Signature 250

300 m

Intermediate current profiling range that includes wave height/direction and ice tracking capability



The Signature 250 ADCP is a medium-range current profiler with a suite of extra features. It has a current profiling range of 200 m, and can measure wave height, period and direction at depths as great as 150 m. The Signature 250 ADCP can also measure acoustic ranging to ice. Its compact design and low power consumption make it an ideal tool for long-term deployments in all waters.

Download our guide to Signature ADCPs here.

Highlights

- 200 m current profiling range
- Wave height and direction from 150 m installation depth
- Acoustic ranging to ice
- Onboard wave processing

Applications

- Ice drift and draft measurements
- Long-term deployments requiring directional wave measurements and mid-depth current profiles
- Upwelling and downwelling, large-scale mixing studies

Technical specifications

Water velocity measurements	
Maximum profiling range*	200 m
Cell size	1-8 m
Minimum blanking	0.5 m
Maximum number of cells	200 (average)
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	3 Hz (1 Hz at max power)

*Dependent on measurement conditions

AD2CP Measurement modes	
Single	Average
Concurrent	Average and waves/ice
Alternate	N/A

Echo Intensity (along slanted beams)

Sampling	Same as velocity
Resolution/ dynamic range	0.5 dB / 70 dB
Transducer acoustic frequency	250 kHz
Number of beams	5; 4 slanted at 20°, 1 vertical at 500 kHz (optional)
Beam width	2.3° (slanted), 2.2° (vertical)

Echo sounder option

Transducer acoustic frequency	500 kHz
Resolution	6 mm - 1 m
Number of bins	12000
Transmit pulse length	32 us - 1 ms
Transmit pulse	Monochromatic or pulse compressed (25% BW)
Resolution / dynamic range	0.01 dB / 70 dB

Wave measurement option

AST frequency	500 kHz
AST max distance	170 m
Maximum wave measurement depth	150 m
Height range	-15 to +15 m
Accuracy/resolution (Hs)	< 1% of measured value / 2 cm
Accuracy/resolution (Dir)	2° / 0.1°
Period range	2-50 s
Cut-off period (Hs)	25 m depth; 2 sec, 50 m depth; 2 sec,100 m depth; 2.2 sec, 150 m depth; 2.7 sec
Cut-off period (dir)	Please inquire
Sampling rate (velocity and AST)	1 Hz

Ice measurement option

Parameters	Acoustic ranging to ice, speed and direction, echo sounder data

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	0-300 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 3 Hz)
Power	Using AHRS draws more power than the regular compass and tilt sensor. Please refer to the Signature Deployment software.

*Dynamic specifications depend 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 (10M)

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	400 mW
Sleep consumption	100 µA, power depending on supply voltage
Transmit power per beam	4-200 W, adjustable levels
Ping sequence	Multiplexing or parallel

Batteries

Internal	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	300 m

Materials

Standard model	POM with titanium fasteners. Reinforced polyurethane transducer cups

Dimensions

Maximum diameter	464 mm
Maximum length with room for internal batteries	523 mm
Maximum length without room for internal batteries	308 mm

Weight

In air, no battery	18.5 kg (17.1 kg short)
In water, no battery	1.5 kg (5.2 kg short)
Battery	5.1 kg (540 Wh), 3.8 kg (1800 Wh)