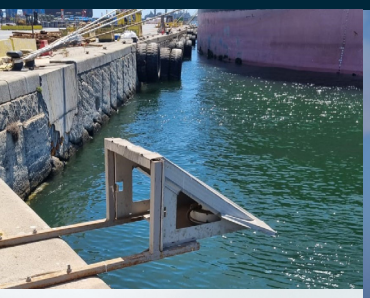
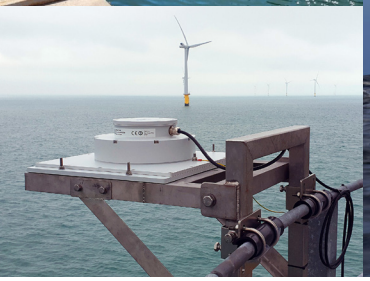
MIROS RANGEFINDER

THE ULTIMATE STAND-ALONE SENSOR FOR AIR GAP, TIDE, WATER LEVEL, DRAUGHT AND WAVE MEASUREMENTS





DATASHEET

The Miros RangeFinder is a dry-mounted, radar-based sensor providing accurate and real-time measurement of water level, tide, non-directional wave parameters and air gap.

Offering market-leading, verified data accuracy, the real-time measurements can be accessed directly from the instrument via a web browser or integrated with 3rd party systems. Real-time and historical data can be accessed anywhere, anytime and on any device via the integrated Miros Cloud service, allowing for easy and secure collaboration between different stakeholders.

The versatile RangeFinder is available with two antenna alternatives (10° and 5° beam) to suit different applications and measurement ranges from 1-95 m. The sensor is Power-over-Ethernet (PoE) enabled, easy to install and use.

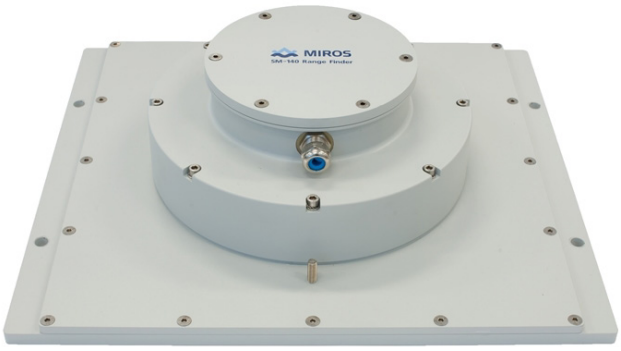
KEY FEATURES

- High sampling rate and accuracy
- Embedded data processing
- Integrates with third-party systems
- Real-time data access locally or remotely
- Not impacted by fog or moisture
- No parts submerged in water
- DNV alpha factor approved wave-monitoring instrument
- Web-based user interface
- Available with motion compensation for vessel installation
- Available as Ex-approved variant
- Low maintenance cost

ESSENTIAL FOR

- Accurate air gap, water level, draught, and non-directional wave measurements for both fixed and floating locations.
- Real-time sea state monitoring
- Hull monitoring
- Long-term asset integrity assessments
- Increase productivity in weather-critical maritime operations
- Improve safety and efficiency of offshore operations
- Incident analysis and environment specifications
- Tide gauge according to WMO TD 1339

Miros Cloud dashboard example, public site on miros.app.



Miros RangeFinder SM-140/N

The RangeFinder is an IoT-enabled device with embedded processing, network connected enabling easy and secure data access, whether integrated with local or remote systems.

It can also be complimented with various value-adding cloud services from Miros, such as data applications, web displays, additional sensor data integration, data storage and device management.

SPECIFICATIONS

Data	**Range** [1]	**Resolution**	**Accuracy**[2]
Distance (Air Gap):			
SM-140/Narrow:	3 - 95 m	1 mm	< 5 mm [2]
SM-140/Wide:	1 - 23 m		
Wave Height:		1 cm	< 1 cm
Wave Period:	0.5 - 128 s	0.1 s	0.1 s
Internal Sampling Rate: 50 - 200 Hz, depending on range			

Physical interfaces

Standard interface:	CAT5 STP

Integration options

Local:	NMEA (proprietary formats)
Remote:	JSON & CSV format from Miros Cloud
Data Output Rate (local):	Up to 50 Hz
Data Output Rate Miros Cloud:	Up to 10 Hz for air gap

Input Interfaces

Date/Time:	NTP

Displays/UI

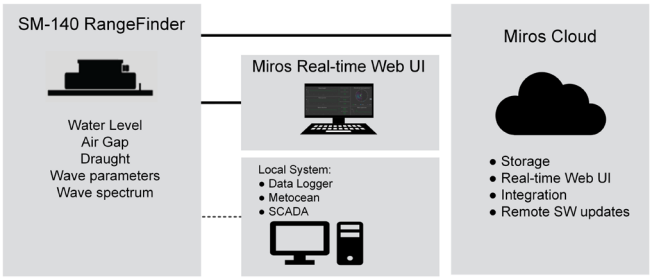
Data, Status, Configuration	Web-based UI

Electrical Data

Frequency of Operation:	9.4 - 9.8 GHz, Triangular FM
Transmitted Power:	2 dBm ± 3 dB (Nominal 1,6mW
Beam Width:	5° and 10°(-3dB one way)
Supply Voltage:	IEEE PoE Standard 802.3bt
Power consumption:	< 7 W
EMC	2014/30/EU

Environmental Specifications

Temperature:	-30°C to +50°C
Humidity:	0 – 100 %RH
Ingress Protection:	IP 67



Physical Specifications

Type:	SM-140/N	SM-140/W
Dimensions (mm):	136 H x 500 W x 440 D	122 H x 340 Ø
Weight (kg):	11.8	10
Material:	Al. EN AW 5052 / EN AW 6082	
Finish/Colour:	Enameled / Grey RAL 7035	

Versions [3]

SM-140/N/04:	Range 3 - 95 m
SM-140/W/04:	Range 1 - 23 m
SM-140/x/04/M:	Floating installations
SM-140/Ex:	Ex-approved variant
	See Miros RangeFinder Ex datasheet

Accessories

MP-327:	Mounting Bracket
101720:	Juntion Box
Cloud Services:	Contact Miros for details

Notes

1. Wave point spectrum (range 0,0039 – 2 Hz, 0.0039 Hz resolution).
   A selection of wave parameters from the wave spectrum.
   Wave parameters from time-series analysis (8Hz sampling for 256sec)
2. The accuracy (standard deviation) of water level and wave variables is mainly determined by the sea surface statistics, site specific properties, sensor mounting height and data integration time. Typical accuracy for averaged measurement is ± 5mm. For measurements to a fixed target in a controlled environment, the accuracy is ± 1mm.
3. Sensor version selection is site specific based on factors such as: installation type, sensor elevation above the sea and general sea-state behavior. For more information, please contact Miros.

Specifications are subject to change without prior notice.