

AWAC 600 kHz

300 m. Generation 2

Real-time current profiles and directional waves for intermediate water



The AWAC 600 kHz ADCP has become the standard reference technology in submerged wave-measurement applications. Thousands of these ADCPs have been deployed to capture the full wave spectrum in combination with current profiles. With a 60 m maximum range for wave measurements, 2 Hz sampling of the surface elevation and onboard wave processing for real-time applications, the AWAC 600 kHz is the optimal tool for medium water-depth current and wave measurements.

The AWAC 2 design offers future-proof electronics, better performance and easier instrument maintenance.

See the details of the Generation 2 AWAC updates in the release notes here.

Highlights

- ✓ Real-time current profiles to 50 m range; real-time waves to 60m range
- ✓ Acoustic surface tracking (AST) with vertical beam
- Can be used both with fixed frames and subsurface buoys
- Onboard wave processing for real-time applications

Applications

- Online, real-time measurements of currents and waves
- ✓ Design data for planning of new coastal structures
- ✓ Site studies for offshore wind platforms
- Monitoring of transient waves for channel wall protection
- ✓ Studies of tidal currents

Technical specifications

Water velocity measurements		
Maximum profiling range*	50 m	
Cell size	0.5-8.0 m	
Number of cells	200	
Velocity range (along beam)	User-selectable 1.0 to 5.0 m/s	
Accuracy	±1% of measured value ±0.5 cm/s	
Velocity precision	Consult instrument software	
Maximum output rate	1 Hz or 2 Hz	
Internal sampling rate	8 Hz	

^{*}Dependent on measurement conditions

Echo intensity (along slanted beams)		
Sampling	Same as velocity	
Resolution	0.5 dB	
Dynamic range	90 dB	
Transducer acoustic frequency	600 kHz	
Number of beams	3 beams 120° apart, one vertical beam, (90° apart, one at 5° for platform mount)	
Beam width	1.21° (2.42° total)	
Beam width vertical beam	1.93° total	

Wave measurement option (AST)		
Maximum depth	60 m	
Data types	Pressure, one velocity along each beam, AST	
Max. Sampling Rate (output)	2Hz	
No. of samples per burst	512, 1024 or 2048 (Contact Nortek for other burst configurations)	

Wave estimates	
Range	-15 to 15 m
Accuracy/resolution (Hs)	< 1% of measured value / 1 cm
Accuracy/resolution (Dir)	2° / 0.2°
Period range	1-50 s
Cut-off period (Hs)	5 m depth: 0.5 sec, 20 m depth: 0.9 sec, 60 m depth: 1.5 sec
Cut-off period (dir)	5 m depth: 1.5 sec, 20 m depth: 3.1 sec, 60 m depth: 5.5 sec

Sensors	
Temperature:	Thermistor in head (sampled at meas. rate)
Temp. range	-4 to +40 °C
Temp. accuracy/resolution	0.1 °C/0.01 °C
Temp. time response	2 min
Compass:	Solid State magnetometer (max 1 Hz sample rate)
Accuracy/resolution	2° for tilt < 30°/0.01°
Tilt:	Solid State accelerometer (max 1 Hz sample rate)
Accuracy/resolution	0.2° for tilt < 30°/0.01°
Maximum tilt	Full 3D
Up or Down	Automatic detect
Pressure:	Piezoresistive (sampled at meas. rate)
Range	0-100 m (inquire for options)
Accuracy / Precision	0.1% FS / Better than 0.002% of full scale

Data recording	
Capacity	16 GB, 64 GB or 128 GB (inquire for larger capacity)
Data record	Consult instrument software
Mode	Stop when full

Accuracy	±1 min/vear
Accuracy	±1 mm/vear

Clock retention in absence of external power 1 year. Rechargeable backup battery

Data communications		
Ethernet	10/100 Mbits Auto MDI-X, TCP/IP, UDP/IP, HTTP protocols, Fixed IP / DHCP client /Auto IP address assignment, UPnP and Nortek proprietary instrument, discovery over Ethernet	
Serial	Configurable RS-232/RS-422 300-1250000 bps	
Recorder download baud rate	20 Mbit/s (Ethernet only) - 1 GB in 6 minutes	
Controller interface	ASCII command interface over Telnet and serial	
Connectors		
Standard	MCBH6F (Ethernet) + MCBH8F (serial and/or battery)	
Optional	MCBH6F (Ethernet) + Souriau M-series metal connector for online use (10M) + MCBH2F (battery)	
Software		
Functions	Deployment planning, instrument configuration, data retrieval and conversion (for Windows $\ensuremath{\$}$)	
Power		
DC input	12-48 V DC	
Maximum peak current	1.5 A	
Max. average consumption at 1 Hz	8 W at 1 Hz, Ethernet adds 0.75 W	
Typical average consumption	15 mW	
Sleep consumption	100 μA, power depending on supply voltage	
Transmit power per beam	0.3-30 W, adjustable levels	
Ping sequence	Parallel	
Environmental		
Operating temperature	-4 to +40 °C	
Storage temperature	-20 to +60 °C	
Vibration	IEC60068-2-64	
EMC approval	IEC/EN 61000-6-2, 61000-6-3	
Depth rating	300 m	
Materials		
Standard model	POM with titanium fasteners	
Dimensions		
Maximum diameter	215 mm	
Maximum length	203 mm	
Weight		
Weight in air	TBC	
Weight in water	TBC	
Online cable		
Online cable	Polyurethane jacket, Shore D hardness, 13mm in diameter, max 500m. Inquire for longer cables	

External

540Wh (alkaline) or 1800 W (lithium)