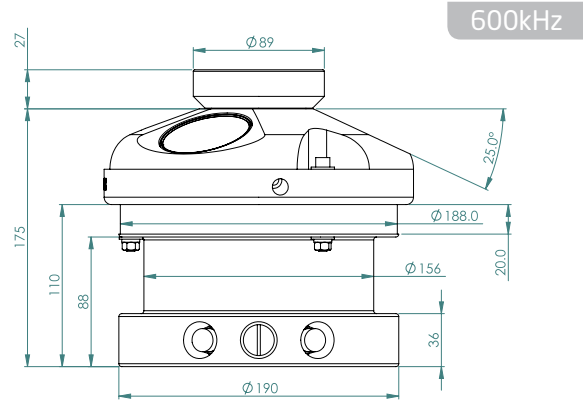
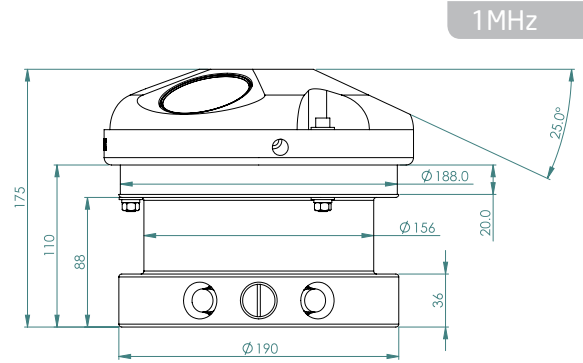
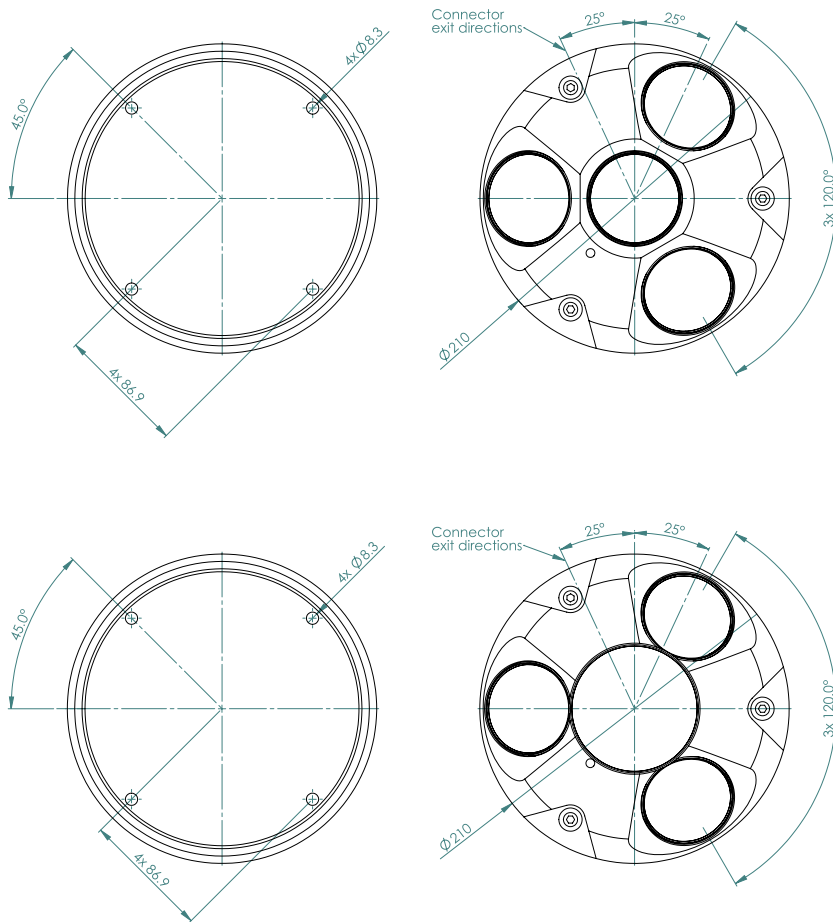


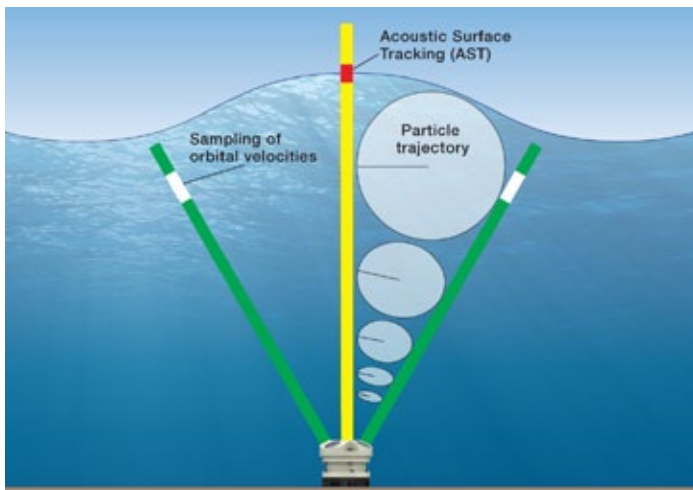
The Nortek Acoustic Wave and Current profiler (AWAC) does «triple duty»: It measures wave height, wave direction and the full current profile. The system can resolve waves from 1 to 100s, a unique capability of the Nortek AWAC.

# AWAC

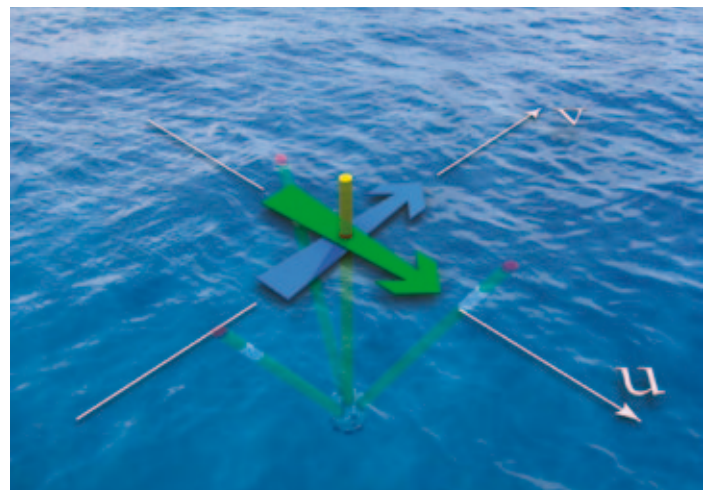
Acoustic Wave And Current Profiler



All dimensions in mm.



The AWAC measures wave height and period using the unique acoustic surface tracking (AST) feature. A short acoustic pulse is transmitted vertically toward the water surface, and the time lag between transmission and reception of the surface reflection is used to generate a time series of the surface elevation.



Wave direction is calculated by combining AST with orbital velocity measurements in an array near the surface. The four point array data can be processed with the maximum likelihood method to generate accurate directional wave spectra. For AWAC mounted on subsurface buoys, the patented SUV processing can be used to generate similar results from deep ocean moorings.

CURRENT AND WAVE MEASUREMENTS IN THE OCEAN, LAKE AND LABORATORY



Nortek AS  
Vangkroken 2  
1351 Rud, Norway  
Tel: +47 6717 4500  
Fax: +47 6713 6770  
E-mail: inquiry@nortek.no



[www.nortek-as.com](http://www.nortek-as.com)  
True innovation makes a difference

System	
Acoustic frequency:	1MHz or 600kHz
Acoustic beams:	4 beams, one vertical, three slanted at 25°
Vertical beam opening angle:	1.7°
Operational modes:	Stand-alone or online monitoring

Current Profile	
Maximum range:	30m (1MHz), 50m (600 kHz) (depends on local conditions)
Depth cell size:	0.25 – 4.0m (1MHz) 0.5 – 8.0m (600kHz)
Number of cells:	Typical 20–40, max. 128
Maximum output rate:	1Hz

Velocity measurements	
Velocity range:	±10 m/s horizontal, ±5 m/s along beam
Accuracy:	1% of measured value ±0.5 cm/s

Doppler uncertainty	
Current profile:	1cm/s (typical)

Wave measurements	
Maximum depth:	35m (1MHz), 60m (600 kHz)
Data types:	Pressure, one velocity along each beam
Sampling rate (output):	2 Hz velocity, 4 Hz AST* (1MHz), 1Hz velocity, 2Hz AST* (600kHz)
No. of samples per burst:	512, 1024, or 2048. Inquire for options

Wave estimates	
Range:	-10 to +10m
Accuracy/resolution (Hs):	<1% of measured value/1cm
Accuracy/resolution (Dir):	2° / 0.1°
Period range:	0.5-100s (1MHz), 1 - 100s (0.6MHz)

Depth(m)	cut-off period (Hs)	cut-off period (dir)
5	0.5 sec	1.5 sec
20	0.9 sec	3.1 sec
60	1.5 sec	5.5 sec

Sensors	
<b>Temperature:</b>	Thermistor embedded in housing
Range:	-4°C to 40°C
Accuracy/ Resolution:	0.1°C/0.01°C
Time constant:	<5 min
<b>Compass</b>	Magnetometer
Accuracy/Resolution:	2°/0.1° for tilt <20°
<b>Tilt:</b>	Liquid level
Maximum tilt:	30°, AST* requires <10° instrument tilt
Up or down:	Automatic detect
<b>Pressure:</b>	Piezoresistive
Standard range:	0–50 m (1MHz) / 0-100m (0.6MHz)
Accuracy/Resolution:	0.5% of full scale/ Better than 0.005% of full scale per sample

Transducer configurations	
Standard:	3 beams 120° apart, one at 0°

Materials	
Standard:	Delrin and polyurethane plastics with titanium screws

Connectors:	
Bulkhead (Impulse):	MCBH-2-FS
Cable:	PMCIL-8-MP

Environmental	
Operating temperature:	-4°C to 40°C
Storage temperature:	-20°C to 60°C
Shock and vibration:	IEC 721–3–2
Depth rating:	300m

Dimensions:	
	see drawing on front page
Weight in air:	6.2 kg (0.6MHz), 6.1 kg (1MHz)
Weight in water:	2.9 kg (0.6MHz & 1MHz)

Analog Inputs	
Number of channels:	2
Supply voltage to analog output devices:	Three options selectable through firmware commands: <ul style="list-style-type: none"> <li>• Battery voltage/500mA</li> <li>• +5V/250mA</li> <li>• +12V/100mA</li> </ul>
Voltage Input:	0-5V
Resolution:	16 bit A/D

Data Recording	
Capacity(standard):	2 MB, can add: 32/176/352MB or 4GB (Prolog)
Profile record:	Ncells×9 + 120
Wave record:	Nsamples×24 + 46

Data Communication	
I/O:	RS 232 or RS 422
Communication baud rate:	300–115200
Recorder download baud rate:	600/1200 k.Baud for both RS232 and RS422
User control:	Handled via «AWAC» software, or ActiveX® controls


Power	
DC input:	9-18 VDC
Peak current:	3A
Power consumption:	Transmit power: 1–30W, 3 adjustable levels
Sleep consumption:	0.0003 mW (RS232) 0.005 mW (RS422)

Real time clock	
Accuracy:	± 1min/year
Backup in absence of power:	1 year


Offshore Cable	
The Nortek offshore cable can, when properly deployed, withstand tough conditions in the coastal zone. In RS 422 configuration, cable communication can be achieved for distances up to 5 km.	
*) AST = Acoustic Surface Tracking	

**Stand alone or on-line**  
AWACs can be deployed for long term monitoring of the local wave and current conditions. Depending on the specific circumstances, Nortek can provide long cables, radio/telephone communication equipment, acoustic modems, etc., that can meet the requirements of your specific project.



 **NortekMed S.A.S.**  
Z.I. Toulon Est  
BP 520  
83 078 TOULON cedex 09  
FRANCE  
Tel: +33 (0) 4 94 31 70 30  
Fax: +33 (0) 4 94 31 25 49  
E-mail: info@nortekmed.com

 **NortekUK**  
Mildmay House, High St.  
Hartley Wintney  
Hants. RG27 8NY  
Tel: +44- 1428 751 953  
E-mail: inquiry@nortekuk.co.uk

 **NortekUSA**  
222 Severn Avenue  
Building 14, Suite 102  
Annapolis, MD 21403  
Tel: +1 (410) 295-3733  
Fax: +1 (410) 295-2918  
E-mail: inquiry@nortekusa.com

 **青岛诺泰克测量设备有限公司**  
地址: 中国青岛香港西路65号  
汇融广场1302  
邮编: 266071  
Tel: 0532-85017570, 85017270  
Fax: 0532-85017570  
E-mail: inquiry@nortek.com.cn

 **Nortek B.V.**  
Schipholweg 333a  
1171PL Badhoevedorp  
Nederland  
Tel: +31 20 6543600  
Fax: +31 20 6599830  
email: info@nortek-bv.nl