

Do as follows:

1. Start up the BGAN terminal as described in the user manual for the terminal.
2. Connect the LAN cable from the IP cradle to one of the LAN (PoE) connectors on the BGAN terminal.

The cable between IP cradle and terminal must be maximum 80 m.

Note

If you insert a switch or similar between the cradle and the terminal, make sure that it conforms to the industry standard **IEEE 802.3 af (using data pairs)**.

The handset starts up automatically.

Starting up the IP Handset

Powering the IP Handset

The IP Handset is automatically powered when it is connected to a LAN interface with PoE.

If the handset has been switched off, you can switch it back on by pressing and holding the on-hook key until the display lights up.



If the handset does not start up, the reason may be that there is no PoE in the LAN interface. If you are connecting to a BGAN terminal, check that the PoE indicator on the terminal lights green for the connected port. For further information, refer to the installation manual for the BGAN terminal.

To switch off the IP Handset, press and hold the on-hook key again until the display is turned off.

Establishing a connection using BGAN terminal

If no SIM PIN is required

If the handset is connected to a BGAN terminal where the SIM PIN has already been entered, the BGAN terminal automatically sets up a SIP profile and assigns a local number.

When the display shows the handset ready symbol  in the upper right corner, the handset is ready for making a call.

If a SIM PIN is required

If the handset is connected to a BGAN terminal where the SIM PIN has not yet been entered, you need to enter the SIM PIN for the terminal. To do so, you need to know the Administrator user name and password as well as the SIM PIN for the BGAN terminal. Do as follows:

1. From the main screen of the handset, press the center select key to enter the menu system.
2. Select **BGAN**.
3. Select **Enter PIN code**.
4. Enter the Administrator user name and select **OK**.
For information on how to type text in the handset, see *Writing text in the handset* on page 33.
5. Enter the Administrator password and select **OK**.
6. Enter the SIM PIN and select **OK**.

If the SIM PIN is rejected, see the next section *Wrong PIN*.

When the display shows the handset ready symbol  in the upper right corner, the handset is ready for making a call.

If the handset ready symbol is crossed out  you cannot make a call. The display will normally show a message explaining why the handset is not ready.

Wrong PIN

After entering the user name and password, you have 3 attempts to enter the PIN, before you are asked to enter the PUK (Pin Unlocking Key). The PUK is supplied with your BGAN SIM card.

Enter the PUK followed by a new PIN of your own choice. The PIN must be from 4 to 8 digits long.



Caution! If you enter a wrong PUK 10 times, the SIM card will no longer be functional, and you have to contact your Airtime Provider for a new SIM card.

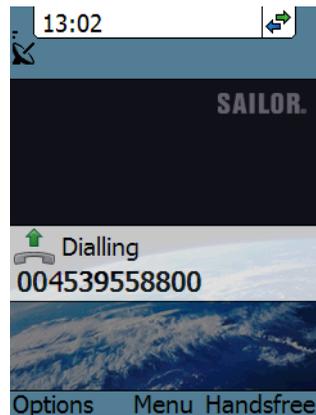
Making the first call

To make a call, type the phone number on the keypad and press the off-hook key in the left side of the keypad  or press #.

The display shows that the number is being dialled.

If the number is in the Contacts list of the handset, you can also select the number from there and dial up with the off-hook key.

For further information on how to make calls, see *Making calls* on page 26.

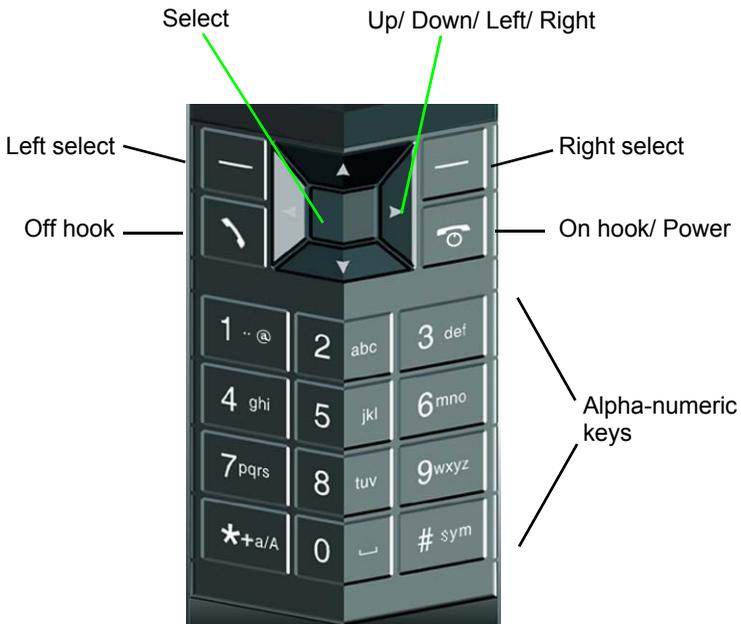


The handset keypad and display

The keypad

Overview

The following drawing shows the keypad of the handset.

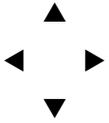


The next sections explain the functions of each key in the keypad.

Control keys

The below table shows the functions of the control keys in the upper section of the keypad.

Key	Functions
	<p>Left select.</p> <p>Selects the function shown just above the key (left soft key).</p>
	<p>Right select.</p> <p>Selects the function shown just above the key (right soft key).</p> <p>From main screen: Opens the Contacts list.</p>
	<p>Off hook.</p> <p>After entering a phone number: Initiates a call to the number.</p> <p>From main screen: Opens a list of the latest calls, including incoming, outgoing and missed calls.</p>
	<p>On hook/ Power.</p> <p>When the handset is ringing: Rejects the call.</p> <p>During a call: Ends the call.</p> <p>When in the menu system: Abandons the menu system and displays the main screen.</p> <p>Otherwise: Powers the handset on/off, when pressed and held for 3 seconds.</p> <p>If there is an error and the handset does not power off after approximately 3 seconds, hold the key for 10 seconds, and the handset will perform a hardware reset.</p>

Key	Functions
	<p>Select (center).</p> <p>Selects/confirms the function highlighted in the display.</p>
	<p>Navigation.</p> <p>Navigates through the menu system in the display.</p> <p>Right/Left are also used to change settings in the menus.</p> <p>See also <i>Keypad shortcuts</i> on page 19.</p>

Alpha-numeric keys

This section shows the functions of the alpha-numeric keys in the lower section of the keypad.



The functions available depend on whether you are typing a phone number (number mode) or text (text mode).

In number mode, you get the number of the key pressed. Only * has two functions.

Press * once: The display shows * .

Press * twice, or press and hold: The display shows +.

Press #: The display shows #.

See the available functions in text mode on the next page.

In text mode, you have the functions listed below.

The * key switches between numeric, lowercase and uppercase characters.

To get numbers from lowercase or uppercase mode, press and hold the key.

At numerous presses on the same key, the character changes in the same sequence that the characters are listed in the table below.

Key	Numeric output	Lowercase output	Uppercase output
1	1	. , @ : - ?	. , @ : - ?
2	2	a b c	A B C
3	3	d e f	D E F
4	4	g h i	G H I
5	5	j k l	J K L
6	6	m n o	M N O
7	7	p q r s	P Q R S
8	8	t u v	T U V
9	9	w x y z	W X Y Z
0	0	[space]	[space]
*	Switches between lowercase, uppercase and numbers		
#	Symbols. Displays a list with the following additional symbols: . / : @ \$ % ^ & * () ~ ` - _ = + [] { } \ ; ´ ` ! < > , ? # € <CR>		

Navigating with the keypad

To enter the menu system from the main screen, press the center select key.

To move through the menus, press the navigation keys (arrows).

To select a highlighted menu item, press the center select key.

To select one of the items in the action texts area, press the key just below the text you want to select.

To go back one level in the current menu, press the right select key (only when **Back** is displayed above the key).

Keypad shortcuts

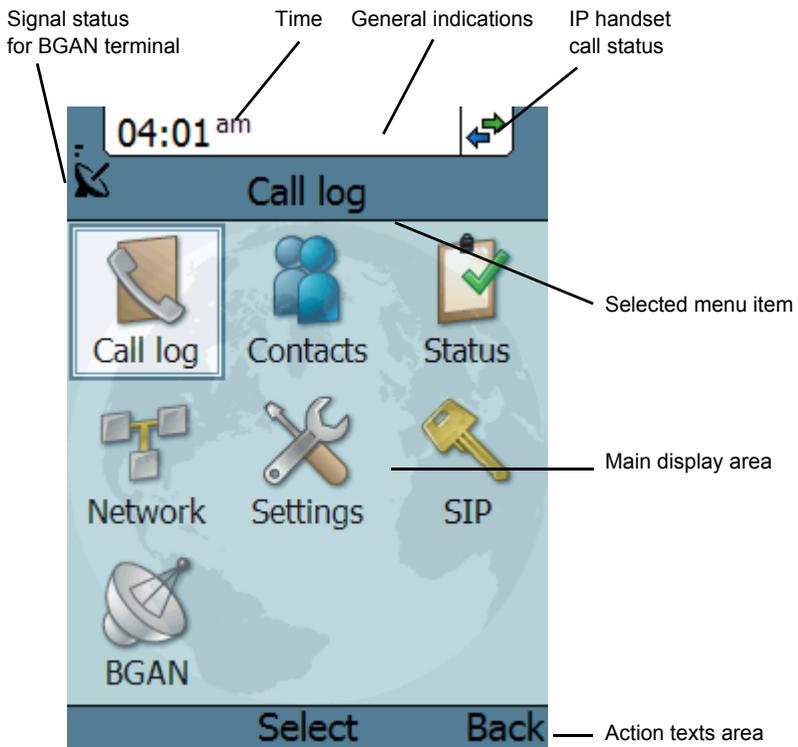
The following shortcuts are available:

	When the display is in the main screen, this key gives direct access to the list of contacts.
	When the display is in the main screen, this key opens a list of the latest incoming, outgoing and missed calls.
	When the display is in the menu system, the on-hook key will exit the menu system and show the main screen.
	When the display is in the main screen, the right select key will open the list of contacts. From inside the Contacts list, press the first letter of an entry to access the entry in the Contacts list.
Alpha-numeric keys	When the display is in the menu system, an alpha-numeric key will jump to the menu item with the pressed number or, in the Contacts list, to the first entry beginning with the pressed letter.

The display

Overview

The color display of the IP Handset is divided into sections with different information. The sections are outlined below.



BGAN signal status

When the IP Handset is connected to a BGAN terminal, the display shows the signal strength of the BGAN signal.

Time

The display shows the time of day.

The format is selectable in the **Settings > Date and time** menu.

General indications

General indications are icons that show dynamic information such as missed calls, sounds off, keypad locked and microphone muted.

For explanations of the icons, see *Icons in the display* on page 22.

IP Handset call status

This field shows handset status such as whether or not the handset is ready for making calls, or whether there is an ongoing call.

For explanations of the icons, see *Icons in the display* on page 22.

Main display area

The main display area primarily displays the menus and messages to the user.

Action texts area

The action texts are used to indicate an action that takes place when the corresponding key is pressed. The corresponding key is the key directly below the text (left select, center select or right select).

Icons in the display

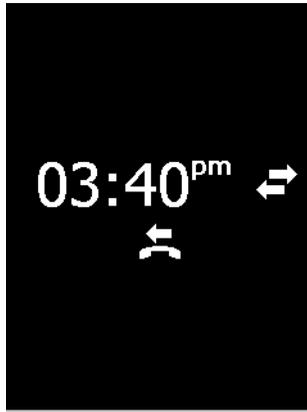
The below table explains the icons in your display.

Icon	Meaning
	The handset is ready for making calls.
	The handset is not ready for making calls.
	Incoming call - not yet answered (the handset is ringing).
	Incoming call in progress.
	Outgoing call in progress.
	Outgoing call - not yet answered.
	Call ended.
	The microphone is muted. To reactivate the microphone, select Options (left select key) > Microphone.

Icon	Meaning
	<p>The keypad is locked.</p> <p>To unlock the keypad, press the center select key followed by the left select key.</p>
	<p>Missed call.</p> <p>See the Call log for information on the call.</p>
	<p>This symbol is used in the Contacts list to indicate that the number is from the phone book of the BGAN terminal and is read-only.</p>
	<p>When an alpha-numeric key is pressed from inside the Contacts list, this symbol is shown while the handset is searching for entries with the letter pressed.</p>
	<p>The handset is in silent mode. All external sounds from the handset - including ring tones - are muted. Voice is not muted.</p>
	<p>This symbol is shown when you are adjusting the volume.</p>
	<p>Wait - a task is in progress.</p>
	<p>BGAN terminal connected.</p>

Screensaver

You can choose to have a screensaver activated when the handset is not used for 1 minute. This screen shows only the time, handset status and general indications such as missed calls.



When you press a key the display returns to the normal display function.

To enable or disable the screensaver, enter the menu system, select **Settings > Display** and select **Screensaver**. When the box is checked, the screensaver is enabled.

What's next?

After reading this chapter you should be able to connect the IP Handset, start up and make a call.

The next chapters provide more information on the user interfaces and the setup of the IP Handset. The following chapter, *Operating the IP Handset*, explains how to setup and use the IP Handset.

Operating the IP Handset

In this chapter

This chapter describes how to use the IP Handset. It also describes how to configure the handset and use the display menu system, including a short description of how to use the IP Handset with a BGAN terminal.

User interfaces

The main user interface for the handset is the display menu system. However, with a computer and a browser you can also use the built-in **web server** to access the handset. This way you can take advantage of a larger screen and still access a subset of the handset settings.

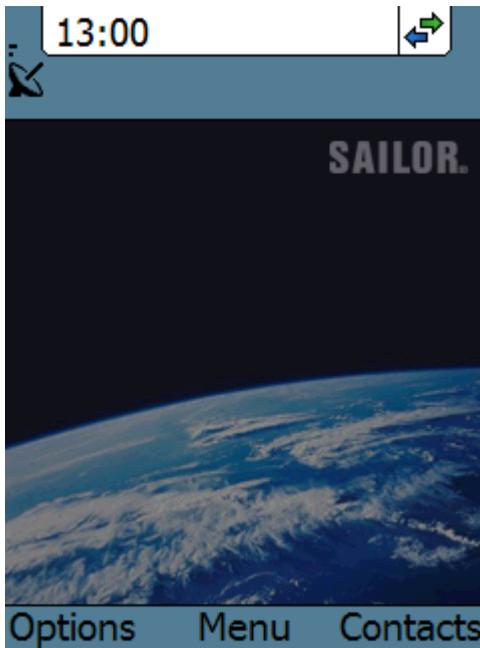
- **The display menu system** is described in *The menu system* on page 34. For an overview of the keys and display, and explanation of keys and display symbols, see *The handset keypad and display* on page 14.
- **The web server** is described in *Using the web server* on page 55.

Handset functions

Making calls

Handset ready

When the status field for the IP Handset shows ready  , you can make or receive calls.



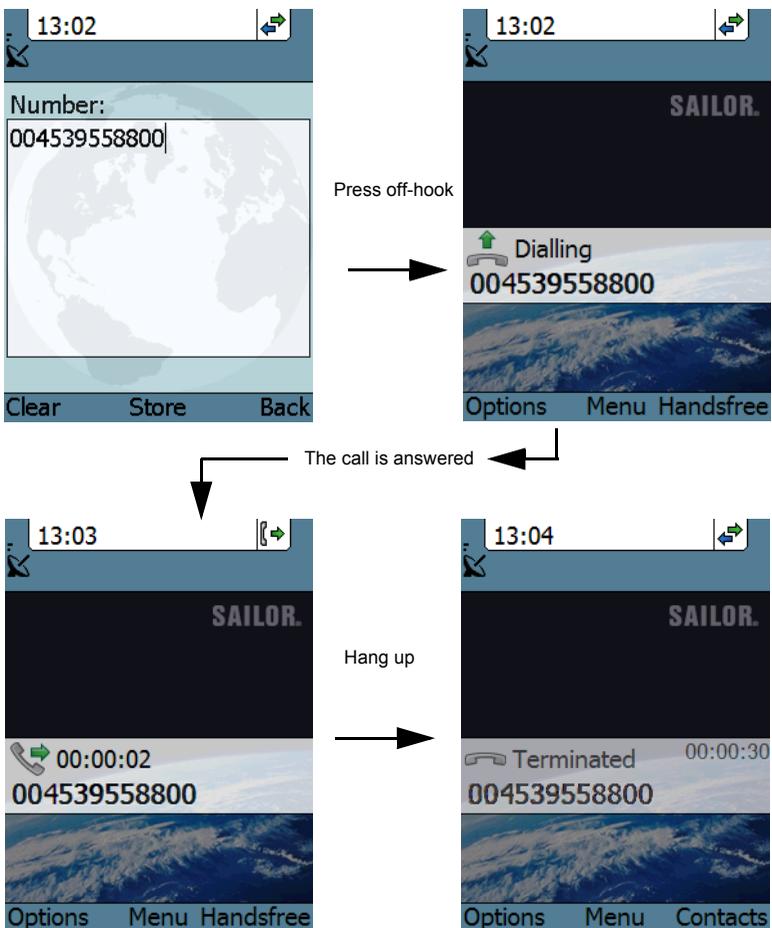
To make a call

To make a call, simply type the phone number and press the off-hook key in the left side of the keypad  or press #.

Note

If the handset is in the cradle while you make the call, the mode will automatically be hands-free (default function). For further information, see *Cradle* on page 44.

The display shows the progress as follows:



You can also call a number from your contacts or from a list of recent calls:

- **Contacts:** Press the right select key from the main screen and move to the contact you want to call. Then press the off-hook key.
- **Recent calls:** To see the latest calls (incoming, outgoing and missed calls), press the off-hook key from the main screen. Press the off-hook key again to call the selected number.

For information on how to make calls using a BGAN terminal, see *Making a call using a BGAN terminal* on page 29.

To receive a call

When the handset is ringing, the display shows the calling name or number, if known.

Answer the call by pressing the off-hook key in the left side of the keypad , or by removing the handset from the cradle. For information on cradle detection, see *Cradle* on page 44.

Note

If the handset is in the cradle while you answer the call, the mode will automatically be hands-free (by default).



Any open menus are closed down when the handset is ringing.

To end or reject a call

Press the on-hook key  to end an ongoing call or to reject an incoming call.

When the handset is in hand-held mode, you can also end the call by placing the handset in the cradle.

Making a call using a BGAN terminal

Making a call from a handset connected to a BGAN terminal

To make a call from a phone or handset connected to a BGAN terminal, dial **00 <country code> <phone number>** followed by off-hook key or **#**.

Example: To call Thrane & Thrane in Denmark (+45 39558800), dial **00 45 39558800** followed by off-hook key or **#**.

Note

You can select the call type for your call, using a prefix. The default call type is Standard Voice.

Dial **2 *** before the number to make a 3.1 kHz Audio call.

Example: Dial **2 * 004539558800** to make a 3.1 kHz Audio call to Thrane & Thrane in Denmark.

For further information on call types and the BGAN terminal, refer to the user manual for your BGAN terminal.

Making a call to a handset connected to a BGAN terminal

Note

By default all handsets connected to the terminal will ring on incoming calls.

To make a call to a handset connected to the terminal, dial

+870 <Mobile number>

- **+** is the prefix used in front of the country code for international calls. This is **00** when calling from most countries in Europe and from many other countries.
- **Mobile number:** The mobile number of the terminal you are calling.

Example: If you are calling from Denmark and the mobile number for 3.1 kHz Audio is 772112345 on your terminal, and you want to make a call to the terminal using 3.1 kHz Audio, dial **00 870 772112345**.

To see the mobile numbers of your terminal, refer to the information included with your airtime subscription.

Note

There are two Voice numbers, one for 3.1 kHz Audio and one for Standard Voice.

For more information on call types and the BGAN terminal, refer to the user manual for your BGAN terminal.

Quick settings

Controlling the volume

To adjust the voice volume during a call (with the display in the main screen), press ▲ or ▼ on the keypad.

Hands-free operation

To enable hands-free operation during a call, use the right select key to select **Handsfree**. To go back to hand-held mode, press the right select key again.

When the handset is in hands-free mode, the sound is routed to a speaker, so that you can use the phone without holding it close to the ear. You can adjust the volume with ▲ or ▼ as described in the previous section.

Handset in cradle:

You can also make a hands-free call by leaving the handset in the cradle while making the call. Similarly you can answer a call using hands-free mode by leaving the handset in the cradle while answering the call.

In both cases, the default function is as follows:

- If you remove the handset from the cradle during the call, the mode will automatically change to hand-held.
- When the handset is out of the cradle in **hand-held** mode, the call will be terminated when you put the handset back in the cradle.
- When the handset is out of the cradle in **hands-free** mode, you can put it back in the cradle without terminating the call.

Note

You can change this default function under **Settings > Cradle**, if you want the handset to be independent of the cradle. For further information, see *Cradle* on page 44.

Muting the microphone

To mute the microphone during a call, select the left **Options** menu and select **Microphone mute**.

Locking the keypad

To lock the keypad, select the left **Options** menu and select **Lock keypad**.

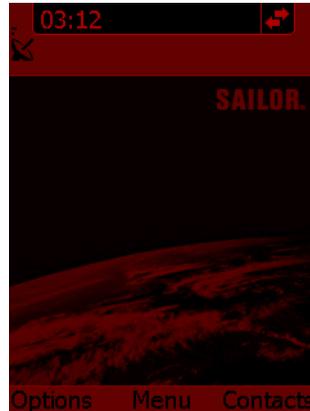
When the keypad is locked you can still answer incoming calls.

To unlock the keypad, press the center select key and then the left select key.

Using night mode

The display has a night mode for operation in low light areas. In night mode, the colors are changed to make the display more suitable for night operation.

To activate night mode, select the left **Options** menu and select **Night mode**.



Using stealth mode

The display has a stealth mode which turns off all lights and/or sounds for external events. Note, however, that the keypad will still light up when you press a key.

To activate stealth mode, select the left **Options** menu and select **Stealth mode**.

Note

Stealth mode is only activated for the items you have selected in the Stealth mode menu. See *Stealth* on page 42.

Writing text in the handset

How to use the keys

Press * before the alpha-numeric key to switch between lower case, upper case and numbers.

There are 3 or 4 letters on each key. To obtain the other letters on the key, press the key again.

To move the cursor in the text, use the arrow keys.

To delete the letter just before the cursor, press the left select key **Clear**. Hold the key to delete all the text.

For a list of the key-functions in text-mode, see the table on page 18.

Example

To type “He”, do as follows:

1. Press * one or two times until the lower left corner of the display shows upper case letters.
2. Press the key **4 ghi** two times to display the letter **H**.
3. Press * again until the lower left corner of the display shows lower case letters.
4. Press the key **3 def** two times to display the letter **e**.

The menu system

Accessing the menu system

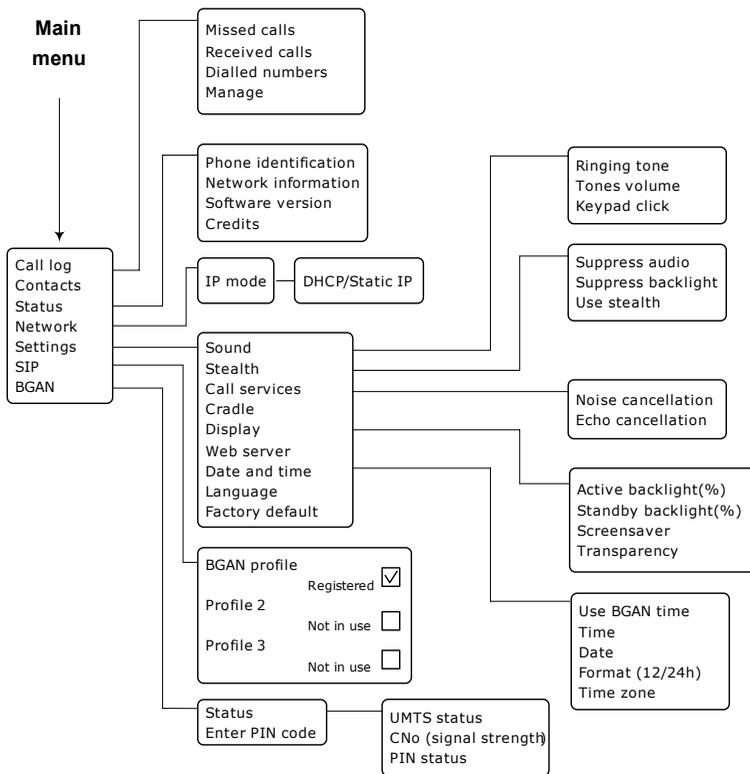
To access the menu system from the main screen, press the center select key.

Move around in the menus with the arrow keys and select with the select keys.

Leave the menu system by pressing the on-hook key.

Menu overview

The following drawing shows an overview of the menu system.



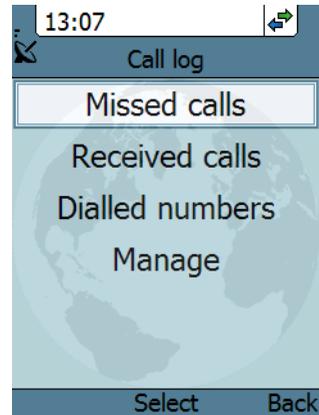
Call log

To see the call log

Note that the call log can hold maximum 100 calls. You can delete calls from the call log. For further information, see the next pages in this section.

Do as follows:

1. From the main menu, select **Call log**.
2. Select the list you want to see.
3. If you want to see details for a call, move to the call and select **View**.
The display shows the name (if known), the number, time of the call and duration.



To add a number from the call log to the Contacts

Do as follows:

1. In the call log, go to the call and select **Options**.
2. Select **Add to contacts**.
Note that the Contacts list can hold maximum 100 entries.
3. Type in the name of your new contact and select **OK**.

To delete a number from the call log

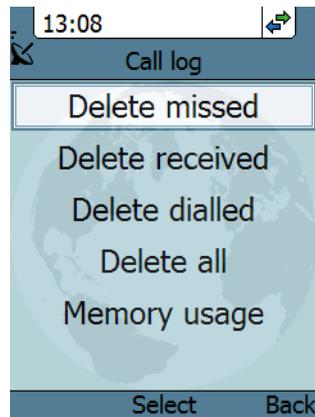
Do as follows:

1. In the call log, go to the call and select **Options**.
2. Select **Delete**.
3. Select **Yes**.

To delete all numbers in a call log folder

Do as follows to delete all numbers in the call log, or all numbers in a subfolder of the call log.

1. In the call log menu (not in one of the subfolders) select **Manage**.
2. Select the folder you want to empty.
3. Select **Yes**.



To see memory usage in the call log

To see the number of stored entries and the maximum allowed number of entries, do as follows:

1. In the call log menu (not in one of the subfolders) select **Manage**.
2. Select **Memory usage**.

Contacts

To see your contacts

Do one of the following:

- From the main screen, press the right select key,
- from the main screen, press ▼, or
- from the main menu, select **Contacts**.

If a contact is from the BGAN phone book it is marked with . This means you cannot edit or delete the entry.

To call a contact

Do as follows:

1. In your Contacts list, scroll to the contact you want to call.
2. Press the off-hook key.

To add a contact

Do as follows:

1. In your Contacts list, press the left select key, **Options**.
2. Select **Add**.
Note that the Contacts list can hold maximum 100 entries.
3. Type in the name of your contact and select **OK**.
The name can be maximum 32 characters.
For information on how to enter text, see *Writing text in the handset* on page 33.
4. Scroll to **Number** and select **Edit**.
5. Type in the number of your contact and select **OK**.
The number can be maximum 32 characters.

To edit a contact

Do as follows:

1. In your Contacts list, scroll to the contact you want to edit.
2. Press the left select key, **Options**.
3. Select **View/Edit**.
4. Select **Edit**.
5. Change the name of your contact and select **OK**.
For information on how to enter text, see *Writing text in the handset* on page 33.
6. Scroll to **Number** and select **Edit**.
7. Change the number of your contact and select **OK**.

To delete a contact

Do as follows:

1. In your Contacts list, scroll to the contact you want to delete.
2. Press the left select key, **Options**.
3. Select **Delete**.
4. Press the left select key, **Yes**.

The contact is now deleted from your Contacts list.

Status

To view status for the handset, do as follows:

1. From the main menu, select **Status**.
2. Select **Phone identification** to see the serial number of the IP Handset.
3. Select **Network information** to see:
 - DHCP Enabled/Disabled
 - IP address
 - Subnet mask address
 - Default gateway
 - Physical address (MAC)
4. Select **Software version** to see the version of the IP Handset software.

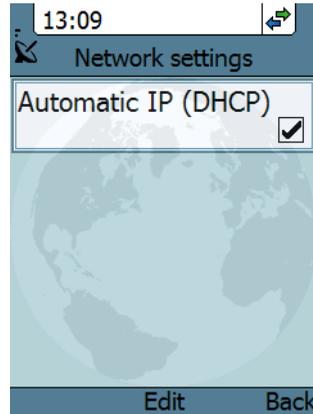


Network

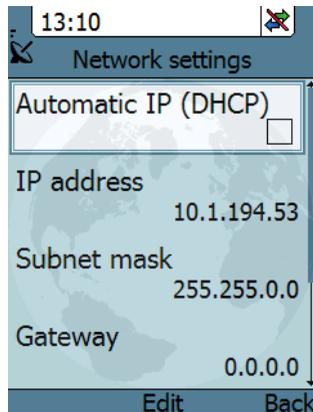
You can select whether or not the IP Handset should use DHCP. We recommend using DHCP.

Do as follows:

1. From the main menu, select **Network**.
2. Select **IP mode**.
3. Do one of the following:
 - If the IP Handset should use DHCP to automatically obtain an IP address, check the box next to **Automatic IP (DHCP)** and select **Back** or press on-hook to exit completely.
 - If the IP address is to be a static IP address, uncheck the box next to **Automatic IP (DHCP)** and continue to the next step.



4. If you selected not to use DHCP, scroll down to **IP address**.
5. Click **Edit**, type in the IP address and select **OK**.
6. Continue to **Subnet mask**, **Gateway**, **Primary DNS** and **Secondary DNS** and enter them in the same way.
7. Select **Back** or press on-hook to exit. The handset will now use the static information you entered, in stead of using DHCP.



Settings

Overview

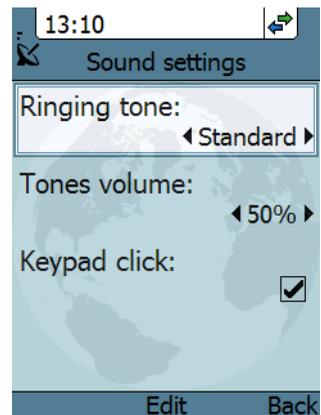
To access the Settings menu, select **Settings** from the main menu.



Sound

To adjust the sounds of the handset, do as follows:

1. From the **Settings** menu, select **Sound**.
2. Move to the sound you want to adjust.
3. For **Keypad click**, select **Edit** to change the setting.
4. For the other settings, use the keys ◀ and ▶ to change the setting, or select **Edit**, select the setting you want and select **OK**.



Stealth

Stealth mode is used when the IP Handset should not be noticed. You can select stealth for sound, for light, or for both.

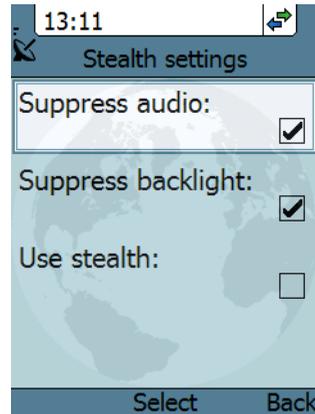
Do as follows:

1. From the **Settings** menu, select **Stealth**.
2. Move to **Suppress audio** and/or **Suppress backlight** and select **Edit** to change the setting.

Note

These settings are only activated when **Use stealth** is checked.

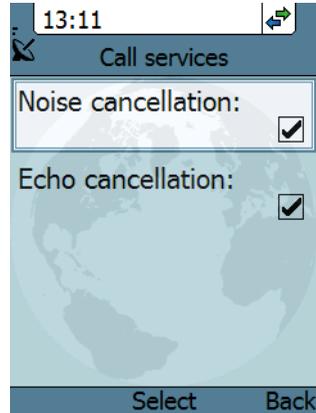
3. Move to **Use stealth** and press **Edit** to check/uncheck the box.
4. When stealth is set up in this menu you can activate and deactivate it from the main screen by selecting **Options > Stealth**.



Call services

To enable/disable Noise cancellation and Echo cancellation, do as follows:

1. From the **Settings** menu, select **Call services**.
2. Move to **Noise cancellation** and/or **Echo cancellation** and use **Select** to change the setting.
 - Echo cancellation should normally be checked (on).
 - Noise cancellation should only be checked when the handset is used in a noisy environment.



Cradle

You can select whether the handset should detect the cradle or not. Do as follows:

1. From the **Settings** menu, select **Cradle**.
2. To have the handset detect whether or not it is in the cradle, check the box. This is the default mode. The function is as follows:



- You can answer calls by removing the handset from the cradle, and terminate a call by putting the handset back in the cradle.
 - The handset automatically changes to hands-free when you make or answer a call with the handset in the cradle.
 - If you take the handset from the cradle during the call, it automatically changes back to hand-held.
 - In hand-held mode, when you put the handset in the cradle, the call is terminated.
 - In hands-free mode, when you put the handset in the cradle the call is not affected.
3. To make the handset independent of the cradle, uncheck the box. This means you must always use **[Power]** or **#** and **[Call]** to start and end calls, and you can only enable or disable hands-free operation by using the keypad.

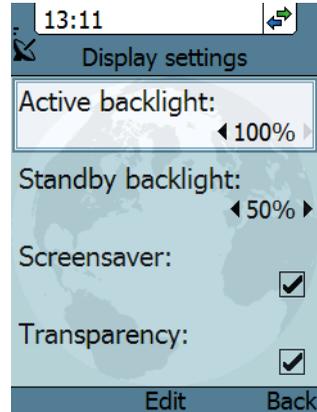
Display

To change the display settings, do as follows:

1. From the **Settings** menu, select **Display**.
2. Move to the setting you want to change.
3. For the backlight settings, use the keys ◀ and ▶ to change the percentage.
Standby backlight can be set to maximum 50%, and the Standby backlight cannot be set higher than the Active backlight.
4. For the remaining settings, select **Edit** to check/uncheck the box.

The backlight is on for 15 seconds after the last key press.

The screensaver is activated 1 minute after the last key press.



Web server

To enable or disable the built-in web server of the handset, do as follows:

1. From the **Settings** menu, select **Web server**.
2. Select **Edit** to enable or disable the web server. The default settings is enabled (checked).

For information on the web server, see *Using the web server* on page 55.

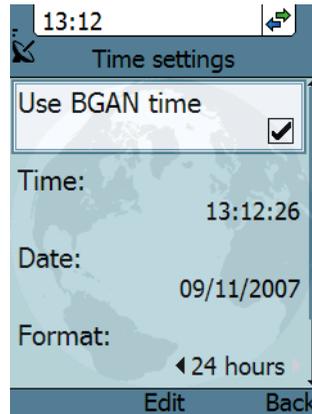


Date and time

Note | The date and time is only maintained as long as the handset is powered!

To set the date and time, do as follows:

1. From the **Settings** menu, select **Date and time**.
2. If your handset is connected to a BGAN terminal and you want to use the UTC time received from the BGAN satellite, select **Use BGAN time**. Then leave the menu.
3. If you want to set the date and time manually, uncheck the **Use BGAN time** box. Then continue to the following steps.
4. To change the time, move to **Time:** and press **Edit**. Then type in the new time and select **OK**. The new time is activated immediately.
5. To change the date, move to **Date:** and press **Edit**. Then type in the new date and select **OK**.
6. To switch the time format between 24h and 12h, use the keys ◀ and ▶, or select **Edit** and select the wanted format.
7. To change the time zone, use the keys ◀ and ▶, or select **Edit** and select the wanted time zone.



Language

This setting is for future use. Only English language is available at this time.

Factory default

To return to factory default for all settings, do as follows:

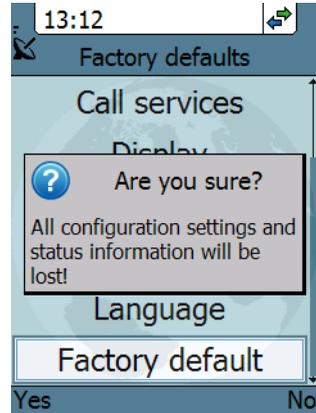
1. From the **Settings** menu, select **Factory default**.

Important

All settings and status information are lost when you accept this setting!

2. Select **Yes**.

All settings and status information are now changed to factory default settings. Note that in some cases this operation may take up to 30 seconds.



SIP

Overview

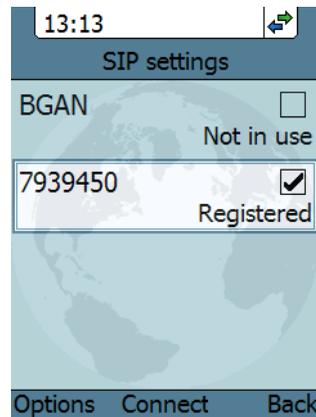
The handset communicates using Session Initiation Protocol (SIP). The profile used for communication depends on your subscription.

To activate a profile

The default profile is the BGAN profile, which is used when the IP Handset is connected to a BGAN terminal.

To activate a profile, do as follows:

1. From the main menu, select **SIP**.
2. Move to the profile you want to use for communication, and select **Connect**.

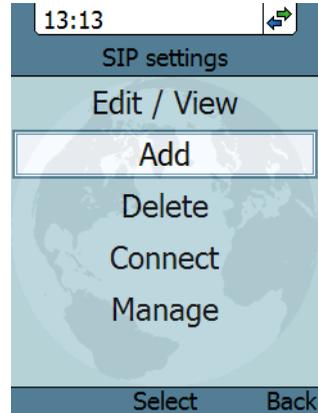


To add a new SIP profile

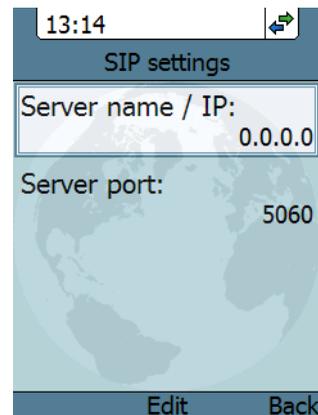
The handset can hold up to 10 profiles.

Do as follows:

1. In the SIP menu, select **Options** (left select key).
2. Select **Add**.
3. Type in the name to use for the new profile and select **OK**.



4. Move to **SIP server** and select **Edit**.
5. At **Server name / IP:**, select **Edit** again.
6. Type in the server name (URL) or IP address and select **OK**.
7. Type in the port number for the SIP server and select **OK**.
8. Select **Back**.



9. Continue through the items in the list, selecting **Edit**, typing in the information and entering with **OK**.

The items are:

- **User name**
 - **Password**
 - **Codec priority**
10. When you have made your changes, select **Back**.
 11. If you want to connect immediately with the new profile, select **Connect**. If not, select **Back** to leave the menu.



To edit a profile

1. In the list of profiles, go to the profile you want to change and select **Options > Edit/View**.
2. Edit the settings as described in the previous section.

Note

For the BGAN profile, only the user name and password can be changed. The default user name and password are 0501 and 0501.

To delete a profile

Do as follows:

1. In the SIP menu, move to the profile you want to delete and select **Options**.
2. Select **Delete**.
3. Select **Yes**.

To delete all profiles

Do as follows:

1. From the SIP settings menu, select **Options** (left select key).
2. Select **Manage**.
3. Select **Delete all**.

Important

All profiles except BGAN are deleted - this means that you will only be able to connect your handset using the BGAN profile.

4. Select **Yes**.



To see memory usage in the list of SIP profiles

To see the number of profiles in the list and the maximum allowed number of profiles, do as follows:

1. From the SIP settings menu, select **Options** (left select key).
2. Select **Manage**.
3. Select **Memory usage**.

BGAN

Overview

When the IP Handset is connected to a BGAN terminal, the handset provides a dedicated BGAN menu for the terminal. The following sections describe this menu.

To see the BGAN status

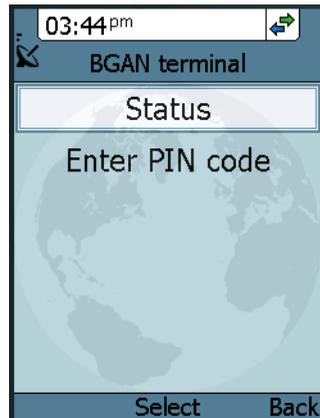
Do as follows:

1. From the menu system select **BGAN**.

2. Select **Status**.

The status menu shows the following information:

- **UMTS status** shows the status of the BGAN connection, for example Ready or Registering.
- **CNo** shows the signal strength of the BGAN connection.
- **PIN status** shows status of the PIN, for example whether the terminal is waiting for a PIN.



To enter the PIN for the BGAN terminal

Note that this menu item is only available if the BGAN terminal needs a PIN.

Do as follows:

1. From the **BGAN** menu select **Enter PIN code**.
2. Type in the Administrator user name for the terminal and select **OK**.
For information on how to type text in the handset, see *Writing text in the handset* on page 33.
3. Type in the Administrator password for the terminal and select **OK**.
4. Type in the PIN for the terminal and select **OK**.



What's next?

This chapter has described the basics of how to use the IP Handset.

The following chapter, *Using the web server*, describes how to use the built-in web server of the IP Handset.

Using the web server

In this chapter

This chapter describes how to use the web server in your IP Handset system.

Introduction

The web server

The web server is built into the IP Handset and is primarily used for uploading software and for editing contacts.

You can access the web server from a computer connected to the BGAN terminal you are using for your handset. Use a standard Internet browser.

Internet Explorer 6.0 and 7.0 on Windows, Firefox 2.0 on Windows, Firefox on Linux and Safari on MAC have been tested successfully with the web server. You may be able to use other browser versions as well.

Browser settings

The **Proxy server** settings in your browser must be disabled before accessing the web server.

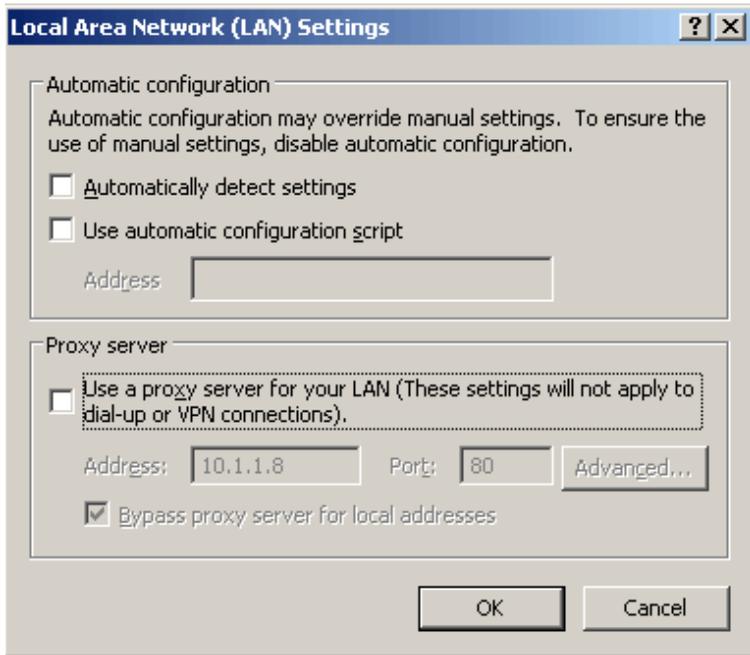
Most browsers support disabling of the Proxy server settings for one specific IP address, so you can disable Proxy server settings for the web server only, if you wish. Consult your browser help for information.

To disable the use of a Proxy server completely, do as follows:

Note

The following description is for Microsoft Internet Explorer. If you are using a different browser, the procedure may be different.

1. In Microsoft Internet Explorer, select **Tools > Internet Options > Connections > LAN Settings**.



2. Uncheck the box labeled **Use a proxy server for your LAN**.
3. Click **OK**.

When the proxy server settings are disabled, close your browser.

You may need to change this setting back on return to your Internet connection.

Accessing and navigating the web server

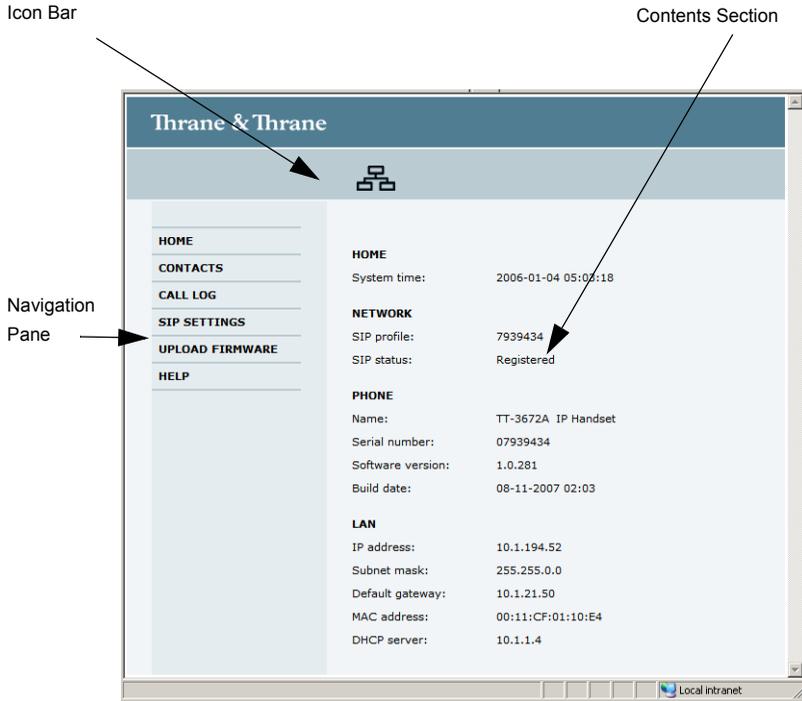
Accessing the web server

To access the web server from a computer, do as follows:

1. Start up your computer, the BGAN terminal and the IP Handset.
2. Connect your computer to the BGAN terminal using a standard LAN cable.
3. Connect your IP Handset to the BGAN terminal using the LAN cable from the cradle.
4. Open your browser and enter the IP address of the IP Handset.
You can find the IP address in the handset menus under **Status > Network information**.

Overview of the web server

The web server consists of the following sections.



- The **navigation pane** holds the main menu. Clicking an item in the menu opens a submenu in the navigation pane or a new page in the contents section.
- The **icon bar** shows a LAN icon when the handset is connected using the LAN interface.
- The **contents section** shows the page selected in the navigation pane. This section is used for viewing or changing settings, or for performing actions.

The Home page

The web server starts up on the Home page. To go back to the Home page from another location in the web server, select **Home** from the left navigation pane.

The Home page shows properties and network settings of the handset. The page is automatically updated every 5 seconds.



The screenshot displays the web interface for a Thrane & Thrane handset. The page is titled "Thrane & Thrane" and features a navigation menu on the left with options: HOME, CONTACTS, CALL LOG, SIP SETTINGS, UPLOAD FIRMWARE, and HELP. The main content area is divided into sections: HOME, NETWORK, PHONE, and LAN, each displaying specific configuration details.

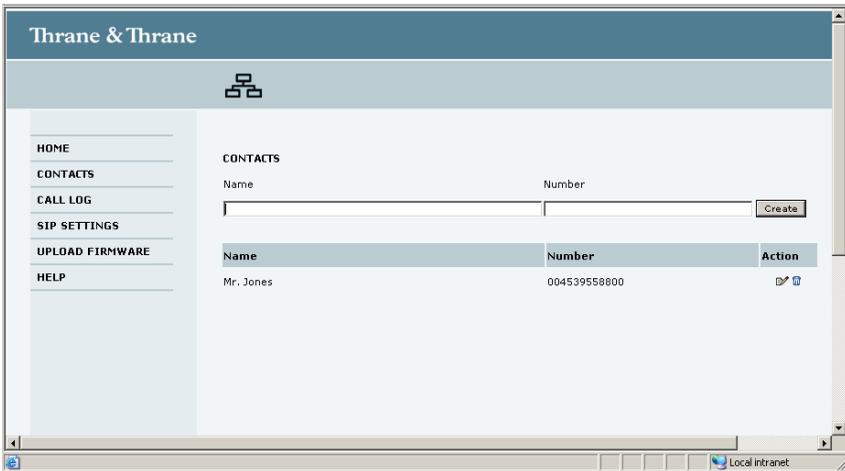
Section	Property	Value
HOME	System time:	2006-01-04 05:03:18
NETWORK	SIP profile:	7939434
	SIP status:	Registered
PHONE	Name:	TT-3672A IP Handset
	Serial number:	07939434
	Software version:	1.0.281
	Build date:	08-11-2007 02:03
LAN	IP address:	10.1.194.52
	Subnet mask:	255.255.0.0
	Default gateway:	10.1.21.50
	MAC address:	00:11:CF:01:10:E4
	DHCP server:	10.1.1.4

Contacts

The web server gives access to the Contacts list of the handset.

Select **CONTACTS** from the left navigation pane. The page shows the name and number of all contacts in the handset.

You can sort the list by name or number by clicking **Name** or **Number** in the heading row of the list.



- To add a new contact, type in the name and number at the top of the page and click **Create**. The Contacts list can hold 100 entries.
- To delete a contact, click next to the contact you want to delete.
- To edit a contact, click next to the contact you want to edit, and make your corrections.

Call log

To display the call log of the handset, select **CALL LOG** from the left navigation pane.



The CALL LOG page shows date and time, phone number, duration and call type for all calls made to or from the handset. If the phone number is in the Contacts list, the name of the contact is shown with the number.

The latest calls are listed first.

If you only want to see a subset of the calls, select one of the sub-groups at the top of the page. You can select Received calls, Outgoing calls or Missed calls.

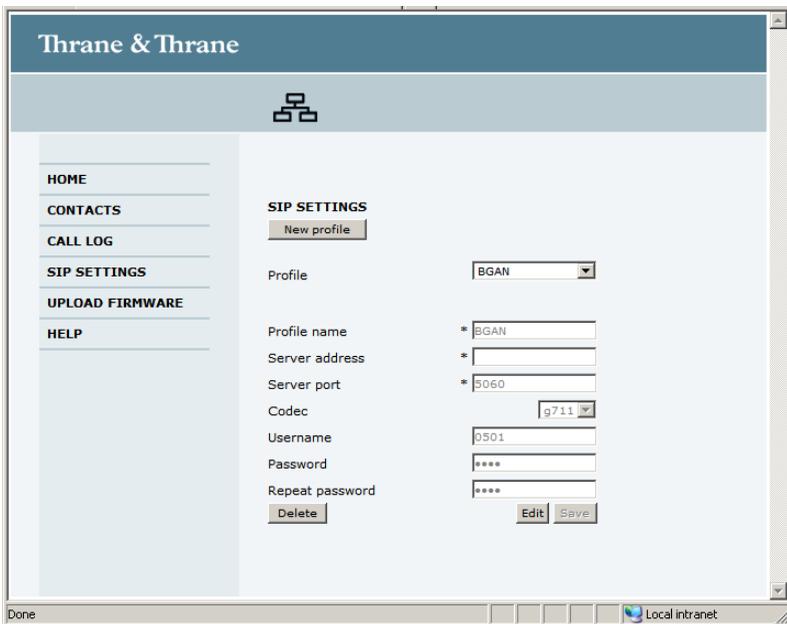
SIP settings

Overview

The handset communicates using SIP (Session Initiation Protocol).

To view the SIP settings of the handset, select **SIP SETTINGS** from the left navigation pane.

The page shows the settings for the current SIP profile.



To add a new profile

The list of SIP profiles can hold maximum 10 profiles.

To add a new profile, do as follows:

1. Click **New profile** at the top of the page.
2. Fill in the list.
You may not need to fill in all items in the list. Mandatory fields are marked with * .
3. Click **Save** at the bottom of the page.

To edit a profile

Do as follows:

1. From the **Profile** scroll list select the profile you want to edit.
2. Change the settings according to your needs.

Note

For the BGAN profile, you can only change the user name and password. Be careful if you change these - the user name is also the local phone number.

3. Click **Save** at the bottom of the page.

To delete a profile

Do as follows:

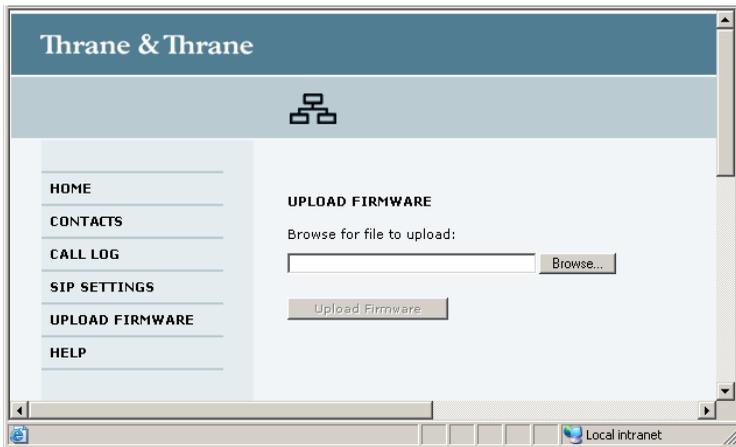
1. From the **Profile** scroll list select the profile you want to delete.
2. Click **Delete** at the bottom of the page.

Uploading firmware

You can use the web server to upload firmware from your computer to the IP Handset.

Do as follows:

1. Select **UPLOAD FIRMWARE** from the left navigation pane.



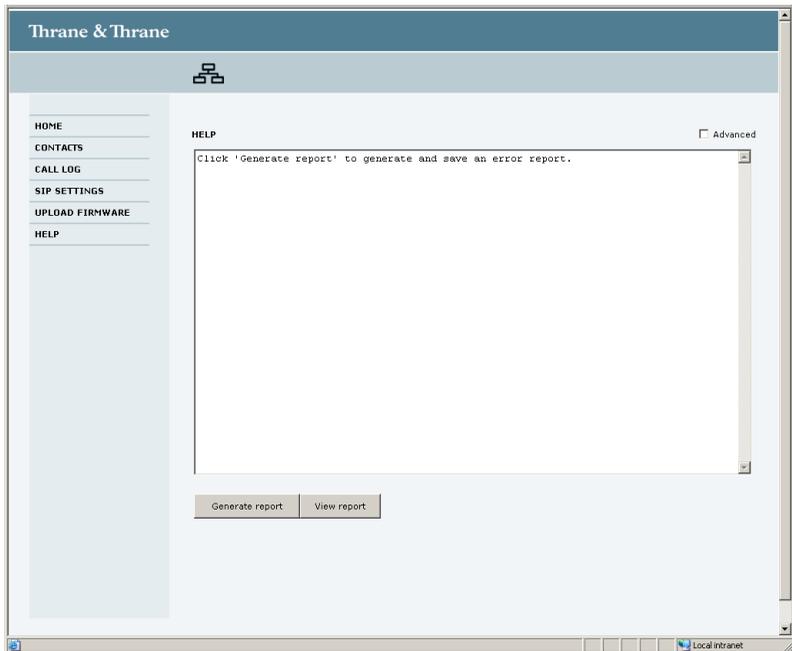
2. Click **Browse** and locate the firmware you want to upload to the IP Handset.
3. Click **Upload firmware**.
The handset initiates firmware upload, showing the progress in the display. When upload is done, the handset automatically restarts with the new firmware.

Help

If you are reporting an error with your IP Handset, you may be asked to generate a diagnostics report. The diagnostics report includes information that can be very useful for a service technician.

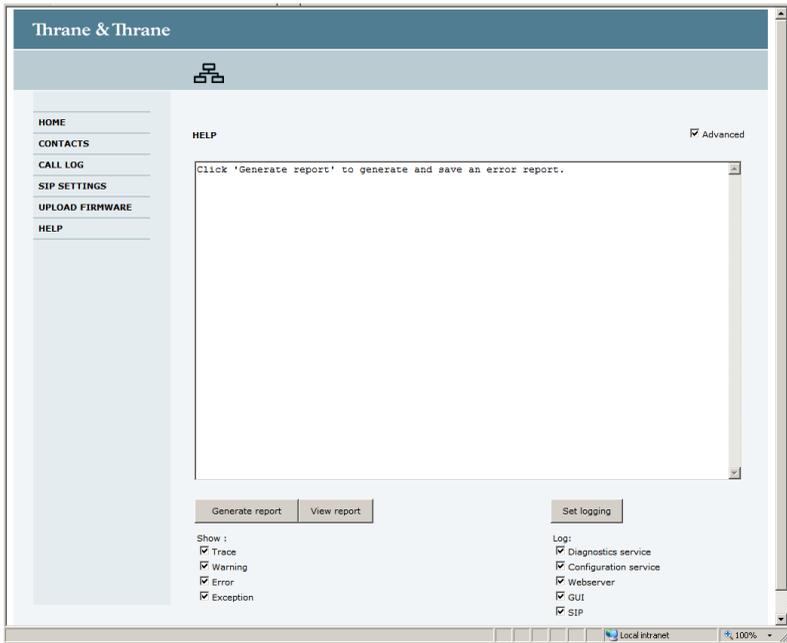
To generate a diagnostics report, do as follows:

1. Select **HELP** from the left navigation pane.



2. Click **Generate report**.

3. If your service technician needs specific information included in the report, click **Advanced** and select the items needed. Then click **Generate report**.



What's next?

This chapter has described how to use the built-in web server of the IP Handset.

The following chapter, *Troubleshooting*, describes how to troubleshoot errors in the handset, and how to get support if necessary.

Troubleshooting

In this chapter

This chapter gives guidelines for troubleshooting,

Getting support

Overview

If this manual does not provide the information required to solve your problem, you may want to contact your Airtime Provider or your supplier.

Handset support

If you need assistance with problems caused by the IP Handset, please call a distributor in your area. You may be asked to generate a diagnostics report. For information on how to generate a report, see *Help* on page 65.

An updated list of distributors is available on Thrane & Thrane's web site: www.thrane.com.

Troubleshooting guide

The below table provides information on some of the problems that might occur, including possible causes and remedies to solve the problems.

Problem	Possible Cause	Remedy
The handset is not responding to any keys pressed.	An error occurred in the software.	Press and hold the on-hook key for at least 10 seconds to cause a hardware reset of the handset.
No connection to the BGAN network.	<p>The PIN code has not been entered in the BGAN terminal,</p> <p>There is an error in the BGAN terminal or the BGAN network.</p>	<p>Enter the menu system of the handset and select BGAN > Enter PIN code. For information on how to enter the PIN, see <i>Establishing a connection using BGAN terminal</i> on page 12.</p> <p>See the manuals for the BGAN terminal for information on how to troubleshoot errors.</p>
The handset shows “SIP fault”	No SIP profile is selected, the selected SIP profile is invalid, or the user name or password is wrong.	Enter the menu system and select SIP to see the selected profile. Change the profile or select another profile if necessary. For further information, see <i>SIP</i> on page 48.

Technical specifications

In this appendix

This appendix contains specifications for the IP Handset and outline drawings for the IP Handset and cradle.

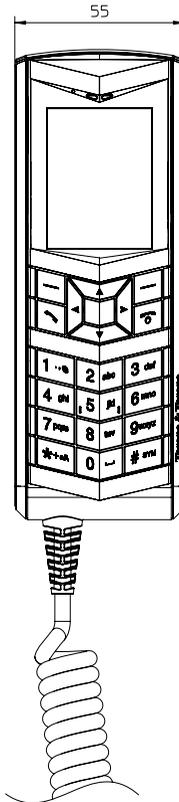
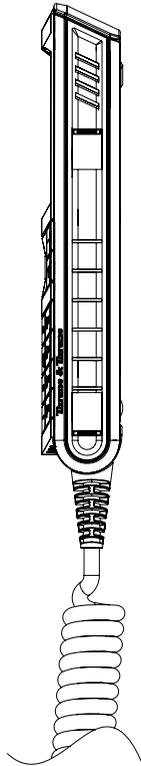
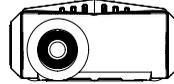
Specifications

Item	Specification
Type	TT-3672A IP Handset
Dimensions (L x B x H)	152 mm x 55 mm x 26.5 mm
Weight	175 g \pm 20 g
Display	2.2", 240 x 320 pixel TFT color LCD
Operating temperature	-25°C to +45°C
Storage temperature	-25°C to +55°C
Humidity	Up to 95% without condensation
Power	Power over Ethernet (PoE) class 2 (Alternative B of IEEE802.3af is not supported.)
Power consumption	Max. 7 Watt

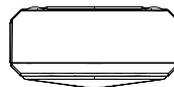
Item	Specification
Protection category	IP55, dust proof and splash proof
LAN interface	10/100 Mbps
Network Protocol	Internet Protocol (IP)
VoIP Protocol	SIP v2 Session Initiation Protocol (RFC3261), SDP (RFC2327)
Voice Codecs	G.711 and G.729 A/B
Physical interfaces	RJ-45 male connector on fixed cable Headset 2.5 mm jack Mini USB
Certifications	CE, EN60950

IP Handset outline dimensions

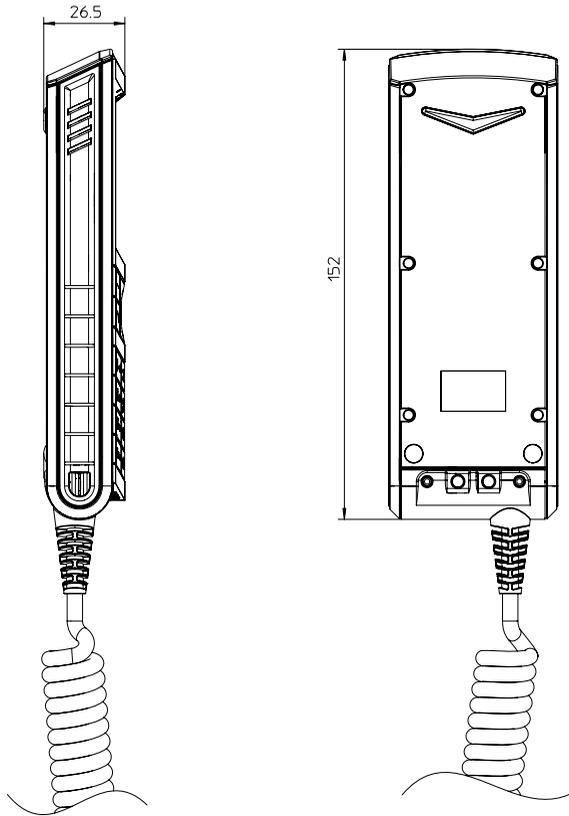
Weight of Handset:
175 gram +/- 20 gram
Exclusive Wire



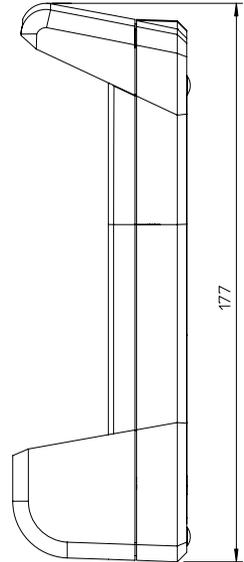
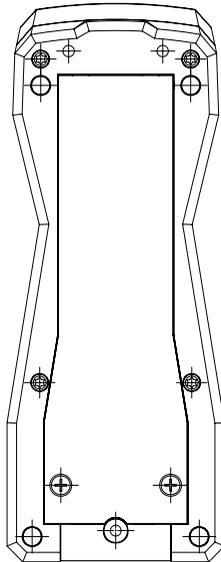
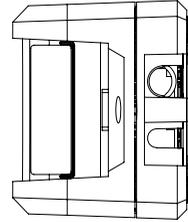
PERSPECTIVE VIEW



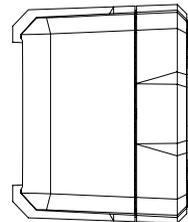
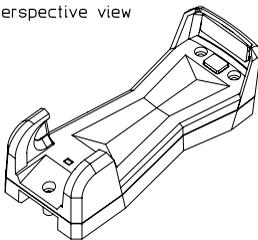
IP Handset outline dimensions, continued (side view and back view).



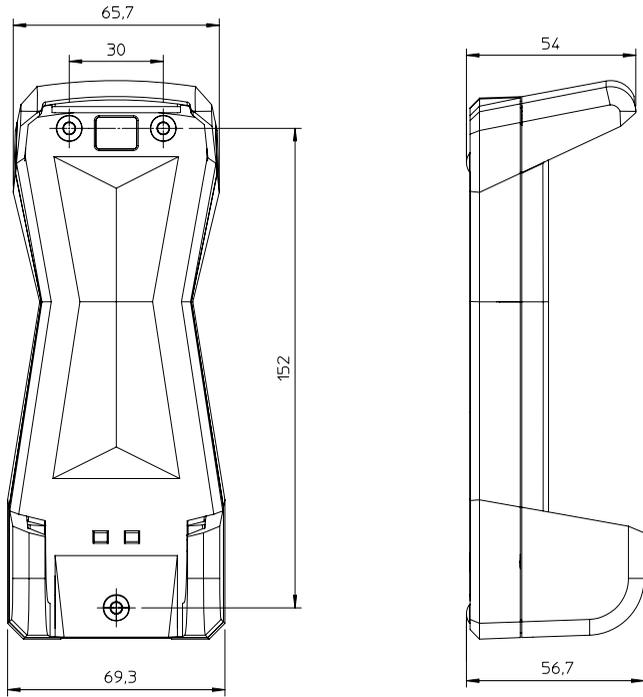
IP cradle outline dimensions



Perspective view



IP cradle outline dimensions, continued (front and side).



B

BGAN Broadband Global Area Network. A mobile satellite service that offers high-speed data up to 492 kbps and voice telephony. BGAN enables users to access e-mail, corporate networks and the Internet, transfer files and make telephone calls.

D

DHCP Dynamic Host Configuration Protocol. A protocol for assigning dynamic IP addresses to devices on a network. With dynamic addressing, a device can have a different IP address every time it connects to the network.

DNS Domain Name Server. A system translating server names (URLs) to server addresses.

I

IEEE Institute of Electrical and Electronics Engineers. IEEE is a non-profit organization and the world's leading professional association for the advancement of technology.

IMSO International Maritime Satellite Organisation. An intergovernmental body established to ensure that Inmarsat continues to meet its public service obligations, including obligations relating to the GMDSS.

IP Internet Protocol. The method or protocol by which data is sent from one computer to another on the Internet.

L

LAN Local Area Network

LCD Liquid Crystal Display

M

MAC Media Access Control address. A hardware address that uniquely identifies each node of a network.

P

PCB Printed Circuit Board

PIN Personal Identification Number. A secret numeric password shared between a user and a system, used to authenticate the user to the system.

PoE Power over Ethernet. A standard for combining power supply with transmission of data over the Ethernet. The source unit "injects" power into the Ethernet cable and the power is "picked up" at the connected device.

PUK PIN Unlocking Key. An eight-digit code used to unblock a SIM card after three incorrect PINs have been entered. The PUK code is supplied with the SIM card.

Q

QVGA Quarter Video Graphics Array. A popular term for a computer display with 320 × 240 resolution. QVGA displays are often seen in mobile phones, PDAs and some handheld game consoles.

S

SIM Subscriber Identity Module. The SIM provides secure storing of the key identifying a mobile phone service subscriber but also subscription information, preferences and storage of text messages.

SIP Session Initiation Protocol. An application-layer control (signaling) protocol for creating, modifying, and terminating sessions with one or more participants. Used e.g. for Internet telephony.

T

TFT Thin Film Transistor. A display type using a number of individual display cells, each controlled by its own transistor.

U

UMTS Universal Mobile Telecommunications System. One of the third-generation (3G) cell phone technologies, standardized by the 3GPP.

URL Uniform Resource Locator. A name used to describe the address of a specific resource on the internet.

USB Universal Serial Bus. A serial bus standard to interface devices.

V

VoIP Voice over Internet Protocol. The routing of voice conversations over the Internet or through an IP-based network.

B

- backlight, 45
- BGAN
 - call using, 29
 - enter PIN, 53
 - menu, 52

C

- call
 - ending or rejecting, 28
 - from BGAN terminal, 29
 - making, 27
 - receiving, 28
- call log, 35, 61
- call services, 43
- connecting the handset, 7
- connectors, 6
- contact information, 67
- Contacts, 37, 60
- cradle
 - detection, 44
 - dimensions, 73
 - installing, 9
 - outline, 73

D

- date and time setting, 46
- DHCP setting, 40
- diagnostics report, 65
- dimensions
 - cradle, 73
 - handset, 71

- display
 - icons, 22
 - night colors, 32
 - overview, 20
 - settings, 45
- document number
 - this manual, i

E

- Echo cancellation, 43

F

- factory default, 47
- features, 3
- firmware
 - uploading, 64

H

- handset
 - connecting, 7
 - connecting to BGAN terminal, 10
 - dimensions, 71
 - features, 3
 - outline, 71
- hands-free operation, 31

I

- icons in display, 22
- identification of the handset, 39, 59
- IP address setting, 40
- IP handset
 - getting to know, 2

K

- keypad
 - alpha-numeric keys, 17
 - control keys, 15
 - description, 14
 - locking, 32
 - shortcuts, 19

L

- locking the keypad, 32

M

- manual
 - document number, i
 - menu overview, 34
- microphone, muting, 31

N

- network information, 39, 59
- network settings, 40
- night mode, 32
- Noise cancellation, 43

O

- outline
 - cradle, 73
 - handset, 71

P

- phone book, 37, 60
- power, 11

- PUK code, 13

R

- restore factory settings, 47

S

- safety summary, iii
- Screensaver, 24
- screensaver, 45
- SIP profiles, 48, 62
 - activating, 48
 - adding, 49, 63
 - deleting, 51, 63
 - editing, 50, 63
- software upload, 64
- software version of the handset, 39, 59
- sound settings, 41
- specifications, 69
- status, 39, 59
- stealth mode
 - quick setting, 32
 - setting up, 42
- support, 67
 - diagnostics report, 65

T

- technical specifications, 69
- text, writing in display, 33
- transparency, 45
- troubleshooting guide, 68
- typography used in this manual, v

U

- uploading firmware, 64
- user interfaces, 25

V

- volume, adjusting during call, 31

W

- web server
 - accessing, 57
 - browser settings, 55
 - call log, 61
 - Contacts, 60
 - enabling/disabling, 45
 - Home, 59
 - introduction, 55
 - overview, 58
 - SIP settings, 62
 - using, 55
- writing text in display, 33

