

MIROS WAVE & CURRENT RADAR

ACCURATE MEASUREMENTS OF DIRECTIONAL WAVE SPECTRA & SURFACE CURRENTS

DATASHEET



The Miros Wave & Current Radar is a unique high-performance remote sensor for the measurement of directional wave spectra and surface currents. It is the only sensor which utilises dual-footprint pulse Doppler method for wave measurements, and microwave dual frequency method for measuring surface currents.

The sensor enables data to be easily and securely accessed both locally and remotely using modern IoT technologies. The sensor provides excellent quality wave spectrum and wave parameter data. The accuracy of which has been verified in a number of independent comparisons.

The Miros Wave & Current Radar has proven its ruggedness and reliability through years of service in extreme weather conditions, including heavy precipitation, all over the world.

KEY FEATURES

- Easy data access, locally and remotely
- No parts submerged in water
- Low maintenance costs
- For fixed or floating installations
- Not impacted by fog, rain or mist
- Browser-based user interface
- Embedded data processing and web server

ESSENTIAL FOR

- Real-time sea state and surface current monitoring
- Weather-critical maritime operations
- Structure integrity verification
- Collection of in-situ data, on- or offshore
- Strengthening of forecasts



The Miros Wave & Current Radar observes the ocean surface in a semi-circle at a distance of 180 - 450 m depending on the installation height, typically 18 - 80 m.

The radar frequency gives a strong echo from capillary waves which are normally present at wind speeds > 2 m/s.

SPECIFICATIONS

Directional Spectra	Bins	Range	Resolution
Directions	36	-	10°
Frequencies	37	0.03 - 0.3 Hz	0.0078 Hz

Waves	Range	Resolution	Accuracy
Height	0 - 4 m	0.1 m	±0.2 m
	4 - 30 m	0.1 m	±5 %
Period	3 - 30 s	0.1 s	±5 %
Direction	1 - 360°	1°	±7°
Update Interval 2,5min. Averaging time 45 min. default			

Surface Currents	Range	Resolution	Accuracy
Speed	0 - 2.5 m/s	0.01 m/s	±0.05 m/s
Direction	1 - 360°	1°	±7°
Update Interval 15min. Averaging time 90 min. default			

Interfaces	
Standard interface:	TCP/IP over CAT5e STP

Displays/GUI	
Data, Status, Configuration	Web GUI

Output Interfaces	
Sensor Data:	NMEA, proprietary formats JSON over HTTP and Cloud

Status:	JSON over HTTP and Cloud
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Input Interfaces	
Heading	NMEA - HDT
Position:	NMEA - GGA/GLL
Date/Time:	NTP

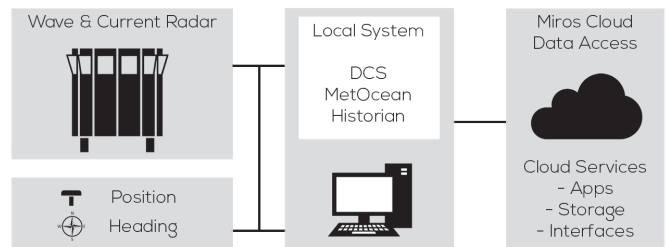
Electrical Data	
Frequency of Operation:	5.8 GHz pulse
Bandwidth:	20 MHz
Transmitted Power:	275 mW average (10 W peak)
Supply Voltage:	110 VAC or 230 VAC ±10 %
Power Consumption:	SM-050/04/SF: 85 W SM-050/04/TM: 365 W
RED:	2014/53/EU

Water particle velocity is measured by use of the Pulse-Doppler technique and provides accurate measurements even in the harshest weather conditions.

The Miros Wave & Current Radar is a modern IoT-enabled device that can easily and securely integrate with both local and remote systems.

The device can also be complemented with various value adding Cloud services from Miros, such as web displays, database integration, data processing and device management services.

Cloud integration enables all relevant stakeholders to securely access critical data simultaneously, allowing for a shared situational awareness, supporting decision-making in real time as conditions develop.



Environmental Specifications

Temperature:	-15°C (-25°C) ¹ to +40°C (+50°C) ²
Humidity:	0 - 100 %RH
Ingress Protection:	IP 66

Physical Specifications

Dimensions (HxWxD):	860 x 897 x 696 [mm] 870 x 1100 x 980 [mm] ²
Weight:	47 kg (69 kg) ²
Material:	Al. EN AW 5052-H32
Finish/Colour:	Enameled / Grey RAL 7035

Versions

SM-050/04/SF	S = Standard temp. range
SM-050/04/SM	F = Fixed installation ³
SM-050/04/TF	M = Floating installation
SM-050/04/TM	T = Tropical temp. range ²

Accessories & Options

Cloud services	See Miros Cloud datasheet
MP-309/03	Pedestal
MP-294/03	Shock absorber
SM-050/04/xxA	Alternative frequency ¹
Tbd	Built-in Ethernet SHDSL Extender, for extended cable distance to several km

Notes

- On request, contact Miros for details
- Tropical version with sun shield and cooling door (versions SM-050/04/TF) required when temperature exceeds 40°C
- The radar is designed for stationary use. Reasonable measurements may be obtained during transit at speeds of 6-8 knots
- Web GUI with real-time and historical wave and current data, operational alarms, sensor status and sensor configuration.

Specifications are subject to change without prior notice.