



# Directional Waverider MkIII

Datawell - Oceanographic Instruments

## The Directional Waverider DWR-MkIII: Three years of continuous operation

The Directional Waverider hardly needs any introduction: it is the world's standard for measuring wave height and wave direction. Its success is due to the proprietary well-proven and accurate Datawell 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 instrument.

### The highlights:

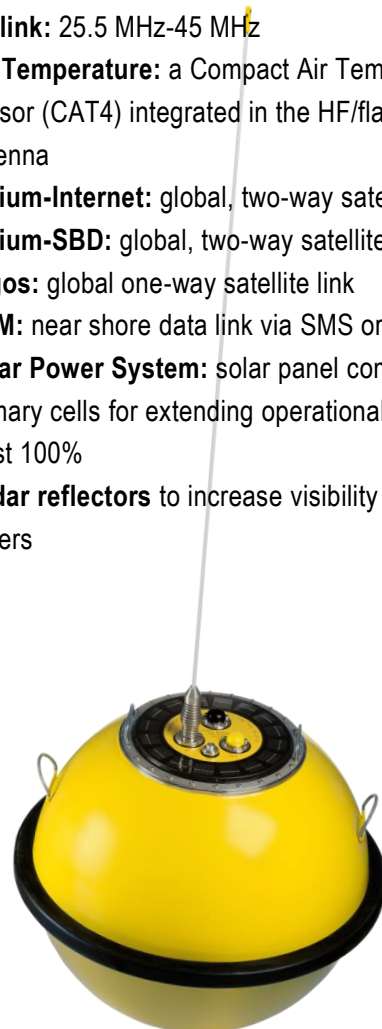
- **Real time** measurement of wave height with half-hourly heave and directional spectra updates.
- **HF link up to 50 km** over sea. The proprietary Datawell HF link module is easy replaceable if a different transmission frequency is required.
- **LED flashlight** integrated in the top of the antenna increasing the buoy's visibility.
- **GPS receiver** for buoy positioning and facilitating its retrieval.
- **Integrated datalogger** based on the CF card technology.
- A **water temperature sensor** in the mooring eye providing sea surface temperature.
- **High capacity primary cells** operating reliably and safely under all wave conditions and weather circumstances for **up to three years** without replacement.
- Built-in **energy meter** reports an accurate estimation of the remaining operating life.
- **Intelligent Test Box** enables sequential discharge of individual battery strings.
- **Power Switch** On/Off

The DWR-MkIII comes standard with the Datawell HF link for ranges up to 50 Km over sea. For larger ranges the HF link can be combined or replaced with Iridium or Argos satellite communication.

For near shore applications, a GSM link is also available. The MkIII can be supplied in a 70 cm hull offering easier handling and a 90 cm hull.

### Optional features:

- **HF link:** 25.5 MHz-45 MHz
- **Air Temperature:** a Compact Air Temperature sensor (CAT4) integrated in the HF/flashlight antenna
- **Iridium-Internet:** global, two-way satellite link
- **Iridium-SBD:** global, two-way satellite link
- **Argos:** global one-way satellite link
- **GSM:** near shore data link via SMS or Internet
- **Solar Power System:** solar panel combined with primary cells for extending operational life by at least 100%
- **Radar reflectors** to increase visibility in busy waters



*DWR-MkIII with optional solar panels*



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## Specifications

<b>Resolution and Accuracy</b>	Heave	Range: -20 m - +20 m, resolution: 0.01m Accuracy: < 0.5% of measured value after calibration < 1.0% of measured value after 3 year Period: 1.6 s - 30 s
	Direction	Range: 0° - 360°, resolution 1.4° (1 binary degree) Heading error: 0.4° - 2° (depending on latitude) typical 0.5° Period: 1.6 s - 30 s (free floating)
	Water temperature	Range: -5 °C - +46 °C, resolution: 0.05 °C Accuracy: < 0.1 °C (sensor accuracy)
<b>Sensor and Processing</b>	Type	Datawell stabilized platform sensor, performing heave and direct pitch and roll measurements combined with a 3D fluxgate compass and X/Y accelerometers.
	Sampling	8-channel, 14bit @ 3.84Hz
	Processing	32 bits microprocessor system
<b>Standard features</b>	Integrated datalogger	Compact flash module 2Gb
	LED Flashlight	Antenna with integrated LED flasher, colour yellow (590 nm), standard length 35 cm, "Standard pattern" 5 flashes every 20 s or "Increased pattern" 5 flashes every 15 s.
	GPS position	12 channel, fix every 30 min, precision <5 m
	Intelligent Test Box	Enables sequential discharge of individual battery strings
<b>General</b>	Material	Stainless steel AISI316 or Cunifer10
	Weight	Approx. 109 Kg 0.7m AISI316, 113Kg 0.7m Cunifer10 Approx. 216 Kg 0.9m AISI316, 225Kg 0.9m Cunifer10
	Batteries	0.7 m diam. operational life 16 months, 1 section of 15 batteries 0.9 m diam. operational life 49 months, 3 sections of 15 batteries Type: Datacell RC27B ( 270 Wh black)
	Power Switch	Data files are closed and secured
	Temperature range	Operating: -5 °C - +35 °C Storage: -5 °C - +40 °C (+ 55 °C short term, weeks only)
	Hull painting	Brantho Korruux "3 in 1" paint system (no anti-fouling)
	<b>Optional features</b>	Datawell HF link
Air Temperature		Measuring height: 2 m above sea surface Temperature range: -20°C - +70°C Resolution: 0.01°C Exposed accuracy: ±0.5°C (±1°C when solar induced error detected)
Iridium / Argos		Satellite communication
GSM		Mobile communication
Solar power system		Solar panel combined with Boostcap capacitors
Radar reflectors		Two reflectors mounted on hatchcover (retrofitable)
Hull diameter		0.7 m and 0.9 m (excluding fender)