MIDAS DWR Directional Wave Recorder

The MIDAS DWR Directional Wave Recorder uses the proven Linear Wave Theory wave analysis method of measurement for shallow water deployment (20m maximum water depth). The MIDAS DWRR benefits from Valeport's latest sensor measurement technology, together with 64 bit data processing, and an improved range of sampling options. Fast data upload, quick change battery carousel and intuitive operating software make the MIDAS DWR one of the most versatile yet easy to use PUV wave recorders available.

Sensors

The MIDAS DWR is fitted with a choice of strain gauge or high accuracy piezo-resistive pressure sensors, and a fast response PRT temperature sensor as standard. Note that whilst the piezo-resistive sensor offers a higher absolute accuracy, the quality of wave data owes more to deployment location and sampling pattern than to sensor performance. Optional additional sensors include Conductivity and Turbidity.

Sensor	Type	Range	Accuracy	Resolution
Pressure (high accuracy)	Piezo-Resistive	100dbar (90m water)	+/-0.01%	0.001%
Pressure (standard)	Strain Gauge	50 dbar (40m water)	+/-0.04%	0.001%
Temperature	PRT	-5 to +35°C	+/-0.01°C	0.005°C
Compass	Fluxgate	0 – 360°	+/-1°	0.1°
Current	2 Axis EM	+/-5m/s	+/-1%	0.001m/s
Conductivity (optional)	Inductive Coils	0 – 80 mS/cm	+/-0.01 mS/cm	0.004 mS/cm
Turbidity (optional)	Seapoint STM	0 – 2000 FTU	+/-2%	0.005% Scale

Data Acquisition

In order to correctly measure wave activity, Linear Wave Theory requires a specific number of data points to be sampled over a period of time. These data points are then processed on board the instrument to generate an accurate summary of the wave activity during the measured period. The MIDAS DWR therefore operates in a strict pattern of "sample, process, sleep", with the user controlling the number of samples and the sampling rate, together with the duration of the sleep period. This may be minimised for almost continuous sampling, but obviously at the expense of battery and memory usage.

Sample Rate: 1, 2, 4 or 8Hz.
No of Samples: Powers of 2, 128 - 4096 (more samples = better data)
Cycle Time: Minimum cycle time is nearest whole number of minutes after processing has finished.
Delay Start: Instrument can be programmed to begin sampling at a specific time.
Conditional: Wave Sampling only occurs if pressure activity exceeds a defined level.

Memory

The MIDAS DWR is fitted with 64Mb solid state non-volatile FLASH memory. Total capacity depends on setup. User may save any or all of the following:

- Raw sensor data from each burst
- Summary statistics of wave burst
- Tide & additional sensor data
- Spectral analysis of wave burst.

If all data is saved, memory will typically record over 4000 data bursts. Sampling once every 2 hours, this is over 2 months data.

Software

System is supplied with WaveLog Express Windows based PC software, for instrument setup, data extraction and display. WaveLog Express is license free.

Electrical

Internal: 32 x D cells, 1.5v alkaline or 3.6v lithium
External: 9 - 30vDC
Power: 1.7W (sampling), <1mW (sleeping)
Battery Life: Depends on sampling setup, typically:
>1 month operation (alkaline)
>2 months operation (lithium)
Connector: Subconn Titanium MCBH10F

Communications

The instrument will operate autonomously, with setup and data extraction performed by direct communications with PC before and after deployment. It also operates in real time, with a choice of communication protocols for a variety of cable lengths, all fitted as standard and selected by pin choice on the output connector:

Standard
RS232 Up to 200m cable, direct to serial port via USB adaptor
RS485 Up to 1000m cable, addressable half duplex comms

Options
FSK 2 wire power & comms up to 6000m cable
Baud Rate: 2400 - 115200 (FSK fixed at 38400, USB 460800)
Protocol: 8 data bits, 1 stop bit, No parity, No flow control

Physical

Materials: Acetal housing, optional stainless steel (316) cage
Depth Rating: Housing rated to 500m, pressure sensor may be less
Size: 300mmØ x 290mm deep
Weight: 13Kg
Frame Size: 940 x 940 x 420mm
Frame Weight: 35Kg

Ordering

0730035   MIDAS DWR Wave Recorder, piezo-resistive type, supplied with Subconn switch plug, 3m communications lead, USB adaptor, WaveLog Express software, manual, tool kit and transit case.

0730036   MIDAS DWR Wave Recorder, strain gauge type, supplied with Subconn switch plug, 3m communications lead, USB adaptor, WaveLog Express software, manual, tool kit and transit case.

0730037   Stainless steel deployment cage
0400011   Optional Conductivity sensor
0400021B   Optional Turbidity sensor
0400021BI   Turbidity sensor interface

As part of our policy of continuing development, we reserve the right to alter at any time, without notice, all specifications, designs, prices and conditions of supply of all equipment

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