

OPERATION & MAINTENANCE MANUAL

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Read this manual carefully before use - v. 02/01/2025

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GIpsy OPERATION & MAINTENANCE MANUAL

MATERIAL



BODY

The mark's body is composed of a rotomolded structure including motors, batteries, and electronics.

The body can be used in stand-alone mode or combined with an inflatable part. There are two buttons for manual use as press and stay functionality and calibration. A hatch protects from water the switch and the charging plug.

INFLATABLE

The inflatable is the visible part of the mark and it can be of different shapes. It allows for visibility and easy grab from the water.

BATTERY AND CHARGER

Batteries are made of Ion-Lithium material, 20 Ah. Storage temperature between 5°C and 35°C. The batteries should not be removed from the buoy.

Always turn off the mark before charging the batteries.

The batteries are equipped with a Battery Management System (BSM), able to control the charging phase and monitor, in real-time, the behavior of the batteries during usage. Never leave the buoy charging unattended.

Charging is done by plugging the XT60 connector (yellow connector). The charger will display a red light during charging and a green light when the battery is fully charged.

Effetto Venturi will provide the Material Safety Data Sheet MSDS.



GETTING STARTED

PREPARING THE MARK

BUOY MOUNTING:



GETTING READY:

1. Charge the batteries
2. Place the body on land, flat and far from big metal constructions
3. Turn the mark ON outside far from metal structures through the red switch, and don't move it
4. Wait for 3-4 minutes
5. Calibration: applicable just every couple of weeks or when using the mark in a new location. Place the mark on the flat ground far from metal constructions, the front part pointing exactly North. Press the free button for over 12 seconds, till the buoy restarts and you will hear the typical booting noises
6. Close the hatch **very firmly**
7. Check the functioning of the motors by pressing the left button for at least 3 seconds until the green light shows that the signal is taken (fix mode). Check if all motors are running by moving the mark from its position. ATTENTION: don't let the thrusters run outside the water for more than 10 seconds as they are made to be water-cooled. Release the motors by pressing the free button for over 4 seconds till the thrusters stop.
8. Attach the inflatable part if desired

BUOY'S HANDLING ON THE WATER

The buoy can be quickly transported to the desired area with a boat.
It should be put on a boat on something soft to avoid slamming it.

MANUAL CONTROL

Anchor button: press and hold for 3 seconds then release to fix the mark on the actual spot (anchor down).
Wave button: press and hold for 3 seconds then release to free the mark (anchor up).

REMOTE CONTROL

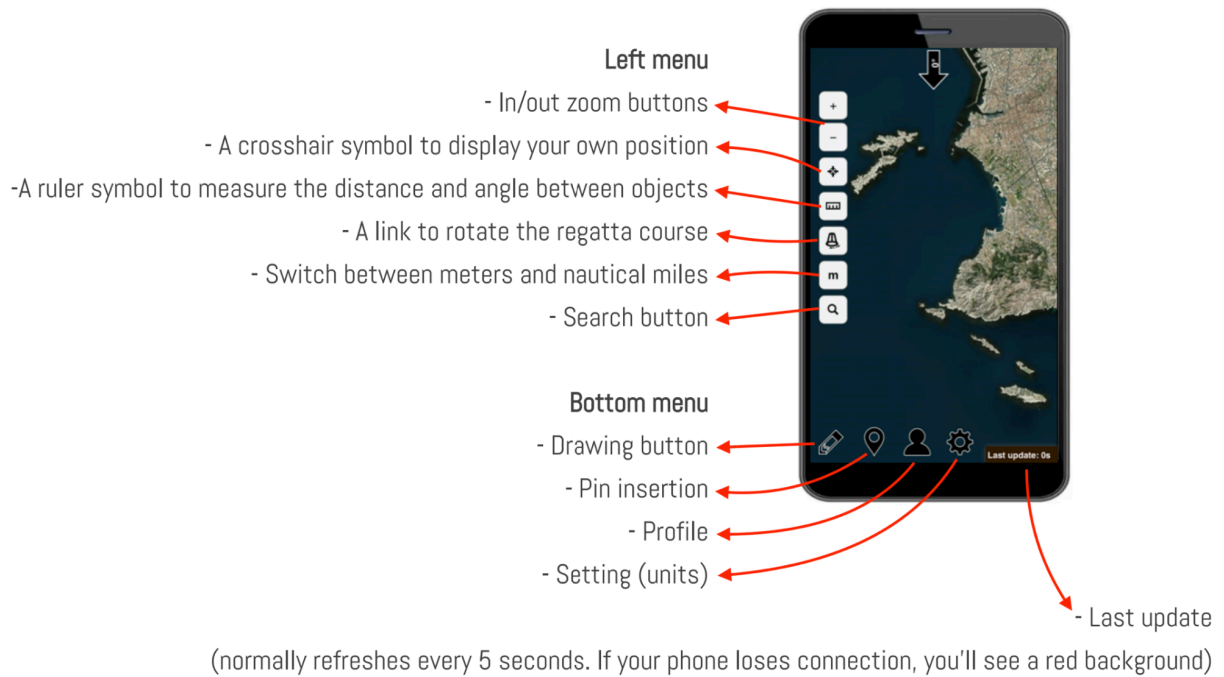
OPENING THE WEB INTERFACE

If you have purchased a GiPSy mini buoy with remote control, open the web interface with your credentials on control.effettoventuri.eu after a few minutes from turning the buoy ON. You can also use a demo version with the username *demo* and password *demo1*.

MAIN SCREEN DESCRIPTION

The main screen is composed by:

- A map in the background that supports touch interactions
- Left and bottom Menus
- Wind arrow
- Info on page refresh



BUOY MENU

MAIN BUOY MENU:

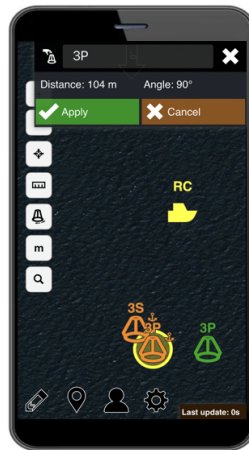
By clicking on a buoy, a menu will appear:



If the mark is powered on in free mode (no anchor), the options to move it won't be clickable. To unlock the options click first on the "Fix" button to fix the buoy on its position.

A buoy in a fixed position can be moved in 4 ways: Drag, Distance/angle, Offset, Coordinates.

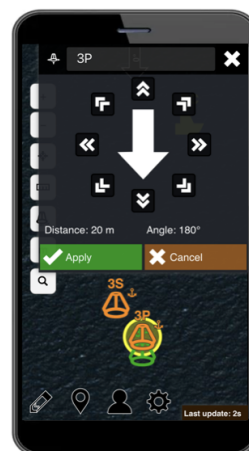
1. Drag: allows you to drag the mark to the desired position on the map. A preview position will appear in green on the map. While dragging it, info on the distance and angle relative to the map orientation compared to the last position will be shown. Once the position is ok, select the button "Apply". The mark will start heading to the green preview. If you change your mind before clicking on "Apply" click on "Cancel" to go back to the buoy's menu. The drag function is useful especially when pre-set courses are present (see "Drawing Courses").



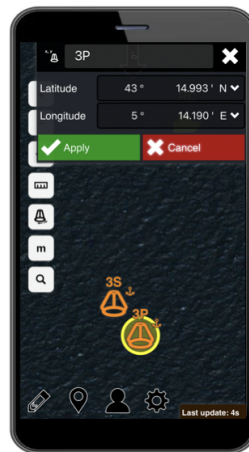
2. Distance/angle: the mark can be placed at a certain distance and angle (compared to the map orientation) with respect to a selected item in the reference menu. The item can be the mark itself, another mark, or a pin (a point in the map defined by the user, see "Placing a pin"). Select "Apply" to confirm.



3. Offset: displace a mark through a quick input towards the desired direction. By selecting the number of meters, you can click as many times as you want to keep moving the mark on the map. Select "Apply" to confirm.



4. Coordinates: give a manual GPS position to the mark. Choose the format in the settings menu (down).



INFO MENU:

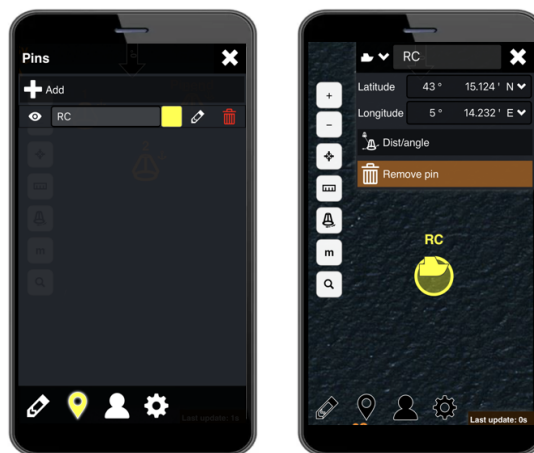
The "info menu" contains less frequently needed information, such as:



- The serial number of a buoy
- The actual position (or the last one registered, before disconnecting)
- The distance from the goal: this information can be useful if a new goal is given, to understand if the distance decreases properly and estimate the time needed to reach the goal
- The wind direction and speed, if a wind sensor is connected
- A calibrate button that can be used as an alternative to the free button: if the buoy is in a "fixed" position, the button is locked and to launch a calibration the buoy needs to be in "free" mode
- The trace button is useful to check the history of the commands on the map and on a timeline, showing the distance of the buoy from its goals.

PLACING A PIN

Pins are useful tools to be used as fixed references. They can be created by clicking on the pin symbol in the lower menu. Click on the plus button "add new Pin", and a menu will appear on the top right of your page. Give your pin a name and select a symbol from the dropdown menu. By default, the pin will be placed in the middle of the map. It can be moved by dragging, by changing its coordinates or by selecting another object of reference and imposing a distance and an angle (relative to the "north" of the map given).



ORIENTING THE MAP AND THE MARKS

It is often convenient, especially in sailing, to orientate the map in order to have it aligned with the wind direction.



The map can be oriented: click on the black arrow, write the number corresponding to the wind direction in degrees compared to North, and click on "Orient map" to validate. The orientation of the map is always displayed on the arrow.

To rotate the whole set of marks that are currently in FIX position within 10 km from the rotation point, you can select a rotation point in the drop-down menu under: "Rotate fix marks around", and when exiting the menu the program will ask you a confirmation for rotating the whole set of marks.

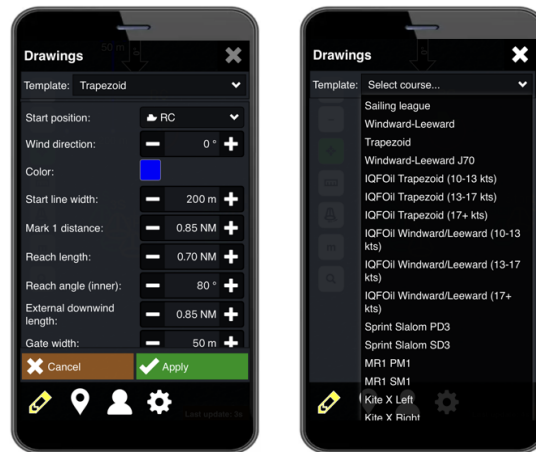
DRAWING COURSES

Different courses (pre-set courses or freely drawn courses) can be created on the map and saved for the future. The drawings (together with the pins) are displayed also on other devices with the same user account. To see changes from another user, simply refresh the web page.

Click on the pen symbol on the bottom left menu, and click on the plus button "add course" for templates or "add drawing" for brand new ones.

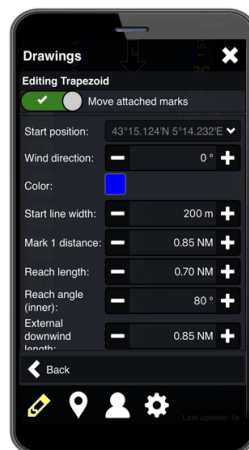
ADD COURSE

Course templates are designed and used for precise courses. Wind direction, starting point as Race Committee (drop-down menu), lengths, and angles can be customized.



Once the drawing is set, buoys can be dragged and placed on the points.

When some changes are made (by clicking again on drawings and the selected course) the choice is whether to move also the buoys attached: toggle the “move attached marks”.



ADD DRAWING

The default option to create a free drawing course is “line” and a drawing with straight lines can be realized by tapping on the map. After clicking on “finish” you can adjust the position of the points connecting the lines, by simply dragging them. The distances and relative angles are always shown (the angles are the ones between two lines).



The drop-down menu offers more styles as well, such as polygons or circles and more colors. You can name each drawing differently. Use the delete button to delete the drawing.

You can draw as many courses as you want and choose which ones to display by clicking on the pen icon and the eye symbol next to each drawing.

ROTATING AND MOVING A DRAWING

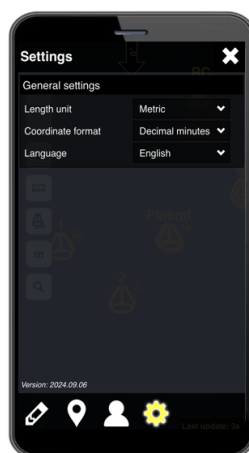
It happens often that the wind changes direction and it's useful to keep the same course with a different orientation. This can be done by changing orientation around a mark, yourself, or a pin previously created, such as a Race Committee boat on the starting line.

Click on the pen icon on the bottom left of the screen, and select the rotation symbol next to the course to be rotated. Once the menu for the rotation of the drawing appears, select the anchor point in the dropdown menu, then apply the angle desired, and click on "finish". At this point, the drawing will rotate.

On the edit menu of the drawing, it is also possible to move the drawing maintaining its geometry. Select "move" and then

UNITS

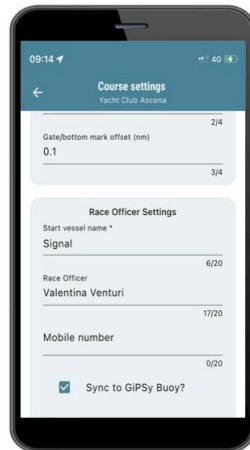
In the setting button, on the bottom menu, you can select the units to be used: nautical miles or meters. You can also choose the type of GPS coordinates to use.



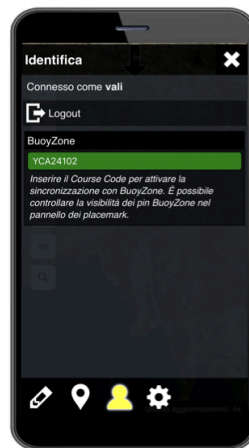
SYNCHRONIZATION TO BUOYZONE

It is possible to import pins from BuoyZone. First of all create a course in Buoyzone advanced setting for the desired

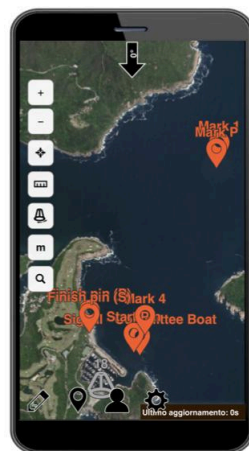
course and tick "Sync to GiPSy Buoy".



In GiPSy's web application go to the login Symbol and insert the course number: be aware that spaces are not allowed.



Once the importation is done PINS are visible and they can be used as reference to attach the buoys positions.



Pins from Buoyzone can be refreshed or hidden in the PIN menu.

MARKS MAINTENANCE

CLEANING

Rinse the mark after every use in salty water, let the motors spin in a bath of fresh water for at least 15 seconds.

INFLATABLE

The inflatables shall not be deflated and folded on the hard ground/asphalt as they can be damaged. During the deflating procedure, they should be on a carpet or similar soft ground.

TROUBLESHOOTING

BAD CALIBRATION

A mark rotates in 5-10 m diameter circles: the mark needs calibration or was calibrated near a metal construction (see the getting started section for calibration). Recalibrate possibly on land or in urgent cases on the water by keeping the mark as firm as possible pointing north.

OBSTRUCTED MOTORS

A mark rotates on itself or its distance to the goal increases: check the engines for obstructions, after putting it in a free position. If there is an obstruction, turn the mark off and remove it carefully. Check for the good rotation of the propeller and if something is creating friction, stop using the mark and call the Company.

LOSS OF CONNECTION

1. The buoy lost connection but can still be used in manual mode (the push buttons are working): check for the light on the dongle (normally visible next to the antenna). It might be that the connection is bad, try and reboot the buoy.
2. The buoy lost connection and cannot be used in manual mode (the push buttons are not working): call the Company.

This buoy uses Ardupilot, available at this address:

<https://github.com/ArduPilot/ardupilot>

ENJOY YOUR GIPSY MINI-BUOY!