



# WAVEGUIDE ONBOARD

## WG5 SERIES

Remote monitoring of wave height, wave period and freeboard



The new WaveGuide is the latest and most technically advanced radar from Radac. This accurate wave monitoring system is an easy to use, reliable and robust device to measure freeboard, wave height and wave period. The new radar is capable of maintaining high level of precision and accuracy in harsh environmental conditions and is particularly suited to maritime use.

### KEY FEATURES

- 0 - 60 m wave height
- 1 - 100 s range wave period
- Vertical motion compensation
- Maintenance free
- Re-calibration is not required

### NEW FEATURES

- Measuring at 10 Hz
- Single unit system
- Network connected
- Up to 5 years of internal data storage

The Onboard wave radar, mostly installed on the bow of the ship, measures the distance to the water surface. The distances measured have to be compensated for the vertical motions of the radar itself. Hence, a motion sensor is incorporated into the radar unit. The WaveGuide Onboard measures the waves the ship actually has to endure.

The radar measures 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 radar itself facilitates data acquisition, data processing, data presentation and remote service. Data will be internally stored on the device and distributed over the network. Any device connected to the (private) network can access the web-based user interface.



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We are a Dutch company, based in Delft. Since 1996, we develop, manufacture and market the WaveGuide. 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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### PRELIMINARY SPECIFICATIONS

Heave	Range: 2 - 75 m to surface Accuracy: $\pm 1$ cm <sup>1)</sup> Frequency: 10 Hz
Vessel draft level	Accuracy: $\pm 1$ cm <sup>2) 3)</sup> Processing: 10 min average (optional 1 min and 5 min) Interval: 1 min
Wave height	Range: 0 - 60 m Accuracy: $\pm 3$ cm Processing: SWAP <sup>4)</sup> (per 20 min data block) Interval: 1 min
Wave period <sup>5)</sup>	Range: 1 - 100 s Accuracy: $\pm 50$ ms <sup>3)</sup> Processing: SWAP <sup>4)</sup> (per 20 min data block) Interval: 1 min

#### COMPACT VERSION: WG5-OB-CP

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 Frequency: 10 GHz (X-band) Modulation: Triangular FMCW Emission: 0.1 mW max. (Far below acceptable limits for exposure to the human body)
Environmental	Environmental: -40 °C to 65 °C Humidity: 0 - 100 % Ingress Protection: IP67
Motion sensor	Range: 8 g Nonlinearity: 0.05 % FS
Communication	Network: 1x Ethernet Data storage: SD 32 Gb Optional: External converter to RS232 or RS422 or RS485



- 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.

