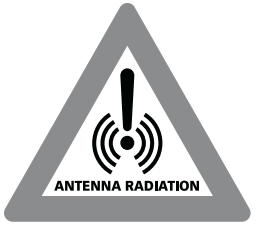
EXPLORER® 100-110

Voice and broadband data communications – via satellite

User Guide

Thrane & Thrane

RADIATION WARNING



High levels of radio frequency radiation are considered health hazardous. Although no single value of "safe radiation level" has been agreed upon by all countries, the American National Standards Institute (ANSI/LEEE C95.1-1992) recommends that people should not be exposed to radiation stronger than 1 milliwatt per square centimetre at the frequencies used in the Nera WorldPro terminal. Accordingly, the operator of the terminal should ensure that the area extending 0.5 metre from the front of the antenna be kept clear of personnel when the terminal is transmitting.

OBTAINING LICENSING FOR INMARSAT TERMINALS

Under rights given under ITU Radio Regulations, local telecommunications administrations establish and enforce national rules and regulations governing types of emissions, power levels, and other parameters that effect the purity of signal, which may be radiated in the various frequency bands of the radio spectrum.

To legally operate an Inmarsat terminal, it is necessary to obtain permission from the local telecommunications regulatory authorities of the country you are operating within. Using your terminal in any country without permission causes you to run the risk of confiscation of the terminal or legal action from local authorities. Normal practice for taking telecommunications into another country is to apply for a license before travel. If a license has not been obtained before travel, the equipment may be put into storage by local authorities until such time as a license is obtained.

All specifications are subject to change without notice.

FCC Notice

USE CONDITIONS

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

EXPOSURE TO RADIO FREQUENCY RADIATION

This device complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. The antenna used for this transmitter must be installed to provide a separation distance of at least 50 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

CAUTION

Changes or modifications not expressly approved by the manufacturer could void the user's authority, which is granted by FCC, to operate this satellite terminal Nera WorldPro / Explorer 100/110.

End User Licence Agreement

WindRiver/France Telecom/DVSI

PLEASE CAREFULLY READ THE LICENSE AGREEMENT BELOW BEFORE USING THE PRODUCT THIS MANUAL DESCRIBES. IN THE EVENT YOU CANNOT ACCEPT THESE TERMS AND CONDITIONS, YOU SHOULD RETURN THE PRODUCT TO THE PLACE OF PURCHASE FOR A REFUND OF THE PRICE PAID.

This Product contains embedded software from:

- WindRiver (WxWorks and GNAT). See license agreement below.
- France Telecom (Turbocodes). France Telecom – TDF – Groupe des ecoles des telecommunications Turbo Codes patents license.
- Digital Voice Systems, Inc. (AMBE +2™ voice compression technology) See license agreement below.

WindRiver License Agreement.

End User shall take all steps necessary to protect Wind River's and its licensors' proprietary rights.
This Agreement strictly prohibits End User from

(i) copying the Run-Time Module, except for archive purposes consistent with the End User's archive procedures;
(ii) transferring the Run-Time Module to a third party apart from the Target Application;
(iii) modifying, decompiling, disassembling, reverse engineering or otherwise attempting to derive the Source Code of the Run-Time Module;
(iv) exporting the Run-Time Module or underlying technology in contravention of applicable U.S. and foreign export laws and regulations; and
(v) using the Run-Time Module other than in connection with operation of the Target Application.

Furthermore, the End User shall observe that:

(i) the Run-Time Module is licensed, not sold. The Supplier and its licensors retain ownership of all copies of the Run-Time Module;
(ii) all implied warranties, including without limitation the implied warranties of merchantability, fitness for a particular purpose, title and non-infringement shall be disclaimed;
(iii) liability for any special, indirect, punitive, incidental and consequential damages are excluded; and
(iv) any further distribution of the Run-Time Module shall be subject to the same restrictions set forth herein.

With respect to the Run-Time Module, Wind River and its licensors are third party beneficiaries of the End User License Agreement and that the provisions related to the Run-Time Module are made expressly for the benefit of, and are enforceable by, Wind River and its licensors."

Digital Voice Systems, Inc License Agreement.

Digital Voice Systems, Inc. The AMBE+2™ voice compression technology embodied in this product is protected by intellectual property rights, copyrights and trade secrets of Digital Voice Systems, Inc. This voice compression technology is licensed solely for use, as is, within the Inmarsat satellite communications system. US Patent Nos. 6,199,037, 6,161,089, 5,826,222, 5,754,974, 5,701,390, 5,715,365, 5,630,011, 5,649,050, 5,247,579, 5,870,405 and 5,226,084.

CE
IC: 6200A-107020
FCC ID: TSF107020

CE
IC: 6200A-107730
FCC ID: TSF107730

The Nera WorldPro terminal fully complies with the R&TTE directive.

General

The EXPLORER 100/110 satellite terminal is a small lightweight satellite terminal providing transmission via Inmarsat's BGAN broadband data and voice service.

The Inmarsat BGAN system can be compared with the 3G Mobile network for cellular phones.

The terminal can be separated into two parts, so users can choose between indoor and outdoor use, with no need for an additional external antenna.

Combined with the EXPLORER ISDN Handset for voice source, it is ideal for users who need to set up a complete broadband mobile office in frequently changing locations.

Voice and data connections can be used simultaneously.

All services are supported in spot beam, see the ***Satellite Coverage Map****.*

Applications

Remote access - high-speed access to your corporate network, enabling access to company and customer information.

Internet access -access the Internet at speeds up to 384kbps.

Email - send and receive email via the Internet or email applications.

Telephony - make phone calls via a peripheral handset at the same time as accessing data applications.

Streaming - select guaranteed quality of service up to 64kbps on demand, e.g. for video, audio.

File transfer - send and receive large files.

Store and forward - save and send files e.g. video.

SMS - Short Message Service

Key benefits

Ultimate portability - at around half the size of a laptop and weighing less than 1 kilo, it is the smallest and lightest terminal in the BGAN range.

Simultaneous voice and broadband data - access your data applications and make a phone call at the same time.

Easy configuration - the terminal can also be configured directly from the ISDN Handset.

Highly flexible - uniquely designed to split into two separate units, so the antenna can be placed outside, while you work indoors in comfort - with no requirement for an additional external antenna.
The terminal can be connected to a laptop via the USB port or Bluetooth, and via Ethernet from Q2 2006.

Global coverage - provides service anywhere within the BGAN coverage area.

Easy to use - with the one-patch antenna design, it takes less than a minute to locate a satellite communications signal. The service can be accessed via BGAN LaunchPad on your laptop, or an on-box user interface with self-explanatory indicators.

Robust - purposely designed to operate in challenging environmental conditions.

Completely secure - connect seamlessly via your preferred VPN application.

Standard equipment - WorldPro 1000 / Explorer 100 107020

- Interface Unit with built-in Bluetooth
- Antenna Unit with built-in GPS receiver (camera stand compatible mounting nut integrated)
- USB cable
- Rechargeable battery
- AC/DC adapter 110 - 240 VAC power w/Europlug
- QuickStart manual with CD containing the BGAN LaunchPad PC interface and additional guides/ information

Standard equipment - WorldPro 1010 / Explorer 110 107730

- Interface Unit with built-in Bluetooth
- Antenna Unit with built-in GPS receiver (camera stand compatible mounting nut integrated)
- Ethernet cable
- Rechargeable battery
- AC/DC adapter 110 - 240 VAC power w/Europlug
- QuickStart manual with CD containing the BGAN LaunchPad PC interface and additional guides/ information.

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Accessories

- Explorer ISDN Handset,
- Split cable for interconnection of separated Interface unit and Antenna Unit, 3, 10, 20 and 30 m
- Bluetooth handset
- DC/DC adapter, 10 - 32 VDC
- Soft case
- Extra battery packs
- Bracket mounts for antenna
- Cable for car power plug
- Bluetooth headset
- Coloured antenna cover
- ISDN/USB dongle

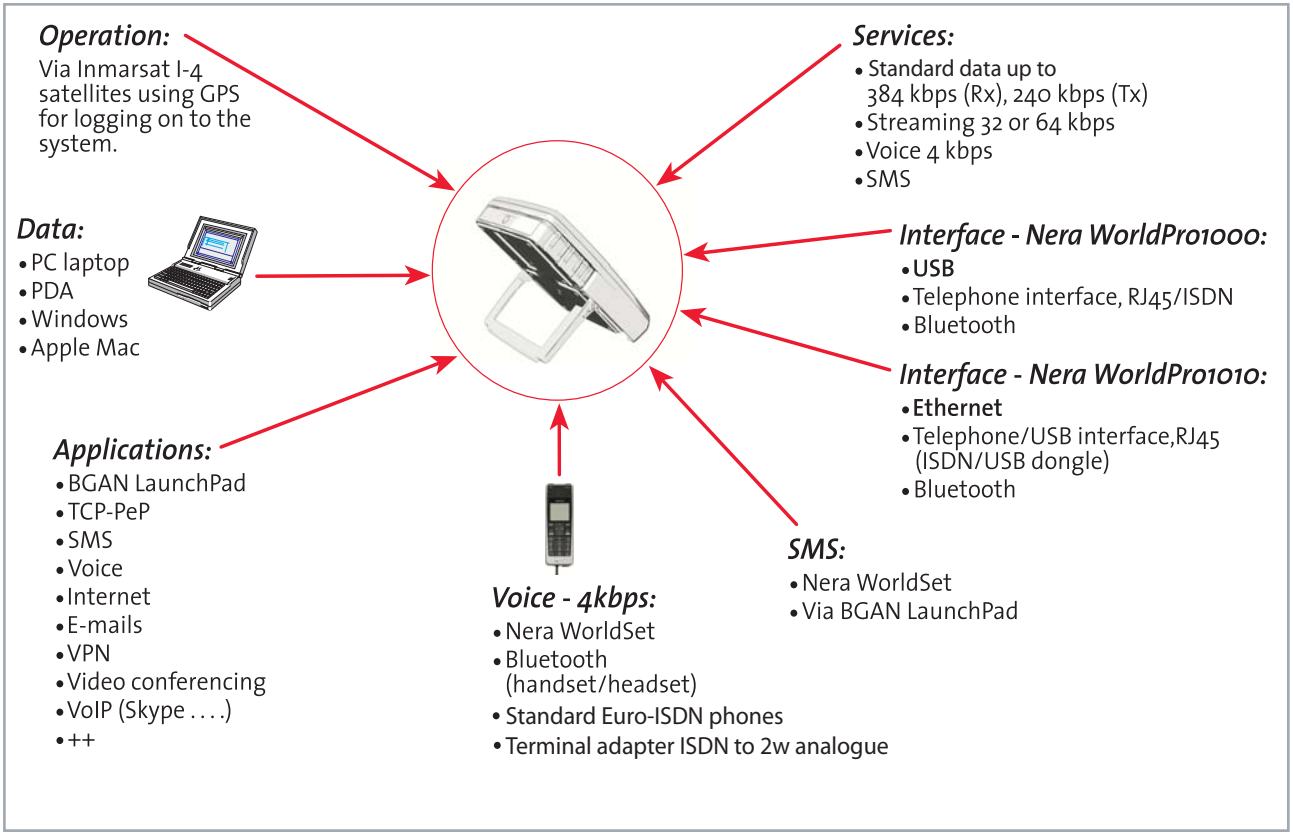


Figure 1 Nera WorldPro, functions and services.

Nera WorldPro1000 / Explorer100 Complete: 107020
Nera WorldPro1010 / Explorer110 Complete: 107730

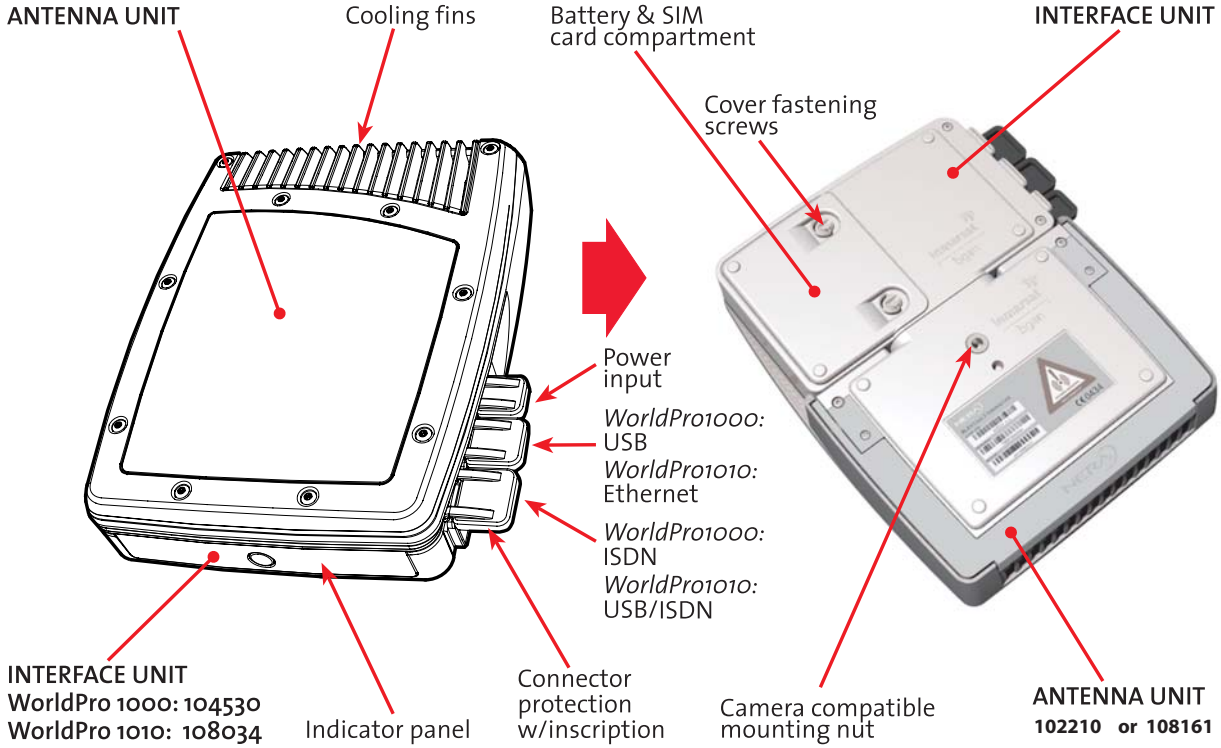
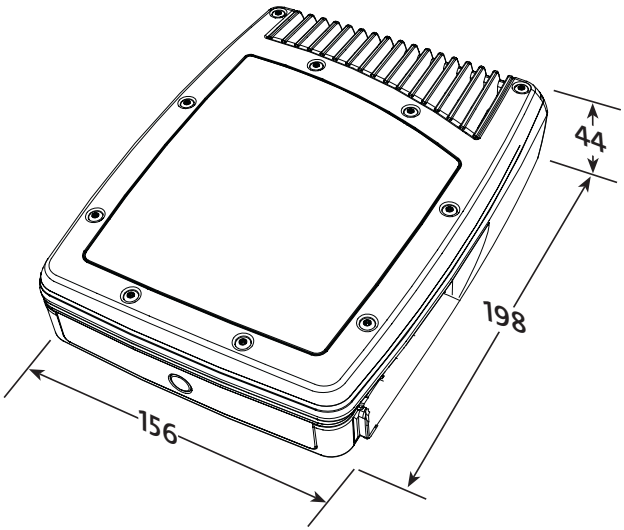


Figure: EXPLORER 100/110, identification.



Weight:
< 1 kg including battery

Figure 3 Terminal dimensions and weight.

Physical data

Interfaces

Bluetooth:	Built-in antenna, WP1000 = Class 2 (approx. Range 10m) WP1010 = Class 1 (approx. Range 30m)
Bluetooth devices:	Up to 4 devices connected at the same time
Bluetooth support:	Dedicated Wireless handset Serial Port Profile (SPP) Dial up Networking (DUN) Headset profile (HSP)
Telephone:	1 RJ45 connector for Nera WorldSet and ISDN phones. Max drain 1.5 W Euro ISDN (1B+D) 1 x 64 kbps + 16 kbps
USB device port:	1 connector, USB v1.1 (USB v2.0 compatible)
Dual port support:	- control port/serial port profile - DUN (dial up networking)

Nera WorldPro1010 / Explorer 110 only

Ethernet:	1 connector, RJ45 10 Base-T 100 Mb/s IEEE 802.3 MDIX Compliant Transparent forwarding
Telephone/USB:	1 connector, RJ45 combined to RJ45/USB through splitter

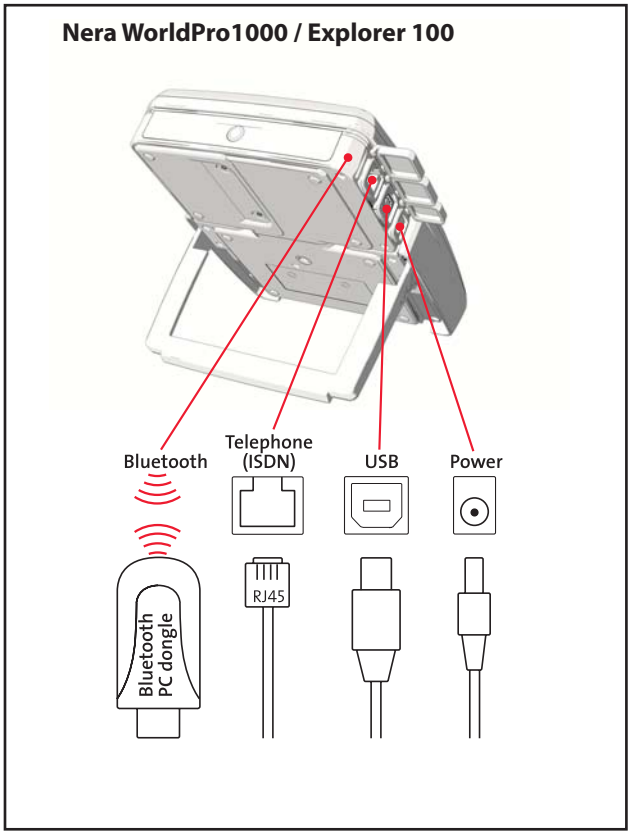


Figure 4a WorldPro 1000/ Explorer 100 connectors.

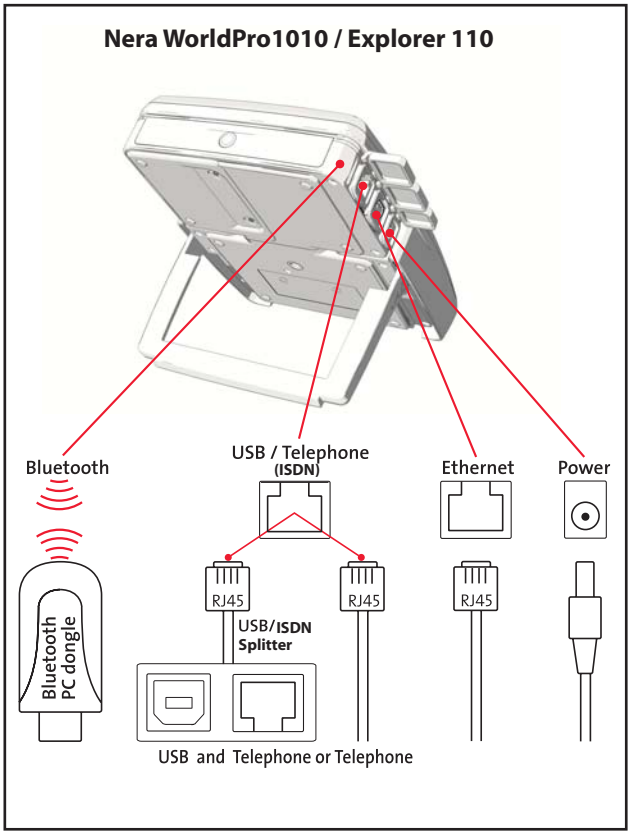


Figure 4b WorldPro 1010 / Explorer 110 connectors.

Packet Switched (PS) service

Shared channel (Variable Bit Rate service - VBR)
Pay for data sent/received

Transmit:	Up to 240 kbps
Receive:	Up to 384 kbps

Internet
E-mail
Any application supporting variable bit rates

Symmetrical (Constant Bit Rate service - CBR)
Pay per minute

Streaming data:	32 kbps, 64 kbps QoS options (Quality of Service - QoS)

Video conferencing
Voice over IP
IP facsimile

SMS - Short Message Service

- To/from other BGAN terminals
- To/from mobile cellular telephones
- Editable in BGAN LaunchPad/Nera WorldSet

Voice - Circuit Switched (CS) service

Land line quality speech - 4kbps
Pay per minute

- Calls made via ISDN Handset connected to the Telephone Interface (ISDN compatible), or e.g. Bluetooth handset (options).
- Voice mail (SMS notification).
- Call line identification, who is calling.
- Call forwarding.
- Call waiting/toggling
- Call barring

Battery - 102207

Type:	7.2 V - 2400 mAh Li-Ion re-chargeable
Standby:	36 hours
Typical use:	5 hours - 20% activity factor
Streaming data:	2.5 hours at 64 kbps
Maximum transmission:	1 hour continuous transmission at > 72 kbps at nominal EIRP at edge of coverage and edge of beam.
Charging:	Via DC power input
Charge to maximum:	3 hours in standby, longer if using the terminal (no charging when transmitting)
Charging temperature:	0°C to +55°C ambient

Terminal can be operated from AC/DC adapter or 12VDC input with or without battery.

AC/DC adapter - 102208

Input voltage:	100 - 240VAC ±10%, 50 - 60 Hz, 800 mA
Default:	Euro plug
Output voltage:	12VDC ± 10%
Output current:	2.5A max 35W

DC power connector on terminal

Centre pin:	Positive polarity
Input voltage:	12VDC, -10%/+30% feed (10.8VDC to 15.6VDC)
Plug dimensions:	Inner dia 2.1mm, outer dia 5.5 mm length 10mm

Power consumption

Nera WorldPro is designed for minimum battery consumption

Sleep mode:	0.5W
Transmission:	<20W (depending on satellite signal, devices connected, activity factor)

Antenna performance

Gain:	Tx 8.5 dBic, Rx 8.5 dBic (right-hand circular polarisation)
Beamwidth:	± 30° at -3dB point
G/T:	-18.5 dB/K
EIRP:	10 dBW
Frequency range:	L-band Tx 1626.5-1660.5 MHz Rx 1525.0-1559.0 MHz

Environmental

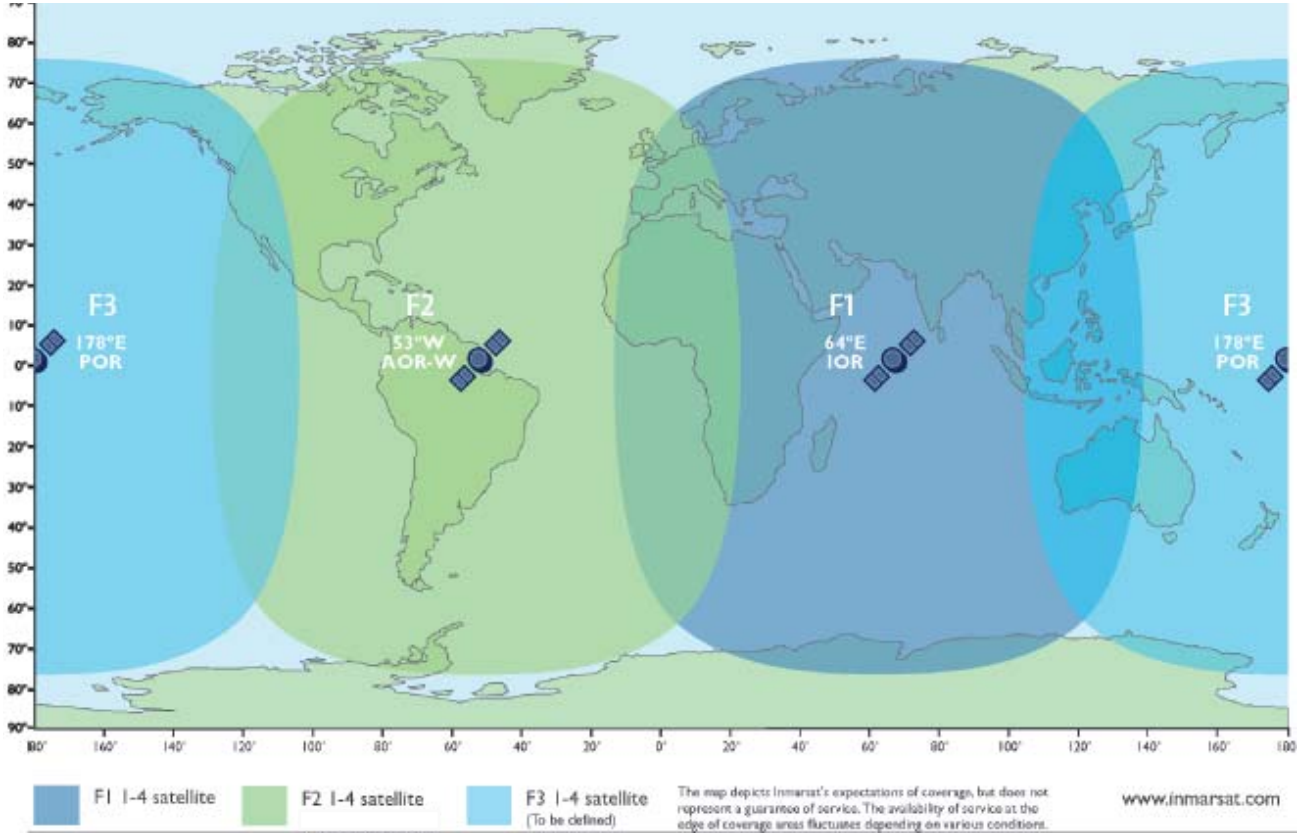
Storage device:	-40°C to +80°C
Operational:	-20°C to +55°C, 95 % humidity (non-condensing)
Infrared:	500 W/m²
Ultra violet:	54 W/m²
Visible sunshine:	1150 W/m² MIL-SPEC 810E 505.3
Ice:	6mm (non-operational)
IP:	44

Documentation package supplied with the terminals - 107014

The CD ROM included in the package contains:

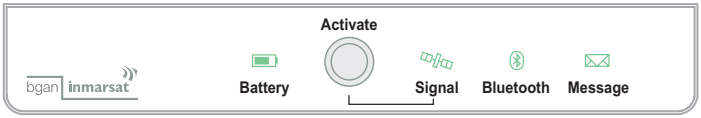
- BGAN LaunchPad program for operation from PC
- manuals
- application guides
- USB modem drivers
- and other useful information.

Satellite coverage map

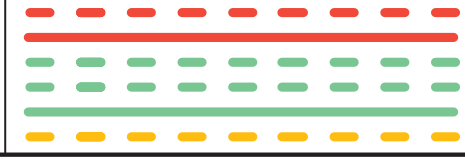


Indicator panel

All indicators light GREEN for approx. 30 secs when powering ON



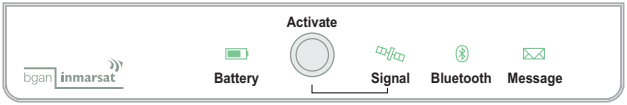
All indicators light RED for approx. 10 secs when powering OFF

Battery		0 - 10% battery capacity 10 - 40% battery capacity 40 -100% battery capacity, or fully charged Battery charging — *Blink rate 2 secs* No battery installed
Signal		***Antenna pointing*** No satellite signal: no GPS fix — *Blink rate 2 secs* " stored GPS fix — *Beep rate 2 secs* " new GPS fix Satellite signal OK: no GPS fix — *Blink rate 0.3 sec* " stored GPS — *Continuous sound varying* " new GPS — *with received signal strength.*
		***Operational mode*** Registration in progress or lost satellite sync Attached to BGAN — *Beep every 1 sec during registration* Network rejection
Bluetooth		Bluetooth enabled, no device connected Bluetooth enabled, device connected Bluetooth firmware update — *Blink rate 0.5 sec*
Message		New alarm — *Blink rate 0.5 sec for 30 secs* Alarm present Incoming voice call — *Blinks until answered/on-hook* Receiving SMS — *Blink rate 0.5 sec for 10 secs* Lost voice call or unread SMS PIN/PUK validation necessary

In sleep mode, only the battery indicator lights

Terminal modes

Toggling between **Pointing mode** and **Standby mode** is done using the **Activate** button.



Pointing mode

The Terminal enters the pointing mode automatically when powered on. The terminal exits pointing when pressing **Activate** or registering onto the Inmarsat BGAN Network via BGAN LaunchPad or the ISDN Handset.

The buzzer in the Antenna Unit is active when in pointing mode.
The buzzer can be turned off/on, or its level adjusted from LaunchPad or the ISDN Handset.

Standby mode

In this mode the terminal logs onto the Inmarsat BGAN system and becomes operational.

When charging the battery indoors with no intention to operational, you can exit the **Pointing mode** (turn off the sound) by switching to **Standby mode**.

*Toggle between Pointing mode and Standby mode by pressing the **Activate** button.*

Sleep mode

Sleep mode is a state the terminal enters after 10 seconds in Standby mode, when logged onto the Inmarsat BGAN system and running on batteries only.

The terminal will wake up when activities occur like:

- Incoming calls / incoming SMS
- When using BGAN LaunchPad / the ISDN Handset.
- Making a call / sending SMS.
- Loosing satellite signal / alarm ocurred.

In sleep mode only the battery indicator is ON.

Battery charging

When connecting DC input, the terminal will automatically be powered on and starts charging.

*For alternative DC input devices, see **Cables and lengths > Power adapters** later in this manual.*

DC power connector data:

- Center pin = positive polarity
- Hollow plug: ø2.1 x ø5.5 x 10.0 mm
- 12 VDC -10% / +30% feed (10.8 VDC - 15.6 VDC)

Power consumption:

The terminal can be operated on battery, and is designed to minimise power consumption.

- Sleep mode: 0.5 W
- Transmission: less than 20 W (depending on satellite signal, devices connected, activity factor)

DC input level:

If the DC power source available exceeds 15.6 volts, the DC/DC adapter must be used.

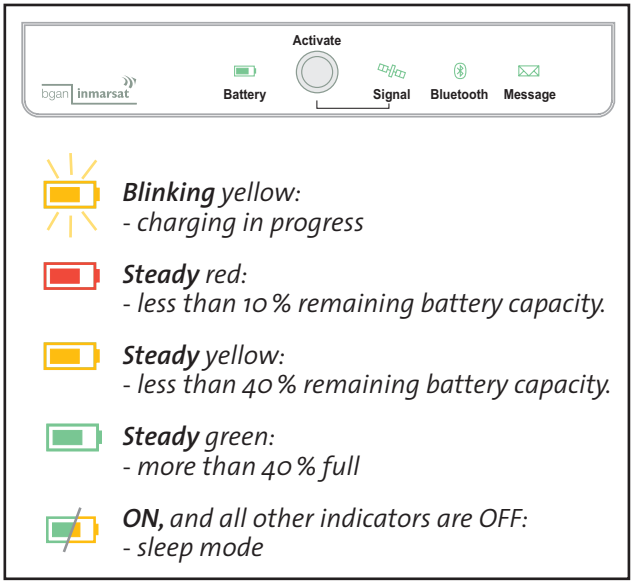
Solar panel:

Solar panel can be connected for operation and charging. The output power should be 20 W or more.

Charging time:

Charging time will vary depending on how full the battery is and activities on the terminal when charging. The battery is typically fully charged within 3 hrs.

Battery status indications:



SIM card

The SIM card carries subscription information from your Net service provider on an integrated circuit.

The card must be of the type USIM, which are subscriber identity modules designed for 3G mobile telephony.

The SIM card has its own set of Inmarsat Mobile Numbers (IMN) on which the user can be contacted irrespective of the Nera WorldPro used.

All outgoing calls will be billed to the owner of the SIM card.

The SIM card is protected by a SIM PIN (Personal Identification Number). Contact your Net service provider if you do not have the PIN code.
If entering wrong PIN code, operation with that particular SIM card will lock-up after three failed attempts. You must then use the SIM unblock code (PUK code) provided by your Net service provider to unlock the card. Contact your Net service provider if you do not have the PUK code.

To change or disable the PIN code, see later in this manual.

The SIM card can store various information, e.g.:

- SIM PIN code (Personal Identification Number)
- APN (Access Point Name)
- Phone book
- SMS messages sent and received
- Allowed and preferred Net service providers.
- Inmarsat Mobile Number (IMN)
- Service Provider information

ISDN Handset SIM PIN prompt

BGAN LaunchPad SIM PIN prompt

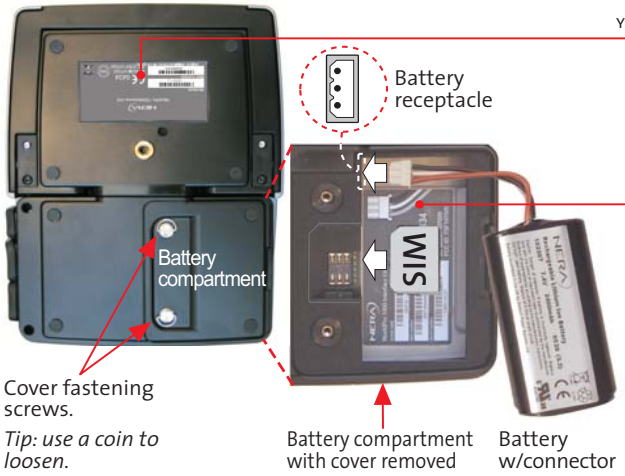
Installing SIM card and battery

A Remove the battery compartment cover by loosening the two fastening screws.

B The SIM card must be installed prior to installing the battery. SIM card to be slid **all the way** into the slot.

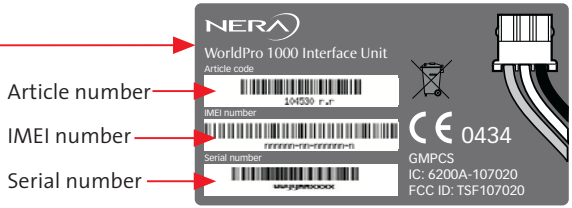
C The battery is enclosed with the terminal, and must be installed before it can be charged.
Normal charge time is 3 hrs.

D Connect a DC source, e.g. AC/DC adapter. DC input range is from 10,8VDC to 15,6 VDC. Install the battery compartment cover again, it locks the SIM card in position.
The Terminal needs to be ON, to Charge the battery.



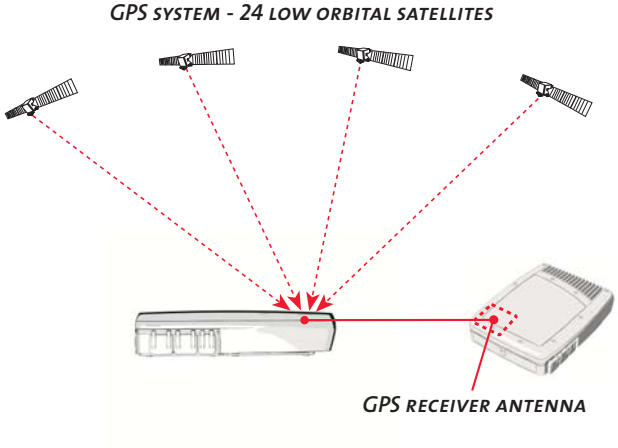
Equipment labels

One label is attached to the back of the Antenna Unit, whereas the Interface Unit has a label attached inside the battery compartment.



GPS

The Global Positioning System (GPS) uses 24 low orbital satellites to fix the position of the terminal anywhere on the globe.



GPS fix required

The BGAN network requires a valid GPS fix to successfully register your terminal. Nera WorldPro only attempts to obtain a GPS fix the first 20 minutes after power on.

The GPS receiver must see at least three GPS satellites to obtain a 2-dimensional fix (2D fix).

The frequency of use determines how quickly the GPS receiver built-in to the terminal *(see above)* can obtain a fix - it may take between a few seconds and 5 minutes.

To obtain a GPS fix

1 Check the **Signal** indicator status to see if your terminal has a GPS fix. For possible statuses, *see **Antenna pointing** later in this manual.*

2 Place the terminal in a position where it has the best view of the open sky. The best results are obtained if you lay the terminal flat.

The GPS receiver is located in the top left corner of the terminal *(see figure)*. Therefore make sure this area of the Antenna unit in particular has a clear line of sight to the sky.

3 If the **Signal** indicator lights yellow, the terminal has a stored GPS fix.

A stored GPS fix can be used when registering onto the network, but only if the terminal has not been moved since it was last used, or is within the same area (less than 300 km).

4 When you have a blinking green **Signal** indicator, you have a new fix. You are ready to point the terminal to the Inmarsat satellite and register with the BGAN network.

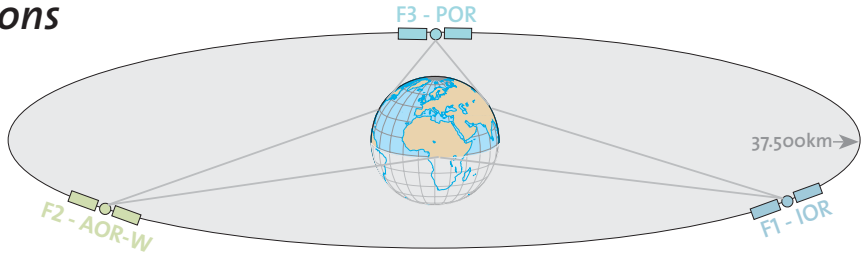
When you power down the terminal, the GPS position is stored, and you are able to move the Nera WorldPro to a place where you do not obtain a GPS fix, for example your hotel window.

Satellite communications

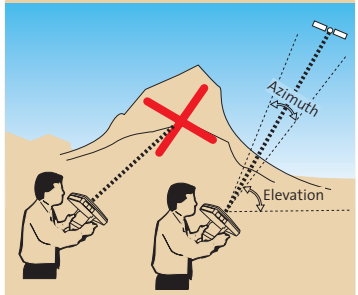
Three satellites are positioned stationary above equator.

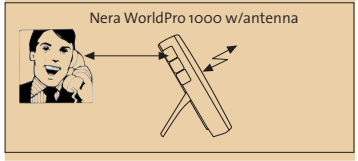
The satellites provide the coverage shown on the map.

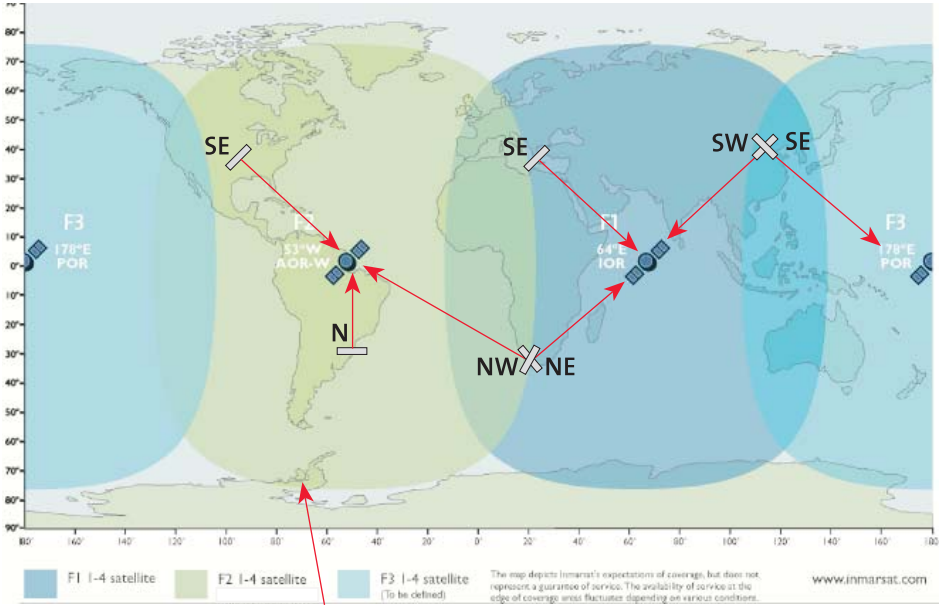
The Terminal searches for all satellites as default.



The BGAN Terminal provides communication via satellite; which requires free line of sight.





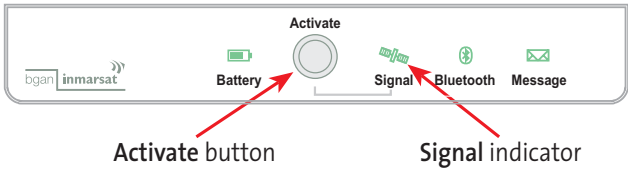


A location 72°S or 72°N should give coverage. Further south or north can not be guaranteed, and reduction in data rate is expected.

Setting up, using the signal indicator

1 Power on terminal by pressing Activate for 1.5 seconds:

- All indicators light **GREEN** for approx. 15 seconds.
- Buzzer in antenna beeps slowly, **Signal** indicator blinks **RED** (**YELLOW** if old GPS fix is stored in terminal).
  *The terminal is automatically set in **Antenna Pointing** mode, i.e. it attempts to find the Inmarsat BGAN satellite and/or to obtain a GPS fix which is needed to log onto the BGAN network.*



2 Obtaining a new GPS fix (if not using old/stored fix):

- Place the terminal in a location outdoor or inside a window.
- Wait until the **Signal** indicator lights **GREEN**, GPS fix is obtained.
- If the terminal is new, or have not been used for some time, a GPS fix may take up to 5 minutes.
- If no fix is optained in 20 minutes after power on, power off and start again from step **1**.

3 Find the best signal:

- Align the antenna for the best possible satellite signal at your location.
- Use the buzzer pitch and the **GREEN** blinking **Signal** indicator, *see also **Antenna pointing***.
  Use the buzzer pitch and the **GREEN** blinking **Signal** indicator. The buzzer pitch increases as the satellite signal improves. A good satellite signal is necessary to obtain a stable network connection.

Alternatively, the Nera WorldSet or BGAN LaunchPad can be used as an aid in pointing the Nera WorldPro.

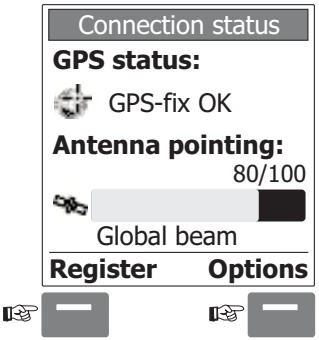
4 Logging on:

- When the **Signal** indicator blinks **GREEN** and the buzzer pitch is as high as you can get it, press **Activate** to log automatically onto the **Inmarsat BGAN** network and exit **Antenna Pointing** mode.

5 Start communications:

- When the **Signal** indicator lights steadily **GREEN**, you have successfully logged on and can start making voice calls, send SMS or set up a data connection on your PC.
  If the **Signal** indicator switches to **RED**, your logon attempt has failed.
  Press **Activate** for 1.5 sec to power off the terminal, and start again from step **1**.

ISDN Handset signal strength bar

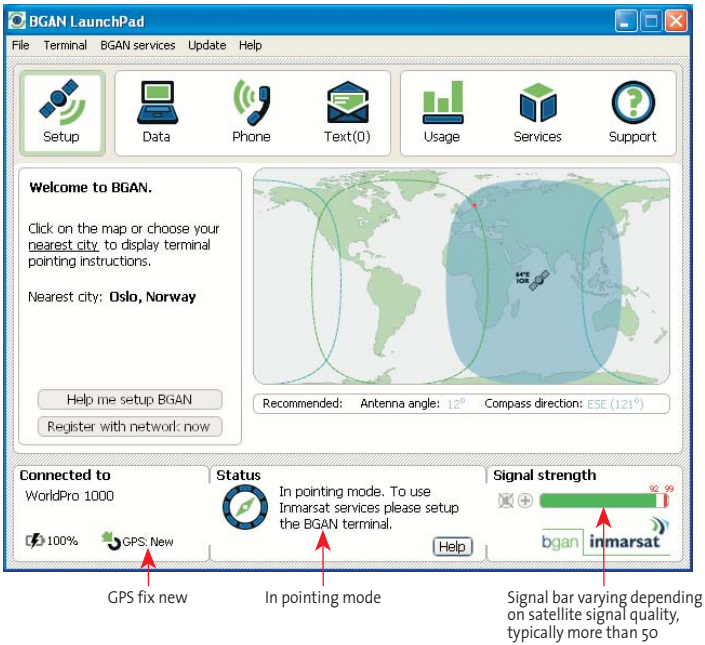


When in pointing mode, this is how the ISDN Handset or BGAN LaunchPad will help you to verify GPS fix and satellite signal quality.

Legend:

- Signal strength more than 50
- GPS fix OK / GPS fix new
- Ready to register with the network

BGAN LaunchPad signal strength bar



Alternative:

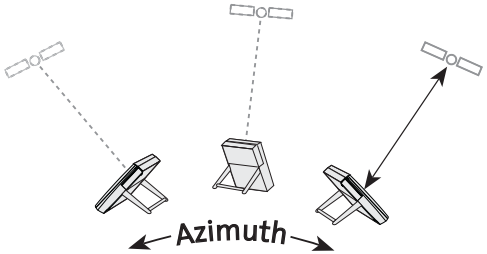
Use the WEB MMI available on Nera WorldPro1010
- Signal strength in % and dB/Hz
- GPS status and availability

Antenna pointing

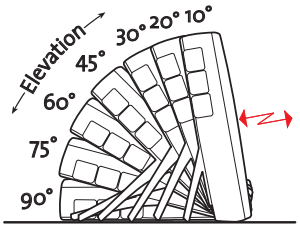
The Inmarsat satellite is positioned stationary above **equator**. Aim the antenna towards the estimated position of the satellite, or make a slow scan across the hemisphere with the vertical angle 45°.
The vertical angle ranges stepwise from 10° to 90°.

***Free line of sight** to the satellite is required.*

Observe the satellite **Signal** indicator, *see figure*.
*See also **Indicator panel**.*



A compass can be handy to prepare for a location (must be bought separately).h



The alignment buzzer in the Antenna Unit will sound with increasing pitch in steps when closing in on the satellite.

A strong signal helps saving power when you are running on battery only.

Acknowledge registering on to the Inmarsat system by pressing **Activate** momentarily.

Nera WorldPro is now ready for call.

Alternatively, the Nera WorldSet or BGAN LaunchPad can be used as an aid in pointing and registering on to the network, *see previous page*.

Signal-indicator

***Slow** red blink:*
- not ready for logging on

***Slow** yellow blink:*
- not ready for logging on

***Fast** yellow blink:*
- ready, but old GPS fix may fail (if moved more than 300 km, or old time stamp)

***Slow** green blink:*
- not ready, but new GPS fix ok

***Fast** green blink:*
- ready for logging onto Inmarsat system

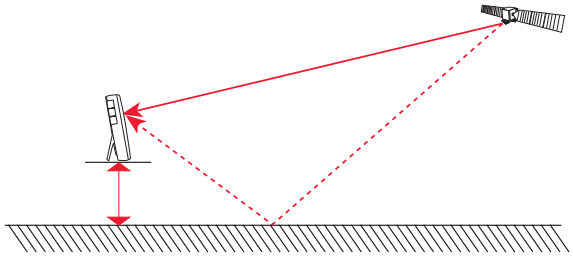
Satellite signal at low elevation angles

Angles below 10°

Inmarsat satellites are geostationary and are located in fixed positions in the sky above equator. A fixed antenna installation is therefore possible. However, a geostationary satellite moves slightly (3° in azimuth + 1° in elevation) during a 24 hrs cycle.

At low elevations (< 10 degrees), variations in the satellite signal must be expected. This normally does not affect the communication. Only if the surface in front of the antenna is completely flat, e.g. roof or calm water, can it cause reduction in signal strength and/or data rate.

The solution is to change the height above ground 30 cm up/down. On a flat roof the antenna should be installed close to the edge or horizontally on the roof, especially for a permanent installation. This is not an issue if the terrain in front of the antenna is uneven.



MULTIPATH FADING

AVOID REFLECTIONS AT 10 DEGREE ELEVATION OR LESS. To find the best possible satellite signal when pointing the antenna, adjust the terminal height above the surface up or down in steps of 30cm.

Register with Network

Pressing **Activate** logs terminal onto the Inmarsat BGAN system and the buzzer is turned off.

The following **Signal** indications may occur:

***Steady** red:*
- logging on attempt failed

***Steady** yellow:*
- registration in progress or lost satellite signal.

***Steady** green:*
- logging on successful
Terminal ready for voice/SMS/data

*If failed, redo **Antenna pointing**, making sure to acquire a new GPS fix, and/or find a better satellite signal.*

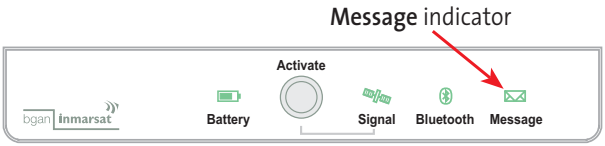
*See also **Appendix C - Troubleshooting***

Message indicator

***Green**:*
- SMS message received
- read SMS or check missed call using BGAN LaunchPad/Nera WorldSet

***Yellow**:*
- Enter SIM pin using BGAN LaunchPad Nera WorldSet

***Red**:*
- Alarm ocurred
- Use BGAN LaunchPad/Nera WorldSet to read/verify



Emergency call - dial 911

When dialing 911, an emergency call is sent to the Inmarsat BGAN Network.

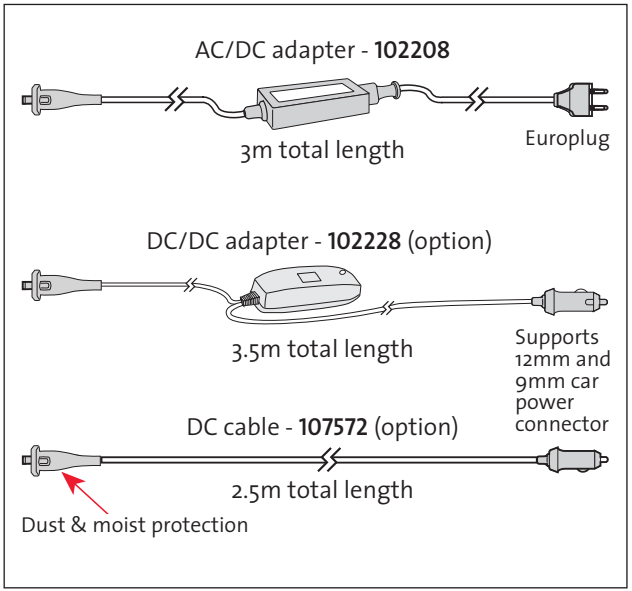
When the BGAN Network receives the call, it is forwarded to a Distribution Partner who will handle the emergency call.

Please contact your Distribution Partner to check that the service is available.

Note!
When dialing 911, Antenna Pointing will be ignored. The emergency call will be sent even if the user has not pressed Activate to accept antenna pointing, and the antenna is not pointed correctly.

The emergency call will be sent even if the user has not entered the SIM PIN code, or no SIM card is installed the terminal.

Power adapters



Note!

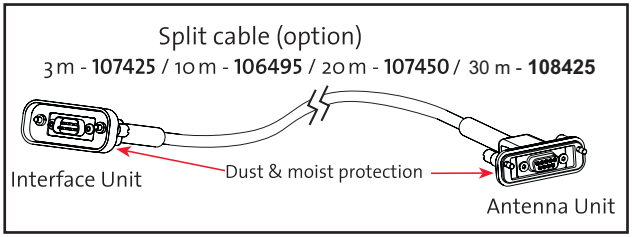
All cables provide the best possible protection on the terminal. Nera WorldPro /Explorer 100/110 should only be used with these cables and accessories.

The Nera WorldPro terminal including the Nera WordSet telephone can be used outdoor in all weather conditions: heavy/rain/snow/hot/cold.

Cables and lengths

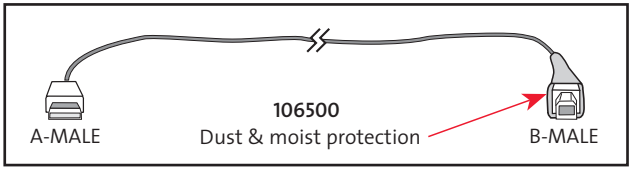
Split cable

3, 10, 20 & 30metres, allows separation of Antenna & Interface.



USB cable

Standard 1.8 metre cable.

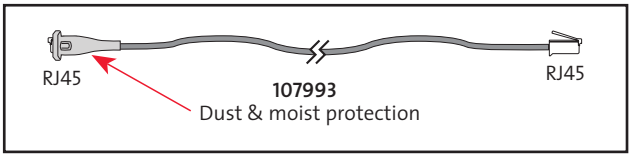


Telephone interface cable

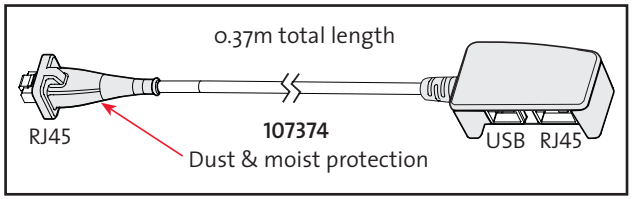
4-wire/2 metres.

Ethernet cable

8-wire/2 metres.



ISDN Splitter



The Explorer 100-110 Suite

The EXPLORER 100&110 Suite located on the CD enclosed with all terminals, consists of :

Installation Guide Wizard

User documentation in PDF format

USB drivers

Desktop Icon to the WEB MMI

BGAN LaunchPad

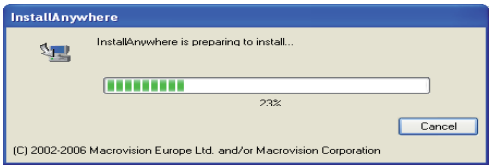
BGAN TCP Accelerator for Windows Xp

1. -->Insert the CD :

The StartPage opens automatically in a few seconds.

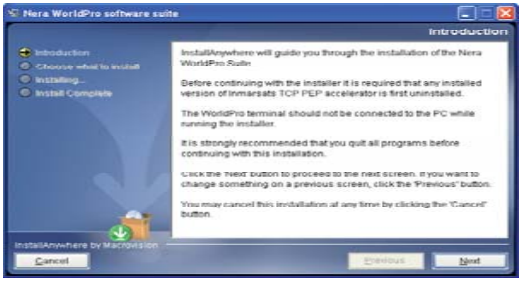
The CD will Autorun on any Windows PC's. If not start the program "Install EXPLORER 100&110 suitre" on the CD.

If you have a Mac the installation wizard will not start. Browse the CD to find the user documentation.



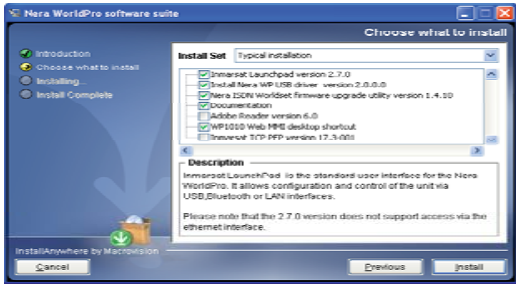
2. Read the Information and select NEXT when ready. The TCP-PEP program will increase the upload troughput from your PC. More information about this application is available at:

http://broadband.inmarsat.com/



3. Select the installation you want to install on your PC. The TCP Accelerator should be installed separately. The LaunchPad on the CD is for Windows. Go to:

http://broadband.inmarsat.com for more information



Data connection via Ethernet

"Local Area Network"

Make a quick and easy connection. No PC applications or drivers are neccesary. When your PC/Mac is connected, it takes no more than 30 secounds to have an Internet connection.

*For more information about Ethernet connections: See the **Ethernet** Application Guide.*

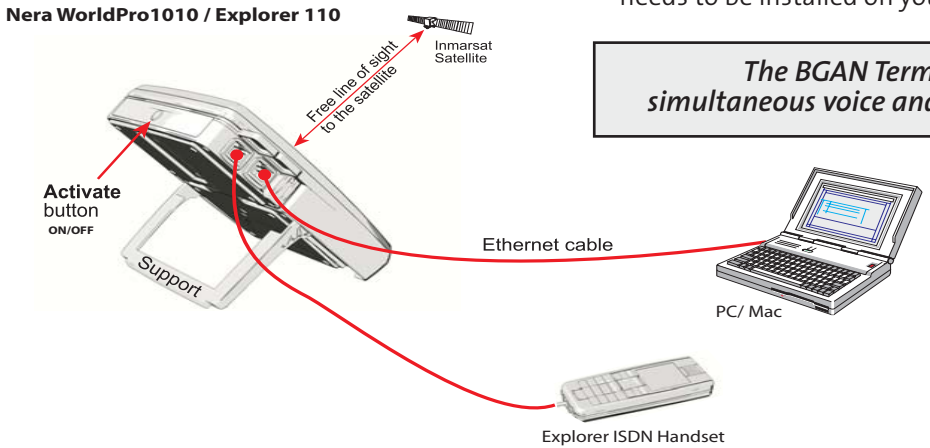
Making a LAN connection:

To make a LAN connection simply connect the LAN/ Ethernet cable between your PC and the Terminal. The connection is established automatically. Wait approx. 30 secounds and you are ready to Brows the Internet, check e-mails etc. A Pop-up will display when connection is established.

To disconnect the LAN connection, unplug the Ethernet cable or use the Terminal WEB MMI.

Get access to the WEB MMI by entering **192.168.0.1** in your Internet Browser address field. No applications needs to be installed on your PC.

The BGAN Terminal allows simultaneous voice and data connections.



Voice communication via the ISDN Handset

Connect the Explorer ISDN Handset to the telephone interface (ISDN).

For antenna pointing, you can use the ISDN handset display. Adjust for maximum signal.

For use, see later in this manual, for a quick user introduction. or read the ISDN Handset- ***User Guide****.*

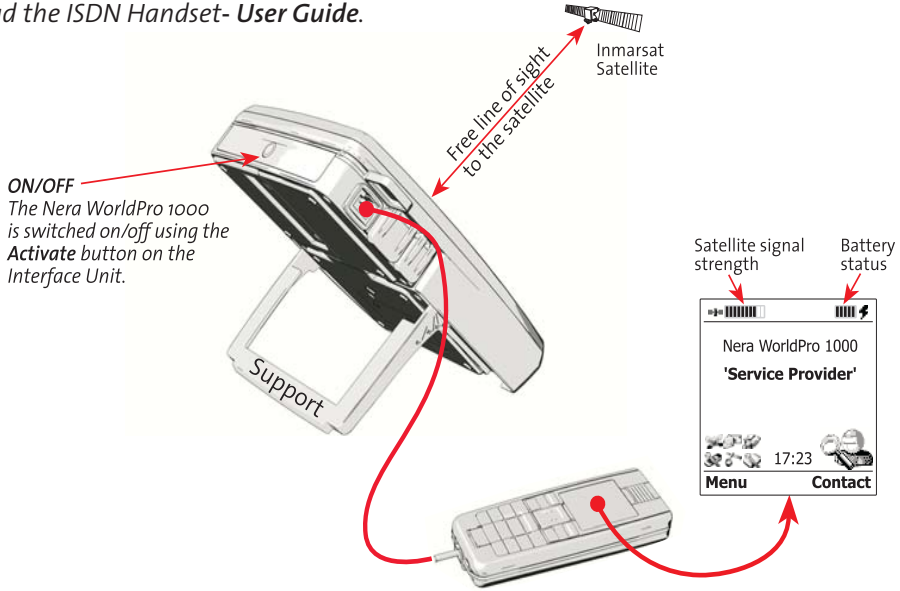
To call a subscriber, dial:

00 + country code + subscriber number +

To call the BGAN Terminal, dial:

00 + 870 + Inmarsat Mobile Number (IMN), e.g. 00870771234567

In some contries 00 can not be used

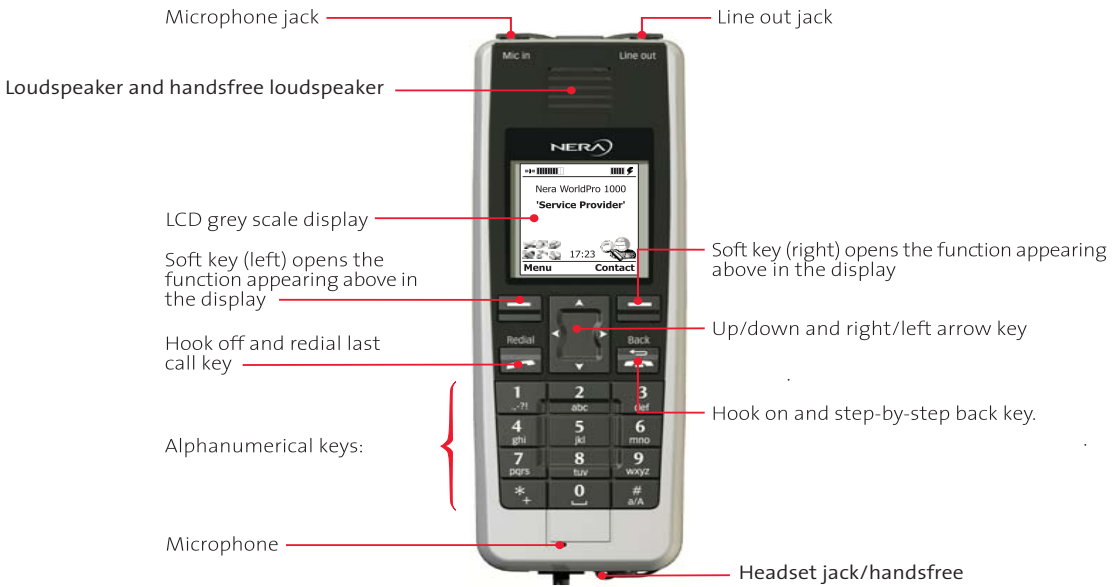


Using the ISDN Handset

Enabling BGAN users to configure and control the terminal independently of a PC, the Explorer ISDN handset turns BGAN into a powerful voice service in its own right

Signal strength and battery status can be monitored directly from the handset display. Address lists can be accessed remotely.

Note:
*Fore more detailed information about the ISDN handset read the Explorer ISDN handset - **User Guide**.*

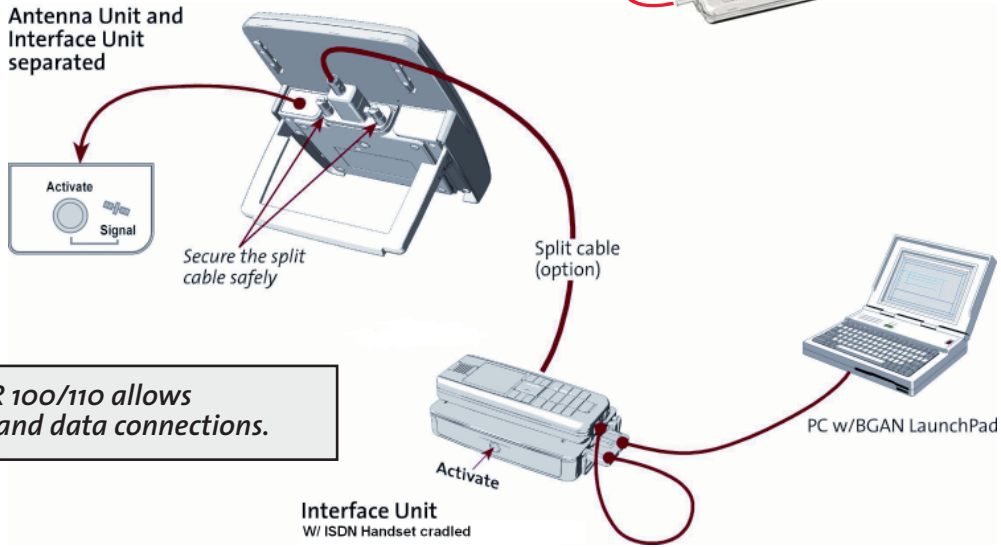


Getting Started ISDN Handset

1 Connect the Nera Worldset to the terminal

- The EXPLORER ISDN Handset is powered from the terminal via the ISDN interface
- Split operation is shown in the figure

2 Turn on the terminal by pressing the Activate button.



The EXPLORER 100/110 allows simultaneous voice and data connections.

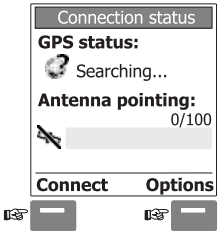
3 Enter your SIM pin code.

- If the SIM pin code is disabled, the handset goes directly into Connection status. If incorrect pin see next page.

4 Verify the Connection status information.

5 Wait until the **GPS status: Searching** is switched to ***GPS-OK***. Or:

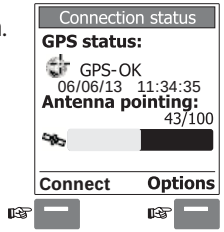
- If the **GPS status: GPS Acquiring** stored is displayed, verify the time stamp of the GPS status
  - If stamp is recent, and terminal not moved to another location continue with step 7
- If the **GPS status: Searching** is displayed longer than 5 minutes, move the antenna to a new position.
- If the BGAN terminal is being used for the very first time, or in a complete new position, the time period for receiving **GPS status: GPS-OK** is prolonged.

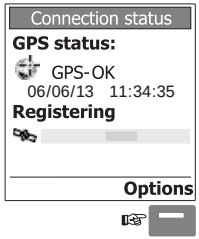


6 Read the antenna pointing information.

7 When the antenna pointing indicates a proper signal, press **Connect.**

- Satellite signal status:
  - A signal bar indicates the satellite signal.
    100% is the best signal.
  - A user should always use the **Connection status** window to get best possible signal before connecting to the satellite. Typical is above 60. This secures a stable connection for all services.

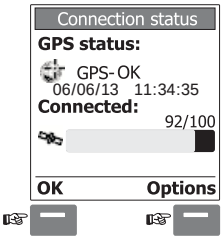


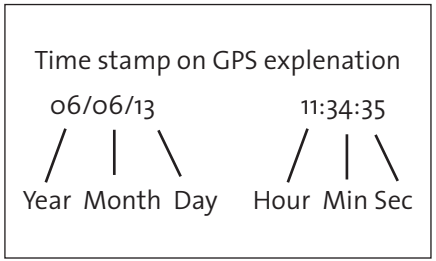


8 Wait until the display status **Registering...** is switched to **Connected**.

- The terminal has now established a proper satellite connection

9 Select **OK**, and the terminal is ready





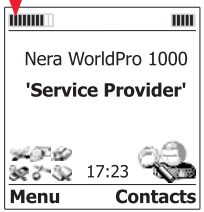
11 Start using the ISDN Handset. The default display is shown.

Note! When the signal quality is low, the battery consumption is increased

Note! The battery is located in the interface unit.

GPS Status: Refer to step 5 in this procedure

Signal quality bar (e.g. 8 cells illuminated means 80% quality.)



Maximum battery capacity
(5 cells illuminated means 100% capacity)
Connected to external DC

Low battery capacity
(2 cells illuminated means 40% capacity)
Operating from battery

Minimum battery capacity
(1 cells illuminated means 20% capacity)
Operating from battery

SIM pin / SIM card

If an incorrect SIM PIN is entered, the following is displayed:

Caution!
Operation with the particular SIM card will lock-up after three failed SIM pin attempts. You must then use the SIM unblock code (PUK code) provided by your Service Provider(SP) or Distributor Partner(DP), to unlock the card. Contact your SP or DP if you do not have the PUK code.

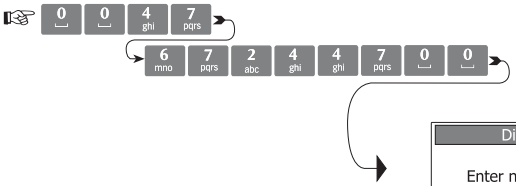
When the PUK code is used, the SIM PIN is reset to the cards's default PIN.

Enter PH-Corp PIN:
If PH-Corp PIN is prompted the terminal is locked to one SP or DP. Make sure to use the correct SIM card.

Enter PH-FSIM PIN:
If this is prompted, the terminal is locked to one specific SIM card, and only this SIM can be used.

Making a Call

1 Dial 00, country code and subscriber number, e.g.: 0047 67244700



- Press **Del** to delete digits

2 Press the key to send the number.

- The **Call active** display shows the duration of the call as it progresses.

3 Make the conversation

4 Press the to end the call.

- The display shows the duration of the call

Additional Options

Pressing **Continue** provides the following choices:

- Call the dialled number
- Save the number, see paragraph **Phonebook**
- Send text message, see paragraph **Text messages**

Speaker on:

Pressing **Speaker on** enables the speaker phone mode. This is useful for a group of people having a conference call.

Options during a call:

- Press **Mute on/off** to toggle the microphone on/off. This makes it possible to have a private conversation, without the other party being able to hear
- Pressing **Options** provides the following choices:
- Press **Speaker on/off** to activate/deactivate the speaker phone mode
- Audio Control Display: Press the **arrow left/right/up/down** for adjustments. Adjust microphone sensitivity and speaker volume sensitivity

Receiving a Call

1. When the handset is ringing, press Redial
2. Make the conversation

- The **Call active** display shows the duration of the call as it progresses

3. Press to end the call

- The display shows the duration of the call

Additional options:

- Silent ringing:
  Press **Right soft-key** to switch off the ringing tone. The received call may be answered any time.
- You are asked to save the number to **Phonebook** when the call has ended.

Note! This feature can be disabled in the **Phonebook** menu.

Options during a call:

- Press **Mute on/off** to toggle the microphone/speaker on/off. This makes it possible to have a private conversation, without the other party being able to hear
- Pressing **Options** provides the following choices:

- Press **Speaker on/off** to activate/deactivate the loudspeaker
- **Audio Control Display:** Press the **arrow left/right/up/down** for adjustments. Adjust microphone sensitivity and speaker volume sensitivity

The symbols:

	Symbol loudspeaker ON/OFF	Choice when making/ receiving a call – left soft-key
	Symbol silence ON/OFF	When receiving a call - right soft-key
	Symbol call-options	During a call – right soft-key
	Symbol mute ON/OFF	During a call – left soft-key

Text Message

Text messages may consist of up to 160 characters.

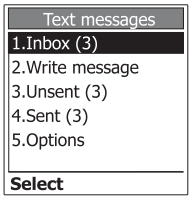
Messages Received

1 In the default display, select **Menu**

2 Select **Menu**, 2, **Text Messages**. The display lists the choices:

3 Select the **Inbox** to list the received messages

Use the ▸ to reveal all data, e.g.:+870772134293 16:38 16/1/2006



4 Press **Read** to display the message content.

5 Press **Close** to store the message.

Additional Services

Pressing **Options** displays several choices:

- Reply
- Forward
- Call
- Delete
- Delete all

- Select **Reply** to enter a message to the sender
- Press **Send** to send the reply
- Press **OK** to confirm
- Select **Forward** to send the selected message to another subscriber
- Select **Call** to make a call to the message sending subscriber
- Press **Delete** to remove a single item from the inbox list
- Press **Delete** all to remove all items from the inbox list

Sending Message

1 In the default display, select **Menu**

2 Select **Menu 2**, **Text Messages**

3 Scroll down to **Write message**

4 Press **Select** to open the **New message** entry display

5 Write the message, and use the **Del-key** for editing

6 Press **Send** when ready

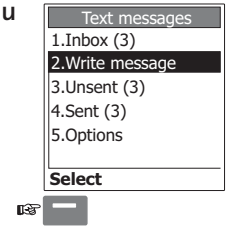
7 Select the subscriber number from the contact list, or:

- Press **Option** to open the **Contact** display.
- Enter number directly
- Type the subscriber number, or search for SIM Card

8 Select **Send**

The message is sent when accepted in the display

- If not the message is saved as **Unsent message**

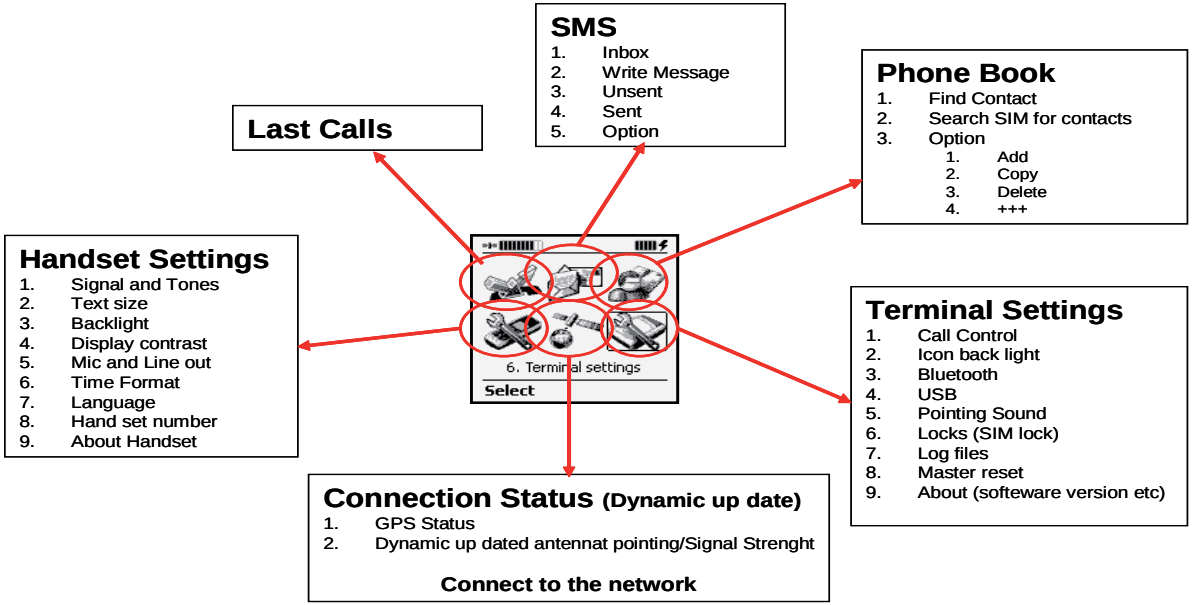


Text message icon. Visible when received text message or unsent text message

Add symbol

Switches between small/capital letters

ISDN Handset Menu Options:



Split operation

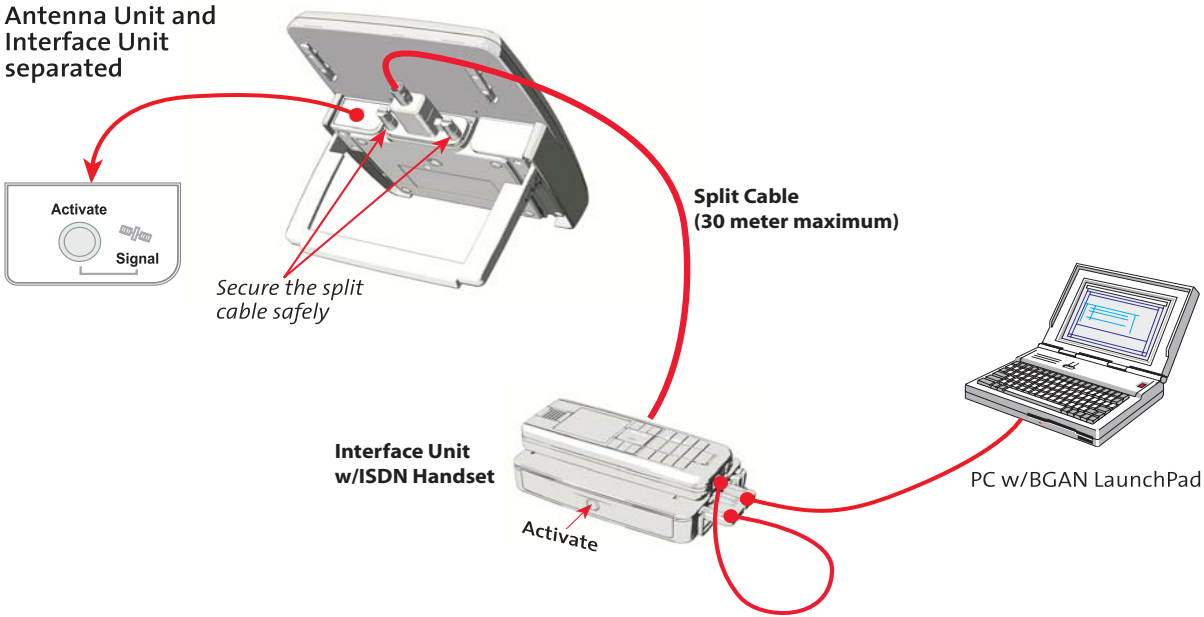
Explorer 100/110 can also be operated with the **Interface Unit** separated from the **Antenna Unit**.

The Split cable interconnects the two units, allowing e.g. the Interface Unit to be placed inside a building and the Antenna Unit outside.

The split cable is optional (max 30 m).

*For more information on cables, see **Cable and lengths** previously in this manual.*

***Activate** buttons on the **Interface Unit** and the **Antenna Unit** can both be used for starting/accepting the satellite signal, and reading signal status.*



Split operation cont.

It is recommended to install the antenna in split operation with the split cable facing down. (see picture).

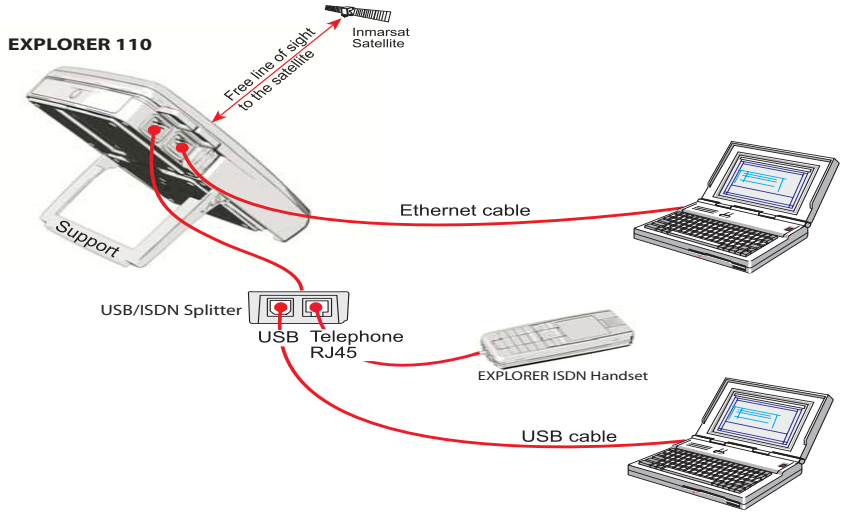
This is to make sure that the water does drip of the unit.

Multi User operation

It is possible to have multiple users on a EXPLORER 100/110. If use of USB, the USB/ISDN splitter needs to be connected to the ISDN interface. On the Ethernet interface, it is possible to connect a Router or a Switch.

More information about multiple users, using Switch and Routers is found on the the

Ethernet_Connection_user_Guide.



Data connection via USB

Use this connection together with Inmarsat LaunchPad or make a Network Connetion on your PC.

For more information about Network connections:
*See the **DUN** Application Guide.*

Installing USB drivers

*Note! **Installing USB Drivers** is only necessary to do once. Make sure to use the same PC USB port the next time you connect to BGAN terminal.* The drivers are installed from the enclosed CD.

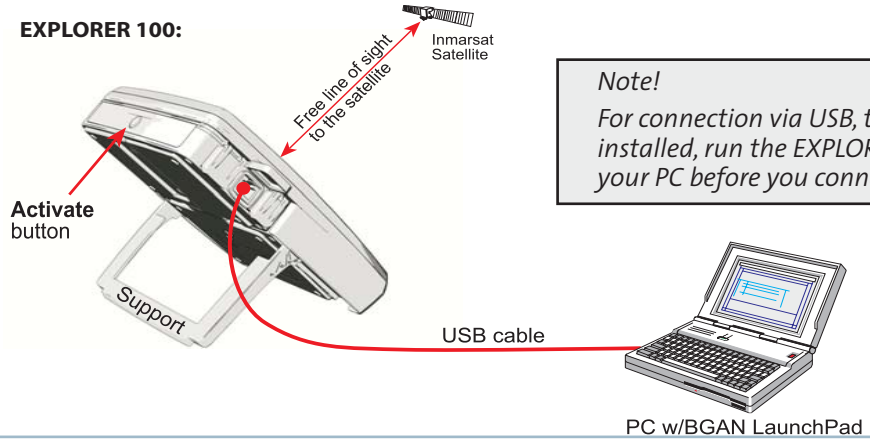
First time the Terminal is connected to the PC, a "Found new hardware wizard" window will pop up. Check "Install the software automatically (Recommended)" and *click **Next***.

Then it is important to follow the wizard until it is finished. *The* **Found New Hardware Wizard** is repeated **tre times**, because the terminal has a Dual USB port.

For more information:
*See the **Connecting to PC via USB** Application Guide.*

BGAN LaunchPad supports operation via the USB interface:

*See **Installing the BGAN LaunchPad** later in this manual.*



Note!
*For connection via USB, the **USB** drivers must be installed, run the EXPLORER 100&110 suite CD on your PC before you connect the terminal.*

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.

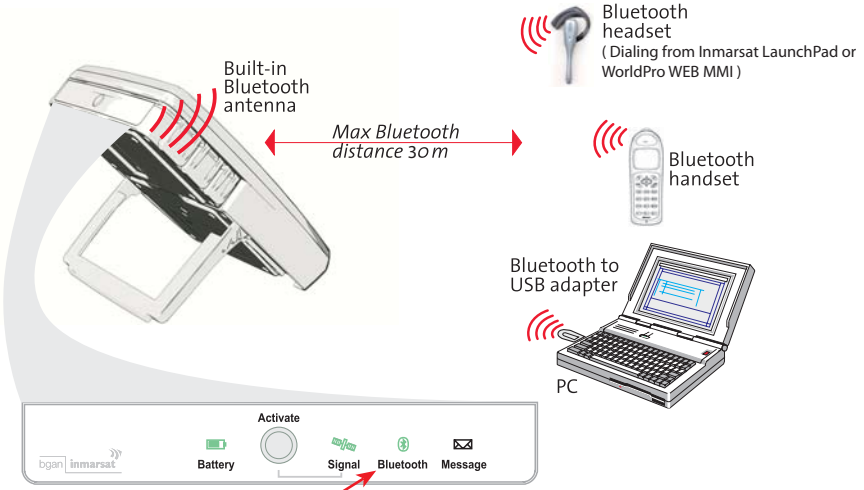
Use the BGAN LaunchPad or the ISDN Handset to enable the Bluetooth interface. The **Bluetooth** indicator lights up.

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. The Terminal 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.*

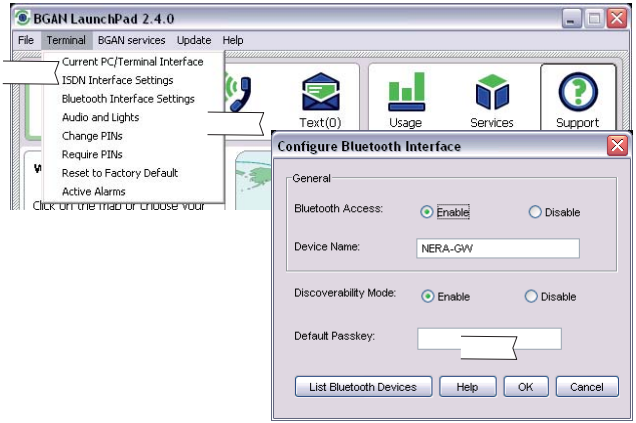


Bluetooth indicator:

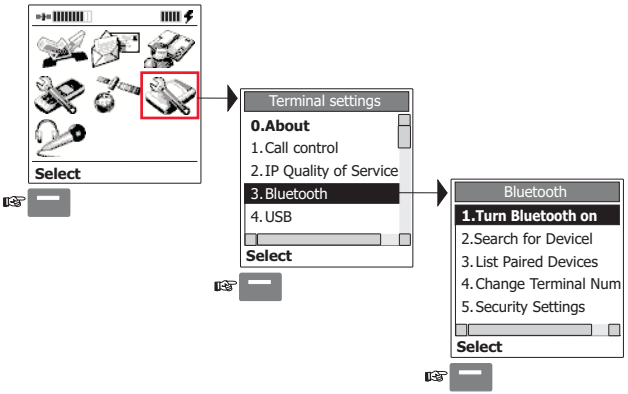
- Bluetooth radio disabled when off.
- green when PC or Bt handset is connected.
- steady yellow when Bluetooth enabled with no Bt device connected.
- flashes green when waiting for user to send passkey initially.

Enabling Bluetooth using BGAN LaunchPad

(Rev 2.4.0 and above)



Enabling Bluetooth using the ISDN Handset

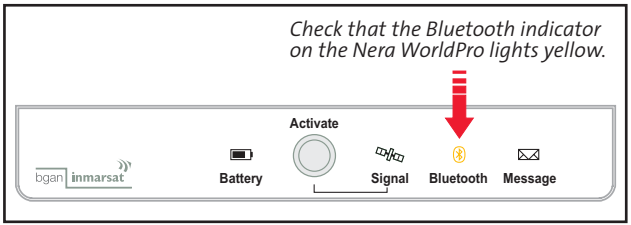


Enabling Bluetooth with AT commands using HyperTerminal

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

Indication on the Terminal

Check that the Bluetooth indicator on the Nera WorldPro lights yellow.



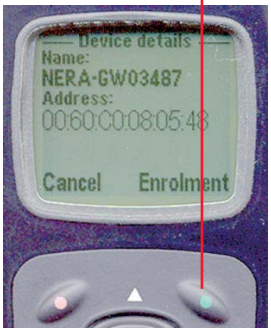
Tenovis Bluetooth handset

How to establish connection with Nera WorldPro the first time:

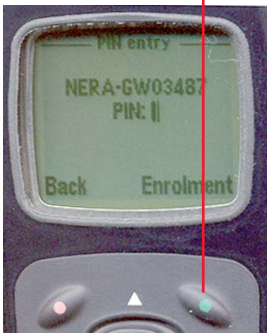
1 To switch on, press and hold the right softkey a few seconds.

2 Search all devices by pressing the left softkey.

3 Device details appear in the display.
The EXPLORER 100/110 is recognized as e.g. E110 03487, 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:



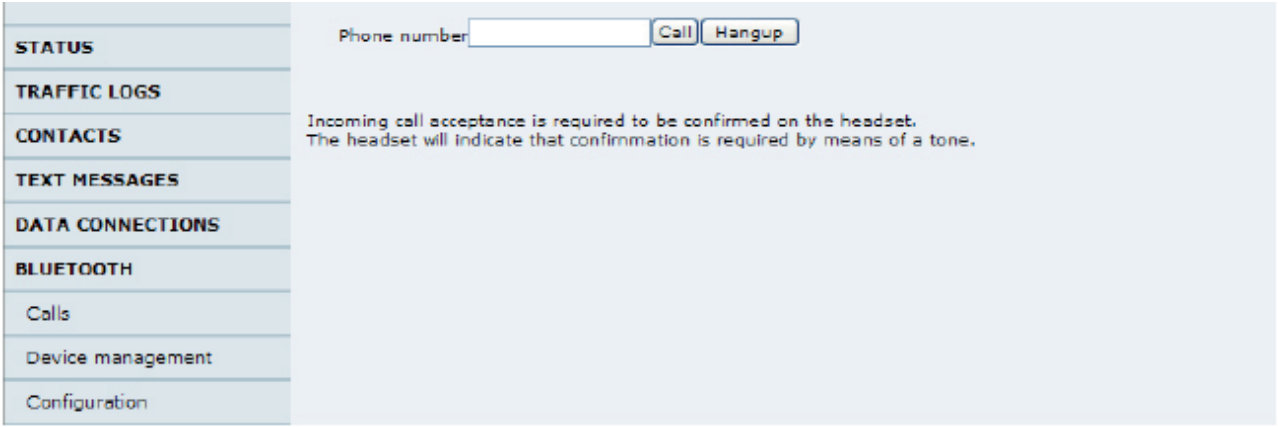
5 Connection established successfully, see below.

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

EXPLORER 110 Using BT Headset

You will be guided through a few steps *in order to prepare the terminal for BlueTooth dialling.*

When the Headset is paired, you can dial you number via the WEB MMI



EXPLORER 110 WEB MMI

The WorldPro1010 terminal provides an Ethernet interface which can be used for data communications as well as a Web interface for configuration of the terminal.

The WEB MMI can be used on Apple Mac, Windows 2000/Xp/Vista

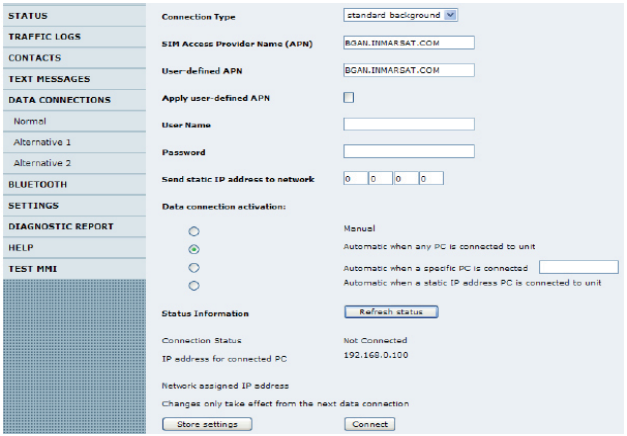
EXPLORER 110 WEB MMI cont.

1. Simply enter the WorldPro1010's default IP address **192.168.0.1** into your Web browsers address line and the Status Summary page will be shown:

2. Enter the SIM PIN code and press the Enter Pin button.

More information about the WEB MMI is found on the EXPLORER_110_Ethernet_user_Guide.

3. Select Data Connections menu item on the web MMI page. You may store three different data connection configurations: Normal, Alternative1 and Alternative2. For most cases only one configuration (Normal) should be sufficient.



The different data connection settings are explained below:

- Standard background:	Varying bit rate dependent on available resources. Tariff based on data volume.
- Streaming 32kbps	Guaranteed bit rate. Time based tariff.
- Streaming 64kbps	Guaranteed bit rate. Time based tariff.

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 EXPLORER 100&110 Suite opens automatically in a few seconds.

(If not start the program "Install EXPLORER 100&110 suite" on the CD).

Alternatively is BGAN LaunchPad is located at:

http://broadband.inmarsat.com/

2 To install on PC, follow the instructions given in the installer program.
When prompted, select **Single User** installation.

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

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

5 Switch ON the Terminal.

6 Start the BGAN LaunchPad program by clicking **Start > Programs > BGAN LaunchPad**. If necessary, aid LaunchPad to connect to your Terminal.
(See next page)

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.

BGAN LaunchPad connected via USB

Note! Version 3.6.0 or later has to be installed on your PC. BGAN LaunchPad is located on the User CD, and will be installed using the EXPLORER 100&110 Suite.

Procedure:

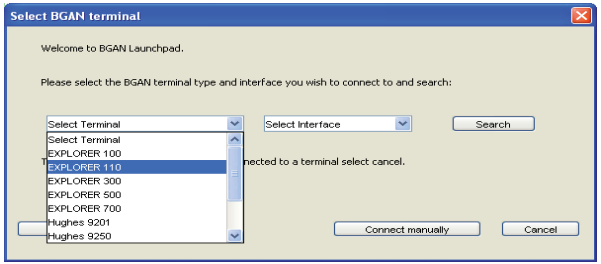
1 Connect your Terminal to the PC USB port.

2 Start BGAN LaunchPad.

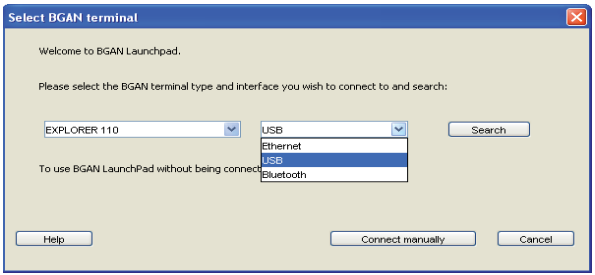
Select Icon on your PC or

Select Start>All Programs>BGAN LaunchPad

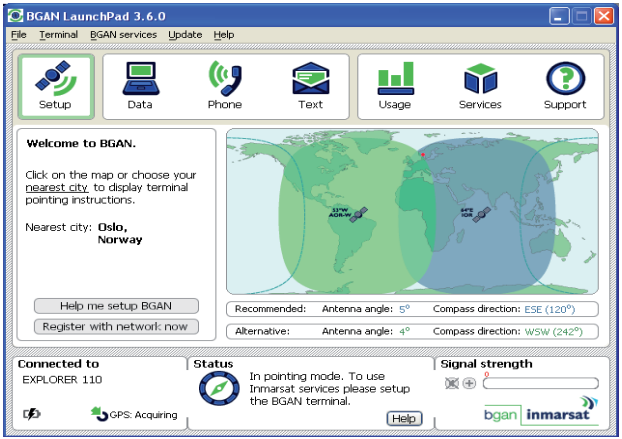
3 Select Terminal type (e.g. EXPLORER 110)



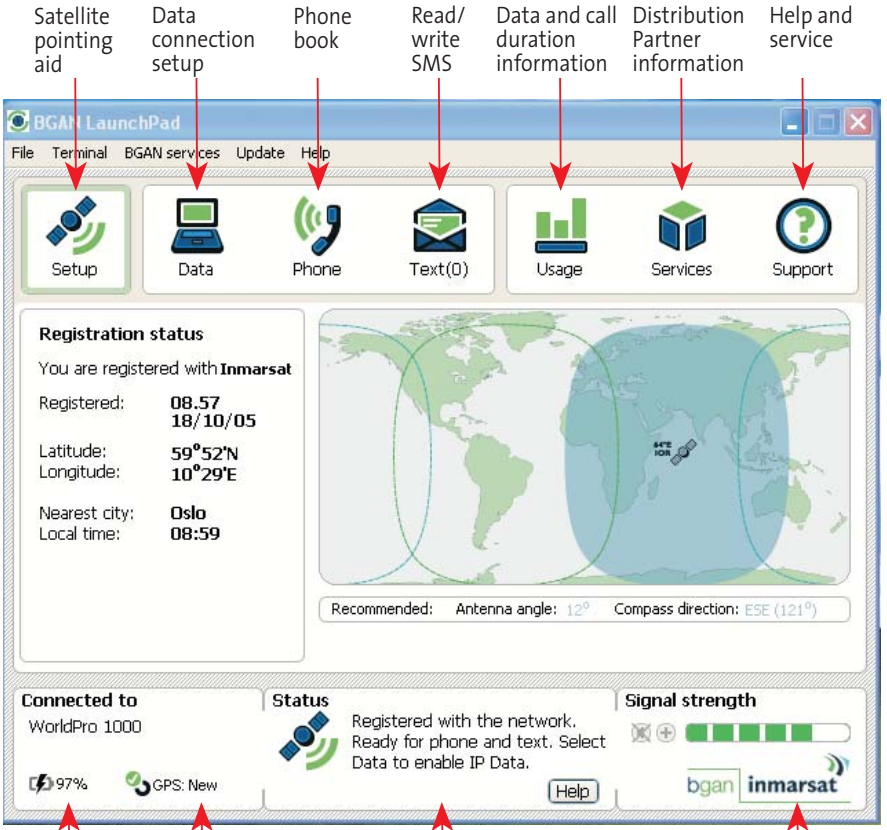
4 Select Interface (e.g. USB)



5 Select Search and BGAN LauchPad starts up.



Overview



Information only!
Not your exact position, but if city is selected satellite pointing guidance is available.

Status

Terminal in pointing mode. Search for best possible signal strength.
Typically 50% or higher.

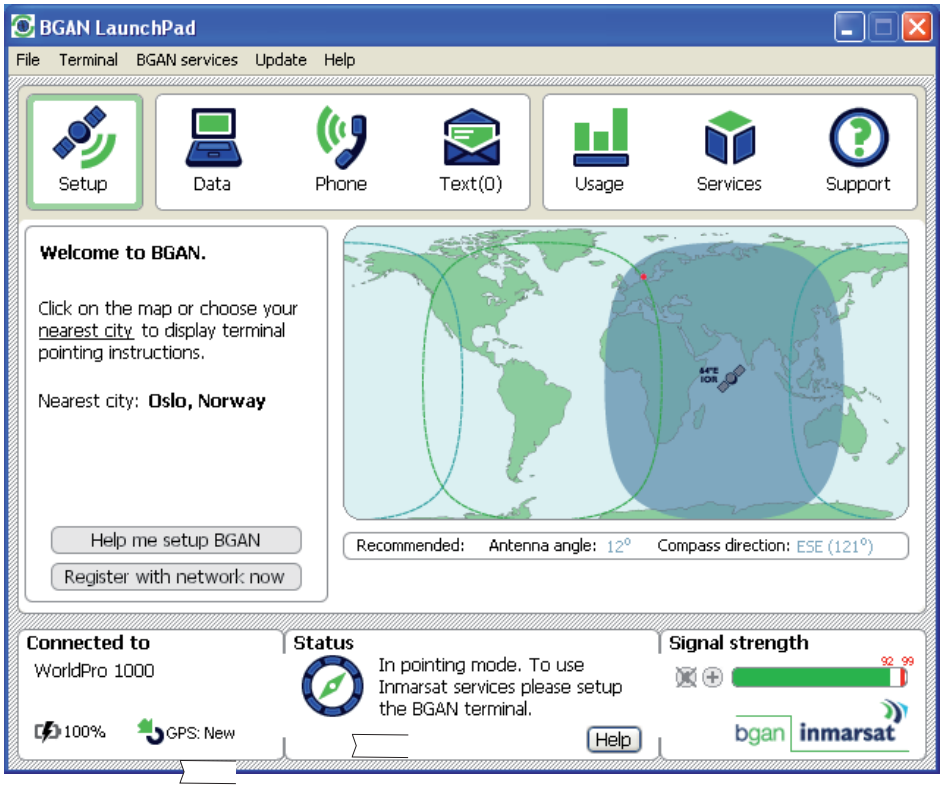
GPS status

Searching for GPS fix, please wait.

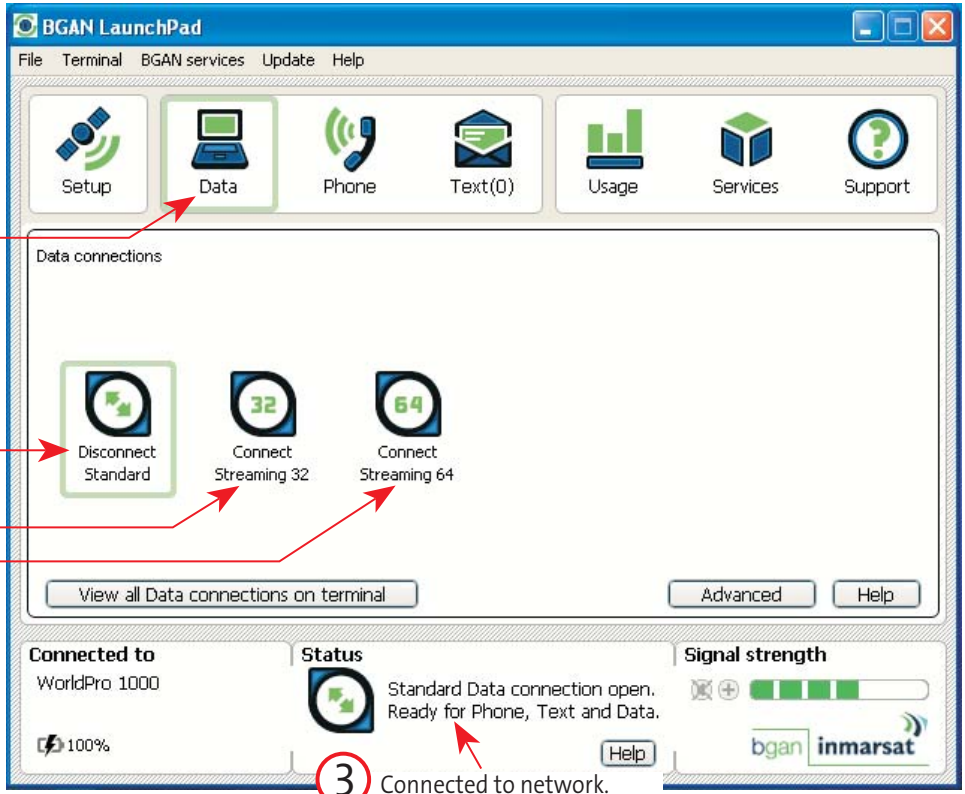
New GPS fix OK, please register by pressing **Activate** on terminal, or clicking.

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

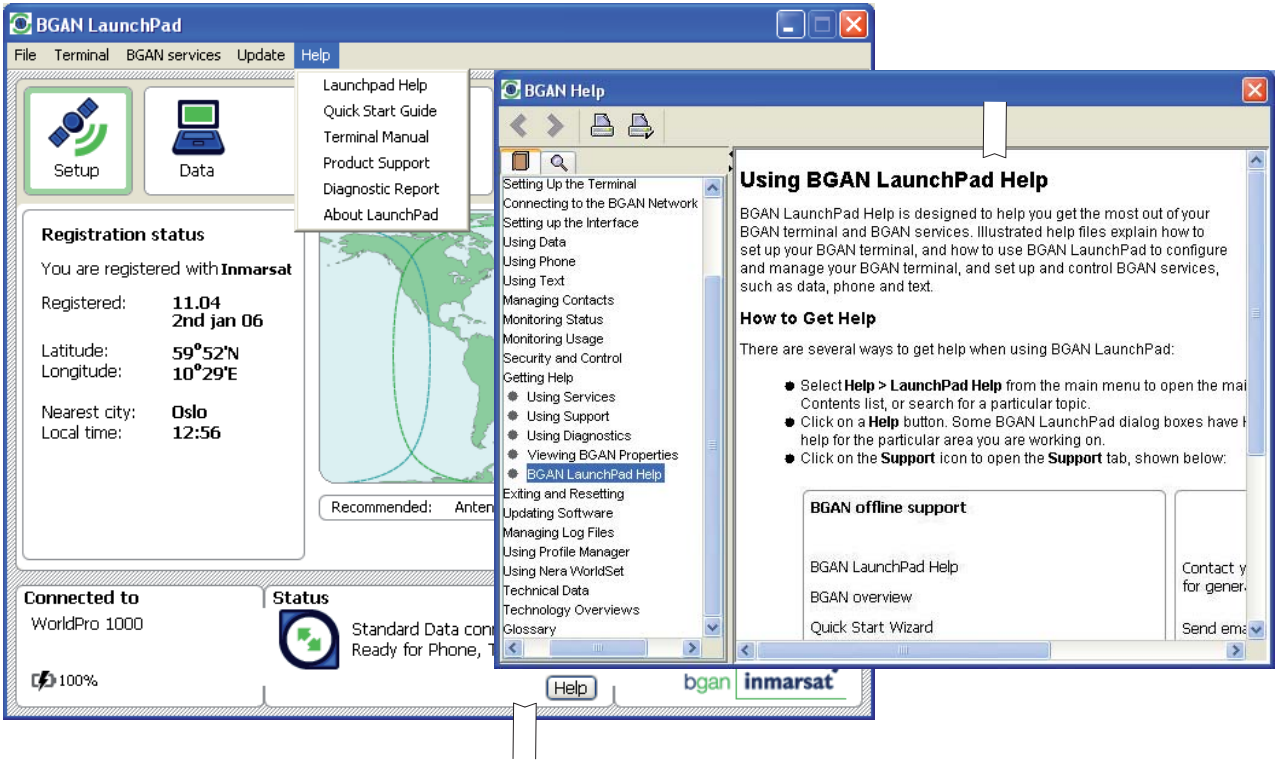
Login to Inmarsat system failed.



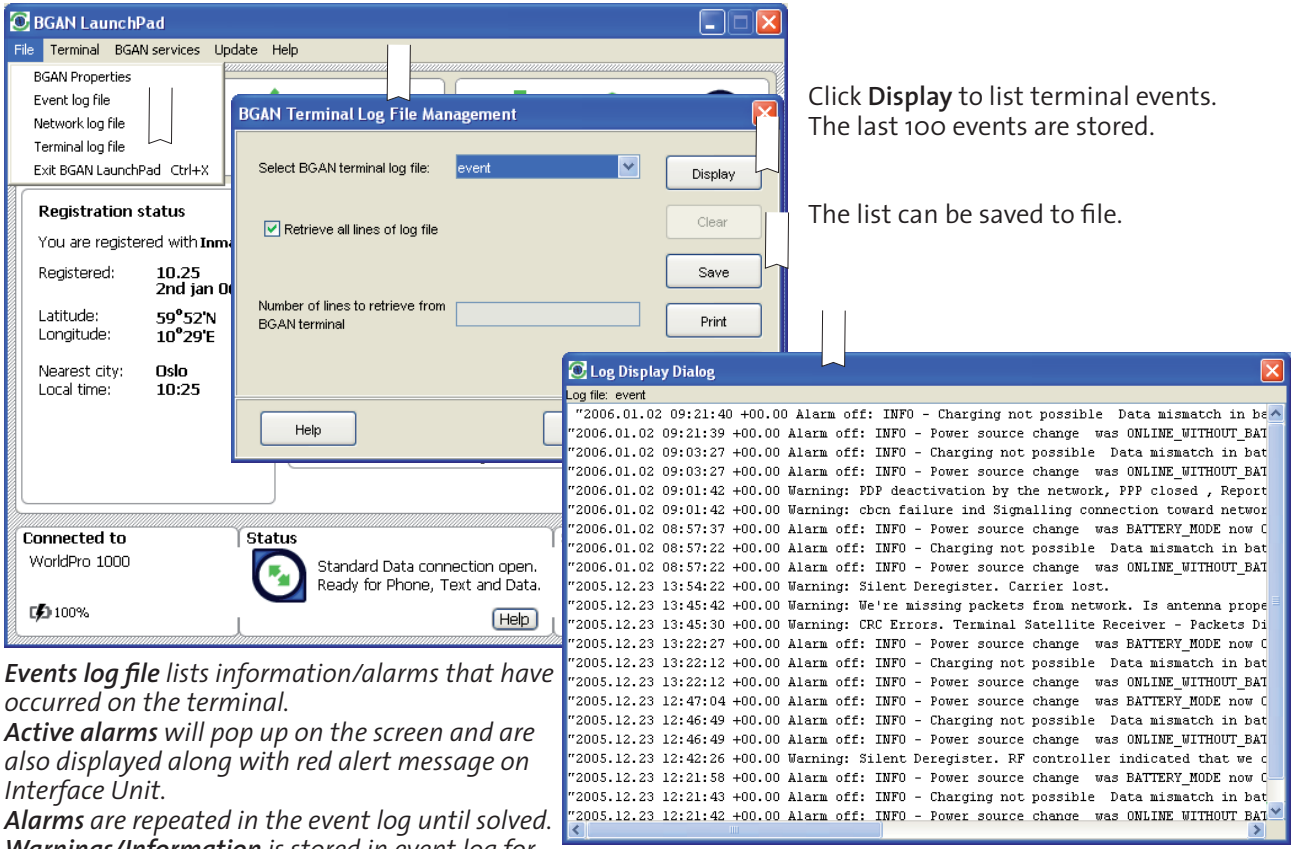
Data connection



LaunchPad help



Terminal log

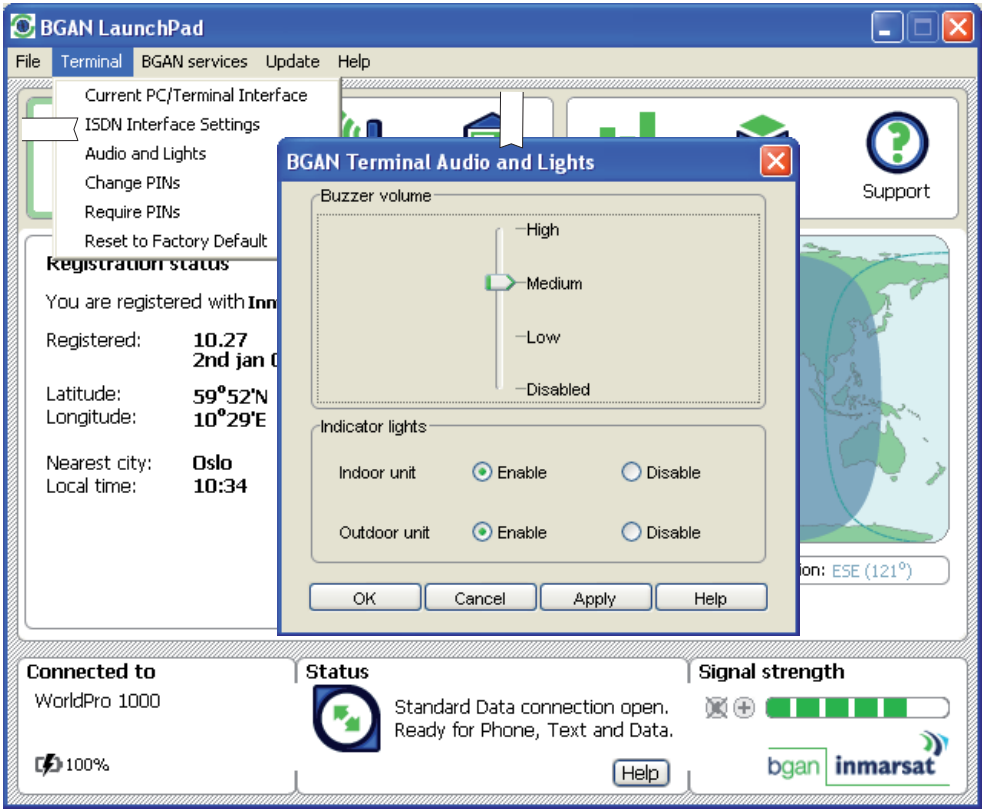


Click **Display** to list terminal events.
The last 100 events are stored.

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.*

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).*

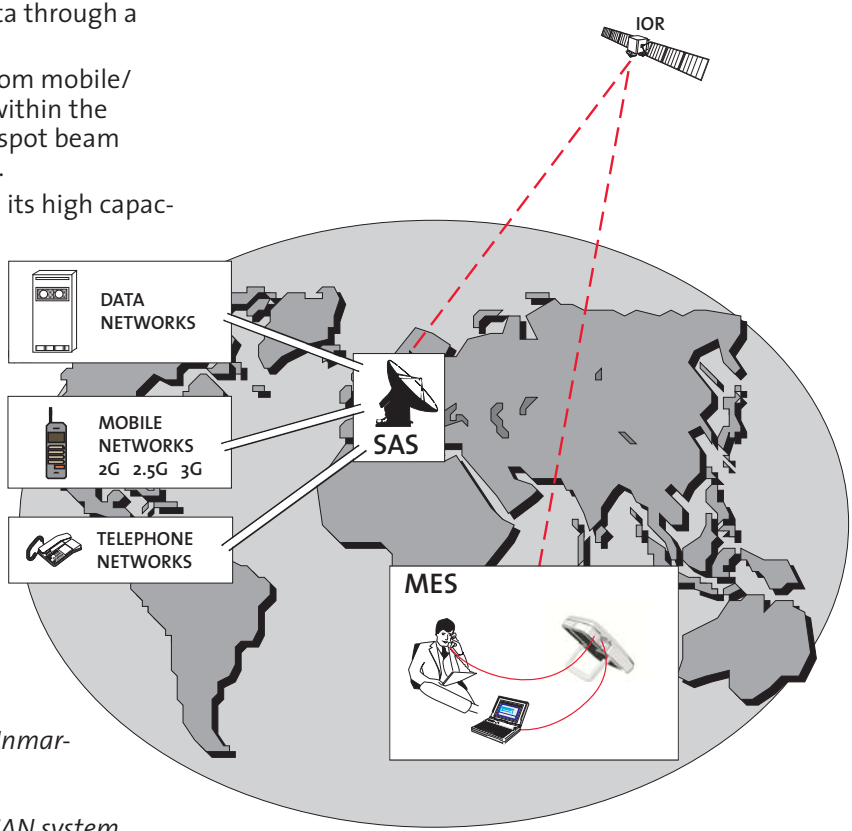


Figure A-1 Overview of the Inmarsat BGAN system.

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

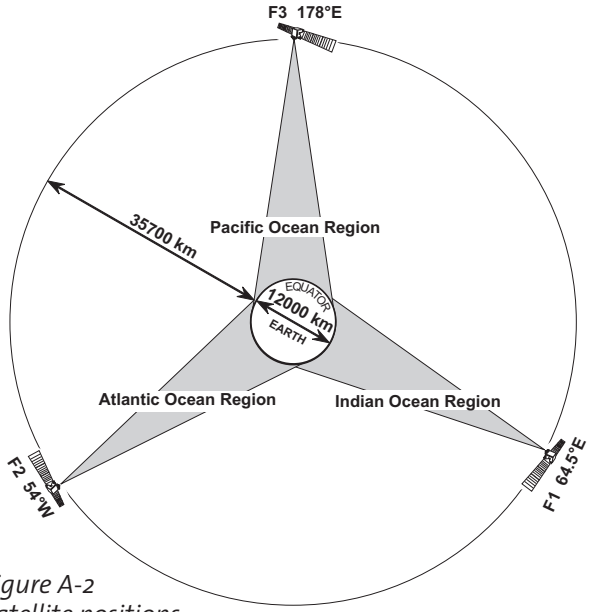


Figure A-2
Satellite positions.

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.

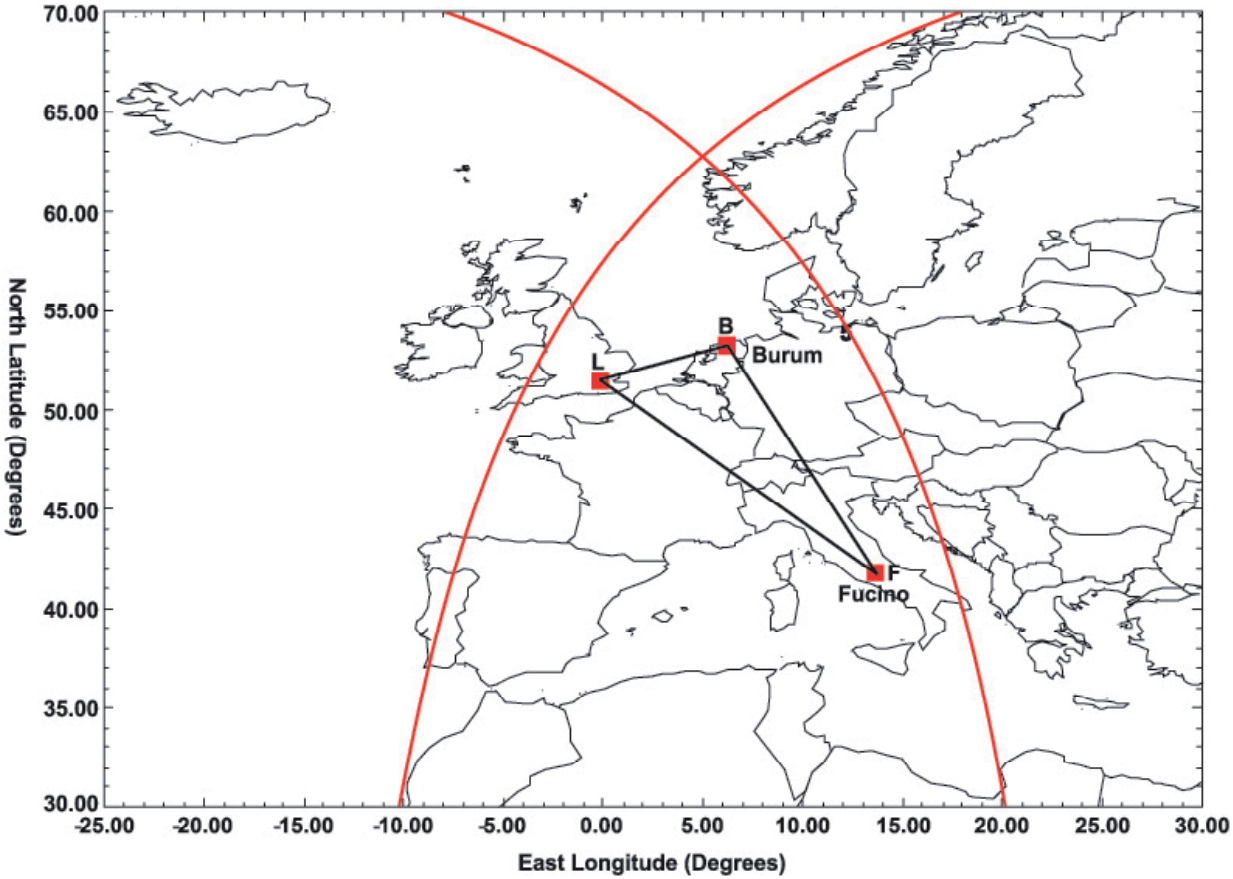
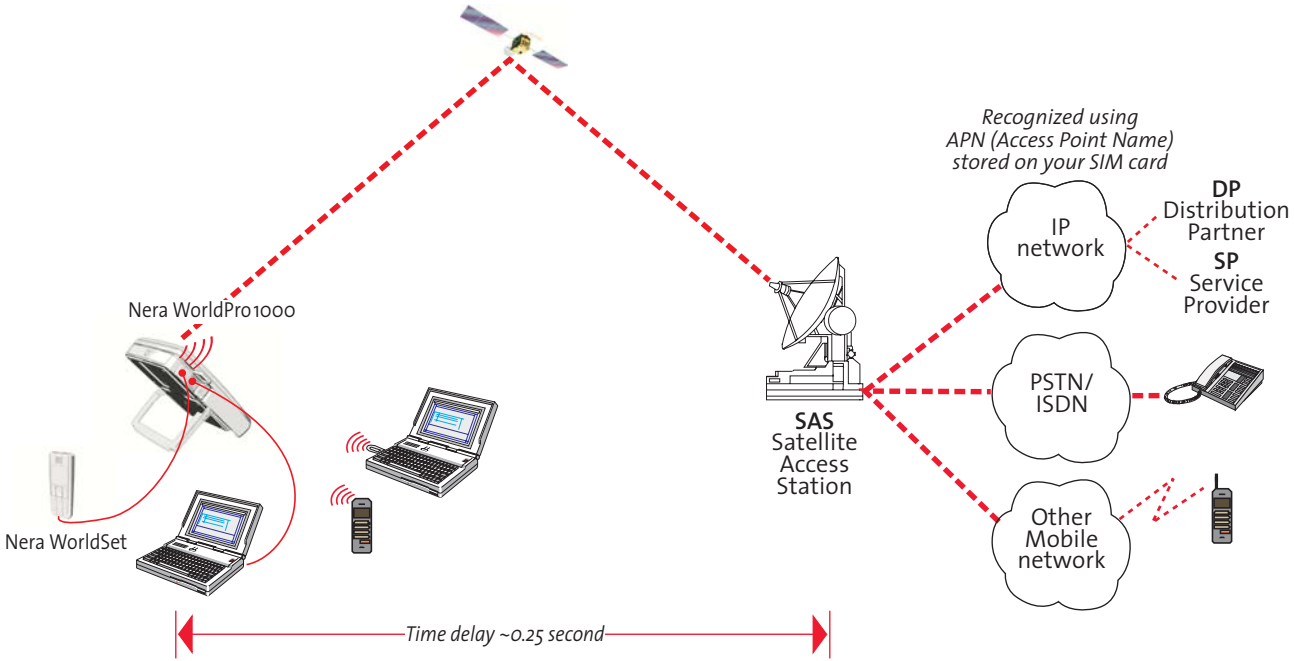


Figure A-3 BGAN Satellite Access Station Europa for IOR and AOR satellite.

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.

Setting up problem	*Probable cause*	*Action*
1. The indicators do not light up:	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. The Nera WorldSet display freezes or stays completely blank:	The handset cord is not connected or damaged	• 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. SIM not installed	**Message** indicator blinks red	• 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. Message indicator blinks yellow	**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. Signal indicator lights red	Network rejection	• Restart terminal and make sure to acquire a new GPS fix (green **Signal** indicator) before registering with the Inmarsat BGAN Network. GPS is needed for registering with the Inmarsat system. • Make sure to achieve the best possible satellite signal at your location. Avoid obstructions. • Find another location. • Check for correct SIM card id IMSI, or terminal IMEI.

Setting up problem	*Probable cause*	*Action*
6. Signal indicator blinks yellow	Terminal has a stored GPS and a new fix is not yet obtained	• 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. Nera WorldPro cannot find the satellite:	No or weak signals. Sight to satellite obstructed	• Check that no obstacles block the free sight to the satellite. • Check with the coverage map.
8. Low signal reception:	Obstructions	• The signal strength indicator should preferably exceed 50% in BGAN LaunchPad or 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. Nera WorldPro 1000/1010 functions abnormally:	All signal indicators stay red, or blink	• 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.Nera WorldPro functions abnormally:	All signal indicators stay yellow. **Activate** button has been pressed and held for more than 10seconds.	• 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)

Setting up problem	*Probable cause*	*Action*
11. Logging into the system fails	Signal indicators switch to red after login attempt	• Check that the SIM card is installed. • The terminal is black listed (*IMEI* number). • The SIM card is black listed (*IMSI* number).

Problems connecting to PC	*Probable cause*	*Action*
1. ***No contact with modem using USB:***	Wrong setup of USB driver.	• 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: *Alt. A* 1. Remove Modem in Phone and Modem options. (Nera Dual Port1/Port2) 2. Run the Nera USB wizard. 3. Reconnect the Nera WorldPro terminal 4. Follow the New Hardware Wizard in Windows. Click next, and repeat procedure 3 times: Nera Dual Port/Control port 1/2 *Alt. B* The PC does not recognize the Nera WorldPro. Update the Nera USB drivers. Drivers can be updated via Control Panel > System > Hardware > Device Manager. Typically, a driver is not recognized by computer marked in device manager as a question mark. *Alt. C* 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*

Problems connecting to PC	*Probable cause*	*Action*
2. *Cannot find Network Connection:*	Network connection not installed.	• Contact your PC vendor to get the software.
3. *Length of cables:* *USB* *Ethernet* *Bluetooth*	Guranteed length: 3 m 100m 30m	Note: 8-wire screened cable Free line of sight outdoor
4. *Using LaunchPad fails*		• "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. • Update BGAN LaunchPad
5. *How do I set a DUN not using BGAN LaunchPad*		• Read the application guide Setting up a DUN.
6. Other problems	***Read the Nera WorldPro FAQ document available on CD or http://satcom.neraworld.com If you have installed tne Nera WorldPro Software Suite on your PC, it is available select -->start/all programs/ Nera WorldPro Suite***	

Operation problem	*Probable cause*	*Action*
1. Unsuccessful call:	Network busy	• Try again
	Nera WorldPro is not commissioned.	• Check event log for information. • Call the Net Service Provider/Distribution Partner.
	The called party is busy. "Subscriber busy" appears in Nera WorldSet display	• Wait for some time and try again. • Call another subscriber.
2. Problems with making a voice call.	Incomplete dialing	• 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	• SIM card is not accepting phone calls.
	Not logged on to the Inmarsat system	• No valid GPS • Check **Signal** indicator • Check BGAN LaunchPad • Press **Activate** button and repeat the satellite pointing.
3. Problems with incoming voice call.		• Subscriber must dial International prefix e.g. 00870772420510. • Wrong MSN settings in voice device. Erase MSN in device, or select MSN no. 20. • Voice device not properly connected to terminal.
4. Problems with data communication:	Wrong PC settings	• Use BGAN LaunchPad to establish a data connection. • Verify DUN (Dial Up Network) settings. Number to dial should be *98# (for background data via COM port) • *Read **Connecting to PC** application guides on CD.*

Operation problem	*Probable cause*	*Action*
5. Connection unsuccessful:	Other end does not reply No answer from SAS	• Verify that you are logged on to the system. • Verify satellite signal
	Wrong connection details	• 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	• Verify satellite signal indicator, shouild 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)	• Check properties>options>idle time before hang up. • Check satellite signal, can vary in some locations, *see* ***User Guide***.
8. Satellite Signal indicator turns red	Logging onto the Inmarsat system failed	• Terminal has no GPS fix, or stored fix is rejected. • Satellite signal too low. • Make sure to acquire a GPS fix. • Verify satellite signal.

Operation problem	*Probable cause*	*Action*
9. Low throughput	Many users logged on the system	• Try later • Use another Ocean Region *Note! You only pay for data sent/received* • Check satellite signal
10.Streaming fails	Not available service	• Check with your DP (Distribution Partner) on the availability on your SIM card. • Using BGAN LaunchPad, verify APN located on SIM card. • Nera WorldPro supports QoS streaming 32 and 64kbps.
11. Out of range		• Not within the Inmarsat coverage. • Check GPS fix, get a new GPS fix. • Check satellite signal, typically more than 50%.

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