

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.

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	$\pm 1\%$ 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			

^{**} 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				
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)				
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-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 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

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

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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.