

SENTINEL

Marine solutions

INSTALLATION GUIDE

BOAT MONITOR

BM-50 PRO



BM-50 PRO



Parameter	Minimum	Typical	Maximum
Supply Voltage*	11.7 V	12 V -32 V	34 V
Input resistance of digital and analog inputs (except power supply)	500 kΩ		
Input Voltage Range: Voltage 1 Voltage 2/3/4	0		32 V 60 V
Digital input Voltage threshold		5 V	
Relay switching voltage Relay switching current			60 VDC 1A

POWER SUPPLY: 12 to 30 V DC 4 W Max

ENERGY CONSUMPTION (12 V)*: Nominal: average 35 mA r.m.s,

OPERATION TEMPERATURE: -10 °C to +55 °C

STORAGE TEMPERATURE: -40 °C to +60 °C

STORAGE RELATIVE HUMIDITY: 5 to 95 % (no condensation)

*Default value - software adjustable

NOTE! The device will not start if the startup voltage is below 12.5V.

BOAT MONITOR COMPLIANCE

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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CONTACT

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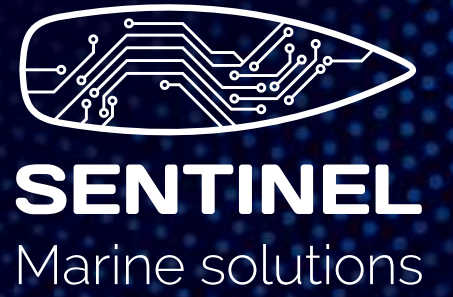
support@sentinelmarine.net

www.sentinelmarine.net



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1. PACKAGE CONTENTS

Before starting the installation, verify that all components are included in the package.

The BM-50 PRO package contains:

- Sentinel BM-50 PRO device
- Mounting bracket
- 4 self-tapping screws
- Installation guide
- Warranty documentation

Optional sensors and equipment may be included depending on the selected bundle.

- Bilge high water sensor
- Wired door sensor
- Shore power sensor
- Wireless Motion sensor
- NMEA2000 Drop Cable

If any components are missing or damaged, contact your distributor or Sentinel support before proceeding with installation.

2. BEFORE YOU START INSTALLATION

Before installing the device, ensure that the vessel and installation environment meet the basic requirements.

Proper installation is essential for correct operation of the monitoring system and reliable sensor readings.

Make sure that:

- the vessel uses a 12 V or 24 V DC electrical system
- the installation location is dry and protected
- there is sufficient access to the boat's electrical system
- the device can be mounted securely

Take a moment to plan the installation route for wiring and sensor placement before beginning the installation process.

Required Tools

The following tools are recommended for installing the BM-50 Standard device:

- screwdriver
- wire stripper
- crimping tool
- electrical connectors / terminals
- multimeter (recommended)

Additional tools may be required depending on the configuration of the boat and installed sensors.

3. IMPORTANT SAFETY AND PERFORMANCE GUIDELINES

Carefully read the following guidelines before starting the installation.

Improper installation may result in reduced system performance or device malfunction.

Do not install the device in locations exposed to excessive heat, such as near engines, exhaust systems, or heating elements.

High temperatures may negatively affect the device's performance and lifespan.

Warrenty does not cover damage from incorrect installation.

WARNING

Disconnect the vessel's power supply before performing any wiring operations.

Working on a live electrical system may cause equipment damage or personal injury.

EXPOSURE

The BM-50 PRO device must be installed in a dry and protected environment.

Avoid areas exposed to water spray, condensation, or direct bilge water contact.

CAUTION

Avoid installing the device near high-power radio transmitters, radar systems, or other equipment that may generate strong electromagnetic interference.

Such interference may affect wireless communication.

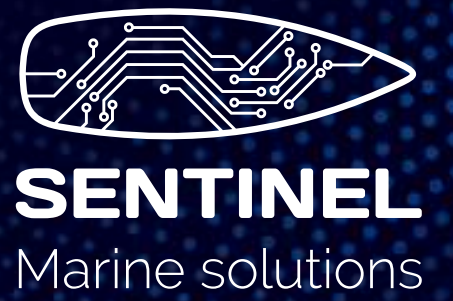
NOTICE

Ensure that all wiring connections are secure and protected against vibration and mechanical stress.

Loose or poorly secured wiring may result in unreliable sensor readings.

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4. INSTALL THE SENTINEL APP

To activate and configure the BM-50 PRO device, install the **Sentinel – your boat, online** mobile application on your smartphone.

The application is available for both iOS and Android devices.

DOWNLOAD



Create or Log In to Your Account

If you already have a Sentinel account, simply tap Login and proceed to the next section.

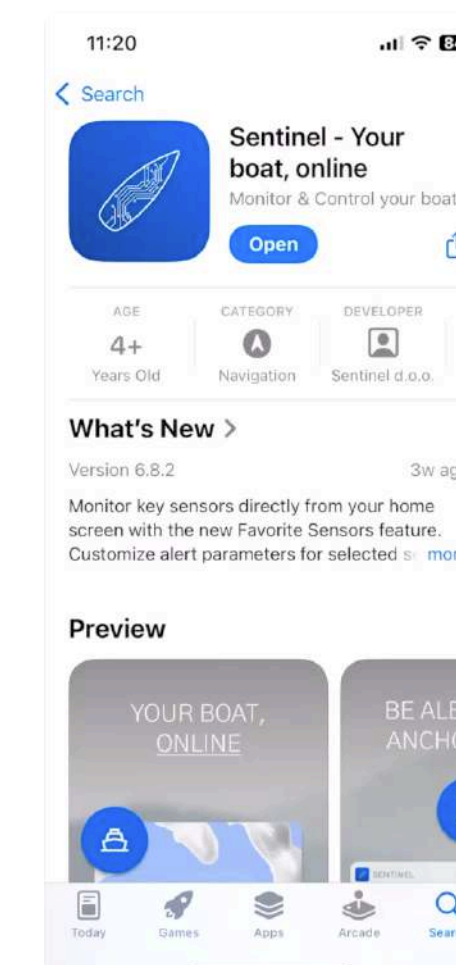
If you are a new user, follow the steps below to create an account.

Step 1 — Create an Account

Tap Create Account on the login screen.

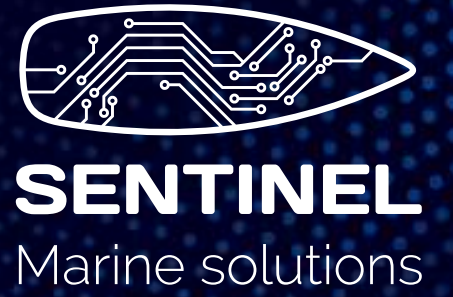
Step 2 — Enter Your Details

Enter your email address and choose a secure password.



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Step 3 — Verify Your Email Address

A verification email will be sent to the address you provided.

If you do not see the email, please check your Spam or Junk folder.

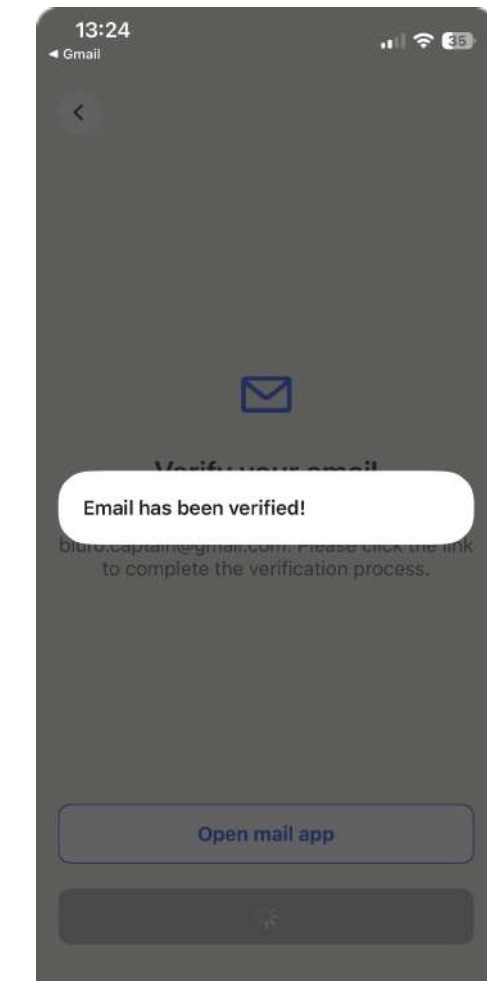
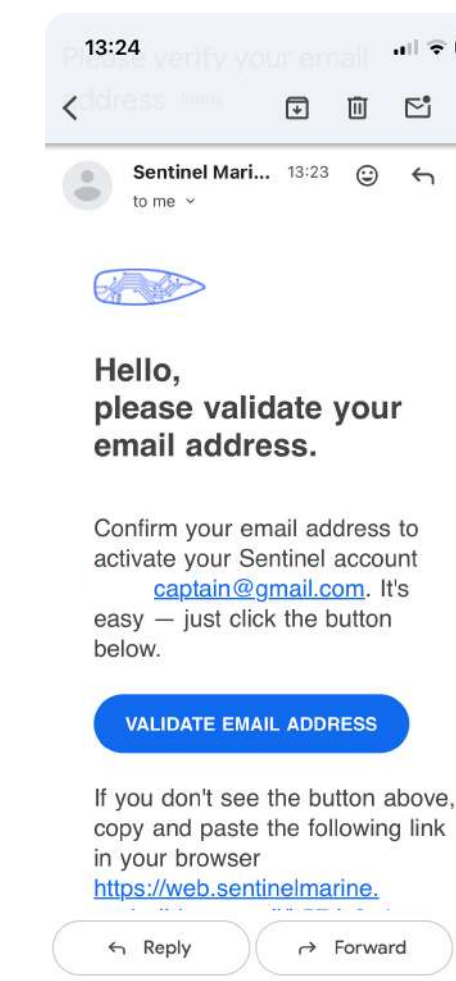
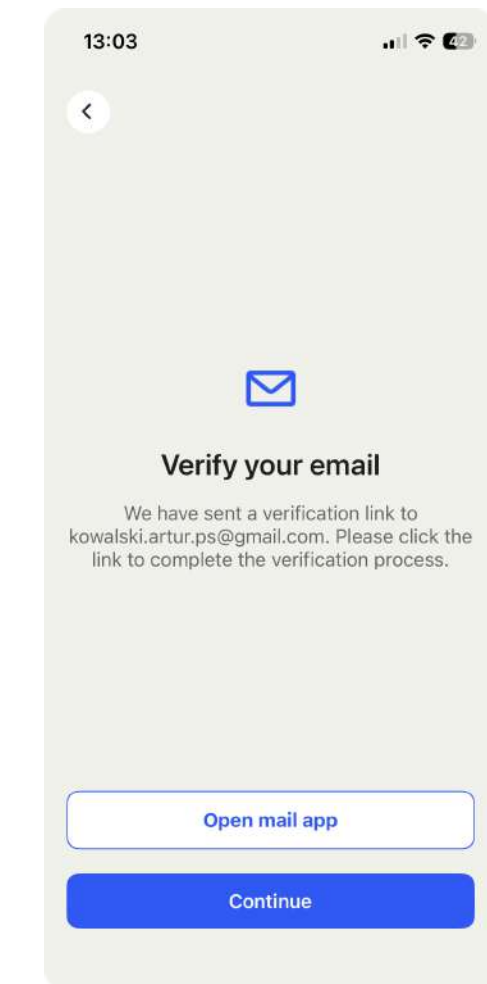
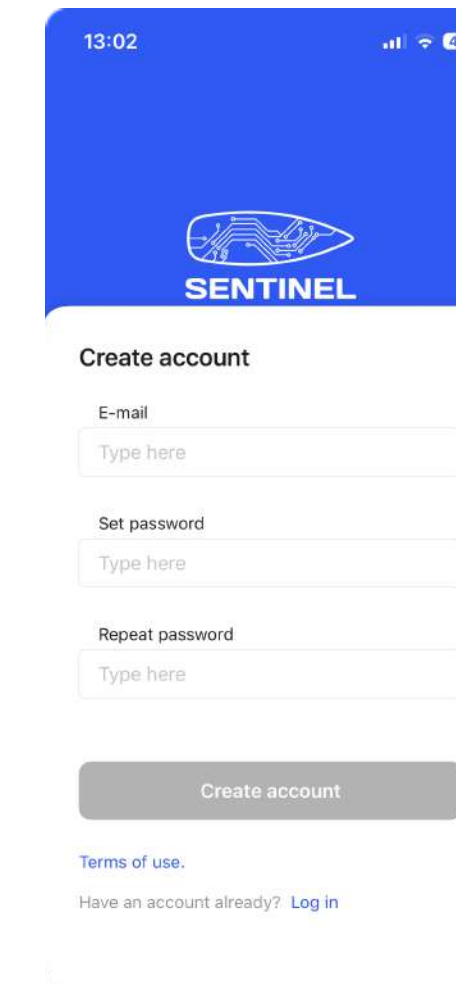
Step 4 — Validate Your Email

Open the email and click the “Validate email address” button.

Step 5 — Accept Terms and Policies

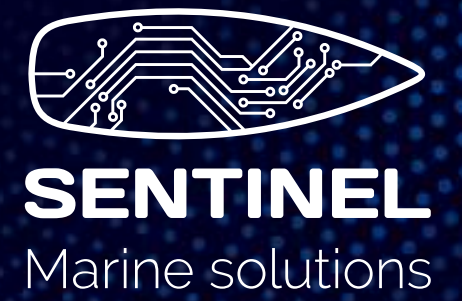
Before continuing, review and accept the following:

- Terms of Use
- Privacy Policy



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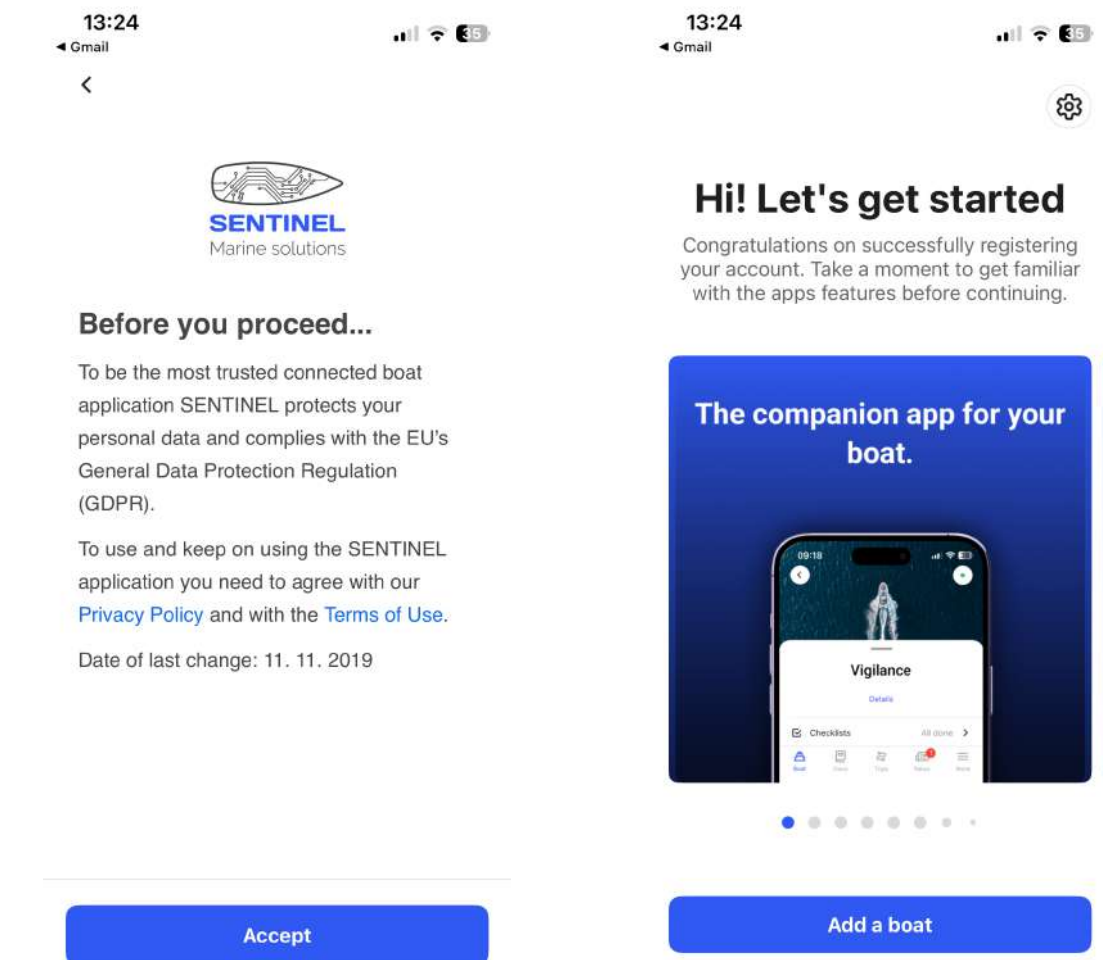
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Step 6 — Add Your Boat

Tap the blue “Add Boat” button located at the bottom of the screen.

You can now proceed with adding your boat and activating your Sentinel device.

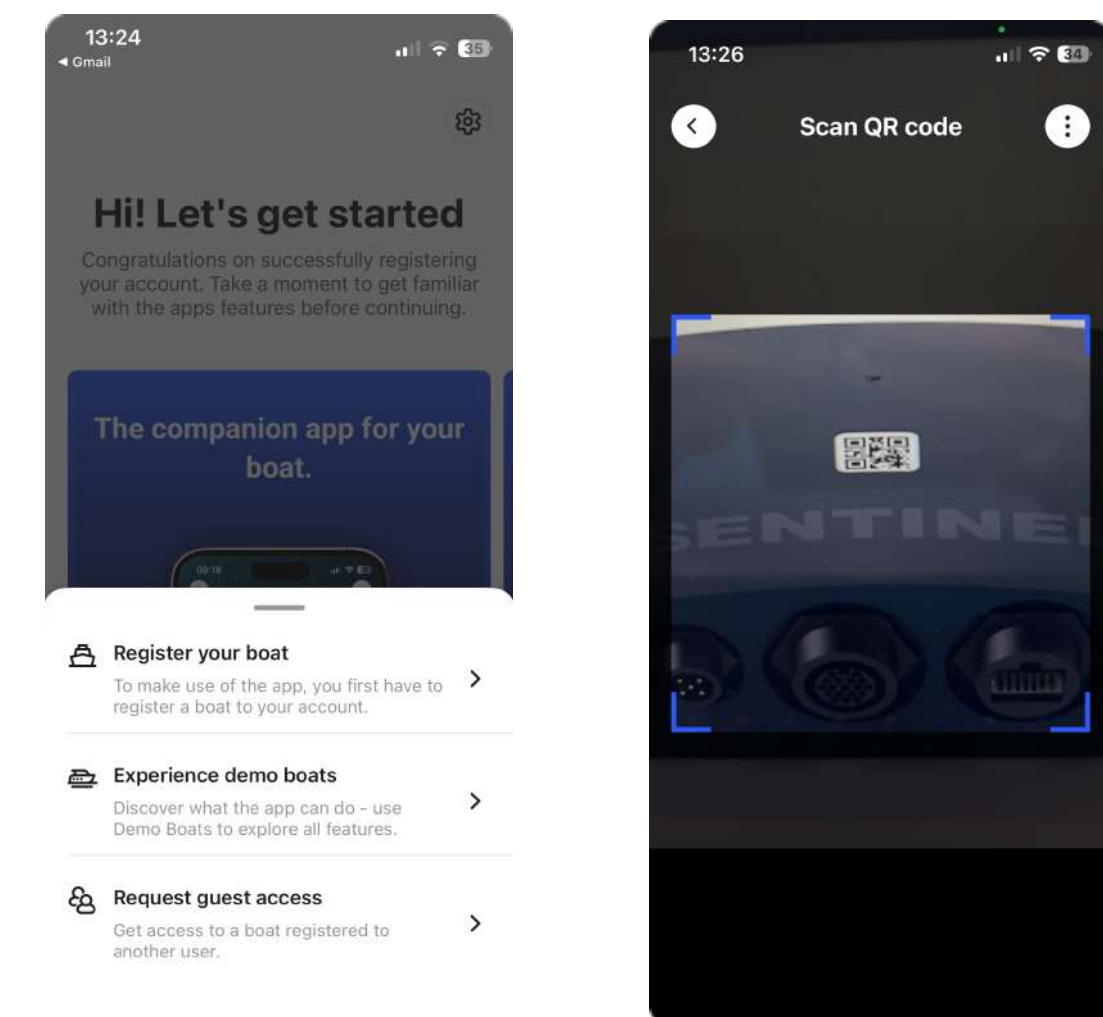


Step 7 — Scan the Device QR Code

After tapping Add Boat, the app will prompt you to add a Sentinel device.

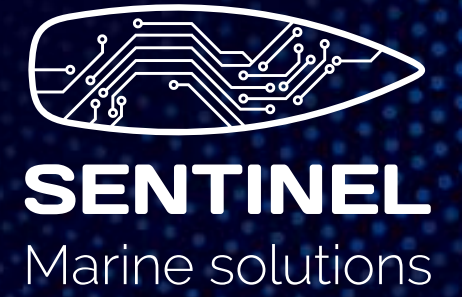
Scan the QR code located on the Boat Monitor device or on the product label using your phone's camera.

If the QR code cannot be scanned, the device serial number can be entered manually.



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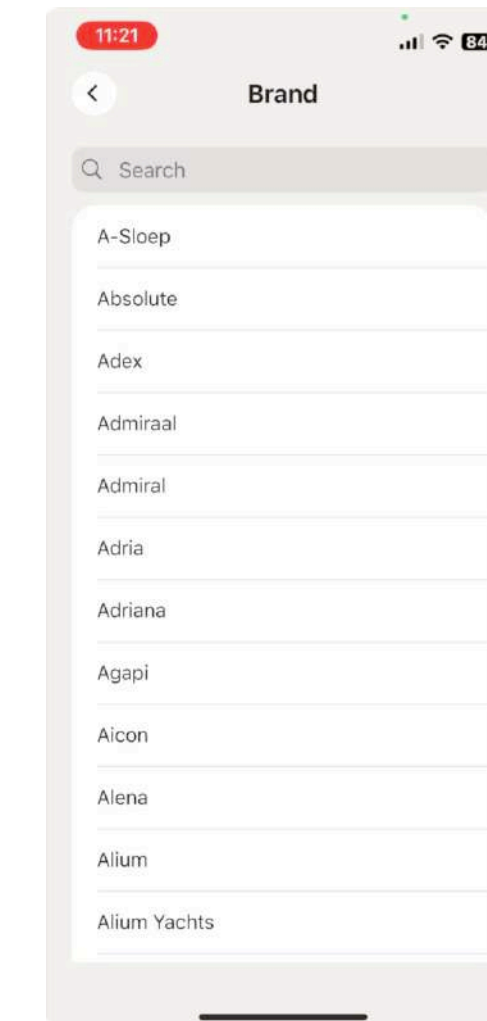
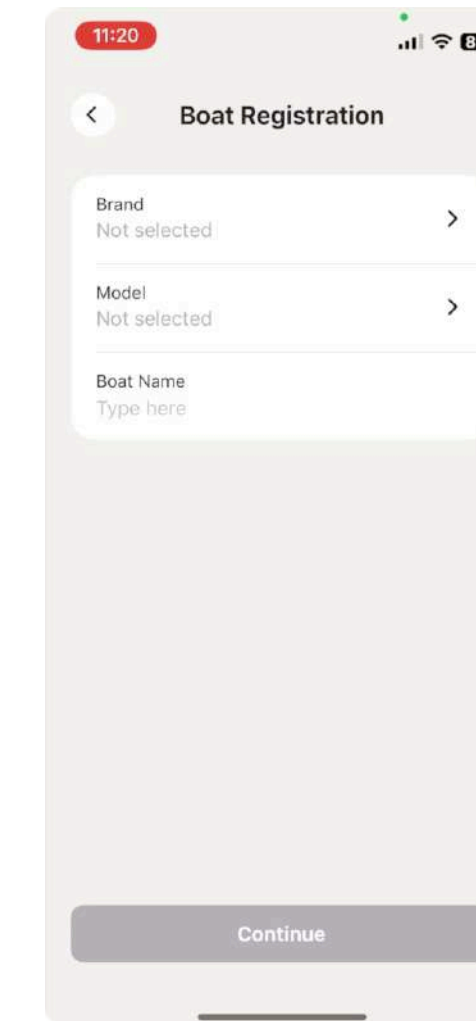


Step 8 — Enter Boat Information

Enter basic information about your boat, such as:

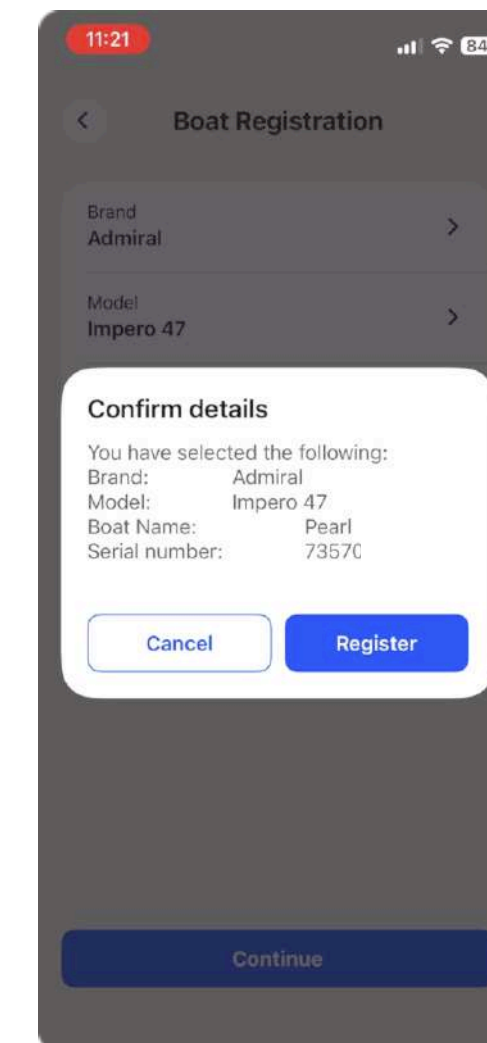
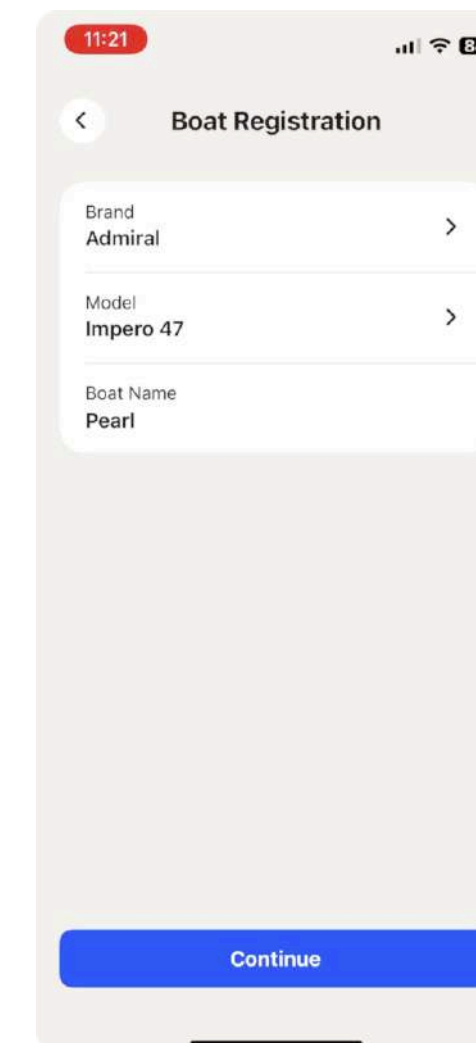
- Boat Brand
- Boat Model
- Boat Name

If your boat model is not listed, please select any model — you can change it later in the settings.



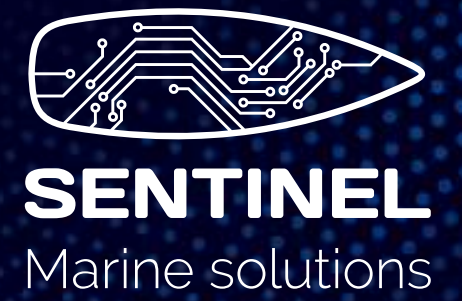
Step 9 — Confirm Boat and Device

Review the displayed details, including the device serial number and boat information, then tap Register to proceed.



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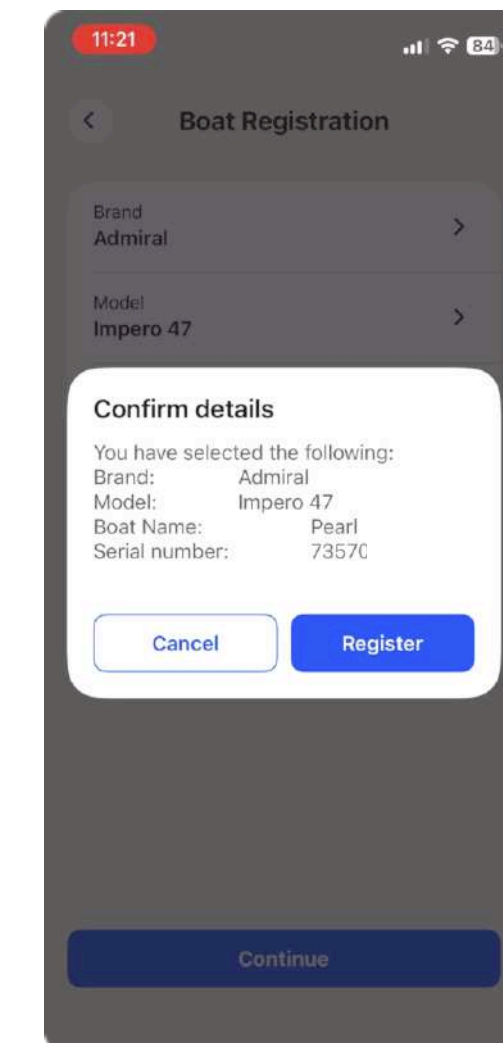
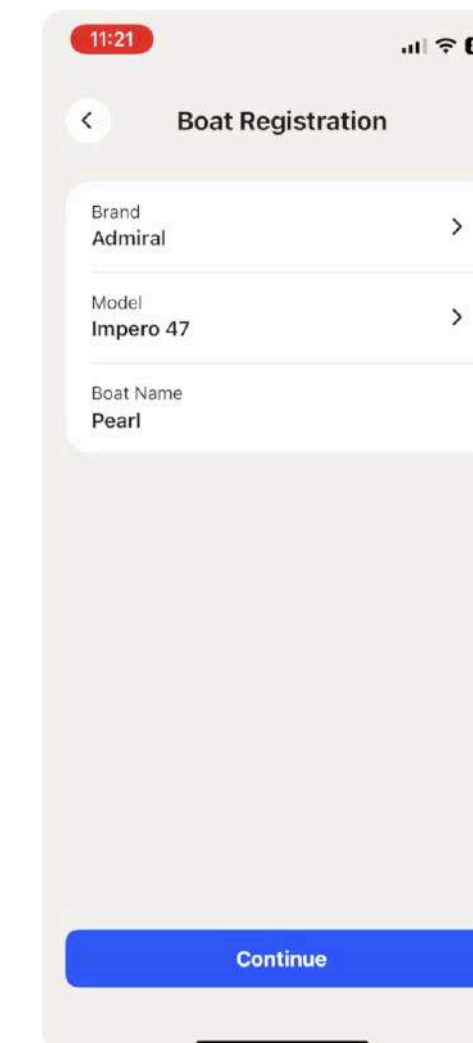
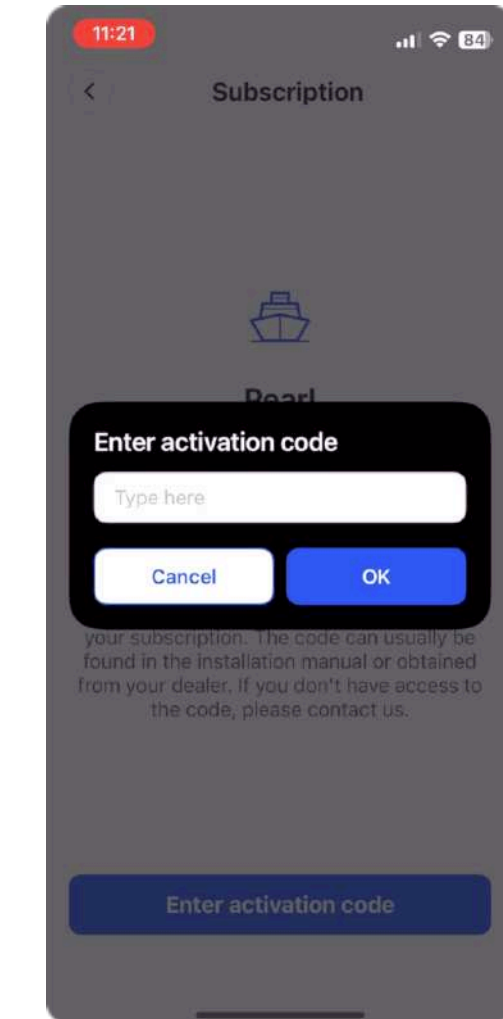
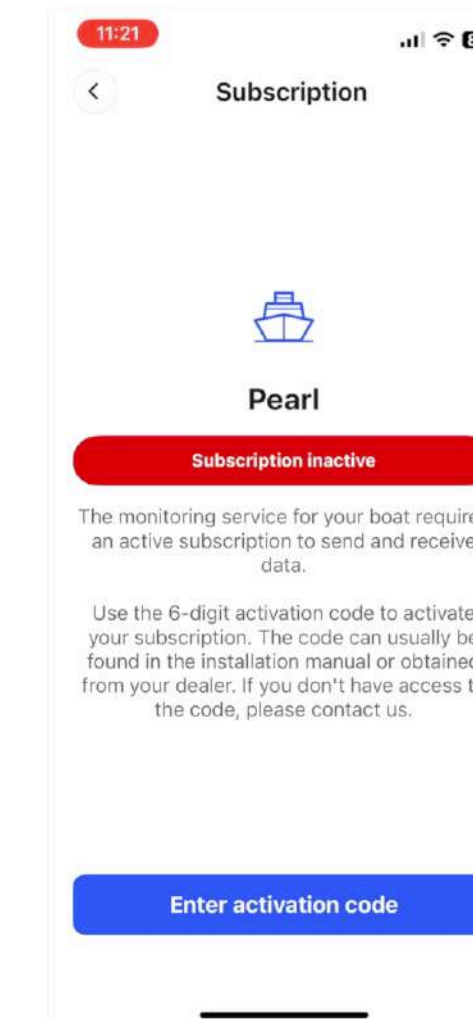
Step 10 — Activate the Subscription

To start using the Sentinel Boat Monitor, you need to activate the device subscription.

In the Sentinel app:

1. Tap Enter activation code.
2. Enter the activation code provided with the device.
3. Confirm by pressing OK.

Subscription activation may take up to 2 hours.



5. CHOOSING THE OPTIMAL INSTALLATION LOCATION

Selecting the correct installation location is essential for reliable system performance.

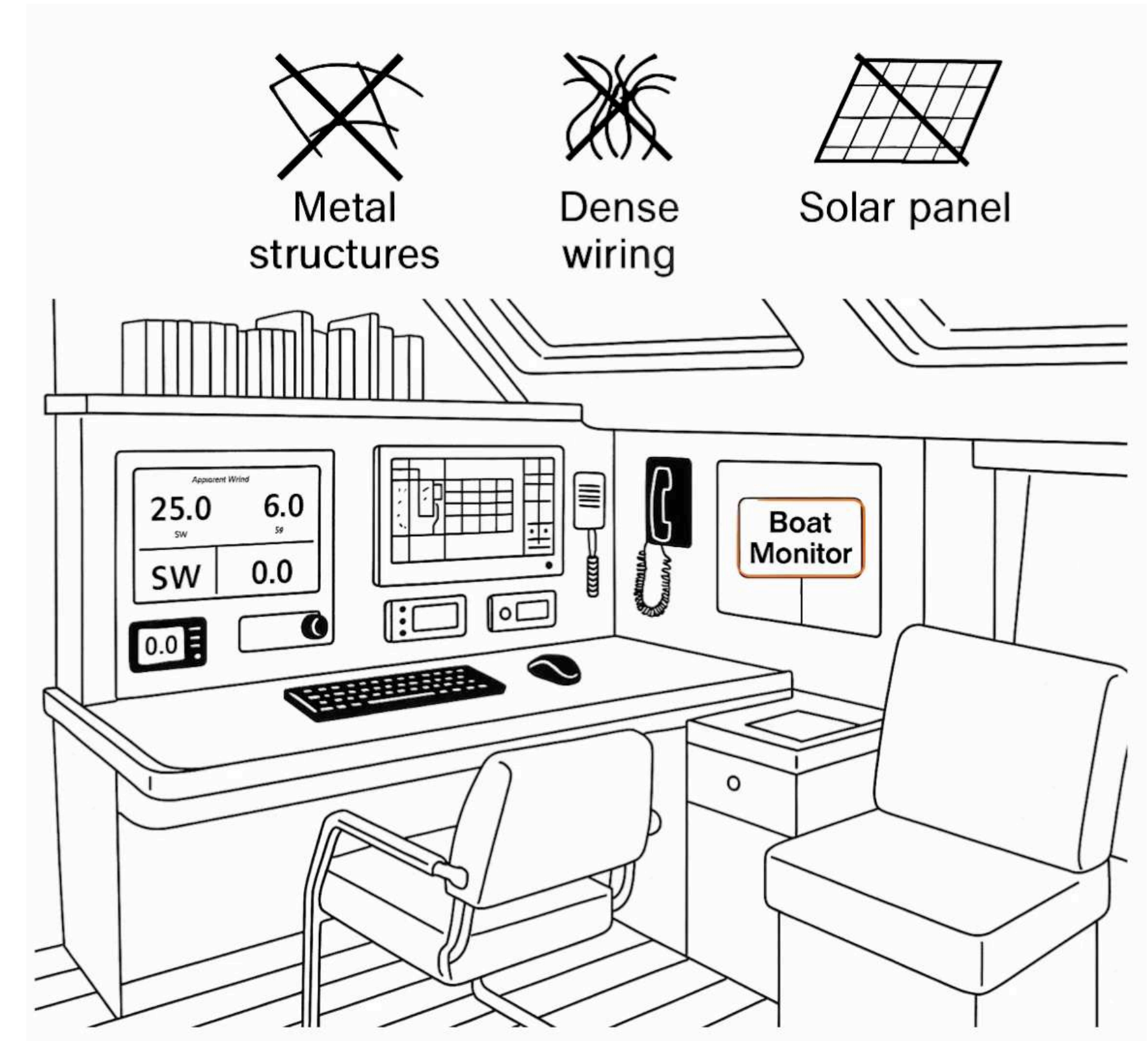
Recommended installation locations include:

- behind the electrical panel
- inside a technical locker
- near the vessel's battery distribution area
- inside a protected dashboard compartment

These locations typically provide good protection from moisture while allowing convenient access to power connections.

Avoid installing the device:

- in engine compartments with excessive heat
- in areas exposed to water, spray, or bilge moisture
- inside sealed metal compartments
- directly beneath large metal structures (such as solar panels, metal decks, or dense wiring harnesses), as they may reduce GPS signal quality and wireless connectivity



6. MOUNTING THE DEVICE

The BM-50 Boat Monitor is designed primarily for wall mounting.

For optimal positioning accuracy and reliable satellite reception, the device must be installed with the connectors facing downward (towards the ground) as shown in the figure.

The device contains built-in antennas. Installing the device in a different orientation may reduce GPS signal quality and positioning accuracy.

If required, an external GPS antenna with an extension cable (optional, not included) may be used.

Wall Mounting

The BM-50 includes a mounting bracket that allows quick installation and easy device replacement.

The bracket can be attached to the mounting surface using:

- the included self-tapping screws, or
- adhesive tape (depending on the installation surface).



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Installation Steps

1. Remove the mounting bracket

Gently lift the top clips on the device and pull the bracket away from the unit.

2. Attach the bracket to the wall.

Fix the bracket using the included self-tapping screws or adhesive tape. Ensure the bracket orientation is correct:
-the top clips are longer
-the bottom clips are shorter

3. Install the device on the bracket

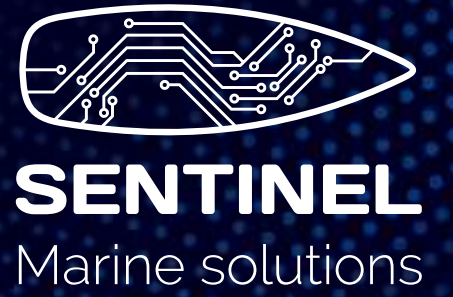
Insert the bottom clips first (1), then push the top of the device towards the bracket until it clicks into place (2).

Make sure the device is securely attached to the bracket.



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ELECTRICAL CONNECTION OVERVIEW

COLOR	FUNCTION
Red	Supply*
Yellow - Brown	VIN1*
Yellow	VIN2
Pink	VIN3
Brown	VIN4
Blue	Shore
Purple	Bilge
Green	Door
Red-blue	PIR
Grey	Relay 1
White	Relay 2
White - grey	Relay Common
Black	GND**
Grey - Brown	GND**

* keep Supply and VIN1 wires connected together to the same battery to ensure correct operation. They are pre-crimped into the same terminal in the factory.

** keep both ground wires connected together to the same battery to ensure correct operation. They are pre-crimped into the same terminal in the factory.

Use Web or Mobile App to change sensor type from their default values. Find out how:

LINK:
<https://sentinelmarinesolutions.freshdesk.com/a/solutions/articles/26000034625>



7. CONNECTING POWER

To ensure continuous monitoring, the device should be connected to a permanent power source.

When connecting the Boat Monitor directly to the battery, the electrical circuit must be protected by installing a fuse holder with a 1 A fuse on the positive (+) power cable, as close as possible to the battery terminal.

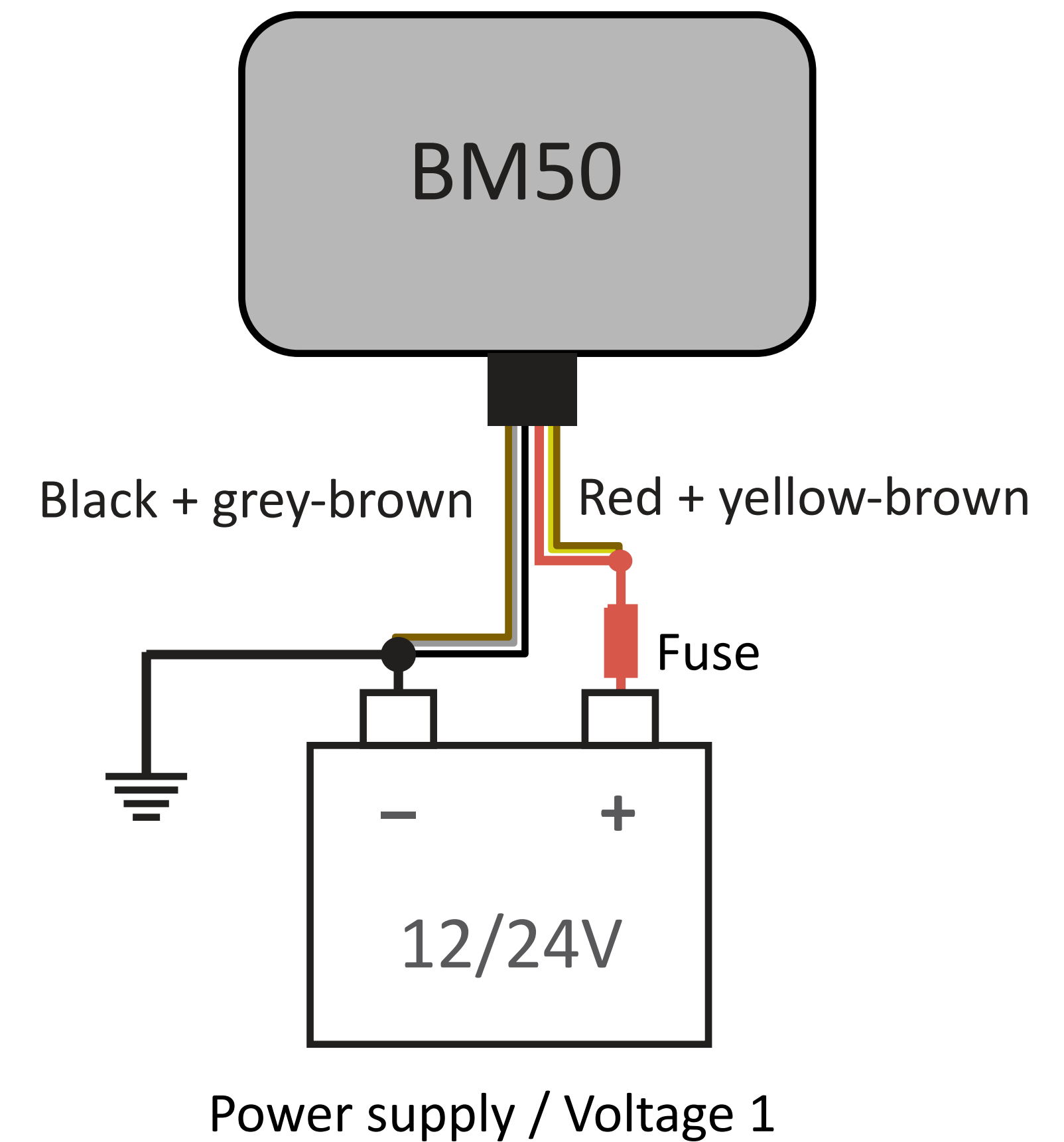
Wiring Instructions

1. Connect the **RED** wire to the positive (+) terminal of the battery through the fuse holder.

Do not insert the fuse until the installation is fully completed.

2. Connect the **BLACK** wire to the system ground / negative (-) terminal.

Ensure all connections are secure and properly insulated.



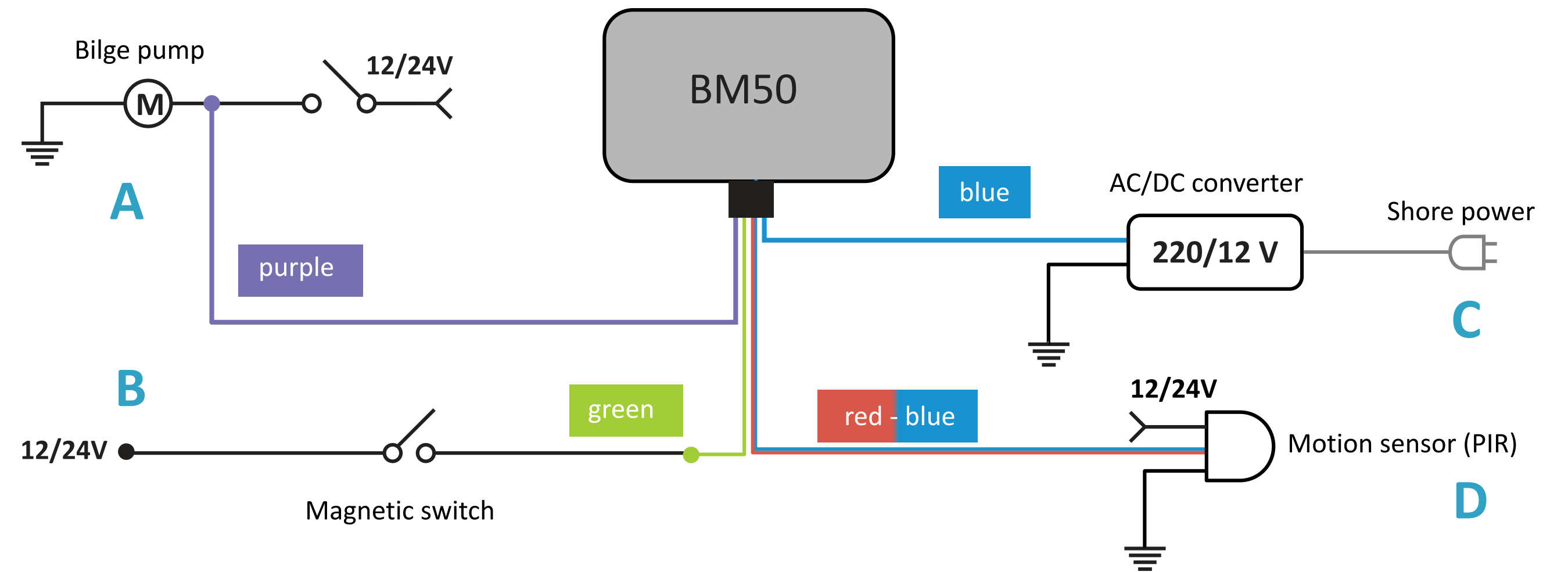
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8. CONNECTING SENSORS

The Boat Monitor supports several digital inputs for connecting onboard sensors.

The device is delivered with predefined input configurations as shown in the wiring diagram. These inputs can be reconfigured later in the Sentinel Web App if a different setup is required.



NOTE

How to change the input logic in WebApp:

LINK:

<https://sentinelmarinesolutions.freshdesk.com/a/solutions/articles/26000034625>



Default Digital Input Configuration

A — Bilge Sensor

Wire color: **Purple**

This input is used to detect:

- bilge float switch activation
- bilge pump activity

Connect the sensor as shown in Fig. A.

Default input logic: **ACTIVE HIGH**

If required, the logic can be changed to **ACTIVE LOW** in the Sentinel Web App.

B — Door Sensor

Wire color: **Green**

Used for door or hatch opening alerts.

Connect the magnetic switch as shown in Fig. B.

Default input logic: **ACTIVE LOW**

The logic can be changed to **ACTIVE HIGH** in the Sentinel Web App.

C — Shore Power Detection

Wire color: **Blue**

Used to generate alerts when shore power is disconnected.

Connect a step-down transformer (not included) as shown in Fig. C.

D — Motion Sensor (PIR)

Wire color: **Red-Blue**

Used to detect motion events inside the boat.

Default input logic: **ACTIVE HIGH**

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Relay Output

The Pro version of the Boat Monitor includes two built-in low-power relay outputs.

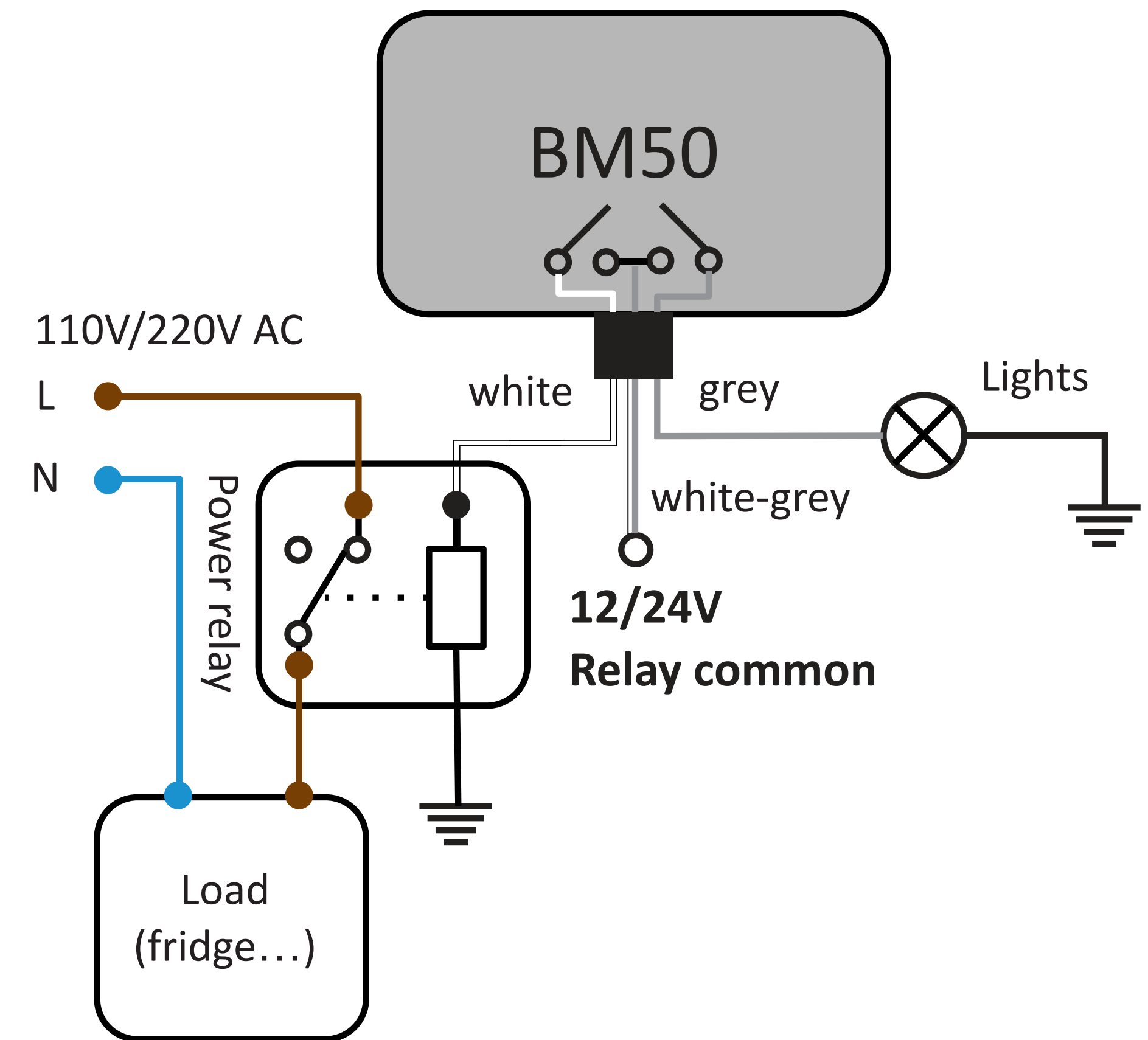
The first load should be connected to the grey wire, and the second load should be connected to the white wire, while the common relay contact is connected to the **white-grey** wire.

To ensure proper operation:

- the current must not exceed 1 A,
- the maximum switching voltage is 60 V.

If the controlled device requires higher power, an external power relay must be used.

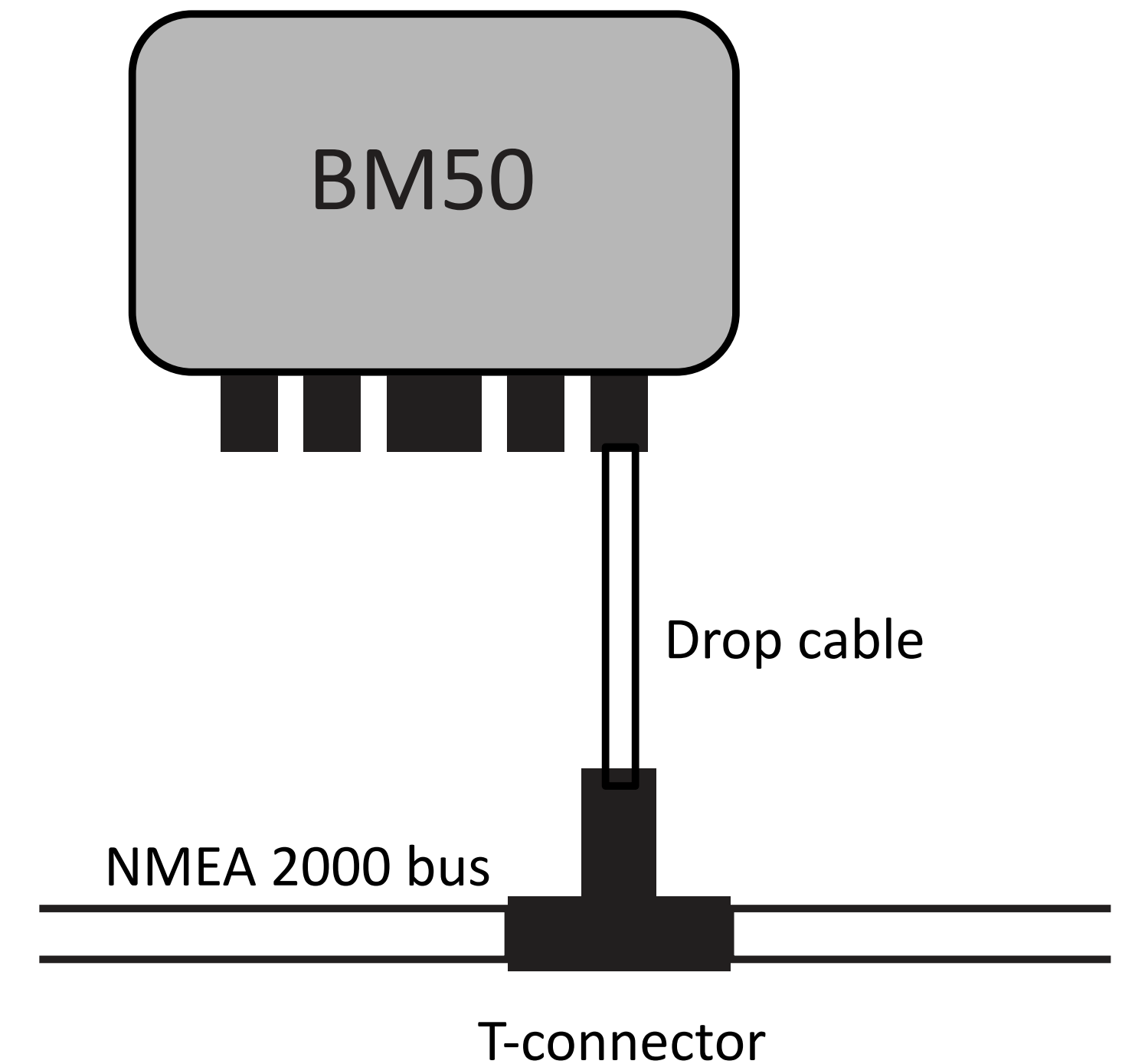
Example: switching a low-power LED light using the Boat Monitor.



NMEA 2000® connection

The CAN1 connector is the primary NMEA 2000 interface used to connect the Boat Monitor to the boat's NMEA 2000 backbone.

Connect the CAN1 connector to the NMEA 2000® backbone (bus) using a drop cable and T-connector.



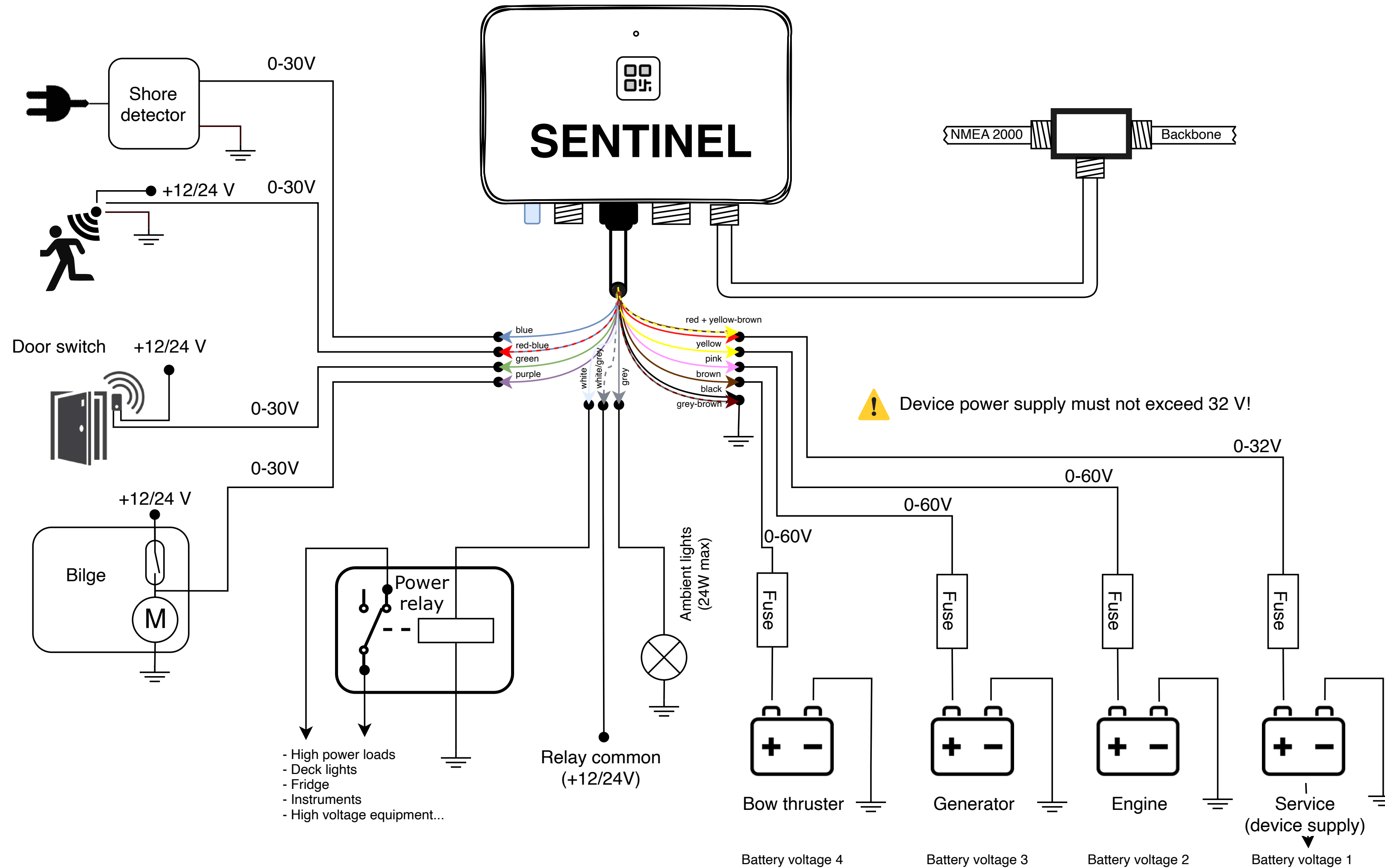
IMPORTANT

Boat Monitor cannot be powered from the NMEA 2000® backbone. The device must be connected to a separate power supply as described in the power connection section.

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TYPICAL INSTALLATION BLOCK DIAGRAM FOR BM50 PRO:



9. Activating the Device & Verifying Installation

After completing the installation and connecting all wiring, the Boat Monitor is ready for activation.

Before powering the device for the first time, make sure that:

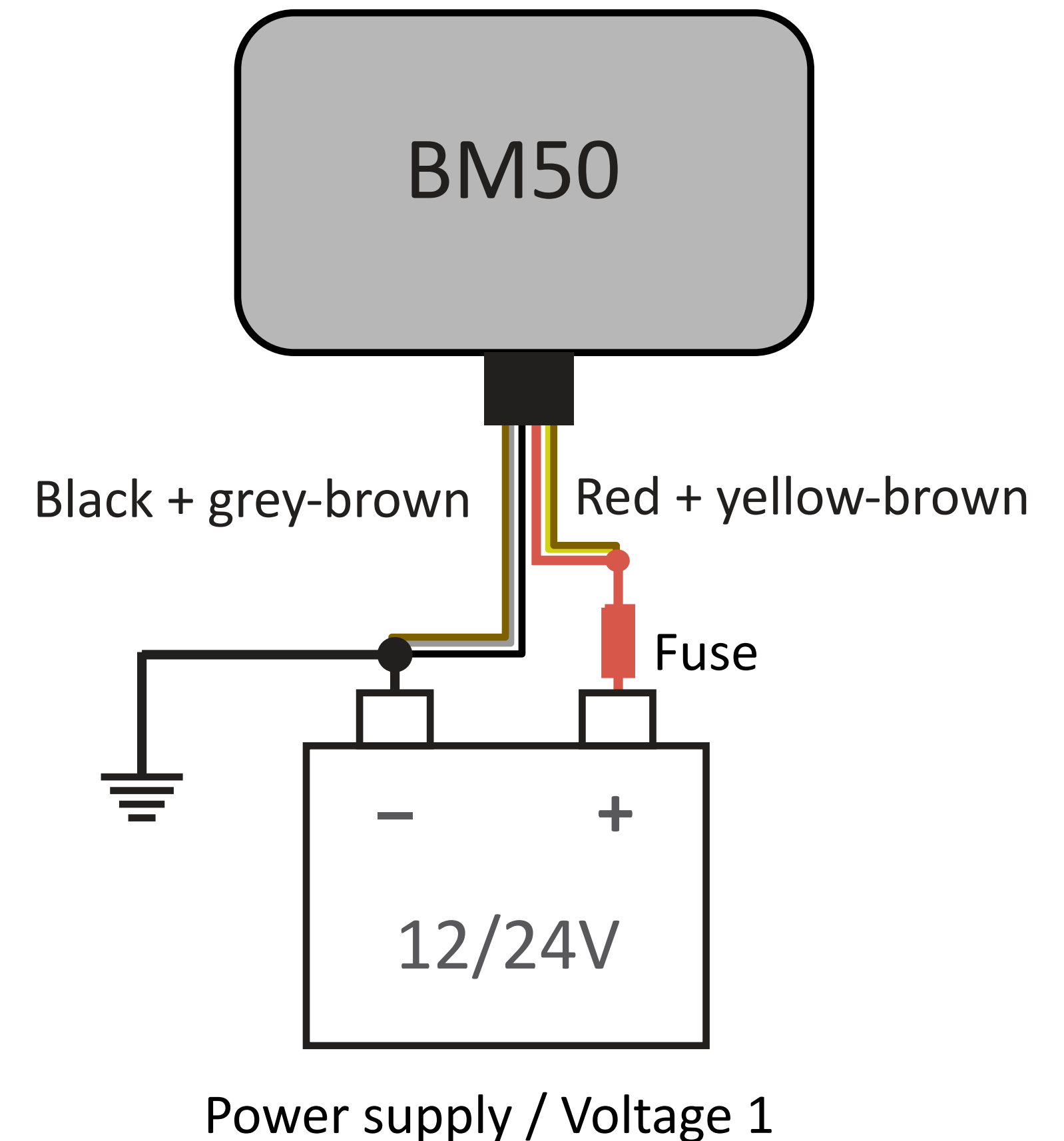
- all wiring connections are correct and securely installed
- the fuse has not yet been inserted into the fuse holder
- the device subscription has already been activated in the Sentinel App

To power up the device, insert the fuse into the fuse holder on the supply wire. Once the fuse is inserted, the device will power on and begin its startup process. During this stage, the system initializes internal components and establishes communication with the Sentinel platform.

NOTE

For details on pairing Bluetooth devices, troubleshooting, CZone integration and other application notes

LINK: <http://www.sentinelmarine.net/boat-monitor/docs/>



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The device will automatically attempt to connect to the Sentinel system and prepare for normal operation. The device status can be verified using the LED indicator.

When the subscription is active, it may take approximately 1 minute for the LED indicator to turn **green**. A **green** LED light indicates that the device is operating correctly and successfully connected to the Sentinel system.

Once the LED turns **green**, the installation is complete and the Boat Monitor will begin transmitting data from connected sensors.

NOTE

For details on pairing Bluetooth devices, troubleshooting, CZone integration and other application notes

LINK: <http://www.sentinelmarine.net/boat-monitor/docs/>



10. Troubleshooting

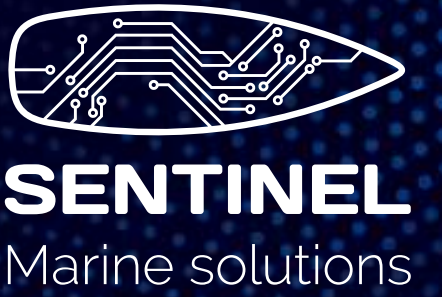
In case of issues first check the device LED.

LED Status	Meaning	Recommended Action
Blinking once every second (red , green or yellow)	GNSS (GPS) signal is low or unavailable	Check for metal objects blocking sky view and/or move the device to another location.
Green (solid)	Device is operating normally	No action needed.
Yellow (solid)	Device is registered to the network but cannot send data (intermediate step of connection process, low signal, or network problem)	Wait a few minutes and ensure cellular signal is sufficient. If no issue can be detected, contact support via the mobile app.
Red (solid)	Device is unable to connect (SIM inactive, no coverage, communication issue)	Check subscription and make sure there is cellular coverage. If no issue can be detected, contact support via the mobile app.
Red (fast blinking)	Device is booting up and/or waiting for sufficient voltage to start. If voltage is below the predefined limit at power-up, the device will stay in fast red blink for 3 minutes, waiting for voltage to rise before entering battery protect mode.	Increase supply voltage (connect BM to shore power or use another charging method).
Short pink blink every ~30 seconds	Battery protect mode	Device will stay in this mode until the supply voltage rises above the preset voltage
Continuous pink blinking pattern	HW issue	Contact support
Blinking blue in combination with green , yellow or red	Device is using phone for data connection via bluetooth	No action needed.
Blinking white in combination with green , yellow or red	Device is connected via WiFi or ethernet	No action needed.
Slow blink cyan	Low power mode - GPS off	Used for power saving cases (not enabled yet)

⚠ Any other LED combinations not described in the table which are repeating for more than 5 minutes should be reported to Sentinel support.

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If the device does not operate as expected, please check the following:

Device does not power on

- Verify that the fuse is inserted in the fuse holder.
- Check that the red wire is connected to permanent battery power (+).
- Confirm that the black wire is connected to system ground (-).

LED does not turn green

- Ensure the subscription has been activated in the Sentinel App.
- Activation may take up to 2 hours after entering the activation code.

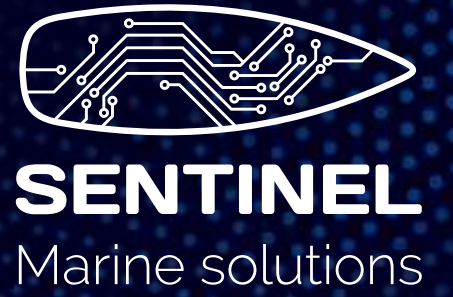
No sensor data visible in the app

- Verify that sensors are properly wired to the digital inputs.
- Check if the sensors are enabled and configured in the Sentinel App.

If the device LED is off, check the fuse and make sure the power supply to the device is higher than 12V! If the issue cannot be resolved, contact Sentinel support by using the **report issue** feature built into the **Sentinel app**.

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NOTE

A **detailed step-by-step video guide** explaining Boat Monitor installation, sensor wiring, and sensor configuration in the Sentinel App is available in the **Sentinel Quick Tutorials**.

These tutorials provide installation guidance for each **Sentinel bundle** and show how to correctly connect and configure the sensors in the application.



Please scan the **QR code** or visit:

LINK: <https://vimeo.com/showcase/11742531?fl=so&fe=fs>