Sofar ocean spotter

The smart buoy that delivers realtime weather data from anywhere in the ocean.

Real-time ocean data is sparse and notoriously difficult to collect. Spotter changes that. This turnkey marine sensing device gathers wave, wind, sea surface temperature, and barometric pressure data, and delivers insights via Sofar's Spotter Dashboard and API. Spotter gives you instant, accurate visibility of ocean conditions.

24/7 satellite and cellular connectivity provides access to real-time weather data and system updates at any time. Share data through the Spotter Dashboard, use the API to connect your data to wherever you need it, or use our native ESRI map layer. Cellular-enabled over-the-air firmware updates mean your Spotter is always getting new features and new capabilities.

Roughly the size of a basketball, Spotter can be shipped anywhere around the world, carried by hand, and deployed from any size vessel. Every Spotter comes with 1 year of Iridium satellite data credits included, so it is immediately ready to deploy.

Specifications

Product	Sofar ocean spotter
Country of origin	USA
Manufacturer	Sofar Ocean

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Wind + Wave

Spotter collects 3D displacement time series, and calculates the wave spectrum, which is stored onboard and can be transmitted through the dashboard. In addition, you receive updates for:

- Position / time
- Wave mean / peak period
- Wind speed / direction
- Wave mean / peak directional spread
- Significant wave height
- Wave mean / peak direction
- Wave mean directional spread

Sea surface temperature

Spotter comes equipped with a compact, digital temperature sensor to provide high-fidelity Sea Surface Temperature (SST) measurements. The sensor is mounted in an insulated stainless steel penetrator to provide excellent thermal contact with the water and is rated for 0.1ºC absolute accuracy and 0.02ºC resolution.

Barometric pressure

The barometer measures atmospheric pressure at the sea surface with rated initial accuracy of + / - 1 mbar between 0°C to 50°C at an operating range of 700 to 1100 millibars. Accuracy is relative to single-point calibration reference. Accuracy drift of up to 1mbar/year.

Data partitioning

In addition to the standard bulk parameters, Spotter can provide the same parameters over ‘sea’ and ‘swell’ wave partitions.

Specs

External dimensions [w X h]	42 cm x 31 cm (16.4 in x 12.2 in)
Weight	7.45 kg (16 lbs, 7 oz)
Connectivity	Iridium SBD (satellite)
Primary power source	Solar powered, 5x 2 Watt, 6 Volt solar panels
Battery	Lithium-ion, capacity 11,200 mAh, 3.7v (rechargeable)

Motion sensing

Motion data format	Easting, northing, elevation, latitude, longitude
Wave frequency range	0.03-1 Hz (30s to 1s)
Wave direction resolution	0 - 360 degrees (full circle)
Sampling rate	2.5 Hz (Nyquist at 1.25Hz)
Wave displacement accuracy	Approximately +/- 2cm accuracy depends on field of view, weather conditions, and GPS system status
Calibration	Not needed, ever

Additional onboard sensors

Sea surface temperature (SST)	-5°C to 50°C range, ±0.1°C absolute accuracy, ±0.02°C resolution
Barometer	Range: 700...1100mbar, Accuracy: +/-0.5 mbar at 25°C

Data storage

On-board (SD card)	Records time series of 3D displacement data, ships with 16GB (256GB max capacity), FAT16 or FAT32 Format required
Cloud storage (online dashboard)	Online account includes: Real-time and historical data outputs, Spotter configurations, alerts, maps and 2-way communication

Misc. specs

System monitoring	Battery power status
Advised mooring depth	Any depth
Visibility LED	1 flash every 2.5 sec, at least 1 mile visibility under normal conditions.
Firmware upgrade	Standard micro-USB (cable included)
Usability	Magnetic on/off switch, run/idle mode, user LED's and integrated grab handles.

Data outputs

	Standard mode	Spectrum mode	On device
Significant wave height	x	x	x
Peak period	x	x	x
Mean period	x	x	x
Peak direction	x	x	x
Mean direction	x	x	x
Peak directional spread	x	x	x
Mean directional spread	x	x	x
Variance density spectrum		x	x
Directional moments (a1, b1, a2, b2)		x	x
3D displacement time series @ 2.5 Hz (x,y,z)			x
Sea surface temperature		Not available with Smart Mooring units	
Wind speed	x	x	x
Wind direction	x	x	x
Drift speed			x
Drift direction			x
Geographical coordinates (lat, lon)	x	x	x