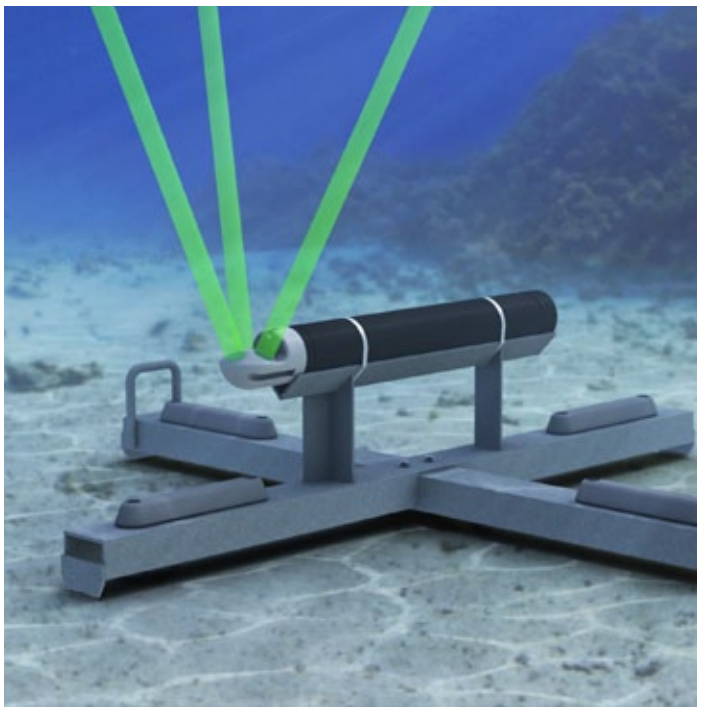
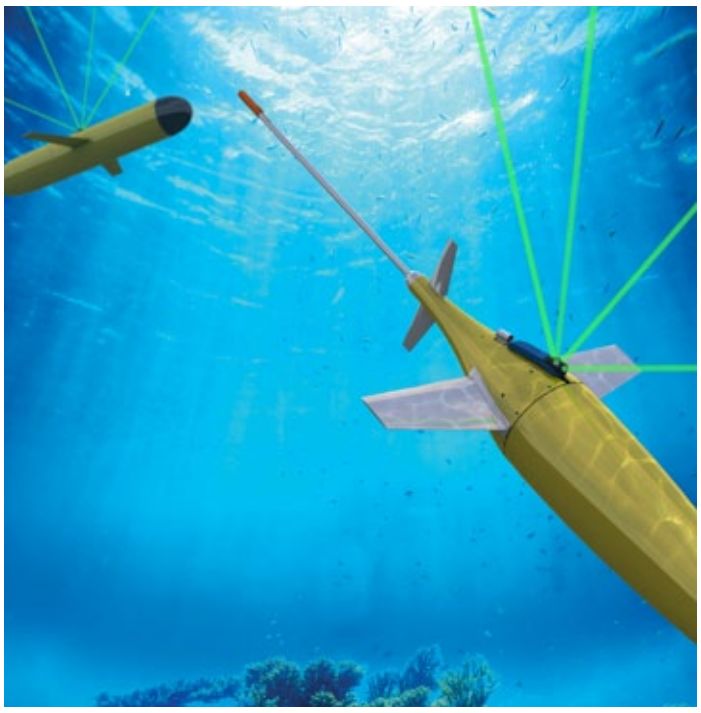
Aquadopp© Profiler

400kHz, 600kHz, 1/2MHz
with Z-Cell option

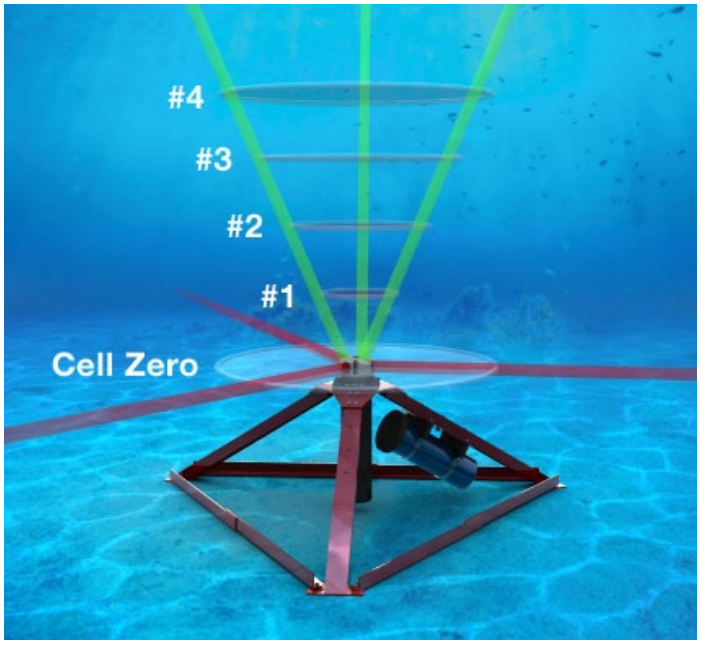
The Aquadopp® profiler measures the current profile in water using acoustic Doppler technology. It is designed for a wide range of applications and can be deployed on the bottom, on a mooring rig, buoy or on any other fixed structure. It is a complete system and includes all parts required for a self contained deployment with data stored to an internal data logger. The Aquadopp profiler is a small and lightweight profiler for use over profiling range from of 1 to 100m.

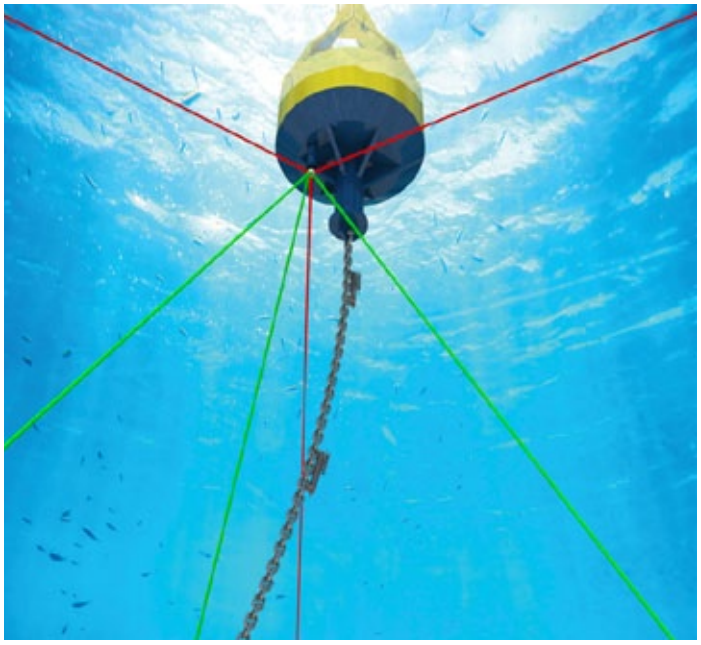


Bottom framed Aquadopp Profiler: Typical applications include coastal studies, online monitoring and scientific studies in rivers, lakes, and channels. The Aquadopp Profiler works equally well in typical ocean surface water and in the high sediment suspensions found near the coast or in rivers.



The Aquadopp current profiler can be mounted on moving structures and will measure the relative motion between the structure and the water.





A standard current profiler cannot measure the complete profile from the bottom to the surface. Instead, it loses data close to the instrument and close to the far boundary. The Aquadopp Z-Cell extends the profiling range by introducing a «Cell Zero». The data is generated by an extra set of horizontal transducers. The transducers operate at a different frequency (2 MHz) and provide the 2D current velocity at the level of the instrument. This is to the benefit of anyone who is interested in the detailed current velocity in the boundary layer.

CURRENT AND WAVE MEASUREMENTS IN THE OCEAN, LAKE AND LABORATORY

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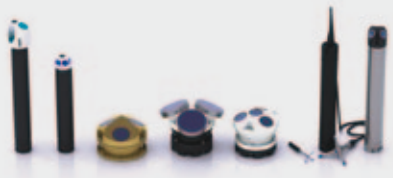

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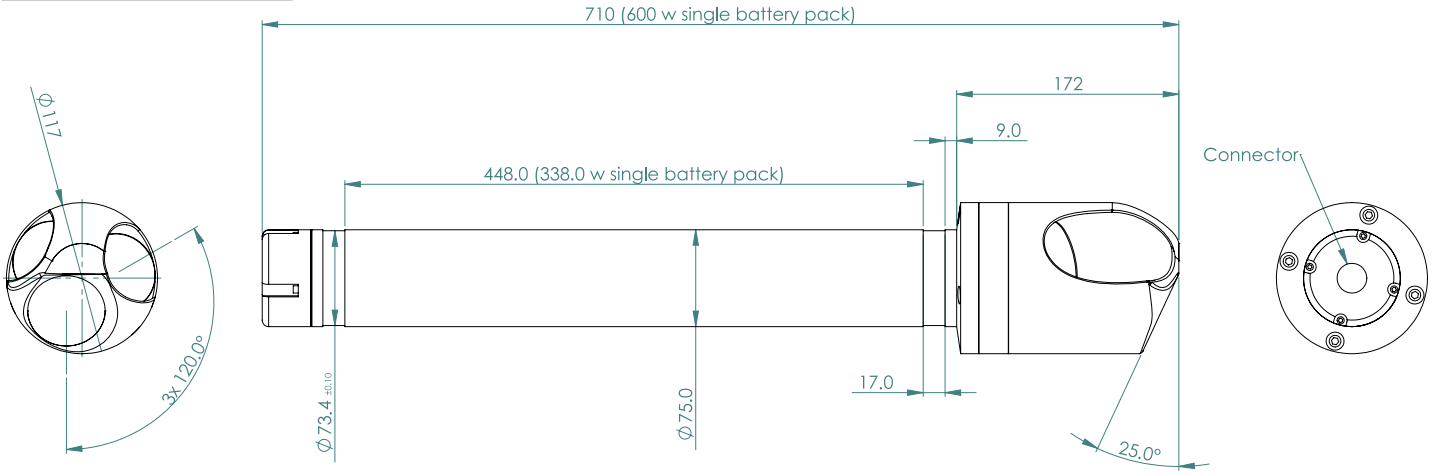
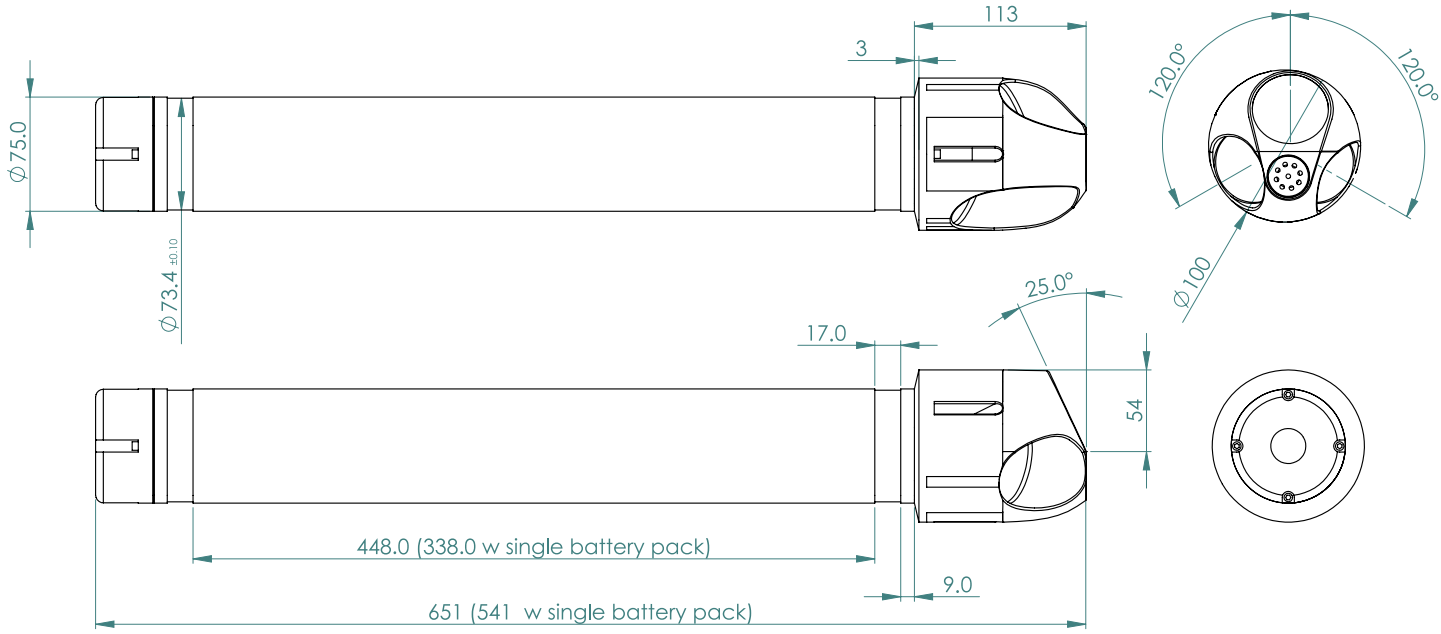
True innovation makes a difference

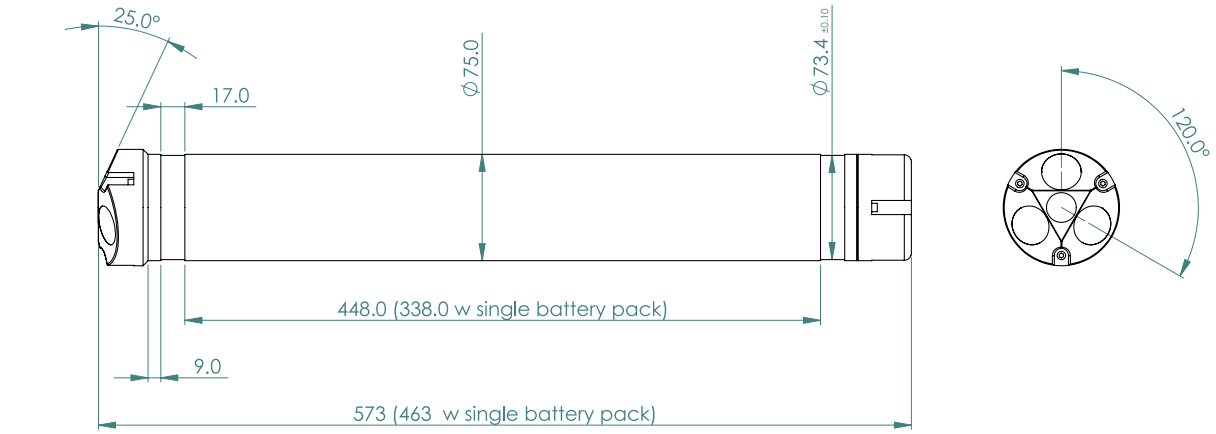
400kHz

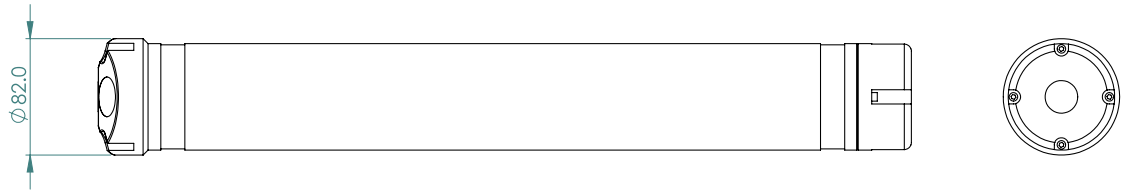


600kHz

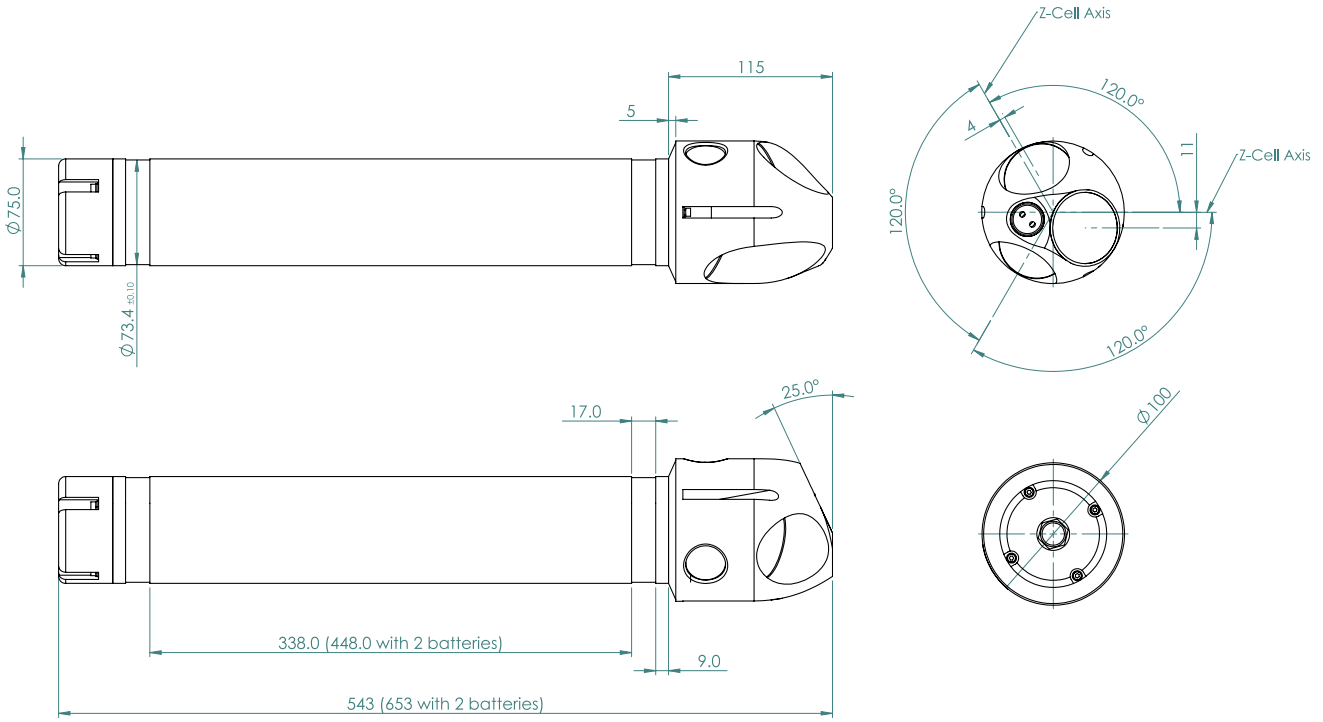


1/2 MHz

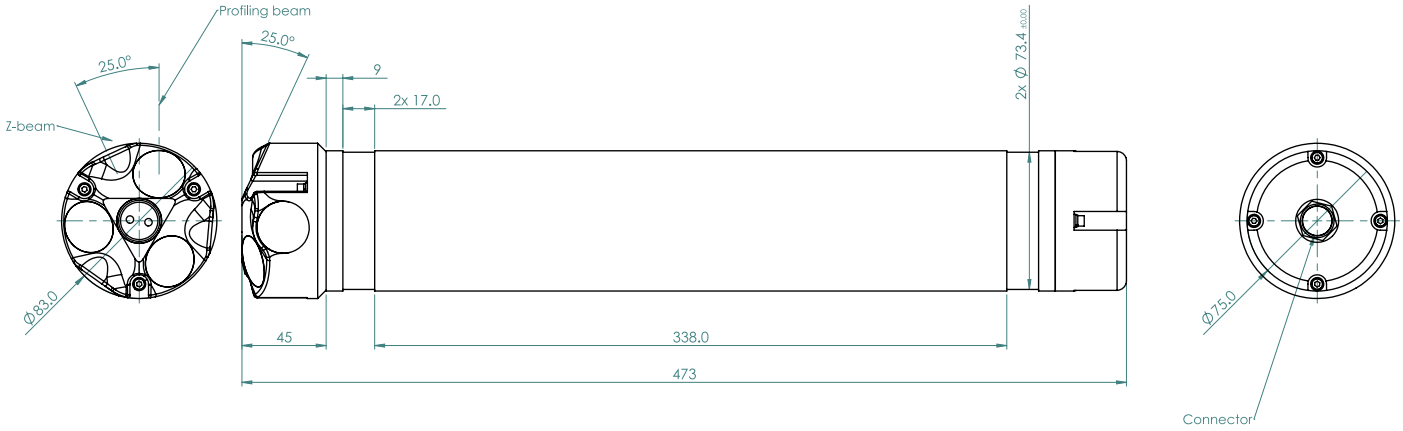




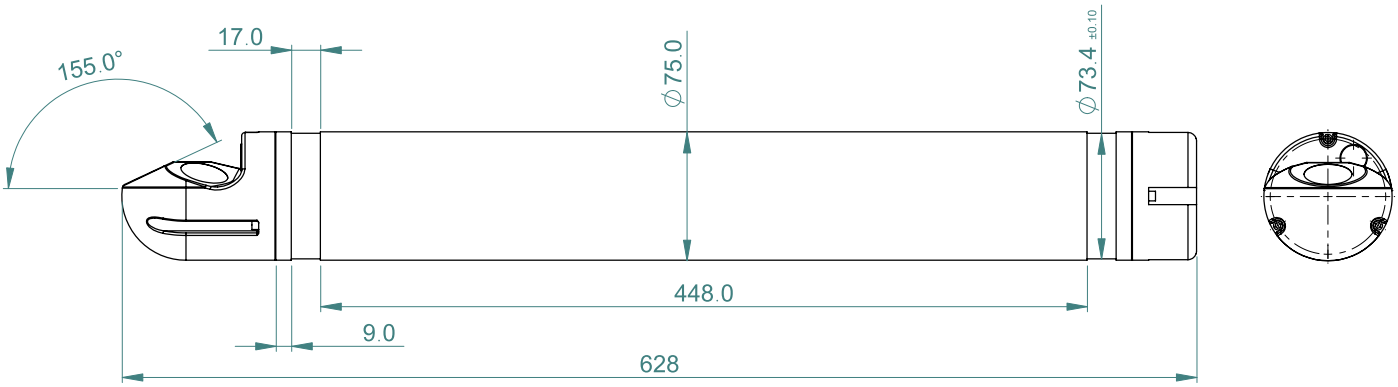
Z-Cell 600kHz



Z-Cell 1MHz



Sidelooking



All dimensions in mm.

Technical Specifications

Water velocity measurement				
Acoustic frequency:	**0.4MHz**	**0.6MHz**	**1.0MHz**	**2.0MHz**
Maximum profiling range*:	60–90m	30–40m	12–20m	4–10m
Cell size:	2–8m	1–4m	0.3–4m	0.1–2m
Beam width:	3.7°	3.0°	3.4°	1.7°
Minimum blanking:	1m	0.50m	0.20m	0.05m
Number of beams:	3			
Maximum # cells:	128			
Velocity Range:	±10m/s (inquire for extended range)			
Accuracy:	1% of measured value ±0.5cm/s			
Max. Sampling rate:	1Hz			
Velocity uncertainty:	Consult software program			

*) The Aquadopp profiler measures the current profile in a user specified number of cells from the instrument out to a maximum range that depends on the acoustic scattering conditions. The lower range should be expected with clear water and small cells and the higher range with large cells and acoustically turbid water.

Cell zero (optional for 0.6MHz and 1MHz tranducers)	
Cell zero acoustic frequency:	2Mz
Maximum profiling range*:	0.4-0.9m
Number of beams:	3

Echo intensity	
Sampling:	Same as velocity
Resolution:	0.45dB
Dynamic range:	90dB

Standard sensors	
Temperature:	Thermistor embedded
Range:	–4°C to 30°C
Accuracy/resolution:	0.1°C/0.01°C
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:	0–100m (standard)
Accuracy/resolution:	0.5%/0.005% of full scale

Analog inputs	
Number of channels:	2
Voltage supply:	Three options selectable through firmware commands: •Battery voltage / 500 mA •+5V / 250 mA •+12V /100 mA
Voltage input:	0–5V
Resolution:	16 bit A/D

Data communication	
I/O:	RS232, RS422. Software supports most commercially available USB–RS232 converters
Communication Baud rate:	300–115200 (baud)
Recorder download baud rate:	600/1200 k.Baud for both RS232 and RS422

Data recording	
Capacity:	9 MB, can add 32/176/352/MB & 4GB Prolog
Data record:	32 bytes + 9×Ncells
Mode:	Stop when full (default) or wrap mode
Software:	AquaPro
Operating system:	Windows®XP, Windows® 7
Functions:	Deployment planning, data retrieval, ASCII conversion, online data collection, and graphical display

Power	
DC Input:	9-15VDC
Peak current:	3A
Max average consumption at 1Hz:	0.2–1.5W
Sleep consumption:	0.0003 mW (RS232), 0.005 mW (RS422)
Transmit power:	0.3–20W, 3 adjustable levels

Real time clock	
Accuracy:	+/- 1min/year
Backup in absence of power:	4 weeks

Internal batteries	
Type/capacity:	18 AA Alkaline cells/50Wh
New battery voltage:	13.5VDC
Duration (10-minute avg.):	80 days for 2MHz, 0.5m cells 50 days for 1MHz, 1.0m cells

Exact battery consumption and velocity uncertainty are complex functions of the deployment configuration. Please consult the AquaPro software for more exact predictions.

Materials	
Standard:	Delrin and polyurethane plastics with titanium screws
Intermediate and deepwater models:	Titanium and Delrin plastics

Connectors	
Bulkhead (Impulse):	MCBH-8-FS
Cable:	PMCIL-8-MP on 10-m polyurethane cable

Environmental	
Operating temperature:	–5°C to 35°C
Storage temperature:	–20°C to 60°C
Shock and vibration:	IEC 721–3–2
Depth rating:	300m

Dimensions			
	0.4MHz	**0.6MHz**	**1MHz/2MHz**
Weight in air:	3.4 kg	2.9 kg	2.2 kg
Weight in water:	0.2 kg	0.4 kg	0.2 kg
Length:	see dimensional drawings		
Diameter:	see dimensional drawings		

Options	
Batteries:	Lithium, Li-Io rechargeable
External batteries:	Alkaline, Lithium or Lithium Ion. See battery brochure for details
Transducer head:	Right angle head for 1 or 2MHz. Inquire for special configurations
Deep water systems:	Inquire for 3000m & 6000m versions
Communication:	Request special harness for RS422

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