oPod Mini™ – Specification Sheet

Autonomous Mini Buoy for Real-Time Marine Monitoring

Bring Your Ocean Into Focus

The **oPod Mini™** is a compact, self-powered, multi-parameter marine monitoring buoy for ocean and coastal deployments. At around 38kg, it can be deployed by two operators from a small vessel for rapid, low-cost installation (recommended handling guidelines apply).

Built for long-duration field performance, oPod Mini integrates solar power, internal batteries, real-time telemetry, and a marine-grade stainless steel sensor frame.

The system offers true plug-and-play operation, allowing users to deploy and begin collecting data immediately with no specialist technical expertise required. With up to 35 W solar capacity and expanded instrument housing, the Mini supports more capable sensors, longer deployments, and a wider range of monitoring applications.

Key Features

Compact, Rugged Marine-Grade Design

- HDPE hull with high rigidity and low warpage
- Marine-grade stainless steel sensor cage and mounting hardware
- Lightweight, deployable by two people
- Integrated solar panels & internal battery for 24/7 operation

Integrated Multi-Parameter Sonde System

- Sonde is equipped with a self-cleaning brush that effectively cleans the measurement surface, removes bubbles, prevents microbial attachment , and ensures stable performance
- Measures temperature, pH, dissolved oxygen, salinity, turbidity, and chlorophyll-a

Navigation & Telemetry

- Integrated 4G communications included; optional upgrade to 5G or satellite telemetry for locations without 4G coverage
- GPS positioning
- Marine safety light

Easy Deployment & Maintenance

- Single-point lifting attachment.
- Self-cleaning sensing head reduces manual maintenance frequency
- Designed for oPod network compatibility for fleet-scale deployments
- Designed for easy mooring

Performance

Deployment: Marine, aquaculture, coastal monitoring, freshwater lakes, environmental baselines

Maintenance Interval: 6–8 weeks typical

Sensor Depth: Surface to 50 m (customizable)

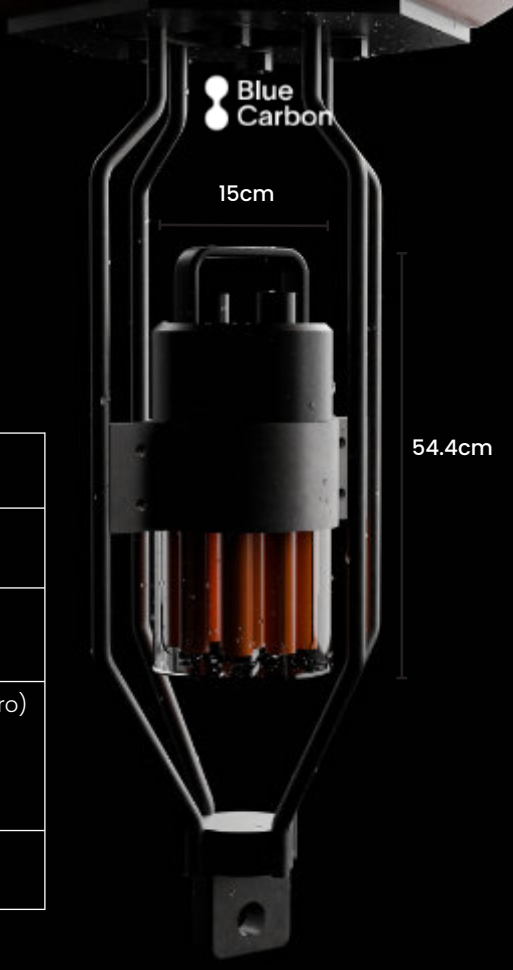
oPod Mini Applications

- Marine ecosystem restoration & MRV
- Aquaculture environmental monitoring
- Coastal water quality stations
- Climate-tech sensing for carbon projects
- Algal bloom detection
- Desalination intake monitoring
- oPod network node for distributed ocean intelligence

Package Includes

- oPod Mini buoy hull
- Multiparameter sonde
- Telemetry and data logging module
- Solar panel + battery
- Integrated mounting hardware
- 50 m waterproof cable (optional)

Technical Specifications



Buoy Body

Property	Specification
Material	Buoy: HDPE, stainless steel Sonde: PVC,Ti, anti-fouling copper
UV Rating	ISO 4892-3, 15,000 hours (excellent marine UV durability)
Dimensions	84cm (Dia.) 137.4cm (H) (oPod Mini™ Core/oPod Mini™ Water Quality Pro) 16cm (Dia.) 54.4cm (H) (oPod Mini Deep Kit)
Weight	~38 kg (oPod Mini™ Core / oPod Mini™ Water Quality Pro) ~5kg (oPod Mini Deep Kit)

Multiparameter Sonde - Integrated Sensor Suite

Parameter	Range	Resolution	Accuracy	Principle
pH	0–14 pH	0.01	±0.02 pH	Glass ion selective
Conductive Salinity	conductivity: 0-200mS/cm (0-2mS/cm, 2-20mS/cm, 20-200mS/cm) salinity: 0-175ppt TDS: 0-128000mg/L	1 µS/cm	±1% or 0.01mS/cm, take the bigger one ±1ppt	Electrode method
Dissolved Oxygen	0–50mg/L or 0-500% saturation	0.01 mg/L	0-20mg/L:1%or±0.2mg/L >20mg/L:±5%or±0.6mg/L	UV fluorescence
Turbidity	0–1000 NTU or 0–4000 NTU	0.01 NTU	±5% or 0.3 NTU, take the bigger one	Scattered light
Temperature	0.5–55°C	0.1°C	±0.3°C	PT1000
Chlorophyll-a	0–500 µg/L	0.01 µg/L	±5% or 0.5 µg/L, take the bigger one	Fluorescence

Additional Features

- Automatic cleaning brush.
- 316L stainless steel + POM construction.
- Data Interface: Sensor data is collected, transmitted and accessed through the Blue Carbon IoT Cloud Platform.
- Operating Temp: 5–55°C.
- Waterproof Rating: IP68.
- Power: DC12V, 20AH.

Telemetry & Data System

Communication: 4G LTE (default), Satellite (optional)

Data Logging: Onboard storage (size configurable)

Solar Power: Up to 35W (configuration dependent)

Battery: $LiFePO_4$ Rechargeable lithium battery

Enclosure: IP68 electronics housing