

Wideband Radio Direction Finder RT-800

The compact solution for
VTS coastal surveillance, mobile ATC
stations and SAR purposes



The Leader in DF

The product

The RT-800 is a radio direction finder for stationary coast surveillance and identification of ships transmitting on the VHF radio band.

The bearing information from transmitters can be correlated with the corresponding radar target and AIS-position information at a VTS / (Vessel Traffic Service) center.

Two or more RT-800 systems on different locations can be used to locate a ship's exact position by triangulation.

The RT-800 is also a perfect solution for mobile ATC stations. This direction finder can operate on frequency bands as follows:

- Civil VHF air band from 118 to 137 MHz
- Extended Marine VHF band from 137 to 225 MHz
- Military air band from 225 to 400 MHz
- All 19 COSPAS-SARSAT frequencies between 406.022 to 406.076 MHz
- UHF FM band from 406.100 to 470.000 MHz



DCU bearing display and examples of different pages





RT-800

All features at a glance

- Best price-performance ratio
- Decoding of transmissions on all 19 COSPAS-SARSAT channels
- Bearing of the COSPAS SARSAT signal on all 19 channels
- Full manual operational functionality at installation site for calibration and service
- Fast frequency monitoring by scanning of up to 8 frequencies
- Easy and reasonably priced installation as no patched HF antenna cable has to be used
- Effective remote operation via LAN / Ethernet or RS-232
- Extreme compact, rugged and lightweight DF antenna for easy installation and use in maritime weather conditions
- Maintenance-free due to no moving parts
- Lightning protection rod

The Leader in DF

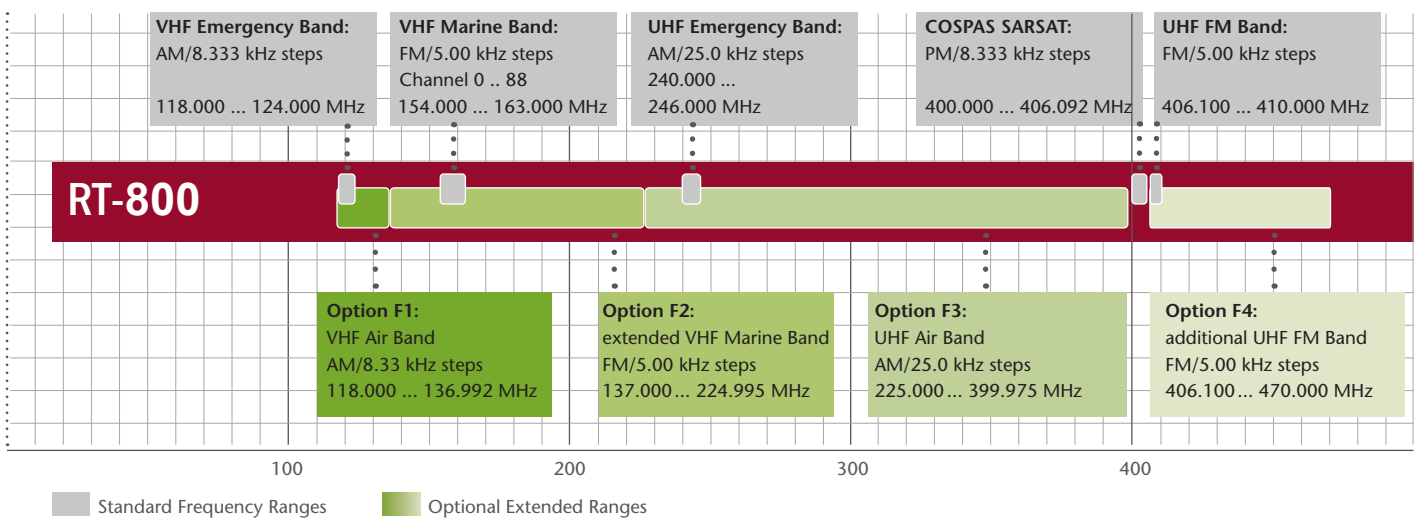
Technical data

| | | | |
|-------------------------------------|--|---|--|
| Method of bearing: | Doppler principle | | |
| Bearing accuracy1: | 2°RMS | | |
| Internal resolution: | 1° | | |
| Frequencies range1: | VHF Air Band | 118.000 to 124.000 MHz 118.000 to 136.992 MHz (Option) | |
| | Marine Band | 154.000 to 163.000 MHz 137.000 to 224.995 MHz (Option) | |
| | UHF Air Band | 240.000 to 246.000 MHz 225.000 to 399.975 MHz (Option) | |
| | COSPAS-SARSAT | 400.000 to 406.092 MHz | |
| | UHF FM-Band | 406.100 to 410.000 MHz 406.000 to 470.000 MHz (Option) | |
| Frequency stability: | ±2.0 ppm | | |
| Receiving frequencies tuning steps: | VHF Air Band | 8.33 kHz | |
| | Marine Band | 5 kHz | |
| | UHF Air Band | 25 kHz | |
| | COSPAS-SARSAT | 8.33 kHz | |
| | UHF FM-Band | 5 kHz | |
| Bearing sensitivity: | Air Band | ±5° bearing fluctuation: ≤ 4 µV/m / 2.5 µV/m (typical) | |
| | Marine Band | ±5° bearing fluctuation: ≤ 3 µV/m / 2 µV/m (typical) | |
| | UHF Air Band | ±5° bearing fluctuation: ≤ 6 µV/m / 4 µV/m (typical) | |
| | COSPAS-SARSAT | ±5° bearing fluctuation: ≤ 6 µV/m / 4 µV/m (typical) | |
| | UHF FM-Band | ±5° bearing fluctuation: ≤ 6 µV/m / 4 µV/m (typical) | |
| Marine channels: | Channel 0 ... 28 / 60 ... 88 (ship / coast stations) | | |
| COSPAS-SARSAT freq.: | 19 Channel A to S (406.022 to 406.076 MHz) | | |
| COSPAS-SARSAT fast scan | Full automatic detection of any active COSPAS-SARSAT channel A to S within 400 ms | | |
| COSPAS-SARSAT decoding: | Reception and decoding of COSPAS-SARSAT data signal (112 or 144 bit, 400 baud, biphasic L encoded, phase modulation, with Bose-Chaudhuri-Hocquenghem error-correcting code, specified according to COSPAS-SARSAT) | | |
| Monitoring / Scanning modes: | <p>Monitoring</p> <ul style="list-style-type: none"> - 121.5 MHz and three selectable frequencies are monitored during normal operation. <p>Standby:</p> <ul style="list-style-type: none"> - COSPAS-SARSAT and 121.5 MHz emergency frequencies are monitored. <p>Fast Marine Ship Band Scan:</p> <ul style="list-style-type: none"> - Fast scan (without gap) of all ship channels [01 ... 88] within approx. 3 sec. <p>Fast Channel Scan:</p> <ul style="list-style-type: none"> - Fast scan of up to eight freely selectable frequencies / channels within approx. 2 sec. | | |

Technical data

| | |
|----------------------|--|
| Signal filtering: | Frequencies can be filtered for distress signal modulation (false alarms disabled) A3E, |
| Bearable modulation: | F3E, A3X (Distress signal modulation), F1 D, G2D, COSPAS-SARSAT Bearing largely independent of modulation |
| Polarization: | Vertical |
| Polarization error: | ≤ 5° at 60° field vector rotation |
| Cone of silence: | 30° to the vertical |
| Response time: | ≤ 50 ms (with sufficient reception field strength) |
| TFT graphic display: | 800 x 480 pixel (max. brightness 950 cd/m ² , continuously / automatic control) |
| Power supply: | 115 to 230 VAC ± 10 % / 50 to 60 Hz |
| Power consumption: | Nominal 30 W @ 230 VAC |
| Audio out: | Internal speaker 4 W Line out (adjustable from 100 mVPP to 2000 mVPP) |
| Interface: | Ethernet Interface for complete remote control (NMEA Protocol: Input / Output) Ethernet Interface for IP streaming audio out RS232 (NMEA Protocol: Input / Output) PTT input (for ground transmitter suppression) Alarm Relay Output Input for optional external GPS (RS422) |
| Options: | Software "DF Commander" Lightning Protection Rod UTC time base |

Frequency options



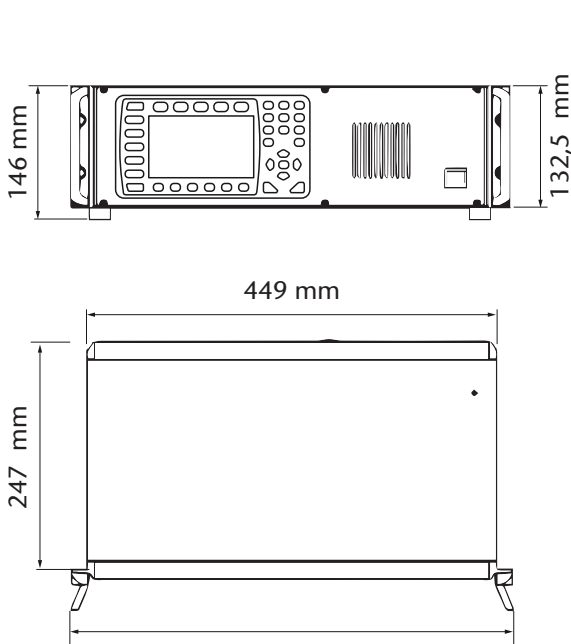
¹ With undisturbed wave field and sufficient field strength. Measured by changing the angle of incidence with the antenna rotating on a revolving table in order to eliminate environment influences on the result.

² Very weak signals can increase response time considerably!

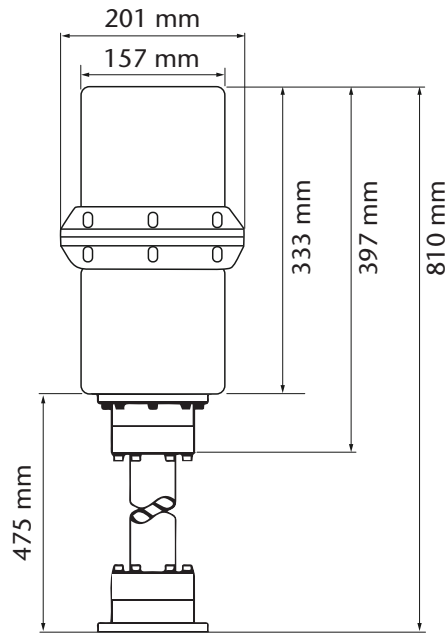
Mechanical characteristics

| | Display Control Unit (DCU) | Antenna Unit (AU) |
|------------------------|----------------------------|--------------------|
| Weight: | 5.9 kg | 5.2 kg |
| Storage temperature: | - 30 °C to + 80 °C | - 55 °C to + 80 °C |
| Operating temperature: | -20 °C to + 60 °C | - 40 °C to + 60 °C |
| Ingress protection: | | IP 67 |

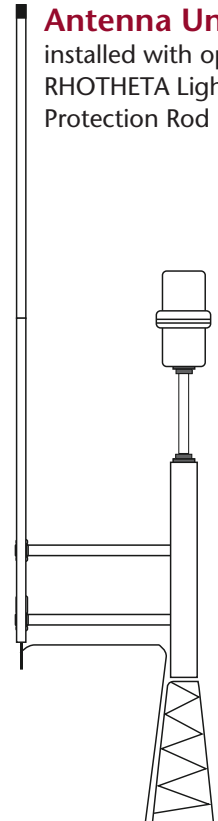
Display Control Unit



Antenna Unit



Antenna Unit installed with optional RHOETHETA Lightning Protection Rod



All product specifications subject to change without notice.

Rev 2.01.b



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