

# Aquadopp Profiler Z-Cell, 1 MHz



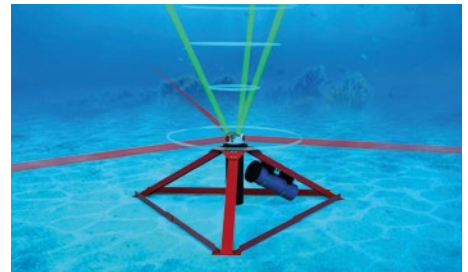
**Need to collect accurate 3D currents very near the seabed or sea surface, in addition to a full water-column profile?**

**The Z-Cell (Zero Cell) Aquadopp Profiler allows current measurement to start right at the instrument's level through an innovative approach: it has side-looking beams fully integrated into the instrument's head, effectively removing the blanking distance normally applicable to ADCPs.**



## Highlights

- Up to 25 m current profiling range
- Capable of measuring surface or bottom currents
- PUV-based directional wave measurements



## Applications

- Mounted on bottom frames, with ability to measure also near-bed currents
- Mean flow measurements with high focus on ease of use and simplicity
- Measurements in flow regimes with strong variations in flow speeds
- Projects with needs for both high-resolution and normal-range current measurements
- Studies of tidal currents
- Measurements of combinations of waves and currents
- Mounted on surface buoys, with the ability to measure also surface currents



## Technical specifications

## Aquadopp Profiler Z-Cell, 1 MHz

<b>→ Water velocity measurements</b>	
Maximum profiling range <sup>1)</sup>	12-25 m
Cell size	0.3-4 m
Minimum blanking	0.20 m when profiling; 0 m when Z-Cell enabled
Maximum number of cells	128
Measurement cell position	N/A
Default position (along beam)	N/A
Velocity range	± 10 m/s <sup>2)</sup>
Accuracy	± 1% of measured value ± 0.5 cm/s
Velocity precision	Consult instrument software
Maximum sampling rate (output)	1 Hz
Internal sampling rate	6 Hz
<b>→ Echo intensity (along slanted beams)</b>	
Sampling	Same as velocity
Resolution	0.45 dB
Dynamic range	90 dB
Transducer acoustic frequency	1 MHz
Number of beams	3
Beam width	3.4°
<b>→ HR option (Z-Cell will be disabled)</b>	
Maximum profiling range	6 m
Cell size	20-300 mm
Minimum blanking	0.2 m
Maximum number of cells	128
Range/velocity limitations	Product of profiling range and velocity should not exceed 1.0 m <sup>2</sup> /s
Accuracy	± 1% of measured value ± 0.5 cm/s
Max. sampling rate	1 Hz (continuous mode) 8 Hz (burst mode) <sup>3)</sup>
<b>→ Z-Cell option</b>	
Cell zero acoustic frequency	2 MHz
Maximum profiling range	0.4-0.9 m
Number of beams	3
<b>→ Sensors</b>	
Temperature:	Thermistor embedded in head
Temp. range	-4 to +40 °C
Temp. accuracy/resolution	0.1 °C/0.01 °C
Temp. time response	10 min
Compass:	Magnetometer
Accuracy/resolution	2°/0.1° for tilt < 20°
Tilt:	Liquid level
Accuracy/resolution	0.2°/0.1°
Maximum tilt	30°
Up or Down	Automatic detect
Pressure:	Piezoresistive
Range	0-100 m (inquire for options)
Accuracy/precision	0.5% FS / 0.005% of full scale
<b>→ Analog inputs</b>	
No. of channels	2
Supply voltage to analog output devices	Three options selectable through firmware commands: <ul style="list-style-type: none"> <li>• Battery voltage/500 mA</li> <li>• +5 V/250 mA</li> <li>• +12 V/100 mA</li> </ul>
Voltage input	0-5 V
Resolution	16-bit A/D
<b>→ Data recording</b>	
Capacity	9 MB, can add 4/16 GB
Data record	9*Ncells + 32 bytes
Diagnostics record	N/A
Wave record	Nsamples * 24 + 60 bytes
Mode	Stop when full (default) or wrap mode
<b>→ Real-time clock</b>	
Accuracy	± 1 min/year
Backup in absence of power	4 weeks
<b>→ Data communications</b>	
I/O	RS-232 or RS-422
Communication baud rate	300-115,200 Bd
Recorder download baud rate	600/1200 kBd for both RS-232 and RS-422
User control	Handled via "AquaPro" software, ActiveX® function calls, or direct commands with binary or ASCII data output
<b>→ Connectors</b>	
Bulkhead (Impulse)	MCBH-8-FS
Cable	PMCIL-8-MP on 10 m polyurethane cable
<b>→ Software</b>	
Functions	Deployment planning, instrument configuration, data retrieval and conversion (for Windows®).
<b>→ Power</b>	
DC input	9-15 V DC
Maximum peak current	3 A
Avg. power consumption <sup>3)</sup>	0.05 W
Sleep current	< 100 µA
Transmit power	0.3-20 W, 3 adjustable levels
<b>→ Batteries</b>	
Battery capacity	<ul style="list-style-type: none"> <li>• 50 Wh (alkaline or Li-ion)</li> <li>• 165 Wh (lithium)</li> <li>• Single or dual</li> </ul>
New battery voltage	13.5 V DC (alkaline)
<b>→ Environmental</b>	
Operating temperature	-5 to +40 °C
Storage temperature	-20 to +60 °C
Shock and vibration	IEC 721-3-7
EMC approval	IEC 61000
Depth rating	300 m
<b>→ Materials</b>	
Standard model	POM and polyurethane plastics with titanium fasteners
<b>→ Dimensions</b>	
Maximum diameter	75 mm
Maximum length	~550 mm (single battery) +110 mm (double battery) depending on head configuration
<b>→ Weight</b>	
Weight in air	2.2 kg
Weight in water	0.2 kg
<b>→ Options</b>	
	<ul style="list-style-type: none"> <li>• Alkaline, lithium or Li-ion external batteries</li> <li>• Inquire for different head configurations</li> </ul>

<sup>1)</sup> Depends on local scattering conditions, <sup>2)</sup> Inquire for higher ranges, <sup>3)</sup> Default configuration, see instrument SW for details and other setups