

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.

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	$\pm 1\%$ 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		

Water velocity measurements

** Consult instrument SW

** 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	$\pm 1\%$ 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
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	
1/0	RS-422 (inquire for RS-232)
Communication baud rate	9600 Baud-1.2 Mbaud (default 115200 Baud)

Data communications	
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-lon)
Battery weight	430 g per 50 Wh (Alkaline), 380 g per 165 Wh (Lithium), 300 g per 76 Wh (Li-lon)
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	A) 0-10m, B) 10-50m, C) 50-500m
Power wire gauge	A) 20AWG, B) 20AWG, C) 18AWG
Hardware	A) Standard, B) Standard, C) Long cable kit
Input voltage	A) 9-24VDC, B) 24VDC +/-0,5, C) 48VDC +2/-5
Absolut maximum DC input	A) 26 VDC, B) 26 VDC, C) 51 VDC
Communication	A) RS232/RS422/115200, B) RS232/RS422/115200, C) RS422/115200