



# Aquadopp Profiler 400 kHz

500 m, Z-Cell, Generation 2

**Up to 90 m current profiling range and no blanking; ideal for mean and boundary current measurements**



Need to collect accurate 3D currents very near the seabed or sea surface, in addition to a full water-column profile?

The Z-Cell (Zero Cell) 400 kHz Aquadopp allows current measurement to start right at the instrument’s level through an innovative approach: it has side-looking beams fully integrated into the instrument’s head, effectively removing the blanking distance normally applicable to ADCPs.

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

Download our guide to Aquadopp ADCPs [here](#).

## Highlights

- ✓ Up to 90 m current profiling range
- ✓ Capable of measuring surface or bottom currents
- ✓ Ideal for mean current measurements

## Applications

- ✓ Mounted on bottom frames, with ability to also measure near-bed currents
- ✓ Mounted on surface buoys, with the ability to also measure surface currents
- ✓ Mean flow measurements with high focus on ease of use and simplicity
- ✓ Studies of tidal currents

## Technical specifications

Water velocity measurements	
Nominal profiling range*	90 m
Cell size	1-8 m
Maximum number of cells	200
Minimum blanking	0 m with Z-Cell enabled
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
Wave measurement	PUV (optional)

\* Depending on scattering conditions

## Water velocity measurements

\*\* Consult instrument SW

## Z-Cell Properties

Distance to measurement volume	0.05 - 2.5 m
Cell size	0.2 - 1.5 m
Velocity range (Horizontal)	±5 m/s
Transducer acoustic frequency	2 MHz
Number of beams	2

## Echo intensity

Sampling	Same as velocity
Resolution	0.5 dB
Dynamic range	90 dB
Transducer acoustic frequency	400 kHz
Number of beams	3 (see GA drawing for angles)
Beam width	1.9° (3.8° total)

## 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	30 m / 100 m / 500 m
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 76Wh (Li-Ion)
Battery weight	430g per 50 Wh (Alkaline), 380g per 165 Wh (Lithium), 300g per 76Wh (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 5m (default) polyurethane cable

## Materials

POM, Naval Brass, Titanium Gr.5, Epoxy

## Dimensions (see drawings for details)

Maximum housing diameter	75 mm
Maximum length	701 mm

## Weight

Weight in air (without batteries)	3900 g
Weight in water (without batteries)	60 g
Weight in air, short housing (without batteries)	3300 g
Weight in water, short housing (without batteries)	510 g

## Head configurations

S4VZ	Shallow water, 400 kHz, Vertical orientation, Z-Cell Profiler
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## Online cable information

Cable length	A) 0-10m, B) 10-50m, C) 50-500m
Power wire gauge	A) 18AWG, B) 18AWG, C) 18AWG

## Online cable information

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

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