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 DWR 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.

### 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", 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 8 Hz.
- **No of Samples:** Powers of 2, 2,8 - 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 64M b 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 PC software, for instrument setup, data extraction and display. WaveLog Express is license free.

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**Table:**

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Type</th>
<th>Range</th>
<th>Accuracy</th>
<th>Resolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pressure (high accuracy)</td>
<td>Piezo-Resistive</td>
<td>100dbr (90m water)</td>
<td>+/-0.01%</td>
<td>0.001%</td>
</tr>
<tr>
<td>Pressure (standard)</td>
<td>Strain Gauge</td>
<td>50 dbar (40m water)</td>
<td>+/-0.04%</td>
<td>0.001%</td>
</tr>
<tr>
<td>Temperature</td>
<td>PRT</td>
<td>-5 to +35°C</td>
<td>+/-0.01°C</td>
<td>0.005°C</td>
</tr>
<tr>
<td>Compass</td>
<td>Fluxgate</td>
<td>0 – 360°</td>
<td>+/-1°</td>
<td>0.1°</td>
</tr>
<tr>
<td>Current</td>
<td>2 Axis EM</td>
<td>+/-5m/s</td>
<td>+/-1%</td>
<td>0.003m/s</td>
</tr>
<tr>
<td>Conductivity (optional)</td>
<td>Inductive Coils</td>
<td>0 – 80 mS/cm</td>
<td>+/-0.01%</td>
<td>0.004 mS/cm</td>
</tr>
<tr>
<td>Turbidity (optional)</td>
<td>Seapoint STM</td>
<td>0 – 2000 FTU</td>
<td>+/-2%</td>
<td>0.005% Scale</td>
</tr>
</tbody>
</table>

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**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 adapter
- **Optional FSK:** RS485 - Up to 1000m cable, addressable half duplex comms

**Physical**
- **Materials:** Acetal housing optional stainless steel (316) cage
- **Depth Rating:** 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:
- **0730036** MIDAS DWR Wave Recorder Strain Gauge type.
- Supplied with: SubConn switch plug, 3m communications lead, USB adapter, WaveLog Express software, Manual, tool kit and transit case.
- **0730037** Stainless steel deployment cage
- **0400011** Optional Conductivity sensor
- **0400021B** Optional Turbidity sensor
- **0400021B** Turbidity sensor interface