

Signature 250



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.

Specifications

Product	Signature
Country of origin	Norway
Manufacturer	Nortek
Material	POM with titanium fasteners. Titanium/POM transducer cups
Weight in air no battery	37.5 kg

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

Water velocity measurements

Max profiling range	200 m
Cell size	1-8 m
Max no. cells	200 (average)
Min. blanking	0.5 m
Velocity range (along beam)	User-selectable 1.0 to 5.0 m/s
Velocity precision	Broadband processing, consult instrument software
Minimum accuracy	1% of measured value $\pm$ 0.5 cm/s
Velocity resolution	0.1 cm/s
Max sampling rate	3 Hz (1 Hz at max power)

AD2CP Measurement modes*

Single	Average
Concurrent	Average and waves/ice
Alternate	N/A

Real-time clock

Accuracy	$\pm$ 1 min/year
Clock retention in absence of external power	1 year. Rechargeable backup battery

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	70–120 kHz
Transducer beam width	15° @ 70 kHz, 8.7° @ 120 kHz
Resolution	0.375–4 m
Number of bins	1800
Transmit pulse length	0.5–6 ms
Transmit pulse	Monochromatic 70 kHz, 90 kHz and 120 kHz or frequency chirp (90 kHz, 50% BW)
Transmit power	1.2–120 W, adjustable
Chirp signal processing	Pulse compression or binned frequency response
Raw complex data storage	Configurable rate
Resolution/dynamic range	0.01 dB / 130 dB
Linearity	TBA

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

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), ± 2° (static, tilt < 20°)
Sampling rate	Same as measurement rate (up to 1 Hz)

Data recording

Capacity	16 GB, 64 GB or 128 GB (inquire for larger capacity)
Data record	Consult instrument software
Mode	Stop when full

Data communications

Ethernet	10/100 Mbits Auto MDI-XTCP/IP, UDP, HTTP protocols Fixed IP/DHCP client/AutoIP, UPnP
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

Power

DC input	15–48 V DC
Max. 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	4–200 W, adjustable levels
Ping sequence	Multiplexing or parallel

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 mode	POM with titanium fasteners. Titanium/POM transducer cups
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Software

Functions	Deployment planning, instrument configuration, data retrieval and conversion (for Windows®)
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Weight

In air, no battery	37.5 kg
In water, no battery	13 kg
Battery	10.0 kg (2x540 Wh), 5.8 kg (2x1800 Wh)

Dimensions

Maximum diameter	460 mm
Maximum length without room for internal batteries	Depending on configuration, consult software
Maximum length with room for internal batteries	765 mm (2 batteries)

Ice measurement option

Parameters	N/A
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