

Sentinel

Boat Monitor BM40

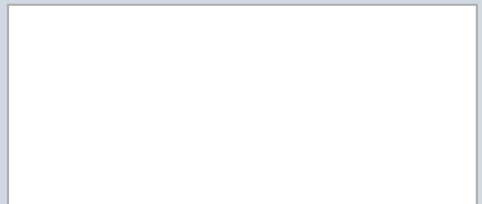
Installation Guide

INSTALLATION PARTS - INCLUDED

- Sentinel Boat Monitor device
- User manual
- Warranty

OPTIONAL PARTS

- Magnetic door switch (SKU: A1012)
- Bilge float sensor (SKU: A1013)
- Shore power sensor (SKU: A1009)
- External GPS antenna with 3m cable (SKU: A1016)



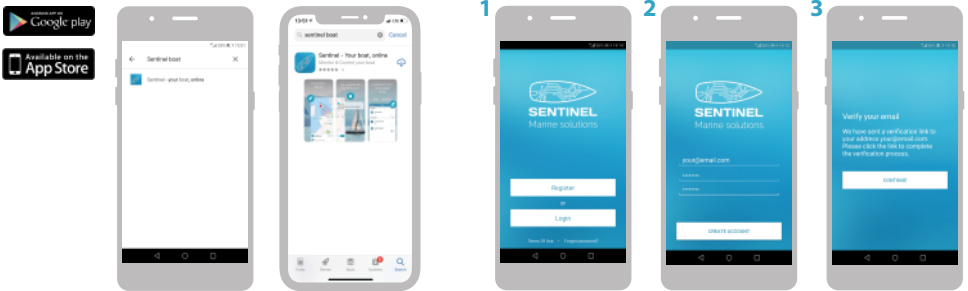
1. Install the Sentinel App

To start using your Boat Monitor device you should install the “Sentinel Marine solutions” app for your platform and create a Sentinel account.

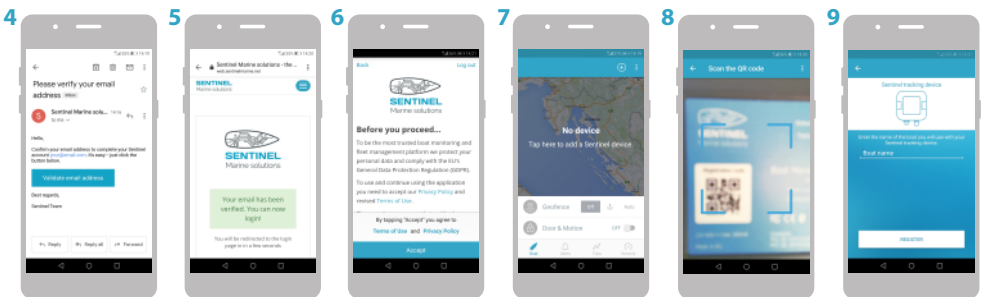


1.1 Using the Sentinel App

To access boat’s data you need a Sentinel Boat Monitor installed and a Sentinel app for your mobile device. Use Play Store for Android or App Store for iOS and search for “Sentinel boat” app.

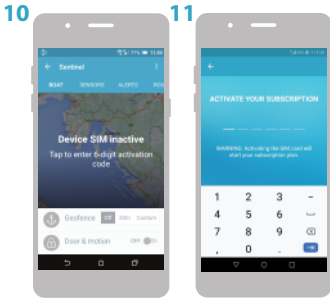


1. If you already have have a Sentinel account skip steps 2-6 and select Login, otherwise select Register
2. Enter your email address and choose a password
3. A verification email will be sent to the address you have entered. Please check your “Spam” folder if you haven’t received it



4. To verify your email address click on “Validate email address” button
5. Email address is now verified. You can proceed with using the Sentinel app
6. Terms of Use, Privacy Policy need to be accepted before using the app
7. Select the plus sign “+” in the top of the screen

8. Scan your QR Code (found on the device or in the installation manual)
9. Input the name of the boat. Before boat's data can be received you need to activate the Sentinel Boat Monitor



10. To activate the Sentinel Boat Monitor, follow the instructions to input the activation code
11. Enter the activation 6 digit PIN code (which can be found on the device or in the installation manual)

NOTE! Please note that it might take up to 15 minutes for your device to start sending data to your mobile device.

2. Installation Guide

Sentinel Boat Monitor should be installed in a dry place with no direct contact with water. Boat Monitor should not be exposed to direct sunlight. Temperatures over 50 oC may cause irregularities in Boat monitor operation and damage of internal components.

The device has two mounting holes on the side, covered with plastic hatches. It can be tightened with screws or attached with adhesive tape or plastic straps.













Sentinel Boat Monitor is designed for wall mounting. Grey (sensor and supply) cable should always face the ground as shown in figure to achieve optimal positioning accuracy with built-in antennas. Unless an external GPS antenna with extension cable (optional, not included) is used any other orientation of the device will cause poor satellite reception and will significantly lower the positioning precision. The sky view above the device or GPS antenna with extension cable should not be obstructed with any metal objects.

2.1 Electrical connection overview

The device should be connected to a PERMANENT POWER SOURCE to allow monitoring at all times. The device consumption is less than 1 Ah at 12V per day when moving and less than 50 mAh at 12V per day when in deep sleep mode.

Wiring

 RED Power supply (+12 or +24 V DC)	 BLACK Ground
 PURPLE Bilge sensor input	 GREEN Door sensor input
 BLUE Shore power detection input	 YELLOW Second battery voltage measurement (+24 V DC)
 PINK Third battery voltage measurement (+24 V DC)	 BROWN Fourth battery voltage measurement (+24 V DC)
 GREY Relay output terminal 1	 WHITE Relay output terminal 2

Bilge, door and shore power inputs can be changed to other sensor types. Use Web or Mobile App to change sensor type from their default values.

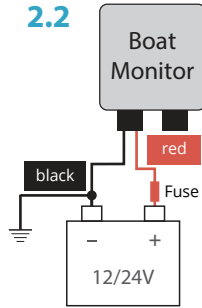
2.2 Power supply connection

When connecting any line (power supply or voltage input) directly to the battery, always protect the battery and electrical circuit from potential damages with a fuse. Install a fuse holder with 1 A fuse on the positive (+) power cable as close as possible to the battery terminal.

Connect the red wire through a fuse (fuse should not be inserted until installation is complete) to permanent power source (battery).

Connect the BLACK wire to system ground.

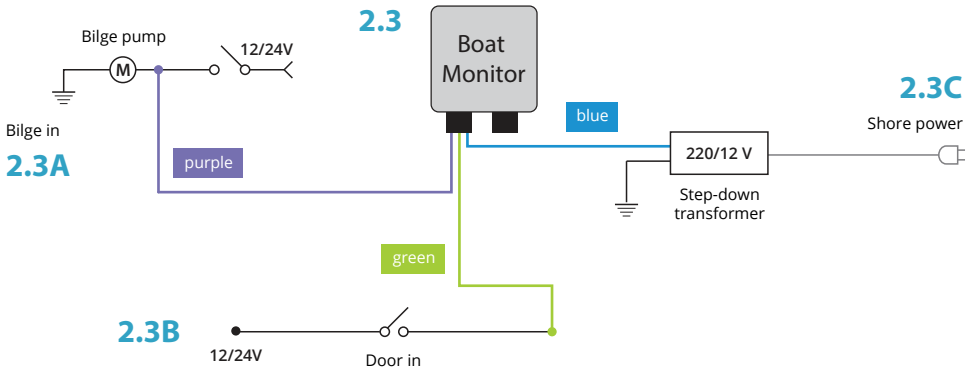
2.2



Power supply / Voltage 1

2.3 Bilge, door switch connection and shore power detection

Boat monitor comes with predefined digital input configuration shown on wiring diagram 2.3. If different configuration is required, digital inputs can be reconfigured in the Sentinel app.



DEFAULT CONFIGURATION WIRING

Purple - bilge sensor: used for float switch or bilge pump activity detection as shown in fig. 2.3A. The input uses ACTIVE HIGH logic by default. If active low logic is required please contact support.

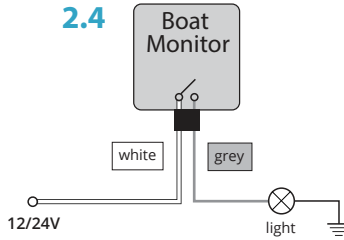
Green - door sensor: used for door alerts. Connect magnetic switch as shown in fig. 2.3B. The input uses ACTIVE LOW logic by default (switch open when door is open). If active low logic is required please contact support.

Blue - shore power presence detection: used for alerts on shore power disconnection. Connect a step-down transformer (not included) as shown in fig. 2.3C.

2.4 Relay output

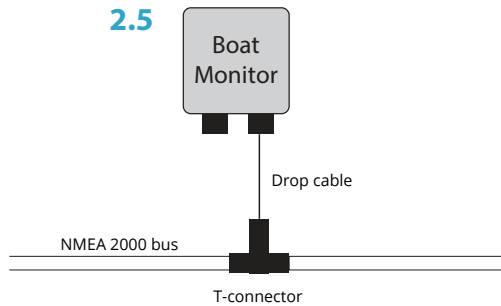
The built-in relay is connected through the grey and white wires. Make sure not to exceed the current of 1 A. Maximum allowed switching voltage is 60 V. For switching loads that require more power, an additional power relay is required.

Example: switching LED lights with Boat monitor.



2.5 NMEA 2000® connection

Boat monitor can be connected to NMEA 2000® backbone (bus) via a drop cable and T-connector. Important: Boat Monitor cannot be powered from the NMEA 2000® backbone.

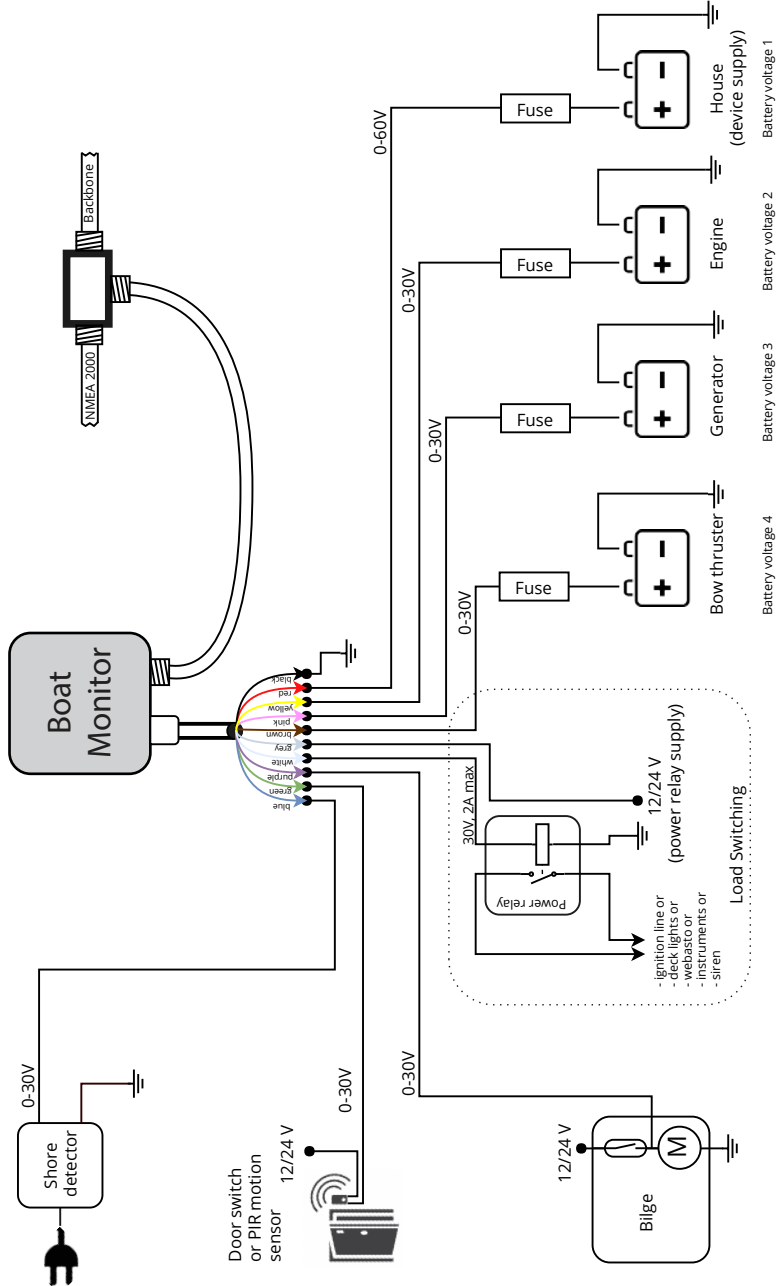


NOTE!

To power up the device for the first time insert the fuse on the supply wire (see fig. 2.2). The device should power up and LEDs should start blinking. When the subscription is active it takes approximately 1 minute until LEDs start blinking once every 3 seconds. This pattern signals normal operation.

2.6 TYPICAL SYSTEM WIRING

Boat Monitor BM40: Typical wiring for predefined sensor configuration:



CAUTION!

The device contains an internal battery. Risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

MORE INFO

For details on pairing Bluetooth devices, troubleshooting, CZone integration and other application notes, see <http://www.sentinelmarine.net/boat-monitor/docs/>

3. Technical specification

POWER SUPPLY:

12 to 60 V DC 4 W Max

ENERGY CONSUMPTION (12 V):

Nominal: average 35 mA r.m.s,

Deep Sleep: average less than 2 mA

OPERATION TEMPERATURE:

-10 °C to +55 °C

STORAGE TEMPERATURE:

-40 °C to +60 °C

STORAGE RELATIVE HUMIDITY:

5 to 95 % (no condensation)

	Minimum	Typical	Maximum
Supply Voltage	11 V	12 V - 48 V	60 V
Input resistance	500 kΩ		
Input Voltage Range: Voltage 1 Voltage 2/3/4			60 V 30 V
Input Voltage threshold (bilge, door)		5 V	
Relay switching voltage Relay switching current			60 VDC 1A

Boat monitor compliance

CE This product is marked with logo and uses radio frequency bands that are harmonized throughout the European Community and others. Declaration of conformity is located in the box together with warranty list.



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