

# 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 $\pm$ 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 |   |
| 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 | 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)           |

## Sensors

|                    |  |
|--------------------|--|
| 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       | $\pm 2$ g   |
| Gyro dynamic range                | $\pm 250^\circ/\text{sec}$  |
| Magnetometer dynamic range        | $\pm 1.3$ Gauss   |
| Pitch and roll range / resolution | $\pm 90^\circ$ (pitch) $\pm 180^\circ$ (roll) /0.01°                |
| Pitch and roll accuracy           | $\pm 2^\circ$ (dynamic)*, $\pm 0.5^\circ$ (static, $\pm 30^\circ$ ) |
| Heading range / resolution        | 360°, all axis /0.01°   |
| Heading accuracy                  | $\pm 3^\circ$ (dynamic)*, $\pm 2^\circ$ (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                                     | $\pm 1$ 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 $\mu$ A, power depending on supply voltage |
| Transmit power per beam          | 4-250 W, adjustable levels                     |
| Ping sequence                    | Multiplexing or parallel                       |

## Power

\* 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) |