

# Product Documentation



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Prepared by Gunnar Hermelink	Subject Resp. Geir Godheim	Approved by Ketil Vanebo
<b>Technical Specification NERA F55</b>		

Specifications subject to changes without notice

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## 4. OVERALL SIZE AND WEIGHT

Size : ADE (Radome) 600 (H), Dia  $\phi$  630 (mm)  
MCU 80 (H) x 180 (W) x 310 (D) (mm)  
ISDN Handset 215 (H) x 56 (W) x 45 (D) (mm)

Weight : ADE 15 kg  
MCU 3 kg  
ISDN Handset 0,3 kg

## 5. ISDN HANDSET (HANDSET W/DISPLAY)

RJ-45 connector 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)
- 64 kbps speech(High quality)
- 64 kbps data (UDI)
- 56 kbps data (V110)
- 64 kbps Audio service (3.1 kHz Audio)
- Fax 9.6 kbps

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:

- 64 kbps data (UDI)
- 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, PPP
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 0,5mm<sup>2</sup> : 3m at 115.2 kbps

#### RS-422

Maximum cable length with 0,5mm<sup>2</sup> : 100m at 115.2 kbps

### 8.4 NMEA Interface(Not in use)

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 : - 6,8 dBK  
 EIRP : Maximum +25 dBW  
 Minimum +5 dBW.

#### 10.2.2 Antenna

Antenna Gain : 16 dBi  
 Beam with (at 3dB) : 20°  
 Size : Flat Antenna (19 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 64 kbps SCPC : 40 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 64 kbps operation : 16QAM  
 Modulation during MPDS operation : 16QAM  
 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 <sup>2</sup> )

## 11. ENVIRONMENTAL PARAMETERS

Nera F55 Antenna Pedestal complies with environmental requirements defined in IEC 60945

### Protection

Above Deck Unit	:	IP66
MCU & Handset	:	IP30.

<u>Storage temperature</u>	:	-30°C - +70°C
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### 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 <sup>2</sup> ,
Ultra violet:	:	54 W/m <sup>2</sup> ,
Visible:	:	1150 W/m <sup>2</sup>
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