

Aquadopp Z-Cell 1 MHz [logo] found or type unknown

Up to 25 m current profiling range and no blanking; can measure near-surface or near-bottom currents

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 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.

Applications

Highlights

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

- [/] 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

[arrow] Water velocity measurements

Maximum profiling range	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	96
Measurement cell position	N/A
Default position (along beam)	N/A
Velocity range	±10 m/s
Accuracy	±1% of measured value ±0.5 cm/s
Velocity precision	Consult instrument software
Maximum sampling rate (output)	1 Hz

[arrow]

Water velocity measurements

Internal sampling rate 6 Hz
[arrow]

Echo intensity (along slanted beams)

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°
[arrow]

HR option (Z-Cell will be disabled)

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 m²/s
Accuracy $\pm 1\%$ of measured value ± 0.5 cm/s
Max. sampling rate 1 Hz (continuous mode), 8 Hz (burst mode)"
[arrow]

Z-Cell option

Cell zero acoustic frequency 2 MHz
Maximum profiling range 0.4-0.9 m
Number of beams 3
[arrow]

Sensors

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

[arrow]

Sensors

Range 0-100 m (inquire for options)
Accuracy/precision 0.5% FS / 0.005% of full scale
[arrow]

Analog inputs

No. of channels 2
Supply voltage to analog output devices Three options selectable through firmware commands: 1) Battery voltage/500 mA, 2) +5 V/250 mA, 3) +12 V/100 mA
Voltage input 0-5 V
Resolution 16-bit A/D
[arrow]

Data recording

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
[arrow]

Real-time clock

Accuracy ±1 min/year
Backup in absence of power 4 weeks
[arrow]

Data communications

I/O RS-232 or RS-422
Communication baud rate 300-115200 Bd
Recorder download baud rate 600/1200 kBd for both RS-232 and RS-422
User control Handled via "Aquadopp" software, ActiveX®function calls, or direct commands with binary or ASCII data output
[arrow]

Connectors

Bulkhead MCBH-8-FS
Cable PMCIL-8-MP on 10 m polyurethane cable
[arrow]

Software

Functions Deployment planning, instrument configuration, data retrieval and conversion
[arrow] (for Windows®).

Power

DC input 9-15 V DC
Maximum peak current 3 A
Avg. power consumption 0.05 W
Sleep current < 100 μ A
Transmit power 0.3-20 W, 3 adjustable levels
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Batteries

Battery capacity 50 Wh (alkaline or Li-ion), 165 Wh (lithium), Single or dual
New battery voltage 13.5 V DC (alkaline)
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Environmental

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
[arrow]

Materials

Standard model POM and polyurethane plastics with titanium fasteners
[arrow]

Dimensions

Maximum diameter 75 mm
Maximum length ~550 mm (single battery), +110 mm (double battery) depending on head configuration
[arrow]

Weight

Weight in air 2.2 kg
Weight in water 0.2 kg
[arrow]

Options

1) Alkaline, lithium or Li-ion external batteries, 2) Inquire for different head configurations