SMART BATTERY MONITOR

BM21
USUER GUIDE

Thank You
FOR CHOOSING

Please read through the manual in detail before installing and using your new battery monitor. Should you have any questions concerning safety precautions, installation, or use please contact us using the contact details below.

BATTERY MONITOR

BLUETOOTH COMPATIBLE

Product Introduction:

The BM21 Smart Battery Monitor is a high-precision meter that allows you to check the status of your battery via the monitor display or your smartphone with Smart Battery Monitor app. Through the use of the current shunt, the battery monitor measures the discharge or recharge currents and calculates the Ampere-hours (Ah) going in and out of the battery. High-precision voltage measurements are taken and displayed in real-time through the use of a field-installed sense wire. The BM21 monitor is compatible with all types of batteries including Lithium-ion, lead-acid and nickel-metal hydride batteries.

Applications:
Suitable for traction/mobile and stationary applications.
- Golf Carts & Utility Vehicles
- Marine RVs
- Solar Energy Storage
- Aerial Work Platforms
- Robots

Data Displayed:
- Battery Voltage
- Battery Current
- Battery State of Charge (SOC)
- Total Ampere-hours

COULOMETER BATTERY MONITOR

Parameter	Min	Max	Unit
Voltage	10.0	80.0	V
Current	0.0	75.0	A
	0.0	150.0	A
	0.0	500.0	A
Capacity	0.1	999.0	Ah
Temperature	0.0	35.0	°C
Working dissipation		14.0	mA
Standby dissipation		0.8	mA
Sleep disspation		80.0	uA
Voltage Accuracy	±1		%
Current Accuracy	±1		%
Capacity Accuracy	±1		%

Included Components:
- Current shunt
- Shielded wire (1M)
- Display
- Butterfly nut
- Sense wire 22AWG (1M)

Additional Components Needed For Installation:
- Additional battery cable
- 54mm hole saw or knock out tool (for rear mount applications)
- Bezel square (for front mount applications)
- 1A fuse (recommended)

Battery Display:

Figure 1

- Battery symbol
- Charge indicator
- Discharge indicator
- Value
- V: Present voltage
- A: Present current
- Ah: Present capacity
- Capacity percentage
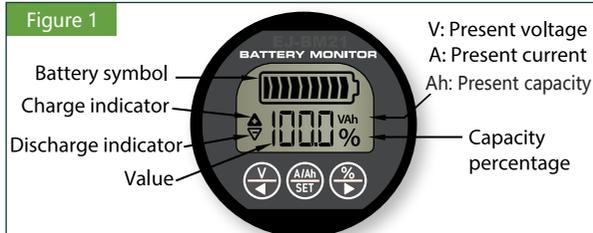
COULOMETER BATTERY MONITOR

Dimensions:

Figure 2

23mm · 34mm · 59mm · 54mm · 23mm
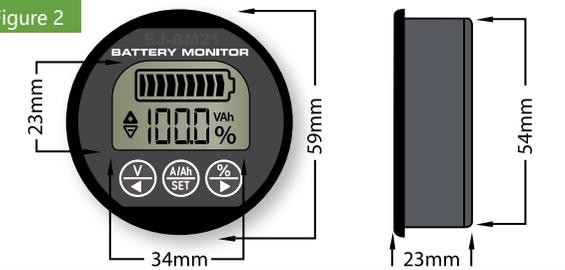
Monitor Display Installation:

1. Use a hold saw to cut a 55mm hole in the surface on which the battery monitor is to be mounted.
2. If you can access the hole from the rear, insert the monitor into the hole from the bracket over the stud and screw the wingnut onto the stud and tighten until the bracket is firmly holding the display in place.
3. If you cannot access the hold from the rear, then you can use the bezel square (option component), following similar steps as specified in point 2.
Then use the 4 screw holes to attach the monitor with the bezel square from the front of the hole.

Rear Mount
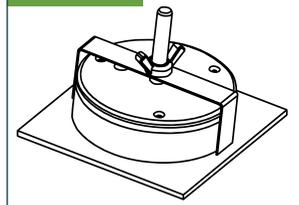
Front Mount
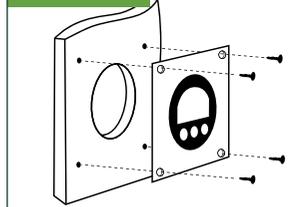

COULOMETER BATTERY MONITOR

Electrical Connections:

NOTE: Given the multitude of different applications for which this monitor can be used, the correct gauge of wire to be used is not specified. If you are unsure of the correct gauge for your setup, please consult a qualified automotive electrician or contact EJ technical support for advice.

As shown in figure 3:
1. Connect the "**B-**" terminal of the shunt by running a cable to the negative terminal of the battery.
2. Connect all the load and charger negative cables to the "**P-**" terminal of the shunt, or if these cables are combined onto a bus bar or fuse box, then run a cable from the bus bar or fuse box.
3. Connect the sense wire to one of the two terminals marked "**B+**" on the shunt, and connect the ring connector to the positive terminal of the battery.
4. Finally, connect the monitor's shielded display cable (already attached to the display) to the shunt.

Figure 3 **Connection diagram of 75A shunt**

B+ · BATTERY · B- · sense wire · shunt · P+ (output+) · C - (output-) · P - (output-) · shielded wire

---
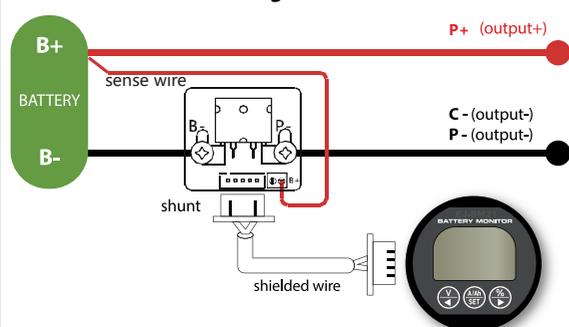
COULOMETER BATTERY MONITOR

Figure 3 **Connection diagram of 150A/500A shunt**

B+ · BATTERY · B- · sense wire · shunt · B- · P- · P+ (output+) · C - (output-) · P - (output-) · shielded wire
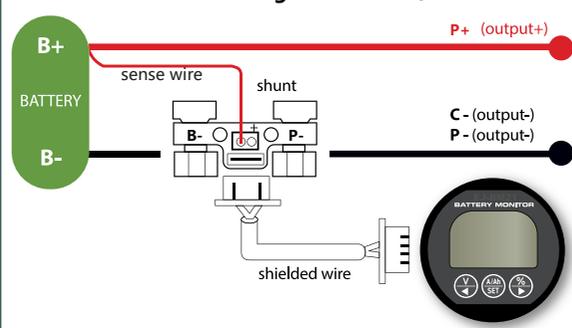
Preparation Steps:

Fully charge the battery bank such that it reaches 100% SOC. Failure to take this step will lead to erroneous SOC readings.

Setting Up The Battery Monitor:

1. Ensure the battery display indicates the discharge current and the charge current correctly. Use the charge and discharge indicators to ensure it is capturing the appropriate current direction (in/out).
2. Ensure that the battery voltage is displayed correctly.
3. Fully charge the battery bank such that it reaches 100% SOC.
4. To initialize the capacity, press the % button for three seconds to set the capacity to 100%.
5. To enter the capacity, press the A/Ah button for three seconds. Use the V button and the % button to increase or decrease the capacity. Press the A/Ah button when done.

COULOMETER BATTERY MONITOR

Connecting To The Smart Battery Monitor App:

1. Install the Smart Battery Monitor app via Google™ or the Apple App Store. You can search for "Smart Battery Monitor" or use the provided QR codes.

App Store · Google play

2. Open the app and select the Battery Monitor by its serial number.
3. At the 'SETTINGS' screen, enter the battery parameter information required followed by tapping 'SAVE SETTINGS' on the bottom.
4. Tap the setting button on the top right, into the 'CALIBRATION' screen, enter the battery parameter information required, followed by tapping 'SAVE SETTING' at the bottom.
5. You will now be in the dashboard where you can monitor the battery's state of charge, voltage, current, time remaining and the cycle life.
6. Your smart battery monitor is now ready to use.

Technical Support: If you have technical questions about your Battery Monitor, please contact the original place of purchase or EJ directly.

Warranty: One-year limited warranty.