roadi



24/12V
BATTERY MONITOR

User Manual

App: Powerful BMS-Personal

Get it on Google Play

Available on the App Store

1. INSTRUCTIONS FOR USE

1. The input voltage range of this product is 6V~32V, suitable for car (boat) 24/12V lead-acid battery. If the input voltage is too high, the device may be damaged. If the input voltage is too low, the device will not work.
2. To obtain an accurate battery temperature, attach the device to the battery housing.
3. When installing the app, all the permissions asked are needed, and if you cannot obtain the permissions, some functions cannot be implemented.
4. This device is a 4G device, and data transmission is only performed through a SIM card, so a SIM card needs to be installed, and some cards need to set APN first before they can connect to the network normally.
5. Bluetooth is only used when configuring APN, and it is necessary to connect to Bluetooth on the APN settings page (Note: Bluetooth function is only activated when not in sleep mode, and Bluetooth connection cannot be performed after sleep mode).
6. After the device is powered on, it will immediately enter sleep mode after automatic testing. If it is not automatically tested, it will enter sleep mode after half an hour, and it needs to be powered on again to wake up after sleep mode.

2. TECHNICAL PARAMETERS

Name: Battery Monitor
Dimension: 121 x 66 x 26mm
Communication Module: 4G Gat1Module
Fuse: 3A Recoverable fuse
Positive and Negative Reverse Protection: support
Enclosure Protection Class: IP65
Bluetooth: 5.3
Work Voltage: DC 6-32V
Work Current: Average 3mA
Work Temperature: -30℃~75℃ (-22℉~167℉)
Test Battery: 24/12V Lead-acid Battery
Battery Type: Flooded/ AGM/ GEL/ EFB

Battery Standard	Measure Range
CCA	100-2000A
EN	100-2000A
SAE	100-2000A
BCI	100-2000A
CA	100-2000A
MCA	100-2000A
JIS	26A17-245H52
DIN	100-2000A
GB	30-220Ah
IEC	100-2000A

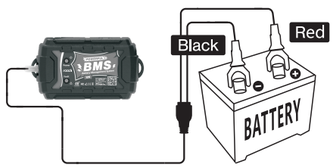
3. MAIN FUNCTIONS

1. Monitor battery health status: Support to test all 12V/24V lead-acid batteries CCA (cold start current) / voltage / temperature / power / health value.
2. Support test data transmission through 4G, remote can receive the test Results.
3. Support battery test result notification, you can receive message notification after each test.
4. Support for Android and iPhone applications, through which device test data, historical data and charts can be obtained.
5. Built-in fuse and reverse connection protection.

4. DEVICE INSTALLATION

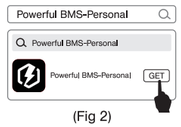
1. Firmly attach the negative connector(black) to the negative battery terminal.
2. Firmly attach the positive connector(red) to the positive battery terminal.

※ The device must be attached to the battery case, otherwise the accurate battery temperature will not be obtained. Be careful not to choose a ventilated location, which will affect the temperature collection.



5. APP INSTALLATION

(Fig 1)



(Fig 2)

1. Scan the QR code of the product and download the app. (Fig 1)
2. For Android phones, go to "Google Play", and for iPhones, go to "App Store". Search for "Powerful BMS-Personal" to download the app. (Fig 2)

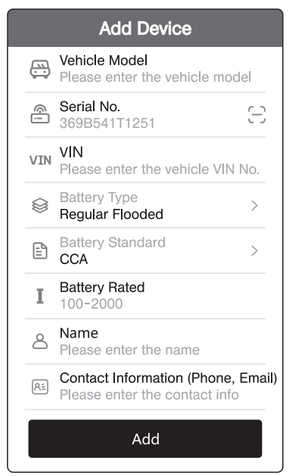
6. APP USE

1. Bind/Add Device

1.1 When binding/adding a device, you need to fill in the device serial number. You can scan the barcode or manually fill in the serial number. The barcode and serial number can be found on the package or the device shell.

1.2 Enter the device serial number and click the "Bind" button. If the device has not been bound, you need to fill in the device information.

1.3 You need to enter the vehicle model, equipment serial number, VIN, battery type, battery standard, battery rating, owner name, contact information.(Fig 3)

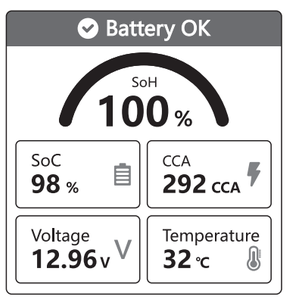


(Fig 3)

1.4 After the device is successfully added, it will automatically return to the battery test page and display the device. If the device has been bound, enter the device serial number and click the "Bind"button, it will automatically return to the battery test page and display the device.

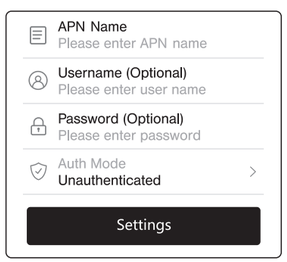
2. Battery Test

After the device is added, connect the device to the positive and negative terminals of the battery. After the device is connected, the network connection status is checked. After the network connection is successful, the test will be automatically performed and the test result will be returned. (If it does not succeed, remove the clamp and power off for 1 minute before reconnecting).



3. APN Setting

When the device is inserted into a card with normal service, and the red light blinks after the battery is connected, it may need to configure APN to connect to the network normally. Switch to the APN page, Bluetooth will automatically search and connect, and after connecting to Bluetooth, APN information will be configured. You need to enter the APN name, user name, password, and authentication mode. Enter the parameter based on the actual situation. Click Set and verify whether the information is correct. If yes, the setting succeeds. If no, the setting fails.



7. FAQ AND SOLUTION

- **Phenomenon 1:**

Is the red light blinking after the device is powered on?

- **Solution:**

The red light blinks mainly under the following three conditions:

1. The device cannot access the Internet (after powering on, it will be checked within one minute to verify whether it can access the Internet).
2. the battery test result is bad battery, please replace the battery.
3. the clip is not good, need to be re-clamped, the two sides of the clip to contact the battery.

- **Phenomenon 2:**

Can't connect to Bluetooth?

- **Solution:**

Make sure your phone's Bluetooth switch is on, that location permissions are granted, and that no other phones nearby are connected to the device. At this point, you can try to restart the Bluetooth, or restart the phone. In addition, if the phone Bluetooth is connected to too many Bluetooth devices, it may also cause the Bluetooth to not connect normally. The Bluetooth does not work when the device is in hibernation state.
You need to power on the Bluetooth module again to activate it.

- **Phenomenon 3:**

When does the device enter sleep mode? How to wake up after sleep mode?

- **Solution:**

After the device is powered on, it will immediately enter sleep mode after automatic testing. If it is not automatically tested, it will enter sleep mode after half an hour, and it needs to be powered on again to wake up after sleep mode.

- **Phenomenon 4:**

Didn't receive a battery test result notification?

- **Solution:**

Start by turning on the app notification permissions in your phone's app notification Settings. Second, check the App message notification Settings to see if notifications are enabled.

- **Phenomenon 5:**

Bluetooth connection pop up Need to enter a PIN code?

- **Solution:**

No PIN code is required. When some mobile phones turn on the Bluetooth switch, the system will automatically pop up all nearby Bluetooth information and the interface that needs to input the pin code. Please turn it off and the application will automatically connect the device.

- **Phenomenon 6:**

How often is the battery tested?

- **Solution:**

After the device is powered on and connected to the network, it will automatically test once. After the test is completed, it will automatically enter the sleep mode. After the renewal, it will automatically test once every 24 hours or so.

- **Phenomenon 7:**

What is APN, and why set APN?

- **Solution:**

In mobile communication networks, APN is a configuration used to identify the network parameters required when a mobile device is connected to the mobile network. It is a configuration provided by the network operator to determine how the device is connected to the Internet.

Federal Communications Commission (FCC) Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

●Reorient or relocate the receiving antenna.

●Increase the separation between the equipment and receiver.

●Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

●Consult the dealer or an experienced radio/TV technician for help.

Warning: Changes or modifications made to this device not expressly approved by SHENZHEN LEAGEND OPTOELECTRONICS CO., LTD.
may void the FCC authorization to operate this device.

Note: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user’s authority to operate the equipment.

RF exposure statement:

The transmitter must not be colocated or operated in conjunction with any other antenna or transmitter. This equipment complies with the FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a Minimum distance of 20cm between the radiator and any part of your body.