Signature 55

1500 m

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



The Signature 55 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.

Download our guide to Signature ADCPs here.

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

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 1.0 to 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

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

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 orientation sensing. Recommended instrument orientation and allowable tilt depend on the measurement application.
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

AHRS option

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)
Power	Using AHRS draws more power than the regular compass and tilt sensor. Please refer to the Signature Deployment software.

* Dynamic specifications depends on the type of motion

Data recording

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 µA, 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
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	10.2 kg (2 x 540 Wh), 7.6 kg (2 x 1800 Wh)