MiniMoose Buoy

Ocean Origo

Cost-effective, Small, Sensor buoy with Real-time communication

MiniMoose Buoy from Ocean Origo is a small, rugged, accurate ODAS buoy (Ocean Data Acquisition System) designed for ocean engineering, operational oceanography, marine/port monitoring and alike. It operates in coastal, fjord and lake areas. Its tight, compact design and stainless steel/polymer materials makes it robust and corrosion resistant. MiniMoose Buoy may be equipped with various sensors according to customers choice ranging from CTDs, acoustic current meters, wave sensor, optical sensors and more. The buoy moves smoothly in water when moored correctly – benefiting both optional wave and current measurements. MiniMoose Buoy has enough batteries for about 12 months operation (depending on sensor configuration) on a standard alkaline battery unit. Sensor data is transmitted to land via satellite, GSM/4G mobile, ZigBee or LoRa radio and remote re-configuration of the buoy is also possible.

Benefits: Its small size, just 1 m diameter and approx. 70 kg, allows for small, low-cost vessel operation and transportation. This means very low operating costs compared to other data buoys on the market. Also, purchase cost compares very favourable with other data buoys thanks to its small size and smart design. Nonetheless, this is a high quality buoy with great capacity. Its low power electronics allows for long unattended operation and the rugged construction implies long last operation also under really tough environmental conditions.

Another benefit is its capacity and flexibility. It can be equipped with a great number of sensors according to customers needs. Also, the buoy's extended communication capability makes it easy to adapt to various conditions across the globe.

Real-time data transmission via GSM/4G LTE, satellite or radio

Robust & functional design

Open ocean, coastal, near-shore, fjords and lakes

All data stored on internal micro-SD card for back-up

Rugged, reliable, unsinkable

Typically 12 months operation on standard alkaline batteries

Very low power consumption

Customer selects sensors: CTD, ADCP, etc

Optionally measures "all' wave parameters incl. wave direction, 'First 5' and spectrum

Easy to transport, store & handle

Basic configuration includes GNSS position, buoy light and one communication method (customer selects).

Small-sized vessel operation

Very low purchase and operational costs

Easy to deploy and recover

SPECIFICATION MINIMOOSE BUOY

Basic parameters	Buoy position: Horizontal accuracy - typical 2 m @ open sky condition. Time: Accuracy within 2 s when system set for GPS/GNSS time sync.
Optional parameters	Selected by the customer. We recommend SeaBird SBE 37 CTD, Nortek Acoustic current meter, Aanderaa oxygen sensor, various fluorometers and more. [2)]
Sensor depth	0.2 – 1 m when mounted on buoy. Sensors can also be mounted on mooring rope or on vertical cable if using twin-leg mooring.[2)]
Dimension	Dia 100 cm. Height: 150 cm excluding antenna. m=70 kg incl. batteries [1)]
Buoy hull	Polyurethane closed cell foam filled polyethylene hull. Strong, resistant, 'unsinkable' design. Yellow colour compliant to IALA E-108.
Material	Stainless steel (316 & 316L) and polymer.
Buoyancy	200 kg residual buoyancy [1)]
Environment	Operation: -30 to +45 º C. Avoid ice conditions. Storage: -40 to +55 º C.
Nautical	Self contained LED light (5 flash, 20 s). 4 x Mooring eyes at the bottom. 4 x lifting eyes.
Mooring	We recommend one-leg S-shaped mooring for standard operation. Twin-leg mooring also possible.[2)]
Portability	Buoy is easily separated in parts – hull, battery compartment, sensors and antenna - thus facilitating storage and transportation. MiniMoose Buoy fits in a regular station car.
Power	Alkaline battery unit: (4.2 kWh, 176 D-cells). Easy exchange.
Battery life time	Depending on buoy configuration. **Ex:** Buoy equipped with Nortek Acoustic current meter and GSM/4G communication, 2 transmissions per hour, standard alkaline battery unit: Approx. 12 month battery life.
Data storage	16 GB micro-SD card. Enough for several years operation at "normal" buoy configuration.
Data format	Data stored and transmitted in well defined and described NMEA string format.
Remote comm.	2-way communication. All alternatives allow operator to remotely re-configure buoy. Data transmitted at end of every measuring cycle. One customer selected communication method is included in the basic scope: • GSM/GPRS/4G modem for near-shore locations. SMS/email to customer's address. • Iridium satellite link (SBD) for world-wide communication. E-mail to customer's address. • ZigBee radio communication to operators modem/computer. Short range (~1 km). • LoRa radio communication to operators modem/computer. Medium range (~20 km).
PC communication	RS232/USB by cable or Bluetooth. Use standard terminal window program (TeraTerm, etc). Configuration & test-ability of all sub-systems like GPS, modems, sensors, etc. Very easy to manage and get system overview.
Sensor & device interfaces	• 5 x 3.3 V UART + 6 x RS-232 + 3 x I2C + 1 x SPI + 5 AD channels (0-3.3 V) • 7 x power regulators
Other	• Run-time error & reporter log automatically generated. Stored on u-SD memory card. • On-board lithium battery cell for real-time clock back-up. • Automatic "Start sampling" at power up.
Scope of delivery	MiniMoose Buoy incl. standard alkaline battery unit, communication method according to customers choice (GSM, Iridium, ZigBee or LoRa), GNSS/GPS sensor, 16 GB micro SD memory card, LED light, manual, PC communication cable and dummy plug.
Options	• 200 m electronic unit casing instead of IP 67 casing • GSM/4G LTE, Iridium, ZigBee or LoRa radio link. • Larger micro-SD data memory card, up to 256 GB. • Optional sensors[2)] like Nortek AquaProfiler current meter, SeaBird 37 CTD, etc. • Ocean Origo's www-based graphic interface[2)]. View real-time data on www-site. • None-magnetic alkaline battery pack. Needed for current meter applications. • Lithium battery pack[3)]. 13 kWh, 176 D-cells. Non-magnetic. • Independent GPS tracker. • Mooring design and equipment incl. elastic element required for wave measurements. • Installation on site. • Regular service and maintenance. • Ocean Origo Data delivery service. Customer pays for data, Ocean Origo handles everything. Monthly fee and start fee.

1. Without extra weight. Extra weight recommended for better stability.
2. Contact Ocean Origo to discuss best solution.
3. Note - standard lithium air freight limitations apply.

Ocean Origo AB
Lexbyvägen 51
SE-433 31, Partille
Sweden

Tel. +46 709495566
E-mail: info@ceanorigo.com
Internet: www.oceanorigo.com