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Aquadopp Profiler 600 kHz - 500m, Z-Cell, Generation 2





Up to 40 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) 600 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 40 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

Nominal profiling range * 40 m Cell size 0.5-8m 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 Accuracy ±1% of measured value ±0.5 cm/s Velocity range (horizontal) ±2.3 m/s, ±5.75 m/s, ±11.5 m/s Horizontal velocity precision** Typ. 1cm/s Maximum sampling rate (output) 1 Hz Wave measurement PUV (optional) * Depending on scattering conditions * Chointensity Sampling Same as velocity Resolution O.5 dB Dynamic range 90 dB Transducer acoustic frequency 600 kHz Number of beams 3 Beam width 1.55° (3.1° total) - Sensors Temperature: Temperature: Tempe. accuracy/resolution 0.1°C/0.01°C Tempe. accuracy/resolution 0.1°C/0.01°C <td colspan<="" th=""><th>→ Water velocity measurements</th><th></th></td>	<th>→ Water velocity measurements</th> <th></th>	→ Water velocity measurements	
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Horizontal velocity precision** Maximum sampling rate (output) 1 Hz Wave measurement * Depending on scattering conditions ** Consult instrument SW → Echo intensity Sampling Same as velocity Resolution 0.5 dB Dynamic range 90 dB Transducer acoustic frequency 600 kHz Number of beams 3 Beam width 1.55° (3.1° 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 0.2° 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	Accuracy	$\pm 1\%$ of measured value ± 0.5 cm/s	
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Number of beams 3 Beam width 1.55° (3.1° total) → Sensors Temperature: Temp. range -4 to +40 °C Temp. accuracy/resolution 0.1 °C/0.01 °C Temp. time response <1 min	Dynamic range	90 dB	
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Temperature: Temp. range	Number of beams	3	
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	Beam width	1.55° (3.1° total)	
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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	Accuracy/resolution	<2° for tilt <30°/0.01°	
Maximum tiltFull 3DUp or DownAutomatic detectPressure:PiezoresistiveRange30 m / 100 m / 500 mAccuracy/Precision0.5% FS / 0.005% of full scale→ Data recording	Tilt:	Solid State Accelerometer	
Up or Down Pressure: Piezoresistive Range 30 m / 100 m / 500 m Accuracy/Precision 0.5% FS / 0.005% of full scale → Data recording	Accuracy/resolution	0.2° for tilt <30°/0.01°	
Pressure: Piezoresistive Range 30 m / 100 m / 500 m Accuracy/Precision 0.5% FS / 0.005% of full scale → Data recording	Maximum tilt	Full 3D	
Range 30 m / 100 m / 500 m Accuracy/Precision 0.5% FS / 0.005% of full scale → Data recording	Up or Down	Automatic detect	
Accuracy/Precision 0.5% FS / 0.005% of full scale → Data recording	Pressure:	Piezoresistive	
→ Data recording	Range	30 m / 100 m / 500 m	
	Accuracy/Precision	0.5% FS / 0.005% of full scale	
	→ Data recording		
Capacity 16 GB	Capacity	16 GB	
→ Real-time clock	→ 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-lon)		
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)		

75 mm

686 mm

Maximum housing diameter

Maximum length

→ Weight	
Weight in air (without batteries)	3580 g
Weight in water (without batteries)	160 g
Weight in air, short (without batteries)	2980 g
Weight in water, short (without batteries)	610 g
→ Head configurations	
S4VZ	Shallow water, 400 kHz, Vertical orientation, Z-cell Profiler
→ Online cable information	
Cable length	0-10m; 10-50m; 50-500m
Power wire gauge	20AWG; 20AWG; 18AWG
Hardware	Standard; Standard; Long cable kit
Input voltage	9-24VDC; 24VDC +/-0,5; 48VDC +2/-5
Absolut maximum DC input	26 VDC; 26 VDC; 51 VDC
Communication	RS232/RS422/115200; RS232/RS422/115200; RS422/115200