

Aquadopp Profiler 1 MHz



Small and compact, with up to 25 m current profiling range; option for PUV wave measurements

The Aquadopp Profiler is a highly versatile Acoustic Doppler Current Profiler (ADCP) available in four profiling range options, from < 1 m to > 85 m. Designed for simple yet powerful operation, this current profiler is packed with features used by engineers and researchers to enable accurate and effective hydrodynamic data collection in a variety of environmental conditions.

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Highlights

- ✓ Up to 25 m current profiling range
- ✓ Optional right-angle head
- ✓ PUV wave measurements

Applications

- ✓ 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 deep-water currents
- ✓ Studies of tidal currents
- ✓ Measurements of combinations of waves and currents
- ✓ Suitable for wave buoys

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Technical specifications

→ Water velocity measurements

Maximum profiling range	12-25 m
Cell size	0.3-4 m
Minimum blanking	0.20 m
Maximum number of cells	128
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
Internal sampling rate	7 Hz

→ 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°

→ HR option

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 ² /s

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→ HR option

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

→ Z-Cell option

Cell zero acoustic frequency	N/A
Maximum profiling range	N/A
Number of beams	N/A

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

→ 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

CURRENT PROFILER

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→ Data recording

Capacity

9 MB, can add 4/16 GB

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→ Data recording

Data record	$9 \times \text{Ncells} + 32 \text{ bytes}$
Diagnostics record	N/A
Wave record	$\text{Nsamples} \times 24 + 60 \text{ bytes}$
Mode	Stop when full (default) or wrap mode

→ Real-time clock

Accuracy	$\pm 1 \text{ min/year}$
Backup in absence of power	4 weeks

→ 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

→ Connectors

Bulkhead	MCBH-8-FS
Cable	PMCIL-8-MP on 10 m Polyurethane cable

→ Software

Functions	Deployment planning, instrument configuration, data retrieval and conversion (for Windows®)
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→ Power

DC input	9-15 V DC
Maximum peak current	3 A
Avg. power consumption	0.05 W
Sleep current	$< 100 \mu\text{A}$
Transmit power	0.3-20 W, 3 adjustable levels

→ Batteries

Battery capacity	1) 50 Wh (alkaline or Li-ion), 2) 165 Wh (lithium), 3) Single or dual
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→ Batteries

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 (3000 m option)

→ Materials

Standard model	POM and polyurethane plastics with titanium fasteners
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→ Dimensions

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

→ Weight

Weight in air	2.2 kg
Weight in water	0.2 kg

→ Options

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