Deployment and Retrieval User Manual

Date: 1 November 2021
Bergen, Norway

Offshore Sensing AS
Fantoftvegen 38
5072 Bergen
Norway

www.sailbuoy.no
email: info@sailbuoy.no
Tel: +47 916 52 190
Org nr. 914 277 957 MVA

Contents

Warnings and Safety precautions

Offshore Sensing AS products arrive with a limited warranty as set forth in Offshore Sensing AS's then-current warranty policy applicable to the particular products, and these terms and conditions, which together govern Offshore Sensing AS's liability to its Customers. This warranty is void if the instructions and recommendations outlined in this manual are not followed.
The user shall not disassemble, decompile, or otherwise reverse engineer the Sailbuoy. The user shall not publish any pictures of the interior, design documents or reveal any interior design features.

The Sailbuoy is exposed to many hazards during operation. The main hazards are ship traffic and land.

The reason to avoid ship traffic is that the Sailbuoy can be damaged upon a collision with another vessel. The risk of damage is especially high when colliding with high speed vessel like catamarans or cabin cruisers. Upon collision with tankers and lager vessels the risk of damage is lower.
Another reason to avoid ship traffic is the risk of theft. This has been shown to be the most frequent occurrence compared to other risks.

Risk mitigation:

- Avoid coastal traffic and areas with high ship density
- Monitor the position of the Sailbuoy and look out for abnormal behaviour.
- Upon theft, identify the closest vessel using AIS then try to establish communication.

Navigating close to land presents a risk of damage to the Sailbuoy. If one loses the ability to steer it can hit land and get damaged or sink. Loosing the ability to steer can be caused by several factors:

- Getting tangled in some floating objects like rope, seaweed or nets.
- Light wind conditions or flat calm.
- Strong onshore currents.

Retrieval/Deployment position: The Sailbuoy must be deployed at least 1 nm away from navigational hazards (land, ship traffic, oil-rigs, anchored buoys etc.)
Vessel: Use an appropriate vessel for deployment, depends greatly on the environment conditions.
Environment conditions: If the conditions are not favourable, wait until the conditions improve or select a more appropriate deployment/retrieval position. A critical risk factor is linked to wave height and boat type. Avoid deployment/retrieval in conditions that cause excessive vessel movement.

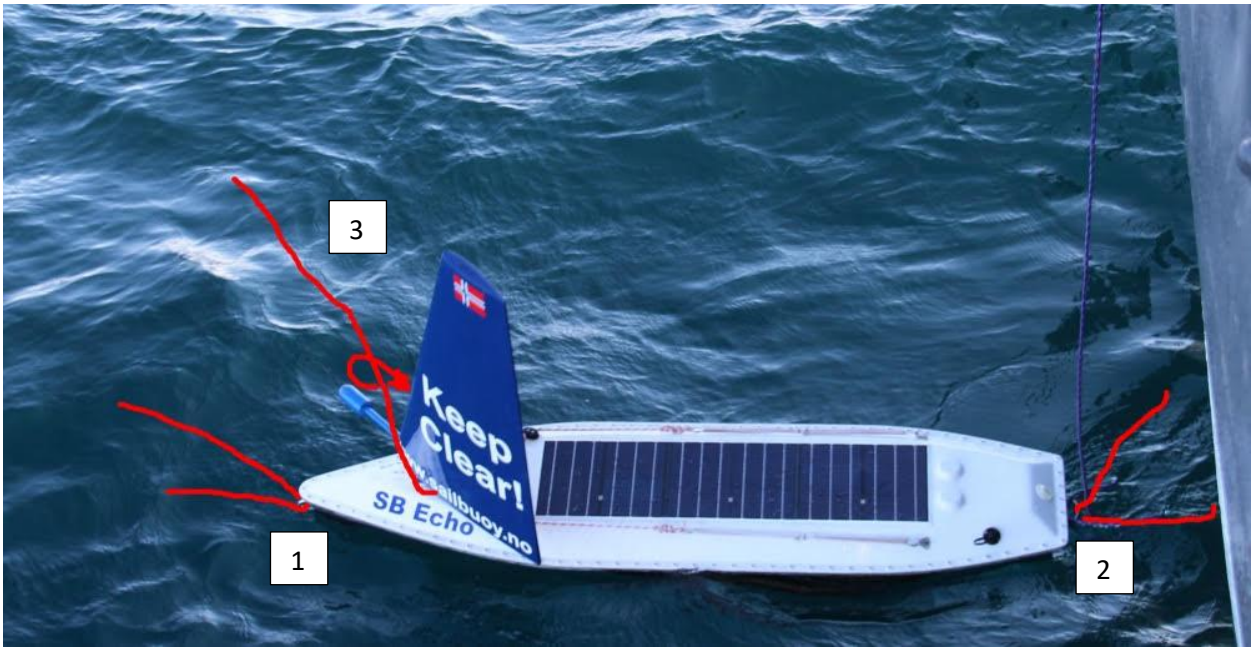
The Sailbuoy is provided sealed and tested.
"**Any opening of the Sailbuoy and breaking of the seal voids any warranty of the Product**"
And
"Only trained and qualified personnel should handle, operate and maintain the Sailbuoy."

We would like to further draw your attention to the following:

- Rinse the Sailbuoy after exposure to seawater.
- Secure the Sailbuoy firmly during transport.
- Do NOT open the Sailbuoy and break the seal
- Follow each manufacturer's recommendations for handling the optional sensors.

Lifting points

The following lifting points can all be used to hoist the Sailbuoy.



1. Bow ring
2. Aft handle
3. Sail (lasso point)

The points 1 and 3 can be used for towing.

Pre-deployment preparations

Below follows a short list of basic preparation

Situation awareness check.

- Check for navigational hazards
- Check marine traffic
- Weather forecast for deployment
- Surface currents

Deployment

Deployment can pose serious risk to both personnel and instruments. It is of utmost importance that the responsible party take all precaution to minimize the risks involved.
Only trained personnel can perform deployment and retrieval.

- Store in a safe place, strapped in position during transport
- Ensure mast is lubricated
- Ensure Sail and sheets are correctly mounted
- The sheet shackle must be tightened using a spanner.
- Ensure rudder is operates freely
- Remove the magnetic switch to start the instrument.
- Check that rudder moves within 20 second of starting the instrument.
- Monitor the Sailbuoy and data from the IDS portal before deployment.
- If close to shore manually set the correct tack depending on the wind direction.
- Deploy the Sailbuoy.
- If offshore move away to a safe distance (500 m)
- Monitor the Sailbuoy behaviour
- Set mode to Auto if in manual mode
- Increase tack interval to 15 min.

Retreival

Retrieval can pose serious risk to both personnel and instruments. It is of utmost importance that the responsible party take all precaution to minimize the risks involved.
Only trained personnel can perform deployment and retrieval.

Retrieval is the riskiest part of the mission. Pay attention to weather forecasts, marine traffic and surface currents. The retrieval should be planned several days ahead and should be done in nice weather with little waves.

Retrieval procedure close to shore

- Increase autopilot update rate to 5 min.
- Enter manual mode
- Steer towards the retrieval waypoint.
- Retrieve the instrument (If the conditions are rough, tow the vessel first to calmer waters for retrieval)
- When at port rinse the Sailbuoy with fresh water
- Attach the magnetic switch to stop the instrument
- Store in a safe place, strapped in position

Retrieval offshore

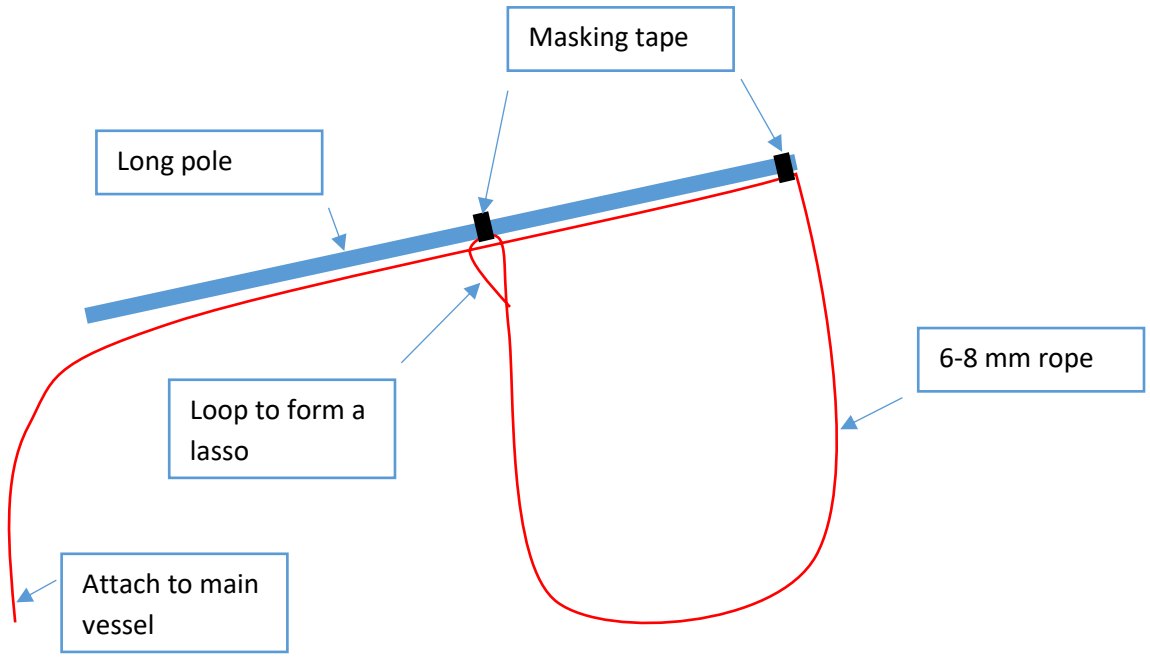
- Increase autopilot update rate to 5 min.
- Enter manual mode
- Steer Tack 0 or 1. (using these tacks the Sailbuoy behaviour is very predictable)
- Retrieve the instrument using a small boat or lasso from a larger vessel.
- Attach the magnetic switch to stop the instrument or leave it on deck so the pilot can put it into sleep mode.
- Rinse the Sailbuoy with fresh water
- Store in a safe place, strapped in position

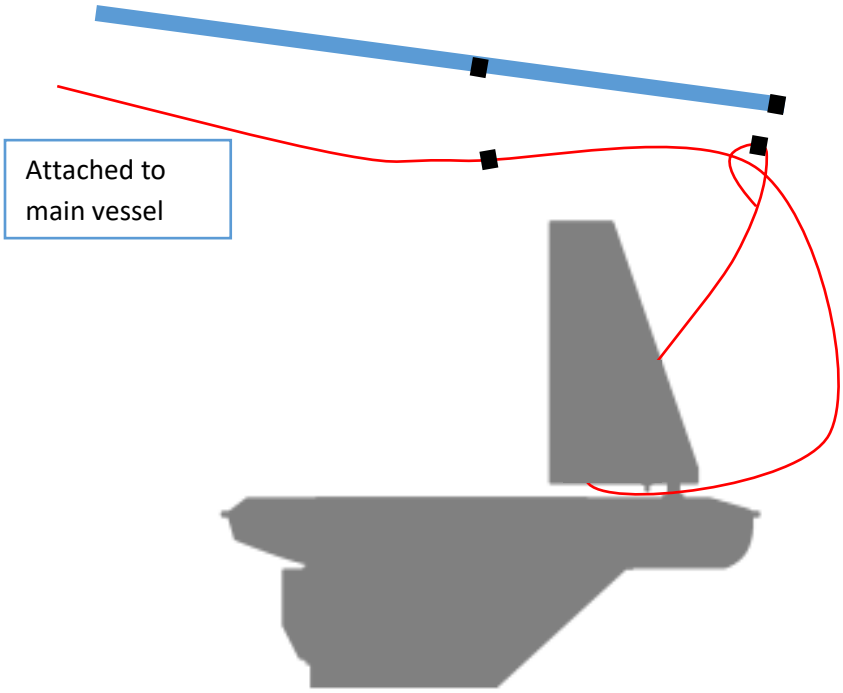
Towing

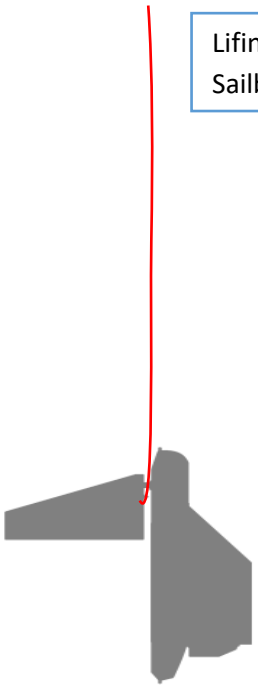
In conditions where it is not advisable to lift the Sailbuoy onboard it is possible to tow the Sailbuoy to calmer waters before hoisting onboard. Lifting points 1 and 2 can be used for towing. The maximum towing speed is 5 knots.

Lasso retrieval

Lasso retrieval is the easiest and safest way to retrieve the Sailbuoy. Attach the lasso to a long pole and place it over the sail. Once attached it can be hoisted onboard.




Attached to
main vessel


Lifing the
Sailbuoy