

Aquadopp Profiler 1 MHz - 500m, Z-Cell, Generation 2



New image
coming soon!

Up to 25 m current profiling range and no blanking; can measure near-surface or near-bottom currents

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) 1 MHz 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.

Highlights

- ✓ Up to 25 m current profiling range
- ✓ Capable of measuring surface or bottom currents
- ✓ PUV-based directional wave measurements

Applications

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

Technical specifications

→ Water velocity measurements

Nominal profiling range	25 m
Cell size	0.25-4 m
Maximum number of cells	200
Minimum blanking	0 m with Z-cell enabled
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

→ 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	1 Mhz
Number of beams	3 (see GA drawing for angles)
Beam width	1.7° (3.4° total)

→ HR option

Maximum profiling range	8 m
Cell size	0.02-0.25 m
Minimum blanking	0.1 m
Maximum number of cells	256
Velocity range	3 cm/s - 1.3 m/s
Range velocity limitations	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°

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

→ 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 ACSII commands, with binary or ASCII data output

→ Software

Operating system Agnostic

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 < 10 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

Standard model	POM, Naval Brass, Titanium Gr.5, Epoxy
----------------	--

→ Dimensions (see drawings for details)

Maximum housing diameter	75 mm
Maximum length	602 mm

→ Weight

Weight in air (without batteries)	2280 g
Weight in water (without batteries)	-400 g (buoyant)

→ Head configurations

S1VZ	Shallow water, 1 Mhz, Vertical orientation, Z-Cell Profiler
------	---