



# 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 m<sup>2</sup>/s

Accuracy  $\pm 1\%$  of measured value  $\pm 0.5$  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  $\pm 1$  min/year

Backup in absence of power 4 weeks

## Data communications

I/O RS-422 (inquire for RS-232)

## Data communications

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 $\mu$ A
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

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 +/-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

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