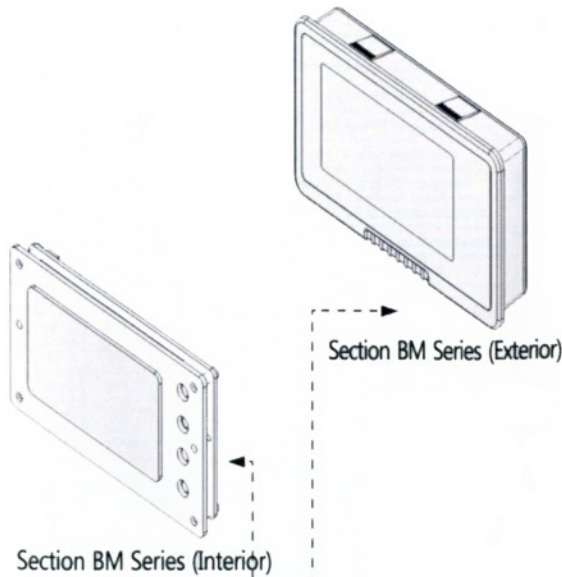




BM Series Current Battery Capacity Display
Coulomb counter

USER MANUAL

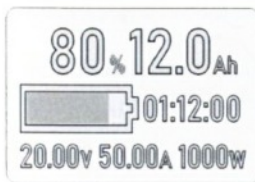


Section BM Series (Interior)

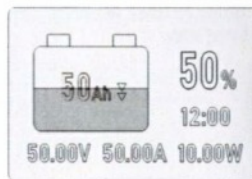
Section BM Series (Exterior)

Series BM

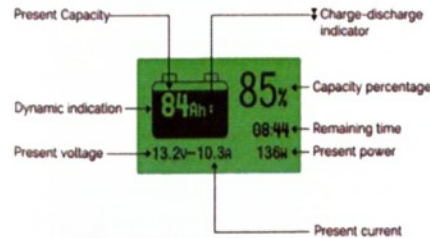
Section A Interface



Section B Interface



Schematic Diagram



Product Introduction

● This product is a high-precision battery power meter (also called Coulometer) based on current acquisition type. It can accurately detect the voltage, current, power, real capacity and remaining time of the battery pack. The working status of the battery is obtained accurately at any time.

● This product is suitable for electric vehicles, emergency power supplies, energy storage power supplies, measuring equipment, medical equipment, various instruments and so on.

Applicable Battery Specifications

● This product is suitable for lithium batteries, lithium iron phosphate, lead acid, nickel hydrogen and other battery packs with working voltages from 8V to 120V. Note that this product must be used with the sampler.

Steps for Usage

1. Wiring and checking the current:

Power on after the connection as shown in the figure. The battery voltage, current and capacity percentage should be displayed on the screen. If there is no display, the power should be turned off to check if the connection is correct. Then discharge or charge the battery and check if the current value and the actual value are consistent. If the error is large, check the wiring again. **(Make sure that all current flowing through the battery passes through the sampler.)**
2. Detection and Setting of Battery Effective Capacity:

The battery's effective capacity (CAP) needs to be set correctly before first use, see "Usage Settings".

If the effective capacity of the battery is unknown, you need to follow the steps below:

 - A. Enter the capacity setting interface and set the capacity value as large as possible. (For example, it is set to 30Ah if the estimated value is 20Ah.);
 - B. Empty the battery pack and clear the capacity of electric meter to zero, and then charge the battery pack;
 - C. The display's capacity is set to the CAP of the electric meter when fully charged.
3. Capacity Homing (The battery capacity is cleared or full capacity setting.):

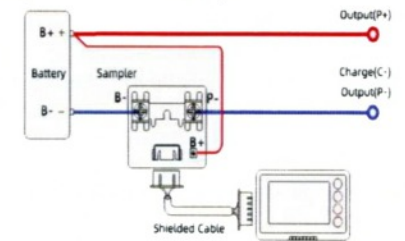
The capacity displayed on the electric meter is not the actual value of the battery after the first use or replacement of the battery. And zero or full capacity operation is required:

- A. Press and hold the button "⏏" after the battery is discharged (empty) and the capacity value is cleared to 0%;
 - B. Or Press and hold the button "⏏" after the battery is full charged and the capacity value is set to 100%.
- Then it will work as expected and you don't need to do this later.

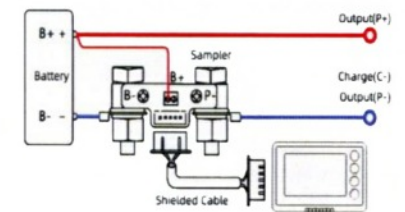
Wiring method

1. The sampler supplied with this product must be connected in series to the negative circuit of the battery pack. The B- of the sampler is connected to the negative B- of the battery pack, and the P- is connected to the negative P-/C- of the charge and discharge.
2. Take a red wire(20-22AWG) and connect the positive battery to the sampler B+ for power supply to the electric meter.
3. Use a shielded cable to connect the sampler to the meter. Power on and will work normally after confirming that it is correct.
4. Wiring principle: **Make sure that all current flowing through the battery passes through the sampler.**

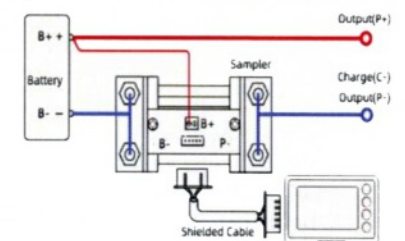
★ Wiring method of 75A sampler:



★ Wiring method of 150A/500A sampler:

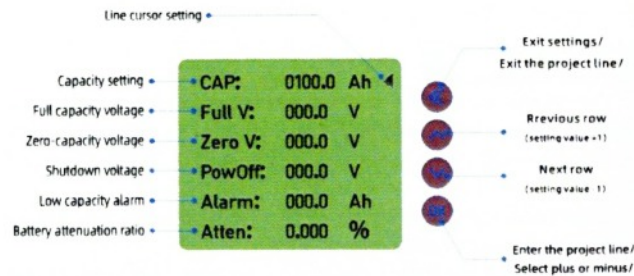


★ Wiring method of 750A sampler:



Usage Settings

Press and hold the button "OK" for 3 seconds to enter the settings.



CAP Effective capacity of battery: The default is 100Ah. Please set according to the actual effective capacity of the battery pack, otherwise the capacity percentage display will be incorrect;

Full V Full capacity voltage: The capacity value is automatically set to 100% after the voltage is exceeded;

Zero V Zero capacity voltage: The capacity value is automatically set to 0% if below this voltage. The voltage value will flash, and the buzzer will alarm once per 10s if the discharge continues;

PowO Shutdown voltage: Backlight and LCD off and no display if below this capacity;

Alarm Low capacity alarm: The percentage and battery symbol will flash, and the buzzer will sound per 10s if below this capacity.

Atten Battery attenuation ratio: After the battery Capacity cumulatively once per cycle, The capacity value is automatically changed according to this ratio.

Precautions:

Do not set Full V and Zero V without knowing the voltage characteristics of battery pack (full voltage and vent voltage).

The default of Full V and Zero V is 0V. It is invalid.

Sleep Function in Low Power

When the battery current is less than the turn-on current, the battery enters a low power sleep state, the backlight turns off, and the electric meter does not work but the battery parameters are still displayed;

Wake up in sleep state:

1. When the battery current is greater than the turn-on current, the meter automatically wakes up, the meter works and begins to collect current and the backlight illuminates.
2. Press any key to wake up in the sleep state, and the backlight will light up.

Turn on/off backlight

1. Press and hold the "⏏" button to turn off the backlight (The backlight will not light up during work).
2. Press and hold the "⏏" button again to turn on the backlight (The backlight will flash during charge, and the backlight will light up during discharge).

Communication Function

This product can be customized with serial communication function based on TTL level, and upload the meter parameters to PC. The meter parameters are sent once every second, and the internal opto-coupler isolation method adopted is safe and reliable.

For details, see "BM Series Coulometer TTL Serial Communication Protocol".

Output Control Function

This product can be customized with output control function. It can be connected with an extended relay, a high-power alarm, etc., and the output is turned on at low voltage or low capacity. Opto-coupler isolation is adopted.

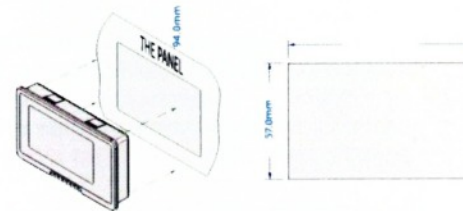
For details, see "BM Series Coulometer Output Function Description".

Installation Notes

This product is divided into two types according to the installation method. The external model: BM500 (e.g.), internal model: BM500 (e.g.).

1. External Model BM500 (e.g.):

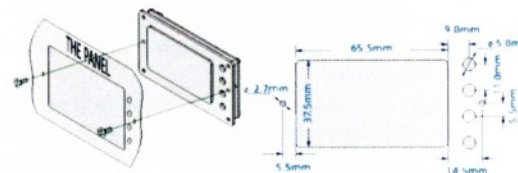
Open a 94*57mm rectangular hole in the panel to be installed, install the monitor from the front and clamp the meter to the panel as shown below.



(Note: The panel is not a product accessory and is not included in the product.)

2. Internal Model BM500 (e.g.):

Open a hole in the panel as shown in figure. Install the meter from the inside to the outside. The 3mm self-tapping screws are fixed to the panel from the front as shown below.



(Note: The panel is not a product accessory and is not included in the product.)

Technical Parameters

Parameter	Min	Max	Unit
Working voltage	8	120	V
Working Consumption		12	mA
Static Consumption		2	mA
Accuracy of Voltage Collecting		±1.0	%
Accuracy of Current Collecting		±1.0	%
Accuracy of Capacity Collecting		±1.0	%
Backlight on current(>75A specifications)		75	mA
Backlight on current(>75A specifications)		150	mA
Setting Value of Capacity	0.1	9999	Ah
75A Sampler Current	0	75	A
150A Sampler Current	0	150	A
500A Sampler Current	0	500	A
750A Sampler Current	0	750	A
Temperature range	-10	60	°C
Weight(75A/150A/500A/750A)	210/270/420/700		g
e.g. BM500(external model)Size	94*55*20		mm
e.g. BM500(internal model)Size	100*61*17		mm

Note: This product needs to be used with the sampler (the internal parameters of the meter are different), and the sampler of different specifications and the meter are forbidden to be mixed.

The sampler is a heat-generating component, and it should be installed in the air circulation as much as possible. Always keep ventilation and heat dissipation when using the maximum current for long periods of time.

Precautions and warranty

- This product cannot be exposed to sunlight for a long time, and cannot be exposed to extreme conditions below -10 °C and above 50 °C for a long time, otherwise it will shorten the life of the LCD.

- The warranty period is within one year from the date of purchase. It can be repaired free of charge when non-human quality problems occur.

This product may be technically improved or updated. If the product you purchased differs from the appearance and technical parameters described in the Product User's Guide, please refer to the actual product or website.