Acoustic Wave & Current Profiler

SPECIFICATIONS
Specifications subject to change without notice

SYSTEM	
Acoustic frequency	1MHz, 600kHz or 400kHz
Acoustic beams	4 beams, one vertical, three slanted at 25°
Vertical beam opening angle	1.7°
Operational modes:	Stand-alone or on line monitoring
CURRENT PROFILE	
Maximum range	30m (1MHz) 50m (600 kHz), 100m (400kHz) (depends on local conditions)
Depth cell size	0.25 – 4.0m (1MHz) 0.5 – 8.0m (600kHz) 1.0 – 8.0m (400kHz)
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), 100m (400kHz)
Data types	Pressure, one velocity along each beam, AST*
Sampling rate (output)	2 Hz velocity, 4 Hz AST* (1MHz) 1 Hz velocity, 2Hz AST* (600kHz) 0.75 Hz velocity, 1.5Hz AST* (400kHz)
No. of samples per burst	512, 1024, or 2048. Inquire for options

WAVE ESTIMATES		
Range	-15 to +15m	
Accuracy/resolution (Hs)	<1% of measured value/1cm	
Accuracy/resolution (Dir)	2° / 0.1°	
Period range	0.5-100s (1MHz) 1 - 100s (0.6MHz) 1.5 - 100s (0.4MHz)	
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	4.2 sec
100	2 sec	5.0 sec

* AST - Acoustic Surface Tracking

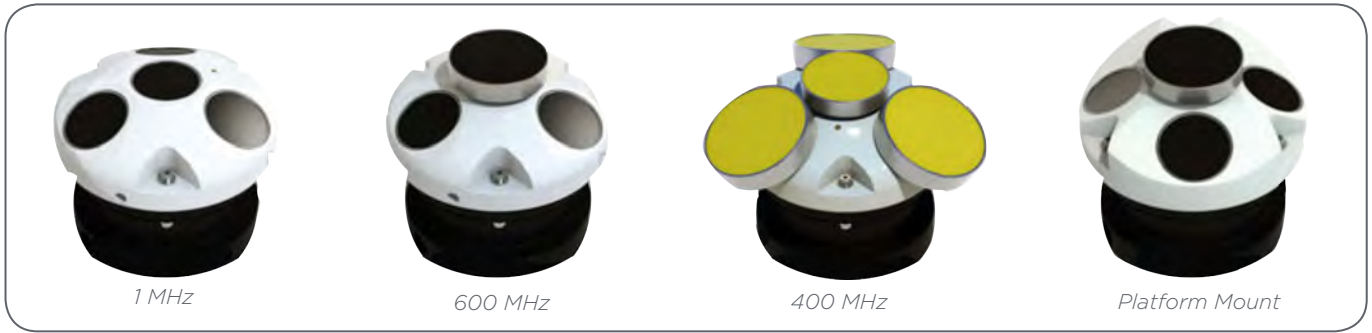*Secifications continued on next page*

Current profiler and wave directional system, in one unit, performs "triple duty" by measuring wave height, wave direction and the full current profile. It measures current speed and direction in 1-meter thick layers from the bottom to the surface. Waves of all varieties from 1 to 100s are measureable including long waves, storm waves, short wind waves, or transient waves generated by local ship traffic.

FEATURES

▶ 400 kHz version of the AWAC

▶ ProLog Internal Processor

▶ Special ice detection algorithm

▶ Improved pressure sensor

▶ SeaState 2.0 for online data collection

1 MHz   600 MHz   400 MHz   Platform Mount

SENSORS	
Temperature	Thermistor embedded in housing
Range	–4°C to 40°C
Accuracy/ Resolution	0.1°C/0.01°C
Time constant	<5 min
Compass	Magnetoresistive
Accuracy/Resolution	2°/0.1° for tilt <15°
Tilt	Liquid level
Maximum tilt	30°, AST* requires <10° instrument tilt
Up or down	Automatic detect
Pressure	Piezoresistive
Standard range	0–50 m (1MHz) 0-100m (0.6MHz) 0-100m (0,4MHz)
Accuracy	0.5% of full scale. Optional 0.1% of full scale.
Resolution	0.005% of full scale
TRANSDUCER CONFIGURATIONS	
Standard	3 beams 120º apart, one vertical
Platform mount	3 beams 90º apart, one at 5°
MATERIALS	
Standard	Delrin-polyurethane plastics w/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	
Weight in air	7.3 kg (0.4MHz), 6.2 kg (0.6MHz), 6.1 kg (1MHz)
Weight in water	3.6 kg (0.4MHz), 2.9 kg (0.6MHz & 1MHz)
ANALOG INPUTS	
Number of channels	2
Supply voltage to analog output devices	Three options selectable through firmware commands: • Battery voltage/500mA • +5V/250mA • +12V/100mA
Voltage Input	0-5V
Resolution	16 bit A/D

DATA RECORDING	
Capacity (standard)	2 MB Add: 32/176/352MB or 4GB
Profile record	Ncellsx9 + 120
Wave record	Nsamplesx24 + 1KB
DATA COMMUNICATION	
I/O	RS 232 or RS 422
Communication baud rate	300–115200
Recorder download baud rate	600/1200 kBaud for both RS232 and RS422
User control	Handled via AWAC software, or ActiveX controls. SeaState for online systems.
ProLog	Provides NMEA ASCII or Binary output formats for processed wave and current data.
POWER	
DC input	9-18 VDC
Peak current	3A
Power consumption	Transmit power: 1–30W, 3 adjustable levels
Sleep consumption	0.3 mW (RS232) 5 mW (RS422)
REAL TIME CLOCK	
Accuracy	± 1 min/year
Backup in absence of power	1 year

Offshore Cable

Offshore cable can, when properly deployed, withstand tough conditions in the coastal zone. In RS 422 configuration, cable communication can achieved distances up to 5 km.

Online Projects

Optional: long cables, radio/telephone communication equipment, acoustic modems, etc., to meet requirements of specific projects