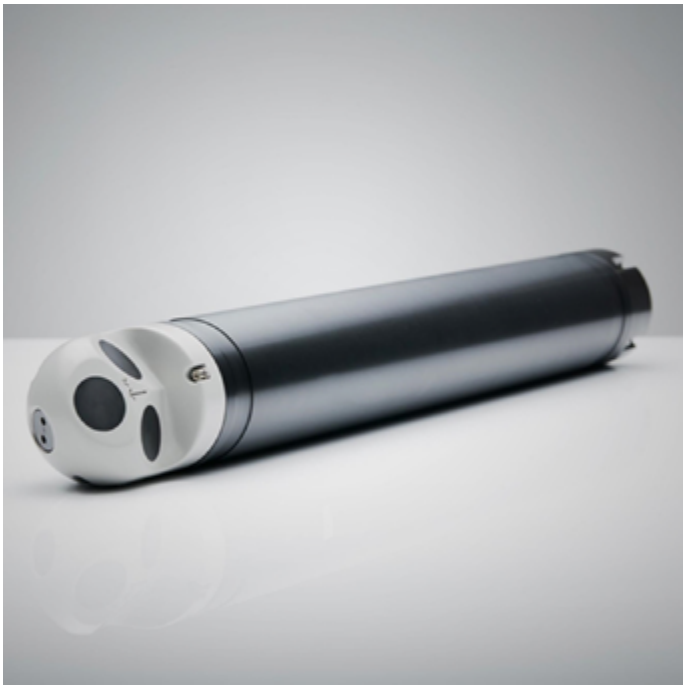
Aquadopp Profiler

The Aquadopp Profiler measures water column current profiles using acoustic Doppler technology. Designed for a wide range of applications from coasts to rivers, the Aqudopp Profiler is a small, lightweight, and cost-effective solution for shallow water (<100 m) deployments. It can be deployed on the bottom, on a buoy, or on a mooring line. The profiler is a complete system and includes all parts required for a self contained deployment with internal batteries and a data logger. Additional configurations are available for online data communication.



- Surface to bottom velocity profiles
- Profiling ranges from 0.5 to 90 m
- Online data communications
- Small, light, easy to deploy

Small and easy-to-use, the acoustic doppler Aquadopp Profiler has become a favorite for use in estuaries and shallow coastal water.

It is a cost-effective tool for any shallow water (<100 m) environment, functioning equally well in typical ocean surface waters as high sediment suspension areas near the coast or in rivers. Typical applications include coastal studies as well as studies in rivers, lakes and channels, and online monitoring.

The Aquadopp Profiler can be deployed on any fixed structure - small, low cost bottom frames, mooring lines, surface buoys, etc.

With a flexible design, options are available for the Aquadopp Profiler to reduce blanking distance, increase vertical resolution, calculate full directional wave spectra, and profile horizontally in 2D.

The Aquadopp Profiler measures high-quality, accurate, and unbiased three-component (East, North, Up) current profile data using acoustic Doppler technology. It can measure speed and direction in up to 128 different layers of the water column.

System electronics integrate Doppler velocity with temperature, pressure, tilt, and compass information – all standard with each instrument.

The Aquadopp Profiler has a built-in solid state data recorder and batteries. State-of-the-art power management and miniaturized electronics combine in a compact single-canister design that is suitable for real-time operation or self-contained deployments.

Technical specifications

Water velocity measurement

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

Cell zero (optional for 0.6 MHz and 1 MHz tranducers)

Cell zero acoustic frequency	2 Mz
Maximum profiling range	0.4 - 0.9 m
Number of beams	3

Echo intensity

Sampling	same as velocity
Resolution	0.45 dB
Dynamic range	90 dB

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 – 100 m (standard), inquire for options
Accuracy / resolution	0.5 % / 0.005 % of full scale

Analog inputs

Voltage input	0 – 5 V

Data communication

I/O	RS-232, RS-422 software supports most commercially available USB – RS-232 converters
Communication baud rate	300 – 115200 (baud)
Recorder download baud rate	600/1200 k.Baud for both RS-232 and RS-422

Power

DC input	9 - 15 VDC
Peak current	3 A
Max average consumption at 1 Hz	0.2 – 1.5 W
Sleep consumption	0.0003 mW (RS-232), 0.005 mW (RS-422)
Transmit power	0.3 – 20 W, 3 adjustable levels

Real time clock

Accuracy	+/- 1min/year
Backup in absence of power	4 weeks

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	300 m

Options

Transducer head	right angle head for 1 or 2 MHz inquire for special configurations
Deep water systems	inquire for 3000 m & 6000 m versions
Communication	request special harness for RS-422