

Signature250



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

The Signature250 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 Signature250 ADCP can also measure ice thickness, as well as the speed and direction of drifting ice. Its compact design and low power consumption make it an ideal tool for long-term deployments in all waters.

Signature250



Highlights

- ✓ 200 m current profiling range
- ✓ Wave height and direction from 150 m installation depth
- ✓ Ice thickness and ice tracking

Applications

- ✓ Ice drift and draft measurements
- ✓ Directional wave measurements
- ✓ Mid-depth current profiles
- ✓ Studies of tidal currents
- ✓ Plankton migration studies
- ✓ Upwelling and downwelling studies
- ✓ Large-scale mixing studies
- ✓ Suitable for wave buoys



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 2.5 or 5.0 m/s
Minimum accuracy	1% of measured value \pm 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)

➡ 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	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)



➡ Echo Intensity (along slanted beams)

Beam width	2.3° (slanted), 2.2° (vertical)
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➡ Echo sounder option

Resolution	N/A
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Number of bins	N/A
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Transmit pulse length	N/A
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Transmit pulse	N/A
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Resolution / dynamic range	N/A
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➡ Wave measurement option

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

Parameters	Ice thickness, speed and direction, echo sounder data
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➡ Sensors

Temperature:	Thermistor in head (sampled at meas. rate)
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Temp. range	-4 to +40 °C
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Temp. accuracy/resolution	0.1 °C/0.01 °C
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Temp. time response	2 min
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Compass:	Solid State magnetometer (max 1 Hz sample rate)
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➤ Sensors

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	0-300 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) ⁴ , ± 0.5° (static, ±30°)
Heading range / resolution	360°, all axis /0.01°
Heading accuracy	± 3° (dynamic) ⁴ , ± 2° (static, tilt < 20°)
Sampling rate	Same as measurement rate (up to 3 Hz)

➤ 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.

Signature250



➡ 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



➡ Data communications

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)
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➡ Software

Functions	Deployment planning, instrument configuration, data retrieval and conversion (for Windows®)
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➡ 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
Shock and vibration	IEC 60068-1/IEC60068-2-64
EMC approval	IEC 61000
Depth rating	300 m

➡ Materials



POM with titanium fasteners. Reinforced polyurethane transducer cups

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

In air, no battery 18.5 kg (17.1 kg short)

In water, no battery	1.5 kg (5.2 kg short)
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Battery	5.0 kg (540 Wh), 2.9 kg (1800 Wh)
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