

Signature100 [logo] found or type unknown

Long-range current profiler designed for combined current profile and biomass measurements

The Signature100 combines a four-beam current profiler operating at 100 kHz with an optional scientific echosounder.

Both the current profiler and the biomass measurements have an effective range of 300-400 m providing unprecedented insight into the dynamics of zooplankton, krill or even schools of fish. Likewise, acoustic tracer material can give new insight into small-scale physical processes.

Applications

Highlights

- [image not found] 300-400 m current profiling range
- [/] Optional center beam with 70–120 kHz echosounder
- [/] Detection of krill in the water column
- [/] Cost-effective current profile measurements at mid-range
- [/] Plankton migration studies
- [/] Upwelling and downwelling studies
- [/] Internal waves
- [/] Suitable for buoy mounting with internal AHRS

Technical specifications

[arrow] Water velocity measurements

Maximum profiling range	300-400 m*
Cell size	3–15 m
Minimum blanking	TBA
Maximum number of cells	200
Velocity range (along beam)	User-selectable 2.5 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 (1/2 Hz at max output power)

*Maximum range depends on acoustic scattering conditions.

[arrow] HR option (on 5th beam only)

Velocity range	N/A
Cell size	N/A
Profiling range	N/A

[arrow]

HR option (on 5th beamonly)

Range velocity limitations N/A

[arrow]

AD2CP Measurement modes*

Single	Average
Concurrent	Average and echosounder
Alternate	N/A

* US Patent 8223588

[arrow]

Echo Intensity (along slanted beams)

Sampling	Same as velocity
Resolution/dynamic range	0.5 dB/70 dB
Transducer acoustic frequency	100 kHz
Number of beams	4 slanted at 20°, optional vertical beam for echosounder
Beam width	6.1° (slanted)

[arrow]

Echosounder 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

[arrow]

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

[arrow]

Wave measurement option

Cut-off period (Hs)	N/A
Cut-off period (dir)	N/A
Sampling rate (velocity and AST)	N/A

[arrow]

Ice

measurement option

Parameters	N/A
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[arrow]

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

[arrow]

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)

* Dynamic specifications depends on the type of motion

[arrow]

Data recording

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

[arrow]

Data recording

Mode [arrow] Stop when full

Real-time clock

Accuracy ± 1 min/year

Clock retention in absence of external power 1 year. Rechargeable backup battery [arrow]

Data communications

Ethernet 10/100 Mbits Auto MDI-XTCP/IP, UDP, HTTP protocolsFixed 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 [arrow] ASCII command interface over Telnet and serial

Connectors

Depending on configuration [arrow] MCBH6F (Ethernet), MCBH8F (serial), MCBH2F-G2 (pwr), optional Souriau M-series metal connector for online use (14M)

Software

Functions [arrow] 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 4–200 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 [arrow]

Batteries

Internal One or two 540 Wh alkaline or 1800 Wh lithium

[arrow]

Batteries

Duration Depending on configuration, consult software
[arrow]

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 (for 6000 m version, contact Nortek for specifications)
[arrow]

Materials

Standard model POM with titanium fasteners. Titanium/POM transducer cups
[arrow]

Dimensions

Maximum diameter 460 mm

Maximum length with room for internal batteries 765 mm (2 batteries)

Maximum length without room for internal batteries N/A
[arrow]

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)