

Aquadopp Profiler 1 MHz - 500 m, Generation 2



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. The 1 MHz version has a current profiling range of up to 25 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.

This instrument can also be used to perform river discharge measurements by [River Insight](#).

See the details of the Generation 2 Aquadopp updates in the release notes [here](#).

Highlights

- ✓ Up to 25 m current profiling range
- ✓ Optional right-angle head
- ✓ Pressure-based (PUV) directional wave measurements

Applications

- ✓ Mean flow measurements with high focus on ease of use and simplicity
- ✓ Projects with needs for both high-resolution and normal-range current measurements
- ✓ Studies of tidal currents
- ✓ Measurements of combinations of waves and currents
- ✓ This instrument is used to perform river discharge measurements by River Insight.

Technical specifications

→ Water velocity measurements

Nominal profiling range*	25 m
Cell size	0.25-4 m
Maximum number of cells	200
Minimum blanking	0.2 m
Velocity range (along beam)	±1 m/s, ±2.5 m/s, ±5 m/s
Velocity range (horizontal)	±2.3 m/s, ±5.75 m/s, ±11.5 m/s
Accuracy	±1% of measured value ±0.5 cm/s
Horizontal Velocity precision**	Typ. 1cm/s
Maximum sampling rate (output)	1 Hz
Wave measurements	PUV (optional)

* Depending on scattering conditions

** Consult instrument SW

→ Echo intensity

Sampling	Same as velocity
Resolution	0.5 dB
Dynamic range	90 dB
Transducer acoustic frequency	1 MHz
Number of beams	3 (see GA drawings for angles)
Beam width	1.7° (3.4° total)

→ HR option

Maximum profiling range	8.0 m
Cell size	0.02-0.25 m
Minimum blanking	0.1 m
Maximum number of cells	256
Velocity range	Product of profiling range and velocity should not exceed 0.25 m ² /s
Accuracy	±1% of measured value ±0.5 cm/s
Max. sampling rate	4 Hz

→ Sensors

Temperature:

Temp. range	-4 to +40 °C
Temp. accuracy/resolution	0.1 °C/0.01 °C
Temp. time response	<1 min

Compass: Solid State Magnetometer

Accuracy/resolution <2° for tilt <30°/0.01°

Tilt: Solid State Accelerometer

Accuracy/resolution 0.2° for tilt <30°/0.01°

→ Sensors

Maximum tilt	Full 3D
Up or Down	Automatic detect
Pressure:	Piezoresistive
Range	30m/100m/500m
Accuracy/precision	0.5% FS / 0.005% of full scale

→ Data recording

Capacity	16 GB
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→ Real-time clock

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

→ Data communications

I/O	RS-422 (inquire for RS-232)
Communication baud rate	9600 Baud-1.2 Mbaud (default 115200 Baud)
User control	Nortek Deployment Software or direct ASCII commands, with binary or ASCII data output

→ Software

Operating system	Cross platform
Functions	Deployment planning, instrument configuration, data retrieval and conversion. Online data display.

→ Power

DC input	9-24 VDC
Absolute maximum DC input	26 VDC
Maximum peak current	4.5 A
Power consumption	Consult Nortek Deployment Software
Sleep current	< 40 uA
Transmit power	Adjustable

→ Batteries

Internal Battery capacity	1-3x 50 Wh (Alkaline), 2-3x 165 Wh (Lithium), 1-3x 76 Wh (Li-Ion)
Battery weight	430 g per 50 Wh (Alkaline), 380 g per 165 Wh (Lithium), 300 g per 76 Wh (Li-Ion)

→ Environmental

Operating temperature	-5 to +40 °C
Storage temperature	-20 to +60 °C
Shock and vibration	Shock: IEC 60068-2-27, Vibration: IEC 60068-2-64
EMC	EN IEC 61000-6-2:2019, EN IEC 61000-6-4:2019
Depth rating	500 m

→ Connectors

Bulkhead (Impulse) MCBH-8-FS Brass

Cable PMCIL-8-MP on 5 m (default) polyurethane cable

→ Materials

POM, Naval Brass, Titanium Gr.5, Epoxy

→ Dimensions (see drawings for details)

Maximum housing diameter 75 mm

Maximum length S1VP: 589 mm, S1SP: 634 mm

→ Weight

Weight in air (without batteries) S1VP: 2500 g, S1SP: 2710 g

Weight in water (without batteries) S1VP: -120 g, S1SP: -50 g

Weight in air, short housing (without batteries) S1VP: 1900 g, S1SP: 2110 g

Weight in water, short housing (without batteries) S1VP: 330 g, S1SP: 400g

→ Head configurations

S1VP Shallow water, 1MHz, Vertical orientation, Profiler

S1SP Shallow water, 1MHz, Side looking, Profiler

→ Online cable information

Cable length 0-10m; 10-50m; 50-500m

Power wire gauge 20AWG; 20AWG; 18AWG

Hardware Standard; Standard; Long cable kit

Input voltage 9-24VDC; 24VDC +/-0,5; 48VDC +2/-5

Absolut maximum DC input 26 VDC; 26 VDC; 51 VDC

Communication RS232/RS422/115200; RS232/RS422/115200; RS422/115200