

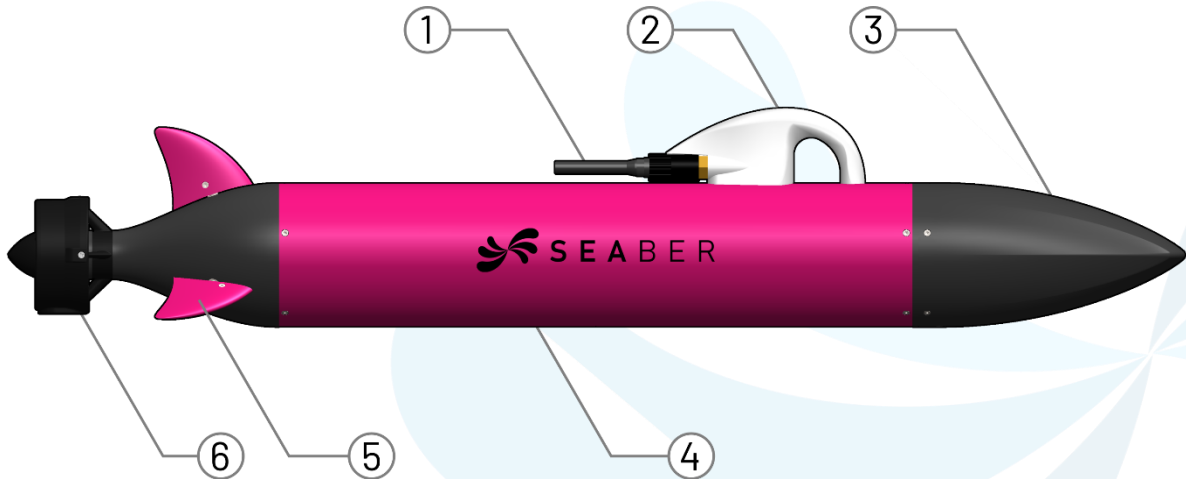
# Datasheet

## YUCO-CARRIER

*This document provides further information on the YUCO-CARRIER key features.*

YUCO-CARRIER allows to flexibly implement any type of waterproof sonde or sensor. In option it can come with a DVL, to compensate current, improve positioning and keep altitude from the sea floor. YUCO-CARRIER is available with the following options:

- DVL, to compensate current, improve positioning and keep altitude from the bottom
- NiMH batteries instead of Lithium
- Serial interface module for data recording
- Extended Ethernet API to communicate with high level device



1 Start key and charging port

2 Mast (UHF radio communication, GNSS antenna and status LEDs)

3 Nose (wet part for buoyancy foam and payloads). The nose design is made on request.

4 Sealed dry body section which contains Lithium-Ion battery (or NiMH) and electronics

5 Fins

6 Propulsion Thruster

## Technical features

Length	98 cm
Body Diameter	12 cm
Weight in air	8 kg
Depth rating	300 m
Speed	3 to 6 knots
Endurance	10 hours @ 3 knots / 6 hours @ 4 knots (with Li-Ion battery)
Navigation accuracy	±2% of distance travelled with DVL
Energy	Rechargeable 600Wh/14.8V Li-Ion or rechargeable 200Wh/14.4V NiMH
Battery Charger	100 to 240 VAC 50 to 60 Hz
Programming interface	SEAPLAN software by SEABER
Surface Communication	LoRa UHF point-to-point communication with SEACOMM device (see below) For YUCO status messages and orders 868Mhz frequency range (depends on region) PYCOM LOPY4 chip with available regions: AS923, AU915, EU868, US915, IN865 TX Power: 25mW
Available Accessories	Rugged transport case Spare parts and tools in waterproof bag

All available sensor parameters can be set from the [SEAPLAN](#) software interface.

## Sensors

PAYLOAD SECTION		DVL	
Power Supply	VBAT, 12 to 48 V	Model	Waterlinked A50
Communication	RS232, UART, Ethernet	Frequency	1 MHz
Payload diameter	up to ~4inch	Beam angle	22.5 degrees
Payload length	up to 45cm	Ping rate	4-26 Hz
Payload enclosure	Compatible with Blue Robotics standard 4" enclosures.	Max altitude	50 meters
		Max velocity	3.75 m/s
		Velocity resolution	0.1 mm/s



View from below, with the DVL

# APPLICATION PROGRAMMING INTERFACE

YUCO-CARRIER can be linked with the customer's payload with 2 types of communication interfaces.

## Option 1

The first possibility is dedicated to **payload** like sensors that are able to stream data on a serial interface. The whole navigation is done by the **YUCO-CARRIER** and the **payload** has no effect on its **navigation** (no conditional navigation).

SERIAL INTERFACE MODULE	YUCO-CARRIER → Payload	<p>Possible to send a serial data frame for each mission step:</p> <ul style="list-style-type: none"> <li>• Start / stop measurement</li> <li>• Configure the sensor</li> <li>• Synchronize the data</li> </ul> <p>Data is configured in Seaplan mission planning software.</p>
	Payload → YUCO-CARRIER	<p>YUCO-CARRIER will log the data with the navigation log</p> <p>Payload data is geolocalized</p> <p>CSV export file: added row with the raw serial data frame</p>
	Communication interface	<p>UART or RS232</p> <p>115200 baud as standard</p> <p>8N1 Data parity stop</p> <p>No flow control</p>

## Option 2

The second possibility is to use the Extended Ethernet API to have more possibilities.

EXTENDED ETHERNET API	YUCO-CARRIER → Payload	<p>Streaming of the state of AUV:</p> <ul style="list-style-type: none"> <li>• Position</li> <li>• Attitude</li> <li>• Speed</li> <li>• Status</li> <li>• Faults</li> </ul>
	Payload → YUCO-CARRIER	<p>Send requests:</p> <ul style="list-style-type: none"> <li>• Start</li> <li>• Stop</li> <li>• Send mission step</li> <li>• Send payload data</li> </ul>

Seaber will provide to the customer a **sample code** (Python, C++) and a **YUCO API Simulator** to help developing customer application.

Available in option:

- ROS1 and ROS2 nodes to deploy on customer devices
- MOOS-IvP