CURRENT PROFILER

Signature55

> 1000 m current profiling range for stand-alone and online applications

The Signature55 ADCP is a current profiler that combines an ultralong range with a compact layout. Novel ADCP transducer design allows 1000 m profiles concurrent with slightly shorter-range, finer resolution measurements using two different frequencies in the same instrument. The more than 90% lower power consumption (compared to similar ADCPs) also permits long-duration deployments operating on internal batteries only.

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Highlights

- > 1000 m current profiling range
- Stand-alone and online applications
- Concurrent high-resolution and long-range measurements

Applications

- Observing deep-ocean current profiles
- Current measurements for deep-water meteorological buoys
- Fine and coarse deep-water current profiles

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Technical specifications

⟶ Water velocity measurements	
Maximum profiling range*	1000 m (55 kHz), 600+ (75 kHz)
Cell size	5-20 m
Minimum blanking	2 m
Maximum number of cells	200
Velocity range (along beam)	User-selectable 1 or 5.0 m/s
Minimum accuracy	1% of measured value ± 0.5 cm/s
Velocity precision	Broadband processing, consult instrument software
Velocity resolution	0.1 cm/s
Max sampling rate	1 Hz (1/3 Hz at max power)
* Maximum range depends on transmit power and acoustic scattering conditions	
⟶ HR option (on 5th beam only)	
Velocity range	N/A
Cell size	N/A
Profiling range	N/A
Range velocity limitations	N/A
⟶ AD2CP measurement modes*	
Single	Average
Concurrent	N/A
Alternate	Single (coarse/fine)
* US Patent 8223588	
⟶ Echo intensity (along slanted beams)	
Sampling	Same as velocity
Resolution/ dynamic range	0.5 dB / 70 dB
Transducer acoustic frequency	55 and 75 kHz
Number of beams	3, slanted at 20°
Beam width	4.5°-5.5°
⟶ Echo sounder option	
Resolution	N/A
Number of bins	N/A
Transmit pulse length	N/A
Transmit pulse	N/A
Resolution / dynamic range	N/A
⟶ Wave measurement option	

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AST frequency	N/A
AST max distance	N/A
Maximum wave measurement depth	N/A
Height range	N/A
Accuracy/resolution (Hs)	N/A
Accuracy/resolution (Dir)	N/A
Period range	N/A
Cut-off period (Hs)	N/A
Cut-off period (dir)	N/A
Sampling rate (velocity and AST)	N/A
⟶ Ice measurement option	
Parameters	N/A
⟶ 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)
Standard range	0-1500 m (inquire for options)
Accuracy/precision	0.1% FS / Better than 0.002% of full scale
⟶ AHRS option	
Accelerometer dynamic range	± 2 g
Gyro dynamic range	± 250°/sec
Magnetometer dynamic range	± 1.3 Gauss
Pitch and roll range / resolution	± 90° (pitch) ± 180° (roll) /0.01°
Pitch and roll accuracy	± 2° (dynamic)*, ± 0.5° (static, ±30°)
Heading range / resolution	360°, all axis /0.01°
Heading accuracy	± 3° (dynamic)*, ± 2° (static, tilt < 20°)
Sampling rate	Same as measurement rate (up to 1 Hz)

* Dynamic specifications depends on the type of motion

⟶ Data recording

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Capacity	16 GB, 64 GB or 128 GB (inquire for larger capacity)
Data record	Consult instrument software
Mode	Stop when full
⟶ Real-time clock	
Accuracy	± 1 min/year
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	
Depending on configuration	MCBH6F (Ethernet), MCBH8F (serial), MCBH2F-G2 (pwr), optional Souriau M-series metal connector for online use (14M)
⟶ Software	
Functions	Deployment planning, instrument configuration, data retrieval and conversion (for Windows®)
⟶ Power	
DC input	15-48 V DC
Maximum peak current	1.5 A
Max. average consumption at 1 Hz	15 W
Typical average consumption*	2 W
Sleep consumption	100 ?A, power depending on supply voltage
Transmit power per beam	4-250 W, adjustable levels
Ping sequence	Multiplexing or parallel
* 10 min. avg. profile, 1 cm/sec hor. Prec., Max cell size, max power, long range mode. Consult SW for other configurations	
⟶ Batteries	
Internal	One or two 540 Wh alkaline or 1800 Wh lithium
Duration	Depending on configuration, consult software
⟶ 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

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⟶ Environmental	
Depth rating	1500 m
⟶ Materials	
Standard model	POM with titanium fasteners. Reinforced polyurethane transducer cups
⟶ Dimensions	
Maximum diameter	648 mm
Maximum length with room for internal batteries	547 mm (1 battery), 747 mm (2 batteries)
Maximum length without room for internal batteries	314 mm
⟶ Weight	
In air, no battery	65.5 kg
In water, no battery	25.1 kg
Battery	10.0 kg (2 x 540 Wh), 5.8 kg (2 x 1800 Wh)