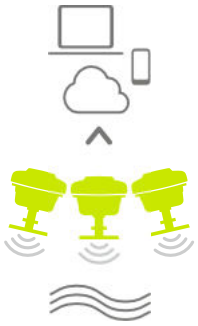
WaveGuide 5 Direction

Our flag ship wave radar. A truly unique system, as Radac is the only company who brings this technology to the market. It accurately measures wave direction, wave height, wave period and tide. No water contact, no maintenance and no (re-) calibration. Zero hassle.

The WaveGuide 5 Direction is an easy to use, reliable and robust device to measure tide, wave direction, wave height and wave period. The sensor is capable of maintaining high level of precision and accuracy in harsh environmental conditions and is particularly suited to marine and offshore installations.

Key features

- Highly accurate
- Maintenance free
- Easy installation
- Severe conditions proof
- Optional ATEX / IECEx
- Measuring at 10 Hz
- 0 - 360° wave direction
- 0 - 60 m wave height
- Network connected



With an array of three radars, the elevation of the sea surface is measured at three positions. These positions form a virtual triangle at the water surface by pointing one radar perpendicularly downwards and tilt the other two. Knowing the slope of the water surface and the phase relations between the three positions, the wave direction can be calculated.
The radars measure the distance to the water surface 10 times per second. In all wind and wave conditions the accuracy for water level is proven to be below 1 cm. The wave data are sent to the processing unit via a network link. The processing unit facilitates data acquisition, data processing, data presentation and remote service. 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

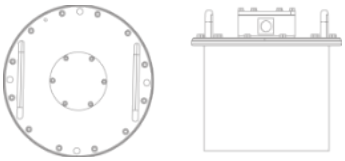
WG5 series

Specifications

Heave	Range:	2 - 75 m to surface
	Accuracy:	± 3 mm [1]
	Frequency:	10 Hz
Water 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:	± 1 cm [3]
	Processing:	SWAP [4] (per 20 min data block)
	Interval:	1 min
Wave period	Range:	1 - 100 s
	Accuracy:	± 50 ms [3]
	Processing:	SWAP [4] (per 20 min data block)
	Interval:	1 min
Wave direction	Range:	0 - 360°
	Accuracy:	± 2° [3]
	Processing:	SWAP [4] (per 20 min data block)
	Interval:	1 min

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

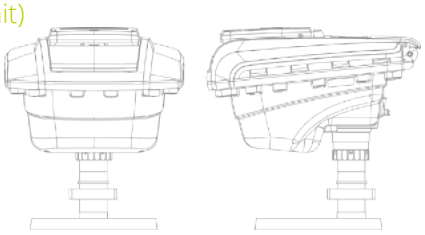
Specifications per radar



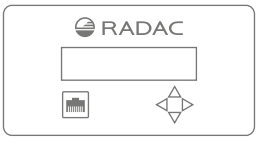
Mechanical	Dimensions:	ø 265 x 245 mm
	Weight:	12.5 kg
	Material:	Stainless steel, AISI 316L
Electrical	Power consumption:	24 - 65 VDC, 65 - 240 Vac, 8 W
	Frequency:	10 GHz (X-band)
	Modulation:	Triangular FMCW
	Emission:	0.1 mW max. (Far below acceptable limits for exposure to the human body)
Environmental	Temperature:	-40 °C to 65 °C
	Humidity:	0 - 100 %
	Ingress Protection:	IP67

EXPLOSION PROOF VERSION: WG5-DR-EX (includes 3 radars + 1 processing unit)

Specifications per radar



Mechanical	Dimensions:	217 x 319 x 379 mm (d x w x h)
	Weight:	14.4 kg (excl. antenna 2.8 kg)
	Material:	Chromatized aluminum
Electrical	Powerconsumption:	24 - 65 VDC, 65 - 240 Vac, 8 W
	Frequency:	10 GHz (X-band)
	Modulation:	Triangular FMCW
	Emission:	0.1 mWatt max. (Far below acceptable limits for exposure of the human body)
Environmental	Temperature:	-40 °C to 65 °C
	Humidity:	0 - 100 %
	Ingress Protection:	IP67
	Safety:	ATEX, II 1/2 G Ex db [ia Ga] IIB T6 Gb IECEx, Ex db [ia Ga] IIB T6 Gb
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.