MIDAS DWR

The MIDAS DWR replaces the old Model 730D Directional Wave Recorder. Whilst continuing to use the proven Linear Wave Theory wave analysis method, the MIDAS DWR benefits from powerful 64 bit data processing, which allows on board real time generation of directional wave spectra. USB data upload, quick change battery carousel and intuitive operating software make the MIDAS DWR the most powerful yet easy to use PUV wave recorder available.

Sensors

The MIDAS DWR is fitted with a choice of resonant quartz or strain gauge pressure sensors, fast response PRT temperature sensor, flux gate compass and Valeport 2 axis electromagnetic current sensor as standard. Note that whilst the resonant quartz 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 (others available on request).

Sensor	Type	Range	Accuracy	Resolution
Pressure (high accuracy)	Resonant Quartz	65psi (35m water)	±0.01%	0.001%
Pressure (standard)	Strain Gauge	50dBar (40m water)	±0.1%	0.001%
Temperature	PRT	-5 to +35°C	±0.01°C	0.005°C
Compass	Fluxgate	0 to 360°	±1°	0.1°
Current	Valeport 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.

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.

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 months 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:

USB For rapid upload or laptops without serial port

RS232 Up to 200m cable, direct to serial port.

RS485 Up to 1000m cable, addressable half duplex comms

RS422 Up to 1500m cable, addressable full duplex comms

Baud Rate: 2400 - 115200 (USB 460800)

Protocol: 8 data bits, 1 stop bit, No parity, No flow control

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.
- Directional spectral analysis of wave burst

If all data is saved, memory will typically record over 800 data bursts. Sampling once every 2 hours, this is over 2 months data.

Physical

Materials: Acetal housing, optional stainless steel (316) cage

Depth Rating: Housing rated to 500m, pressure sensor may be less

Size: 300mmØ x 375mm deep

Cage Size: 950 x 950 x 400mm

Software

System supplied with WaveLog 400 Windows based PC software, for instrument setup, data extraction and display. All data in text format for easy export to other packages.

Ordering

0730035 MIDAS DWR Wave Recorder, resonant quartz type, supplied with WaveLog 400 software, RS232 and USB data leads, operating manual and transit case)

0730036 MIDAS DWR Wave Recorder, strain gauge type, supplied with WaveLog 400 software, RS232 and USB data leads, operating manual and transit case)

0730037 Stainless steel deployment cage

0400011 Optional Conductivity Sensor

0400021 Optional Turbidity Sensor

MIDAS DWR is compatible with the Model 750 telemetry buoy.

Datasheet Reference Number: MIDAS DWR v1A

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