



asm: Anchor Safe Monitor

Anchor Safe Monitor is an iOS app for the monitoring of boat mooring state. Once set the boat point and the anchor point the system allows to control the mooring state in real-time.

The app does not substitute the crew control, yet it can be used as an aid with other operating control systems.

By using this app the user is able to check the exact mooring execution during the manoeuvre, and also to replace the anchor if there are any doubts about the set up positions or in case the boat has moved.

As seafarers know, the anchor may move during the mooring manoeuvre until it fixes on the sea floor; therefore the lower point may not correspond to the real point. Anchor Safe Monitor is able to adjust the position by two different modes. The first mode uses the length chain and the deepness, which can also be used to check the anchor tightness during the mooring manoeuvre; the second one uses the distance and the heading, and allows to place the anchor point with a good grade of accuracy, if not set when the anchor was lowered.

An acoustic signal warns the user if the boat is no longer anchored; it is also possible to send an email to a custom email address and/or to make a phone call to a number which can be modified from the app settings (only Pro version)

The app is composed of four panels:

1. The anchor panel,
2. The map panel,
3. The configuration parameters panel,
4. The file management of the recorded data panel.

The anchor panel opens the two check modes explained above.

Mooring



The two frames of the anchor and of the boat contain the GPS coordinates of the boat point and of the anchor point.

The footer contains four icons to control the app.

The low left icon changes its aspect and function depending on the moment of the mooring procedure.



It first sets the anchor position. Press it when the anchor reaches the sea floor. If the GPS precision is good, the anchor point coordinates are saved. If GPS precision is double over the tolerance, the icon flashes until the GPS precision improves or the user forces its precision by pressing the icon again.

When the anchor point is set, the icon is ready for the selection of the boat point.



Spread the anchor chain out and press the icon, in order to set the boat position. *As for the anchor, the point is automatically selected if the GPS precision is good, otherwise the user can force its precision.*

The mooring distance shows the distance between the anchor position and the boat position, both defined during the manoeuvre.

The current distance shows the current distance of the boat from the position defined for the anchor.

The GPS precision is indicated both with numbers and colours:

- **Red** when the GPS precision is double over the defined tolerance
- **Yellow** when the GPS precision is over the defined tolerance but less than double
- **Green** when the GPS precision is less than the defined tolerance



Once set the boat point, you can start two different check and modify mooring systems: press the icon and choose which to use, in order to check the mooring. (see pages 9-10)



This icon allows to delete the boat point and the anchor point in order to set them up in case of error.



This icon starts or stops the mooring monitoring. The start of the monitoring allows to send the alert signals when the boat doesn't follow the mooring security parameters, which the user had previously defined.

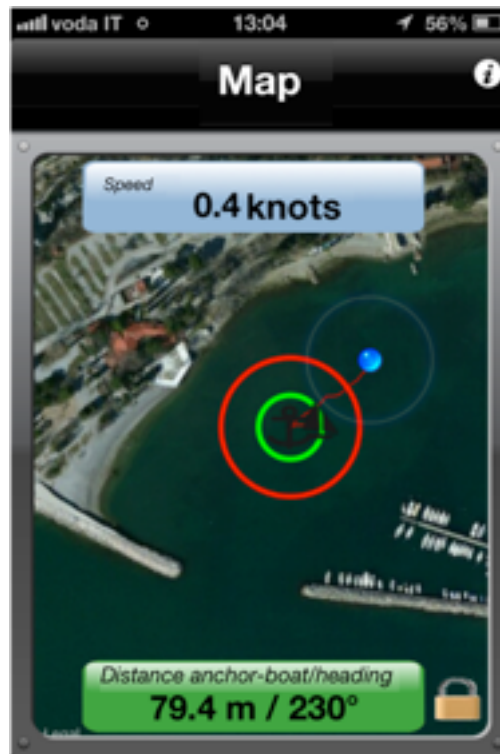
They are:

- an alarm signal (make sure to hear it)
- email or phone call - if available



Start or stop of the recording of mooring data, which can also be downloaded on a PC in order to display and elaborate them in a spreadsheet.

Map



The anchor symbol represents the anchor point, while the boat symbol represents the mooring point. The blue dot represents the current position of the boat.

The green circle represents the area where the boat can sail with its anchor fixed on the corresponding point. The red circle represents the security area where the boat can sail without starting the alarm signal.

The blue frame displays the current boat speed, while the green frame displays the distance and the anchor heading from the boat position.

The colour of the frame where the current value of the distance between the anchor and the boat/heating displays the GPS precision level:

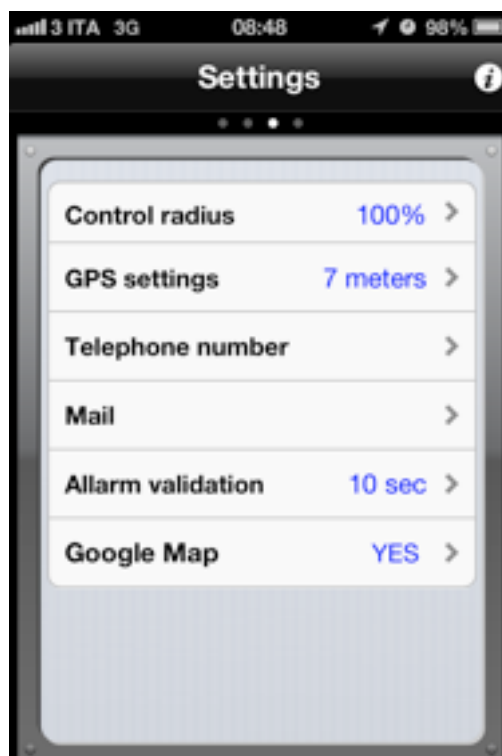
- **Red** when the GPS precision is double over the defined tolerance
- **Yellow** when the GPS precision is over the defined tolerance but less than double
- **Green** when the GPS precision is less than the defined tolerance

To overlap the GPS points on google maps, activate the option on the settings panel.

The boat moving speed provides a parameter to check if the mooring is safe in current conditions.

(The picture shows a boat which has raised the anchor and is reversing, in order to start an alarm signal)

Settings



1. Control range

The control range represents the distance within the boat can sail without trigger the alarm signal.

You can define the value as a mooring range percentage (distance between the anchor and the point of confirmed mooring) or as an absolute distance from the anchor in metres. A % suggested basic value is 100%.

PLEASE NOTE: check carefully if this creates contact or causes danger with sea bottoms, shores or other anchored boats.

2. GPS settings

The GPS settings define:

- The GPS signal precision tolerance
- The GPS data filter

The GPS value tolerance is used during mooring, especially on the main screen when the boat point and the anchor point are marked. When you press the "anchor" or "boat" icon the current GPS point is immediately saved, but only if the accuracy of the GPS signal is less than the GPS tolerance value; otherwise the icon flashes. The icon will flash until the GPS accuracy continues to be less than the defined tolerance. At this point, the relative point will be saved automatically. 7 metres is a suggested value.

The GPS filter allows to screen the GPS signal, as sometimes it displays instant changes not associated to a real move. 5 seconds is a suggest value for this parameter.

PAY ATTENTION: a GPS precision value of less than 20 meters during the monitoring does not enable the alarm signal; this is the maximum acceptable value for a monitoring. Make sure your smartphone is not shielded during the monitoring, in order to prevent malfunctioning and to get a correct GPS signal.

3. Phone number

If during the monitoring stage the boat sails outside the control range for a length of time which is the validation time (see next parameter), the app automatically makes a phone call to the defined number. The function needs to be set.

PAY ATTENTION: if you set the phone call the app goes backgrounds automatically.

4. Mail

If this parameter is enabled and during monitoring stage the boat sails outside the control range for more than the validation time, the app sends an email to the defined email address.

In order to send the email, you need to input the following information:

- The email address
- The log-in information of the email account used to send the email (username and password)
- The server smtp (simple mail transfer protocol) address used to sent the email.

For example, if you use a google account the address will be smtp.gmail.com. For other mail servers it is possible to get this parameter by visiting the mail provider web page or by googling it.

Once imputed all the parameters, it is possible to check the functioning by pressing the “set” icon which sends a test email.

Example:

“Boat is no longer anchored. Distance and mooring heading: 3.7 m / 51° -
Distance, heading and current speed: 6.4 m / 69° / 0.7 knots”

5. Alarm validation time

It represents the time within the boat can sail outside the control range until the alarm signal starts. When the boat sails outside the control range the time count of the sailing outside the control range starts; if the time count goes beyond the validation time the alarm signal starts; if the boat sails back in the control range the time count resets.

6. Google Maps

It is possible to enable google maps as standard maps, but only if an internet connection is available.

It is also possible to choose the type of map (standard, satellite or hybrid).

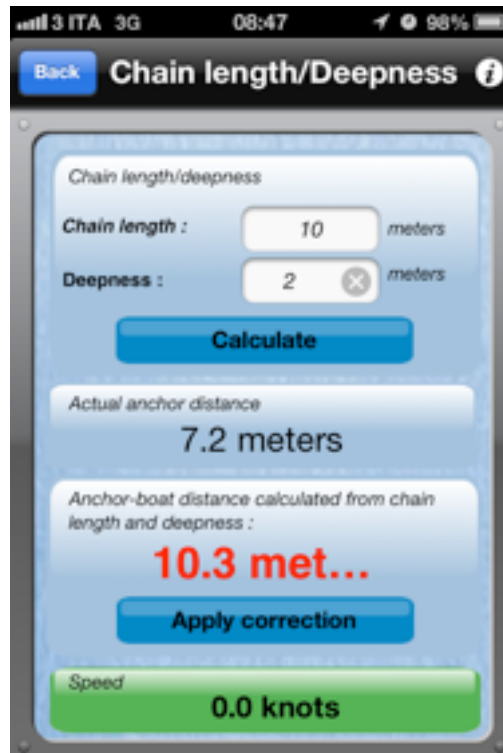
Log Files



The screen contains the list of the log files of the mooring recordings (those which can be started up by pressing the “rec” icon on the main page).

It is possible to manage, delete or send any of them via email, in order to displays or to perform further analysis on a desktop computer.

Chain length - deepness (only PRO version)



Thanks to a particular algorithm and by inserting the lowered chain length and the sea deepness **at** the current boat point, the app evaluates the anchor point; the distance from the boat is displayed on the “distance anchor-boat using chain length and deepness” panel. If this value is different from the one displayed on the “current mooring distance” panel, then it is possible to adjust the anchor point by pressing the “adjust” icon.

The boat speed is indicated below and helps the crew to execute the mooring check. If the chain is tense and the indicated speed is high, the anchor hasn't fixed to the sea floor and is moving; therefore the mooring is not safe.

The colour of the frame indicates if the GPS signal is good:

- **Red** when the GPS precision is double over the defined tolerance
- **Yellow** when the GPS precision is over the defined tolerance but less than double
- **Green** when the GPS precision is less than the defined tolerance

Distance – heading (only PRO version)



Thanks to a particular algorithm and by inserting the distance and the direction indicated by the tense chain, the app evaluates the anchor point. Concerning the direction (heading), it is possible to use the smartphone compass, pointing in towards the estimated direction of the anchor, or you can just write the value after disabling the switch “heading from mobile phone”. The calculated value is displayed on the “distance anchor-boat calculated using anchor and direction distance” panel. If this value is different from the one displayed on the “current mooring distance” panel, then it is possible to adjust the anchor point by pressing the “adjust” icon.

The boat speed is indicated below and helps the crew to execute the mooring check. If the chain is tense and the indicated speed is high, the anchor hasn't fixed to the sea floor and is moving; therefore the mooring is not safe.

The colour of the frame indicates if the GPS signal is good:

- **Red** when the GPS precision is double over the defined tolerance
- **Yellow** when the GPS precision is over the defined tolerance but less than double
- **Green** when the GPS precision is less than the defined tolerance