

# Signature55

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

The Signature55 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.

### 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

### [ arrow ] 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 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 (1/3 Hz at max power)

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### **Water velocity measurements**

\* Maximum range depends on transmit power and acoustic scattering conditions

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### **HR option (on 5th beam only)**

Velocity range N/A

Cell size N/A

Profiling range N/A

Range velocity limitations N/A

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### **AD2CP measurement modes\***

Single Average

Concurrent N/A

Alternate Single (coarse/fine)

\* 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 55 and 75 kHz

Number of beams 3, slanted at 20°

Beam width 4.5°-5.5°

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### **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

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### **Wave measurement option**

AST frequency N/A

AST max distance N/A

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### Wave measurement option

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

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### 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°

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### **AHRS option**

Pitch and roll accuracy  $\pm 2^\circ$  (dynamic)\*,  $\pm 0.5^\circ$  (static,  $\pm 30^\circ$ )  
Heading range / resolution  $360^\circ$ , all axis /  $0.01^\circ$   
Heading accuracy  $\pm 3^\circ$  (dynamic)\*,  $\pm 2^\circ$  (static, tilt <  $20^\circ$ )  
Sampling rate Same as measurement rate (up to 1 Hz)

\* Dynamic specifications depends on the type of motion

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### **Data recording**

Capacity 16 GB, 64 GB or 128 GB (inquire for larger capacity)

Data record Consult instrument software

Mode Stop when full

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### **Real-time clock**

Accuracy  $\pm 1$  min/year

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

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### **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

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### **Connectors**

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

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### **Software**

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

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### 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

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### Batteries

Internal One or two 540 Wh alkaline or 1800 Wh lithium

Duration Depending on configuration, consult software

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### 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

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### Materials

Standard POM with titanium fasteners. Reinforced polyurethane transducer  
model cups

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### Dimensions

Maximum diameter 648 mm

Maximum length with room for internal batteries 547 mm (1 battery), 747 mm (2 batteries)

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### **Dimensions**

Maximum length without room for internal  
batteries 314 mm

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### **Weight**

In air, no battery 65.5 kg

In water, no battery 25.1 kg

Battery 10.0 kg (2 x 540 Wh), 5.8 kg (2 x 1800 Wh)