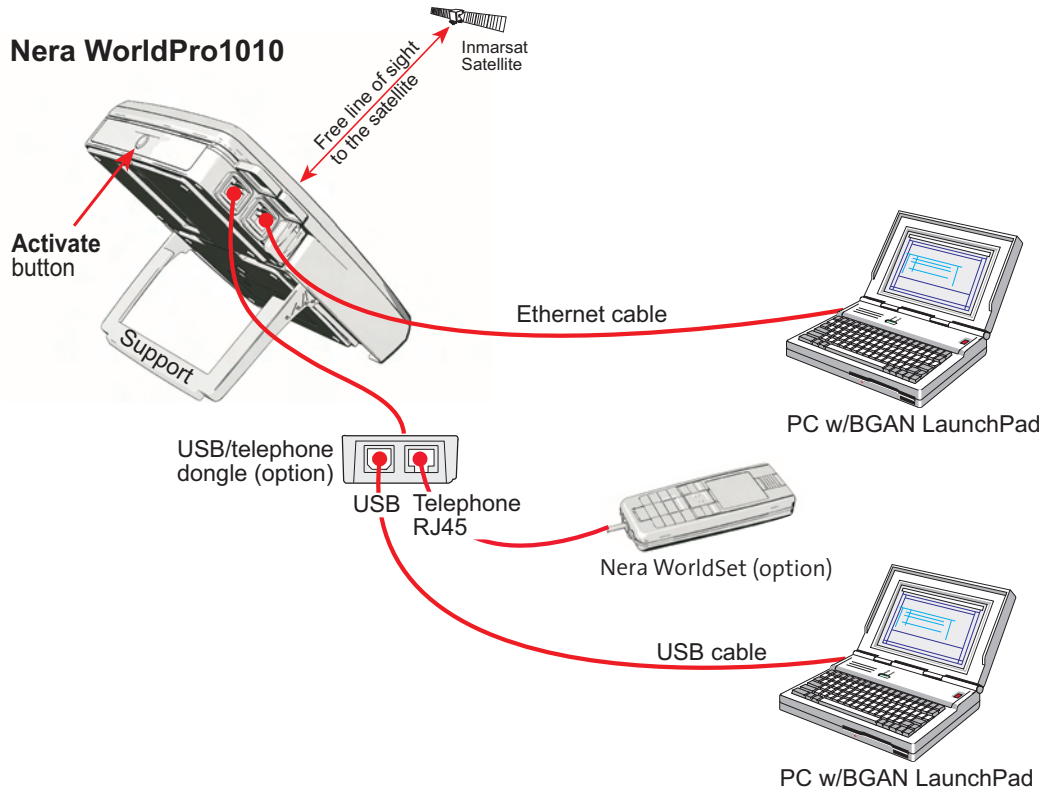


Data connection via Ethernet

Local area network





Voice communication via Nera WorldSet

Connect the Nera WorldSet to the telephone interface. For antenna pointing, you can use the Nera Worldset display. Adjust for maximum signal.

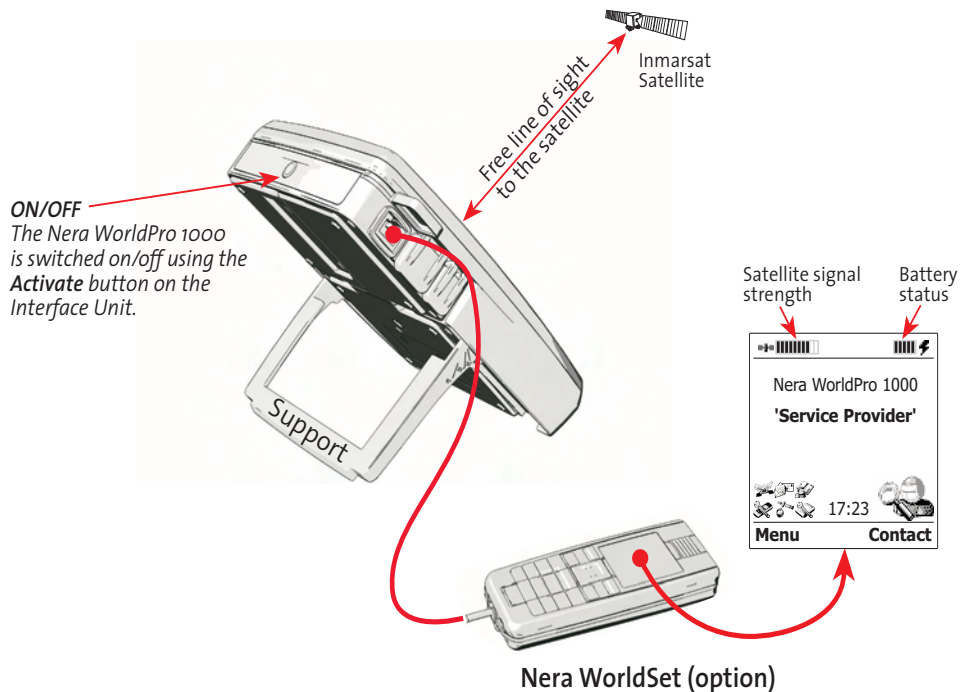
To call a subscriber, dial:

00 + country code + subscriber number + 

To call the Nera WorldPro, dial:

00870 + Inmarsat Mobile Number (IMN),
e.g. 00870771234567

For use, see *Nera WorldSet - User Guide*.





Communication via Bluetooth

If not integrated in the PC, plug the Bluetooth adapter into the USB port. Switch on the PC and, if required, install the self-running software enclosed with the Bluetooth adapter.

Bluetooth handsets are available as option.

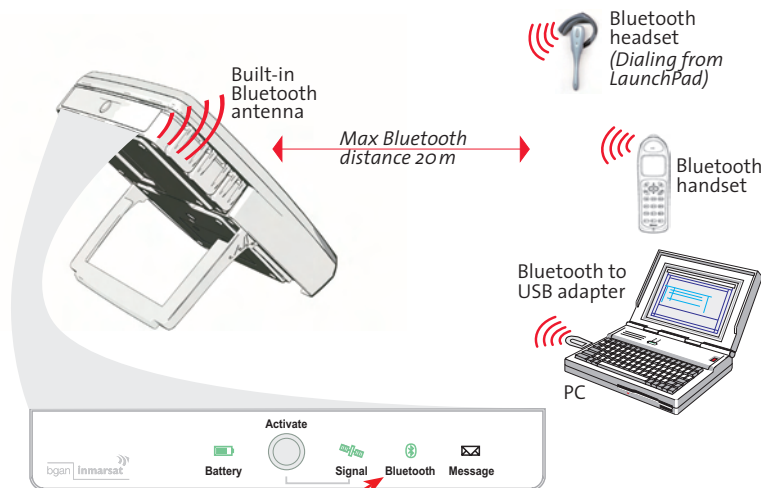
Use the BGAN LaunchPad or Nera WorldSet to enable the Bluetooth interface. The **Bluetooth** indicator lights up.

Enable Bluetooth on the PC/Bluetooth handset using the default passkey "0000" for connection to the Nera WorldPro terminal.

The **Bluetooth** indicator lights **green** when the PC is connected. Nera WorldPro is now ready for operation via Bluetooth.

*For detailed description for PC, see the **Connecting to PC via Bluetooth Application Guide** on the CD.*

*See also the **Bluetooth handset manual**.*



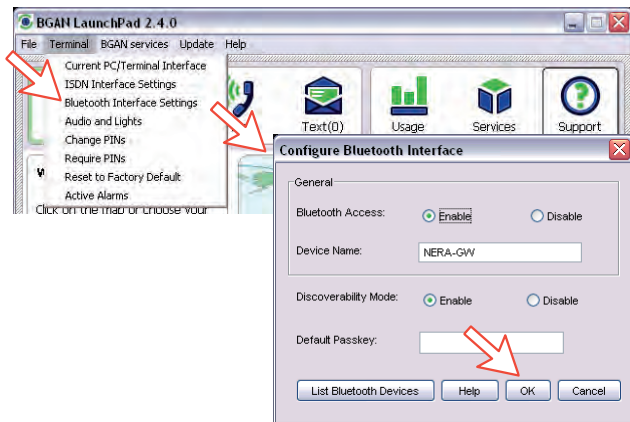
Bluetooth indicator:

- Bluetooth radio disabled when off.
- green when PC or Bt handset is connected.
- steady yellow when Bluetooth enabled with no Bt device connected.
- flashes green when waiting for user to send passkey initially.

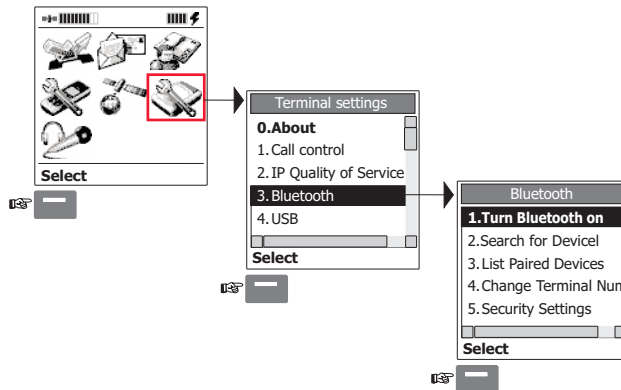


Enabling Bluetooth using BGAN LaunchPad

(Rev 2.4.0 and above)



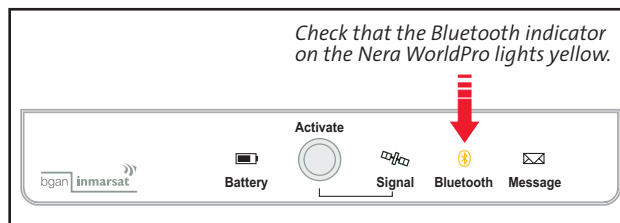
Enabling Bluetooth using Nera WorldSet



Enabling Bluetooth with AT commands using HyperTerminal

AT command: AT+WNERADEVINT="BT",n
 n=1 Bluetooth ON
 n=0 Bluetooth OFF

Indication on Nera WorldPro





Tenovis Bluetooth handset

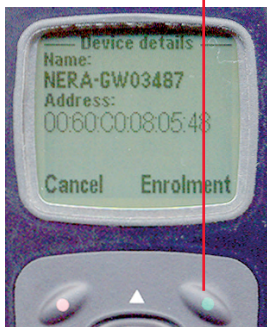
How to establish connection with Nera WorldPro the first time:

1 To switch on, press and hold the right softkey a few seconds.

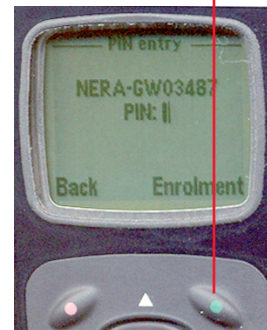
2 Search all devices by pressing the left softkey.

3 Device details appear in the display. The Nera WorldPro is recognized as e.g. NERA-GW03487, where the last five digits match the terminal IMEI number.

Press **Enrolment**

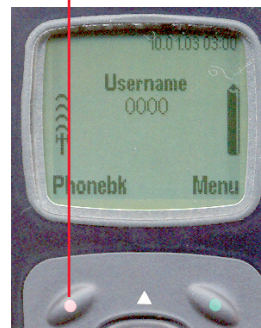


4 Enter the passkey: 0 0 0 0 (default) and select **Enrolment** by pressing the right softkey:



5 Connection established successfully, see below.

6 To switch off, press and hold the left softkey a few seconds.





BGAN LaunchPad

Installation

The **BGAN LaunchPad** allows you to set up and manage your satellite communications. You can open and monitor data connections, send and receive text messages and manage your phone call history and contact details.

The program is available on the enclosed CD and must be installed on the PC harddisk.

1 Insert the CD: 

The StartPage opens automatically in a few seconds.

(Alternatively, open the Acrobat file “Nera WorldPro StartPage” on the CD. If necessary, install Acrobat Reader by clicking “AdbeRdr6o_enu_full.exe” in the “SW Installation” folder.)

2 To install on PC, click **Software Installation** and then **BGAN LaunchPad**.

When prompted, select **Single User** installation.

3 If USB connection is required, Nera USB drivers must be installed in the PC prior to connecting to the USB cable between the PC and Nera WorldPro, *see **USB drivers** previously in this manual.*

4 If Bluetooth connection, *see the **Connect to PC via Bluetooth** application guide.*

5 Switch ON Nera WorldPro.

6 Start the BGAN LaunchPad program by clicking **Start > Programs > BGAN LaunchPad**. If necessary, aid LaunchPad to connect to your Nera WorldPro.

Updates

The BGAN LaunchPad enables you to update the software via a network.

Click **Update** on LaunchPad to initiate software upgrade.

Since an upgrade patch may amount to several megabytes, it is advisable to perform the update when connected to a terrestrial broadband network.

BGAN LaunchPad is also available for Apple Mac and Linux.

Overview

The screenshot shows the BGAN LaunchPad application window. At the top, a menu bar includes 'File', 'Terminal', 'BGAN services', 'Update', and 'Help'. Below the menu is a 'Launch zone' containing seven icons: 'Setup' (satellite), 'Data' (laptop), 'Phone' (phone), 'Text(0)' (envelope), 'Usage' (bar chart), 'Services' (cube), and 'Support' (question mark). Red arrows point from text labels above to these icons: 'Satellite pointing aid' to Setup, 'Data connection setup' to Data, 'Phone book' to Phone, 'Read/write SMS' to Text(0), 'Data and call duration information' to Usage, 'Distribution Partner information' to Services, and 'Help and service' to Support.

The middle section is the 'Control zone', featuring a 'Registration status' panel on the left and a world map on the right. The registration status panel displays: 'You are registered with Inmarsat', 'Registered: 08.57 18/10/05', 'Latitude: 59°52'N', 'Longitude: 10°29'E', 'Nearest city: Oslo', and 'Local time: 08:59'. The map shows a satellite icon over the Atlantic Ocean with a blue coverage area. Below the map, it says 'Recommended: Antenna angle: [] Compass direction: ESE / 121°'. A red bracket on the left side of the map area is labeled 'Information only! Not your exact position, but if city is selected satellite pointing guidance is available.'

The bottom section is the 'Status zone', containing three panels: 'Connected to' (WorldPro 1000), 'Status' (Registered with the network. Ready for phone and text. Select Data to enable IP Data.), and 'Signal strength' (a bar graph with 5 green segments). Below these are 'Battery status' (97%) and 'GPS status' (New). A 'Help' button and the 'bgan inmarsat' logo are also present. Red arrows point from labels below to the battery, GPS, status, and signal strength elements.

Battery status

GPS status

Register status, and available services

Signal strength will normally vary when using different services. In pointing mode, make sure to obtain the best possible signal strength.



Status



Terminal in pointing mode. Search for best possible signal strength.

Typically 50% or higher.

GPS status



Searching for GPS fix, please wait.



New GPS fix OK, please register by pressing **Activate** on terminal, or clicking.



Stored GPS fix can be used if terminal has not been moved since used last time.



Login to Inmarsat system failed.

BGAN LaunchPad

File Terminal BGAN services Update Help

Setup Data Phone Text(0) Usage Services Support

Welcome to BGAN.

Click on the map or choose your nearest city to display terminal pointing instructions.

Nearest city: **Oslo, Norway**

Help me setup BGAN

Register with network now

Recommended: Antenna angle: 12° Compass direction: ESE (121°)

Connected to
WorldPro 1000

100% GPS: New

Status
In pointing mode. To use Inmarsat services please setup the BGAN terminal.

Help

Signal strength
92.99

bgan inmarsat

Data connection

The screenshot shows the BGAN LaunchPad application window. At the top, there is a menu bar with 'File', 'Terminal', 'BGAN services', 'Update', and 'Help'. Below the menu bar is a toolbar with icons for 'Setup', 'Data', 'Phone', 'Text(O)', 'Usage', 'Services', and 'Support'. The 'Data' icon is highlighted with a red box and a circled '1'. Below the toolbar is a section titled 'Data connections' containing three buttons: 'Disconnect Standard', 'Connect Streaming 32', and 'Connect Streaming 64'. A red arrow points from a circled '2' to the 'Disconnect Standard' button, with the text 'Background data connected. Terminal is online.' Below this are two more red arrows pointing to the 'Connect Streaming 32' and 'Connect Streaming 64' buttons, with labels 'Streaming 32kbps' and 'Streaming 64kbps' respectively. At the bottom of the window, there are three status panels: 'Connected to' (WorldPro 1000), 'Status' (Standard Data connection open. Ready for Phone, Text and Data.), and 'Signal strength' (a green bar chart). A circled '3' points to the 'Status' panel, with text indicating 'Connected to network. Standard background data: - transmit: up to 240 kbps - receive: up to 384 kbps'. The bottom left shows a battery icon at 100%.



LaunchPad help

The screenshot displays the BGAN LaunchPad application window. The main window has a menu bar with 'File', 'Terminal', 'BGAN services', 'Update', and 'Help'. The 'Help' menu is open, showing options: 'Launchpad Help', 'Quick Start Guide', 'Terminal Manual', 'Product Support', 'Diagnostic Report', and 'About LaunchPad'. A 'Help' button is visible at the bottom of the main window, indicated by a red arrow.

The 'BGAN Help' window is open, displaying the following content:

Using BGAN LaunchPad Help

BGAN LaunchPad Help is designed to help you get the most out of your BGAN terminal and BGAN services. Illustrated help files explain how to set up your BGAN terminal, and how to use BGAN LaunchPad to configure and manage your BGAN terminal, and set up and control BGAN services, such as data, phone and text.

How to Get Help

There are several ways to get help when using BGAN LaunchPad:

- Select **Help > LaunchPad Help** from the main menu to open the main Contents list, or search for a particular topic.
- Click on a **Help** button. Some BGAN LaunchPad dialog boxes have a help button for the particular area you are working on.
- Click on the **Support** icon to open the **Support** tab, shown below:

BGAN offline support

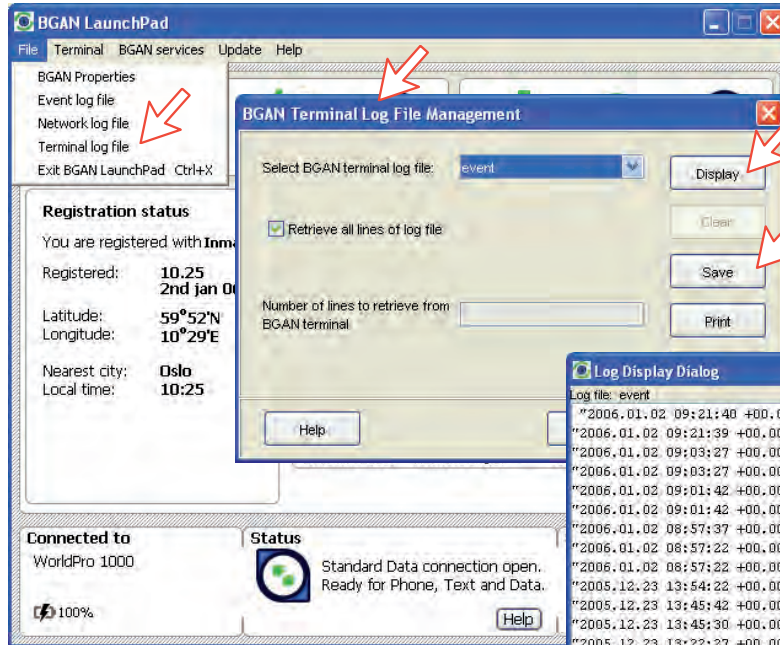
BGAN LaunchPad Help	Contact your service provider for general information
BGAN overview	
Quick Start Wizard	

The 'BGAN Help' window also features a table of contents on the left side:

- Setting Up the Terminal
- Connecting to the BGAN Network
- Setting up the Interface
- Using Data
- Using Phone
- Using Text
- Managing Contacts
- Monitoring Status
- Monitoring Usage
- Security and Control
- Getting Help
 - Using Services
 - Using Support
 - Using Diagnostics
 - Viewing BGAN Properties
 - **BGAN LaunchPad Help**
- Exiting and Resetting
- Updating Software
- Managing Log Files
- Using Profile Manager
- Using Nera WorldSet
- Technical Data
- Technology Overviews
- Glossary

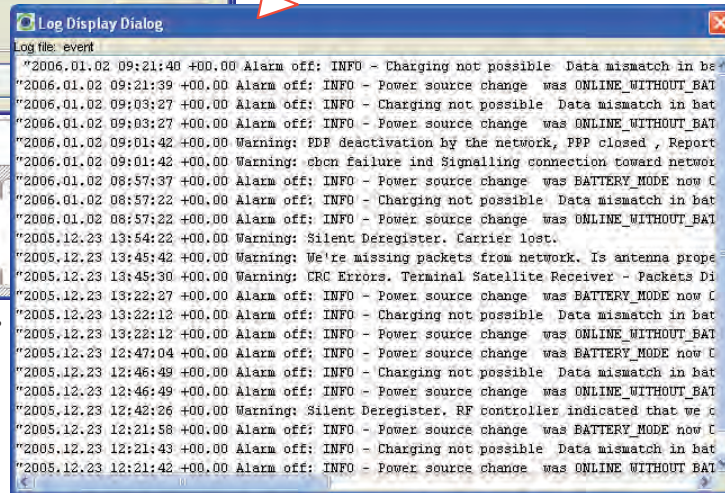


Terminal log



Click **Display** to list terminal events.
The last 100 events are stored.

The list can be saved to file.



Events log file lists information/alarms that have occurred on the terminal.

Active alarms will pop up on the screen and are also displayed along with red alert message on Interface Unit.

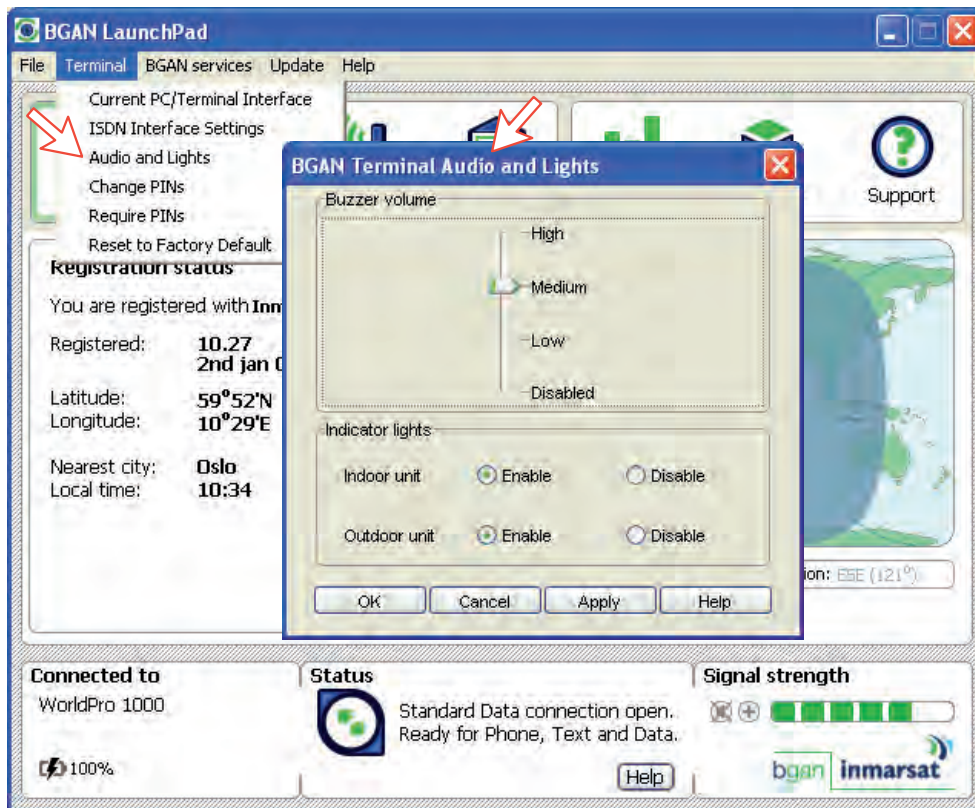
Alarms are repeated in the event log until solved.

Warnings/Information is stored in event log for information only.

Nera WorldPro1000/1010



Audio and lights setup on terminal





Inmarsat BGAN system

The Inmarsat Broadband Area Network service (BGAN) provides both voice and broadband data through a truly portable device on a global basis.

Data and voice transmissions to and from mobile/fixed subscribers is offered anywhere within the worldwide coverage of the Inmarsat 4 spot beam system, *see map later in the User Guide*.

The benefit of the INMARSAT system is its high capacity, and the rapid and reliable connection between the land based (fixed) users and the **Mobile Earth Stations (MESs)**.

Each satellite region is under the control of a **Satellite Access Station (SAS)**, which controls and monitors the traffic between the MESs and the SAS.

SAS: *Satellite Access Station w/Distribution Partners (interconnects fixed telecommunication networks with the Inmarsat system, two in each Ocean Region).*

MES: *Mobile Earth Station (Nera WorldPro, a user terminal for the Inmarsat system).*

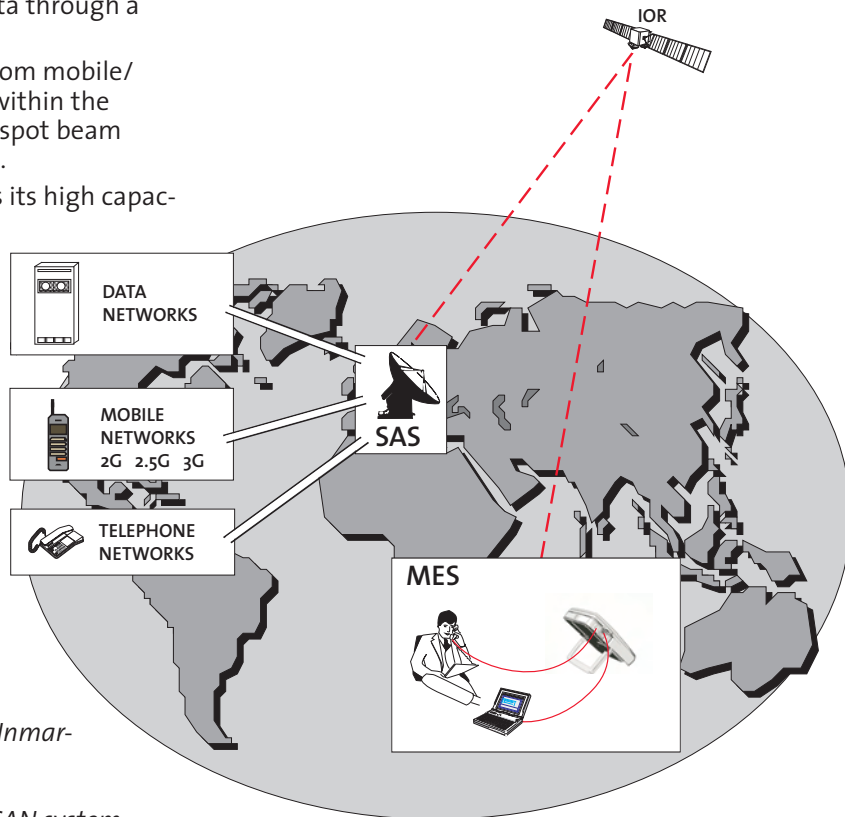


Figure A-1 Overview of the Inmarsat BGAN system.



System satellites

The satellites are positioned in a geostationary orbit above the equator at approximately 35700km altitude.

See figure A-2.

In geostationary orbit, each satellite moves at the same rate as the earth, and so remains in the same relative position to the earth.

The satellites provide 99% landmass coverage.

Nera WorldPro can communicate via the three satellite Ocean Regions:

- F1 Indian Ocean Region
- F2 Atlantic Ocean Region
- F3 Pacific Ocean Region

The coverage area of the satellites for Nera WorldPro (BGAN) is shown on the **Satellite coverage map**, see earlier in this manual. Communication is possible in areas marked with brown and reddish brown (light grey and grey when printed in black), indicating spotbeam coverage.

Transmission frequencies

The Inmarsat BGAN terminals operate in the following L-band frequencies:

MES transmission frequencies:

1626.5 MHz - 1660.5 MHz

MES receiving frequencies:

1525.0 MHz - 1559.0 MHz

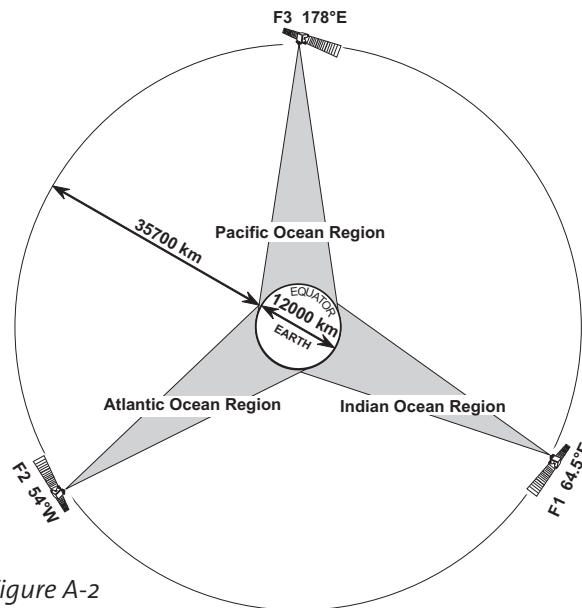


Figure A-2
Satellite positions.

SAS (Satellite Access Station)

Two SAS stations cover both the IOR and AOR-E satellite regions. See figure A-3.

The SASs provide the interface to the international networks for telephony and data: PSTN (Public Switched Telephone Networks), PSDN (Packet Switched Data Networks) and Mobile Telephone Networks.

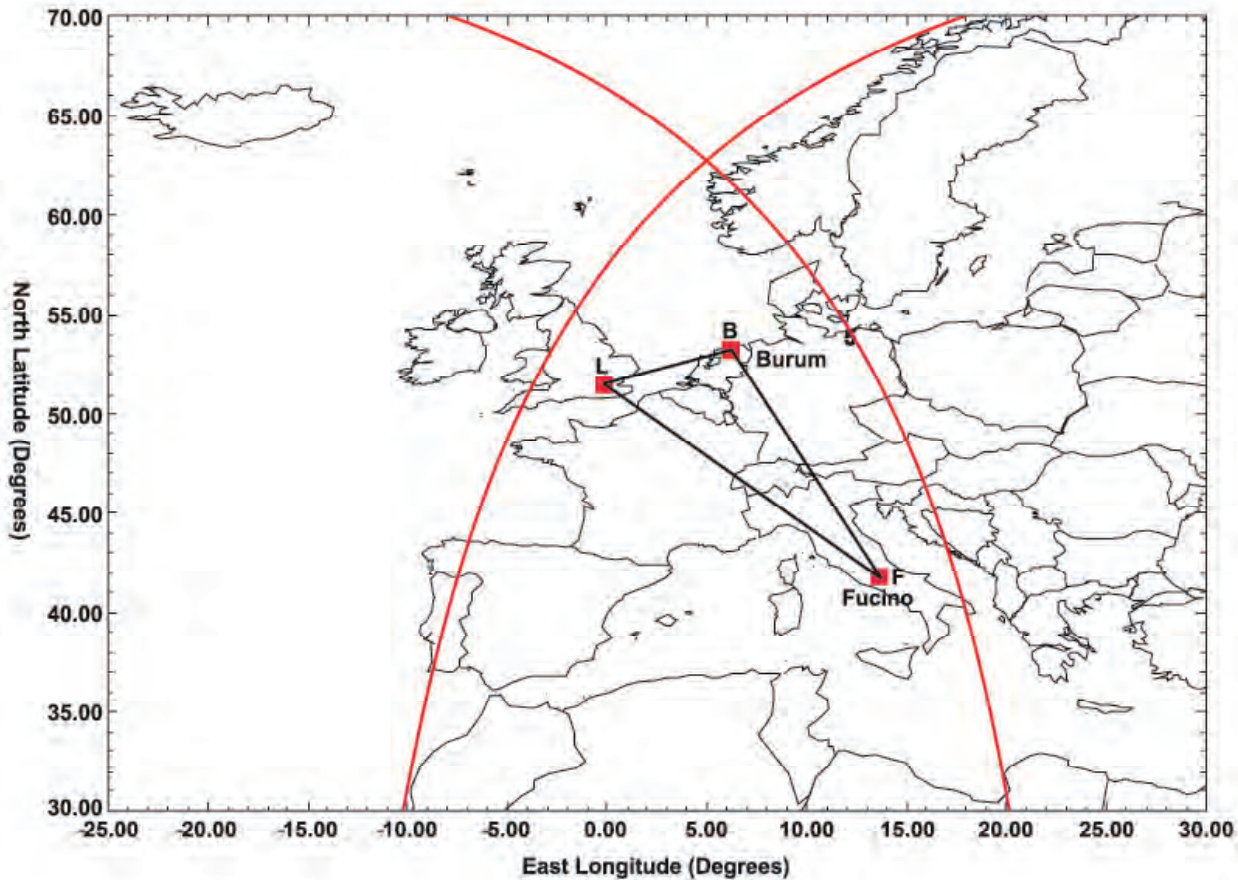
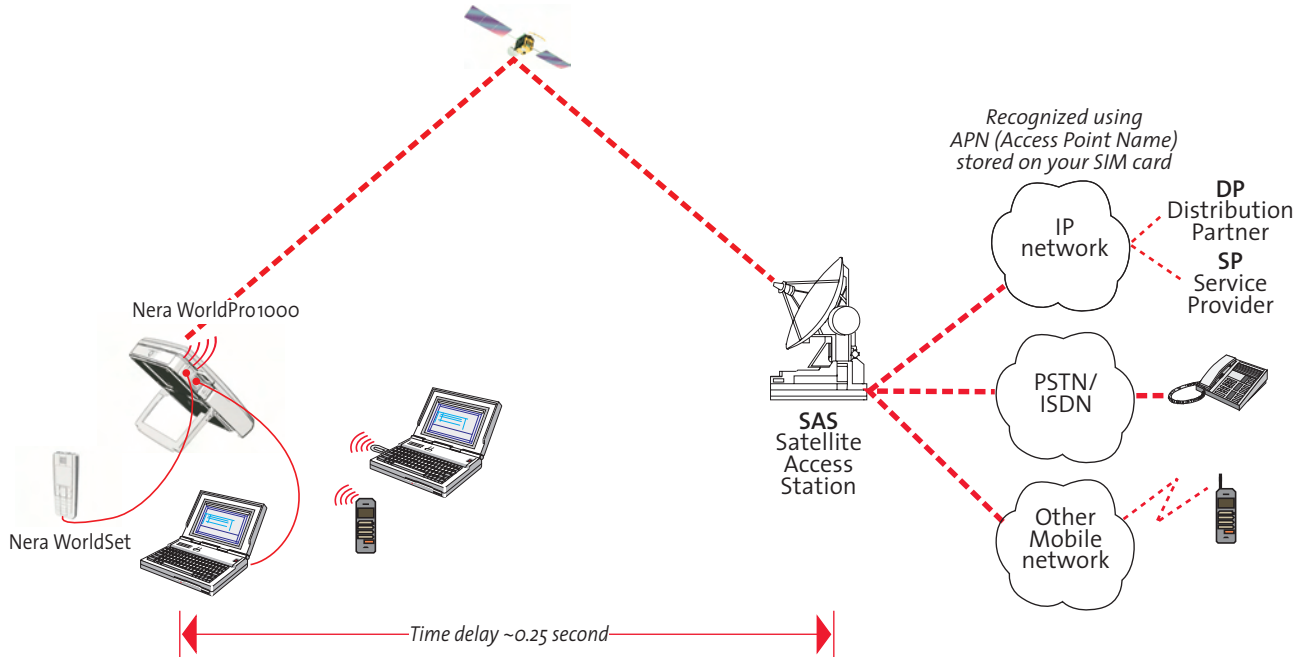


Figure A-3 BGAN Satellite Access Station Europa for IOR and AOR satellite.

Communication path





AC Alternating Current

AOR Atlantic Ocean Region West (F2 - 53° West).

APN Access Point Name

Azimuth horizontal direction angle between north and, e.g. the direction to the satellite.

Bit rate the number of bits transmitted per second (bps).

Bluetooth Wireless computer interface.

Bps Bits per second.

BGAN Inmarsat Broadband Global Area Network, mobile communications service providing simultaneous voice and data.

BT Bluetooth

CBR Constant Bit Rate

CHV2 higher access level on the SIM card.

CS Circuit Switched service.

DC Direct Current.

Dongle Bluetooth device that connects to the PC.

DP Distribution Partner

DSP Digital Signal Processor.

DTE Data Terminal Equipment.

DUN Dial Up Network.

Elevation vertical angle to the satellite, i.e. the height of the satellite above the horizon.

Ethernet Local Area Network (LAN)

FWD ID forward Id, telephone network identity.

GPRS General Packet Radio Service.

GPS Global Positioning System.

IMN Inmarsat Mobile Number, a unique 9-digit number which identifies each device connected to the Nera WorldPro terminal.

Inmarsat International Maritime Satellite Organisation.

IMEI International Mobile Equipment Identifier, a unique number that can be found on the label inside the battery compartment of the Interface Unit.

IMSI a unique SIM card number

IOR Indian Ocean Region (F1 - 64° East).

IP Internet Protocol

IPDS Inmarsat Packet Data Service.

ISDN Integrated Services Digital Network.

ISN Inmarsat Serial Number, individual number assigned to each WorldPro terminal.

ITU International Telecommunications Union

Kbps Kilobits per second.

LAN Local Area Network.

LaunchPad Inmarsat BGAN PC software.

LED Light Emitting Diode

MES Mobile Earth Station, a user terminal for an Inmarsat system; the Nera WorldPro terminal is an MES for the Inmarsat BGAN system.

Modem Device/driver for conveying digital data.



MSN Multiple Subscriber Number, the extension number that connected equipment responds to.

OID Originating terminal IDentification.

Ocean Region the coverage area of an Inmarsat satellite within which the Nera WorldPro terminal may communicate.

PABX Private Automatic Branch Exchange.

Passkey Bluetooth enabling key

PIN Personal Identification Number.

POR Pacific Ocean Region (F3 - 178°East).

PPP Point-to-Point Protocol used for serial data communication via the Nera WorldPro USB port or Bluetooth connection.

PS Packet Switched data service.

PSTN Public Switched Telephone Network

PUK Personal Unblocking Key, code that allows unblocking a SIM card.

QoS Quality of Service

RF Radio Frequency.

SAS Satellite Access Station, a station that interconnects fixed telecommunications networks with the Inmarsat system.

SIM Subscriber Identity Module

SMS Short Message System.

SP Service Provider

Spot Beam an Ocean Region is divided into sub-regions, each “spotlighted” by a beam from the region satellite.

Terrestrial Network a fixed telecommunications network, such as a telephone network or a data network, which connects to the Inmarsat system at an SAS.

UDI Unrestricted Digital Information.

UMTS Universal Mobile Telecommunications System.

USB Universal Serial Bus.

USIM SIM card designed for 3G mobile telephony.

UTC Coordinated Universal Time, referenced to Greenwich Mean Time (GMT).

VBR Variable Bit Rate.

VoIP Voice over Internet Protocol, broadband internet telephone communications.

VPN Virtual Private Network.



<i>Setting up problem</i>	<i>Probable cause</i>	<i>Action</i>
1. <i>The indicators do not light up:</i>	The Interface Unit is not switched ON	• Press Activate button for 1.5 secs.
	Power is not connected. Battery is not installed.	• Check that the power adapter is properly connected, use any DC source in the range 10.8 - 15.6 V.
2. <i>The Nera WorldSet display freezes or stays completely blank:</i>	The handset cord is not connected or damaged	<ul style="list-style-type: none"> • Check that the handset cord is properly connected and inspect the cord. Uses the RJ45 pins 3, 4, 5 and 6 only. • Disconnect cord from Interface Unit and connect it again.
3. <i>SIM not installed</i>	Message indicator blinks red	<ul style="list-style-type: none"> • Insert SIM card. Must be a G3 SIM (USIM) provided by an Inmarsat DP/SP. • Read alarms in BGAN LaunchPad or Nera WorldSet. • Check SIM card installation/orientation.
4. <i>Message indicator blinks yellow</i>	SIM PIN needs to be entered	With SIM card installed a SIM/PUK code is required. Use Nera WorldSet or BGAN LaunchPad to enter PIN.
5. <i>No GPS: "Not registering with network" Signal indicator lights red</i>	GPS alarm, or GPS not received.	<ul style="list-style-type: none"> • Wait up to 5 minutes. The GPS may use up to 5 minutes if Nera WorldPro has been upgraded with new terminal SW, or the stored GPS time stamp is too old. If not the case, GPS will report new/stored GPS to BGAN LaunchPad and Nera WorldSet display when GPS is acquired. GPS is needed for logging onto the Inmarsat system. Find another location. Wait for Signal indicator to turn green in pointing mode before switching to operational mode.



<i>Setting up problem</i>	<i>Probable cause</i>	<i>Action</i>
6. <i>Signal indicator blinks yellow</i>	Terminal has a stored GPS and a new fix is not yet obtained	<ul style="list-style-type: none"> • Wait up to 5 minutes. However, it is possible to log onto the Inmarsat system if the stored GPS position is within the same region as you were the last time you used the terminal, and the time stamp is accepted by the system.
7. <i>Nera WorldPro cannot find the satellite:</i>	No or weak signals. Sight to satellite obstructed	<ul style="list-style-type: none"> • Check that no obstacles block the free sight to the satellite. • Check with the coverage map.
8. <i>Low signal reception:</i>	Obstructions	<ul style="list-style-type: none"> • The signal strength indicator should preferably exceed 50% in BGAN LaunchPad, or 5 bars in the Nera WorldSet display. • Check that no obstacles block the free sight to the satellite. • Restart the search for any satellite by pressing the Activate button.
9. <i>Nera WorldPro 1000/1010 functions abnormally:</i>	All signal indicators stay red, or blink	<ul style="list-style-type: none"> • Turn off the terminal by pressing the Activate button, and switch on again. May be necessary to press Activate for 10secs or remove battery. • Verify correct voltages to the terminal: 10.8 - 15.6 VDC. • Download new software from the Nera website. (preferably done by a Nera Regional Service Centre)
10. <i>Nera WorldPro functions abnormally:</i>	All signal indicators stay yellow. Activate button has been pressed and held for more than 10seconds.	<ul style="list-style-type: none"> • Terminal in software upgrade mode. To exit the upgrade mode, switch OFF the terminal and switch it ON again. • Download new software from the Nera website. (preferably done by a Nera Regional Service Centre)



<i>Setting up problem</i>	<i>Probable cause</i>	<i>Action</i>
<i>11. Logging into the system fails</i>	Signal indicators switch to red after login attempt	<ul style="list-style-type: none">• Check that the SIM card is installed.• The terminal is black listed (<i>IMEI</i> number).• The SIM card is black listed (<i>IMSI</i> number).



<i>Problems connecting to PC</i>	<i>Probable cause</i>	<i>Action</i>
<p>1. <i>No contact with modem using USB:</i></p>	<p>Wrong setup of USB driver.</p>	<ul style="list-style-type: none"> • Check cable connection. • Disconnect USB cable, and reconnect • On PC, open Phone and Modem options and check whether USB Modem driver is connected to COM port. If not: <i>Alt. A</i> <ol style="list-style-type: none"> 1. Remove Modem in Phone and Modem options. (Nera Dual Port1/Port2) 2. Run the Nera USB wizard. 3. Reconnect the Nera WorldProterminal 4. Follow the New Hardware Wizard in Windows. Click next, and repeat procedure 3 times: Nera Dual Port/Control port 1/2 <i>Alt. B</i> <ol style="list-style-type: none"> 1. Remove previous USB installations via Control Panel>System>Hardware>Device Manager. Double-click universal serial Bus Controller and uninstall the USB universal Host Controller. Warning! Removes all USB drivers. 2. Repeat installation of USB driver
<p>2. <i>Cannot find Network Connection:</i></p>	<p>Network connection not installed.</p>	<ul style="list-style-type: none"> • Contact your PC vendor to get the software.



<i>Problems connecting to PC</i>	<i>Probable cause</i>	<i>Action</i>
<i>3. Length of cables:</i> <i>USB</i> <i>Ethernet</i> <i>Bluetooth</i>	Guranteed length: 3m TBD 20m	
<i>4. Using LaunchPad fails</i>		<ul style="list-style-type: none">• "Help" BGAN LaunchPad to connect.• Select correct COM port manually• See problem 1 for USB problems.• Reinstall BGAN LaunchPad.• Check that the SIM card is inserted in terminal.
<i>5. How do I set a DUN not using BGAN LaunchPad</i>		<ul style="list-style-type: none">• Read the application guide Setting up a DUN.



<i>Operation problem</i>	<i>Probable cause</i>	<i>Action</i>
1. <i>Unsuccessful call:</i>	Network busy	<ul style="list-style-type: none"> • Try again
	Nera WorldPro is not commissioned.	<ul style="list-style-type: none"> • Check event log for information. • Call the Net Service Provider/Distribution Partner.
	The called party is busy. "Subscriber busy" appears in Nera WorldSet display	<ul style="list-style-type: none"> • Wait for some time and try again. • Call another subscriber.
2. <i>Problems with making a voice call.</i>	Incomplete dialing	<ul style="list-style-type: none"> • Always use the International prefix e.g. 004767244700. • Remember to key "#" as the last digit before starting transmission. Not needed on Nera WorldSet.
	Service not commissioned	<ul style="list-style-type: none"> • SIM card is not accepting phone calls.
	Not logged on to the Inmarsat system	<ul style="list-style-type: none"> • No valid GPS • Check Signal indicator • Check BGAN LaunchPad • Press Activate button and repeat the satellite pointing.
3. <i>Problems with incoming voice call.</i>		<ul style="list-style-type: none"> • Subscriber must dial International prefix e.g. 00870772420510. • Voice device not properly connected to terminal.
4. <i>Problems with data communication:</i>	Wrong PC settings	<ul style="list-style-type: none"> • Verify DUN (Dial Up Network) settings. Number to dial should be *98# • Read Connecting to PC application guides on CD. • Contact the PC applications vendor for help.



<i>Operation problem</i>	<i>Probable cause</i>	<i>Action</i>
5. Connection unsuccessful:	Other end does not reply No answer from SAS	<ul style="list-style-type: none">• Verify that you are logged on to the system.• Verify satellite signal
	Wrong connection details	<ul style="list-style-type: none">• Check the APN address (located on the SIM card) with your Distribution Partner (DP). Select correct user name and password. If required, enter data using BGAN LaunchPad.• Check whether your SIM card is registered.
6. Terminal fails to connect in data mode	Incomplete dialing	<ul style="list-style-type: none">• Verify satellite signal indicator, should light green.• Using BGAN LaunchPad, check status and network registration.• Using BGAN LaunchPad, make sure to select data connection.• Select background data.• Try again.
7. Disconnects after some time	Wrong setting in dialup (DUN)	<ul style="list-style-type: none">• Check properties>options>idle time before hang up.• Check satellite signal, can vary in some locations, <i>see User Guide</i>.
8. Satellite Signal indicator turns red	Logging onto the Inmarsat system failed	<ul style="list-style-type: none">• Terminal has no GPS fix, or stored fix is rejected.• Satellite signal too low.• Make sure to acquire a GPS fix.• Verify satellite signal.



<i>Operation problem</i>	<i>Probable cause</i>	<i>Action</i>
<i>9. Low throughput</i>	Many users logged on the system	<ul style="list-style-type: none">• Try later• Use another Ocean Region <i>Note! You only pay for data sent/received</i>• Check satellite signal
<i>10. Streaming fails</i>	Not available service	<ul style="list-style-type: none">• Check with your DP (Distribution Partner) on the availability on your SIM card.• Using BGAN LaunchPad, verify APN located on SIM card using.• Nera WorldPro supports QoS streaming 32 and 64kbps.
<i>11. Out of range</i>		<ul style="list-style-type: none">• Not within the Inmarsat coverage.• Check GPS• Check satellite signal



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