# Signature 55

1500 m

**> 1000 m current profiling range for stand-alone and online applications**

The Signature 55 ADCP is a current profiler that combines an ultralong range with a compact layout. Novel ADCP transducer design allows 1000 m profiles concurrent with slightly shorter-range, finer resolution measurements using two different frequencies in the same instrument. The more than 90% lower power consumption (compared to similar ADCPs) also permits long-duration deployments operating on internal batteries only.

Download our guide to Signature ADCPs here.

## Highlights

- > 1000 m current profiling range
- Stand-alone and online applications
- Concurrent high-resolution and long-range measurements

## Applications

- Observing deep-ocean current profiles
- Current measurements for deep-water meteorological buoys
- Fine and coarse deep-water current profiles

## Technical specifications

| Water velocity measurements | |
|---|---|
| Maximum profiling range* | 1000 m (55 kHz), 600+ (75 kHz) |
| Cell size | 5-20 m |
| Minimum blanking | 2 m |
| Maximum number of cells | 200 |
| 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 | 1 Hz (1/3 Hz at max power) |

* Maximum range depends on transmit power and acoustic scattering conditions

| AD2CP measurement modes* | |
|---|---|
| Single | Average |
| Concurrent | N/A |
| Alternate | Single (coarse/fine) |

* US Patent 8223588

## Echo intensity (along slanted beams)

| | |
|---|---|
| Sampling | Same as velocity |
| Resolution/ dynamic range | 0.5 dB / 70 dB |
| Transducer acoustic frequency | 55 and 75 kHz |
| Number of beams | 3, slanted at 20° |
| Beam width | 4.5°-5.5° |

## Echo sounder option

| | |
|---|---|
| Resolution | N/A |
| Number of bins | N/A |
| Transmit pulse length | N/A |
| Transmit pulse | N/A |
| Resolution / dynamic range | N/A |

## 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 |

## Ice measurement option

| | |
|---|---|
| Parameters | 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 |

## AHRS option

| | |
|---|---|
| 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 1 Hz) |

* Dynamic specifications depends 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 (14M) |

## 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* | 2 W |
| Sleep consumption | 100 µA, power depending on supply voltage |
| Transmit power per beam | 4-250 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

## 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 model | POM with titanium fasteners. Reinforced polyurethane transducer cups |

## Dimensions

| | |
|---|---|
| Maximum diameter | 648 mm |
| Maximum length with room for internal batteries | 547 mm (1 battery), 747 mm (2 batteries) |
| Maximum length without room for internal batteries | 314 mm |

## Weight

| | |
|---|---|
| In air, no battery | 65.5 kg |
| In water, no battery | 25.1 kg |
| Battery | 10.2 kg (2 x 540 Wh), 7.6 kg (2 x 1800 Wh) |