

# SMART BATTERY MONITOR

## BM21-500 USERS GUIDE



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.

### Product Introduction:

The BM21-500 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 BM21-500 monitor is compatible with all types of batteries, especially Lithium-ion batteries.

### Applications:

- Suitable for traction/mobile and stationary applications.
- Caravans, Motorhomes & RVs
  - 4x4s
  - Marine
  - Solar Energy Storage
  - Golf Carts & Utility Vehicles

### Data Displayed:

- Battery Capacity
- Battery Voltage
- Battery Current
- Battery State of Charge (SOC) %
- Charge-Discharge indicator

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Parameter	Min	Max	Unit
Voltage	10.0	120.0	V
Current	0.0	500.0	A
Capacity	0.1	9999.0	Ah
Temperature	0.0	35.0	°C
Backlight on current	200	300.0	mA
Voltage Accuracy	±1		%
Current Accuracy	±1		%
Capacity Accuracy	±1		%

### Included Components:

- Current shunt (500Amp)
- Shielded wire (1M)
- Display
- Butterfly nut
- Fused Sense wire 22AWG (1M)
- Square Bezel ( for front mount applications)

### Additional Components Needed For Installation:

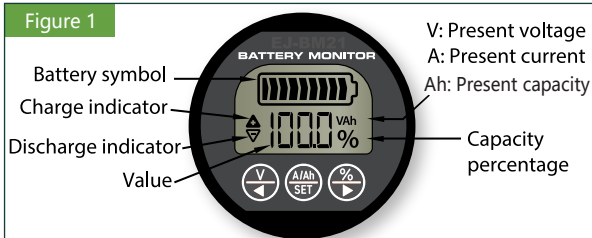
- Additional battery cable

### Optional Accessories

- 3M Shielded extension cable
- 6M Shielded extension cable

### Battery Display:

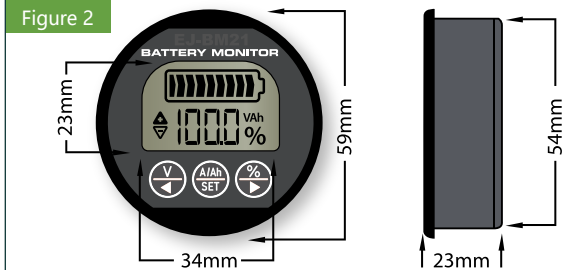
Figure 1



## BATTERY MONITOR

### Dimensions:

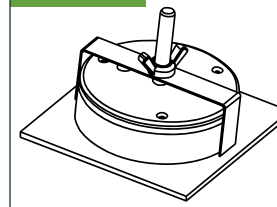
Figure 2



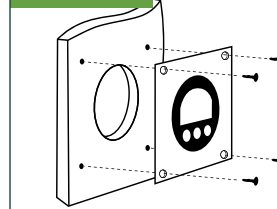
### Monitor Display Installation:

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.

#### Rear Mount



#### Front Mount



3. If you cannot access the hole 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

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### Electrical Connections:

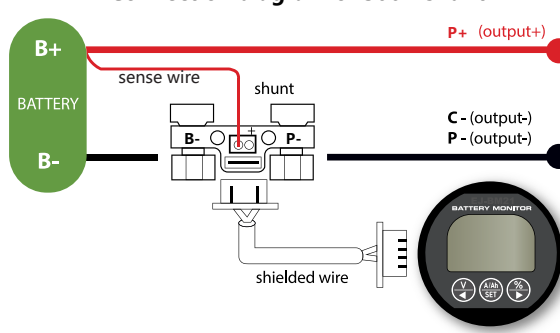
NOTE: Given the multitude of different applications for which this monitor can be used, the correct gauge of wire to be used is not specified. If you are unsure of the correct gauge for your setup, please consult a qualified automotive electrician.

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.

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Figure 3 Connection diagram of 500A shunt



### 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.

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### 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.



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 Electro Parts directly.

**Warranty:** One-year limited warranty.

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