



BATTERY MONITOR WITH SHUNT

AP100BM / AP200BM / AP500BM

# USER MANUAL



PLEASE READ THIS MANUAL CAREFULLY BEFORE OPERATION AND MAINTENANCE,  
FOLLOW ALL PROVIDED WARNING & CAUTION, AND KEEP IT FOR FUTURE REFERENCE.

V1.2

## ABOUT US

ATEM POWER, born in June 2017, as a synonym for exciting outdoor experience, is an Australian company with dedication and passion for the R&D of clean energy products, batteries and related accessories.

Since the company was founded, we have committed to innovation that aims to make your life infinitely more convenient. And the belief in our conviction for quality and commitment allows us to innovate in developing products that are optimally tailored to the needs of our amazing customers.

Specializing in clean energy solutions, we engineer and supply solar products tailored for homes, 4x4s, recreational vehicles, and virtually any application you can think of. And we also develop dependable, high-performance deep-cycle batteries and lithium batteries for standby or daily power needs. Accessories include battery chargers and inverters that are ideal for RV's, commercial vehicles, boats, yachts and beyond.

At ATEM POWER, we stay true to our DNA by prioritizing technological innovation designed to improve our products and striving to provide excellent customer care. Because we are not just motivated to explore the limits of solar power but reshaping the future with sustainable energy choices.

Embrace the future with ATEM POWER – Clean Energy by Smart Way.

## **WARNINGS & SAFETY INSTRUCTIONS**

DO NOT operate the battery monitor UNLESS YOU HAVE READ AND UNDERSTOOD THIS MANUAL and the monitor be installed as per these installation instructions. ATEM POWER recommends that this product be installed by a suitably qualified person.

## **GENERAL SAFETY INFORMATION**

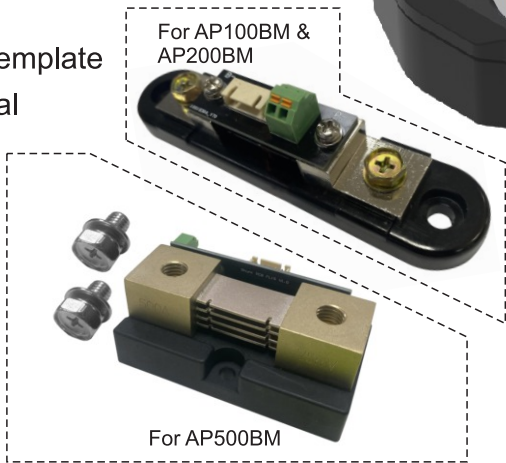
- This product is not intended for use by persons with reduced physical, sensory or mental capabilities, or lack of experience or knowledge. Children should be supervised to ensure that they DO NOT play with the product.
- AVOID incorrect connections that can cause the monitor to malfunction or create a fire hazard. Disconnect the negative pole of the battery before installation.
- DO NOT expose the monitor in the sun for a long time or in the environment with large amounts of ultraviolet radiation when using or storing.
- This battery monitor is suitable for all common battery types including lithium, AGM, wet, gel and calcium.
- DO NOT use this device if it is wet, and AVOID contact with water, rain, snow or spray.
- DO NOT attempt to disassemble, modify or repair the battery monitor without authorization.
- Inverters should be connected directly to the battery. DO NOT connect your inverter through the monitor, which may damage the internal electronics of the inverter.
- The shunt/sampler should be mounted in a well ventilated area. DO NOT cover it.
- Ensure effective ventilation when the battery monitor is running at its maximum current for a long period of time.
- The shunt will generate much heat and can exceed 100°C at large current. Ensure effective ventilation and NEVER touch it.

## **BATTERY SAFETY**

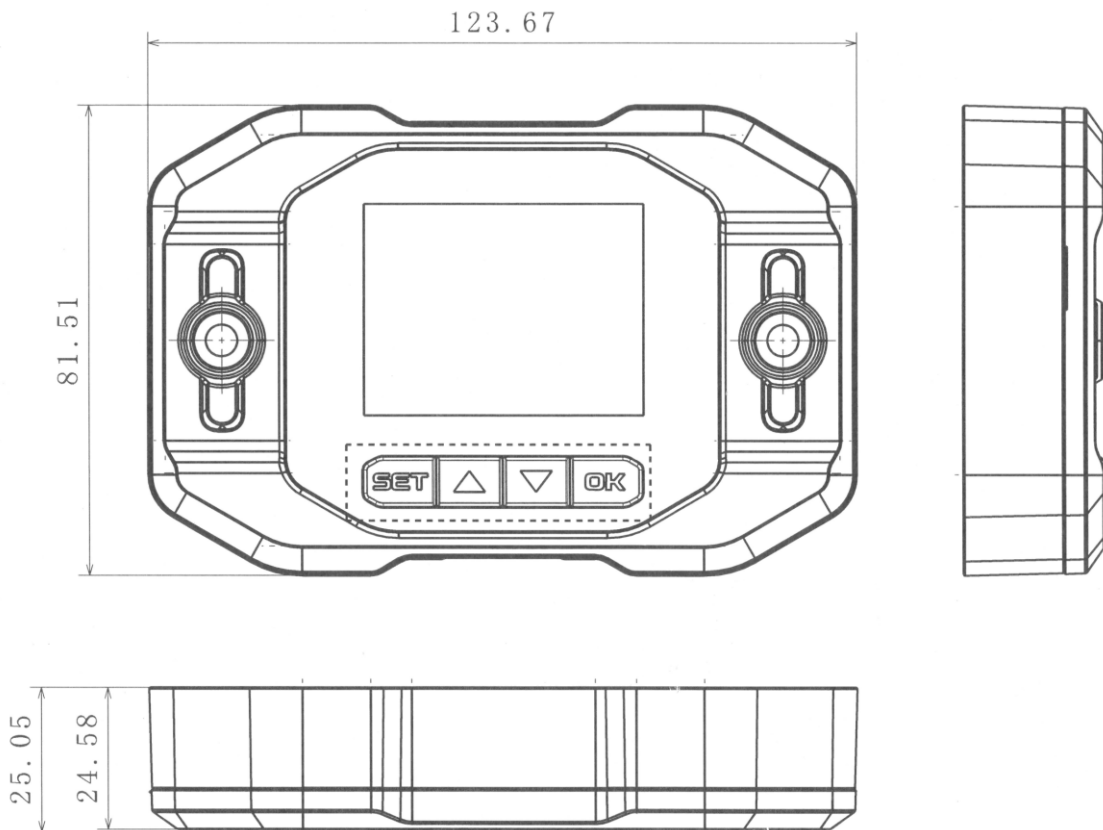
- Work in the vicinity of a lead acid battery is dangerous, which is likely to generate explosive gases during normal operation. Mount it in a well-ventilated area from any ignition sources.
- NEVER smoke or allow a spark or flame in the vicinity of the battery. This may cause the battery to explode.
- Wear eye protection and have enough fresh water nearby in case there is a contact with the battery acid.
- If the battery acid contacts your skin or clothing, remove the clothing and wash the affected area of your skin with soap and water. If battery acid enters your eye, immediately flood your eye with running water for 10 minutes and seek medical assistance.
- DO NOT short circuit the terminals of your battery.

**IN THE KIT**

- 1 PC(s) ATEM POWER Battery Monitor
- 1 PC(s) Shunt
- 2 Set(s) Bolts and Washers (for AP500BM Only)
- 1 PC(s) 3. 0m Shielded Wire
- 1 PC(s) 0.5m B+ Wire
- 2 PC(s) Screws
- 1 PC(s) Mounting Template
- 1 PC(s) User Manual



**DIMENSIONS**



measured in millimeter(mm)

# INSTALLATION INSTRUCTIONS

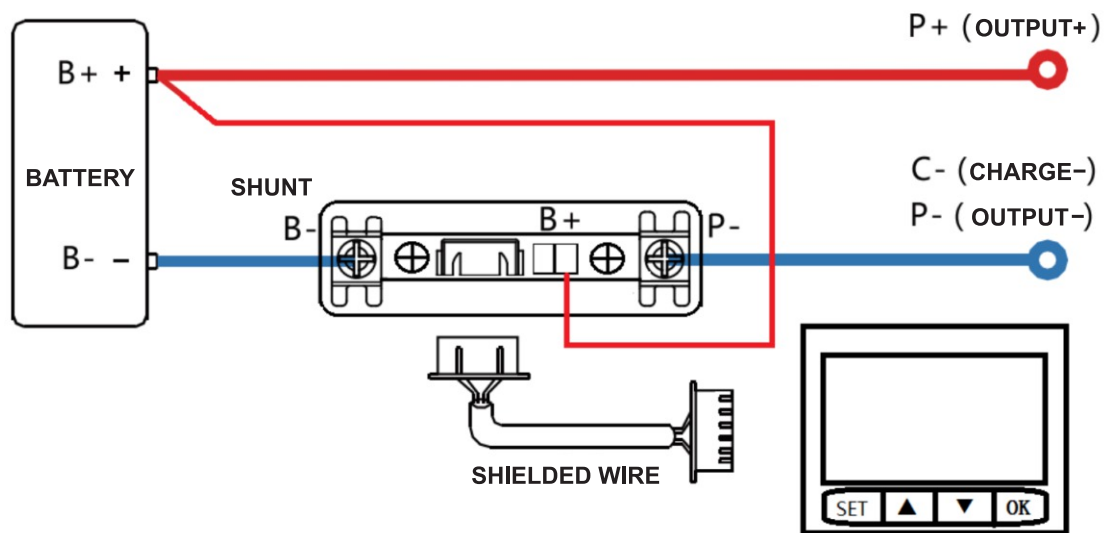
## Connection

Step 1: The shunt/sampler must be series connected to the negative circuit. B- of shunt connects to B- of the battery. P- of shunt connects to P- of output and C- of charge.

Step 2: One end of the B+ wire connects to positive of battery, the other end connects to B+ of shunt (either one is OK).

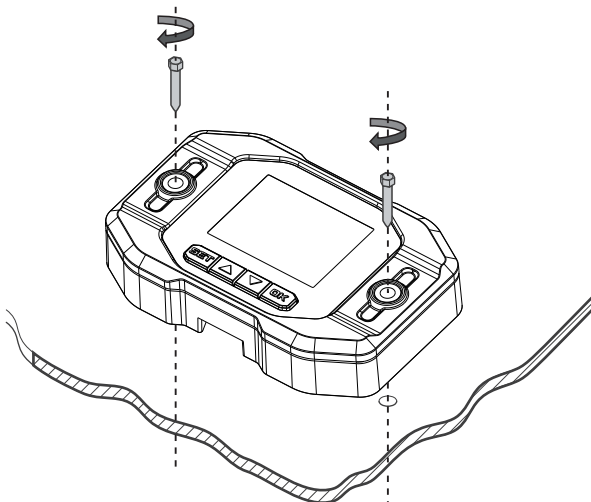
Step 3: Connect the shielded cable to the shunt and the monitor. The screen of the ATEM POWER Battery Monitor display should be on.

Attention: Please connect as shown. The shunt must be series connected to the negative circuit, DO NOT connect to the positive circuit.



## Mounting with base

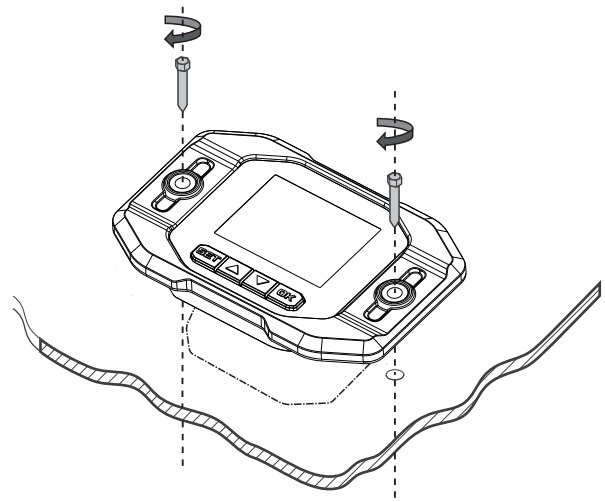
Put the monitor on your equipment panel, and secure the monitor with self-tapping screws.



## Flush Mounting without base

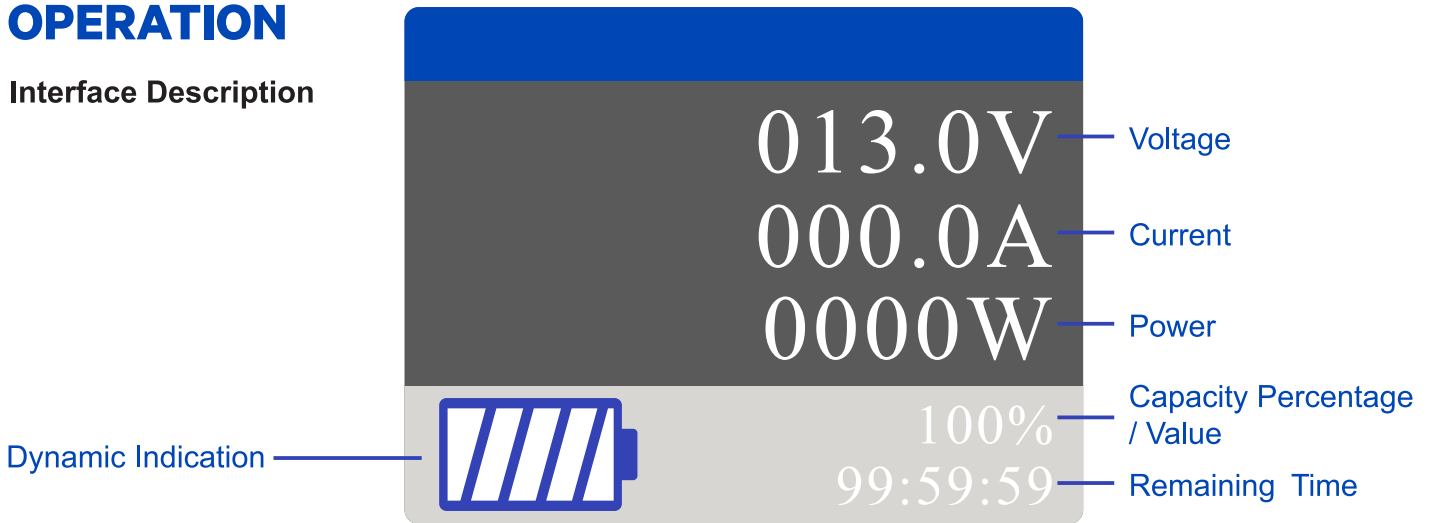
Step 1: Open a rectangular orifice on your equipment panel using the included mounting template.

Step 2: Put the monitor into the orifice, and make sure the tabs are locked with self-tapping screws.



## OPERATION

### Interface Description



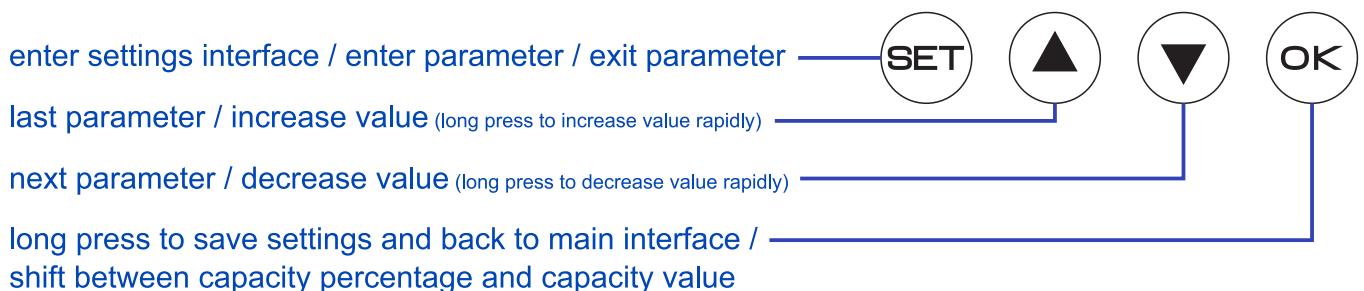
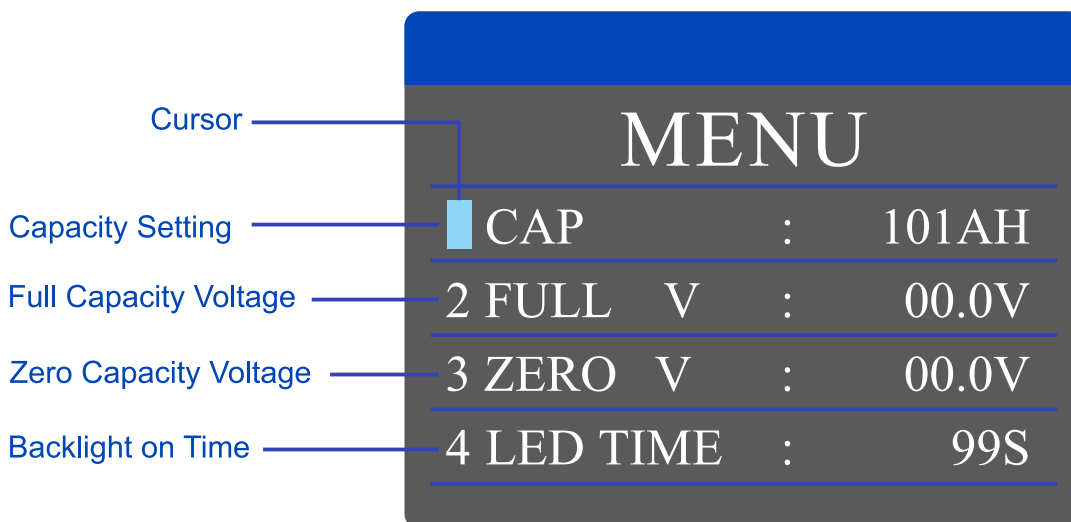
Use Instructions

#### 1. Wire and Check

Connect the battery monitor as shown in the diagram. The voltage, current and capacity percentage of your battery will be displayed on its screen. If there is no display, please turn off the power to check the connection.

#### 2. Settings

Press and hold the button "SET" for 2s to enter the settings interface.



**CAP:** This means the effective capacity of battery. The capacity won't be correct if you do not set according to the actual effective capacity of your battery. Default: 100Ah; Range: 001~999Ah.

**Full V:** It means full capacity voltage. When the voltage is higher than the set value, the capacity will be automatically set to 100%. 0.00V means this function does not work. Default: 00.0V; Range: 00.0~64.0V.

**Zero V:** It means zero capacity voltage. The capacity value will be automatically set to 0% if the voltage is below this value. 0.00V means this function does not work. Default: 00.0V; Range: 00.0~64.0V.

**LED TIME:** It means the time period before backlight turns off automatically. 99 means backlight will be constantly on. Default: 99S; Range: 05~99S.

### **3. Detect and Set the Effective Capacity of Battery**

The effective capacity of your battery needs setting before initial use. Please follow the following steps:

- (1) Set the effective capacity value "CAP" larger than the estimated value.
- (2) Fully discharge your battery. Then on the main interface, press and hold the button "▼" for 2s to set the capacity to 0% (0Ah).
- (3) Fully charge the battery. Then on the main interface, press and hold the button "▲" for 2s to set the capacity to 100%. Press "OK" and the displayed capacity value then is the effective capacity of the battery.
- (4) Reset "CAP" to the detected capacity value.

Note: Ambient temperature has a great impact on battery capacity. Please reset the effective capacity if the ambient temperature changes largely.

## IMPORTANT

- (1) DO NOT set Full V and Zero V if you do not know the basic information about your battery. The default setting of Full V and Zero V is 0V.
- (2) For a reliable readout, the battery monitor must be on during charging or discharging your battery.
- (3) When the backlight is off, pressing any button can wake up the backlight.
- (4) Fluctuations in remaining time due to current fluctuations of the load is normal.
- (5) This product has a power-off memory function.
- (6) Drastic current fluctuation could influence calculation of capacity.

## FREQUENTLY ASKED QUESTIONS

**Q: There is no display.**

A: Probably the battery monitor is not properly wired. Please check the wiring according to the wiring diagram in this manual and check that the battery voltage is above 5V.

**Q: Why is my current reading reversed (positive when discharging and negative when charging )?**

A: The B- and P- of the shunt are wired inversely. Connect B- and P- of the shunt correctly.

**Q: Why the data displayed on the monitor sometimes tend to be inaccurate?**

A: Drastic current fluctuation could lead to inaccurate data acquisition and it may affect the accuracy.



## PARAMETERS

MODEL:	AP100BM	AP200BM	AP500BM
Shunt Capacity	100A	200A	500A
Working Voltage	5~64V		
Standby Dissipation	12mA (Backlight Off) 15mA (Backlight On)		
Preset Capacity Value	1~999Ah		
Max. Measured Current	Peak 120A≤1h, 300A≤3s Continuous 100A	Peak 240A≤1h, 600A≤3s Continuous 200A	Peak 600A≤1h, 1500A≤3s Continuous 500A
Voltage Accuracy	±1%		
Current Accuracy	±1%		
Capacity Accuracy	±1%		
Temperature Range	-20°C~45°C (-4°F~113°F)		
Weight (LCD Interface)	107g (0.24lbs)		
Size (LCD Interface)	124*81.5*25 mm (4.88*3.21*0.98 in)		
Shielded Wire	3.0m (118.11 in)		
B+ Wire	0.5m (19.69 in)		



# WARRANTY



ATEM POWER ("Manufacturer") warrants, to the original purchaser, ("User") that its battery monitor, if purchased from Manufacturer or an authorized distributor or dealer, will be free of defects in material and/or workmanship under normal application, installation, use and maintenance conditions from the date sold and for the duration (the "Warranty Period") of 1 YEAR. Within the Warranty Period, subject to the exclusions listed below, the Manufacturer will repair, replace the battery monitor or provide you with a refund at our discretion, if the unit in question are determined to be defective in material or workmanship. If the manufacturer deems the battery monitor to be not repairable, a new, similar monitor will be offered, or a refund will be issued. This Limited Warranty is to the original purchaser of the battery monitor and is not transferable to any other person or entity.

## EXCLUSIONS:

This warranty does not cover defects that are caused by normal wear and tear, inadequate maintenance, transportation, storage or faulty repair, misuse, neglect, accident or abuse, modification, failure to observe installation instructions or improper installation. It is recommended that the installation should be performed by suitably qualified technicians or the warranty will be voided. For further clarity, this warranty is also void if the battery monitor:

- is used for applications other than which it was designed and intended for,
- is not properly installed in accordance with the user manual,
- is damaged due to improper operation,
- is damaged due to the non-observance of any of the instructions supplied by ATEM POWER, or defects resulting from any action of the purchaser including but not limited to mishandling, operation outside of design limits, or unauthorized modification,
- is disassembled, altered, or repaired by someone other than an authorized Manufacturer's agent,
- has been subject to adverse weather, extreme temperature, abuse or physical damage,
- has been damaged by force majeure (e.g. flash of lightning, overvoltage, storm, fire),
- selected by the user is not of the correct size or specification for the intended application.

## CLAIMS:

Request return authorization. No returns will be credited without an authorization. In the case of returned products, Manufacturer's exclusive liability for breach of any warranty on the product shall be to replace the battery monitor within the warranty period in accordance with the terms of this limited warranty. In no event shall Manufacturer be liable for any loss or damages of any other kind, whether direct, incidental, consequential including lost profits, exemplary, special or otherwise, including any lost profits or removal, shipping, or installation expenses.

For more information, please visit: [www.atempower.com](http://www.atempower.com)