SENTINEL

Sentinel Boat Monitor

Installation Guide

INSTALLATION PARTS INCLUDED

- Sentinel Boat Monitor device
- User manual
- Door sensor
- External antennas (external antennas option)

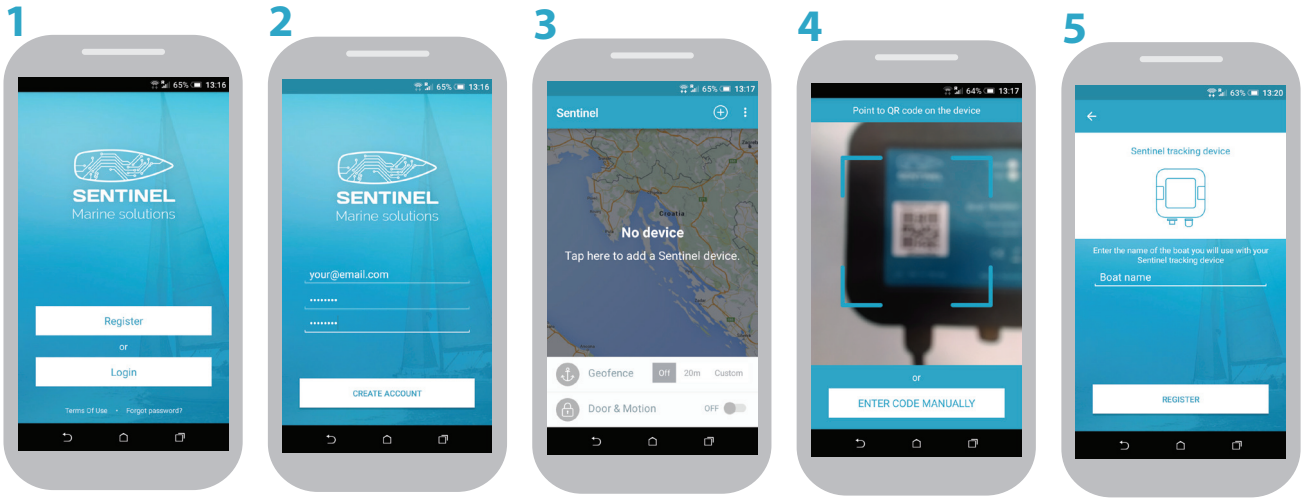
INSTALLATION PARTS NOT INCLUDED

- Power cable (12 V or 24 V, e.g. 2x1,5 mm^2)
- Sensors (optional)
- Cable to connect the sensors (optional)

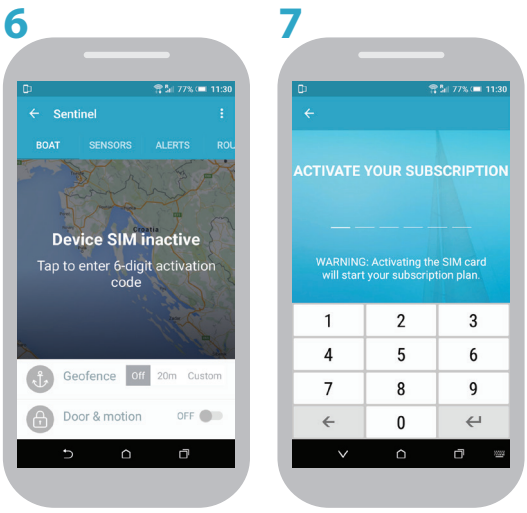
Installing Sentinel App

To start using your Sentinel device you should install the "Sentinel Marine solutions" app for your platform and create a Sentinel account.
Visit the Google Play or App Store to find and download the application "Sentinel Marine solutions".

1 Using the Sentinel app



1. Tap "Register" if you do not yet have a Sentinel user account. Otherwise, tap "Login" and enter your email and password.
2. Enter your email address and choose a password if you are registering a new account.
3. Tap the ⊕ sign at the top of the screen.
4. Scan the QR code on the device.
5. Enter the name of the boat on which you installed the Sentinel device.



6. When you wish to activate the device and start the Sentinel subscription tap the screen to enter the activation process.
7. Enter the 6-digit activation code, which you received with the device.

NOTE! Please note that it might up to 2 hours for your device to start sending data to your smart-phone once the Subscription is activated.

Installation Guide

2 Installation

Sentinel Boat monitor is assembled in a sealed enclosure, although it is recommended to be installed indoors.

The device has 2 mounting holes on the side, covered with plastic hatches. It can be tightened with screws or attached with adhesive tape or plastic straps.

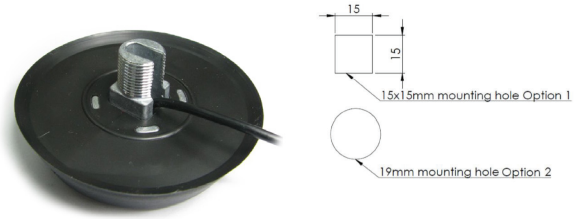
2.1 Model with internal antennas

Sentinel Boat Monitor has internal GNSS and GSM antennas. The device is constructed for wall mounting. Supply cable should always face the ground as shown in figure. Any other orientation will cause poor satellite reception, which can significantly lower the positioning precision.
The sky view should not be obstructed with any metal objects.

2.2 Model with external antennas

The package for the model with external antennas should include an external combo GSM+GPS antenna with 3m of cable.

2.2A



Mount the antenna horizontally onto a designated place with a clear sky view to ensure optimal satellite reception. Possible mounting holes are shown in fig. 2.2A. Connect the antenna wires onto the Boat Monitor as shown in fig. 2.2B: the cable with GPS label should be on the left, GSM cable on the right. Make sure to tighten the antenna connectors firmly.

2.2B

Warning! The antenna mounting screw is directly connected to the Boat Monitor ground (black wire). If the antenna is mounted onto a metal plane (hull) make sure that the metal plane is on the same potential as the Boat Monitor ground (black wire)! Failing to do so, high currents through the device may damage the device as well as other equipment.

3 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 per day when moving and less than 50 mAh per day when in deep sleep mode.

Cable system:

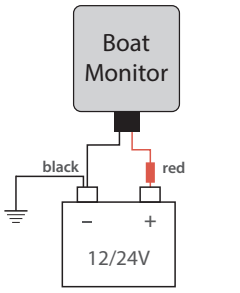
- **Red:** Power supply (+12 or +24 V DC)
- **Black:** Ground
- **Purple:** Bilge sensor input
- **Green:** Door sensor input
- **Blue:** Shore power detector input
- **Yellow:** Voltage of the second battery input
- **Pink:** Voltage of the third battery input
- **Brown, White:** Shunt - high voltage input (+ 48 V DC)

3.1 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 (max distance 40 cm) to the battery terminal.

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

Connect the BLACK cable to system ground.

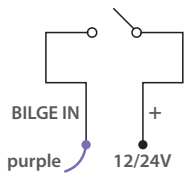


Power supply / Voltage 1

3.2 Bilge switch connection

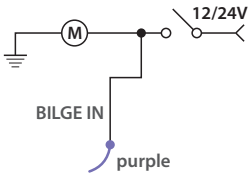
Bilge input uses ACTIVE HIGH logic. If active low logic is required please contact support.
Connect bilge switch as shown in fig. 3.2 A or existing bilge pump driving signal as shown in fig. 3.2B.

BILGE SWITCH



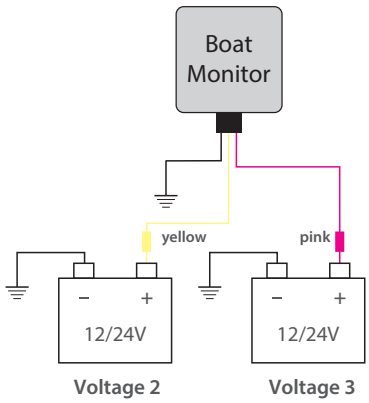
3.2A

BILGE PUMP



3.2B

3.3 Voltage measurement

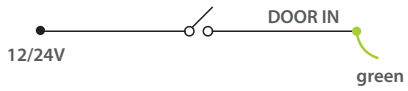


Voltage 2 Voltage 3

Installation Guide

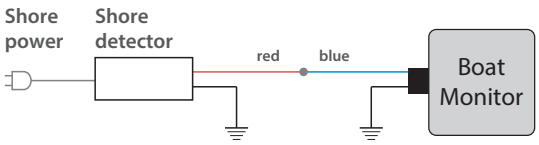
3.4 Door switch connection

Connect door switch as shown in fig.



3.5 Shore power detection

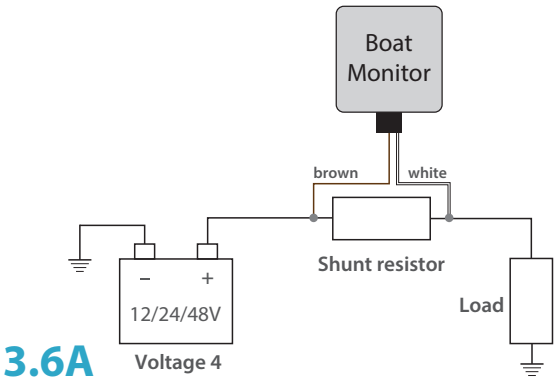
Connect shore power detector (sold separately) as shown in fig.



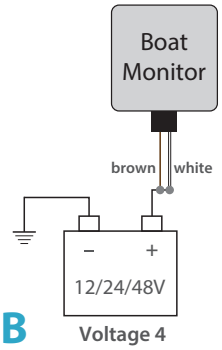
3.6 High voltage and current measurement

Current can be measured through external HIGH-SIDE shunt resistor (not included). For low-side shunt wiring please contact support. Shunt should be sized based on maximum current consumption e.g. 1 mΩ for up to 80 A measurements, 0.5 mΩ for up to 160 A measurements, etc.
Connect shunt as shown in fig 3.6A.

The input (brown wire) is also used as a high voltage input (Voltage 4). This input can measure up to 60V. If current measurement in not required, connect white and brown together to avoid false current readings (fig. 3.6B)



3.6A



3.6B

3.7 Powering the device for the first time

To power up the device for the first time a special procedure is required.
Insert the fuse on the supply wire to release the deep sleep lock. Then, remove the fuse and reinsert it again. 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.

4 Technical specification

POWER SUPPLY: 12 to 24 V DC 2 W Max

ENERGY CONSUMPTION (12 V):
Nominal: average 50 mA r.m.s,
Deep Sleep: average less than 2 mA

OPERATION TEMPERATURE: -10 °C to +55 °C
STORAGE TEMPERATURE: -40 °C to +70 °C
STORAGE RELATIVE HUMIDITY: 5 to 95 % (no condensation)

	Min.	Typ.	Max.
Supply Voltage			
Supply Voltage	5 V	12 V -24 V	30 V
Digital Input			
Input resistance	500 kΩ		
Input Voltage Range			30 V
Input Voltage threshold (bilge, door)		5 V	
Shunt input common mode input voltage	0 V	48 V	60 V
Shunt differential full scale input			80 mV

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.

RoHS REACH COMPLIANT Bluetooth® SMART

Contact

Email: support@sentinelmarine.net
Phone: +385 (0)99 33 55 669 | www.sentinelmarine.net