



# Wave unit

Datawell - Oceanographic Instruments

## OEM wave measuring unit incorporating the Datawell DWR-MkIII sensor package

The Datawell Wave unit is an OEM version of the well-known Directional Waverider MkIII for measuring wave-motions in three directions. The unit gives out the real time heave, north and west displacements as well as common wave parameters like Hs and Tz and spectral data.

The Wave unit is built around Datawell's accurate and well-proven stabilized platform sensor, enabling wave height measurements by a single accelerometer. For the wave direction, direct pitch and roll measurements are performed needing no integration. In combination with horizontal accelerometers and a compass this forms the complete sensor unit, the heart of the Wave unit.

The Wave unit is essentially a DWR-MkIII Waverider buoy in an OEM package. It is meant to be integrated as a complete sensor package in oceanographic and meteorological buoys.

### Interface

The Wave unit is equipped with an RS-232 interface and a power converter. Both the power converter and the RS-232 interface are galvanically isolated for easy integration and overall robustness. The power converter is suitable to accept a wide input voltage range from 10V up to 30V DC.

The data format of the Wave unit is compatible with the format as sent out by a DWR-MkIII and can be used with the Waves5 software package. Alternatively, the data can be received, interpreted and forwarded by an embedded system.

### Installation

The Wave unit may not be exposed to sea water and must be installed in a water tight compartment. Also keep away any magnetic parts, since they will interfere with the magnetic compass measurements and affect the measured wave direction.





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## Specifications

<b>Heave</b>	Range	-20 m - + 20 m
	Resolution	1 cm
	Scale accuracy (gain error)	< 0.5% of measured value after calibration <1.0% of measured value after 3 year
	Period time*	1.6 s – 30 s
<b>Direction</b>	Range	0° - 360°
	Resolution	1.5°
	Heading error**	0.4° - 2° (depending on latitude) typical 0.5°
	Reference	Magnetic north
	Period time*	1.6 s – 30 s
<b>Interface</b>	Port	RS-232
	Format	Datawell hexadecimal format (displacements, wave parameters and spectral data)
	Data output rate	1.28 Hz (internal sampling 3.84 Hz)
<b>General</b>	Temperature range	operating -5 °C - +35 °C storage -5 °C - + 40 °C (+55 °C, short term, weeks only)
	Supply	10 V - 30 V DC, ≤400 mW protection against reverse polarity by a series diode
	Isolation	All inputs and outputs are galvanically isolated
	Size	Diameter approx. 410 mm Height over all approx. 560 mm
	Weight	approx. 36 Kg
	Material	housing stainless steel (AISI 316)

\* The actual high frequency cut-off point depends on the size of the buoyancy platform on which the wave unit is mounted

\*\* This specification assumes that the magnetic field is not disturbed by the presence of magnetic materials