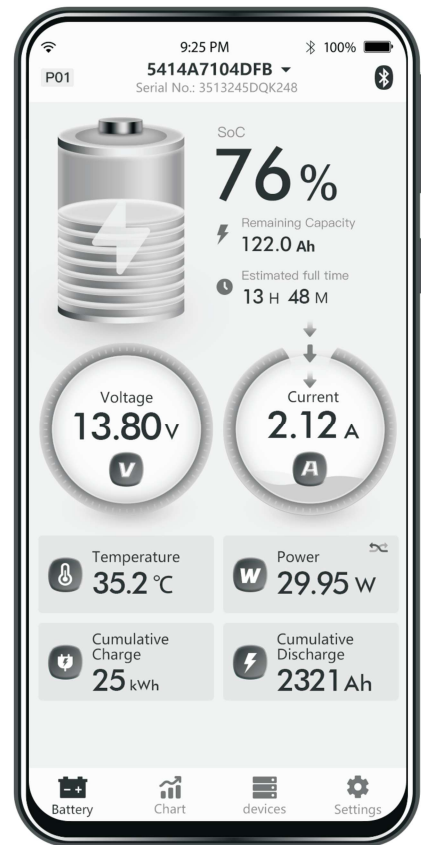


Battery Monitoring System



User Manual



Installation
Tutorial



App: Pro BMS



1. INSTRUCTIONS FOR USE

1. Please read the "User Manual" and "Installation Tutorial" carefully before installing the device to avoid fire or damage to the device due to incorrect wiring.
2. Do not use a damaged device. Before using the device, check whether it has any malfunctions, abnormal sounds, or serious damage.
3. Do not operate this equipment in an environment containing explosive gases, vapors, or dust.
4. Be careful when using metal tools near batteries. Improper handling may cause the positive (+) and negative (-) terminals of the battery to come into contact with each other, resulting in a short circuit or even explosion.
5. To use the device's "protection function" , you need to purchase an additional relay. If the device is not connected to a relay, the "protection function" will not work.

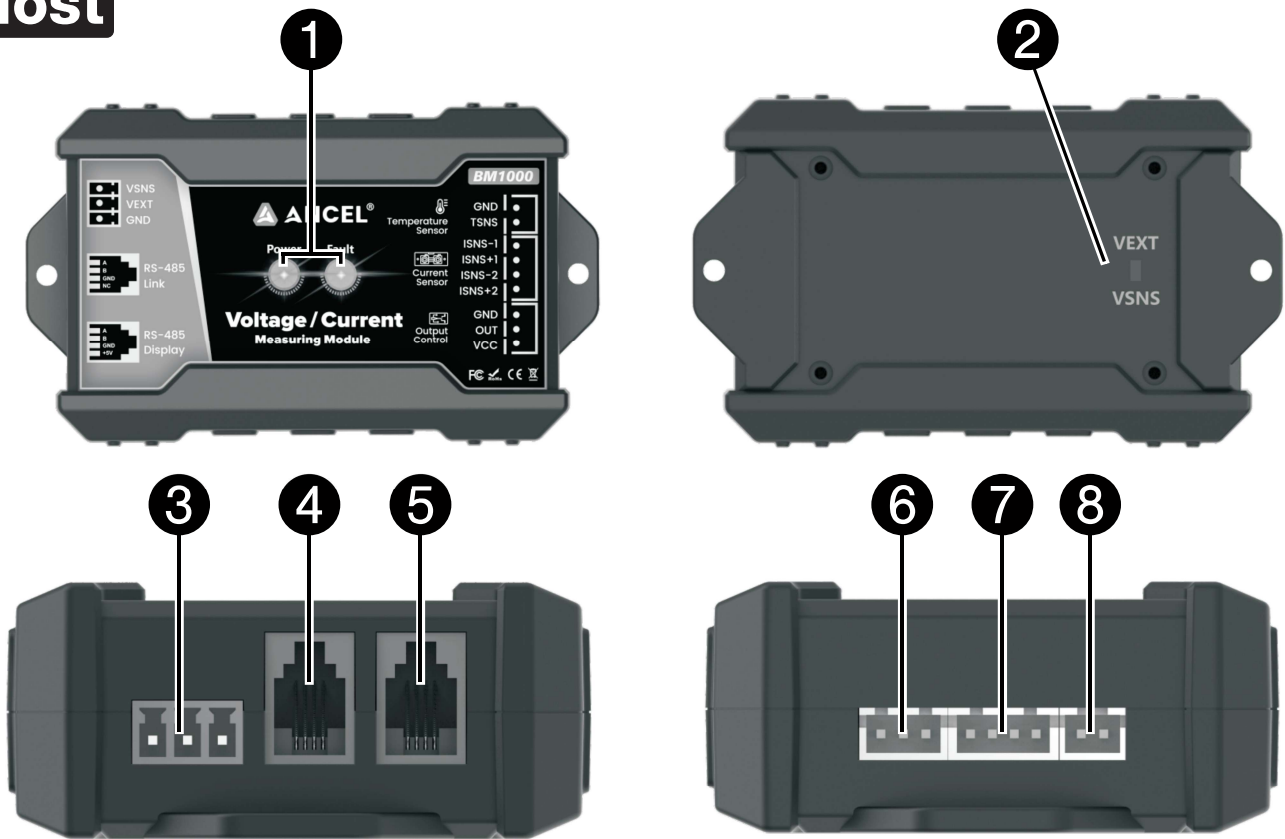
2. MAIN FUNCTIONS

1. Applicable to all single cells or battery packs with voltage of 0~120V, including lead-acid batteries, lithium batteries, nickel-metal hydride batteries and solar cells.
2. Real-time monitoring of battery or battery pack power, remaining capacity, charge/discharge voltage, charge/discharge current, charge/discharge temperature, charge/discharge time, charge/discharge power, cumulative charge energy and cumulative discharge capacity.

3. Supports multiple protection functions such as overvoltage, undervoltage, overcurrent, overpower, overtemperature, undertemperature and low battery. The protection function requires an external relay to work properly.
4. Intelligent patented algorithm solves cumulative errors. The device will actively build a long-term model of battery voltage, current, power and capacity, and automatically calibrate the cumulative error through the model database.
5. Supports up to 30 days of history storage, and the history will not be lost when the device is powered off.
6. Supports Android and iPhone applications. Through the application, you can obtain real-time data, historical data and charts of the equipment.
7. Provides device communication protocol, It supports up to 99 devices communicating simultaneously, and obtains original data of the device through RS-485 interface to meet the needs of secondary development.

3. PRODUCT INFORMATION

Host



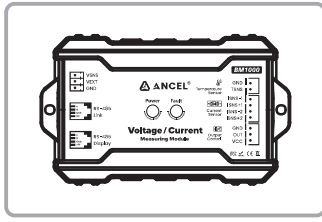
- 1 Indicator Light
- 2 Power Switch
- 3 Power Supply Interface
- 4 RS-485 Communication Interface
- 5 Display Interface
- 6 Relay Control Interface
- 7 Current Sensor Interface
- 8 Temperature Sensor Interface

Current Sensor

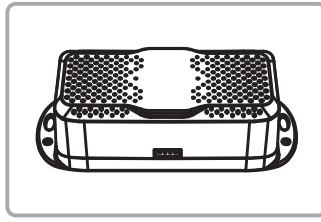


- 1 Current Sensor Interface

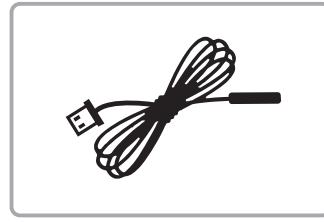
Packing List



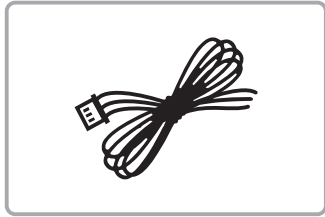
Host



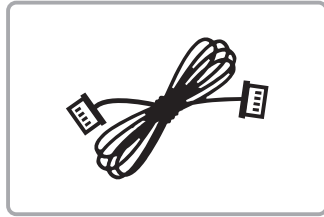
Current Sensor



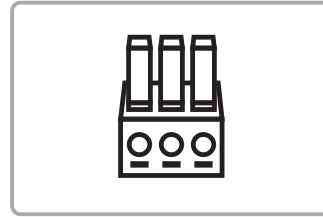
Temperature Sensor



3P Shielded Wire



4P Shielded Wire



Power Supply Terminal

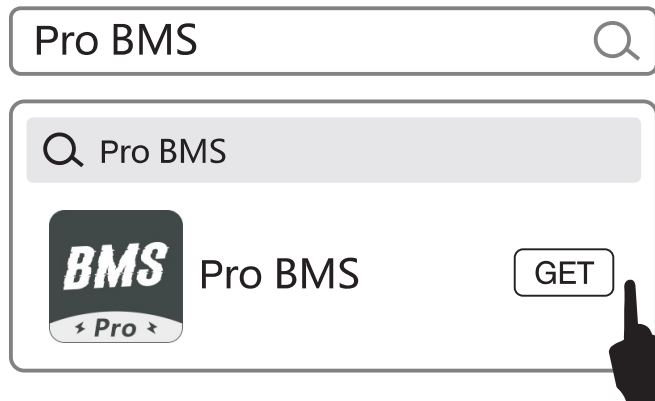


Manual

4. 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 "Pro BMS" to download the app. (Fig 2)

5. TECHNICAL PARAMETERS

Specifications	200A	400A	600A
Work Voltage Range	10~120V		
Voltage Measurement Range (External Power Supply)	0~120V		
Voltage Measurement Range (Self-Powered)	10~120V		
Voltage Measurement Accuracy	±0.4%		
Voltage Resolution	0.01V		
Current Sampling Method	Shunt		
Current Measurement Range	0~200A	0~400A	0~600A
Current Measurement Accuracy	±0.4%		
Current Resolution	0.01A		
Temperature Measurement Range	-20°C~120°C (-4°F~248°F)		
Power Measurement Range	0~24KW	0~48KW	0~72KW
Power	About 0.4W		
Communicate Mode	Bluetooth 5.3、RS-485		
Bluetooth Communication Distance	Barrier-free access up to 10 meters		
RS-485 Communication Address	Device address P01~P99 Can communicate with up to 99 devices simultaneously		

6. FAQ AND SOLUTION

- **Phenomenon 1:**

After the host is powered on, the indicator light on the front of the host does not light up?

- **Solution:**

This situation is usually caused by incorrect wiring of the host power supply interface.

- ① The "power switch" is in the "VSNS" position. Please check whether the "GND" of the host power supply interface is connected to the negative pole (-) of the battery to be tested, whether the "VSNS" is connected to the positive pole (+) of the battery to be tested, and ensure that the voltage of the battery to be tested is within the range of 10~120V. "VEXT" can be left unconnected.
- ② The "power switch" is in the "VEXT" position. Please check whether the "GND" of the host power supply interface is connected to the negative pole (-) of the external power supply, whether "VEXT" is connected to the positive pole (+) of the external power supply, and make sure that the external power supply voltage is within the range of 10~120V. Check whether "VSNS" is connected to the positive pole (+) of the battery to be tested, and make sure that the voltage of the battery to be tested is within the range of 0~120V.

- **Phenomenon 2:**

The current direction displayed on the app is opposite to the actual charging and discharging status?

- **Solution:**

This is because the "BATT-" terminal and the "LOAD-" terminal on the current sensor are connected reversely. The correct connection method is that the "BATT-" terminal needs to be connected to the negative pole (-) of the battery through a wire, and the "LOAD-" terminal needs to be connected to the negative pole (-) of the load.

- **Phenomenon 3:**

There is no current in the current sensor, but the app shows there is current?

- **Solution:**

You can turn off all loads or disconnect the terminals at both ends of the current sensor to ensure that there is no current in the current sensor; then perform zero current calibration in the app. After calibration, the current in the app will be displayed as 0.

- **Phenomenon 4:**

After the battery is fully charged, the battery level displayed in the app is not 100%?

- **Solution:**

There are three situations that may cause the battery to not be fully charged.

- ① Check whether the battery capacity setting is correct.
- ② For the first use, you need to make sure the battery is fully charged and manually calibrate the battery to 100% in the app.
- ③ Check whether the battery full charge voltage, tail current and full charge detection time parameters are correct.

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