Aquadopp™ 2000 & 6000 m

The most versatile ocean current meters available

The 2000 m (left) and the 6000 m Aquadopp™ (right). The latter is shown in extended canister version containing double battery pack for longer deployments.

The 6000m Aquadopp™ is "the big brother" in the line of Aquadopp™ models. The all-titanium mechanical housing is built to last at great ocean depths. The overall design is the results of a testing and verification process that has included many of the world's largest oceanographic institutions.

Rugged and resistant, the 6000 m model still retains all the capabilities of the standard Aquadopp™. Relative to the standard system, it has a larger diameter (84 mm vs. 75 mm) and it is built from Titanium grade 2. As a result, the instrument is heavier than the standard instrument, but at 10kg, it is still possible to handle one or two units without any lifting equipment.

The 2000 m model, on the other hand, is made of all plastic parts. As a result, the 2000 m model is lighter than the pure-titanium 6000 m model and it represents an affordable alternative for the deployment in intermediate waters.

Both types have a transducer sensor head made from machined Delrin® materials and the orientation of the beams is the same as in the standard "mooring head" configuration.

In the deep ocean, there are fewer particles than in the upper 500 m of the water column. While the decay in signal strength is small from about 1000 m down to full ocean depth, tests show significant variations across the globe.

Mid-water deployments represent a real challenge for instruments that depend on acoustic backscatter. Considerable work has been done to understand the factors that affect the acoustic signal strength and to improve the magnitude of the returned the echo. This work is reflected in the design of the current electronics and 6000 m transducer design. Verified performance in the deep ocean is well documented – see our web site for details.

- No moving parts, no recalibration needed!
- Use Diagnostic mode to measure and get the full picture of mooring motion details (heave, rotation, and tilt).
- Record all relevant parameters including acoustic signal strength, tilt, compass, battery voltage, and status/error code
- Set the measurement interval, averaging interval and exact pinging rate independently in the deployment planning menu included as part of the standard software.
- Compass solution includes hard iron calibration routines to remove cable and mounting clamps effects.
- Record the acoustical signal strength in order to provide a direct measure of the acoustic conditions.

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Water Velocity Measurement

Range	± 5 m/s (inquire for higher ranges)
Accuracy	1% of measured value ± 0.5 cm/s
Maximum sampling rate (output)	1Hz
Internal sampling rate	23 Hz

Measurement area

Measurement cell size	0.75 m
Measurement cell position (user selectable)	0.35–5.0 m
Default position (along beam)	0.35–1.85 m

Doppler uncertainty (noise)

Typical uncertainty for default configurations	0.5–1.0 cm/s
Uncertainty in U,V at 1 Hz sampling rate	1.5 cm/s

Echo Intensity

Acoustic frequency	2 MHz
Resolution	0.45 dB
Dynamic range	90 dB

Sensors

Temperature	Thermistor embedded in head
• *Range*	–4°C to 40°C
• *Accuracy/Resolution*	0.1°C/0.01°C
• Time response	10 min
Compass	Flux-gate with liquid tilt
• Maximum tilt	30°
• *Accuracy/Resolution*	2°/0.1° for tilt < 20°
Tilt	Liquid level
• *Accuracy/Resolution*	0.2°/0.1° for tilt < 20°
• *Up or down*	Automatic detect
Pressure	Piezoresistive
• *Range*	0–2000/6000m (standard)
• *Accuracy/Resolution*	0.25% / Better than 0.005% of full scale per sample

Data Communication

I/O	RS-232, RS-422 or analog output
Baud rate	300–115 200
User control	Handled via WIN32 software, ActiveX function calls, or direct commands with binary or ASCII data output

Software ("Aquadopp")

Operating system	WIN95, 98, 2000, NT 4.0, XP
Functions	Deployment planning, start with alarm, data retrieval, ASCII conversion. Online data collection and graphical display. Test modes.

Data Recording

Capacity (standard)	2 MB, expandable to 22 MB or 78 MB
Data record	40 bytes
Diagnostic record	40 bytes

Power

DC input	9–16 VDC
Peak current	2 A at 12 VDC (user adjustable)
Max consumption 1 Hz	0.2–1.0 W
Avg. consumption	
0.02 Hz	0.1 W
0.002 Hz	0.01 W
Sleep consumption	0.0013 W
Battery capacity	50 Wh. Extended 6000 m version has two battery packs (i.e. double capacity)
New battery voltage	13.5 VDC
Data collection (alkaline)	6 months at 10-min, ± 1.5 cm/s noise
Data collection (lithium)	18 months at 10-min, ± 1.5 cm/s noise

Connectors

Bulkhead (Impulse)	LPMBH-8-FS *2000 m:* bronze *6000 m:* titanium
Cable	PLPMIL-8-MP on 10 m polyurethane cable

Materials

Standard model	*2000 m:* Delrin® and polyurethane plastics with titanium screws *6000 m:* Delrin® and titanium

Environmental

Operating temperature	–5°C to 45°C
Storage temperature	–15°C to 60°C
Shock and vibration	IEC 721-3-2
Pressure rating	0–2000 m/0–6000 m

Antifouling paint

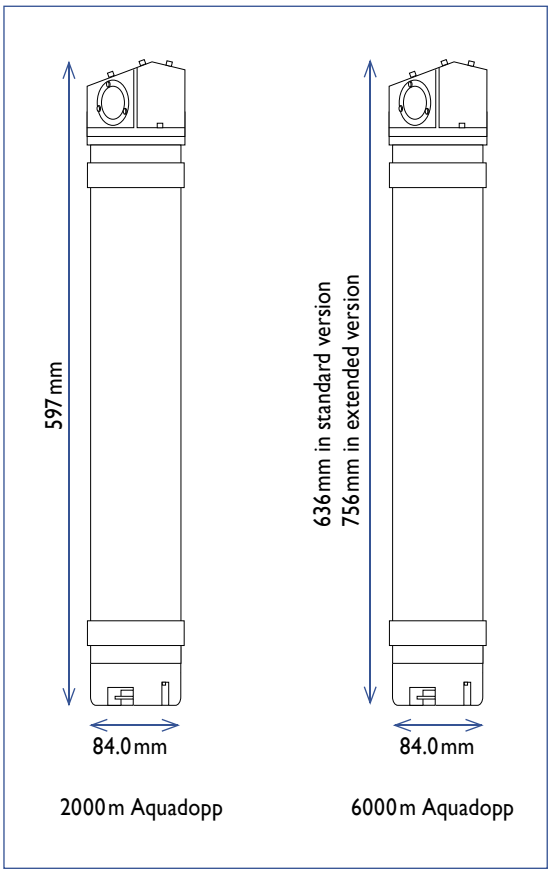
May be applied to all surfaces

Dimensions

Cylinder	Diameter: 84mm (both types) Length: 597 mm (2000 m) Length: 636 mm (6000 m) Length: 756 mm (Extended 6000 m)
Approx. weight in air	4.4 kg(2000 m), 8kg (6000 m)
Approx. weight in water	1.2 kg (2000 m), 4.8 kg (6000 m)

Options

Battery	Lithium batteries



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