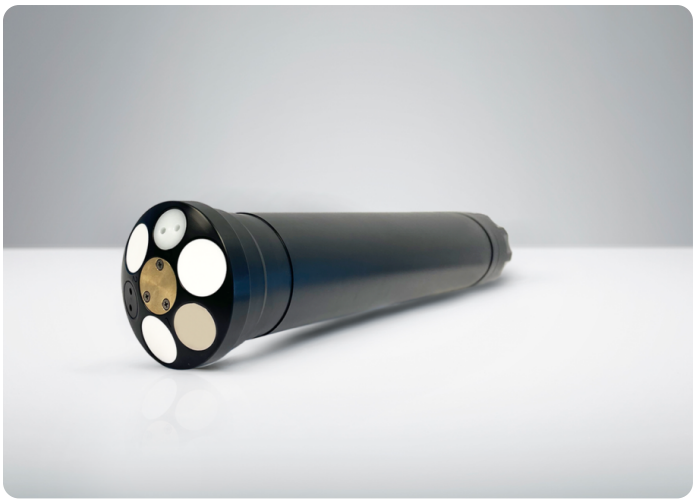
Aquadopp Profiler 1 MHz

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.

See the details of the Generation 2 Aquadopp updates in the release notes here.

Download our guide to Aquadopp ADCPs 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)	User-selectable 1.0 to 5.0 m/s
Accuracy	±1% of measured value ±0.5 cm/s
Horizontal Velocity precision**	Typ. 1cm/s
Maximum sampling rate (output)	1 Hz

Water velocity measurements

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 m2/s
Accuracy	±1% of measured value ±0.5 cm/s
Max. sampling rate	4 Hz
Notes	Extended Velocity Range (EVR) option not available.

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°
Maximum tilt	Full 3D orientation sensing. Recommended instrument orientation and allowable tilt depend on the measurement application.
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

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: 591 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

0-10 m cable	
Power wire gauge	20 AWG
Hardware	Standard
Input voltage	9-24 VDC
Absolute maximum DC input	26 VDC
Communication	RS232/RS422/115200
10-50 m cable	
Power wire gauge	20 AWG
Hardware	Standard
Input voltage	24 VDC ±0.5
Absolute maximum DC input	26 VDC
Communication	RS232/RS422/115200
50-500 m cable	
Power wire gauge	18 AWG
Hardware	Long cable kit*
Input voltage	48 VDC +2 / -5
Absolute maximum DC input	51 VDC
Communication	RS422/115200

*Start-up voltage: greater than or equal to 26V. Recommended operating range: 43-50 V.