



RHO

Elektronik GmbH

THETA

4-Band Precision Direction Finder

RT-500-M



To locate and decode
Cospas-Sarsat
signals on 406 MHz

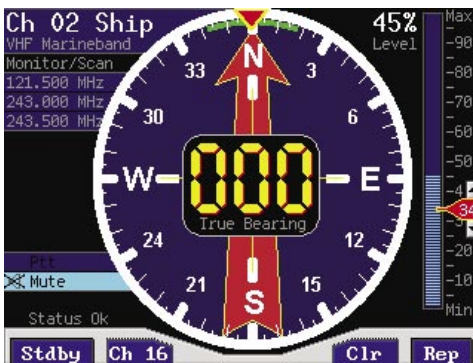


The RT-500-M is a complete direction-finding solution for professional SAR applications at sea. This universal multi-band direction finder operates on four frequency bands and automatically monitors not only civilian bands (121.5 MHz, channel 16) but also military emergency frequencies (243 MHz). The RT-500-M can receive Cospas-Sarsat signals (406 MHz), provide the bearing

of the source and display the content. The brilliant TFT display conveniently displays bearing information and operating parameters. The control unit and the antenna are designed for use in heavy seas. In addition, the RT-500-M is also ideal for stationary landside applications, e.g., vessel traffic services.

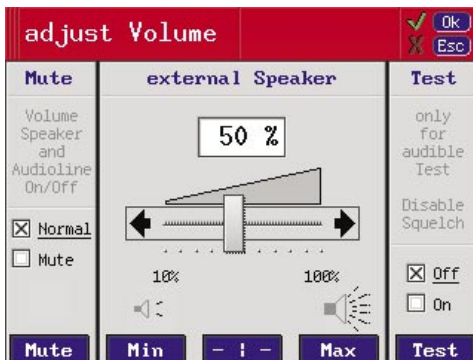
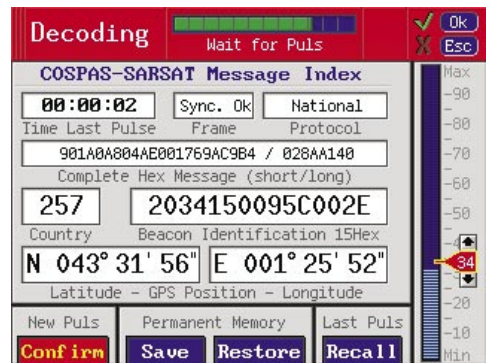
Features

- Extended range due to high reception sensitivity
- High bearing accuracy
- 88 marine and coastal radio channels (156.000 to 162.025 MHz)
- VHF emergency frequency 121.500 MHz and freely selectable training frequencies (118.000 to 122.975 MHz)
- UHF emergency frequency 243.000 MHz and freely selectable training frequencies (240.000 to 245.975 MHz)
- Cospas-Sarsat signals and freely selectable training frequencies (400.000 to 409.975 MHz)
- Display of the Cospas-Sarsat messages
- Clear and brilliant colour TFT display (450 cd/m²)
- Conveniently arranged controls with key and menu functions
- Display of the relative bearing or true bearing
- Automatic monitoring of all emergency frequencies
- Selective alarm only upon recognition of distress signal
- Slave indicator with all operating and display functions
- Antenna system and display control unit with IP 67 protection rating
- Full compatibility with NMEA, RS-232 and LAN interface
- Short response time due to high antenna rotation frequency
- Extremely compact and robust antenna system
- Easy installation, no RF cable connection required



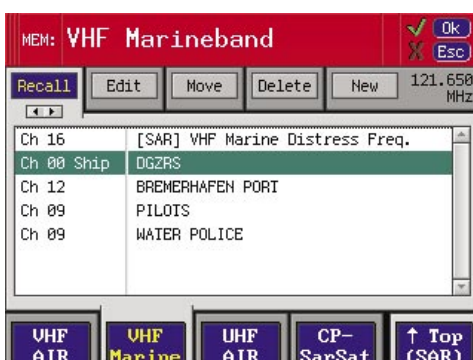
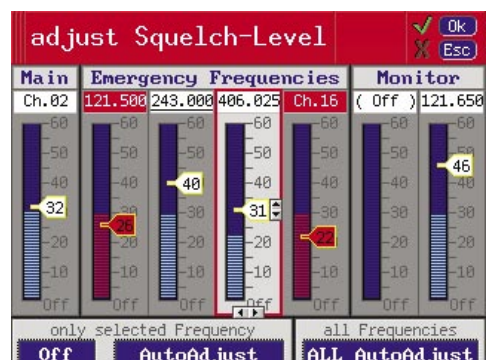
◀ Convenient display of all important information in direction-finding mode.

▶ Decoding of Cospas-Sarsat data signal. Information such as beacon ID and GPS position is displayed immediately upon reception.



◀ Fast, simple and intuitive adjustment of frequently required parameters.

▶ Own display and possibility of adjusting all active squelch levels for maximum sensitivity on all frequency bands.



◀ Identification of frequently used channels and frequencies for maximum operating convenience with possibility of entering individual texts.



Technical data

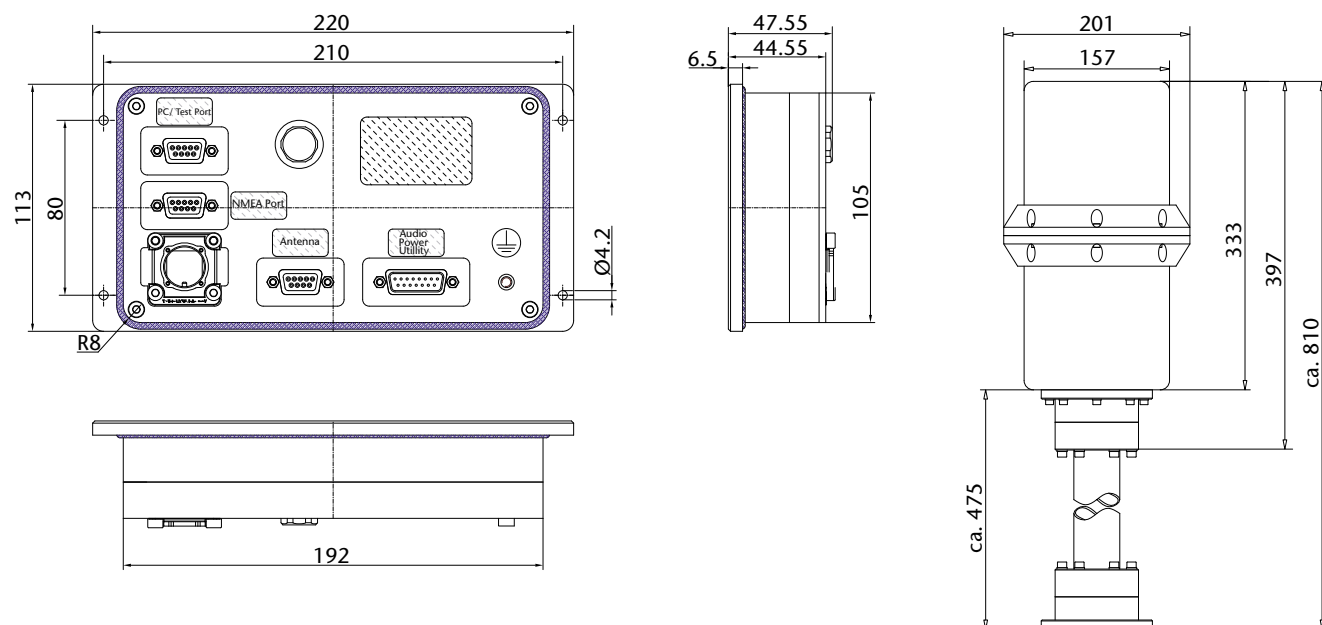
Method of bearing:	Doppler principle (3 kHz rotational frequency, right / left rotation)
Bearing indication:	Relative bearing and true bearing (if external heading data available)
Bearing accuracy ¹ :	±5°
Internal resolution:	1°
Sensitivity:	RF voltage at receiver input (50 Ω): VHF, UHF: < 100 nV, Cospas-Sarsat: < 150 nV
Frequency stability:	±2.0 ppm ($\Delta f/f = \pm 2 \times 10^{-6}$) (in temperature range -30 °C to +80 °C)
Reception bands:	4 (VHF air band, VHF marine band, UHF air band, Cospas-Sarsat)
Reception frequencies, frequency ranges:	VHF air band: 118.000 to 121.500 to 122.975 MHz VHF marine band: 156.000 to 156.800 to 162.025 MHz (channels 0 to 28 / 60 to 88 / sea + coast) UHF air band: 240.000 to 243.000 to 245.975 MHz Cospas-Sarsat: 406.022 to 406.076 MHz (channels A to S)
Channel pattern:	25 kHz (depends on frequency band)
Scanning / Monitoring mode:	Monitoring: Four additional frequencies (emergency frequencies 121.500 MHz, 243.000 MHz and two free selectable frequencies) are monitored during normal operation. Standby: The Cospas/Sarsat and one free selectable frequency is monitored at all times in standby mode.
Signal filtering:	Optional, all emergency frequencies can be filtered for ELT modulation (false alarms disabled).
Cospas-Sarsat analysis:	Reception and analysis of Cospas-Sarsat data signal (112 or 144 bit, 400 baud, biphasic L-phase modulated, with Bose-Chaudhuri-Hocquenghem error test, specified according Cospas-Sarsat C/S T.001 October 1999) Indication of data content (mode, country, GPS coordinates)
Bearable modulation:	A3E, F3E, A3X (PLB modulation), bearing largely independent of modulation.
Polarization:	Vertical
Polarization error:	≤ 5° at 60° field vector rotation
Garbling cone:	approx. 30° to the vertical
Response time ² :	≤ 50 ms (with sufficient reception field strength)
Keyboard:	Foil on the front with integrated keyboard matrix and EL background illumination
TFT display:	320 x 240 pixels with max. brightness of approx. 450 cd/m ² , continuously variable brightness
Operating voltage:	12 V to 30 V DC
Current consumption:	Max. 2.5 A
Audio out:	External speaker 4 W (4 Ω, 8 Ω) Line out (adjustable from 100 mV pp to 2000 mV pp)
Interfaces:	NMEA I/O (RS-422 and RS-232) Ethernet LAN Test port (RS-232) optional customer-specific Alarm relay output (1.0 A, 30 V DC / 0.3 A, 125 V AC) PTT input for self-bearing suppression Squelch output for external audio control

¹ With undisturbed wave field and sufficient field strength. Measured by changing the angle of incidence with the antenna rotating on a revolving table in order to eliminate environmental influences on the results.

² Very weak signals can increase response time considerably!

Mechanical characteristics of Display Control Unit (DCU)

Weight:	Approx. 1200 g
Operating temperature:	-20 °C to +60 °C
Storage temperature:	-40 °C to +80 °C
Ingress protection:	IP 67



Mechanical characteristics of Antenna Unit (AU)

Weight:	Approx. 5200 g
Operating temperature:	-40 °C to +60 °C
Storage temperature:	-55 °C to +80 °C
Ingress protection:	IP 67

All product specifications subject to change without notice.

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