

MIROS WAVESYSTEM A COMPREHENSIVE MONITORING SYSTEM FOR VESSELS & INSTALLATIONS PROVIDING DRAUGHT, DIRECTIONAL WAVE & SURFACE CURRENT DATA



The Miros WaveSystem is designed to provide accurate wave, current and draught data for weather-critical marine operations. The system provides real-time measurements of the local sea state and, combined with the Miros Cloud solution, allows the user to gain a overview of the sea and environment challenges.

The data can anytime be securely accessed allowing quick decision-making and enhancing safety and efficiency in the daily operations. WaveSystem can be equipped with a Motion Reference Unit for use on vessels, FPSOs, or other floating assets.

Miros sensors are completely dry-mounted, with no parts submerged in water, meaning they benefit from much more efficient and simpler installation and maintenance procedures as compared to traditional, in-water instrumentation.

KEY FEATURES

- Real-time sea state and draught data
- Easy data access, locally or remotely
- No parts submerged in water
- Low maintenance costs

ESSENTIAL FOR

- Weather-critical marine operations
- Lifting & jacking operations
- Wind turbine installation and overhaul
- Structural integrity verification

- Directional wave and surface current data
- Embedded data processing
- Integrates with third-party systems
- IoT-enabled for easy data access
- DNV alpha-factor approved accuracy
- Cable & pipelay campaigns
- Diving support operations
- ROV launch & recovery







The Miros WaveSystem combines measurements from two different sensors – the X-band radar-based Miros Wavex and the downward-looking, DNV alpha-factor approved Miros RangeFinder.

SPECIFICATIONS

Data Wavex Range Resolution Std. Dev. Wave Height 0 - 5 m 0.1 m 0.2 m 5 - 10 m 0.1 m 6 % 10 - 15 m 0.1 m 20 % Wave Period 3.2 - 5.0 s 0.1 s 0.5 s 5.0 - 13.0 s 0.1 s 10 % 13.0 - 25.3 s 20 % 0.1 s 0 - 360° 20°, 2° Direction 10 **Data RangeFinder** Range Resolution Accuracy 1 - 93 m 01m Height 1 cm 2 - 64 s 0.1 s 0.1 s Period 1 - 95 m 0.01 m < 5 mm Airgap Draught Variable¹ 0.01 m < 5 cm **Surface Current Data** 0.05 m/s Speed $0 - 5 \, m/s$ 0.01 m/s 0 - 360° Direction 10 10° **Speed Through Water** Speed 0.01 m/s 0.05 m/s anv 0 - 360° Direction 10 **Data Integration Options** Local LAN and Serial NMEA, proprietary formats Remote JSON and CSV format from Miros Cloud

Input Interfaces

Heading² Position² Draught Wind Date/Time NMEA - HDT NMEA - GGA/GLL NMEA - XDR, or Modbus NMEA - MWV NMEA - ZDA or NTP Through robust, accurate and adaptive algorithms the Wavex calculates directional wave and surface current data. It will interface with a variety of X-band radars, including a set of IP radars, without interfering with, or affecting the navigation system. Wavex requires at least 1-3 m/s wind. Heavy precipitation will affect data capture rate.

The downward looking SM-140 RangeFinder is used for calculating non-directional wave data, water level and draught to high accuracy and operates independently of wind and rain conditions

The devices can be complemented with various value adding Cloud services from Miros, such as weather sensors integration, web displays, data download, data push and device management services.



2° or less (4 feet or more)

15 - 100 m above sea level ³

Short pulse (50 - 80 ns)

Raw video, sync, heading

100 - 250 VAC, 50/60 Hz

IEC60945, IMO Res A694(17)

IEC61162-1, IEC61162-450

12 - 36 VDC (Nominal 24 VDC)

marker and azimuth

1000 Hz or higher

10 kW or more

Horizontal⁴

< 7 W

< 200 W

LVD, EMC

ATEX, IEC Ex

15 - 48 RPM

X-Band Radar Interface

Ant. Beam Width Ant. Rot. Speed Ant. Mount. Height Pulse Mode Pulse Rep. Freq. Output Power Radar Signals

Antenna Polarization

Electrical Data RangeFinder

Supply Voltage Power Consumption

Electrical Data Wavex

Supply Voltage Power Consumption

Compliance

EU Directives Environmental Data Communication Interfaces Zone 1

Notes

- . The draught range is a function of the sensors range and mounting height above draught reference line.
- 2. Required for moving installations.
- 3. Lower antenna heights are possible depending on site and desired wave height range.
- Other polarizations should have similar or better performance, subject to further verification.

For data accuracy resolution refer to the resource section on the Miros website.

Specifications are subject to change without prior notice.



www.miros-group.com