

Autonomous Sailboat



User Manual

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1.0 Introduction to Horizon Autonomous Sail Boat

Thank you for choosing Horizon!

Horizon Autonomous Sail Boat is the product that will revolutionize transports in maritime environment thanks to the completely autonomous and flexible system and to the wide range of use that it can cover.

The pages that follow, therefore, are an essential and exhaustive manual, providing the user with the necessary knowledge to use the aforementioned product.



2.0 Components

2.1 The Sail

The Sail of Horizon Sail Boat is done by innovative technologies that permit to the jib and the tail to react intelligently to the wind, giving the sail the right positioning to reach velocity and stability. The body of the sail is composed of a mast of Stainless Steel, a structure of four millimeters thick maritime plywood and coverage of two millimeters thick balsa compose sail.

The exterior is covered by a particular kind of paint that gives to the sail the correct resistance to marine and aggressive environments. The movement of the sail is guaranteed by an apposite wing sensor placed on the top of the sail. This gives an input to an actuator placed on the jib and a servomotor on the tail. The movement given by the actuator to the jib and servomotor to the tail creates an angular moment that enables the sail to reach the right position.

2.2 The Hull

The Hull and the body of the boat are obtained by modifying a pre-existing body of a Lazer. The Lazer (Dinghy) is a popular design class of small sailing dinghy. The length of the hull is 4.2 metres, with a waterline length of 3.8 metres, a beam of 1.39 metres and a draft of 0.787 metres.

2.3 The Electronic System

All the electronic system is composed by a MCU placed on the top of the hull. This controls all the sensors and transmitters. Everything is powered by solar panels on the top of the hull. We offer a wide range of sensors for different uses:

- **Wing Sensor:** This is the sensor placed on the top of the sail fundamental for a correct positioning of the sail.
- **Environmental Sensors:** These are the sensors placed on the bottom of the hull. They are able to interpret data from the water like temperature, acidity and chemical data.



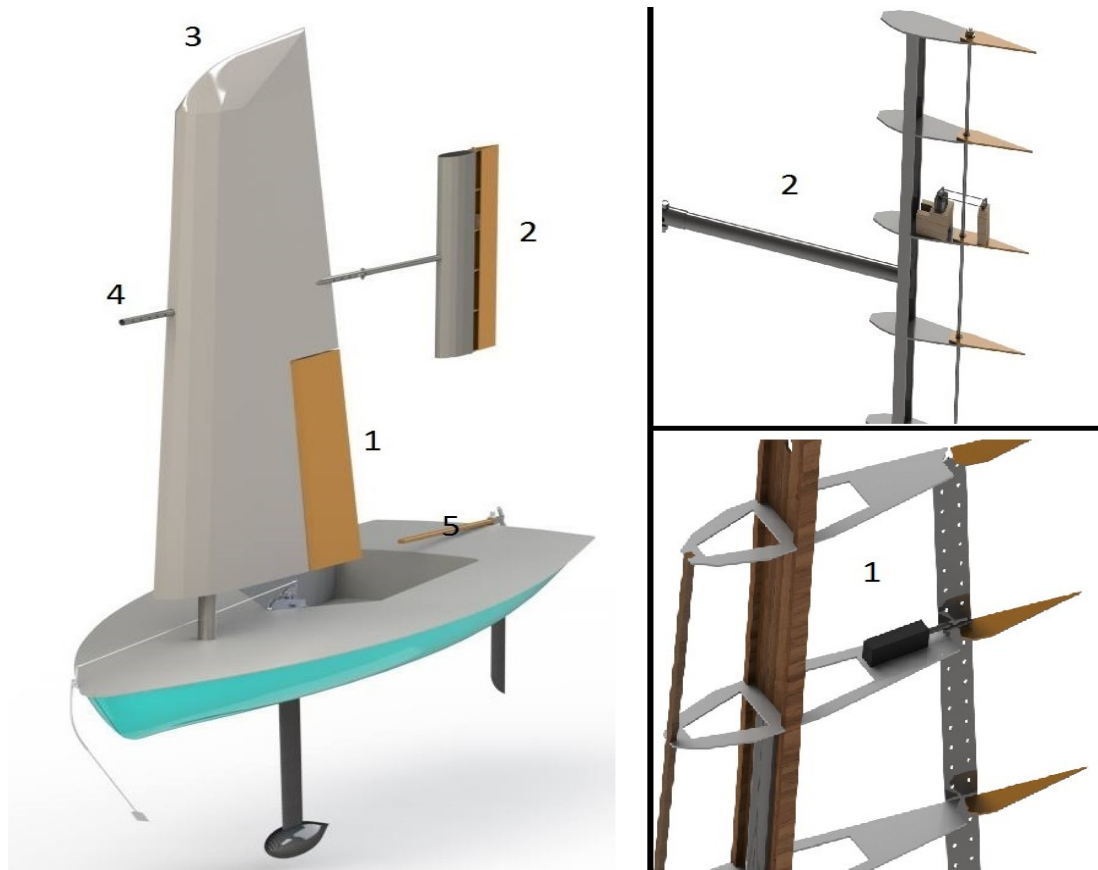
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- Video Camera: These could be placed on the top of the sail, on the top of the hull or on the keel as well, to have different views of the surroundings.

Our boat is highly customer oriented, so the presence and the place of these components are highly dependent on the customer needs.



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- 1 → Jib moved by the actuator
- 2 → Stabilizer moved by the servomotor
- 3 → Space for sensors and lights
- 4 → Positioning of the wind sensor
- 5 → Positioning of the Electronic box



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3.0 Maintenance

The aggressive marine environment can damage and deteriorate some features of the sailboat.

- ***What to do if the balsa skin is beginning to deteriorate?*** The problem is probably the lack of protective painting. We recommend using Titan Yate Epoxy and Polyurethane.



Attention: Read the instructions before applying the paint and make sure to be equipped with all the safety measures

- ***What to do if a sensor stops working?*** The problems could be probably on the contacts between the sensor and the microcontroller or on the sensor itself



Attention: Don't open the electronic box on the hull if you don't have the right knowledge. Don't hesitate to contact our technical Service.

- ***What to do if the balsa or the plywood skin are damaged?*** If you notice a hole or a damage in the wood skin. It is important to recall the boat in port and don't allow it to navigate before fixing it, to avoid bigger problems.



Attention: We provide some provisional solutions but use our fixing Service before letting the boat navigate for a long time.



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4.0 Client Service

Our company is highly oriented on costumers' needs. We ensure a warranty that covers any defects or malfunctions in your product within the warranty period of 3 years. Horizon will replace or repair any product that has a defect(s) in manufacturing, material and/or workmanship provided that Horizon is notified of the claim within the warranty period provided herein. We leave to our costumers a special 24h phone in which technical support is guaranteed.

Horizon Support Options:

Horizon offers several support options after you have purchased your Autonomous Sail Boat. You can contact us via phone, E-mail and postal service.

- Phone Support - +351932021443 (Mon-Sat, 24h)
- Email Support – Team5-EPS@horizon.com

To initiate a claim under this warranty, call +351932021443 and instructions will be provided.



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