

## RECHARGEABLE, FLEXIBLE, AFFORDABLE, MULTI-PURPOSE SENSOR BUOY WITH REMOTE COMMUNICATION

- \* *Marin research, environmental surveillance and monitoring*
- \* *Customer selects sensors: Turbidity, salinity, water current, air and water temperature, waves, optical parameters, GPS, etc.*
- \* *Customer selects remote comm: Cellular, Satellite, LoRaWAN, etc.*
- \* *Rechargeable Lithium-ion batteries*
- \* *Remote communication and buoy light included in basic scoop.*



MEMORINO

- \* *Rugged, reliable, unsinkable*
- \* *All data stored on internal micro-SD card for back-up*
- \* *Small size - easy to transport, store, deploy and recover*
- \* *Swedish design and production*
- \* *Low purchase and operational costs*
- \* *Two versions: 100 cm diam and 65 cm diam buoy hull*

**MEMORINO** from Ocean Origo is a small, rugged, multi-purpose sensor buoy with wireless communication. MEMORINO is a smaller version of MEMO. While MEMO carries a bulky alkaline battery pack located under the hull, MEMORINO is equipped with a set of rechargeable lithium battery cells located inside the electronic unit, on top of the hull. Thus, the battery pack is easy to swap in the field, no need to lift the buoy. MEMORINO is suitable for low power sensors or short term missions. However, operation time may be increased dramatically using the XL battery pack option. Furthermore, MEMORINO has a lower price than MEMO and is also lighter.

MEMORINO is equipped with the same electronics as MEMO and thus has the same great capacity to interface a multitude of sensors and communication devices. MEMORINO is perfect for environmental studies, dredge studies, general sensor logging and surveillance. It targets port and fairway surveillance, fish farming, water management, research, operational oceanography, etc. MEMORINO may be equipped with various sensors according to customer's choice ranging from CTD, acoustic current meter, wave sensor, environmental and optical sensors, etc. MEMORINO may also interface multiple sensors located at various depth on the mooring line. Sensor data is transmitted via cellular (mobile), satellite, ZigBee or LoRaWAN (customer's choice) and may optionally be presented on the web. Remote re-configuration of system is also possible. MEMORINO is made of non-corroding stainless steel/polymer materials and is built for long life and reliable sensor data delivery.

**Benefits:** Its small size and smart design allows for small, low-cost vessel operation and simple transportation in a regular station car. This means very low operating costs. Purchase cost also compares favourable to market alternatives. However, make no mistake, this is a top quality sensor buoy with great capacity. Its solid construction implies long-lasting operation also under tough environmental conditions. MEMO offers great flexibility and can easily be adapted to customer's application and needs regarding sensor suite, communication method, etc.

<b>Dimension</b>	Customer to specify protruding length (Lx) of stainless steel pipe under the hull. Standard Lx is 80 cm. Height: 82 cm + Lx. MEMORINO: Diam=100 cm. M=46 kg <sup>1)</sup> . MEMORINO Mini: Diam=65 cm. M=32 kg <sup>1)</sup>
<b>Power</b>	Rechargeable Lithium-ion cells. 100 Wh. XL battery pack option adds another 300 Wh
<b>Communication</b>	Cellular (email, SMS, FTP), Satellite (SBD), ZigBee or LORAWAN (customer's choice)
<b>Sensor Interfaces</b>	5 x RS232, 5 x digital 3.3 V, 1 x RS485/Modbus, 6 x Analog (0-3.3 V, 16 bits).
<b>Scope of delivery</b>	MEMORINO incl. rechargeable lithium batteries (100 Wh), remote communication according to customer's choice (LTE/4G, Iridium, ZigBee or LoRaWAN), 32 GB micro SD memory card + adapter, LED light, 2 x lifting eyes, mooring eye, magnet pen, manual and PC communication cable.
<b>Options</b>	<ul style="list-style-type: none"> <li>• 400 m electronic unit casing instead of IP 67/68 casing</li> <li>• XL battery pack ( 300 Wh )which, together with standard battery pack, gives 400 Wh.</li> <li>• Sensor integration</li> <li>• Mooring design and mooring components</li> <li>• Ocean Origo's www-based graphic interface. View real-time data on www-site.</li> <li>• Data presentation on VIVA, an internet service operated by the Swedish authority 'Sjöfartsverket'. (Swedish customers only)</li> <li>• Installation on site. Regular service and maintenance.</li> </ul>

1. Without sensors and ballast weight. Ballast weight recommended for improved stability.