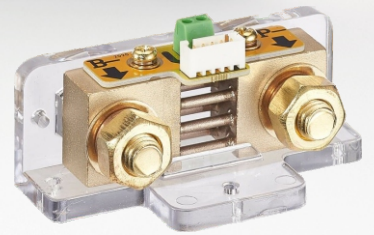


Part No:
BM2

ABM2 | Battery Monitor | 2



latest instructions



UK
CA

CE

RoHS
compliant



BM2 Battery Monitor Handbook

Box should include:

- 500A Shunt
- Remote Control / Display
- 1m of shunt to remote cable
- 1m of B+ power cable

Warranty (2 years return to factory)

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INTRODUCTION WELCOME

Welcome Welcome to the AMPS Owners Handbook for the product BM2, the Battery Monitor.

Please take your time to read and fully understand the contents of this Handbook. These guidelines are developed with your safety and the products performance in mind and failure to follow or understand these guidelines may lead to voiding the product warranty or even leading to damage or injury for you or your setup.

If you are unsure of any step or guideline then please consider reaching out to AMPS via our web contact form or our phone service and we shall offer our support.

Thank you for joining AMPS and we hope to serve your travels well.

BM2 The battery monitor is an extremely accurate meter that allows the user to check the state of charge of a battery bank. The BM2 measures current flowing in / out of your battery(s), the Ah capacity remaining and state of charge. It also displays the voltage of the battery that powers the BM2. The APP additionally shows Wattage figures, temperature of shunt and cycle count.

Product Code Understanding Throughout this manual we will make reference to this product as the 'BM2'. The terms '12V' or '24V' are nominal voltage ranges, rather than specific voltages.

Using this Handbook This manual must be read throughout before installing this electronic device. Do not lose these instructions - keep them safe. The most up to date instructions can be found on sterling-power.com. Please refer to the latest instruction manual before contacting AMPS. At AMPS, we endeavour to include all of the product information that we can think of into the manual.

Safety Installation of the electronic device must be carried out by qualified and trained personnel only. The personnel must be familiar with the locally accepted guidelines and safety measures.

Your safety is AMPS top priority. Please follow all precautions to keep yourself safe. If you believe your unit requires repair then please contact AMPS or your distributor. Do not attempt to service the unit yourself.

12V -80V Calculations This manual has been written predominantly with 12V nominal voltages in mind. But it shall display up to 80VDC.

Specifications	BM2	
	Working Voltage Range	8V-80V
	Wattage consumption	0.144W (12mA at 12V)
	Standby consumption	0.006W (0.5mA at 12V)
	Quiescent / Sleep current	0.0006W (50uA at 12V)
	Capacity accuracy	+/-0.5%
	Voltage accuracy	+/-0.5%
	Current accuracy	+/-0.5%
	Capacity Ah setting	up to 9999Ah 9999Ah (app)
	Weight	500.0g (Shunt + remote)

Standard in the box



LCD Screen | Remote Control | Bluetooth



500A | 75mV | Shunt w/ holder



1m shielded wire - shunt to remote connecting wire

BM2

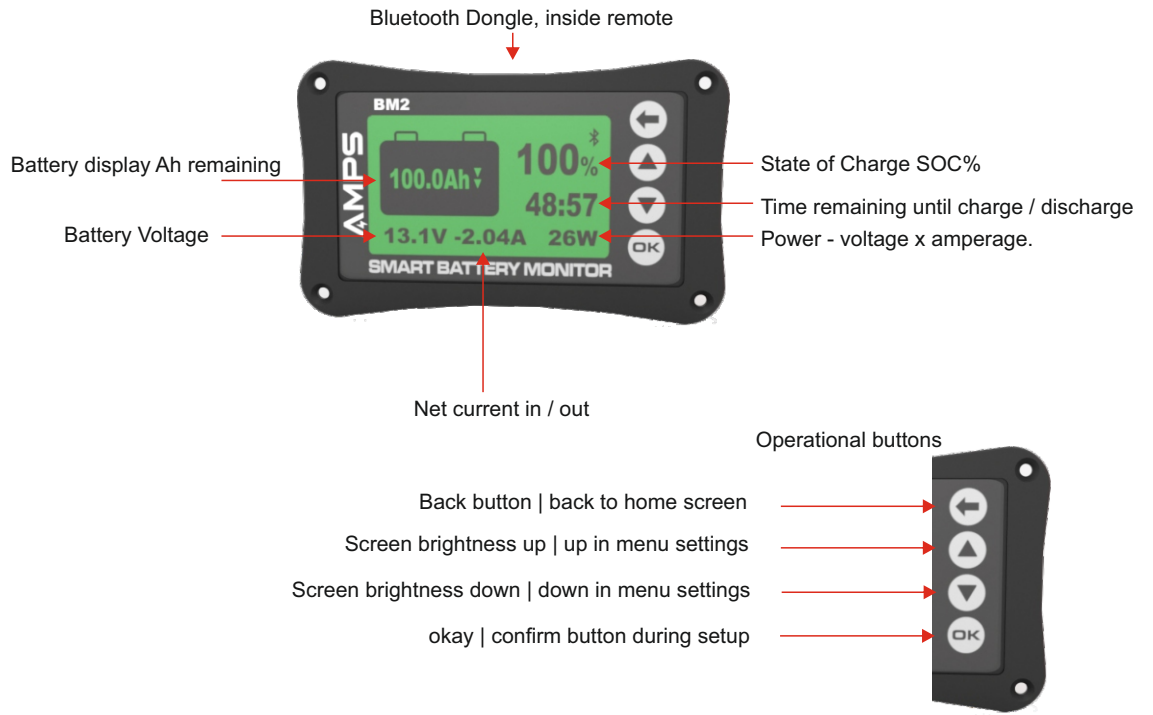


1m power lead to run the BM2 (B+ lead)

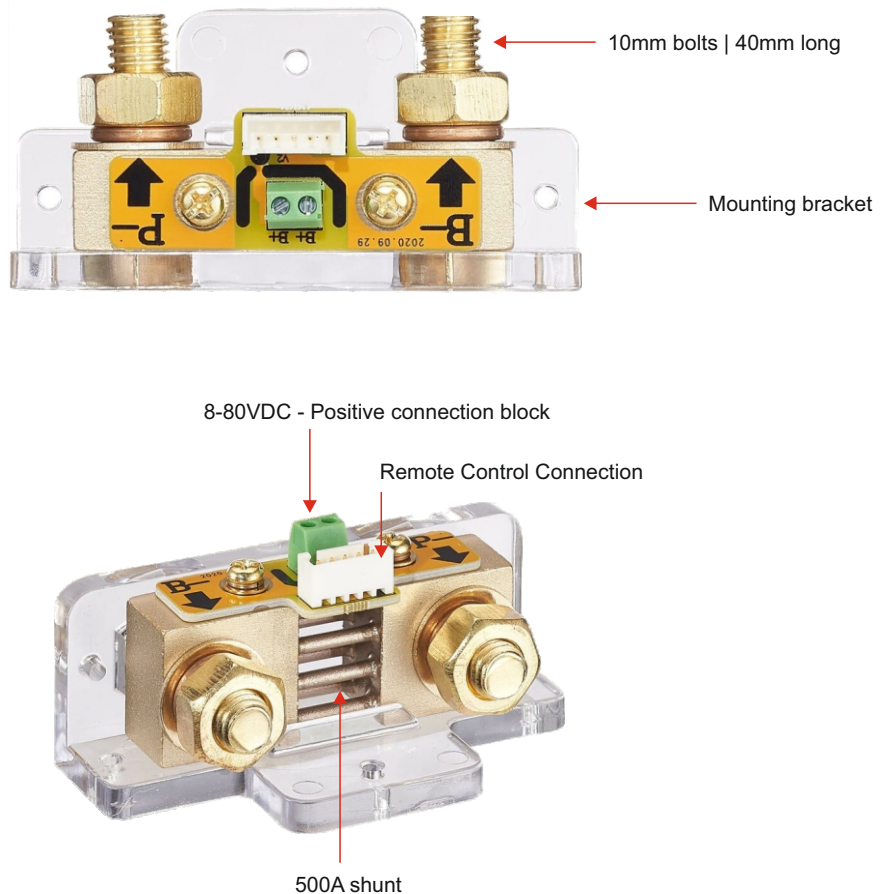


Equipment Remote and Shunt

Remote Control



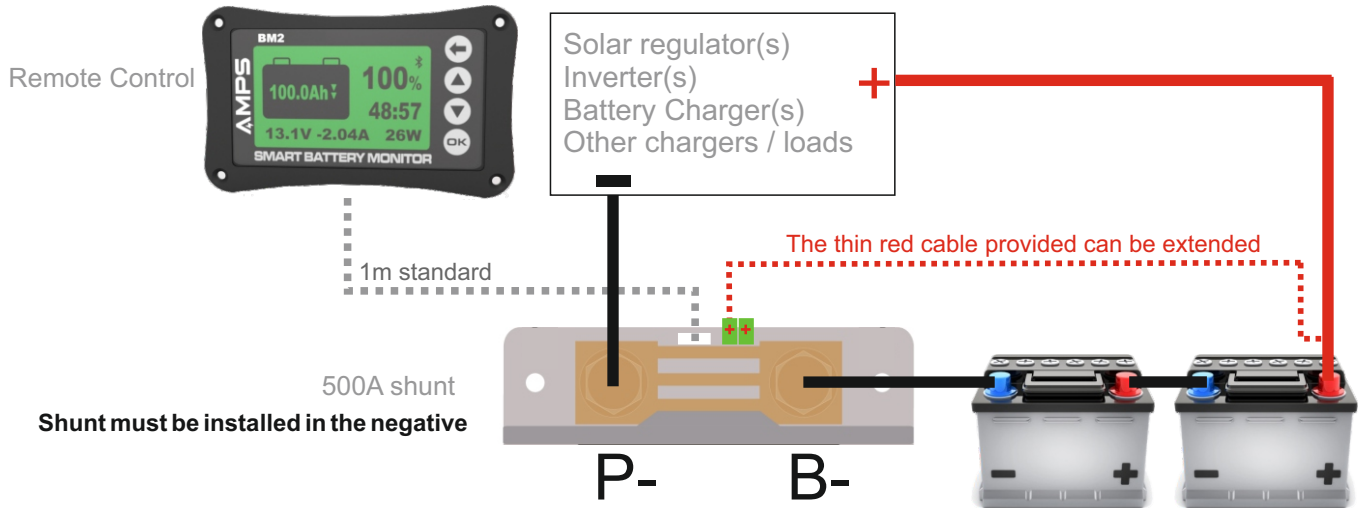
500A | 75mV Shunt





Basic Installation Basic Wiring Diagram

Orientation of shunt does not matter

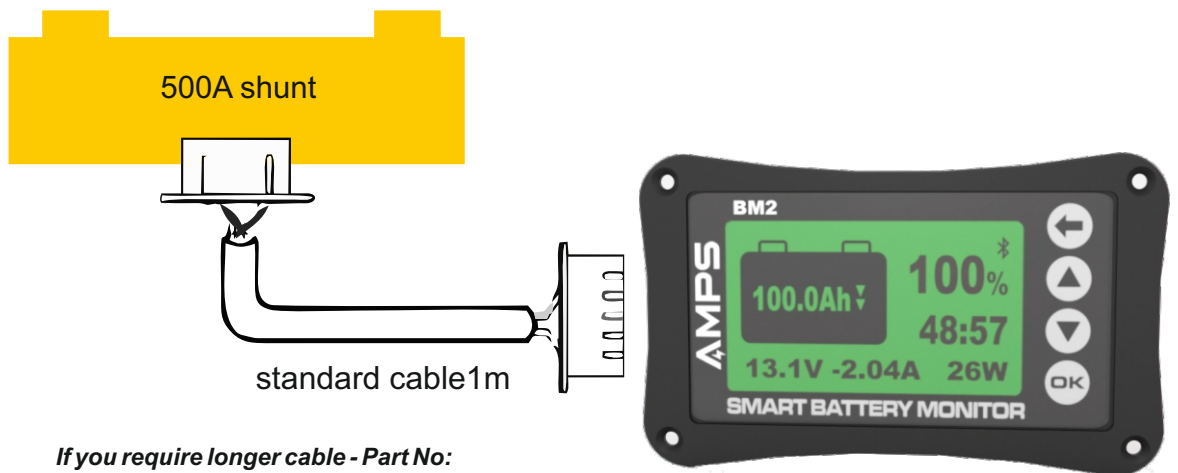


Shunt must be installed in the negative

P-
This terminal on the shunt should be used for ALL negative connections (except for battery -ve). However, If you want to add a busbar here, that is also fine. Essentially, all of the current entering or leaving the battery MUST flow through the shunt.

B-
The ONLY connector on the B-terminal should be that of the negative post of the battery. The distance between B- and the battery -ve terminal should be as short as possible. You want as clean / clear a connection here as possible. You may even wish to use a ANL style fuse to simply bridge the gap between the B- and the battery terminal.

8-80VDC



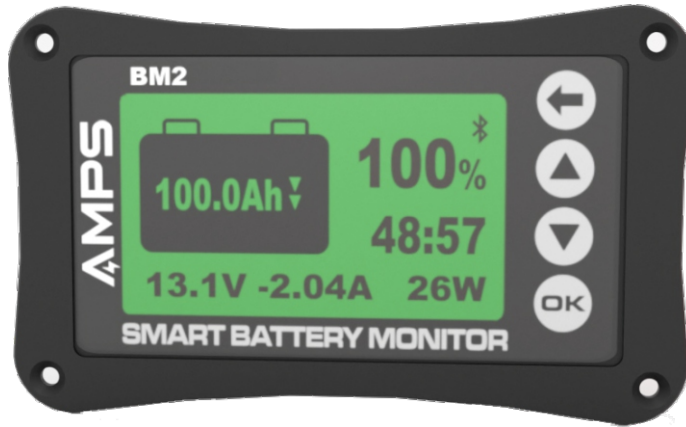
If you require longer cable - Part No:
3m - 3 meter cable
6m - 6 meter cable



REMOTE REMOTE CONTROL

Basic Main Screen

To refer to V, Ah|A or % simply see what the screen says.



V

V is displayed in the bottom left corner. This is the voltage that the thin red wire is connected to. Typically the leisure battery / service battery.

Ah

Within the battery image / diagram there is an Ah display along with a depiction of how full the battery is. The darker the battery to fuller the battery. Up and down arrows to the right of the Ah reading depicts power going in (up) and out (down).

%

Simple state of charge % in the top right. It is simply a % remaining left in the battery. 100Ah in a 100Ah battery = 100% state of charge etc.

A

current flowing across the shunt. Displays either negative or positive. Negative suggests current is leaving the battery and positive suggests current is entering the battery.

W

Power (W) is a simple voltage * amperage calculation. Refer to the up or down arrows in the battery image to determine net flow of power.

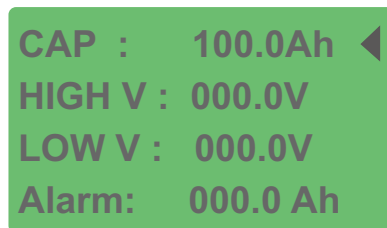
Setting up Ah capacity of the battery.

By setting up the Ah on the remote control this shall also calibrate the SOC % meter readout.



Setting the Ah capacity (CAP)

On the remote control, press and hold OK for 5 seconds. The MENU shall appear with CAP at the top. CAP means capacity. Press the OK button to enter and adjust the Ah capacity using the up and down arrows followed by OK to confirm.



Setting High V | Low V | Ah alarms

If you wish for the BM2 to display a warning exclamation symbol when a high or low V point is met or when a low Ah capacity is met you can set it here. Simply set HIGH | LOW | Alarm using the up / down arrows and OK.

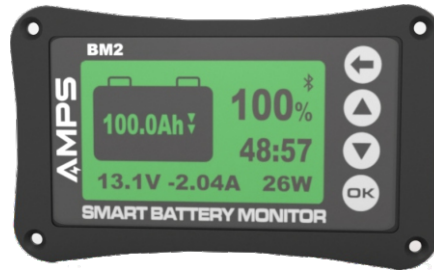
N.B. to get an exact figure of the Ah of your battery bank may be difficult. We recommend setting the Ah figure to a conservative value. Essentially a value that you wish to take out of your battery. For example, you may have a 300Ah battery bank of lead acid (AGM, gel, sealed) but you only wish to ever monitor the first 140Ah of the entire bank because you do not wish to exceed this. Simply set the Ah capacity to 140Ah. Therefore at 0% state of charge you know that you have used all of that sensible amount up.

With AMPS LiFePO₄ (lithium Iron Phosphate) batteries simply set the Ah capacity to the Ah value(s) written on the battery(s) themselves. Add the Ah numbers together if you have multiple AMPS batteries in your install. If you have 3x 12V 100Ah - set the Ah capacity to 300Ah, etc.



REMOTE REMOTE CONTROL

Reducing BM2 screen brightness



To reduce / increase screen brightness press the up or down arrows for desired brightness level. There are 9 settings.

Forcing the %SOC to 100%



Press and hold the up arrow until the % is 100%. The BM2 is forced to 100%. This calibrates the BM1 to be the new '100%' full. Simultaneously, it forces the Ah capacity to the value you've set, on the previous page. i.e. FULL.

Troubleshooting | FAQ

My readings are always wrong!

The most common installation problem when installing any Ah Counter is that there is always 1 or multiple negative cables that are accidentally bypassing the shunt. If ANY negative wire(s) bypass the shunt the shunt can not read the current flowing down the bypass cable. Check to ensure there are no rogue negative wires (large or small). All of the negatives (except the battery itself) should be connected to the P-.

BM2 shunt getting very hot

The shunt can get hot for 2 main reasons. Simply high current for a long period of time generates heat. Or, loose connections at or around the shunt can cause heat spots that conduct through the shunt. Cleaning / improving metal to metal contact for better conduction. This shall also improve power delivery.

Current shown on remote display is very different to any other ammeter display.

Ensure only the big bolts house all of the connections on the shunt. Do not connect any wires to the smaller screws on the printed circuit board or any other locations on the shunt itself. By doing this you shall have erroneous current readings.

Ah capacity becomes more inaccurate over time. I'm losing battery capacity.

The rate of ageing of lead acid style batteries varies based on use and age. When they age, they reduce their ability to store Ah. From time to time you have to reset the new 100% full state of charge meter.

% SOC meter is always wrong

SOC % is best described as a guesstimate. It works from simple maths. The user tells the BM2 what Ah the battery is and it knows the current flow in and out via the shunt. It therefore works out a % state of charge. Battery degradation, parasitic drains, damaged cells, cold weather, high discharge loads etc. may not influence the SOC% value but may influence the actual state of charge of the battery.