

Skipper's Mate

Sensor Testing

Version 1.0.2

18 December 2017

Table of Contents

1. Introduction.....	1
2. Types of Sensor and Alarm.....	1
3. Where Can I See Graphs ?.....	1
4. Where Do I Change Settings for Graphs & Alarms ?.....	2
5. Turning OFF Sensors.....	2
6. Testing Alarm Only Sensors.....	2
7. Testing & Recalibrating Monitoring/Alarm Sensors.....	3
8. Graph and Alarm Settings.....	4

1. Introduction

This document is intended to help you test sensors and alarms. This version has been updated to include details for recent changes in Version 0.9.2.6.

The sensors as part of Skipper's Mate are designed to be switched on at all times. If you wish to run the system WITHOUT sensor(s) you should ensure that they are disabled through software. The system will attempt to rectify (self-heal) an connection problems with sensors – which may result in the Boat Control Unit rebooting if it attempts to solve the problem.

If you wish to run the system at home without battery power you can obtain suitable transformers by looking for power to the Arduino Uno via Google. These are 9V with barrel jacks.

2. Types of Sensor and Alarm

Sensors fall into two types :

- **Monitoring/Alarm Sensors** which provide regular reports – plus optional alarms e.g. (Temp/Humid/Dew Point, Voltage, Barometric Pressure). You can choose not to send alarms or to send for only one function (e.g. Temperature) on a multi-function sensor
- **Alarm Only Sensors** (reed and PIR) which only provide alarms e.g. Bilge, Door/Hatch, PIR

3. Where Can I See Graphs ?

Graphs are ONLY visible via the web site. Visit <https://www.skippersmate.co.uk> and Login using your personal details.

Graphs should be available for any sensors you have activated (see further sections for details) from this set of menus.

Skipper's Mate

Sensor Testing

4. Where Do I Change Settings for Graphs & Alarms ?

Settings which affect graphs and alarms are ONLY via the Boat system – either locally via wireless if you are on board or remotely by visiting <https://www.skippersmate.co.uk>, and logging using your personal details and selecting **Visit Boat** (where you will be asked for a 2nd level of login). Then choose the Settings menu and the appropriate sensor option (see more detail in Section 8).

5. Turning OFF Sensors

If you intend to run the system WITHOUT sensors (for example, while setting up and testing the main system) you should :

- using menu item Control / Control Panel – turn **Sensors OFF**
- using menu item Control / Alert Control Panel – turn **ALL OFF**

6. Testing Alarm Only Sensors

- Power on Sensor Control Unit(s)
- using menu item Control / Control Panel – turn **Sensors ON**
- using menu item Control / Alert Control Panel – turn **ALL ON**
- using menu item Control / Alert Control Panel – turn **ON** the appropriate switch (e.g. Bilge, Hatch, PIR ...)

Initiating an Alarm

You will need to create an error condition to trigger an alarm. For example, you could manually open a hatch or move the bilge sensor to the top of its range.

Sending Alarms

Initiating an alarm should send an email and/or SMS to the contacts you have listed via your web site login.

Single Alarm – unless you choose to Reset - The system works on the basis that you don't want to be told every 5 minutes that your hatch is open or that your batteries are going flat. So the system sends **a single alarm** (or pair of alarms – one email and one SMS). If you wish to receive further occurrences of THAT alarm use the link in the email.

Receiving/Resetting Alarms

Single Alarm - If you wish to reset the alarm you can click on the web link in the email – this will reset the sensor data on your boat and show you a confirmation web page.

Multiple Alarms – if you wish to reset all alarms, please use the menu option on the boat menus – Settings / Refresh Alerts and then hit the OK button.

Skipper's Mate

Sensor Testing

7. Testing & Recalibrating Monitoring/Alarm Sensors

- Power on Sensor Control Unit(s) (SCU)
- using menu item Control / Control Panel – turn **Sensors ON**

Once you have turned the sensors ON in the Control Panel the system should take readings on a regular basis. Any readings outside the parameters set by you (see the Settings menu) will be reported via Alarms – see below in this section. Readings will be sent to the Skipper's Mate Central Server hourly and may be seen on graphs by logging in via the web site and using the Graphs meny.

To see your boat's graphs, visit the web site <https://www.skippersmate.co.uk> – login in with the details you provided and use the Graphs menu.

You may find some older data on the system produced during the testing process by viewing earlier dates. Note that this test data may be intermittent as the result of various tests.

Once you have the system running you should be able to see growing data from your sensors on graph(s). Graphing values (axes and normal range) can be changed using the Boat menus – Settings / <Temp/Humid/DewPt> etc/

Alarms

You may prefer to leave alarms off until you have tested further. Check via the web site login that the email and SMS details are correct (we modify these during testing and may forget to correct them sometimes !).

- check/amend the parameters for the sending of alarms using the Boat menu option (see Section 8 below)
- using menu item Control / Alert Control Panel – turn **ALL ON**
- using menu item Control / Alert Control Panel – turn **ON** the appropriate

Initiating an Alarm

You will need to create an error condition to trigger an alarm. For example, you could place a heat source near a THD sensor so that the temperature goes above the Maximum Alert Value.

Sending Alarms

Please see section 6 above.

Receiving/Resetting Alarms

Please see section 6 above.

Skipper's Mate

Sensor Testing

8. Graph and Alarm Settings

Graphs

There are 2 ranges which you can modify :

- Y Axis values – Min and Max. Numeric – may include negative numbers (useful for Dew Point, Temperature etc.) These define the extent of the graph
- Display Range Values – may also include negative numbers. This the “normal” range” for graphs – shown in light green. This is **purely** visual and does not affect alarms.

To save the new values, hit the **OK button**.

Alarms

Where you have multiple sensors of a given type (e.g. Temp in Cabin and Temp in Lazarette), choose the appropriate sensor from the dropdown.

Current Reading is not editable but will display the reading from your selected sensor.

- Min and Max Alarm Values – if a reading is below the Min Alert Value or above the Max Alert Value an alarm will be triggered.

Email Alarms - The alarm will be sent by email using the email address stored centrally (use the web site login and select the Settings menu / Email Contacts. You can have up to 5 email addresses so if you may be away from the boat you could, for example, add an email address for the marina or a local friend. **Please** obtain their permission before entering someone else's email address.

There is no limit to the number of emails which may be sent by the system.

SMS Alarms

The alarm will be sent by SMS using the mobile phone no(s). stored centrally (use the web site login and select the Settings menu / SMS Contacts. You can have up to 5 numbers so if you may be away from the boat you could, for example, add a mobile number for the marina or a local friend. **Please** obtain their permission before entering someone else's mobile phone number.

SMS messages are limited but top-ups can be purchased if you use up your allowance. You will receive an email notification if you are about to run out of SMS tokens. A new allowance is added when you renew your subscription to the central Skipper's Mate service. For more details please view the web site or contact us via the forum or email.

Re-calibration

You may wish to calibrate some sensors – either because you want the output to match other

Skipper's Mate

Sensor Testing

systems you have on board (e.g. voltage/temperature) or because the sensor is not quite accurate.

To recalibrate a sensor :

Where you have multiple sensors of a given type (e.g. Temp in Cabin and Temp in Lazarette), choose the appropriate sensor. In addition, where you have a multi-function sensor (e.g. Temp/Humid/DewPt) you may need to use **each tab** to recalibrate the individual setting.

- Hit the **Recalibrate** button (e.g. Recalibrate Temp). The Current Reading will now become editable.

You can now use one of two methods to adjust the sensor reading until you are happy it is correct :

- Use the up/down arrows in the Adjustment % field
- Use the slider bar

These will adjust the figure Current Reading.

When you are satisfied, hit the **Save** button.

If you have multiple sensors or multi-function sensors you can adjust these.

IMPORTANT – before closing the program make sure you hit the OK button to save the results.

This task can be repeated but is recommended that you close the program and re-open program if you wish to adjust further.