

Smart buoy specifications (wave, surface current, Sea temperature)

Specifications

Dimensions	Width: 42 cm (16 in), Height: 31 cm (12.2 in)
Weight	7.45 kg (16 lb 7 oz)
Connectivity	Satellite (Iridium SBD) and Cellular
Primary Power Source	Solar-powered, 5x 2 Watt, 6 Volt solar panels
Battery	Rechargeable lithium-ion 13,400 mAh capacity, 3.7 Volts

Motion Sensing

Motion Data Format	Easting (mm), northing, elevation, latitude, longitude
Wave Frequency Range	0.03 - 0.8Hz (30s - 1.25s)
Wave Direction Range	0 - 360°
Sampling Rate	2.5Hz
Wave Displacement Accuracy	Approximately ±2cm accuracy depends on field of view, weather conditions, and GPS system status

Additional Onboard Sensors

Sea Surface Temperature (SST)	Accuracy Resolution Range	±0.1°C absolute ±0.02°C -5°C - 50°C
Barometer	Accuracy Range	±0.5mbar at 25°C 700 - 1100mbar

Data Outputs

	Standard Mode	Spectrum Mode	On Device
Significant Wave Height	●	●	●*
Peak Period	●	●	●*
Mean Period	●	●	●*
Peak Direction	●	●	●*
Mean Direction	●	●	●*
Peak Directional Spread	●	●	●*
Mean Directional Spread	●	●	●*
Variance Density Spectrum	○	●	●
Directional Moments (a1, b1, a2, b2)	○	●	●
3D Displacement Time Series @ 2.5 Hz (x,y,z)	○	○	●
Sea Surface Temperature (SST)	●**	●**	●**
Barometer	●	●	●
Wind Speed	●	●	○
Wind Direction	●	●	○
Drift Speed	○	○	●*
Drift Direction	○	○	●*
Geographical Coordinates (lat, lon)	●	●	●

*Can derive from SD card data. **SST is not available with Smart Mooring

Data Storage

On-board (SD Card)	Records time series of 3D displacement data, ships with 16GB SD card (supports up to 2TB, FAT32 format required)
Cloud Storage (Online Dashboard)	Online account includes real-time and historical data outputs, Spotter configurations, alerts, maps, and two-way communication

Misc. Specifications

System Monitoring	Battery voltage, solar panel power, internal humidity
Advised Mooring Depth	5 - 300m
Visibility Light	.5s flash every 2.5s (configurable), minimum 1 mile visibility in normal conditions
Firmware Updates	USB-C and over-the-air updates (cellular only)
Usability	Physical on/off switch, run/idle magnetic toggle, user LEDs and integrated grab handles

Sub surface current meter specifications

Current Speed: (Vector averaged)

Range:	0-300cm/s
Resolution:	0.1mm/s
Mean Accuracy:	±0.15cm/s
Relative:	± 1% of reading
Statistic precision (std):	0.3cm/s (ZPulse mode), 0.45cm/s1

Current Direction:

Range:	0-360° magnetic
Resolution:	0.01°
Accuracy:	±5° for 0-15° tilt ±7.5° for 15-35° tilt

Temperature (only 4830/4830R/4930/4930R):

Range:	-5°C to +40°C
Resolution:	0.01°C
Accuracy:	0.1°C
Settling Time(63%):	30s

Tilt Circuitry:

Range:	0-35°
Resolution:	0.01°
Accuracy:	±1.5°

Compass Circuitry:

Resolution:	0.01°
Accuracy:	±3°
Acoustics:	
Frequency:	1.9 to 2.0MHz
Power:	25 Watts in 1ms pulses
Beam angle (main lobe):	2°

Interfaces:

	AiCaP protocol, RS-232 RS-422
RS-232/RS-422 Output:	9600 baud, 8 data bit, No parity, 1 stop bit, Xon/Xoff

Maximum cable length:

RS-232:	15m
RS-422:	1500m

Installation distance:

From surface:	0.75m
From bottom:	0.5m

Supply Voltage: 6-14 Vdc

Operating Temperature: -5 to +50°C

Depth Capability: 300m