# Owner's Manual

Battery Monitor APP

The product is used to monitor the auto battery, cranking system and charging system. After install it to the battery, the mobile can connect it via Bluetooth 4.0. When some problems happen in battery, cranking and charging system, it can send notification alert to the user.
Besides, the user also can test and review the trip record via app.

## 1.0 Product Parameters

| | | | |
|---|---|---|---|
| Average Current | 1.5mA | Short-circuit Protection | Built in |
| Input Voltage | 6~20V | Reverse Connection Protection | Built in |
| Operating Temperature | -40 ℃~90 ℃ | Bluetooth | 4.0 |
| Physical Dimensions | 5.5*3.5*1.6cm | Bluetooth Name | Battery Monitor |
| Voltage Accuracy(9-16V) | ±0.03V | App Keyword | BM2 |

## 2.0 Product Safety Performance

Product shell and wire made by fireproof materials are durable for high temperature.
Built-in short circuit prevention safety switch, it will automatically cut off power when current is too large. Also reverse connection protection built-in, will not damage vehicle and product in case of reverse polarity.

## 3.0 How to Install the Product

***Install battery monitor to the battery of the vehicle***

1. Install red connector to positive pole and black to negative pole, then firm them.
2. Fix the product body with velcro. Try to find a paste position that Bluetooth signal will not be blocked, make the Bluetooth signal as well as possible. Clean the surface before pasting.

（Fig 1）



## 4.0 App Installation

（Fig 2）

（Fig 3）

1.Scan the QR code of the product.（Fig 2）
2.Search BM2 on App Store or Google Play to download app.（Fig 3）

## 4.1 App Using Scene

（Fig 4）

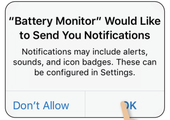
If no block, the mobile can receive the signal in 10 meters between the mobile and product. If exceed 10 meters or block exists, it will affect the signal strength.



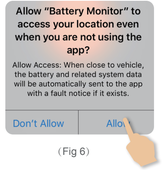
## 4.2 App Operation

***4.2-1. Click app icon, run app, it is necessary to turn on the Bluetooth of mobile***

***4.2-2. Please allow app to access location even when not use app. If not do that, the product will not automatically notify the user when monitoring the problem.***




（Fig 5）

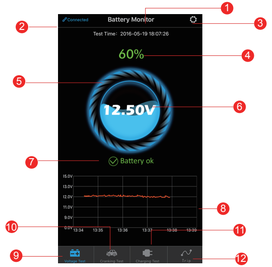



（Fig 6）

***4.2-3. Please allow to receive notifications. Notifications including the car battery, cranking system and charging system and problem alert. If not do that, it can not receive relative notification. While if allowed, when the mobile phone enters the range of Bluetooth, it will receive the information notification no matter if the app is running or not.***

***4.2-4. App Interface Instruction—First Interface***





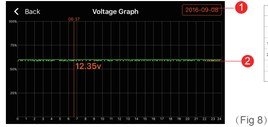

（Fig 7）

1. It shows the device name, as defaulted, it will be the device ID No. The user can set the nickname in the Device Management of System Setup.
2. Connecting status is blue words, unconnection status is red words. It is default that it will connect to the latest device automatically, also can connect or disconnect manually.
3. System Setup icon, click to enter System Setup.
4. Show battery state of charge.



5. At charging status, the battery ring will be dynamically rotating.
6. Show battery real-time voltage, and graphical display the state of charge.
7. Battery status: 1. Battery OK (Green), 2. Charging (Green), 3. Low Power (Red).
8. Show battery real voltage graph, click the table of graph, it can review the voltage graph every day.
9. Battery voltage test icon, it is defaulted as first interface, selected status is blue, the others are gray.
10. Cranking system test icon, when the engine start each time, it will test cranking system automatically, selected status is blue, the others are gray.
11. Charging system test icon, it can test charging system manually, selected status is blue, the others are gray.
12. Trip record icon, records each starting time, stopping time and driving time of the vehicle, selected status is blue, the others are gray.

***4.2-5. App Interface Introduction—Voltage History Graph***



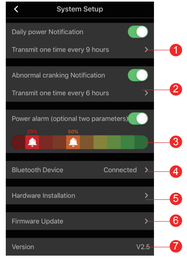

（Fig 8）

（Fig 9）



1. Date select: click it to come up calendar, orange icon shows that it can review the voltage graph at selected date. If there is red digits in calendar, that happened the voltage abnormity.
2. Historical voltage graph, click the graph, it will appear slider, the top of the slider indicates the test time, the orange figure below the graph indicates the voltage value during this time period.

***4.2-6. App Interface Introduction—System Setup***




（Fig 10）

1. Daily Notification Alert Setup : green is on, gray is off. System default is no more than one notification in 6 hours, the notification frequency can be setup.
2. Abnormal cranking Notification: green is on, gray is off. System default is no more than one notification in 6 hours, the notification frequency can be setup.
3. Power alarm: slide the bell icon, two parameters can be set freely. When battery power falls to reach either value, user will receive app notification about charge level.

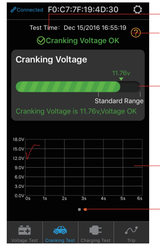
4. Bluetooth Device Setup: click to enter Bluetooth device system setup. User can search nearby device, also can review the history of devices connected before. Bluetooth device name can be edited.

5. Hardware Installation: user can review the installation introduction.

6. Firmware Upgrade: user can review the hardware version, also can upgrade new firmware once new version available.

7. Version: display the current app version number.

### *4.2-7. App Interface Introduction—Cranking Test*




（Fig 11）

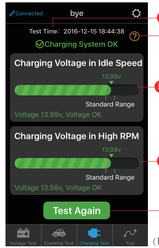
1. Engine start time.
2. Cranking test: when engine starts, the device will test the cranking system automatically and store the test result. Usually, if the cranking voltage is higher than 9.6V, it means normal. But if the cranking voltage is less than 9.6V, it means abnormal. If the cranking voltage is too low, maybe aging of battery, low power, or starter fault etc.
3. Display the cranking voltage values, green color means healthy, red color means unhealthy.
4. The cranking voltage graph.
5. Can display the recent twice test results, the orange dot means the selected page.



### *4.2-8. App Interface Introduction—Charging Test*

（Fig 12）

（Fig 13）




（Fig 14）

1. Click to start the test, automatically test idle condition voltage, then jump to Fig 13.
2. For high RPM voltage test, it is necessary to increase RPM as below and hold for 3-5 seconds, then test is finished.
   4cyl – 2500/min
   6cyl – 2000/min
   8cyl – 1600/min
3. Description of charging voltage Test:

   ***3-1. Charging Voltage: normal***

   Charging system shows the alternator output normal, no problem detected.



***3-2. Charging Voltage: low***

Charging voltage is low. Check engine transmission belt is slip or disconnect, check whether the line connection between alternator and battery is normal or not. If transmission belt and line connection is good, please follow the car manufacturer's recommendations to exclude the alternator failure.

***3-3. Charging Voltage: high***

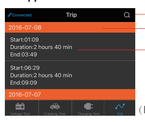
The alternator output voltage is too high. Since most automotive engines use built-in regulator, need to replace alternator assembly(Old vehicles use external regulator, please replace regulator directly ). Common voltage limits for automotive regulator is 14.7±0.5V. High charging voltage will overcharge the battery and shorten its life, also can make it malfunction.

***3-4. No Voltage Output: no engine voltage output is detected***

Check whether the alternator cable and the alternator belt are working properly.

4. Charging test finished time.
5. Voltage under idle test, green is ok, red is abnormal.
6. High RPM voltage test, green is ok, red is abnormal.
7. Click button to re-test.

### *4.2-9. App Interface Introduction—Trip Record*




（Fig 15）

1. Click search button to review driving records via selecting date.
2. Date separator bar, specific to a certain day.
3. Starting time, running time and misfire time of each driving.



## 5.0 ⚠ Tips

1. Product should not be used overpass the specified voltage range (6-20V), excessive input voltage may damage the device.

2.App requires smartphones with: Android 4.3 and higher, iPhone 4S and higher.

3.When mobile enters Bluetooth range, it will receive notification.

4. If first time choose “not allowed to access location”, you will not receive notification alert. If want to use this function in future, you can open the location in phone Settings by selecting “always allow location access”.

5. If the daily test alert function is not open, when the mobile is close to device, it also can't get notification of the daily test result. You can set to allow notification both in app and phone's Settings.



6. If the exception test alert function is not open, when the mobile is close to device, it also can't get notification of monitoring exception. You can set to allow notification both in app and phone's Settings.

7. Firmware update will clear all data in the device, please open app waiting for sync finished before update firmware.

8. All historical data will be stored in the phone side, app upgrade will not lose the historical data.But if app is uninstalled, the phone terminal data will be clear.

9. The device will automatically monitor vehicle battery, cranking and charging systems, device can store data up to 35days. Please use the app or make phone enters device Bluetooth range at least one time within each 35 days. Then device historical data will be synchronized to phone.

10. If app can not search Battery Monitor, please ensure mobile's Bluetooth is on and close to the device without blocks.



## 6.0 ⚠ FCC Warning Statement

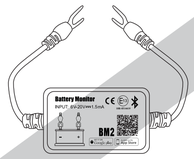
Changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed 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:**

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio/TV technician for help.



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