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Aquadopp 2 - 500 m





Highly versatile single-point current meter with the option to perform PUV wave measurements

The Aquadopp 500 m is a compact, accurate and affordable single-point current meter for applications where a current profile is not needed. Designed for use in several deployment scenarios, from mooring lines to bottom-mounted structures, it also has the option to perform PUV-based directional wave measurements, making it a cost-effective and simple solution.

The Aquadopp now offers 6% broadband measurements and "hibernation mode" between measurements, enabling precise data collection with lower power consumption. Combined with mechanical improvements allowing for more internal battery storage, the modern Aquadopp design extends potential deployment duration.

Highlights

- ✓ Single-point current meter
- ✓ Perfect for mooring lines
- ✓ Simple pressure-based (PUV) directional wave measurements in shallow water
- ✓ LED blinks when pinging for peace of mind during deployment

Applications

- ✓ Attached to mooring lines
- ✓ Combined with riser monitoring systems
- ✓ Shallow-water wave and current measurements
- ✓ Studies of tidal currents
- ✓ Near bed current measurements

Technical specifications

Cell size Maximum number of cells Distance to measurement 1.0-6.0 m (user-selectable) Velocity range ±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 (consult instrument SW) Maximum sampling rate (output) → Echo intensity Sampling Same as velocity Resolution 0.5 dB Dynamic range 90 dB Transducer acoustic frequency 2 MHz Number of beams 3 (see GA drawings for angles) Beam width 0.85* (1.7* total) → Sensors Temperature: Temp. range -4 to +40 °C Temp. accuracy/resolution 0.1 °C/0.01 °C Temp. accuracy/resolution 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 → Digital inputs No. of channels 1 Digital input format MicroCat CTD	→ Water velocity measurements	
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Resolution Dynamic range Pod B Transducer acoustic frequency Number of beams Beam width Sensors Temperature: Temp. range -4 to +40 °C Temp. accuracy/resolution 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: Range 30 m/100 m/500 m Accuracy/precision -> Digital inputs No. of channels 1 Digital input format MicroCat CTD	→ Echo intensity	
Dynamic range 90 dB Transducer acoustic frequency 2 MHz Number of beams 3 (see GA drawings for angles) Beam width 0.85° (1.7° 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 → Digital inputs No. of channels 1 Digital input format MicroCat CTD	Sampling	Same as velocity
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Number of beams Beam width 0.85° (1.7° 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 Digital inputs No. of channels 1 Digital input format MicroCat CTD	Dynamic range	90 dB
Beam width → Sensors Temperature: Temp. range -4 to +40 °C Temp. accuracy/resolution 0.1 °C/0.01 °C Temp. time response <1 min Compass: 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 -> Digital inputs No. of channels 1 Digital input format MicroCat CTD	Transducer acoustic frequency	2 MHz
Temperature: Temp. range	Number of beams	3 (see GA drawings for angles)
Temperature: Temp. range	Beam width	0.85° (1.7° total)
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 → Digital inputs No. of channels 1 Digital input format MicroCat CTD	→ Sensors	
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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 → Digital inputs No. of channels 1 Digital input format MicroCat CTD → Data recording	Temp. time response	<1 min
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 Digital inputs No. of channels 1 Digital input format MicroCat CTD Data recording	Compass:	Solid State Magnetometer
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 Digital inputs No. of channels 1 Digital input format MicroCat CTD Data recording	Accuracy/resolution	<2° for tilt <30°/0.01°
Maximum tilt Up or Down Automatic detect Pressure: Piezoresistive Range 30 m/100 m/500 m Accuracy/precision 0.5% FS / 0.005% of full scale Digital inputs No. of channels Digital input format MicroCat CTD Data recording	Tilt:	Solid State Accelerometer
Up or Down Automatic detect Pressure: Piezoresistive Range 30 m/100 m/500 m Accuracy/precision 0.5% FS / 0.005% of full scale → Digital inputs No. of channels 1 Digital input format MicroCat CTD → 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 → Digital inputs No. of channels 1 Digital input format MicroCat CTD → Data recording	Maximum tilt	Full 3D
Range 30 m/100 m/500 m Accuracy/precision 0.5% FS / 0.005% of full scale → Digital inputs No. of channels 1 Digital input format MicroCat CTD → Data recording	Up or Down	Automatic detect
Accuracy/precision 0.5% FS / 0.005% of full scale Digital inputs 1 Digital input format MicroCat CTD Data recording	Pressure:	Piezoresistive
→ Digital inputs No. of channels 1 Digital input format MicroCat CTD → Data recording	Range	30 m/100 m/500 m
No. of channels Digital input format → Data recording	Accuracy/precision	0.5% FS / 0.005% of full scale
Digital input format MicroCat CTD → Data recording	→ Digital inputs	
→ Data recording	No. of channels	1
	Digital input format	MicroCat CTD
	→ Data recording	
Capacity 16 GB		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 ASCII 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	$1\text{-}3 \times 50$ Wh (Alkaline), 2-3 $\times 165$ Wh (Lithium), 1-3 $\times 76$ Wh (Li-lon)
Battery weight	430g per 50 Wh (Alkaline), 380g per 165 Wh (Lithium), 300g per 76 Wh (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 5 m (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	S2VC: 593 mm, S2SC: 634 mm
→ Weight	

Weight in air (without batteries)	S2VC: 2480g, S2SC: 2710g
Weight in water (without batteries)	S2VC: -150g, S2SC: -50g
→ Arrangements	
S2VC	Shallow water, 2MHz, Vertical orientation, Current meter
S2SC	Shallow water, 2MHz, Side-looking orientation, Current meter