

Product Documentation



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Technical Specification NERA F33		

Specifications subject to changes without notice

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1. GENERAL

The Nera F33 equipment is Inmarsat approved with Certificate Number 66EB30.
The equipment is design with priority to achieve high Reliability, Maintainability and Simplicity.

2. LIST OF MATERIEL

- Above Deck Unit (ADE) inc. Antenna /RF / GPS parts and Radome
- Main Communication Unit (MCU)
- ISDN Telephone (ISDN HS)
- Documentation

3. STANDARD FUNCTIONS:

Duplex Voice 4,8 kbps (mini-M Voice quality)
Duplex Data 9,6 kbps with data compression V 42 bis/V 44
Duplex Fax 9.6 kbps
MPDS Packet Data Service*
Storing the 10 latest number dialled (up to 20 digits)
Telephone book for xx short numbers with alphanumeric names

(A + B) xx = 1190

xx = $\frac{1190}{A + B}$

A= characters
B= digits

Restricted Dialling
Traffic Logging and Access Code
Charge Tone and Restricted SIM
Save and Restore Configuration
MMI interface (VtLite Marine)
Message Indicator

* Scheduled to release in Q4 2003 from Inmarsat

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4. OVERALL SIZE AND WEIGHT

Size	:	ADE (Radome)	400 (H),	Dia ϕ 400	(mm)
		MCU	80 (H) x 180 (W) x 310 (D)	(mm)	
		ISDN Handset	215 (H) x 56 (W) x 45 (D)	(mm)	

Weight	:	ADE	8 kg
		MCU	3 kg
		ISDN Handset	0,3 kg

5. ISDN HANDSET (HANDSET W/DISPLAY)

RJ-45connector w/approx. 0,5 m spiral cable

LCD display with 30 alphanumeric characters and 8 symbols / indicators

12 pcs Number keys

12 pcs Functional keys allowing short number dialling, last calls etc., and basic equipment controls and monitoring such as : Selection of satellite & Service Provider, basic MMI readout etc.

Multi language display in normal ISDN mode (English, German and Norwegian)

6. CONNECTION (ADE)

6.1 Antenna Coaxial Connector

The ADE is provided with 1 pc N-connector (female) for connection to the BDE.

This connection feeds DC supply (48VDC), RF signals and a number of inter-communication signals between the BDE and ADE

7. CONNECTION (BDE)

7.1 MCU Coaxial Connectors

The BDE is provided with 1 pc N-connector (female) for connection to the ADE.

This connection feeds DC supply (48VDC), RF signals and a number of RF inter-communication signals between the BDE and ADE

TNC Connector is not in use.

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7.2 Connectors (contacts)

- 2 pcs RJ-45 (ISDN) connectors for ISDN Telephones, PC, G3 Telefax etc.
- 1 pc USB connector for PC / data equipment
- 1 pc 9-pin D-SUB connector for RS-232 A interface
- 1 pc 9-pin D-SUB connector for RS-232 B interface

7.3 Terminals (for wire screw connections)

- 4 pcs each with 4-terminals for 2 x 2pair ISDN connection
- 4 pcs terminals for RS-422 connection
- 2 pcs terminals for external GPS (NMEA-0183 format)
- 2 pcs terminals for future use

7.4 Power connectors

- 1 pc DC Mains (20 – 32 VDC) input connector

7.5 SIM Card

The MCU is provided with SIM Card reader.

8. ELECTRICAL INTERFACE

8.1 ISDN connection

The ISDN connection enabling termination of up to 8 ISDN circuits for following services :

- 4.8 kbps compressed speech (Mini-M voice)

Maximum cable length : 100m
Maximum ISDN output power : 10W

8.2 RS 232 / 422 connection

The RS 232 /422 connection enabling termination for following services:

- 9,6 kbps data with compression V 42 bis/V 44
- MPDS
- Serial Printing of Traffic Log (only RS 232)

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8.3 RS-232 / RS-422 Data interface

Data Protocol	:	Hayes AT compatible, V42bis, V44
Bit rate	:	2.4 – 115,2 kb/s
Parity	:	Odd/even/mark/space
Data Bits	:	7 or 8 bit
Stop bit	:	1 or 2 stop bits
Flow control	:	XON/XOFF

RS-232

Maximum cable length with 0,5mm² : 3m at 115.2 kbps

RS-422

Maximum cable length with 0,5mm² : 100m at 115.2 kbps

8.4 NMEA Interface

The MCU is provided with two (2) screw termination for NMEA GPS input

9. ANTENNA SEPARATION (MCU –ANTENNA)

Requirement for an optional cables :

Maximum loss -20dB at 1.6 GHz, 4,0 ohm DC:

<u>Cable Type</u>	<u>Max Length</u>	<u>Note</u>
RG 223	25 m	
RG 214-FRNC	50 m	
S 10172 B-11	140 m	
RF ½” 50	170 m x	

(x) Coaxial Cable where a Pigtail is required in both ends.

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10. TECHNICAL PARAMETERS

10.1 Power Input

10.1.1 DC Mains Input

20 – 32 DCV

10.1.2 Power consumption

During Receive / Idle mode : Approx. 40 W (minimum power)
 Transmit (Global Beam communication) : Approx. 110 W (maximum power)

10.2 RF Parameters

10.2.1 G/T, EIRP

G/T : - 12,5 dBK
 EIRP : Maximum +21 dBW
 Minimum +5 dBW.

10.2.2 Antenna

Antenna Gain : 13,2 dBi
 Beam with (at 3dB) : 36°
 Size : Flat Antenna (7 patches)

10.2.3 Frequency

Type of operation 4.8 kbps and 9.9 kbps fax/data : Single Channel Per Carrier (SCPC)
 Type of operation MPDS : TDM / TDMA (Fw – Rtn)
 Transmitting : 1626.5 to 1660.5 MHz
 Receive : 1525.0 to 1559.0 MHz
 Channel Bandwidth 4.8 kbps SCPC : 5 kHz
 Channel Bandwidth 9.6 kbps SCPC : 20 kHz
 Channel Bandwidth MPDS : 40 kHz (8 time slots)

10.2.4 Modulation / polarization

Modulation (signalling) : BPSK
 Modulation during 4.8/9.6 kbps operation : 0-QPSK
 Modulation during MPDS operation : $\pi/4$ QPSK
 Polarisation : Right Hand Circular Polarization

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10.2.5 Electromagnetic Compatibility

Radiation	:	EN55022 (August 1994) EN 60945 (Clause 9), January 1997
Conducted	:	EN 60945 (Clause 10) January 1997 EN 50082-2, August 1996
LVD	:	EN 60945(2000)

10.3 Safety distances

Magnet Compass safe distance	:	1 m from the steering compass (x) (x) British or Norwegian vessels
Microwave Radiation	:	Passengers should not be admitted in areas closer than 5 m (Based on 8W/m ²)

11. ENVIRONMENTAL PARAMETERS

Nera F33 Antenna Pedestal complies with environmental requirements defined in IEC 60945

Protection

Above Deck Unit	:	IP66
MCU & Handset	:	IP30.

Storage temperature : -30°C - +70°C

Operational temperature

<u>MCU</u>	:	-25°C - +55°C, 40°C 95 % humidity (non-condensing)
<u>Above Deck Unit</u>	:	-25°C - +55°C, 40°C 95% humidity, (non-condensing)
Infrared:	:	500 W/m ² ,
Ultra violet:	:	54 W/m ² ,
Visible:	:	1150 W/m ²
Wind	:	Relative average wind velocity up to maximum 180 km/h
Rain	:	100 L/min
Ice	:	Up to 25 mm

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Robustness Survival :

Vibration : EN 60945

Ships motion

Roll : +/- 30°
Pitch : +/- 10 °
Yaw : +/- 8 °
Turning Rate : 12° per seconds