WaveGuide 5 Direction Onboard 2

The next level of our innovative wave radars: measuring waves, directly from a floating structure. A motion compensated version of the unique directional system. It accurately measures wave direction, wave height, wave period and draught. No water contact, no maintenance and no (re-) calibration. Zero hassle.

The WaveGuide 5 Direction Onboard 2 is an easy to use, reliable and robust device to measure draught, wave direction, wave height and wave period. The sensor is capable of maintaining a high level of precision and accuracy in harsh environmental conditions and is particularly suited to floating offshore installations such as floating turbines, semi-subs, FPSO's and other offshore vessels.

Key features

- Highly accurate
- Maintenance free
- Easy installation
- Integrated heave, pitch and roll compensation
- Measuring at 10 Hz
- 0 - 360° wave direction
- 0 - 60 m wave height
- Network connected
- Up to 5 years of internal data storage

Using a triangular array of three radars, the system measures sea surface elevation at three distinct points to calculate the full set of wave directional parameters. An integrated, high-precision motion sensor compensates for heave, pitch, and roll in real time. By default, wave direction is calculated relative to the vessel's heading using a fixed offset. Alternatively, connecting an NMEA heading input enables real-time calculation relative to True North.

Each radar measures the distance to the water surface 10 times per second. The wave data is sent to the processing unit via a network link. The processing unit facilitates data acquisition, data processing, data presentation and remote servicing. Data can be locally stored on an external USB drive, or distributed through two serial ports as well as over the network. Any device connected to the (private) network can access the web-based user interface.

We are Radac
Technology leader in radar-based wave measurement

RADAC

Since 1996, our Dutch company have developed unique sensors to monitor the ocean surface. Because our wave radars operate without water contact, moving parts, or calibration requirements, they are virtually maintenance-free. This allows us to deliver reliable, high-value systems that keep operational costs to a minimum. Our systems are trusted industry-wide, serving offshore wind operators, oil companies, port authorities, and shipping companies worldwide.

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WaveGuide 5 Direction Onboard 2

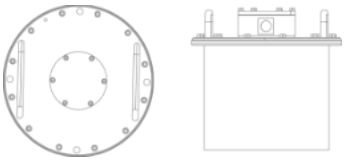
WG5 series

Specifications

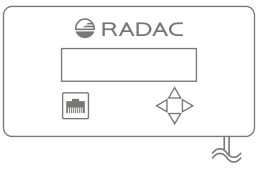
Heave	Range:	2 - 75 m to surface
	Accuracy:	± 1 cm [1]
	Frequency:	10 Hz
Vessel draft level	Accuracy:	± 1 cm [2] [3]
	Processing:	10 min average (optional 1 min and 5 min)
	Interval:	1 min
Wave height	Range:	0 - 60 m
	Accuracy:	± 3 cm [3]
	Processing:	SWAP [4] (per 20 min data block)
	Interval:	1 min
Wave period [5]	Range:	1 - 25 s
	Accuracy:	± 50 ms [3]
	Processing:	SWAP [4] (per 20 min data block)
	Interval:	1 min
Wave direction [6]	Range:	0 - 360°
	Accuracy:	± 2° [3]
	Processing:	SWAP [4] (per 20 min data block)
	Interval:	1 min
Limitations	Max. roll:	15 degrees
	Max. pitch:	15 degrees
	Max. heading change rate:	10 degrees per 20 minutes

COMPACT VERSION: WG5-DO2-CP (includes 3 radars + 1 processing unit)

Specifications per radar



Mechanical	Dimensions:	ø 265 x 245 mm
	Weight:	12.5 kg
	Material:	Stainless steel, AISI 316L
Electrical	Power consumption:	24 - 65 VDC, 65 - 240 Vac, 12 W
	Frequency:	10 GHz (X-band)
	Modulation:	Triangular FMCW
	Emission:	0.1 mW max. (Far below acceptable limits for exposure to the human body)
Environmental	Temperature:	-40 °C to 45 °C
	Humidity:	0 - 100 %
	Ingress Protection:	IP67
Motion sensor	Range:	± 4 g
	Roll & Pitch:	0,02 degrees
Processing unit	Dimensions:	170 x 172 x 85 mm (d x w x h)(19" rack mounting available)
	Com ports:	2x RS232
	Network:	3x Ethernet
	Subscriptions:	MQTT, UDP
	USB:	2x USB 2.0
	Power consumption:	24 - 48 VDC, 4.8 W
	Temperature:	-20 °C to 65 °C



1) Valid for a still water surface.
2) For a water surface with waves.
3) The accuracy of the wave parameters is not limited by the radar sensor, yet it is defined by the stochastic nature of sea-surface measurements.
4) SWAP is the Standard Wave Analysis Program, in accordance with the applied standards of the Dutch Ministry of Infrastructure and Environment and of the International Association of Oil and Gas producers.
5) The wave period is not compensated for the horizontal motion. Hence, for a moving vessel, the sensor measures the wave period as encountered by the vessel.
6) Wave direction is given with respect to the vessel heading. Alternatively, connecting an NMEA heading input enables real-time calculation relative to True North.