



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. So no hassle.

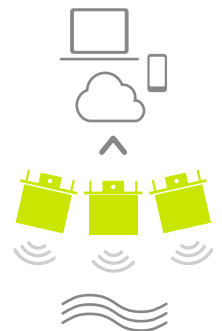
The WaveGuide 5 Direction Onboard 2 is an easy to use, reliable and robust device to measure draught, wave direction, wave height and wave period. The sensor is capable of maintaining a high level of precision and

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

- **NEW** Integrated heave, pitch and roll compensation
- Highly accurate
- Maintenance free
- Plug and play
- Measuring at 10 Hz

- 0 - 360° wave direction
- 0 - 60 m wave height
- Network connected
- Up to 5 years of internal data storage



With an array of three radars, the elevation of the sea surface is measured at three positions. The radars are mounted such that the footprints form a triangular shape on the water surface. Knowing the slope of the water surface allows the full set of wave directional parameters to be calculated. The distances measured are compensated for the heaving, pitching and rolling motion of the system thanks to a highly sensitive motion sensor that is incorporated into the system. The system allows setting a fixed directional offset, which means

that the wave direction is calculated with respect to the vessel reference frame.

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 measuring waves by radar

Since 1996, our Dutch company develops unique sensors to monitor the ocean surface. Without water contact, moving parts or need for calibration, the wave radar is a maintenance free device. This makes us, truly an Opex free, high value



system provider. We are proud that our professional systems are trusted across the industry. Our main clients include oil companies, offshore wind farm operators, port operators and shipping companies.

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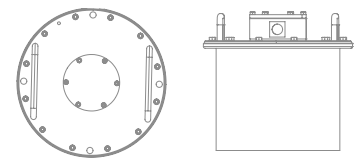
WG5 series

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	Range: 1 - 25 s Accuracy: ± 50 ms ³⁾ Processing: SWAP ⁴⁾ (per 20 min data block) Interval: 1 min
Wave direction	Range: 0 - 360° Accuracy: $\pm 2^\circ$ 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: 6 degrees per minute

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

Mechanical	Dimensions: \varnothing 265 x 245 mm Weight: 12.5 kg Material: Stainless steel, AISI 316L
Electrical	Power: 24 - 64 VDC, 65 - 240 Vac, 8 W (14W peak) 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 USB: 2x USB 2.0 Power: 24 - 48 VDC, 4.8 W Temperature: -20 °C to 65 °C Cooling: No fan required



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.