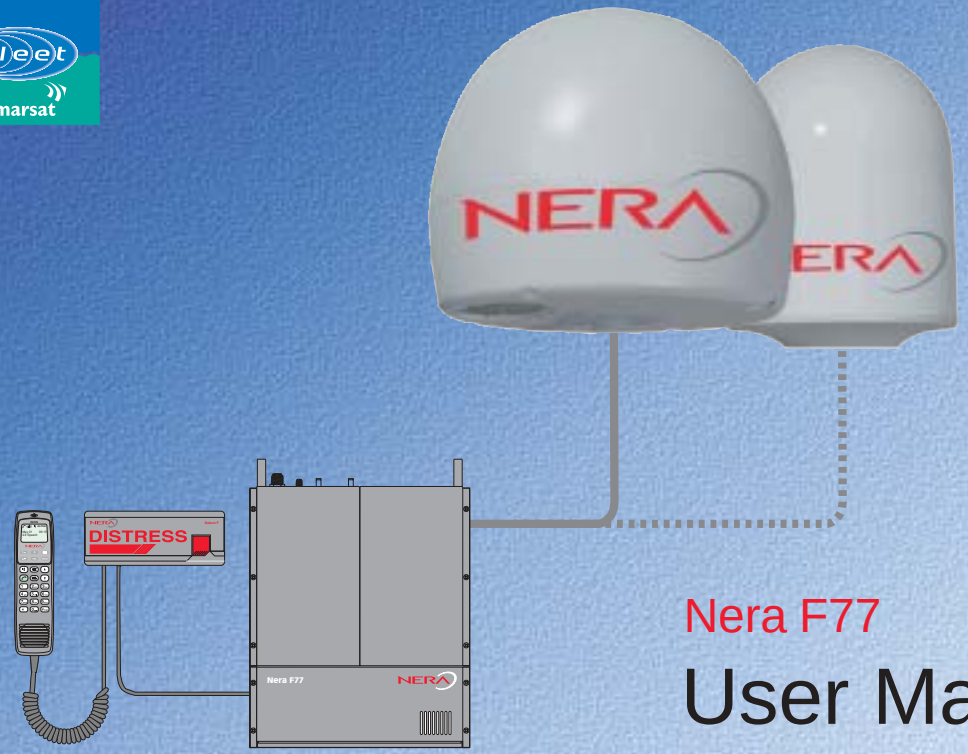
Back to Start Page

Fleet inmarsat



Nera F77

User Manual

MPDS Compatible

NERA

enabling a wireless future

All specifications are subject to change without notice.

A MEMBER OF CIRM

0434/00

The Nera F77 terminal fully complies with the R&TTE directive.

General

The Nera F77 satellite terminal provides 64 kbps voice and data, and 4.8 kbps low cost voice for transmission via the Inmarsat satellite system. Nera F77 offers full ISDN functionality.

Above Deck Equipment - ADE

The Nera F77 Above Deck Equipment consists of:

- Servo stabilized antenna dish with RF-Transceiver
- Mast mounted radome, or
- Deck mounted radome

Below Deck Equipment - BDE

The **Nera F77 Main Communication Unit (MCU)** - which constitutes the major electronic part - is designed for wall or desktop installation.

The MCU mains input is 100 - 240 VAC ±10%. The power requirement is approx. 40 W in receive/idle mode, and approx. 150 W in transmit mode.

The MCU supplies 48 VDC power to the ADE through the coaxial cable.

Nera ISDN Handset

The **ISDN Handset** keypad and built-in display allows dialing and control of the MCU and antenna.

Distress Alarm

The Distress Alarm Unit provides remote activation of an alert transmission and indication of incoming distress calls.

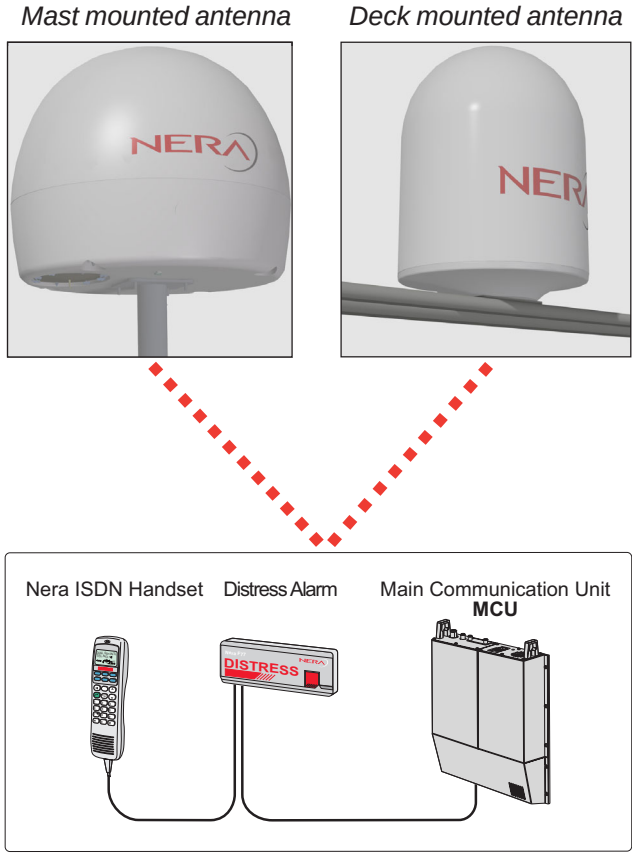


Figure 1 Nera F77 satellite terminal.

Communication services

Nera F77 provides the following services:

- **ISDN:**
  - 64 kbps Mobile Data Service (UDI)
  - 56 kbps Mobile Data Service
  - 4.8 kbps speech
  - 64 kbps speech
  - 3.1 kHz audio (64 kbps)
- **RS-232**:
  - 64 kbps Mobile Data Service (UDI)
  - Mobile Packet Data Service (MPDS
- **RS-422**:
  - 64 kbps Mobile Data Service (UDI)
  - Mobile Packet Data Service (MPDS
- **USB**
  - 64 kbps Mobile Data Service (UDI)
  - Mobile Packet Data Service (MPDS)
- **ANALOGUE**
  - 4.8 speech / 64 speech
  - 3.1 kHz (e.g. telefax Gr.3)

Internal communication

Equipment connected to the various interfaces may communicate with each other via an internal MSN (Mobile Subscriber Number) assigned to each unit.

Control interface

The **RS-232/RS-422** or **USB** port allows connection of a PC for configuration of the Nera F77 MCU.
A PC program (vtLite Marine) that provides the software to operate and configure the MCU is supplied on the enclosed CD (requires at least Windows 95).

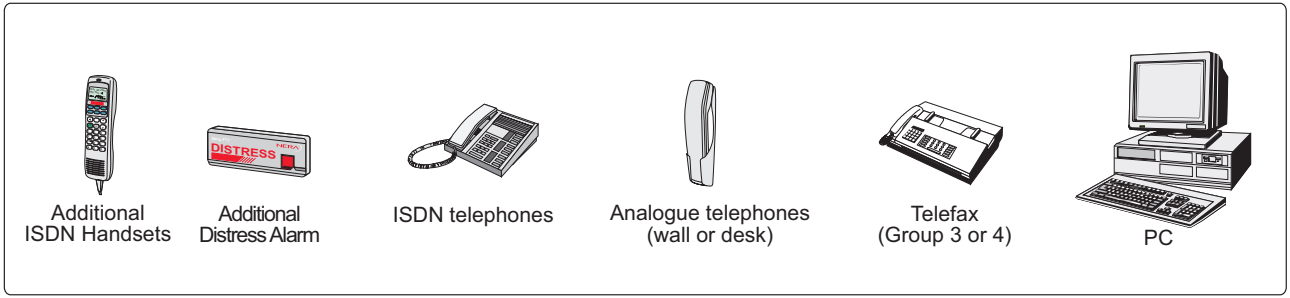


Figure 2 Additional equipment.

CD

The CD ROM supplied with Nera F77 contains:

- program for control from PC (vtLite Marine)
- manuals
- application notes
- modem drivers
- and other useful information.

Additional equipment

- Additional Nera ISDN Handsets
- Additional Distress Alarm Unit (DA)
- ISDN telephones
- Analogue DTMF telephones
- Group 3 and Group 4 telefax
- PC

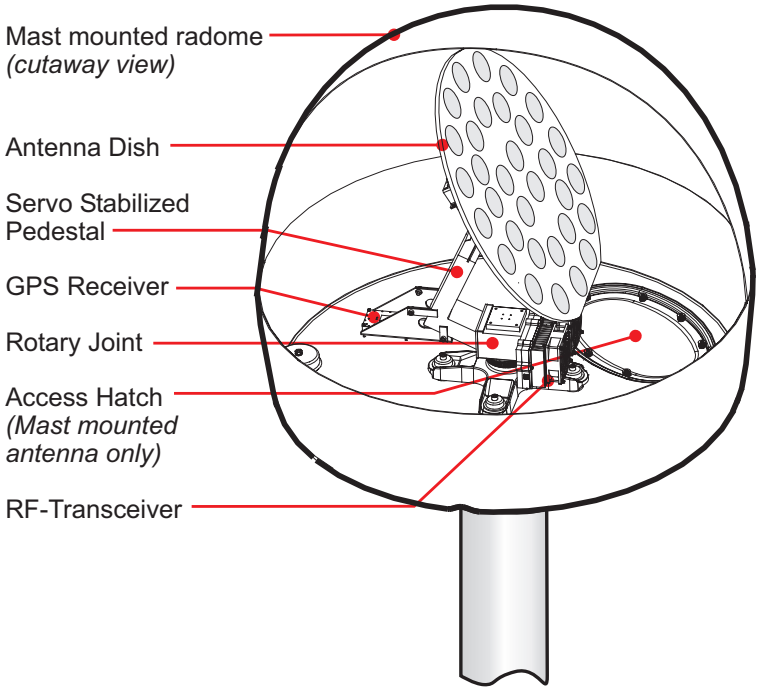
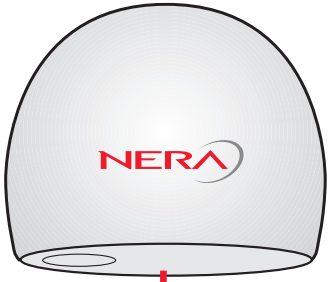


Figure 3 Antenna parts - mast mounted version. The deck mounted version houses the same parts.

Figure 4 Examples of preprogrammed Terminal Ids and MSN numbers.

Allows direct connection without prior configuration.

See also ***Routing of incoming calls*** *and* ***MSN configuration.***



Nera ISDN Handset connected to ISDN port/bus:
- 4.8 kbps speech
- **Term Id 05**, **MSN 21**
- **Term Id 92**, **MSN 31**

Nera ISDN Handset/ Distress Alarm unit connected to ISDN port/bus:
- 4.8 kbps speech
- **Term Id 01**, **MSN 20**
- 64 kbps speech
- **Term Id 91**, **MSN 30**

Digital fax (G4) connected to ISDN port/bus:
- 64 kbps data
- **Term Id 51**, **MSN 60**

PC connected to RS232A port:
- 64 kbps data
- MPDS supported
- vt-Lite Marine supported
- **Term Id 52**, **MSN 61**

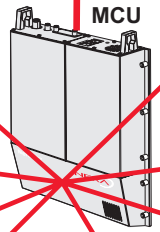
PC connected to RS232B port:
- 64 kbps data
- MPDS supported
- **Term Id 54**, **MSN 63**

PC connected to USB port:
- 64 kbps data
- MPDS supported
- **Term Id 53**, **MSN 62**

Analogue fax (G3) connected to TEL4 port:
- 3.1 kHz audio
- **Term Id 61**, **MSN 04**

Analogue telephone connected to port TEL1 - TEL3:
- 4.8 kbps speech

TEL1: **Term Id 03**, **MSN 01**
TEL2: **Term Id 04**, **MSN 02**
TEL3: **Term Id 01**, **MSN 03**



Handsfree microphone

Display indicators:

- appears at hook OFF
- flashes when receiving a call
- Net provider & Ocean Region
- appears when loudspeaker is ON
- ALPHA — appears when selecting letters on the keypad, e.g. for Phone Book entries
- signal strength indicator
- alarm indicator

Function keys:

- allows adjusting the earpiece volume during conversation
- opens/closes Phone Book
- ESC — reverts to previous postion
- R — used to transfer a call
- MENU — selects function menu
- handsfree microphone/ loudspeaker ON/OFF (hook ON/OFF when in cradle)
- hook ON/OFF
- 1 . . . . . number keys. The keys include letters for Phone Book entries.
- OK — enters selected choice
- DEL — deletes last character or complete entry
- scrolls up/down through function menu/choices

Handsfree loudspeaker

Figure 5 Display and keys.

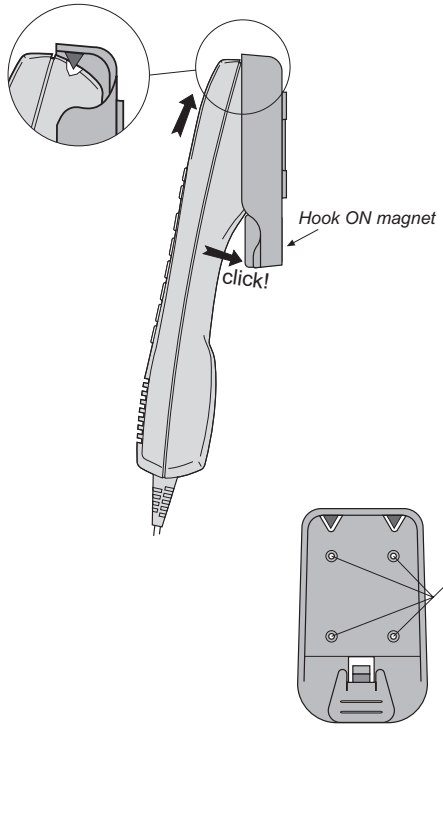


Figure 6 Holder/cradle wallmounted.

SIM card

The SIM card carries subscription information from your Net service provider on an integrated circuit. The Nera F77 used with the SIM card assumes the identity of the SIM card.

The SIM card has its own set of Inmarsat Mobile Numbers (IMN) on which the user can be contacted irrespective of the Nera F77 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 the PIN code entered does not match the PIN code on the SIM card, operation with that particular SIM card will lock-up after three failed attempts. You must then use the SIM un-block code (PUK code) provided by your Net service provider to un-lock the card. Contact your Net service provider if you do not have the PUK code.

Note!
When the PUK is used, the SIM PIN is set to 1 2 3 4.

To change or disable the PIN code, *see "**Access level**" later in this manual.*

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

- PIN code (Personal Identification Number)
- Phone book
- Allowed and preferred Net service providers

Note! Nera F77 can be used with or without SIM card. The Net service provider, however, sometimes requires the use of SIM card.

The SIM card is located on the upper end of the Main Communication Unit, *see figure 6.* The cover must be removed to access the the card slot. The cover is atttached by two serrated screws. No tools are required to loosen the screws.

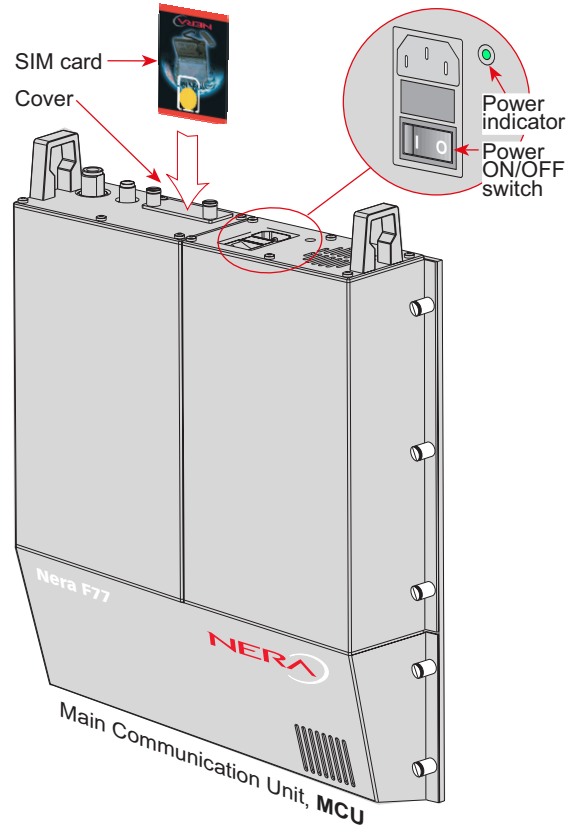


Figure 7 Location of SIM card and ON/OFF switch.

Switching ON

The **ON/OFF** switch located on the upper end of the Main Communication Unit switches all basic units of the Nera F77 terminal on/off:

- the Nera ISDN Handset
- the Main Communication Unit (MCU), and
- the Antenna Unit.

*See figure 7 for location of the power **ON/OFF** switch and indicator.*

Nera ISDN Handset

When connected, the handset is automatically set to *Nera Fleet mode*, providing an idle display as shown on the next page.

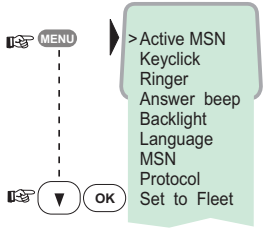
To switch to normal Nera ISDN Handset mode, press and hold down (DEL) *when turning ON power.*

Switching back to Nera Fleet mode is then achieved as follows:

Open the **MENU**

and scroll down to

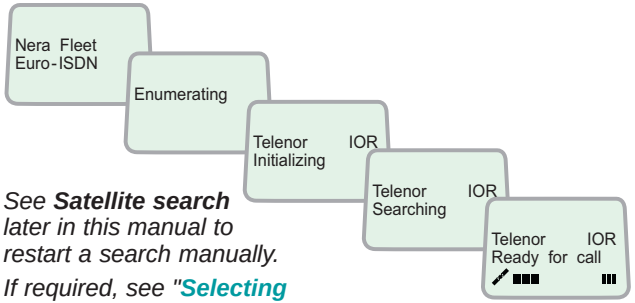
Set to Fleet
Press (OK).



For normal ISDN mode, see ***Nera ISDN Handset - User Guide*** *on CD.*

Nera F77 starts up

Nera F77 automatically initializes the system and searches for the satellite:

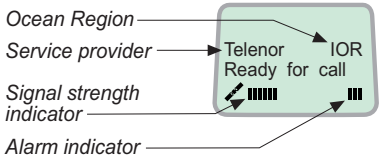


*See **Satellite search** later in this manual to restart a search manually.*

*If required, see "**Selecting default Net service provider**".*

Idle

When idle, the Nera ISDN Handset displays:

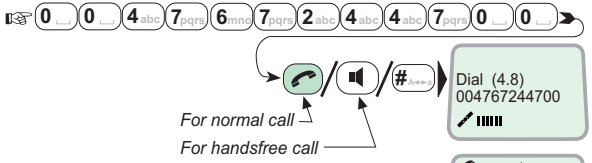


The alarm indicator flashes when an alarm condition occurs. The indicator stops once the alarm has been read in the Display Handset by pressing MENU ***> Information > Alarms & messages***".

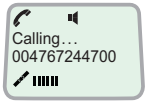
The indicator continues to be displayed if the alarm condition persists.

Making a call

- Dial 00, country code and subscriber number, e.g.:



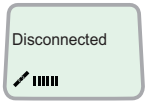
- When entered, the display reads:



- When the remote end answers, the display reads:

The timer starts.

- End the call by pressing hook ON/OFF, or replacing the handset in the cradle.



Use DEL to modify entries: DEL Pressing DEL once, erases one digit. Holding the key more than 0.5 second erases the whole number.

Use the handsfree key to toggle the loudspeaker ON/OFF.

Alternative dialing:

Press or for dialing tone, then dial the number:

Redialing

The Redial Memory stores the last 30 called and received numbers (since incoming IMN numbers are not conveyed from "ashore", the received numbers are listed by local MSN numbers).

The data are erased when disconnecting the handset or Nera F77 is switched off.

To redial calls made:

1 Press the arrow up key to recall the last number *dialed*:

2 Use the arrow keys to scroll through the list:

3 Pressing hook ON/OFF sends the chosen number:

"Redial list" if no number is stored

To view calls received:

4 Press the arrow down key to recall the last number *received*. Scroll through list.

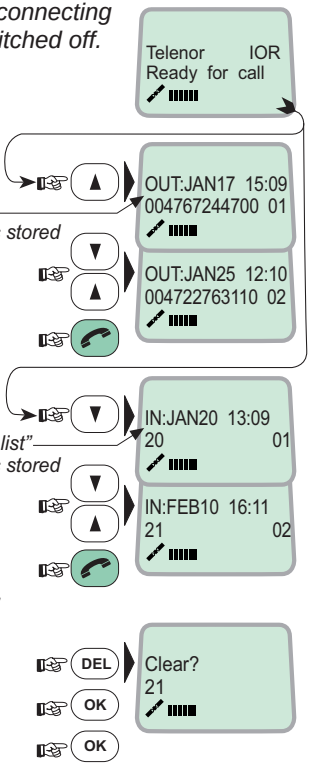
"Received call list" if no number is stored

To delete a listed number:

5 Press (DEL) to clear the chosen number from list:

Press OK to delete:

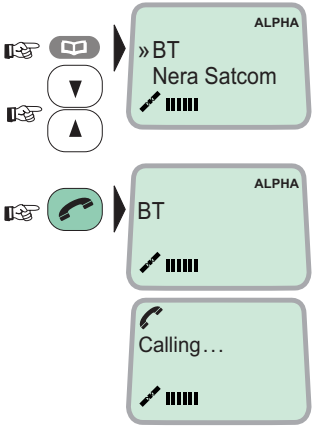
Revert to idle:



Dialing from phone book

1 Press the phone book key:
and scroll through the phone book:

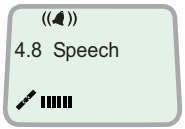
2 Press the hook key to call the selected number:



Incoming calls

The handset rings when receiving a call.

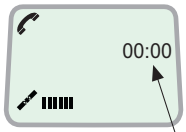
The ringing symbol flashes until the call is answered.



- Answer the call by pressing hook ON/OFF: or handsfree:

With the ISDN Handset in the cradle, the loudspeaker and microphone are ON for handsfree operation.

If lifting the handset, the loudspeaker turns OFF.



Timer, minutes:seconds

Use the handsfree key to toggle the loudspeaker ON/OFF.

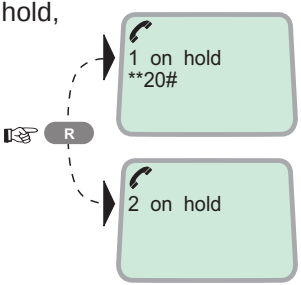
- End the call by pressing hook ON/OFF, or replacing the handset in the cradle.
- Reject the call by pressing **DEL**: DEL

Call hold and transfer

Pressing R during a conversation will put the current call on hold. Another internal call may now be made.

Switching between the two calls:

- The 2nd call is established by keying: R * * [MSN] #
- The original call is put on hold, and 2nd connected.
- Toggling between the two calls is achieved by pressing R repeatedly:



Call transfer (connection via satellite):

MSN/Handset Id

R * * 2 0 # *Hang up*

R *toggles between subscribers*

Exception!
*Transfer from **analogue** to **ISDN** is not possible.*

Internal communication

Nera F77 allows calls to be made internally between the connected **ISDN** and **analogue** telephones.

Internal calls:

MSN *(example)*

[*] [*] [2] [0] [#]

Note! If the telephone lacks the ∗-key, 103 may be dialed instead, e.g.: [1] [0] [3] [2] [0] [#]

When receiving a call, the caller`s MSN number will appear in the display (if programmed).

When Nera F77 is busy with a satellite link call, it is possible to make internal calls.

Various call procedures

Short number dialing from Phone Book (prefix 23)

[2] [3] [1] [5] [#] fetches and sends the telephone number stored in the Phone Book under short number 15.

Short number dialing (prefix 23) through selected Net service provider

[4] [*] [2] [3] [1] [5] [#] fetches and sends the telephone number stored under short number 15 via the selected Net service provider (Telenor=no. 4).

Service calls

Special information services are accessible with 2-digit service address code.
Note! Not all Net service providers offer every service.

Examples:
Obtaining assistance from the International Operator: [1] [1] [#]
Calling the technical staff of the Land Earth Station (LES): [3] [3] [#]

Telefax / Videophone

On a telefax with keypad, enter [#] as the last digit before starting transmission.

Note! Some types of equipment do not have # implemented in software even if the #-key is on the keypad. Then in front of the telephone number use:

903 if dialing the number digit by digit, or

902 if for the number to be sent as a block. e.g.:

[9] [0] [2] [0] [0] [4] [7] [6] [7] [2] [4] [4] [7] [0] [0]

To call Nera F77

Dial the international prefix (normally 00) followed by **870** and the IMN number, e.g. 00 **870** 762420510.

*The common Ocean Region access no. **870** connects the call to the dialed Nera F77 terminal regardless of the Ocean Region the user currently communicates through.*

*If the Net service provider does not support access no. **870**, call the Ocean Region directly:*

871 – **AOR-E** (Atlantic Ocean Region East)
872 – **POR** (Pacific Ocean Region)
873 – **IOR** (Indian Ocean Region)
874 – **AOR-W** (Atlantic Ocean Region West)

Phone book entry

The entries in the Nera F77 phone book may consist of maximum 15 characters and 19 digits. Typical 6-character/8-digit entries yield a total of 85 phone numbers. The number/name list is stored in the Main Communication Unit.

Programming:

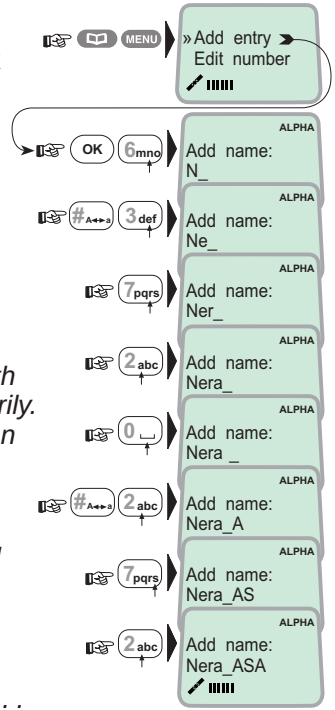
1 Open the **phone book > menu**:
Open the **Add entry** function by pressing **Ok** before starting to key in characters.

2 Enter the name, e.g. Nera ASA.

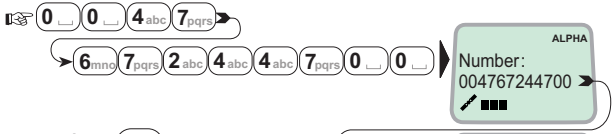
Note that the additional characters accessible with the key appear momentarily. See the character table on next page.

*For modifying an entry, see **Phone book editing** on next page.*

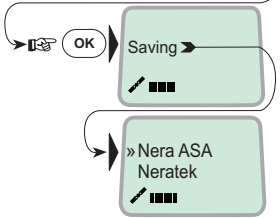
Enter the phone number, continue on next page . . . .



3 Enter the telephone number e.g.:

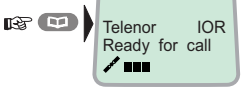


4 Pressing (OK) stores the entry in the phone book:



An entry can be erased by pressing (DEL)

Revert to idle:



*The **character table** shows all the characters accessible:*

Notes:

- *The # -key toggles between upper-case and lower-case characters.*
- *The * -key ends the 1-sec delay after every key entry.*
- *Names written with none Anglo-American characters such as Æ, Ø, Å etc., can only contain 6 different special characters (however, 2 equal characters count as 1).*

Key	Uppercase	Lowercase
1	. , ? ! - : ; / 1	. , ? ! - : ; / 1
2abc	ABCÆÄÅ2	abcæää2
3def	DEF3	def3
4abc	GHI4	ghi4
5jkl	JKL5	jkl5
6mno	MNOØÖ6	mnoøö6
7pqrs	PQRS7	pqrs7
8tuv	TUVÜ8	tuvü8
9wxyz	WXYZ9	wxyz9
0	_0	_0

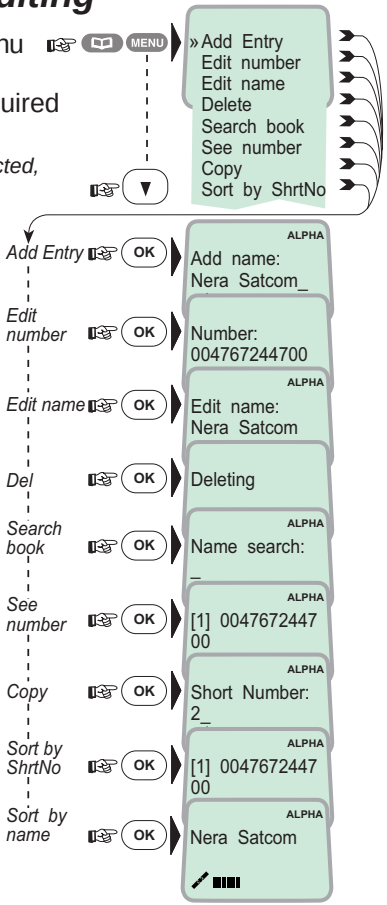
Phone book editing

Open phone book menu and scroll down to the required function.

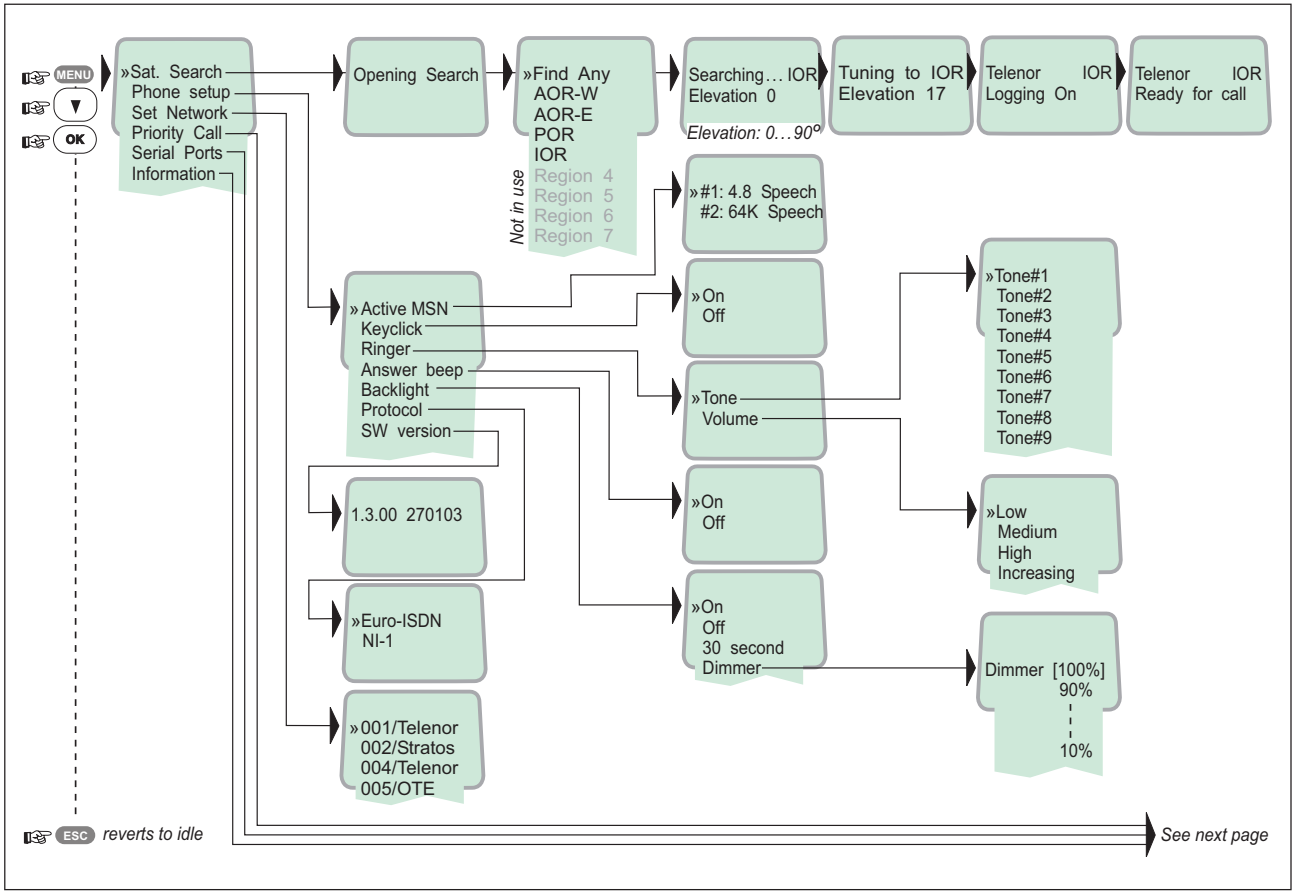
If "Sort by ShrtNo" is selected, the function switches to "Sort by Name".

ALPHA *appears when letters are to be entered.*

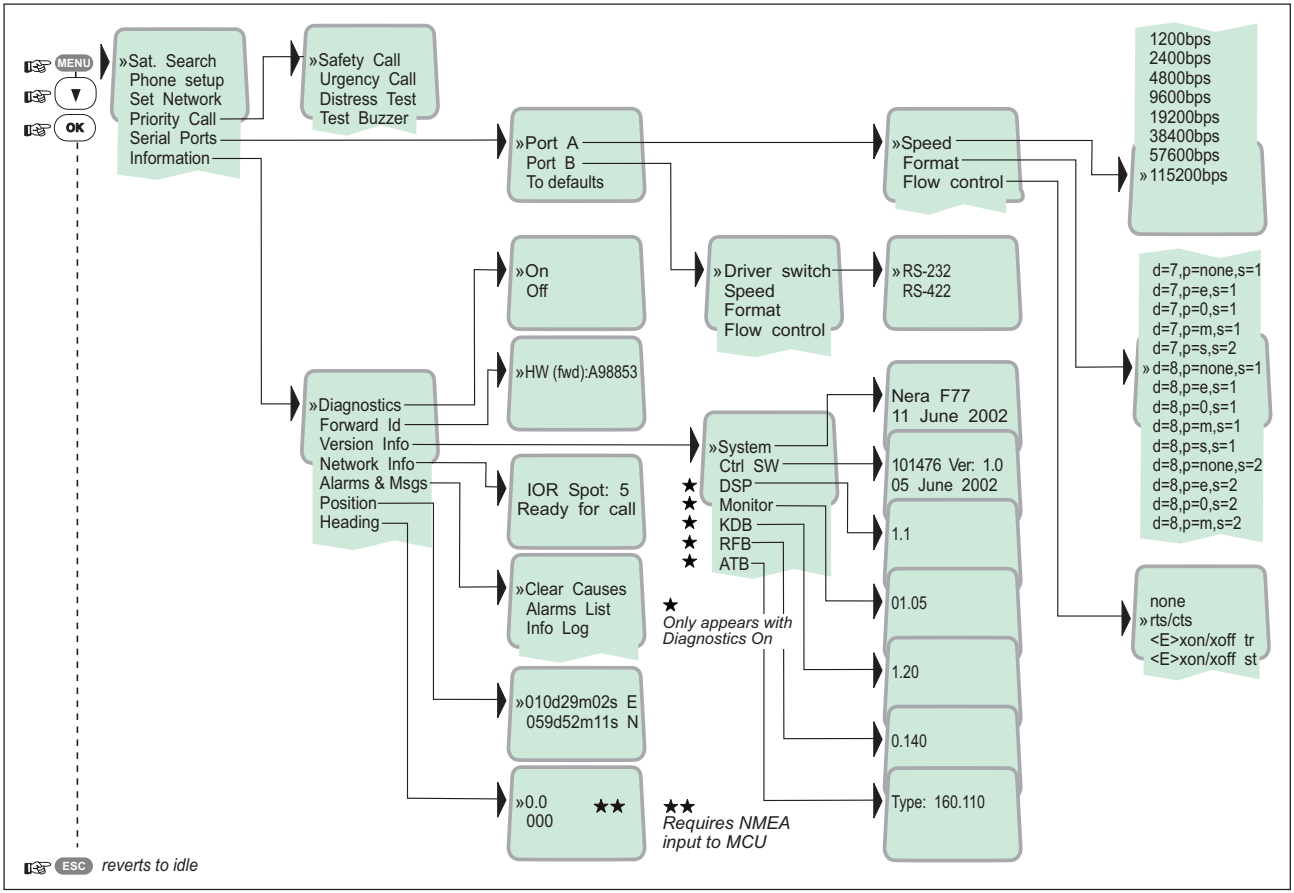
Use (DEL) *to modify entries.*



Overview


MENU
OK
»Sat. Search
Phone setup
Set Network
Priority Call
Serial Ports
Information
Opening Search
»Find Any
AOR-W
AOR-E
POR
IOR
Not in use
Region 4
Region 5
Region 6
Region 7
Searching… IOR
Elevation 0
Elevation: 0…90°
Tuning to IOR
Elevation 17
Telenor IOR
Logging On
Telenor IOR
Ready for call
»#1: 4.8 Speech
#2: 64K Speech
»Active MSN
Keyclick
Ringer
Answer beep
Backlight
Protocol
SW version
»On
Off
»Tone
Volume
»Tone#1
Tone#2
Tone#3
Tone#4
Tone#5
Tone#6
Tone#7
Tone#8
Tone#9
1.3.00 270103
»On
Off
»Low
Medium
High
Increasing
»Euro-ISDN
NI-1
»On
Off
30 second
Dimmer
Dimmer [100%]
90%
10%
»001/Telenor
002/Stratos
004/Telenor
005/OTE
ESC reverts to idle
See next page

Overview cont'd



Satellite search

Some geographic locations allow contact with more than one Ocean Region satellite. It is recommended to choose an Ocean Region providing good signal quality and cost-effective communication.

Use the **Satellite Coverage Map** on next page or on the CD to select the Ocean Region at your location:

Atlantic Ocean Region West:	**AOR-W**
Atlantic Ocean Region East:	**AOR-E**
Pacific Ocean Region:	**POR**
Indian Ocean Region:	**IOR**

Regions 4 - 7 are not in use.

See the Satellite Coverage Map on the next page.

To select another Ocean Region:

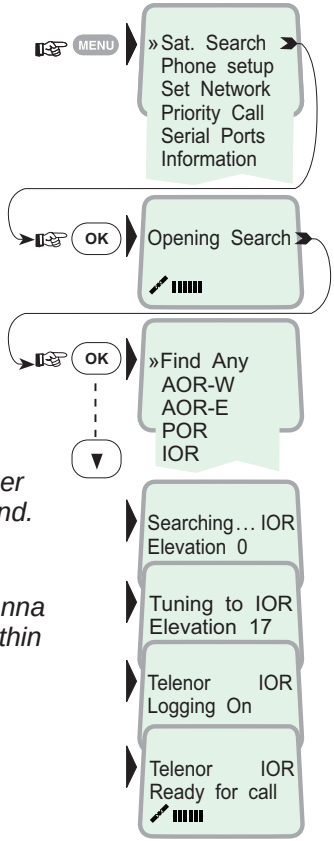
1 Open the **MENU** and press **Sat. Search**:

Pressing (OK) opens the list of searching alternatives:

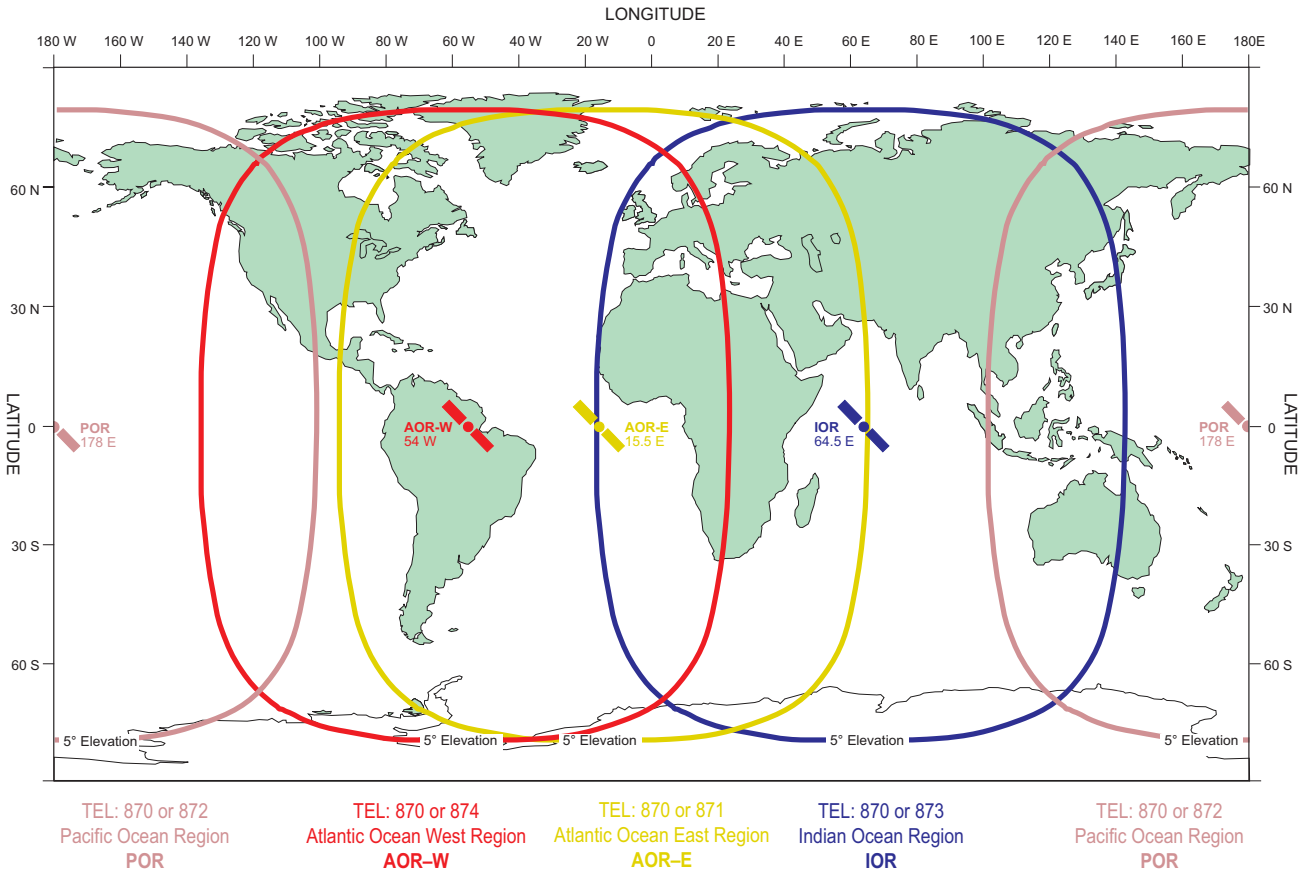
2 Select as required:

*When selecting **Find Any**, the antenna searches one Ocean Region after the other until a satellite signal is found.*

The antenna performs an hemispheric search at antenna elevation angles varying within 0º through 90º.



Satellite Coverage Map



Phone setup

Active MSN (Multiple Subscriber Number)

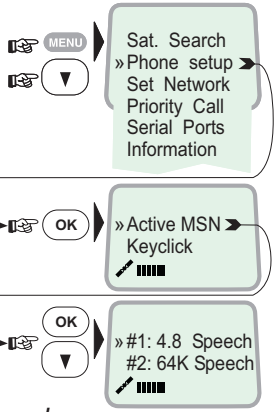
When making a call, the device connected to Nera F77 identifies itself locally by its MSN number. Although specific MSN numbers may be programmed in the Nera ISDN Handset for both the 4.8 Speech and 64K Speech services, only *one* can be *active* at one time for outgoing calls.

The first Nera ISDN Handset connected has the following MSN numbers:

Identity	*MSN number*	*Name/speech quality*
#1:	20	4.8 Speech
#2:	30	64K Speech

To change active MSN:

1 Open the **MENU**: scroll down to **Phone setup**, and select the **Active MSN** function:



2 Select required identity/ speech quality:

*Note! To change MSN number, see **ISDN MSN configuration** later in this manual.*

Keyclick

When activated, a click is heard when pressing a key.

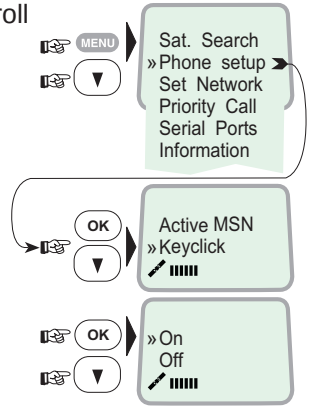
The keyclick can be turned on/off as follows:

1 Open the **MENU** and scroll down to **Phone setup**:

2 Select the **Keyclick** function:

3 Press (OK) and scroll to On or Off, as required:

4 Press (OK) to store the setting.



Ringer

The tone sound and level heard when the phone rings may be selected as follows:

1 Open the **MENU** and select **Phone setup > Ringer**:

2 Press (OK) to select the **Tone** function:

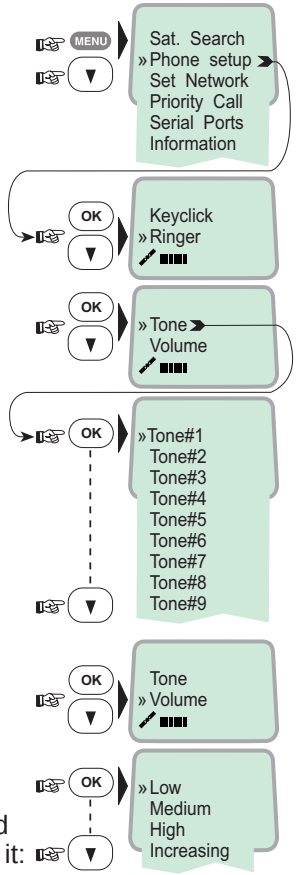
3 Press (OK) again and scroll down to required tone:

Press (OK) to store the selected one.

4 Select the **Ringer** function again and scroll down to the **Volume** function:

5 Pressing (OK) lists the choices:

Scroll down to required sound level, and press (OK) to store it:



Answer beep

Nera F77 may be set to emit a signal in the handset when an outgoing call is answered. The signal will also sound when a call is transferred at the remote end.

The signal is not active during handsfree calls.

The answer beep can be turned on/off as follows:

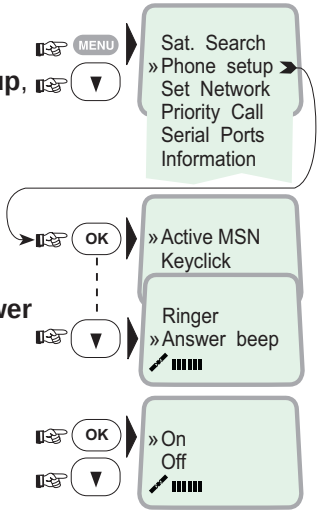
1 Open the **MENU**: scroll down to **Phone setup**, and

select the **Active MSN** function:

2 Scroll down to the **Answer beep** function:

3 Press (OK) and scroll to On or Off, as required:

4 Pressing (OK) stores the chosen mode.



Backlight On/Off

The display and keypad backlight can be set to:

- **On**, permanently ON
- **Off**, permanently OFF
- **30 second**s ON when pressing a key or receiving a call, and stays ON 30 secs after last event.
- **Dimmer**, intensity adjustable in 10 steps.

Changing the setting:

1 Open the **MENU**: scroll down to **Phone setup**,

and

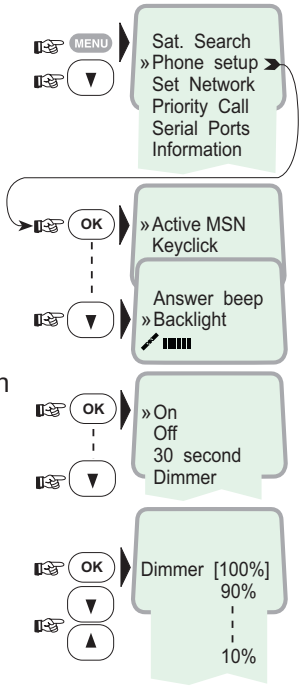
scroll down to the **Backlight** function:

3 Press (OK) and scroll down to required setting:

4 Pressing (OK) at **Dimmer** opens the backlight adjustment window:

Adjust with up/down arrows:

5 Press (OK) to store.



Protocol

Nera F77 allows selection between the following ISDN protocols:

- **Euro ISDN** for connection to equipment conforming to the European ISDN standard (default)
- **NI-1** protocol for equipment conforming to the NI-1 standard (National ISDN-1).
- All ISDN devices and MCU must use the same protocol.

The check for current protocol:

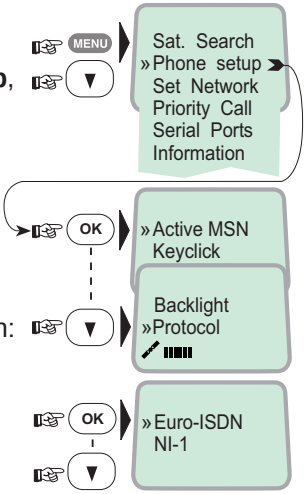
1 Open the **MENU**: scroll down to **Phone setup**,

and

select the **Protocol** function:

2 Press (OK) and scroll required protocol:

3 Pressing (OK) stores the chosen ISDN protocol.



To change the default setting in the MCU, see ***ISDN protocol configuration*** *later in this manual.*

Software version

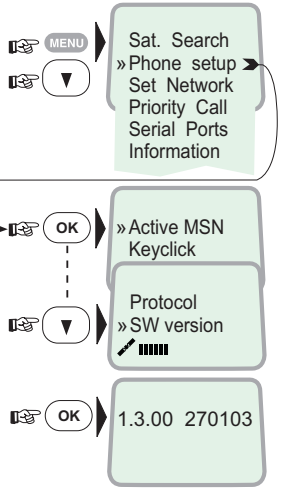
This function displays the Nera ISDN Handset software version:

1 Open the **MENU**:
scroll down to **Phone setup**,

and

select the **SW version** function:

3 Press (OK) to read:



Selecting default Net service provider

The default Net service provider for a satellite (Ocean Region) is automatically used if the user does not select another one.

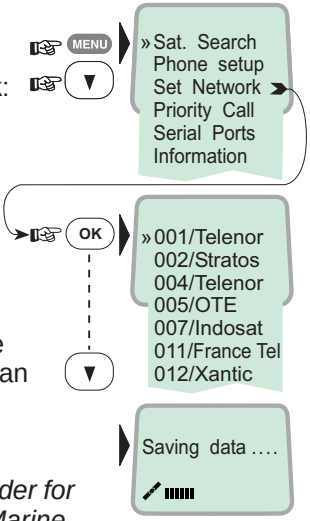
When using SIM card, selection of a Net provider is restricted to one of the allowed Net service providers! When the Restricted Net function is enabled, and with some SIM cards, selection of default Net service provider is not possible.

Changing default Net service provider:

1 Open the **MENU**:
Scroll down to **Set Network**:

2 Scroll down to the required Net service provider:

3 Store the new Net service provider for the current Ocean Region:



To preprogramme Net provider for all Ocean Regions, vt-Lite Marine must be used, see ***Satellite Setup****.*

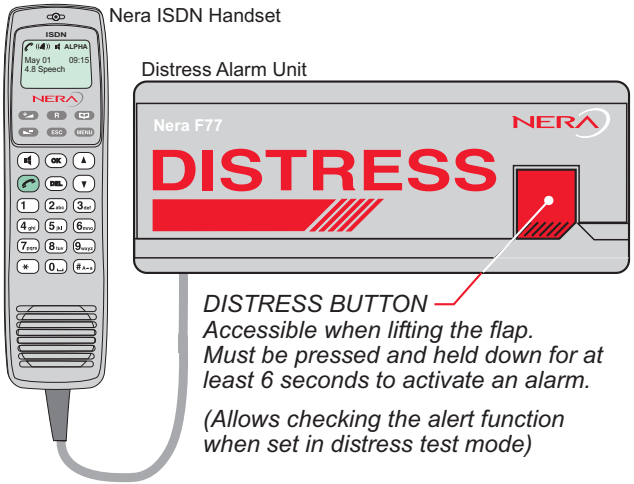
Priority calls

The Priority Call functions only appear in the Nera ISDN Handset connected to the Distress Alarm Unit.

The following call priority levels are recognized by the Inmarsat system:

Safety Call
Urgency Call
Distress Test
Test Buzzer

For Safety Call or Urgency Call, specific telephone numbers are prompted for that must be provided by the Net service provider.
See menu to select function: ➽



Distress Alarm

The Distress Alarm Unit allows activation of an alert transmission. Messages concerning the alarm transmission and reception are displayed on the connected Nera ISDN Handset.

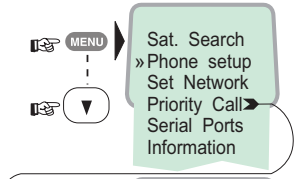
Testing the Distress Alarm Unit

Call service no. 33 to arrange an alarm test transmission with the Land Earth Station (LES).

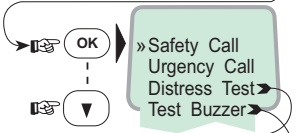
Procedure:

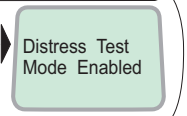
1 Open the **MENU**:

Scroll down to **Priority Call**:

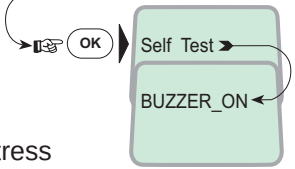


2 Scroll down to **Distress Test**.
Pressing OK enables the Distress Test function, allowing a test alarm transmission. If required, press ESC to exit.
Press the DISTRESS BUTTON within 30 secs, otherwise a real distress will be transmitted.





3 Press **Priority Call** again (step 1) and scroll down to **Test Buzzer**.
When pressing OK, the Distress Alarm buzzer sounds for a short period.



Setting serial ports

The data speed, format and flow control for the **RS-232A** and **B** ports are set up as follows:

1 Open the **MENU** and scroll down to **Serial Ports**:

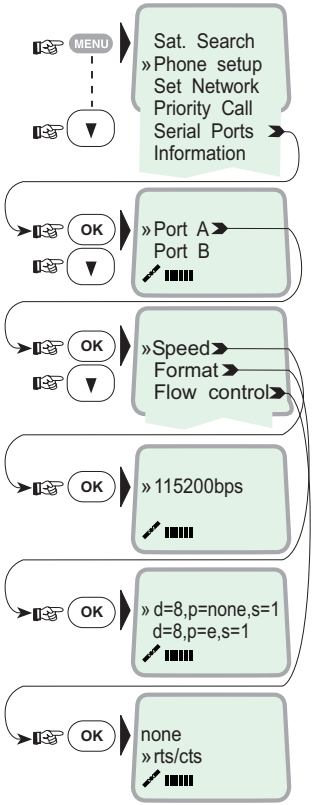
*See **Overview** for available choices.*

2 Select the parameter to be set for Port A:

3 Select the listed data **Speed** 115200bps (default):

4 Select listed **format**: *8 data bits, no parity and 1 stop bit (default)*

5 Set flow control to **none** (default):



RS-232 B / RS-422 driver switch

Select data speed, format and flow control as described above.

Switching the driver from RS-232B to RS-422:

6 Select **Serial Ports**:

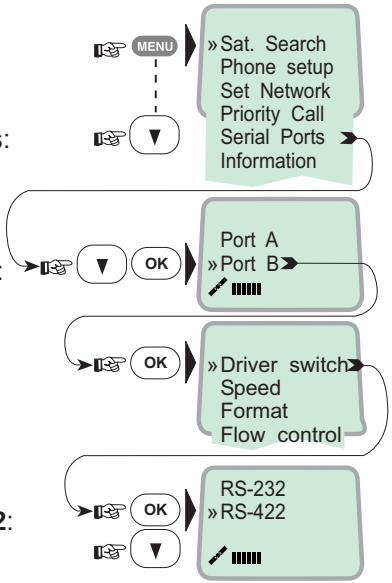
and

scroll down to **Port B**:

7 Open the **Driver switch** function:

and

scroll down to **RS-422**:

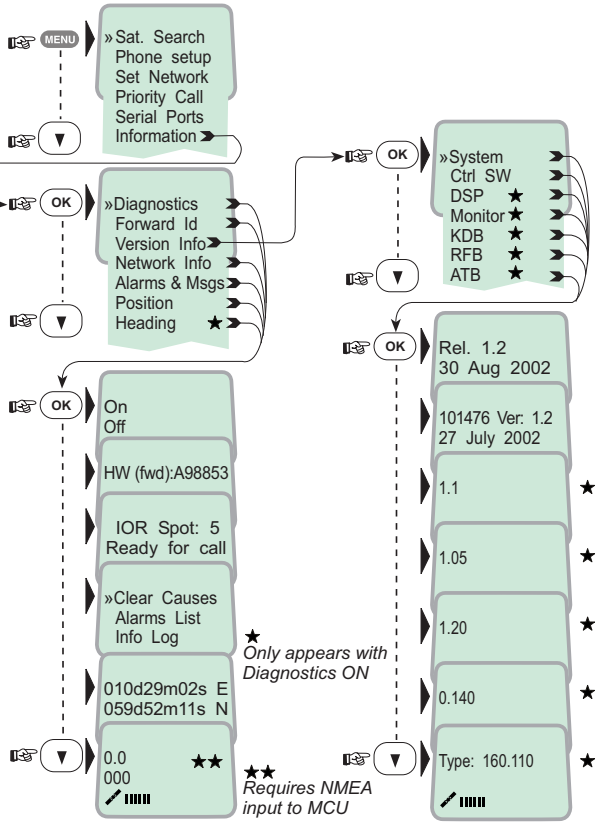


*The **RS-422** is now activated for connection of e.g. PC using cables of up to 100 m.*

*The **RS-232 B** port is disconnected.*

Information available

Open the menu and scroll down to read various information, as indicated (examples):



Installing the PC program

The **vtLite Marine** program allows Nera F77 to be operated or configured from a PC, including functions such as:

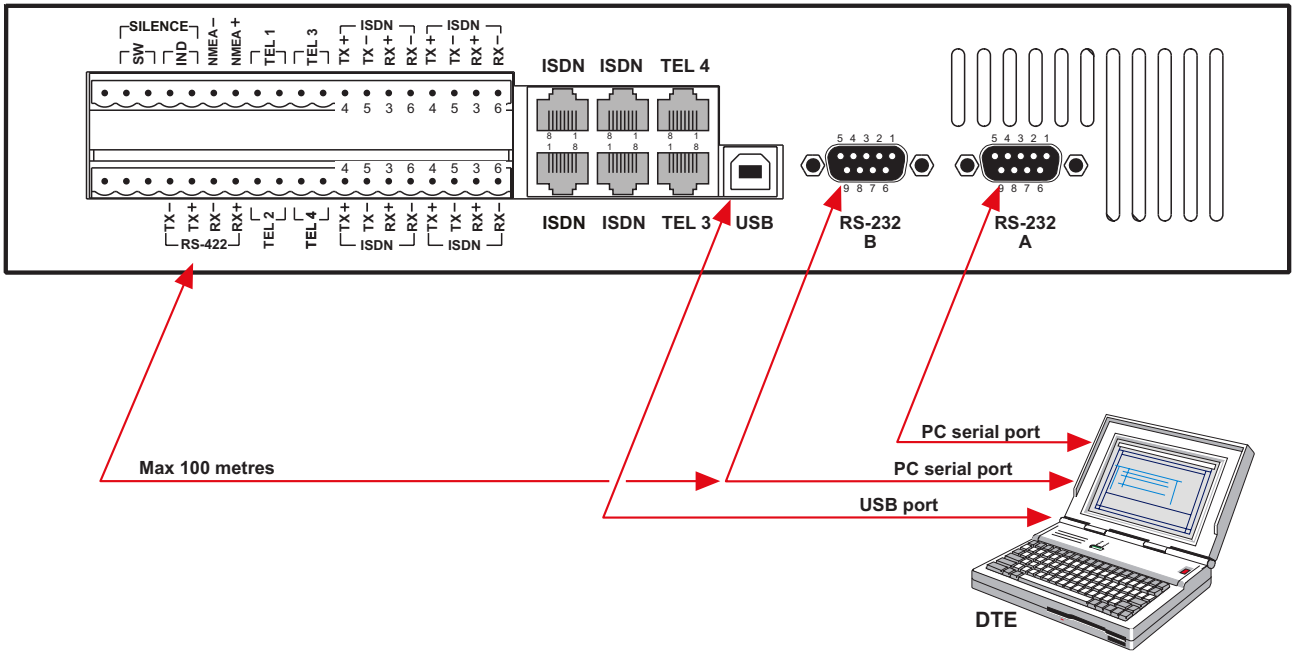
- Phone book
- Traffic log
- Configuration of ports (ISDN/analogue/RS-232/USB/RS422)

For an explanation of the functions, *see later in this manual.*

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

Close any Acrobat Reader program open on the PC before proceeding.

See next page.



Procedure:

1 Insert the CD :

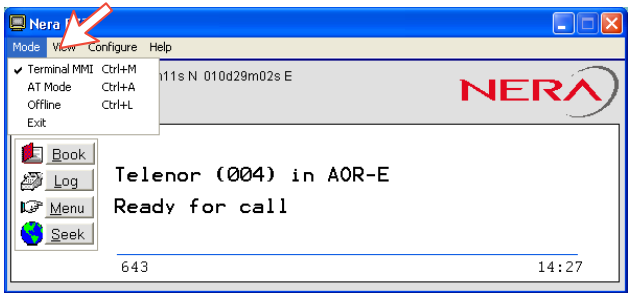
*The Start Page opens automatically in a few seconds. (Alternatively, open the Acrobat file "**Nera F77_StartPage**" on the CD. If necessary, install Acrobat Reader by clicking "**Ar505enu.exe**" in the "**SW Installation**" folder.)*

2 Click "**Software Installation**" and then "**vtLite Marine**". Allow files to load on to the PC hard drive. The installation of the program starts automatically when files have been loaded.

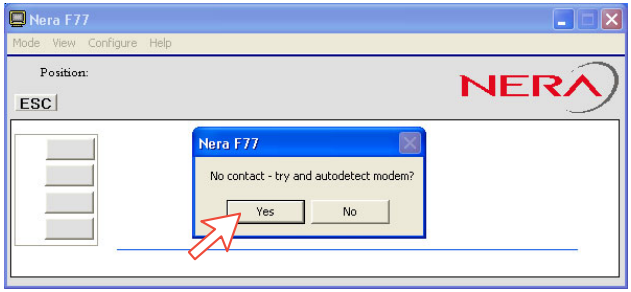
3 Connect the serial cable between the PC serial port and the RS-232 port on the Nera F77 Main Communication Unit. *See previous page.*

4 Start the vtLite Marine program by clicking **Start>Programs>vtLite Marine**.

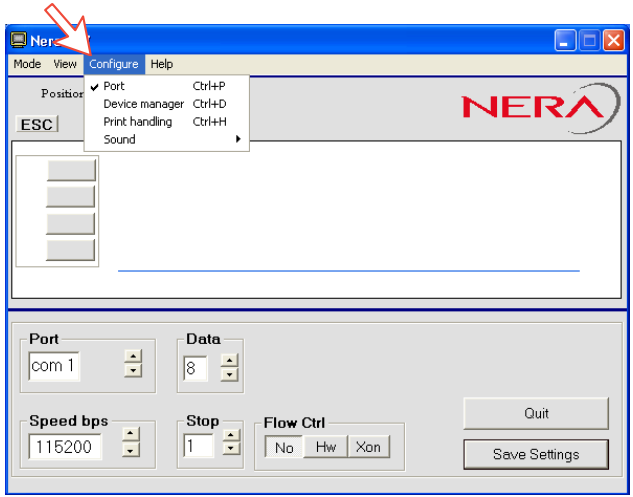
5 Switch ON the Main Communication Unit.
If no contact, click **Mode**>**Terminal MMI**.



6 If no contact, try **Autodect.**



7 Click **Configure** > **Port** to check the port settings.



Starting up

- Switch ON Nera F77,
  see figure 4 for location of the ON/OFF switch.
- Turn ON the PC and click
  Start>Programs>vtLite Marine.

1 The satellite search program is initialized.
*See also "**Satellite search**" .*

2 Nera F77 starts searching for **last known satellite** (Ocean Region) as default.

On a PC with sound ability, beep tones will be heard when clicking **Tone** (text changes to **Mute**).

- - - - - - slow intermittent tones when searching for **any satellite**.

- - - - - - - - - - - - rapid intermittent tones when closing in on a **specific satellite** *(faster when searching for a single satellite).*

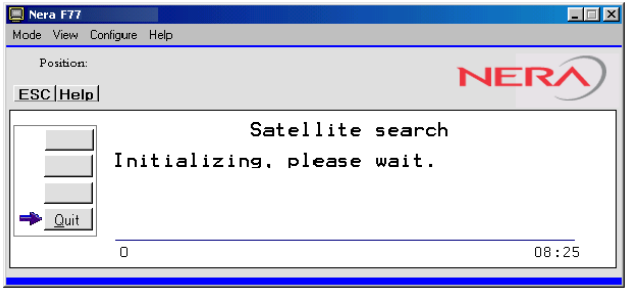
3 When receiving a satellite signal, a signal strength bar will appear in the search window.

The longer the signal bar or higher the signal strength indicator value, the better the signal quality.

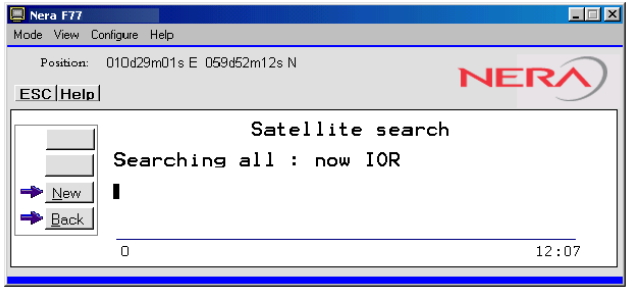
The maximum marker indicates the highest signal strength achieved during the current search.

*Note! It is recommended that the signal strength reading (**S**/**N**=**S**ignal/**N**oise ratio) should be at least*

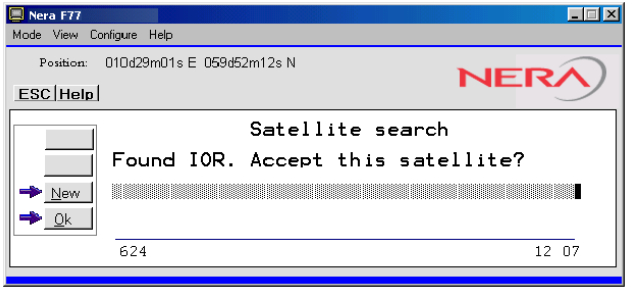
1



2



3



550, typically 660. The antenna will automatically fine-tune to the best signal and accept it.

Clicking **Seek** starts the search again.

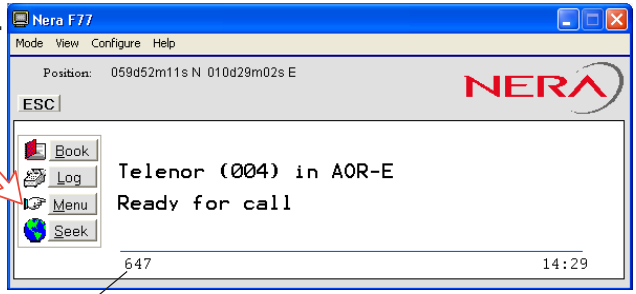
If required, select a specific satellite by clicking **New**.

*See also "**Selecting default Net provider**".*

4 The equipment is ready for use when the **Main window** appears.

To make a connection, see "Making a call"

4



S/N=Signal/Noise ratio

Phone book

Adding and editing entries can also be done from the handset, *see* ***OPERATION FROM HANDSET***.

Phone book capacity

	MCU	*SIM card* *(Data vary with card type)*
Phone numbers:	100 entries	100 entries
Number length:	19 digits	19 digits
Name length:	29 characters	12 characters
Entry numbers:	0 - 99	100 and up

The SIM card entries and "MCU" entries merge when the card is inserted. The list is sorted by name.

Abbreviated dialing (prefix 23)

1 Clicking **Book** opens the **Phone book**.

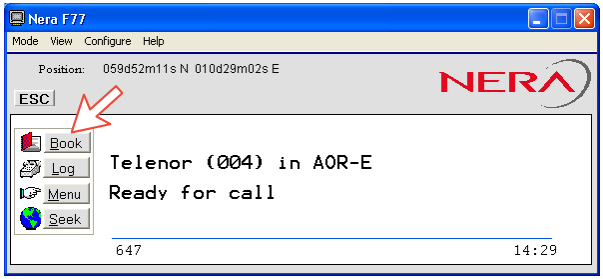
2 Scroll through list ↑/↓ to wanted entry.

Example: dialing 2 3 1 5 # on the analogue telephone or ISDN keypad fetches and sends the telephone number stored under short number entry 10.

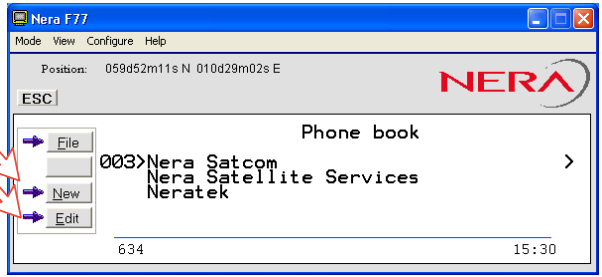
Adding or editing entries

3 Clicking **New** (window **2**) opens the window used to add an entry to the book.
Use **Del** to modify. **Save** stores the new entry.

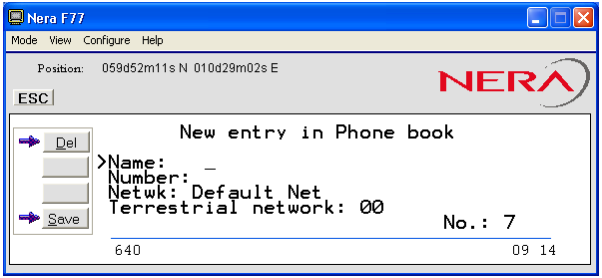
1



2



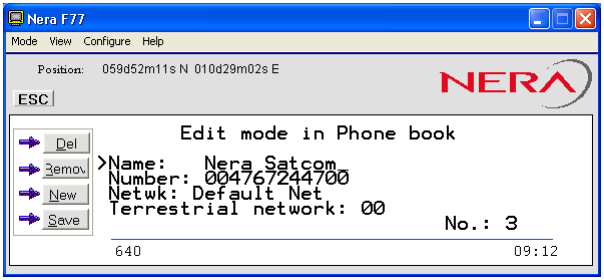
3



4 Clicking **Edit** (window **2** on previous page) opens the window allowing changes to be made in the Phone book.
Use **Del** to modify. **Remov** erases the entry.

*Note! The book is also used with the restriction "Dial from book only", see "**Restricted dialing setup**".*
Terrestrial network is normally "not in use" in the Inmarsat system.

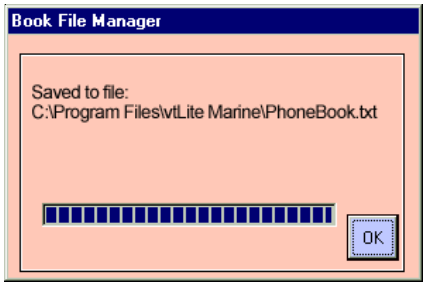
4



Saving entries to/from PC

5 Click **File** to save, load or replace the phone book.

5



Traffic Log

This function logs all outgoing and incoming calls both with and without SIM card inserted. Incoming calls may be logged as well.

Up to 100 calls can be logged:

Circuit switched calls (Cct) including:

- Voice calls
- Mobile Data Service calls

Packet switched data calls (Mpds) including:

- Mobile Packet Data Service calls

The Nera F77 *owner* may set the log output mode as follows, *(see "**Traffic log settings**")*:

- paused
- cleared (stops logging and clears the log)
- enabled

Traffic log readout

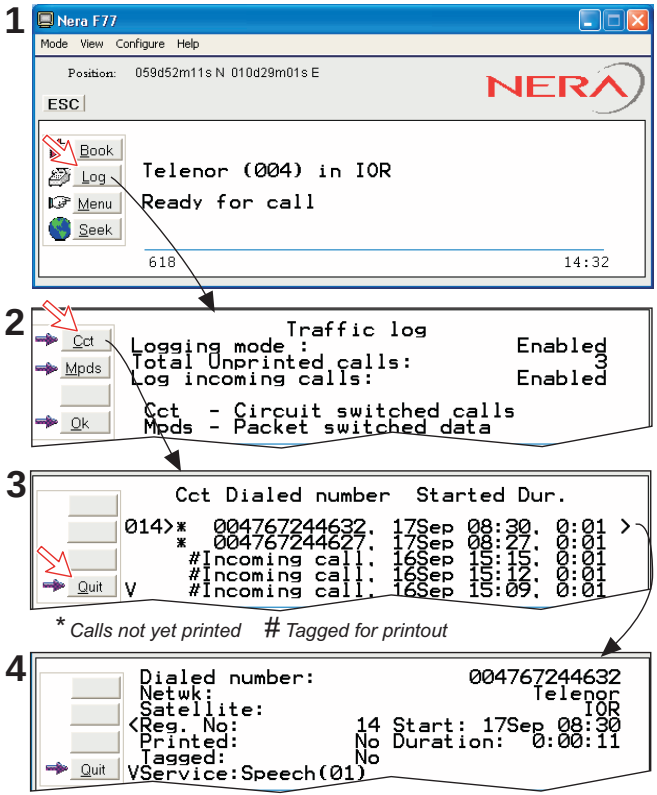
1 Clicking **Log** opens the Traffic log window.

2 The Traffic log window shows whether the logging is enabled, whether incoming calls are logged, and the total number of *unprinted* calls (MPDS and Cct calls).

Circuit switched calls:

Clicking **Cct** displays the list of calls.

3 Scroll ↑/↓ to wanted call record and press → to display details of the selected call.



4 The call details include data such as dialed number, start of the call, duration, service and terminal Id.

Quit reverts to main window.

Mobile Packet Data Service calls:

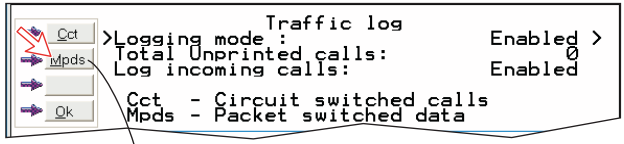
5 Clicking **Mpds** displays the list of *Mobile Packet Data Service* calls.

6 The call list include data such as Net provider, start of the call and duration.
Scroll ↑/↓ to wanted call record and press → to display details of the selected call.

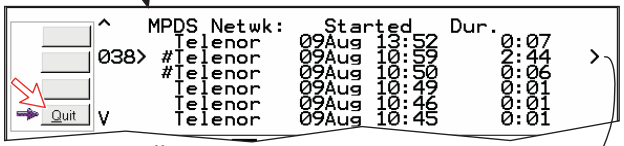
7 The call details include data such as forward errors in the MPDS system, forward frames received, etc.

Quit reverts to main window.

5

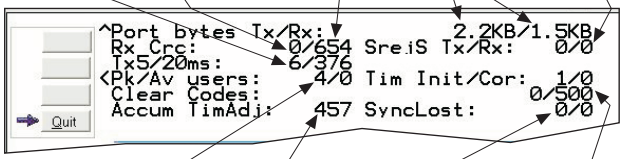


6



 # Tagged for printout

7



No. of 5 and 20ms slots used

Forward errors in the MPDS system

Forward frames received

Tx/Rx in Bytes

Retransmitted frames Tx/Rx direction

Peak and average number of users on the same channel. Example: 4 active users.

Time adjustment of slot due to location on earth

Lost synchro-nisation

Clear cause level1/level2 (0/500= normal clear)

Traffic log settings

*(owner level only, see "**Shifting to owner level**")*

1 In the Main window, clicking **Log** opens the Traffic log window, which displays the current log mode, number of unprinted calls, and whether logging of incoming calls is enabled/disabled.

- Point to **Logging mode**, click **Edit** or ⇨ to choose mode of operation:
- **Paused**: any logging is off.
- **Cleared**: all log entries are deleted (incoming and outgoing).
- **Enabled**: outgoing logging is on.

Scroll ⇧/⇩ to wanted mode, and click to select.

- Scroll down ⇩ to **Log incoming calls** and click **Edit** or ⇨ to enable or disable logging of incoming calls.

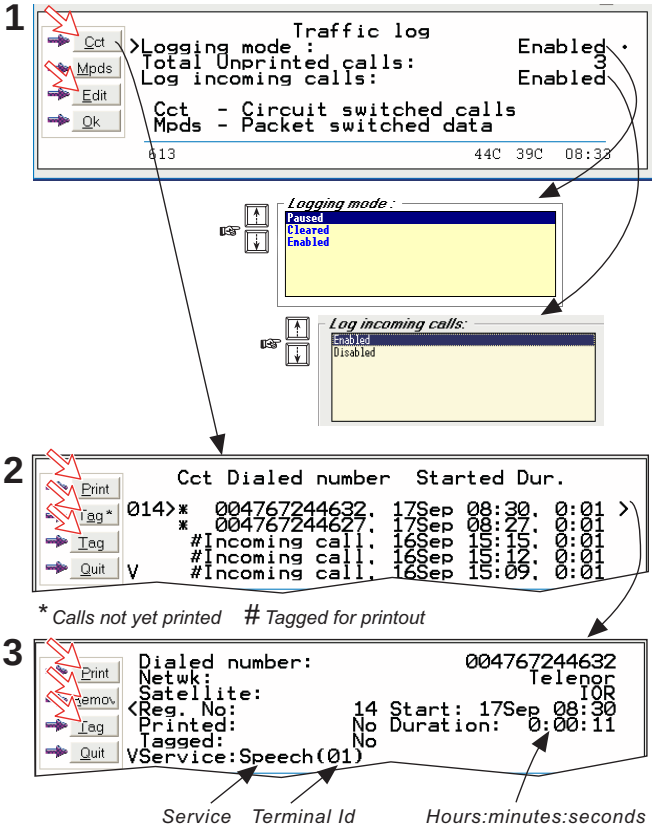
Circuit switched calls:

2 Clicking **Cct** in the Traffic log window (**1**) opens the list of *all* call records except MPDS calls.

Print outputs all unprinted calls (marked with a star):

- Clicking **Tag*** marks *all* calls with a hash, which adds the records to the printout file.
- Clicking **Tag** marks the *selected* call with a hash, which adds the record to the printout file.
- Clicking **Tag** again untags a selected record.

3 Pressing ⇨ at a record when in window (**2**) displays detailed call data.



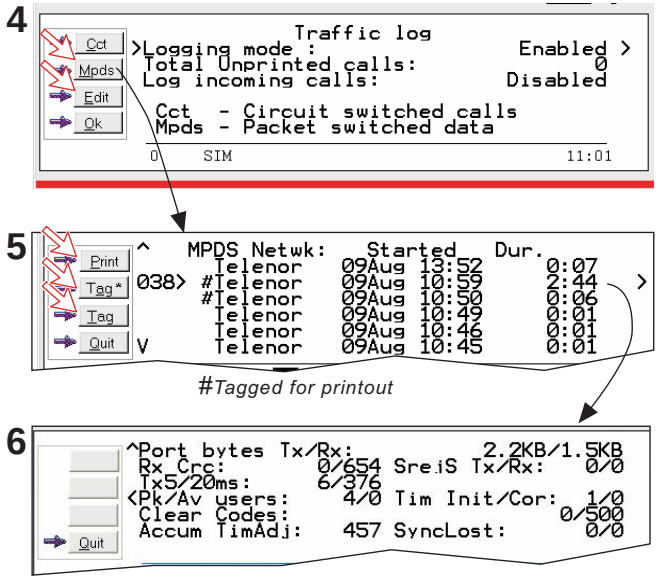
Mobile Packet Data Service calls:

4 Clicking **Mpds** in the Traffic log window (**1**) opens the list of *Mobile Packet Data Service* call records.

5 **Print** outputs all unprinted calls (tagged with a hash):

- Clicking **Tag*** marks all calls with a hash, which adds the records to the printout file.
- Clicking **Tag** marks the *selected* call with a hash, which adds the record to the printout file.
- Clicking **Tag** again untags a selected record.

6 Pressing ⇢ at a record when in window (**2**) displays detailed call data.



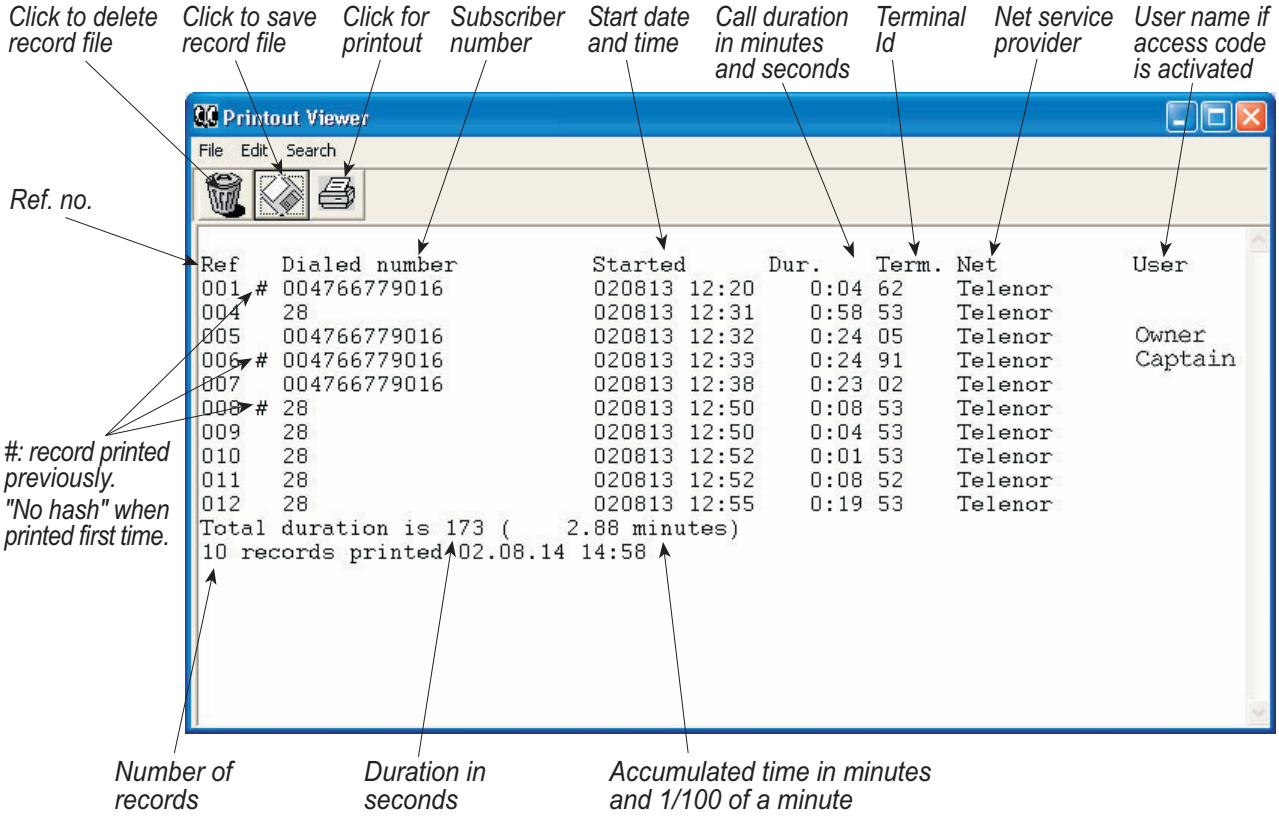
Traffic log printout viewer - normal calls (Cct)

The viewer lists tagged call records.

Records that have been printed out previously are marked with a hash.

The record file can be printed out or saved to disk.

For default setup, *see "**PRINT HANDLING**".*



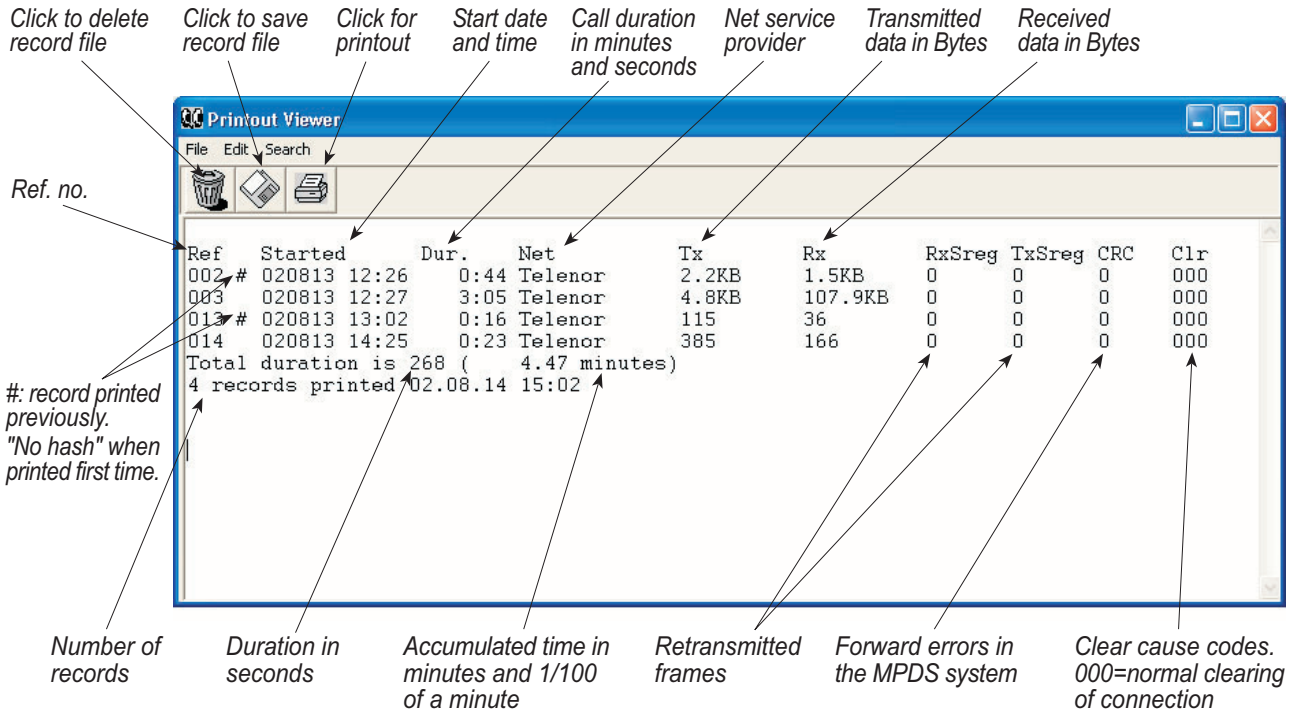
Traffic log printout viewer - Mobile Packet Data Service calls (MPDS)

The viewer lists tagged call records.

Records that have been printed out previously are marked with a hash.

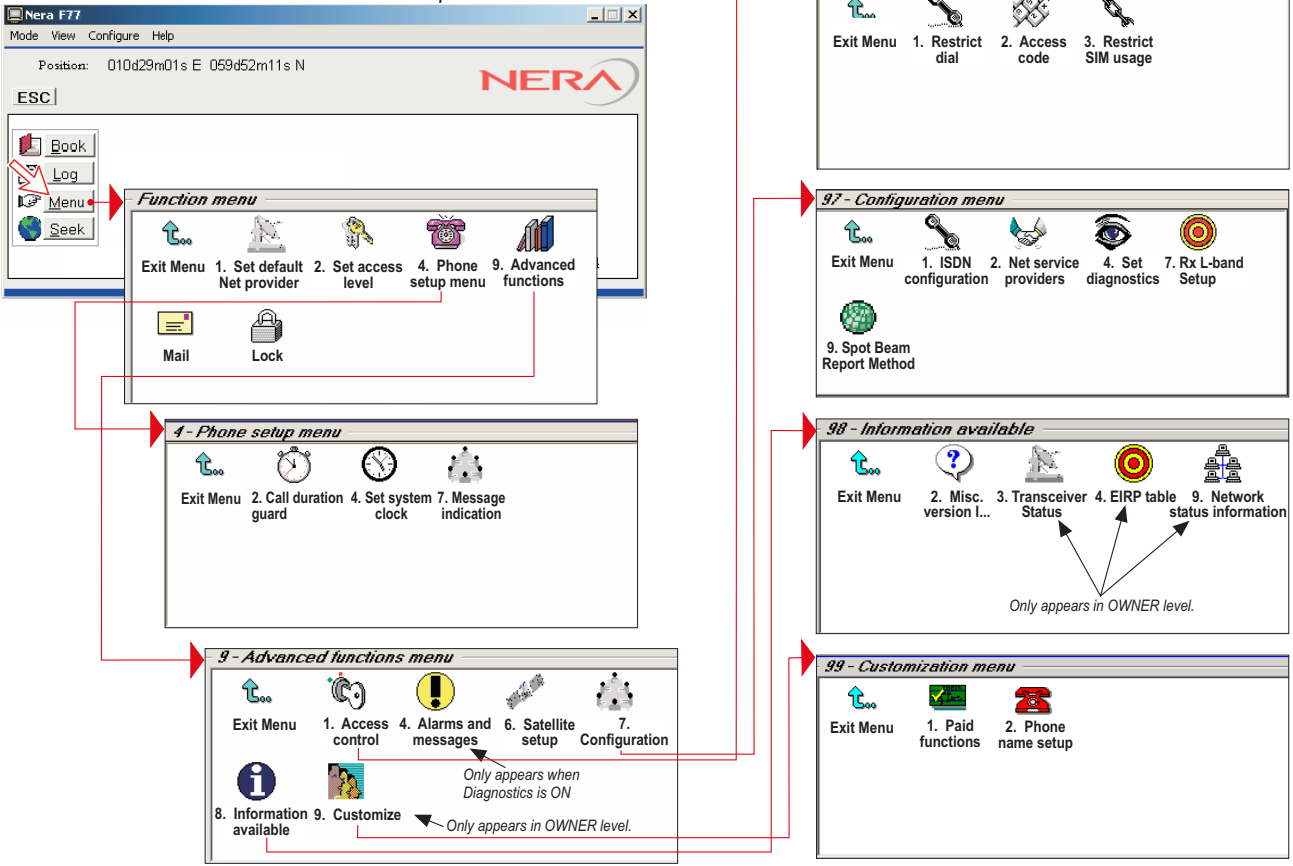
The record file can be printed out or saved to disk.

For default setup, *see "**PRINT HANDLING**".*



Menu functions

Point at icons and double-click the mouse to open menus and functions.



Function reference list

Reference number for direct selection. Click menu in main window and then key in the number.

Ref.	Function	Features
1	**Set default Net provider**	*Allows changing Net service provider (and terrestrial network). See "**Selecting default Net service provider**".*
2	**Set access level**	*Allows shifting between user level and owner level, changing PIN code and owner password. See "**Access level**".*
4	**Phone setup** menu	
42	Call duration guard	*Sets maximum call duration for 64 kbps calls.*
44	Set system clock	*Sets MCU time and date.*
47	Message indication	*Switches indication of received call on/off.*
9	**Advanced functions** menu	
91	**Access control** menu	*See "**Advanced functions**".*
911	**Restrict dial**	*Only allows calls from Phone Book. List of barred numbers may be established.*
912	**Access code**	*Sets personal codes for using Nera F77.*
913	**Restrict SIM usage**	*Only allows calls with specific card, no card or any card.*
96	**Satellite Setup**	*Allows preprogramming of Net service providers etc.*
97	**Configuration menu**	
971	**ISDN configuration**	*Chooses between ISDN protocols.*
972	**Net service providers**	*Changing Net service provider data.*
974	**Set diagnostics**	*Allows additional system information to be displayed*
977	**Rx L-Band setup**	*See "**Installation Manual**",,*
979	**Spot beam report method**	*Sending spot ID or position*
98	**Information available**	*See "**Advanced functions**".*
982	**Misc.version Id information**	*Displays a series of version information windows.*
983	**Transceiver status**	*Displays max/min voltages and temperatures in RF uint*
984	**EIRP table**	*Carrier status (not in use)*
989	**Network status information**	*Displays various network status information.*
99	**Customization menu**	*See "**Advanced functions**".*
991	**Paid functions**	*Installs additional functions, if any.*
992	**Phone name setup**	*Allows altering the factory and phone name.*

Access level

The Nera F77 user program (vtLite Marine) is accessible from two levels:

- **USER LEVEL**
- **OWNER LEVEL** – accessed by owner level password.

Warning! To prevent misuse, passwords other than default must be entered before putting the Nera F77 in operation.

Activating/changing user PIN code

1 Double-click the **Set access level** icon on the **Function menu**.

2 Click **Edit** to enter/modify the PIN code.

3 Key in:

- Old PIN code *(default: 1234)*
- New PIN code *(4 - 10 digits possible)*
- Retype to confirm

Click **Ok** for each entry and to store the new code.

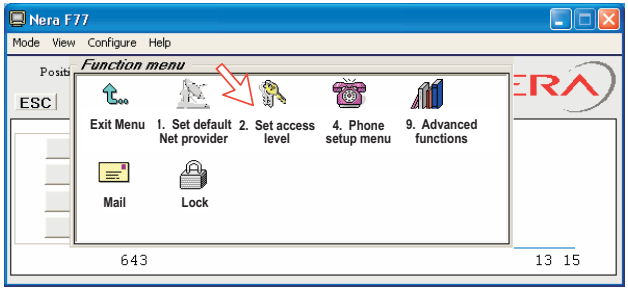
*Note! Clicking **Ok** without entering any numbers for **New PIN** and **Retype new PIN** disables the PIN code. NB! The **Old PIN** code must be entered to reactivate the previous PIN code.*

*If the **PIN** is accidentally lost, it is possible to reset the user's password to default (1234) by logging in as owner:*

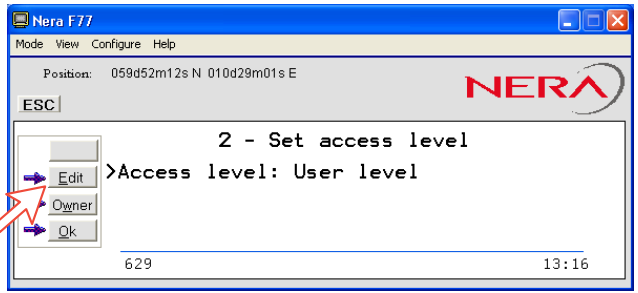
"[*] + owner's password"

(Resetting is not possible on the SIM card.)

1



2



3

Functions requiring owner level

Programming of the functions below requires that the user access is set to **OWNER LEVEL**:

- Traffic log settings/printouts
- Modifying password
- Net Service provider names
- Restricted dial
- Restricted SIM usage
- ISDN configuration (except data/time element)
- Access code
- Paid functions
- Phone name setup
- Spot beam report method

Shifting to owner level

1 Click **Owner** in **Set access level** window.

2 Key in the password.

*Note! The **default** password is: **1 2 3 4 5 6 7 8 9 0***

Clicking **Ok** activates the **Owner level**.

Changing owner level password

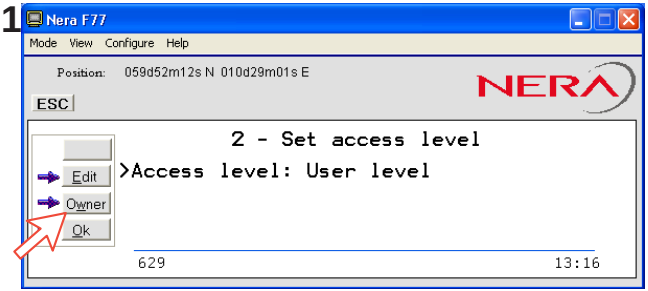
3 Open the **Set access level** window again, and click **Edit** to modify the owner password. Key in:

- Current password
- New password *(10 – 12 digits)*
- Retype to confirm

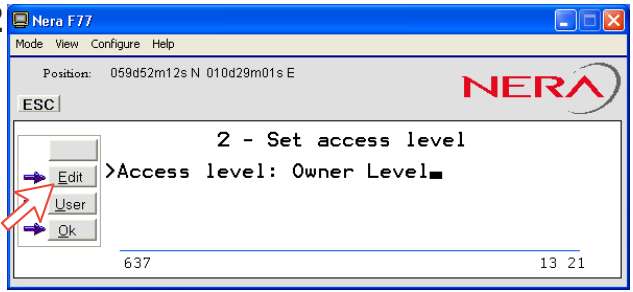
Click **Ok** for each entry and to store new password.

*To revert to **User level**, open the "**Set access level**" window and click **User**.*

1



2



3

Selecting default Net service provider

The default Inmarsat Net service provider for a satellite (Ocean Region) is automatically used if the user does not select another one when making a call.

Make sure that you choose the Net service provider who commissioned the equipment. You will otherwise be barred or charged additional rate.

In this menu default Net service provider can be preprogrammed for the *current* Ocean Region.

When using SIM card, selection is automatically restricted to one of the allowed Net service providers and does not need to be programmed!

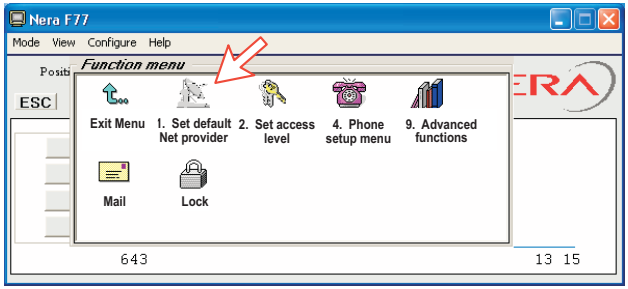
Procedure:

1 On the **Function menu**, double-click the **Set default Net provider** icon to display the current selections.

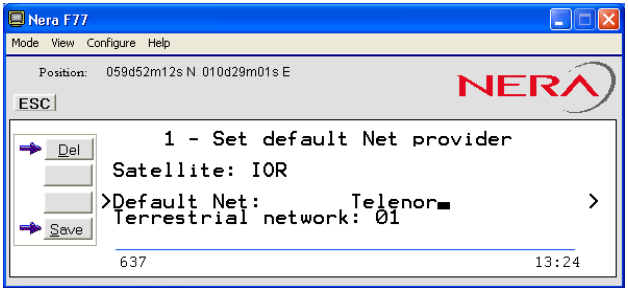
2 Pressing ⊡ displays the list of available Net service providers.

3 Scroll to required Net provider: ⊡/⊡, and press ⊡ R to enter chosen Net as default. **Save** stores the selected Net provider for this satellite (Ocean Region).

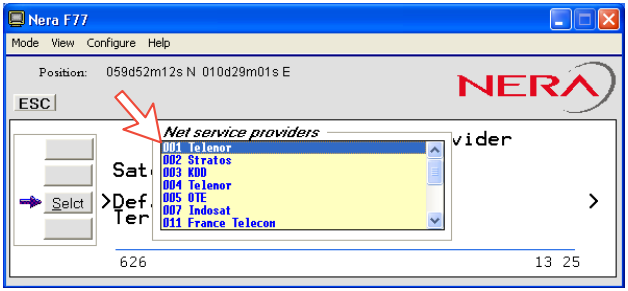
1



2



3



Phone setup

This phone setup menu includes the functions:

- Limitation of call duration.
- Setting date and time.
- Indication of received calls, *see next page.*

*Double-click the **Phone setup menu** icon in the **Function menu** to access the above functions:*

Call duration limit

The call duration guard prevents accidental transmission of prolonged 64 kbps calls.
The timer sets the point at which the call is automatically cleared:

1 Double-click the **Call duration guard** icon

2 Click **Edit** to set the timer.

3 Scroll ⇧/⇩ to select the required limit (either "Stay connected" or in steps between 15 minutes and 12 hours), and click **Selct** to store the setting.

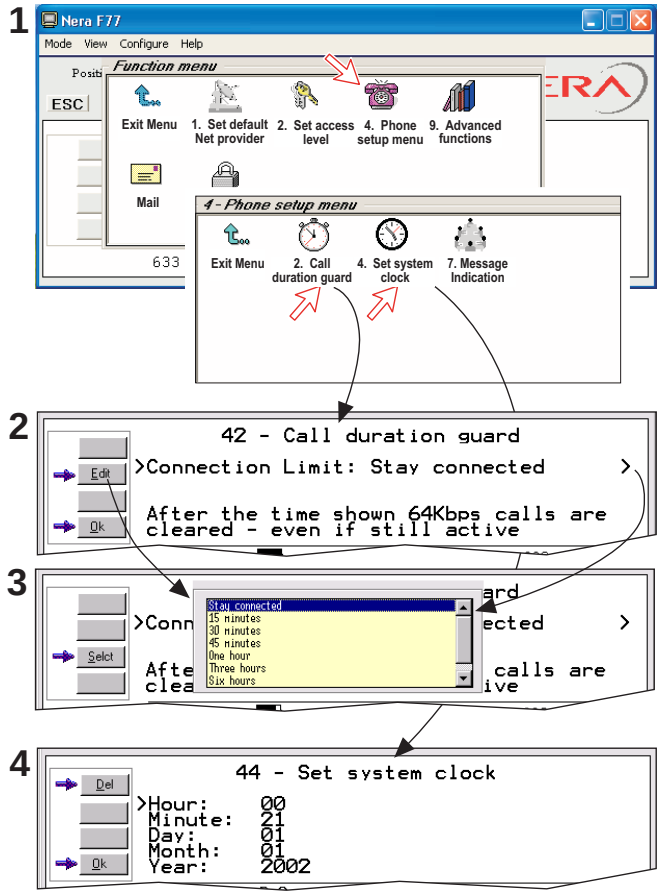
Date and time

The function sets the time displayed in the window:

1 Double-click the **Set system clock** icon.

4 Scroll ⇩ down through entries and key in new data. Use **Del** to modify.
Clicking **Ok** stores the selected settings.

Note! Nera F77 is now restarted.



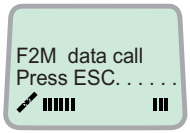
Message indication

When the Message Indication function is set On, a received data and/or fax call is signalled in all Nera Display Handsets:

The ringing stops when pressing ESC*, or when the call is finished.*

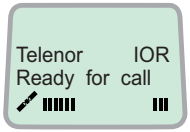
Data call:

F2M = Fixed-to-Mobile



Fax call:

When the call is finished, the display reverts to idle.



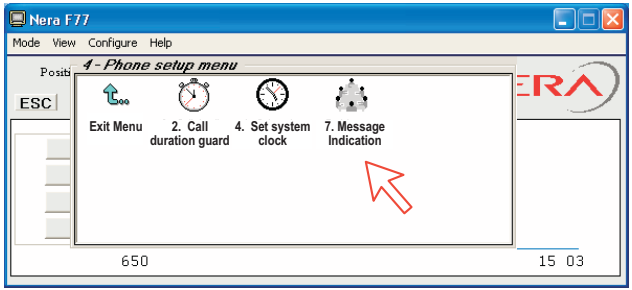
Setup:

1 Double-click the **Message Indication** icon in the **Phone setup menu**.

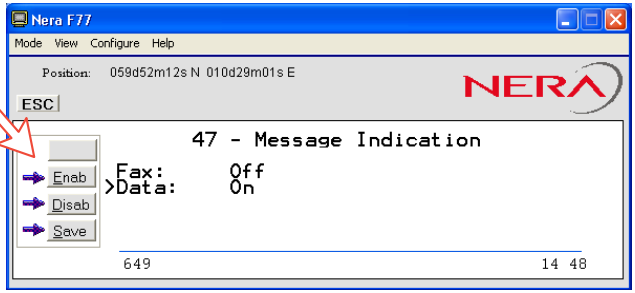
2 Select **Fax** or **Data** and **Enable** or **Disable** indication of received messages, as required.

Press **Save** to store the settings.

1



2



(Default G3 fax connection is configured on TEL4)

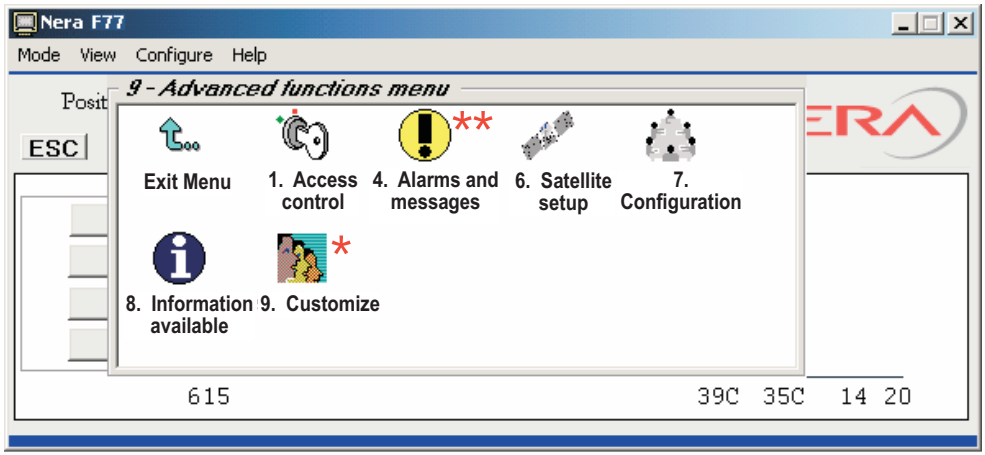
Advanced functions

* Some Advanced functions are accessible from **OWNER LEVEL** only.

The OWNER LEVEL is protected by password.

For shifting to owner level and assignment of password, *see "**Access level**".*

** Other Advanced functions are accessible when **Diagnostics** is turned ON.



The Advanced functions include the following menus:

- **Access control**: Restrict dial
Access code
Restrict SIM usage
- **Satellite setup**: Preprogramming of Net providers
- **Configuration**: ISDN configuration
Net service provider names
Set diagnostics
Rx L-Band Setup
Spot Beam Report Method
- **Information available:** Misc. version Id information
Network status information
*(when diagnostics is ON, see "**Set diagnostics**")*
- **Customize:** Paid functions
Phone name setup (owner level)

Access control

Restricted dialing

The restricted dialing function allows the owner to establish a Barred list of subscriber numbers that cannot be called; or set Nera F77 for dialing from Phone Book only. The restricted dialing modes prevent misuse of Nera F77:

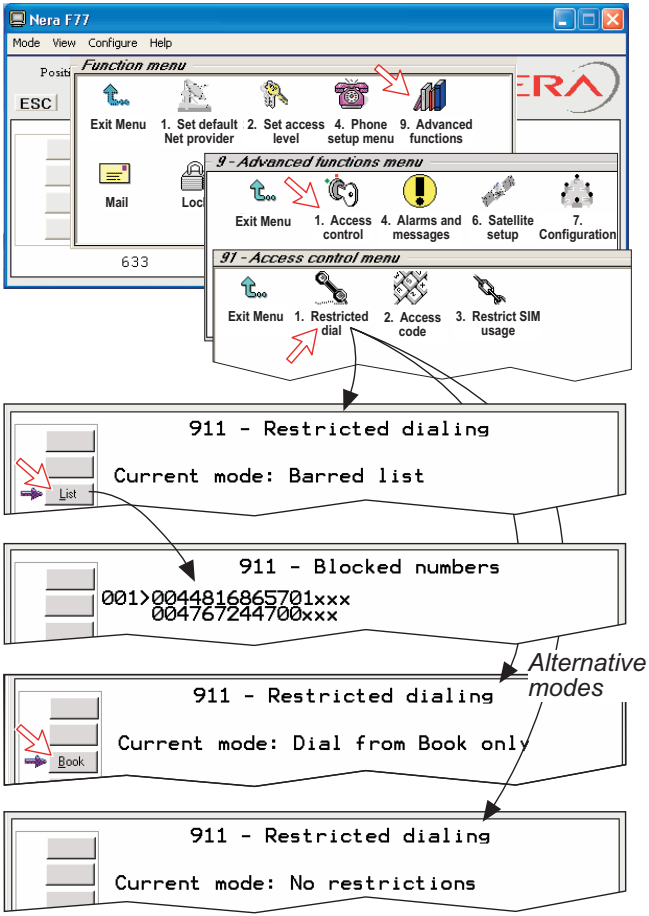
- **Barred list**, which may contain up to 10 phone numbers or part of numbers that **can not** be called. E.g. the entry "0087" in the barred list prevents all mobile-to-mobile calls.
- **Dial from Book only**, which restricts calls to the numbers in Nera F77 Phone Book. It is still possible to append: an entry with number field "0047" means that it is possible to dial all Norwegian numbers. When a SIM card is inserted, the SIM entries will **not** be merged with the "phone" entries.
  The function is active for non-SIM operation and for one specific SIM card, *see "**Restricted SIM usage**".*
- **No restrictions** *(default).*

Only one mode can be active at one time, as selected by the owner*, see next page.*

Checking the dialing setup

Via the **Function menu > Advanced functions menu**, double-clicking the **Restrict dial** icon on the **Access control menu** shows the active mode:

- *Barred list*
- *Dial from Book only*
- *No restrictions*



Restricted dialing setup
(owner level only)

"Barred list" and phone book are established as follows:

1 Open the **Restricted dial** window as shown on the previous page.

2 The **Restricted dialing** window shows which list is currently active.

Edit allows selection of restriction mode.

Scroll up/down to select:
(**Selct** enters the chosen mode)

3 Clicking **List** displays the blocked phone numbers. The List key only appears when Current mode is **Barred list**.

4 Clicking **Edit** allows the barred number to be modified:

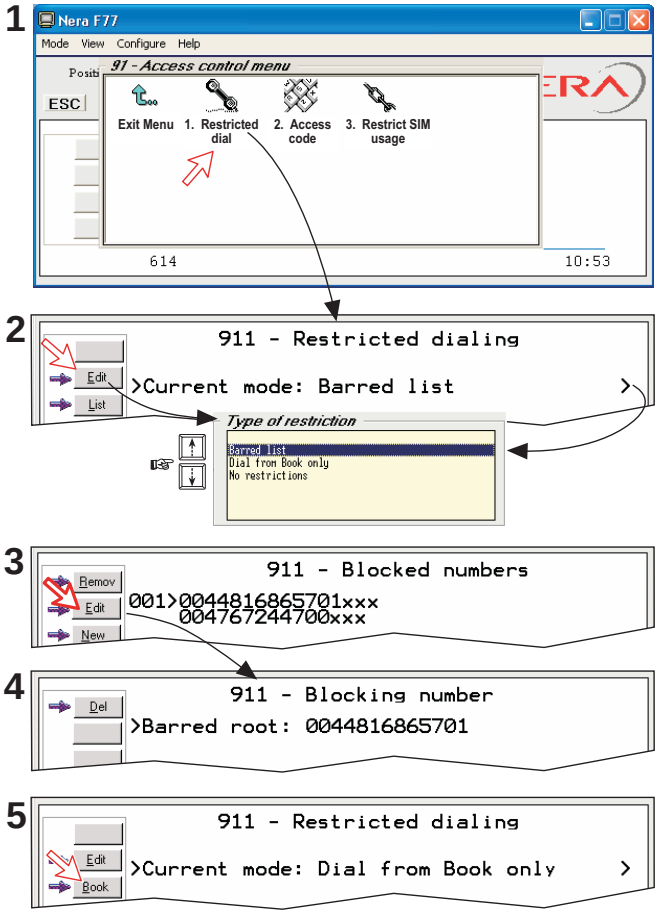
The field is empty when clicking **New** to add a phone number to the list.

Remove deletes number.

Save stores the changes.

5 When the restriction mode "Dial from Book only" is active, clicking **Book** allows data to be entered.

*Warning! Remember to revert to **user** level*



Access code *(owner level only)*

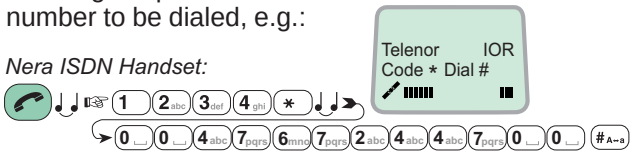
Access code can be activated for 4.8 speech and 64 speech only.

When the access code function has been activated, the user is always prompted for a 1 - 8 digit personal code when making a call.

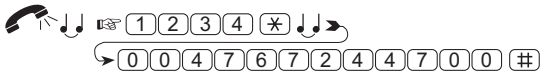
All telephones are activated.To release a telephone for use without access code, see ***MSN configuration****.*

Entering the personal code allows the subscriber number to be dialed, e.g.:

Nera ISDN Handset:



Analogue telephone:



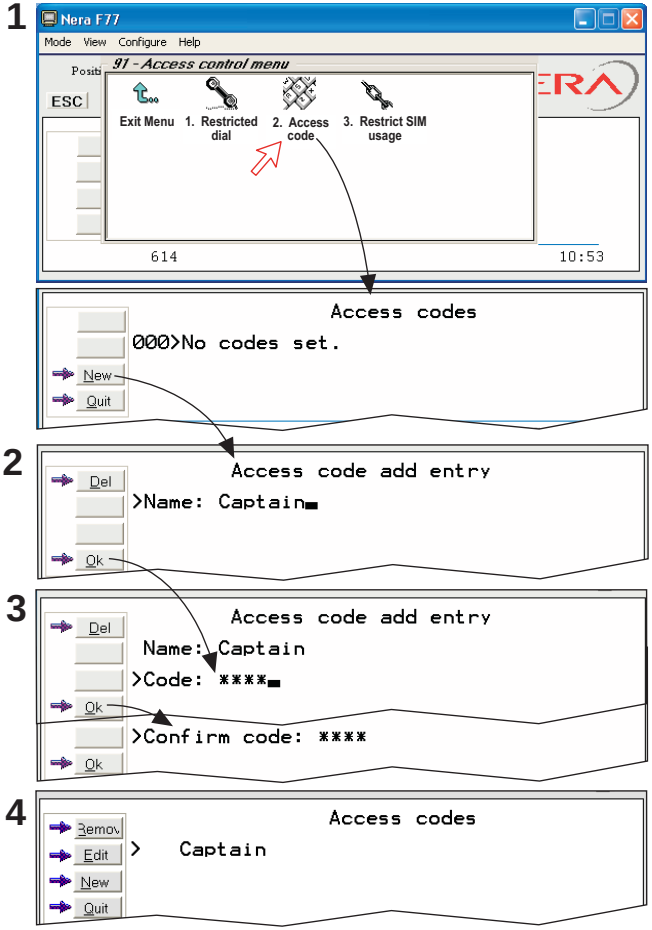
Setup:

1 Double-click the **Access code** icon in the **Access control menu**.

2 Pressing **New** opens the **Access code entry window**, allowing a name associated with the particular code to be entered.

3 Pressing **Ok** allows entering the personal code. Pressing **Ok** again prompts you to confirm the entry.

4 When pressing the **Access code** icon the next time (**1**), the window displays a list of the names associated with the programmed access codes.



Restricted SIM usage

Allowed SIM

Nera F77 can be set to operate from:

- Lock SIM, locked to one specific SIM card. Any other SIM user will be rejected.
- No SIM card. All SIM users will be rejected.
- Any SIM card.

Setting SIM restrictions
(owner level only)

1 Double-click the **Restrict SIM usage** icon.

2 The SIM restrictions window shows an example with the setting **Allowed SIM: No SIM**.

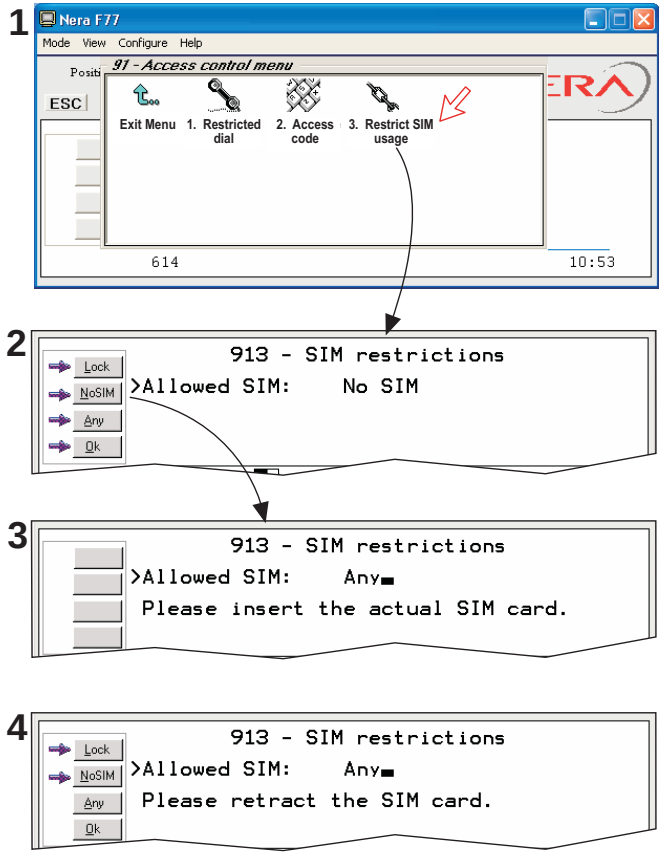
Click **Any** (default) to set Nera F77 for operation from a specific card only.

Lock SIM:

3 Click **Lock** and insert the actual SIM card. Nera F77 can now be operated with that specific card only.

4 When retracting the card, the Id of the SIM provider is displayed.

Ok stores the settings.



Satellite setup

The satellite setup function allows preprogramming of **default Net service provider** and **terrestrial network** for each satellite region (Ocean Region).

When using a SIM card, the above data are already preprogrammed.

Procedure:

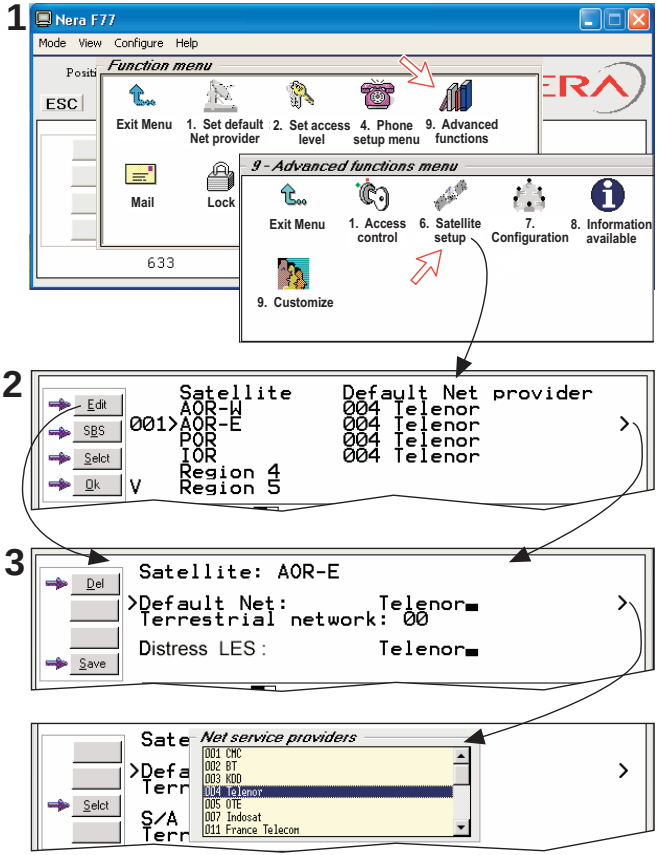
1 Via the **Function menu**, double-clicking the **Satellite setup** icon in the **Advanced functions menu** opens the list of Satellites and preprogrammed Default Net providers.

2 Scroll ⇧/⇩ to required region. Clicking **Edit** opens the window for default settings (**3**). The example shows that Telenor has been selected as default provider for the AOR-E region.

3 Press ⇨ to change Net provider and networks for the individual satellite. Pressing ⇨ displays the list of available providers. Scroll ⇧/⇩ to the required Net provider and click **Selct** to store the chosen network as default.

If required, scroll down ⇩ for entering of Terrestrial network. *Normally not necessary.*

Distress Net service provider is automatically selected, *typically the same as the default Net*.
It can not be selected manually.



Configuration menu

ISDN protocol configuration

1 Open the **Configuration menu** via the **Function menu > Advanced functions menu.**

2 Double-clicking the **ISDN configuration** displays the ISDN configurations implemented in Nera F77.

*Switch to **owner level** to edit the entries:*

- **Protocol**

Select Euro ISDN for connection of equipment conforming to the European ISDN standard. Select NI-1 protocol for equipment conforming to the NI-1 standard (National ISDN-1).

- **Date/time element**

When enabled, date and time is sent to the connected Terminal Equipment during call establishment. Some ISDN devices do not survive this message. The date and time transmission may then be disabled.

- **Layer 2 Activation**

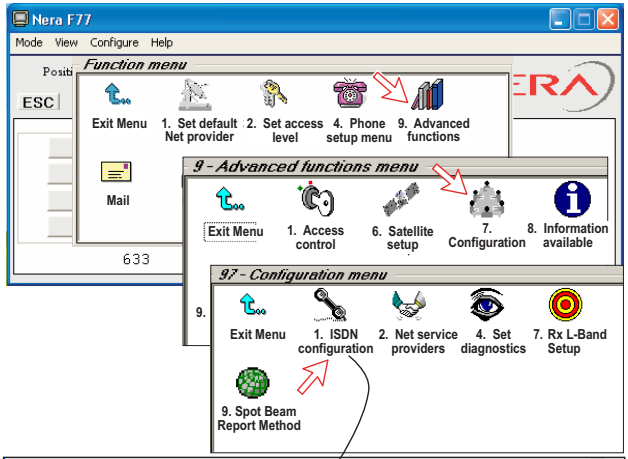
The layer 2 connection is deactivated after some idle time as default. Some ISDN devices interpret this as an alarm situation. Layer 2 dectivation can then be disabled. When the ISDN protocol is set to NI-1, this option is on as default.

- **Default service**

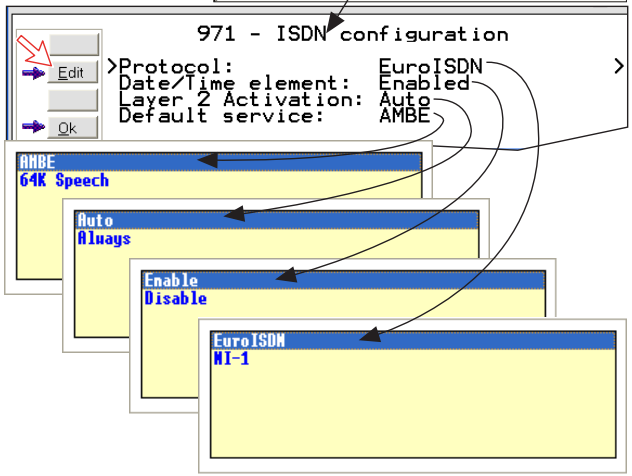
Some ISDN devices can not signal their own MSN number. Such a phone will be able to use the 64 kbps service since all "unknown" speech devices are required to use the 4.8 speech service. The user can set Nera F77 to map all "unknown" devices to 64 kbps speech service.

*NB! Remember to revert to **user** level.*

1



2



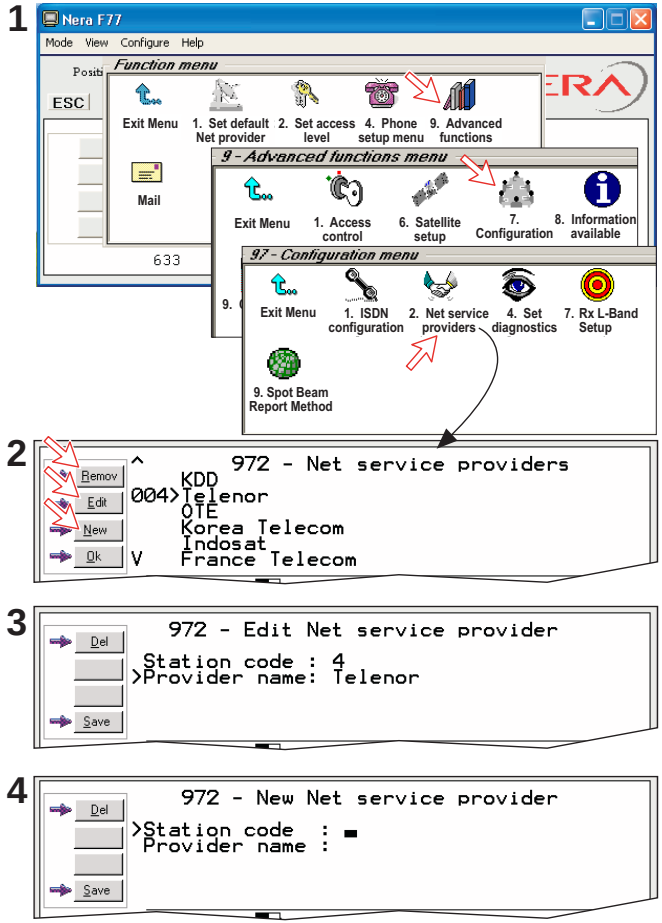
Net service providers (owner level only)
Adding, editing, or removing entries in the list of Net service providers:

1 Via the **Function menu > Advanced functions menu**, double-clicking the **Net service providers** icon in the **Configuration menu** displays the list of Net service providers including their station codes.

2 Scroll to required Net service provider, ⍐/⍗. Clicking **Ok** returns you to the Configuration window. **Remov** deletes entry. Clicking **Edit** opens the window allowing the station code and provider name to be modified (window **3**).

4 Clicking **New** (window **2**) opens the window allowing station code and provider name to be added.
Use **Del** to modify. **Save** stores the changes.

*NB! Remember to revert to **user** level.*



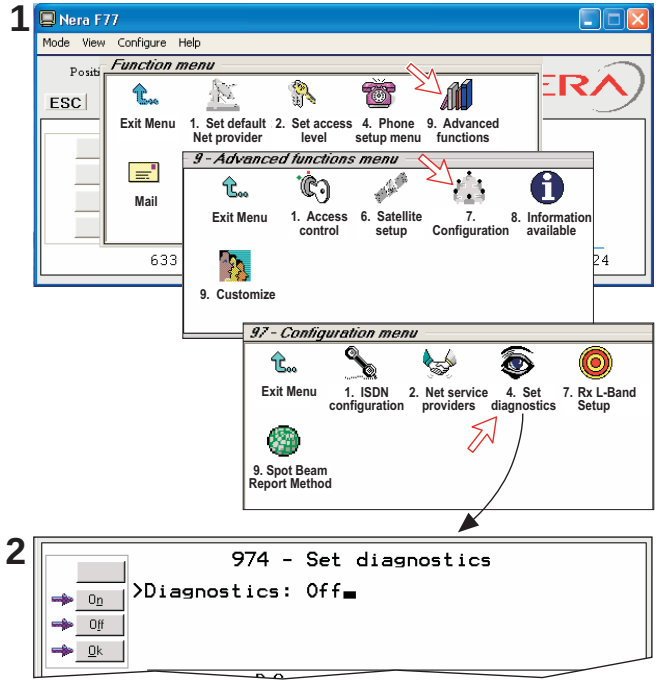
Set diagnostics

Additional system information is displayed when diagnostics is turned **On**.

*See also **MENU FUNCTIONS**.*

1 Double-click the **Set diagnostics** icon via the **Function menu** > **Advanced functions menu** > **Configuration menu**.

2 Click **On** or **Off** as required.



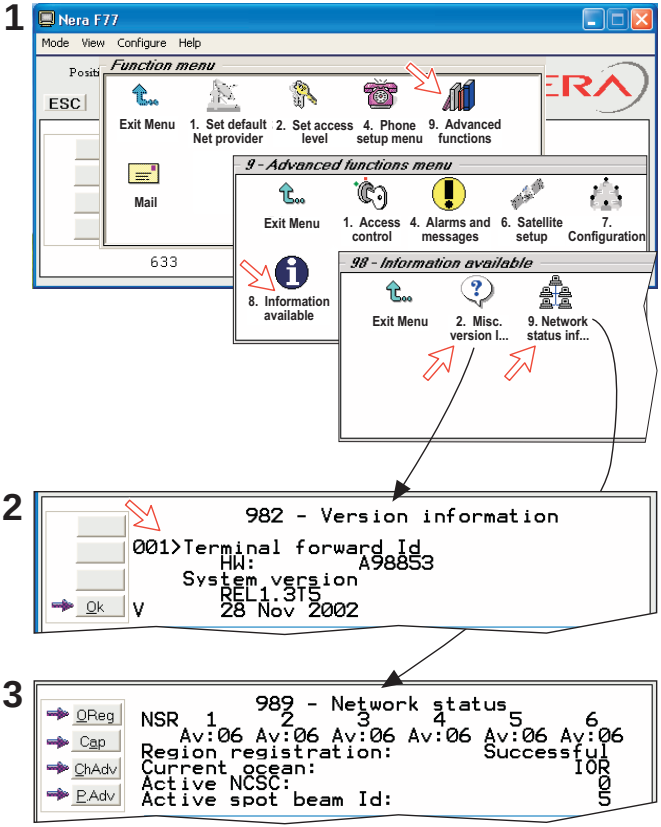
Information available

Miscellaneous version Id information

The **Information available** function displays the terminal forward Id and system versions.

1 Via the **Function menu > Advanced functions menu**, double-clicking the **Miscellanous version Id information** icon in the **Information available menu** displays the available data (window **2**).

2 With **Diagnostics On**, pressing [i] opens a series of version information windows.



Network status information

(owner level only)

This function displays various network status information.

3 Double-click the **Network status information** icon in the **Information available menu** for readout.

*NB! Remember to revert to **user** level.*

Customize menu

(owner level only)

1 Open the **Customization menu** via the **Function menu > Advanced functions menu**.

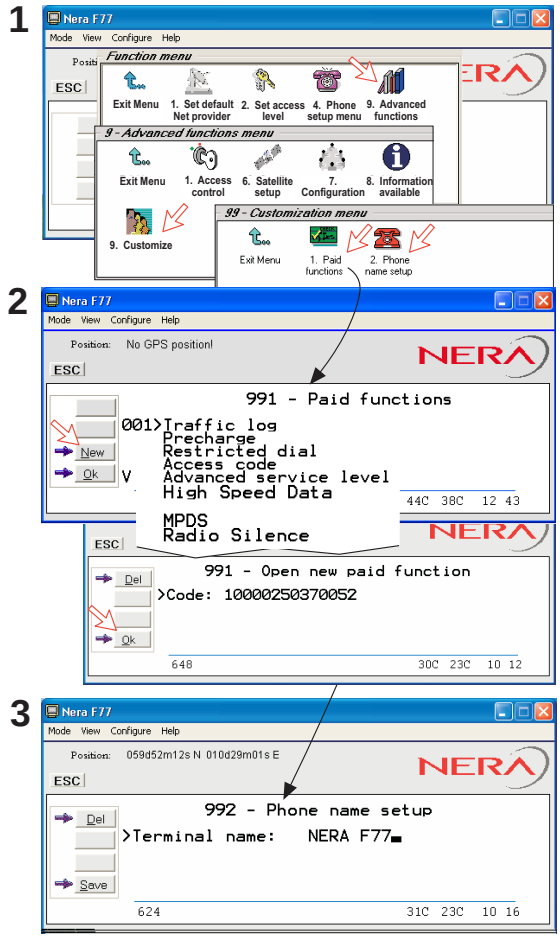
Paid functions

2 A paid function is activated by entering an "Opening key" provided when purchasing the function.
Double-clicking the **Paid functions** icon in the **Customization menu** displays the list of available functions.
Clicking **New** opens the **Open new paid functions menu**. Enter the "Opening key" and click **Ok**.

Phone name setup

3 Double-clicking the **Phone name setup** icon in the **Customization menu** displays the Phone name, i.e. Nera F77. To change, key in uppercase/lowercase letters as required.
Use **Del** to modify.
Save stores the changes

*NB! Remember to revert to **user** level.*



Routing of incoming calls

When applying for IMN numbers, a **Terminal Id** (OID/DID) is received from the Net service provider.

All devices connected to Nera F77 can make outgoing calls. For incoming calls it must be assured that the Terminal Ids and MSN numbers configured are as commissioned.

To make an incoming call reach a particular device, an MSN number and the Terminal Id "connected" to the IMN number must be programmed into the Main Communication Unit (MCU). *See later in this manual.*

The table below lists valid MSN numbers for the available services.

Numbers to be programmed into ISDN devices:

*In **ISDN** device:*	*In **Main Communication Unit**:*
MSN number	**MSN** number and **Terminal Id** *(the Terminal Id is paired with a specific **IMN** number)*

For an easy start, some Terminal Ids and MSN numbers have been preprogrammed into the MCU (marked with a star in the table).

In the ***4.8 kbps speech*** and ***3.1 kHz audio*** columns of the **ISDN PORTS** table the Term.Id is represented by an X, allowing an ISDN Term.Id to be used for analogue ports.

Note! A Term.Id already entered is not accepted.

LIST OF VALID TERMINAL IDs AND MSN NUMBERS

ANALOGUE PORTS			**ISDN PORTS**								**ISDN/RS-232/USB PORTS**	
4.8 speech			***4.8 kbps speech***		***64 kbps speech***		***3.1 kHz audio***		***56 kbps data***		***64 kbps data***	
Port	Term.Id	MSN	Term.Id	MSN	Term.Id	MSN	Term.Id	MSN	Term.Id	MSN	Term.Id	MSN
TEL 1	***03****	***01****	***01****	***20****	***91****	***30****	***62****	***41****	***71****	***50****	***51****	***60****
TEL 2	***04****	***02****	0X	21	92	31	6X	42	72	51	***52****	***61****
TEL 3	***02****	***03****	0X	22	93	32	6X	43	73	52	***53****	***62****
			0X	23	94	33	6X	44	74	53	***54****	***63****
			0X	24	95	34	6X	45	75	54	55	64
3.1 kHz audio			0X	25	96	35	6X	46	76	55	56	65
			0X	26	97	36	6X	47	77	56	57	66
Port	Term.Id	MSN	0X	27	98	37	6X	48	78	57	58	67
TEL 4	***61****	***04****	0X	28	99	38	6X	49	79	58	59	68
			01/20 Distress Handset. First HS connected via Distress Alam Unit.		*91/30 Distress Handset. First HS connected via Distress Alam Unit.*		*3.1 kHz/ 64 kbps audio service*				*51/60, preset for ISDN port* *52/61, preset for RS-232A port* *53/62, preset for USB port* *54/63, preset for RS-232B port*	

**** Preprogrammed***

Routing of incoming calls (examples)

The table below illustrates the use of appropriate Terminal Ids for the various services combined with examples incoming IMN numbers.

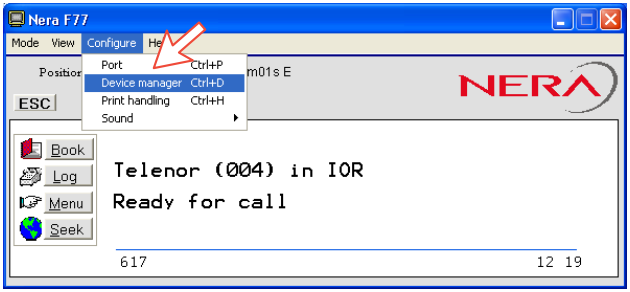
***** *Preprogrammed, see table on previous page.*

Note! If the Net service provider does not specify which Terminal Id should be used with the various IMN numbers, select Term. Id no.1 for the first 4.8 kbps telephone, then no. 2 for the second phone. Use the same principle for the other type services. It is advisable to note down the selections.

Name		***Service***	***MCU ports***	***Provided by ISP:*** ***Term.Id***	***IMN***
Bridge	*MSN **20**** 	4.8 kbps speech	ISDN	0***1****	762420510
Radio room	*MSN 21* 	4.8 kbps speech	ISDN	*05*	762420512
Bridge	*MSN **30**** 	64 kbps speech	ISDN	***91****	600020520
Captain	*MSN 31* 	64 kbps speech	ISDN	*92*	600020521
Fax Gr.4	*MSN **60**** 	64 kbps data	ISDN	***51****	600020522
Data	*MSN **63**** 	64 kbps data	RS-232 B	***54****	600020525
Fax Gr.3	*MSN **04**** 	3.1/64 audio	TEL 4	***61****	600020527
Saloon	*MSN **03**** 	4.8 speech	TEL3	***02****	762420511
Data	*MSN **61**** 	64 kbps data	RS-232 A	***52****	600020523
Router	*MSN **62**** 	64 kbps data	USB	***53****	600020524

MSN configuration

You are prompted to enter the owner level password (default: 1234567890). For security, the password should be changed before or after configuration of a device. See ***ACCESS LEVEL > Changing owner level password****.*

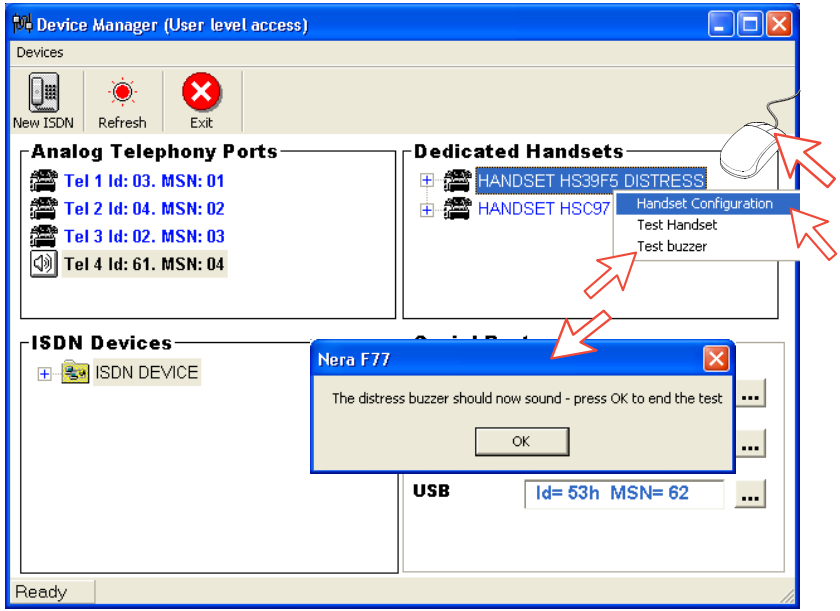


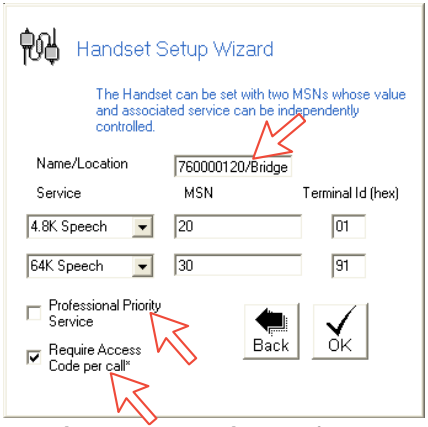
Click to open Device Manager for configuration of ISDN/analogue/RS-232/RS-422/USB > > > > > >

Nera ISDN Handset w/Distress Alarm

- Nera ISDN Handsets will automatically be configured with Handset MSNs in the Device Manager.
- The first Nera ISDN Handset connected to the Distress Alarm unit will be given MSN20 and MSN30. A new handset will thus respond to both these MSNs.
- The next Nera ISDN Handset will be the next available MSNs.
- All Nera ISDN Handset are given two MSN numbers, one for 4.8 speech and one for 64 speech.
- A Nera ISDN Handset connected to a Distress Alarm will automatically constitute a distress handset.
- The MSN numbers will follow the handset.
- The MSNs can be controlled independently, e.g. if two handsets are given the same MSN, they will both respond to an incoming call to that MSN.
- To verify selected MSNs of a handset, check in the Device Manager or press the "R"-button on the Handset.

Open the device manager, see previous page.
Right-clicking a Dedicated Handset and then clicking ***Handset Configuration*** *starts the Handset Setup Wizard.*
Enter ***Name/Location*** *of the installed Handset, as required.*





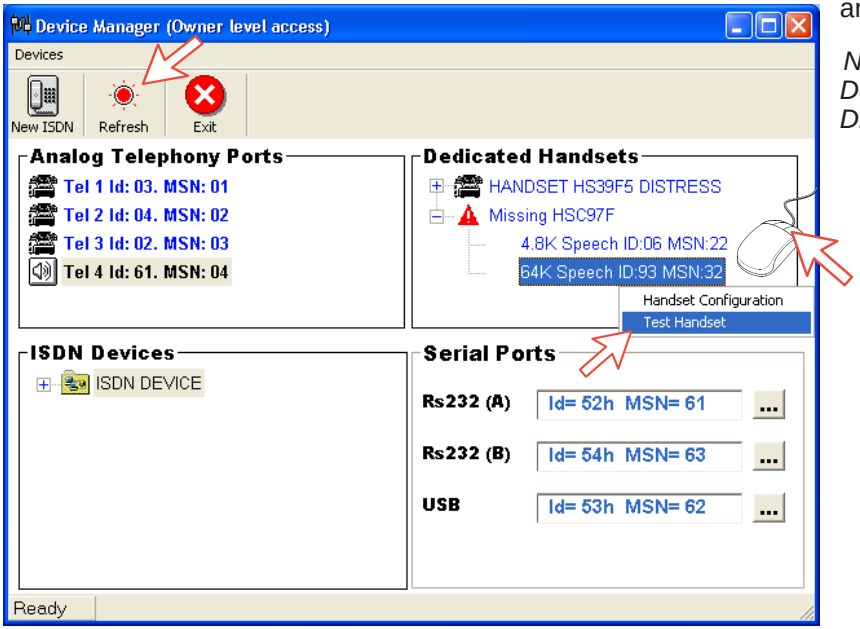
Require Access Code *must be unchecked to allow this Handset to be used without entering a code.*
Professional Priority Service *is checked on special agreement with the Net Provider, e.g. for higher priority in the Inmarsat system.*

Testing the Distress Alarm

See window on previous page.

Rightclicking a **Dedicated Handset** as indicated allows activating the buzzer in the Distress Alarm unit. Clicking **OK** in the window appearing stops the alarm buzzer.

*See also **Distress Alarm** earlier in this manual.*



Deleting an ISDN Handset

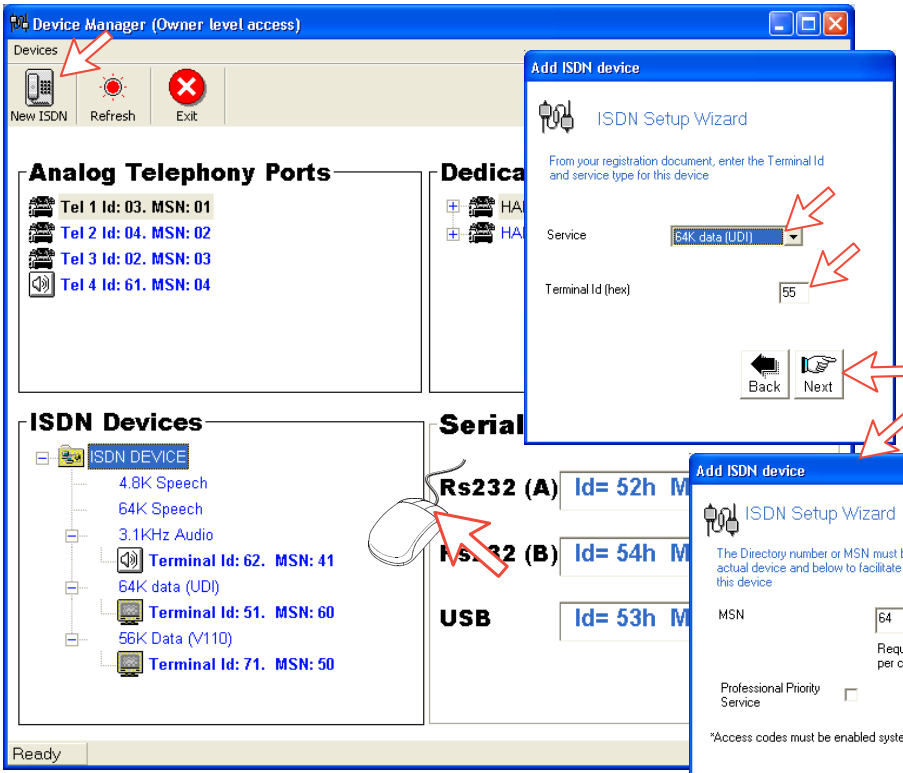
Unplug the Nera ISDN Handset to be deleted and rightclick the same in the **Dedicated Handset** list. Clicking **Test Handset** removes its data, leaving the Terminal Id and MSN number vacant for another Display Handset.

If necessary, click refresh: and repeat clicking **Test Handset**. The Main Communication Unit will remember the handset connection data. All handsets are given a unique name.

Note! A triangle symbol in the Device Manager appears when a Display Handset is missing.

ISDN port

Open device manager and right-click to open ISDN Setup Wizard.



Select the required service:

- 4.8 kbps standard speech service
- 64 kbps speech service
- 3.1 kHz Audio
- 56 kbps data service (V110)
- 64 kbps data service (UDI)

Click to continue.
The system selects the Next available Terminal Id. Check with Terminal Id received from Net provider.

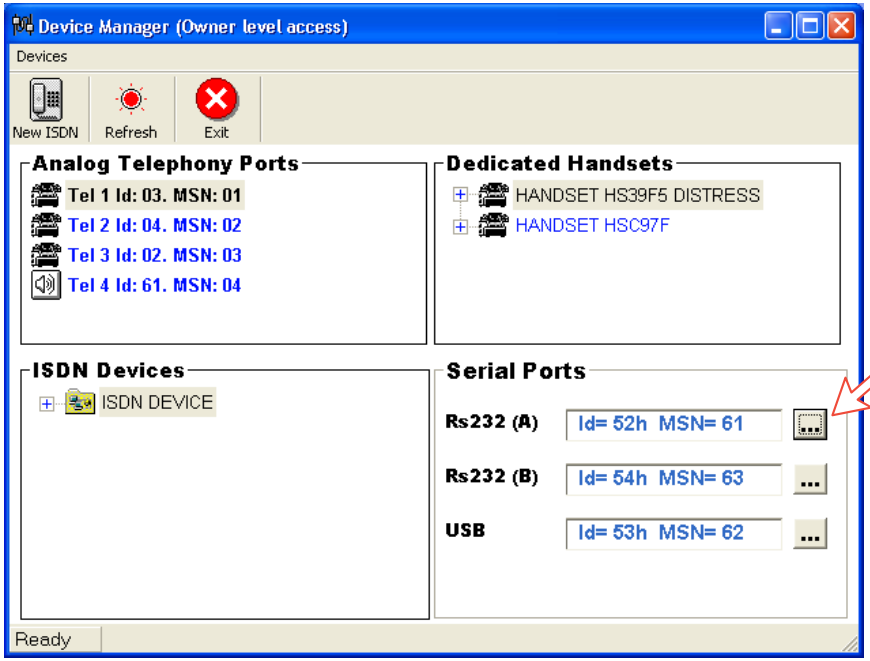
Key in MSN number if not using the recommended one.

Access Code is not used for ISDN data.

Click to enter number.

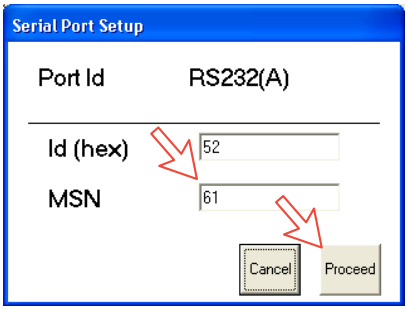
RS-232 port

Open device manager and right-click to open setup editor.



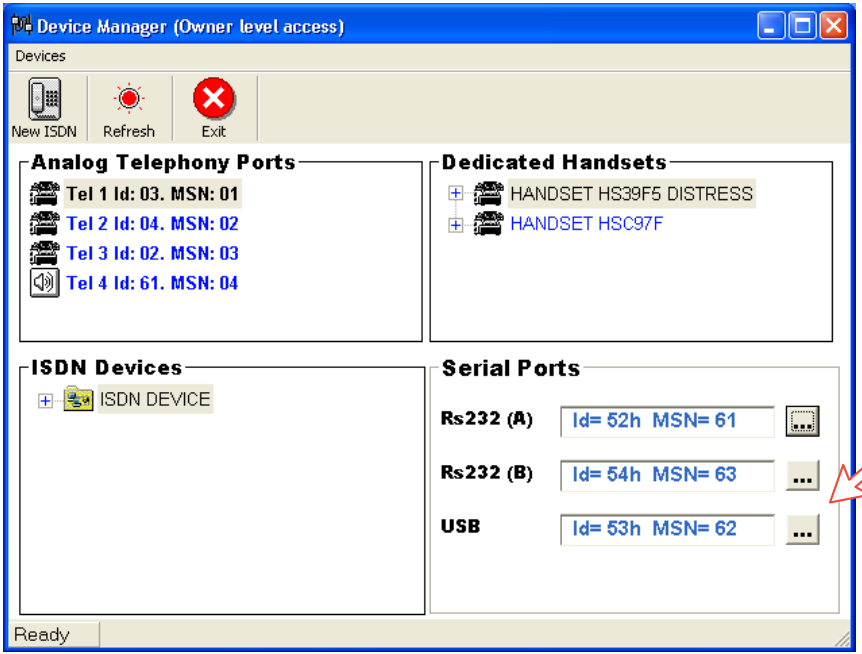
Click to open **Serial Port Setup**.

Key in MSN number if not using the recommended one.
Click **Proceed** to enter number.



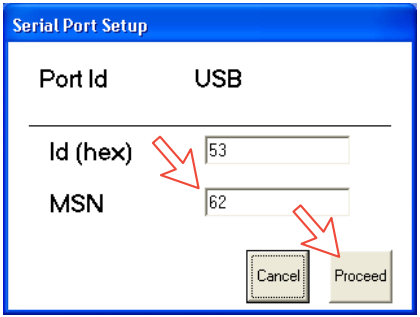
USB port

Open device manager and right-click to open setup editor.



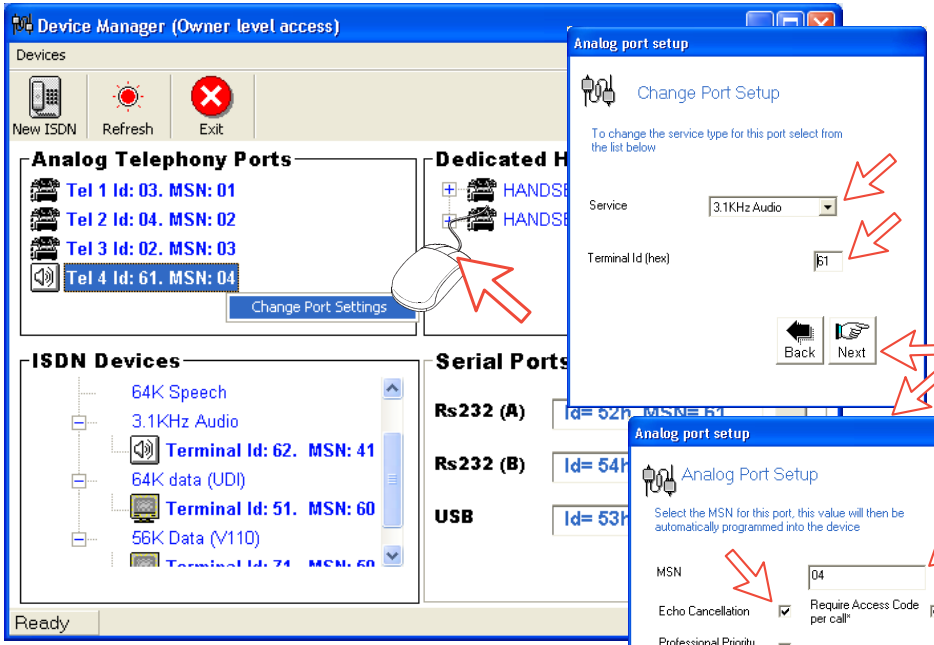
Click to open **Serial Port Setup**.

Key in MSN number if not using the recommended one. Click **Proceed** to enter number.



Analogue port

Open device manager and right-click to open analogue port setup window.



Select the required service:

- 4.8 kbps standard speech service
- 64 kbps speech service
- 3.1 kHz Audio

Enter terminal Id (OID/DID) received from the Net provider.

Click **Next** to continue.

Key in MSN number if not using the recommended one.

Click **OK** to enter number.

The MSNs can be controlled independently, e.g. if two telephones are given the same MSN, they will both respond to an incoming call to that MSN.

Echo Cancellation *is performed automatically for all voice calls. Uncheck if problems with echo cancellation.*

Require Access Code *is not used for 3.1 kHz Audio service.*

Professional Priority Service *is checked on special agreement with the Net Provider, e.g. for higher priority in the Inmarsat system.*

Saving and reloading configurations

The Nera F77 configuration settings may be stored on the PC harddisk, e.g. prior to replacing software.

Procedure:

1 Open the Device Manager window as indicated

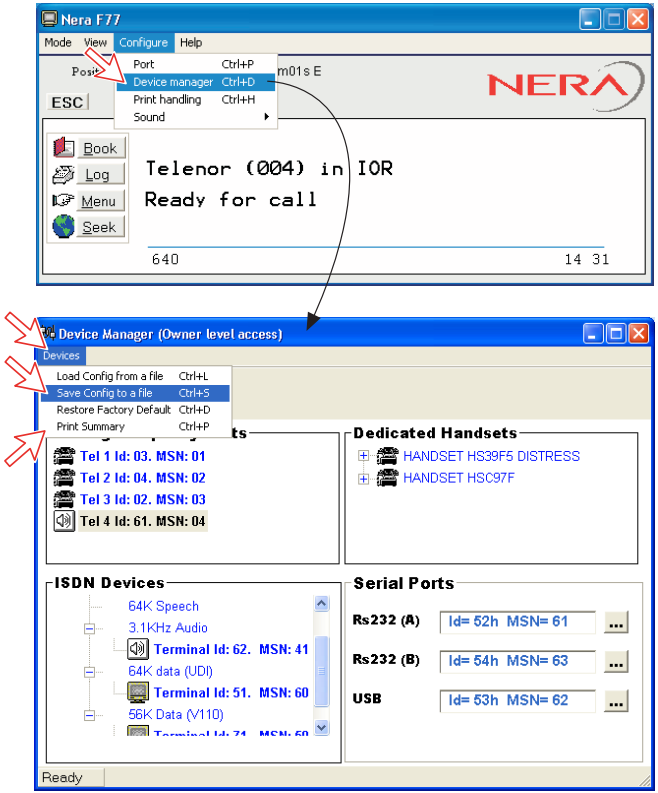
2 Clicking **Devices >Save config to a file** automatically stores the data in a "Config.cgf" file in the vtLite directory **c:/program files/vtLite Marine**.

3 After installing the software, the settings may be transferred back to Nera F77 by pressing **Load**.

4 Clicking **Restore Factory Defaults** loads default Nera F77 configurations.

Printout/storing a configuration summary:

5 Clicking **Print Summary** opens the **Printout Viewer** *(see next page)* which lists the settings of the end user equipment, and allows filing and/or printout.



Note!
Save config to a file** only saves the **Device Manager settings.

Settings such as Net provider / Access codes / ISDN protocol / Rx-L band output are not saved.

*Phone book data and traffic log must be saved in the **Book** and **Log** menus.*

Configuration printout viewer

The list is sorted by Terminal Id

Print to local printer

Save to disk

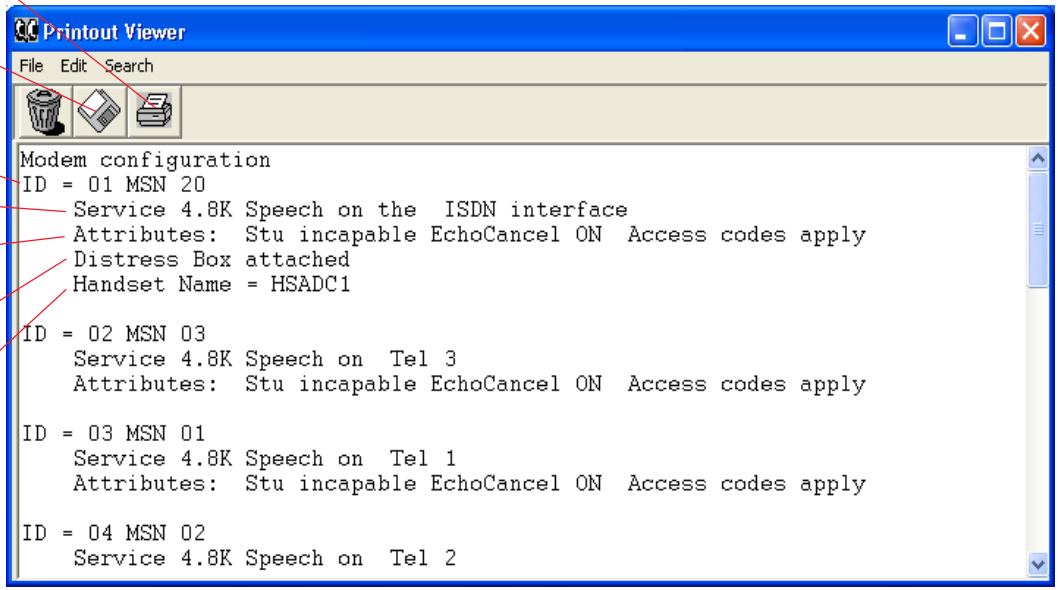
Terminal Id and MSN number

Type of service

Individual device settings

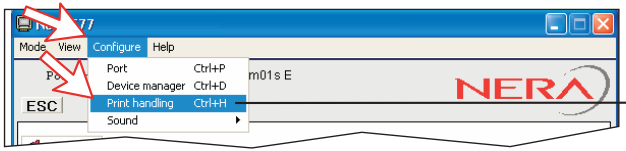
Distress Alarm, if attached

Name/location, if entered



Print handling setup

The **Printout from modem** window is used for setting of default output of Traffic log, Modem configuration etc.



Clicking **Configure** > **Print handling** opens the **Printout from modem** window. The following settings are selectable:

Default print action:

Normally, choose **Print to screen** which causes the file to be output via the Printout viewer. *For an example, see "**TRAFFIC LOG > Printout viewer**".*

For direct printout, choose **Print to default windows printer**.

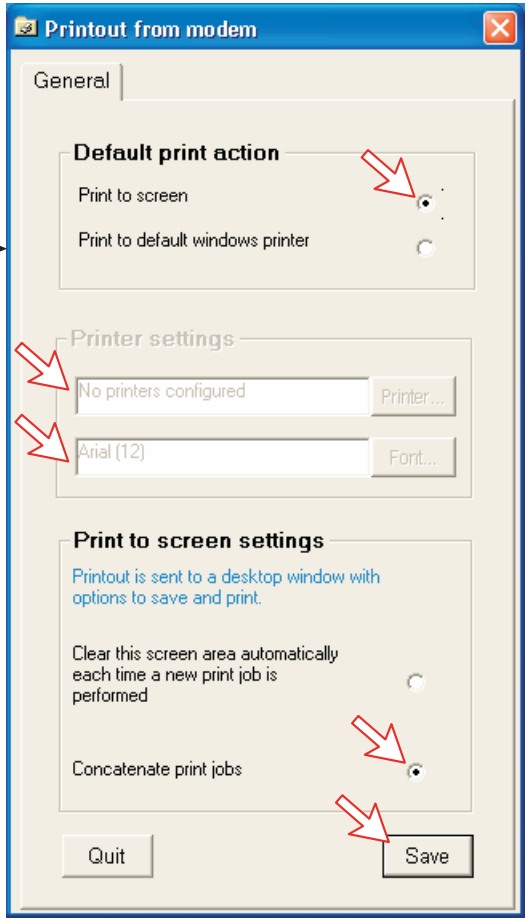
Print to screen settings:

Determines the output of records via the Printout viewer. Normally, use **Concatenate print jobs** which "chains" the jobs to be printed or saved to file.

The alternative choice clears the screen after each printout.

Printer settings:

For hardcopy printout, make sure that the appropriate printer and font are selected.



Mobile Packet Data Service

The MPDS service can be efficient for applications such as:

- E-mail
- Internet/intranet
- Navigational updates
- Vessel telemetry transmission
- Database queries
- E-commerce

The user *only* pays for the *amount* of data sent over the network, and not for the time connected.

The MPDS service is set up and run from a PC connected to the RS232/RS422 or USB port of the Main Communication Unit.

No configuration is needed!

Reverting to Mobile ISDN service is done from the PC.

See the MPDS application on the Nera F77 CD.

General

No regular maintenance is required of the Nera F77 satellite terminal.

Problem	Probable cause	Action
1. The Nera F77 MCU power indicator does not light up:	The Main Communication Unit is not switched ON	• Toggle the ON/OFF switch to ON. • Switch off, wait 10 secs and switch back on
	Power is not connected	• Check that the power cord is properly connected.
2. The Nera ISDN Handset display freezes or stays completely black:	The handset cord is not connected, damaged, or enumerating failed	• Check that the handset cord is properly connected and inspect the cord. • Power MCU off/on • Disconnect cord from MCU and connect it again.
3. Nera F77 cannot find the satellite:	No or weak signals	• Check for correct position of the antenna. Check that no obstacles block the free sight to the satellite. • The signal strength indicator should preferably exceed 570. • Check that the coax cable is connected properly. • Restart the search for any satellite, or try a satellite in a specific Ocean Region.
4. Nera F77 functions abnormally:	Faulty or no power	• Turn off power and disconnect power cable. • Connect power cable, and switch on again. • Replace fuses, if needed. Located near the power switch. • Verify correct voltages to the MCU: 100-240V AC. • Download new software from the Nera website.

Problem	Probable cause	Action
5. Unsuccessful call attempt:	Nera F77 is not properly commissioned.	• Call the Net Service Provider.
	The called party is busy. "Subscriber busy" appears in the display.	• If unsuccessful, wait for some time and try again. • Call another destination (another country). • Select another Ocean Region.
	The following messages appear in the vtLite display: "No response from net"or "Not authorized for this service". (HS: Disconnected)	• Check that the correct Net service provider is shown in the display. • The Nera F77 terminal is not properly commissioned. Check with the Net service provider, or verify that "Network status information" function displays Region Registration: Successful.
	This message appears: "Traffic log is full"	• Connect a PC to Nera F77 and read/print out the traffic log to allow further logging.
6. Problems with telefax or Videophone:	Incomplete dialing	• Remember to press "#" as last digit before starting transmission. • Instead of "#", try to enter: 902 + 00 + country code + subscriber number.
	Service not commissioned	• *See problem 5.*
	System transmission delays	• The OFF-HOOK time should be as long as possible (e.g. 2 minutes). When the fax machine is called, ringing time should be set to minimum (e.g. immediate answer). • Try a different fax machine. Check that a Group 4 fax is used on the ISDN interface, and Group 3 fax via analogue interface (e.g. TEL4).

Problem	Probable cause	Action
7. No GPS	GPS alarm, or no GPS readout	• Wait for 15 minutes. The GPS may use up 15 minutes if Nera F77 has switched off for more than 6 hours. If not the case, GPS will report position to the vtLite Marine and handset display when the system logs on to the satellite.
8. Problems with data communication:	Wrong PC settings	• Check the PC program settings: speed 115200 bps, 8 data bits, 1 stop bit, no parity if RS232 is used (default settings in F77 MCU). • If shore/land side has an analogue modem, use 3.1 kHz service in Nera F77. • If shore/land side has ISDN connection, use 64 kbps UDI service. • If shore/land has 56 kbps UDI (some states in America), use 56 kbps UDI data service. *Read Nera Application guide on F77 CD.* • Contact the PC applications vendor for help.
9. Routing of calls:	MSN number not entered properly	• Make sure that the MSN number entered into Nera F77 with the Device Manager, is also entered into connected equipment. Some ISDN devices can be programmed with multiple MSNs and will answer different services and MSNs.

Problem	Probable cause	Action
10. Problem with local calls:	Wrong dialing	• Check that you call the correct MSN number. If Access Code is used, you need to enter this code first. • ISDN-to-ISDN: ✳ ✳ MSN #
11. Problem with call transfer		•Phone does not support "R"-button. • Not possible to transfer call from analogue to ISDN.
12. Problem with Distress	Distress Alarm	• Make sure that the ISDN Handset related to the Distress Alarm is properly connected. • Test distress buzzer using the ISDN Handset function **Priority Call** or vtLite Marine.

AC Alternating Current

AOR-E Atlantic Ocean Region East.

AOR-W Atlantic Ocean Region West.

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

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

Bps bits per second (8 bits = 1 Byte)

CHV2 higher access level on the SIM card, corresponding to Nera F77 "owner" level.

DC Direct Current.

DID Destination terminal IDentification.

DSP Digital Signal Processor.

DTE Data Terminal Equipment.

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

Fleet 77 Inmarsat's single integrated voice, fax, Mobile Data Service and Mobile Packet Data Service.

FWD ID forward Id, telephone network identity.

GAN Inmarsat Global Area Network.

Home LES Home Land Earth Station gives access to MPDS service like Internet / e-mail and handles MPDS billing system.

IMN Inmarsat Mobile Number, a unique 9-digit number which identifies each device connected to Nera F77.

Inmarsat International Maritime Satellite Organisation.

IOR Indian Ocean Region.

ISDN Integrated Services Digital Network.

ISN Inmarsat Serial Number, individual number assigned to each Nera F77 terminal.

ITU International Telecommunications Union

Kbps Kilobits per second.

LAN Local Area Network.

LES Land Earth Station, a station that interconnects fixed telecommunications networks with the Inmarsat system; may also be called a CES (Coast Earth Station) or a GES (Ground Earth Station).

M4 Inmarsat Multi-Media Mini-M.

MES Mobile Earth Station, a user terminal for an Inmarsat system; the Nera F77 terminal is an MES for the Inmarsat GAN system; MES may also be called SES (Ship Earth Station) or, if on aircraft, AES (Aeronautical Earth Station).

MPDS Inmarsat Mobile Packet Data Service.

MSN Multiple Subscriber Number, the extension number that connected equipment responds to. Also used for internal calls.

NCS Network Coordination Station, station that supervises all messages and signals sent in the Inmarsat system; one in each Ocean Region.

OID Originating terminal IDentification.

Ocean Region the coverage area of an Inmarsat satellite within which Nera F77 may communicate.

PABX Private Automatic Branch Exchange.

PIN Personal Identification Number.

POR Pacific Ocean Region.

PPP Point-to-Point Protocol, protocol used for serial data communication via the Nera F77 RS-232 or USB port.

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

RF Radio Frequency.

R LES Regional Land Earth Station sets terminal in MPDS list.

S/A operator StandAlone operator who maintains connectivity in the event of Network Coordinating Station failure.

SBS Shared Base Station assigns channels to the MPDS user and handles the MPDS communication.

SIM Subscriber Identity Module.

SMS Short Message System.

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

Terminal ID (OID/DID) different IDs for different Inmarsat services (e.g. 01 = 4.8 speech)

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

UDI Unrestricted Digital Information.

USB Universal Serial Bus.

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

Inmarsat GAN system/Fleet77

The Inmarsat Global Area Network service (GAN) provides a truly portable 64 kbps ISDN communications service for data and voice transmissions to and from mobile/fixed subscribers anywhere within the worldwide coverage of the Inmarsat 3 spot Beam system, *see map later in the Service Guide.*

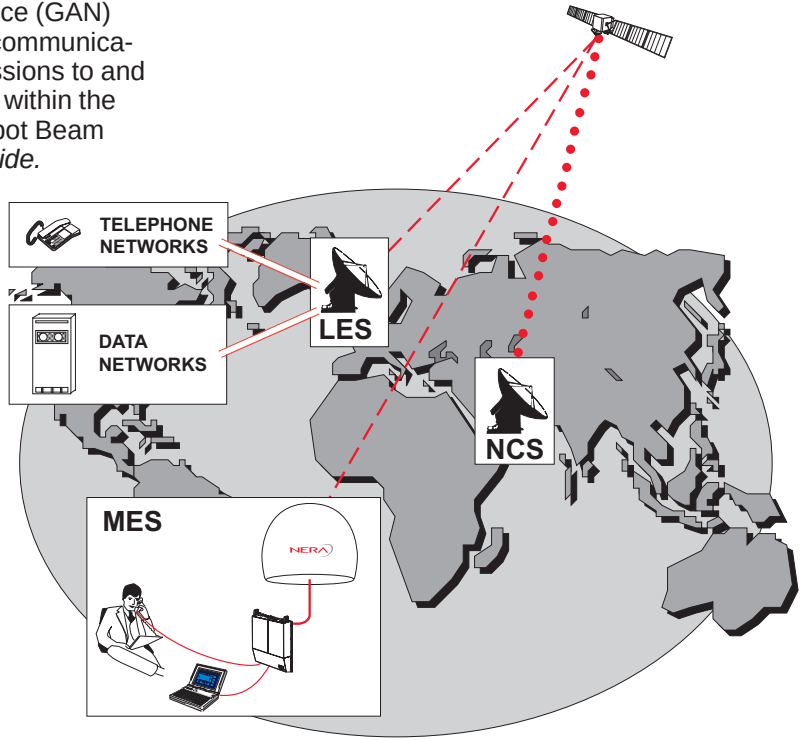
The benefit of the INMARSAT system is its high capacity, and the rapid and reliable connection between the land based (fixed) users and the **Mobile Earth Stations (MESs)**.

Each satellite region is under the control of a **Network Coordinating Station** (**NCS**), which controls and monitors the traffic between the MESs and the LESs.

NCS: *Network Coordinating Station, one in each Ocean Region (supervises all messages and signals sent in the Inmarsat system).*

LES: *Land Earth Station w/Net service providers (interconnects fixed telecommunication networks with the Inmarsat system.*

MES: *Mobile Earth Station (Nera F77, a user terminal for the Inmarsat system).*



Overview of the Inmarsat GAN system.

System satellites

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

See figure.

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 F77 can communicate via the four satellite Ocean Regions:

AOR-W	Atlantic Ocean West Region
AOR-E	Atlantic Ocean East Region
IOR	Indian Ocean Region
POR	Pacific Ocean Region

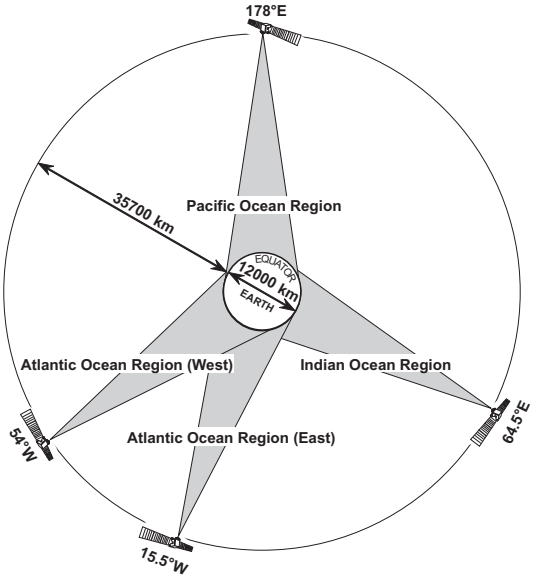
For coverage area of the satellites for Nera F77, *see* ***HANDSET FUNCTIONS >Satellite Coverage Map***. *See also* ***Inmarsat Coverage Maps*** *on the CD.*

Transmission frequencies

The Inmarsat terminals operate in the following frequency bands:

MES *transmission* frequencies:
1626.5 MHz - 1646.5 MHz

MES *receiving* frequencies:
1530.0 MHz - 1559.0 MHz



Satellite positions.

A large number of channels are available (20 kHz channel separation), offering either 4.8 or 64 kbps voice communication, as well as 3.1 kHz audio or 64 kbps (56 kbps) data communication.

Duplex communication uses two channel frequencies, one in each direction.

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

Antenna search pattern

Azimuth sweep
A 360° rotation of the antenna in azimuth at a fixed elevation angle.

Hemispheric search
A hemispheric search is constituted by azimuth sweeps at elevation angles 5°, 25°, 45°, 65° and 85°.

The antenna searches on the NCS Common TDM channel frequency (NCSC), initiated by the Nera F77 Main Communication Unit (MCU).

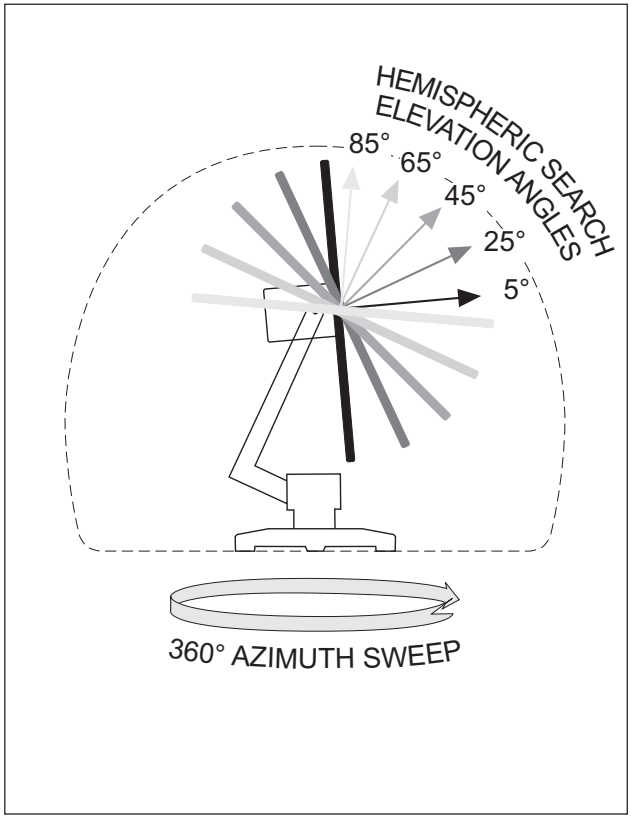
When finding the satellite signal, it completes the hemispheric search and moves to the position where the strongest signal was detected.

The Antenna reports back to the MCU for verification of valid NCSC.

If no valid signal is detected, no further automatic action occurs until the MCU initiates a new search.

A search request from the MCU may contain channel frequency and an order to make a full 360° *search at a specific elevation*, calculated from map and GPS information. If no satellite is found, a *hemispheric searc*h will be performed.

Tracking
At the end of a search, Nera F77 performs a fine-tuning of the antenna position around the strongest detected signal. The fine-tuning is obtained by a squinting function based on satlite signal quality.



Note! Nera F77 remembers the last used Ocean Region when when switching the terminal off/on.

Communication services

Nera F77 provides the following interfaces & services:

- **ISDN:**
  - 4.8 kbps speech
  - 64 kbps speech
  - 64 kbps data service (UDI)
  - 56 kbps data service
  - 3.1 kHz audio (64 kbps)
- **RS-232/RS422:**
  - 64 kbps data service (UDI)
  - MPDS
- **USB**
  - 64 kbps data service (UDI)
  - MPDS
    Requires PC with MS Windows 98 Second Edition, or Apple OS 9.03 (or later).
- **ANALOGUE**
  - 3.1 kHz audio
  - 4.8 kbps speech
  - 64 kbps speech

The Nera F77 MCU has following ports (see figure):

- ISDN ports for connection of ISDN telephones, telefax (Gr.4) or data equipment; a total of 7 devices.
- RS-232/RS422 and USB ports for connection of data equipment.

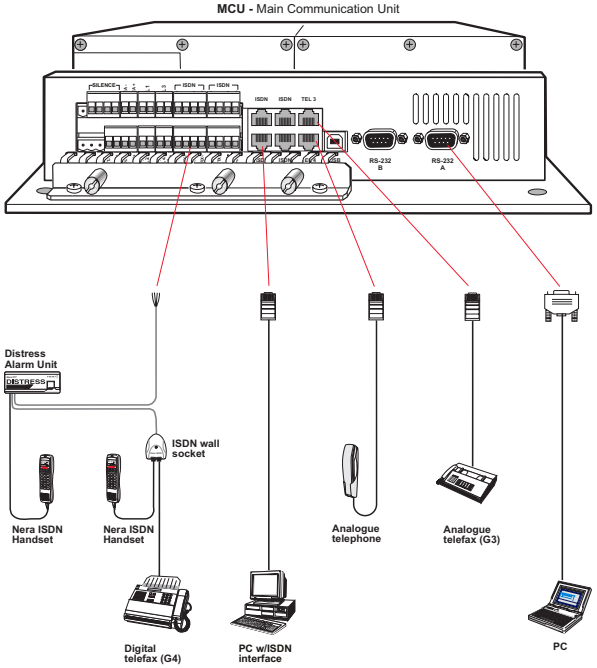
Internal communication

Equipment connected to the various interfaces may communicate with each other via an internal MSN (Mobile Subscriber Number) assigned to each unit.

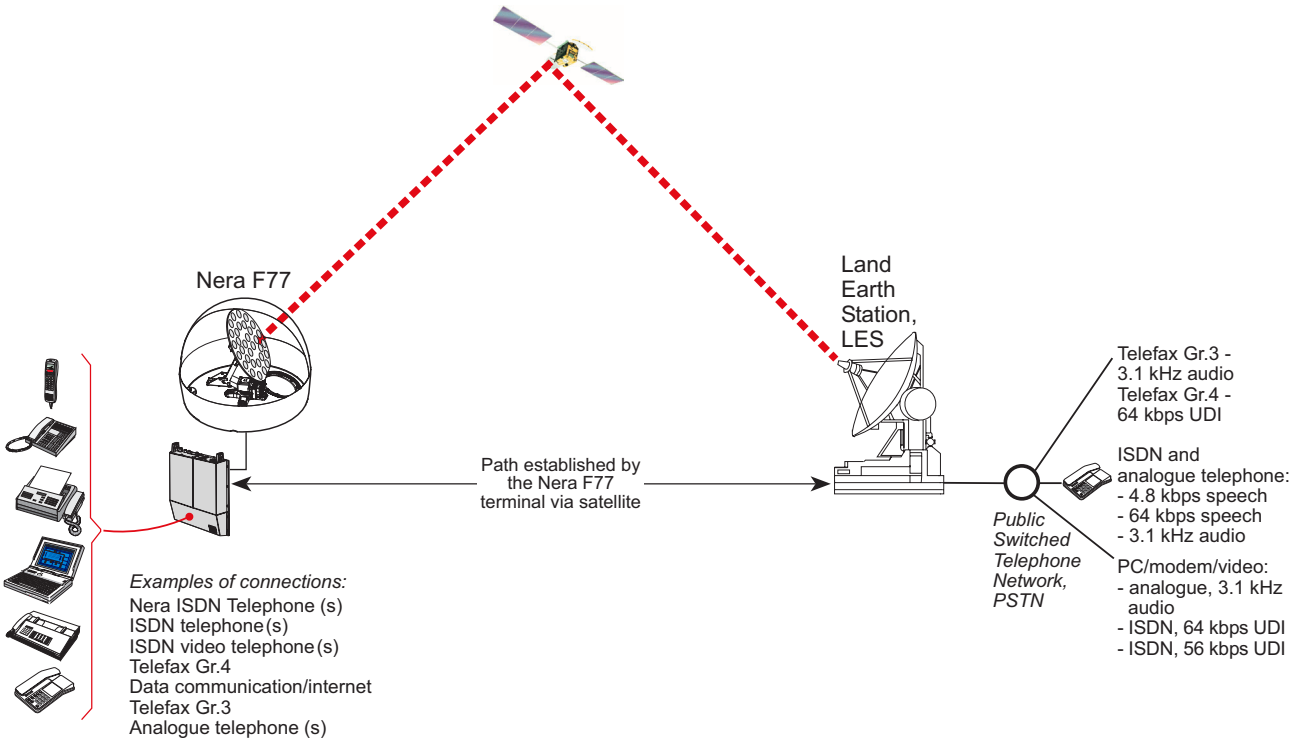
Control interface

The **RS-232** or **USB** port allows connection of a PC for configuration of Nera F77.

A PC program (vtLite Marine) that provides the software to operate and configure Nera F77 terminal is supplied on the enclosed CD (requires at least Windows 95).



Nera F77 ports.



Communication path.

Net service provider

The Net service provider issues your user licence and IMN (Inmarsat Mobile Number) phone numbers. It is also responsible for the billing of calls (charges).

The Nera F77 may respond to individual IMN numbers, giving the possibility to transfer a call directly to each device attached to it.

Note! TermID is a term that includes both Originating Identity (OID) and Destination Identity (DID). The DID is used from LES to MES to identify the service, whereas OID is used from MES to LES to identify the service.TermID is used in this manual because the DID and OID have the same value.

Calls from Mobiles

See figure.

To make an outgoing call, you use a standard international telephone number with the 00 prefix. The MES automatically includes information to identify itself and the particular device that originates.

System signalling

The LES uses the identifying information of the attached device for billing purposes.
The MES transmits the dialing information on a channel specially assigned by the NCS to the LES. LES routes the call over the public telecommunications networks to the intended destination. When the called party responds, the call proceeds.

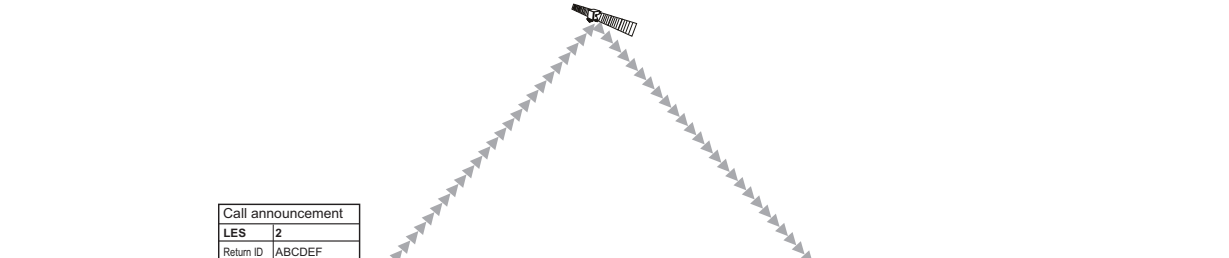
Call announcement from mobile to fixed:

The MES uses the Return Identity (RTNID) to communicate with the LES. It uses the TermID to identify its **IMN** number and the service in use.

The attached equipment dials the number and transmits its **MSN** number to the **MES**. The MES routes the MSN to a TermID.

LES checks that the RTNID is commissioned before connecting the call to the fixed net.

Calls from Mobiles



MSN	Service	Term.Id
20	4.8kbps speech	01
60	64kbps data (Gr.4 fax)	51
61	64kbps data	52
04	3.1kHz audio (Gr.3 fax)	61
30	64kbps speech	91

Example of MES Translation Table

When the MES originates a call it starts by sending a request to the LES. This initial request for service contains the MES Return ID and type of service. Nera F77 incorporates a configuration table that contains Terminal Id for every device connected and type of service.

Forward/return ID	Term Id	Service	IMN
123456/ABCDEF	**01**	4.8kbps speech	761234567
123456/ABCDEF	51	64kbps data	601234789
123456/ABCDEF	52	64kbps data	601234890
123456/ABCDEF	61	3.1kHz audio	601234481
123456/ABCDEF	91	64kbps speech	601234

LES Translation Table

Calls to Mobiles

See figure.

The Nera F77 terminal receives incoming calls via the IMN phone numbers. IMN numbers are assigned to the following ports by the user:

- *ISDN ports*
- *RS-232 serial data ports*
- *RS-422 serial data port*
- *USB serial data port*
- *Analogue ports*

Calls are made as ordinary international (Satellite) calls by dialing the international prefix (normally 00) followed by **870** and the IMN number, e.g.:
00 **870** 762420510.

*The common Ocean Region access no. **870** connects the call to the dialed Nera F77 regardless of the Ocean Region the user currently communicates through.*

*If the Net service provider does not support access no. **870**, call the Ocean Region directly:*

871 – **AOR-E** (Atlantic Ocean Region East)
872 – **POR** (Pacific Ocean Region)
873 – **IOR** (Indian Ocean Region)
874 – **AOR-W** (Atlantic Ocean Region West)

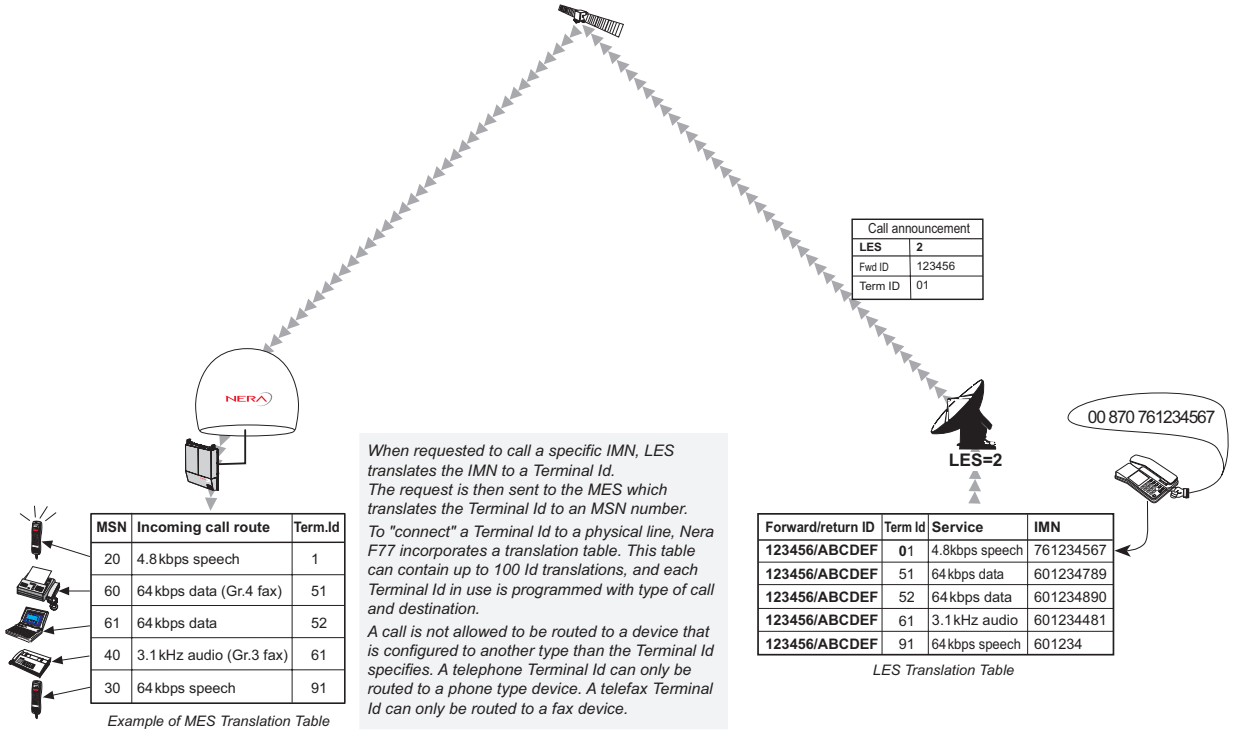
Call announcement from fixed to mobile:

The LES uses the MES's Forward Identity (FWID) to communicate with the MES, and the Terminal Identity (TermID) to identify the IMN number and the service in use.

The FWID together with the TermID replaces the need of the IMN number to be transmitted through the Inmarsat system in order to identify the MES and the specific equipment attached to it. This means that LES routes an IMN number received from the fixed net to the specific FWID and TermID identifying the MES.

The MES identifies the FWID and the TermID and routes it to a Mobile Subscriber Number (MSN) which is programmed in the attached equipment. Nera provides a table to identify which TermID is routed to an MSN.

Calls to Mobiles



MSN	Incoming call route	Term.Id
20	4.8 kbps speech	1
60	64 kbps data (Gr.4 fax)	51
61	64 kbps data	52
40	3.1 kHz audio (Gr.3 fax)	61
30	64 kbps speech	91

Example of MES Translation Table

When requested to call a specific IMN, LES translates the IMN to a Terminal Id. The request is then sent to the MES which translates the Terminal Id to an MSN number.

To "connect" a Terminal Id to a physical line, Nera F77 incorporates a translation table. This table can contain up to 100 Id translations, and each Terminal Id in use is programmed with type of call and destination.

A call is not allowed to be routed to a device that is configured to another type than the Terminal Id specifies. A telephone Terminal Id can only be routed to a phone type device. A telefax Terminal Id can only be routed to a fax device.

Forward/return ID	Term Id	Service	IMN
123456/ABCDEF	**01**	4.8kbps speech	761234567
123456/ABCDEF	51	64 kbps data	601234789
123456/ABCDEF	52	64 kbps data	601234890
123456/ABCDEF	61	3.1 kHz audio	601234481
123456/ABCDEF	91	64 kbps speech	601234

LES Translation Table

Term. Id	Service	Inmarsat services
01 - 0F	Voice	**B**: 16.8, **M**: 4.8, **Mini-M**: 4.8, **F**: 4.8
11 - 1F	Fax	**B**: 9.6, **M**: 2.4, **Mini-M**: 2.4
21 - 2F	ASD	**B**: 9.6, **M**: 2.4, **Mini-M**: 2.4
31 - 3F	Telex	**B**
41 - 4F	HSD	**B**
51 - 5F	64k Data	**GAN/F**
61 - 6F	3.1kHz Audio	**GAN/F**
71 - 7F	56K Data	**GAN/F**
	N.C.	
91 - 9F	64K Speech	**GAN/F**

Terminal Identities and the corresponding Inmarsat Services.

Note! MPDS is given the Terminal Id: AI

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