

# 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 |

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### 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

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### 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)   |

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### 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  |

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### 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 |

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### 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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### 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       |

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### 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  $\pm 1$  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  
[ 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)