

EVO

USER GUIDE

EVO5.7kWh-V1 (LiFePO4 Battery) 48 V120 Ah
Household Solar Storage System



CE

Approved

UN38.3

5.7kwh

1. Battery Specifications

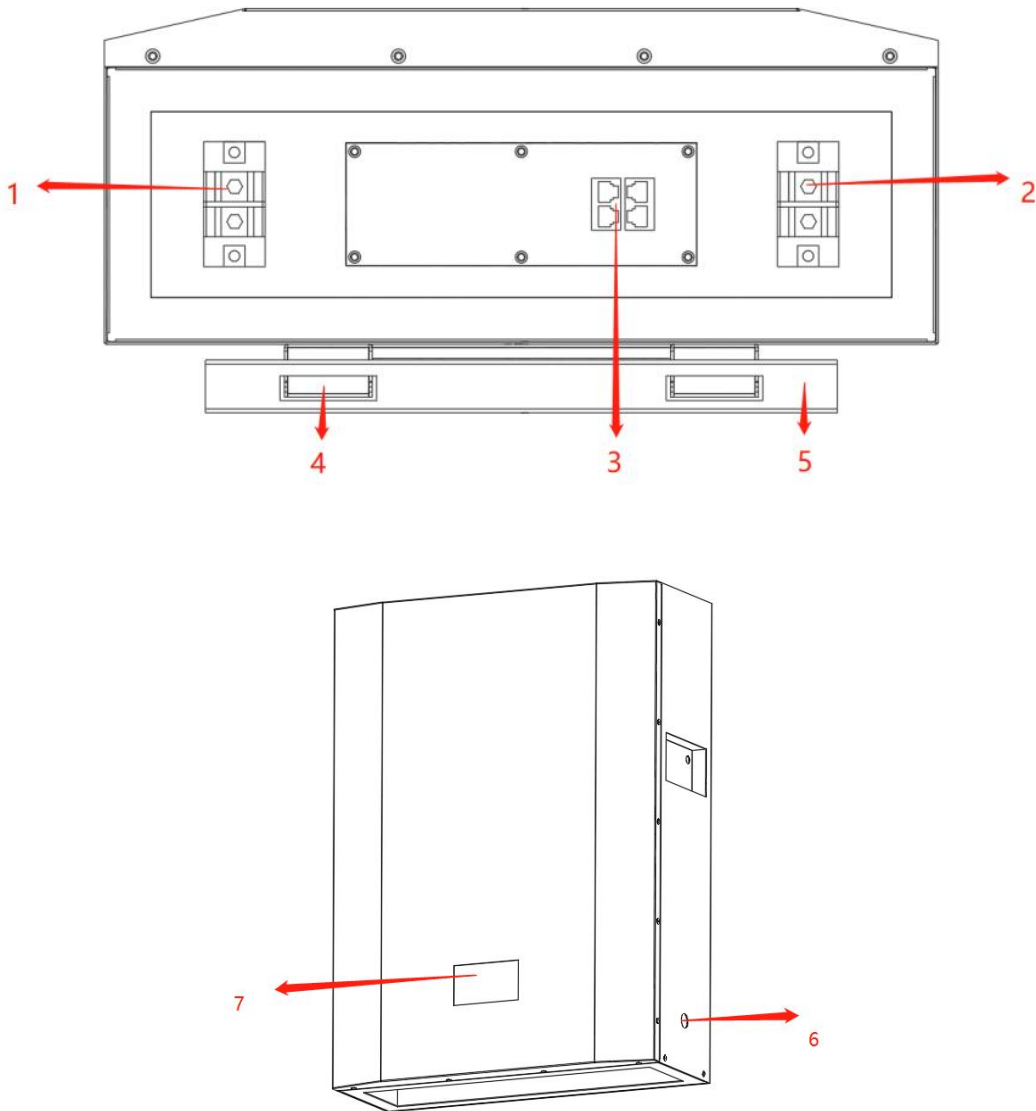
Battery Specifications	
Model No	EVO5.7-V1
Nominal Parameters	
Voltage	48V
Capacity	120Ah
Energy	5760Wh
Dimensions(L*W*H)	650*475*190mm
Weight	68.5kg (approx.)
Basic Parameters	
Storage time/temperature	5 months @ 25°C; 3 months @ 35°C; 1 month @ 45°C
Operation temperature	- 10°C~55°C @ 60±20% Relative Humidity
Storage temperature	0°C~45°C @ 60±20% Relative Humidity
Protection grade	IP21
Electrical Parameters	
Operation voltage	48Vdc
Max. charging voltage	54Vdc
Cut-off discharge voltage	41Vdc
Max. charging and discharging current	150A

2. Introduction of the Battery

2.1. Key Features

- ◆ LiFePO4 Battery
- ◆ 48V120AH (5.76kWh)
- ◆ Embedded smart BMS with OVP/UVP/DOCP/COCP/SCP/OTP protection and balance.
- ◆ RS485 & CAN communication interface to inverter

2.2. Interface Introduction



No.	Name	Silk- screen	Remark
1	Positive	(+) Red	M6 screw nut/Red
2	Negative	(-) Black	M6 screw nut/Black
3	RS485 parallel port And COM Output Port	RS485/CAN	Parallel communication and Battery and inverter communication port
4	Battery support	/	The rack on the battery
5	Wall bracket	/	A shelf fixed to the wall
6	Power button	ON/OFF	
7	LCD	/	Display of battery info

2.3. Connectors

Charge/ Discharge connectors: to connect the Red positive pole (+) and Black negative pole (-) from the battery to the inverter via DC isolator.

RS4 85 / CAN: Active communication portal between battery and inverter.

USB To RS485 - 1: to get dynamic monitoring data of the battery from upper computer. Address: Reserved Address portal for multiple parallel connections.

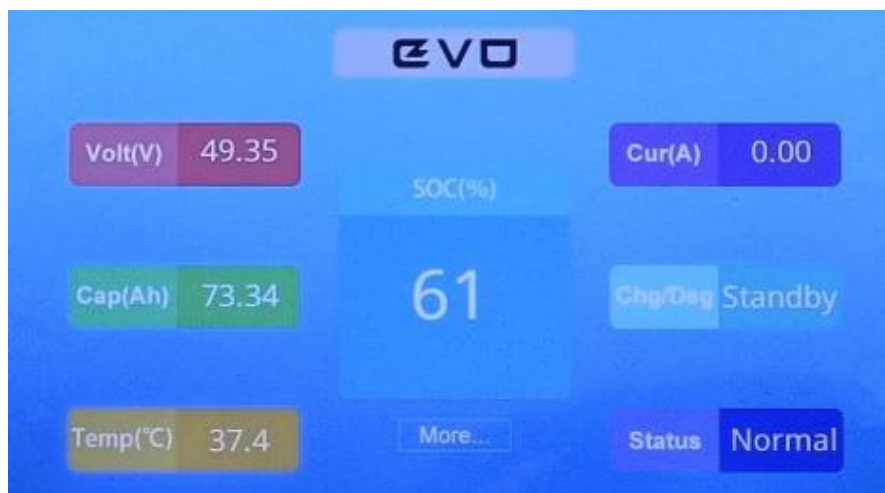
2.4. Wake up button.

Battery ON: Press the ON/OFF button when the battery is off.

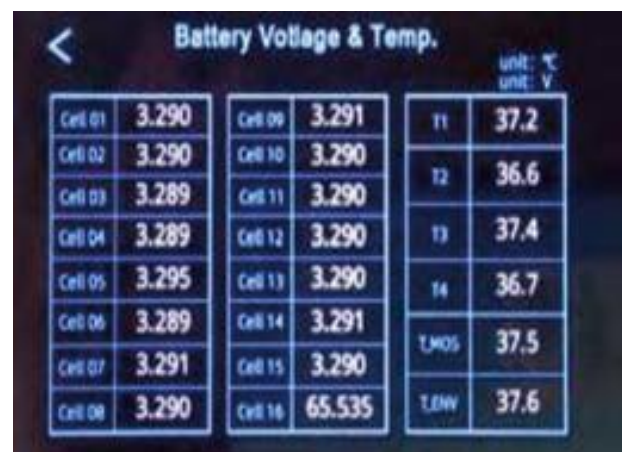
When the LED screen lights up the display, it is activated.

2.5. LCD Display Introduction

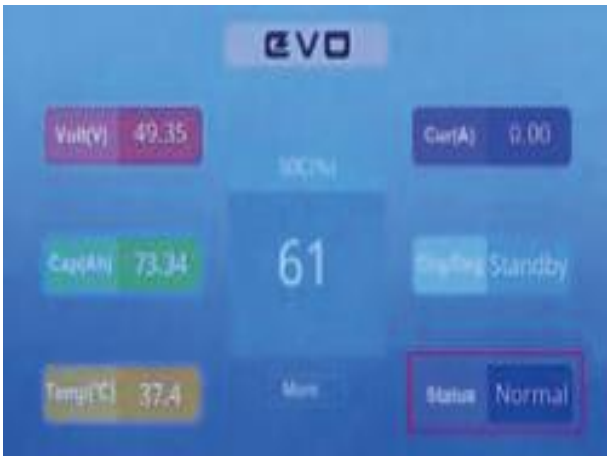
(1) Home Page: Voltage, Capacity, Temperature, Current, Charge/Discharge, Status More



(2) Click "Volt(V)" that can read the battery information include Voltage, Current, Status, SOC, Vmax, Vin, RMC, McCowan, Protect, Tax, Tin.



(3) Click "Status" can show the Battery Normal, Warning, Protection status.

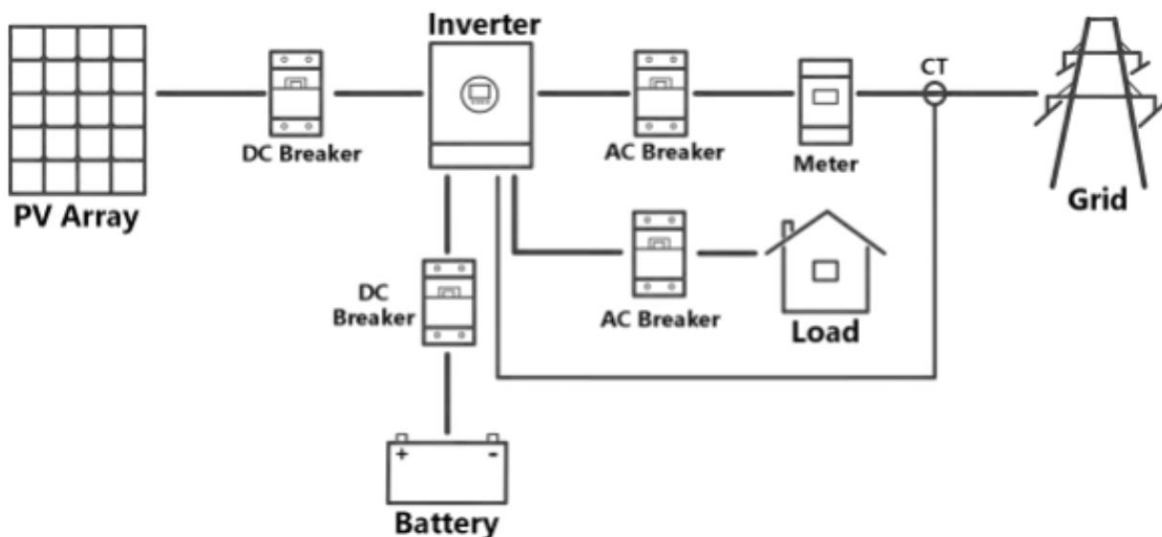


(4) Click "More" you can read the battery information include Battery Voltage & Temp. Cell 01 to Cell 15 voltage, T1 to T4 temperature, T_MOS, T_ENV.



3. Installation preparation

3.1. Schematic diagram of principle



3.2. Tools

The following tools are required to install the battery pack:

- (1) Wire cutter
- (2) Crimping Plier
- (3) Screwdriver

● Note

- (1) Use properly insulated tools to prevent accidental electric shock or short circuits.
- (2) If insulated tools are not available, cover the entire exposed metal surfaces of the available tools, except their tips, with electrical tape.

4. Installation

4.1. Inventory of items



A



B



C



D

User
Manual

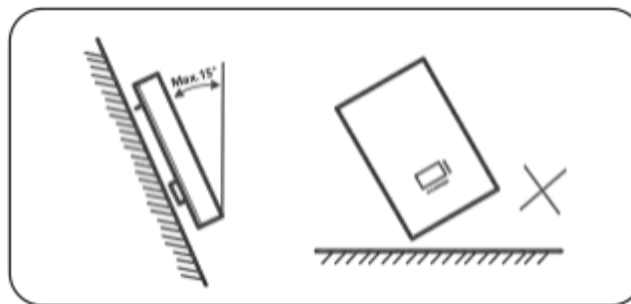
E

No.	Item	Quantity	Specification
A	Battery Pack	1	48V/120Ah
B	Mounting frame	2	SPCC
C	Mounting frame screw	12	M8*50mm
D	cable	2	Optional
E	User Manual	1	This document
Optional	Power Cable (1.0m)	2	35mm Wire - M8
Optional	Parallel Power cable (1.0m)	2	35mm Wire - M8
Optional	Parallel com cable (1.0m)	1	RJ45

4.2. Installation Location

Make sure that the installation location meets the following conditions:

- (1) The installation site must be suitable for the size and weight of the battery.
- (2) Must be installed on a firm surface to sustain the weight of battery.
- (3) The area is waterproof.
- (4) There are no flammable or explosive materials in proximity
- (5) The ambient temperature is within the range from -10°C to 55°C .
- (6) The temperature and humidity are maintained at a constant level.
- (7) There is minimal dust and dirt in the area.
- (8) Installation must be vertical or tilted backwards maximum 15° - avoid forward or sideways tilt.



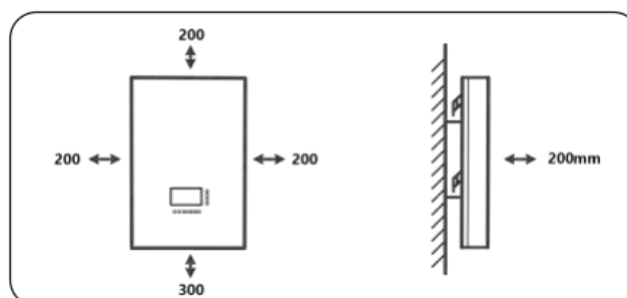
● CAUTION

If the ambient temperature is outside the operating range, the battery pack stops operating to protect itself. The optimal temperature range for the battery pack to operate is 0°C to 45°C . Frequent exposure to harsh temperatures may deteriorate the performance and life of the battery pack.

● Minimum clearances

Observe the minimum clearances to walls, other batteries or objects as shown in the diagram and picture below in order to guarantee sufficient heat dissipation.

Direction	Minimum clearance (mm)
Above	200
Below	300
Front	200
Sides	200



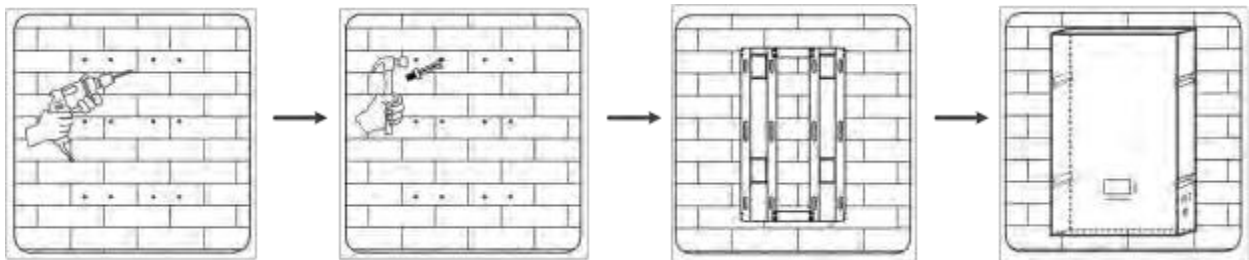
4.3. Installing the Battery Pack

- **CAUTION**

To avoid electrical shock or other injury, inspect existing electronic or plumbing installations before drilling holes.

The battery is heavy, please manage with care to avoid damage to the product or injury to the installer.

- (1) Choose a suitable firm wall with thickness greater than 80mm.
- (2) Use the mounting frame as a template, mark the hole position.
- (3) Drill 12 holes according to the hole position, it is $\varnothing 10$ with depth 60mm.
- (4) Hammer the M8 screws to the above holes and screw the nut. Note: Do not position screws flush to the wall - leave 10 to 20 mm exposed.
- (5) Fix the mounting frame to the 12 screws.
- (6) Raise the battery a little higher than the mounting frame whilst maintaining the balance of the battery. Hang the battery on the frame through the match hooks.



- **CAUTION**

Falling equipment can cause serious or even fatal injury: never mount the Battery on the bracket unless you are sure that the mounting frame is rigidly mounted on the wall after thoroughly checking.

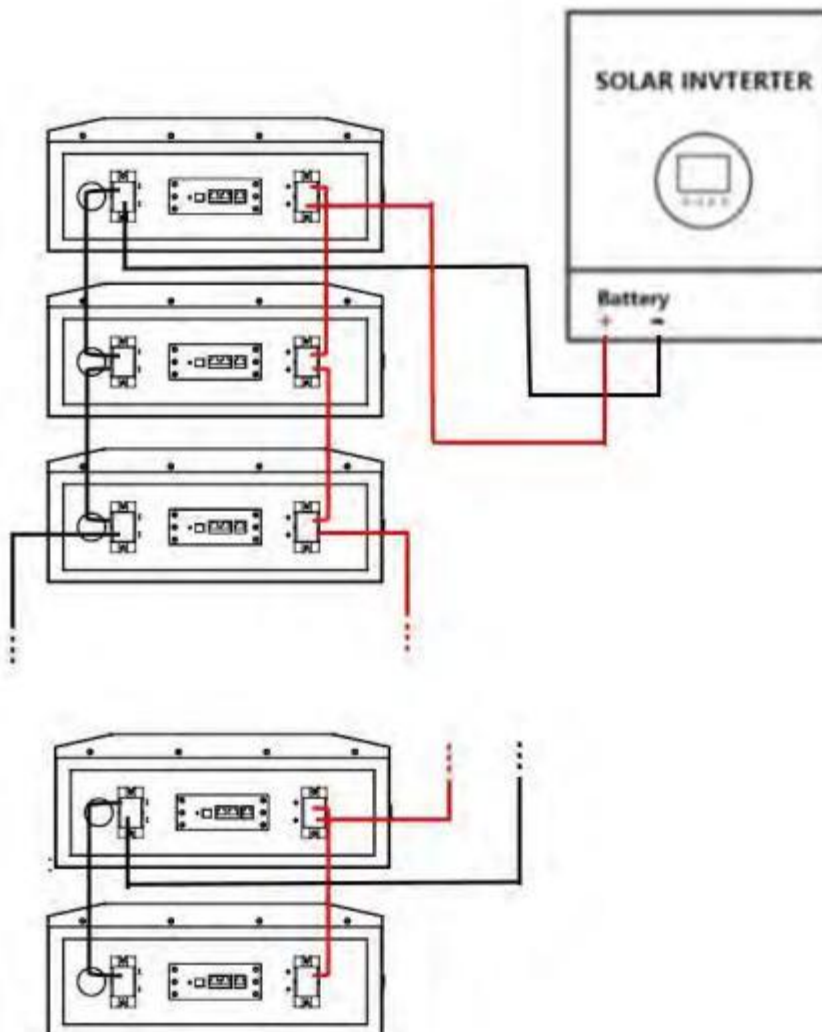
4.4. Parallel battery

(1) Parallel battery (Without CAN/RS485 Communication)

When the battery needs to be used in parallel, the maximum connection is 15 units. our recommendation is 2-8 units. If your Inverter does not have RS485/ CAN Communication, please manually set the Voltages and amperage based on the number of Batteries and According to your Inverter specifications. Charge Amperage MAX 120A per battery, Cut off Voltage 41VDC, Float Voltage 52.5VDC, Bulk Charge 54VDC.

- **NOTE:**

Try to keep cable lengths equal in length and as short as possible. Please adjust the cable thickness to the Amperage required. If a cable is undersized, it can be dangerous as the cable will heat up and potentially cause a fire. Undersized cables also waste energy.

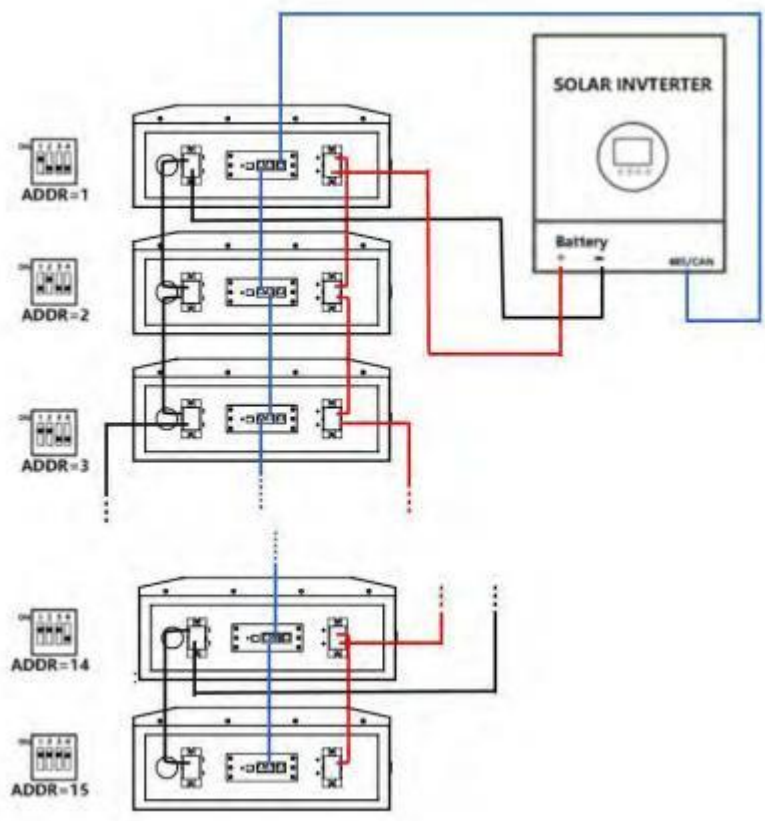


(2) Parallel battery (With CAN/RS485 Communication)

When the battery needs to be used in parallel, the maximum connection is 15 units. our recommendation is 2-8 units. If your Inverter does have CAN/RS485 Communication connect your communication cable between each battery and then to the inverter as per the below diagram. Select the Lithium setting on your Inverter and the correct protocol to match the battery. Deye (00), Lux Power (6) Growat (CAN 52, RS485 51)

- **NOTE:**

Try to keep cable lengths equal in length and as short as possible. Please adjust the cable thickness to the Amperage required. If a cable is undersized, it can be dangerous as the cable will heat up and potentially cause a fire. Undersized cables also waste energy.



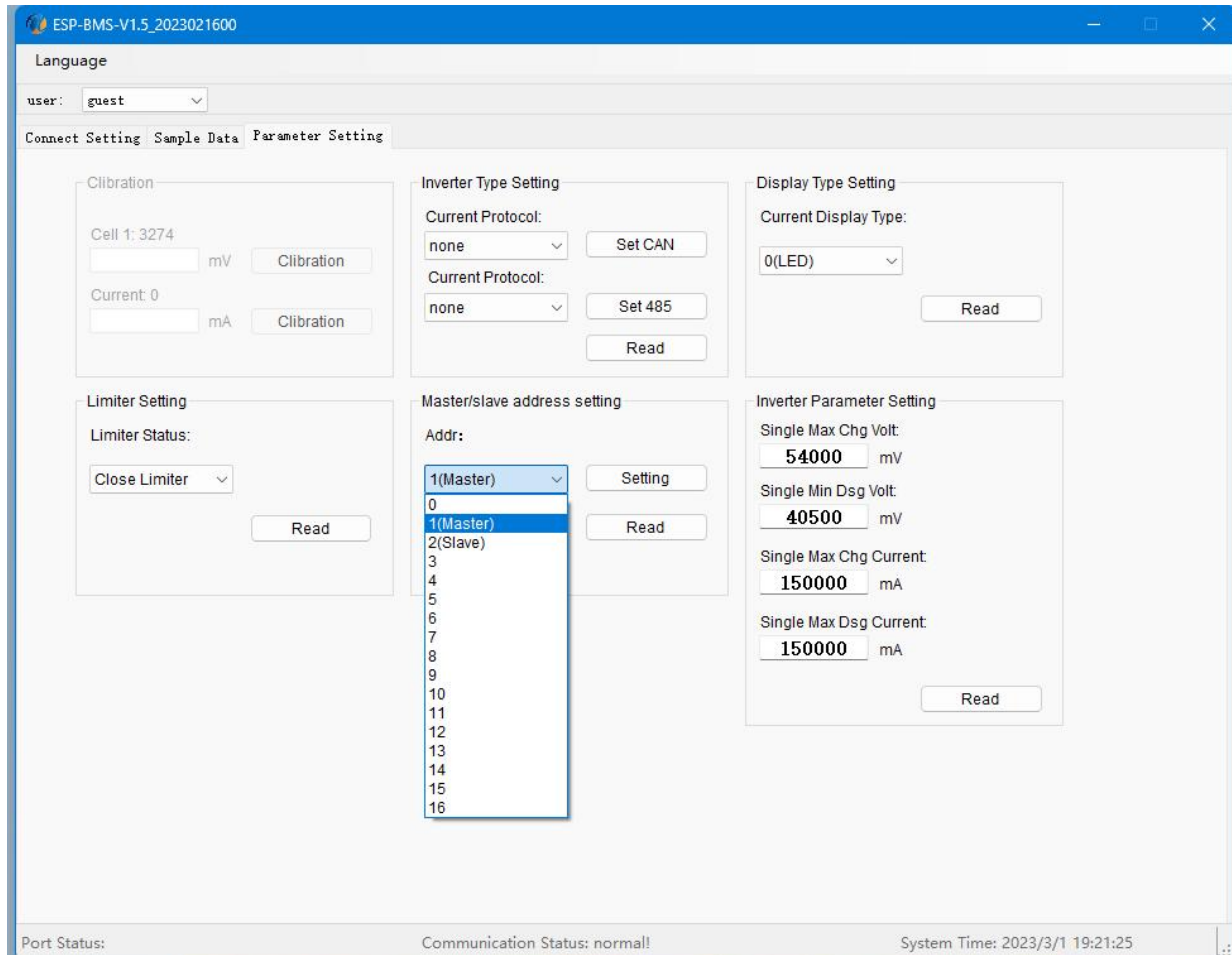
RS485/CAN Matched Inverter brands.

(3) Set the master battery

Utilizing the BMS software set the battery connected to the inverter as the 1mast , Reference the figure.

Slave parallel batteries will set automatically, you do not need to select them manually.

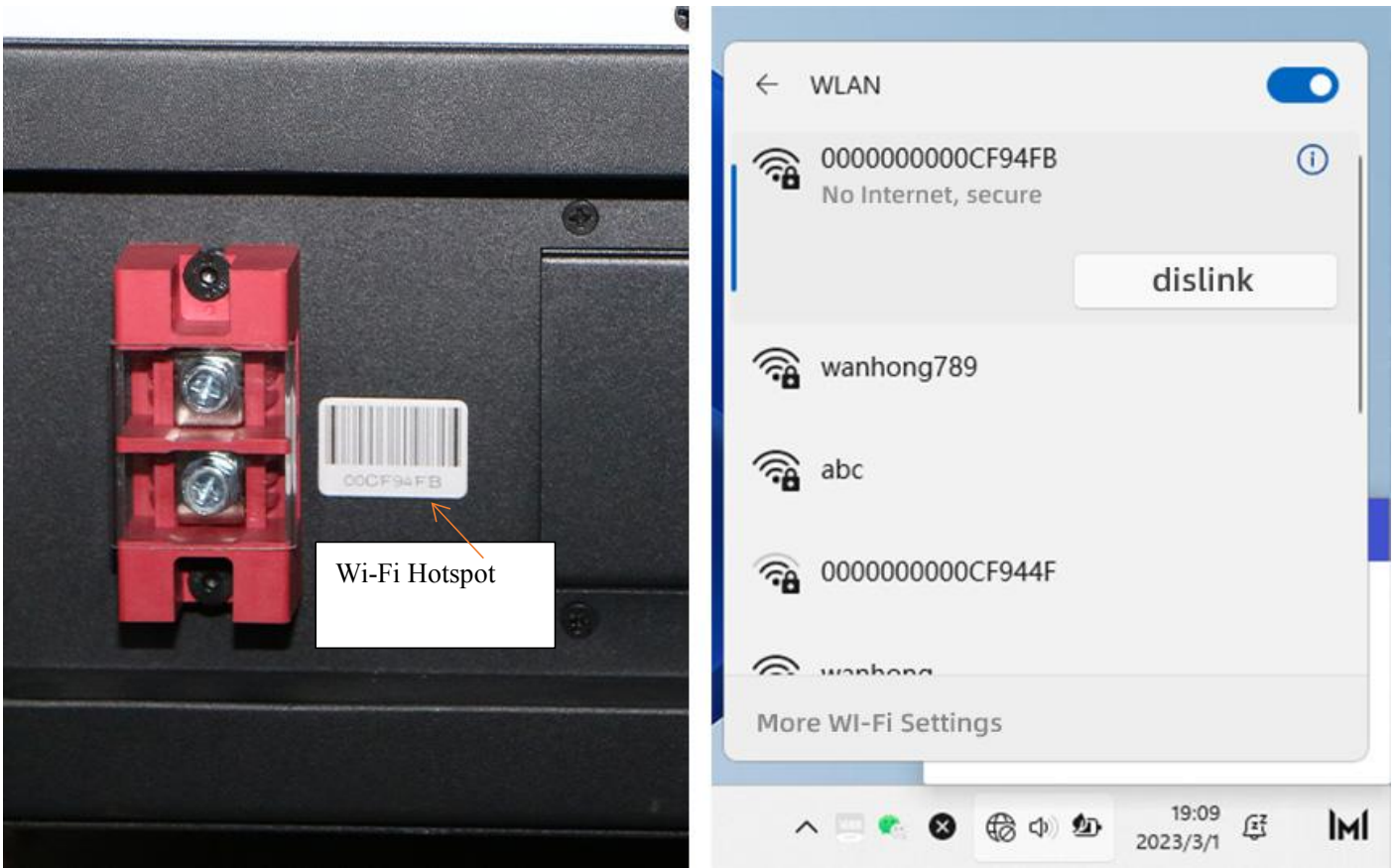
Slave parallel batteries will send data to the master battery automatically. Master will receive data integration and transfer to the inverter.



5. Connect Software by Wi-Fi and use the software.

5.1. Use the computer Wi-Fi link to connect to the Wi-Fi hotspot of the battery.

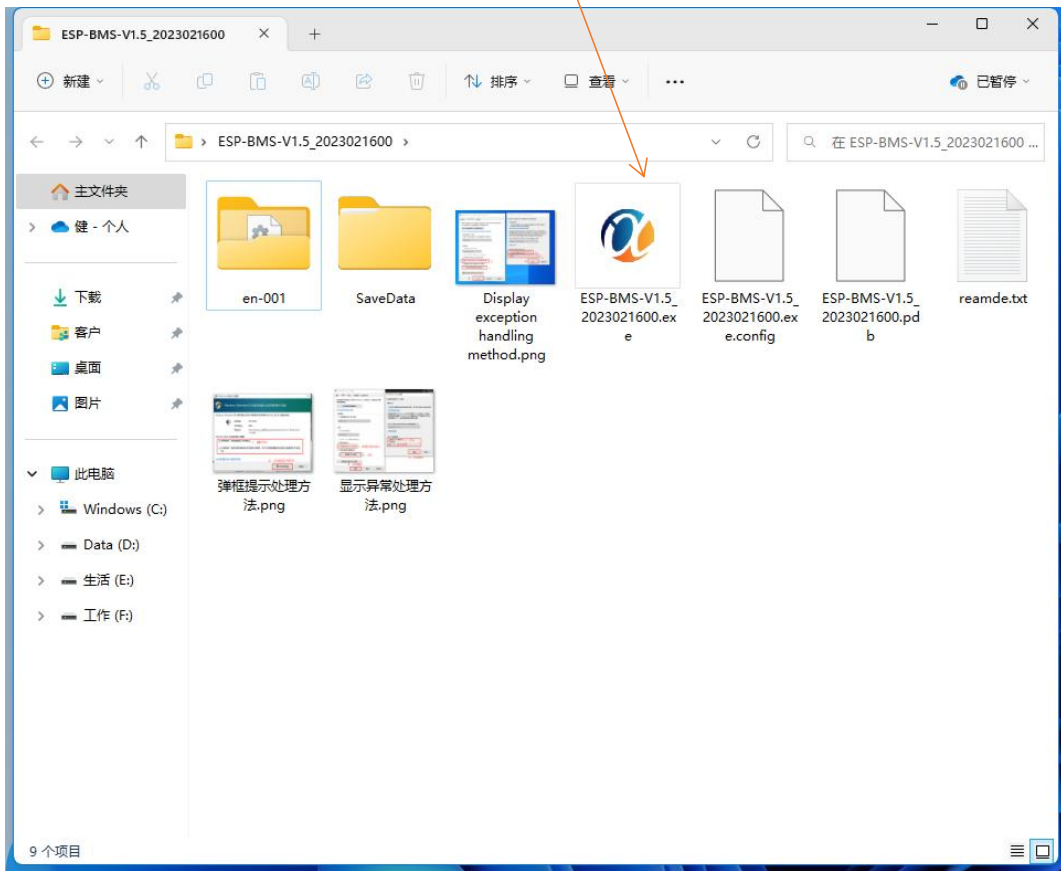
When you turn on the battery, the battery will have a Wi-Fi Hotspot , the Wi-Fi name will be the same as the barcode on the bottom of battery. connect to the Wi-Fi hotspot of battery,



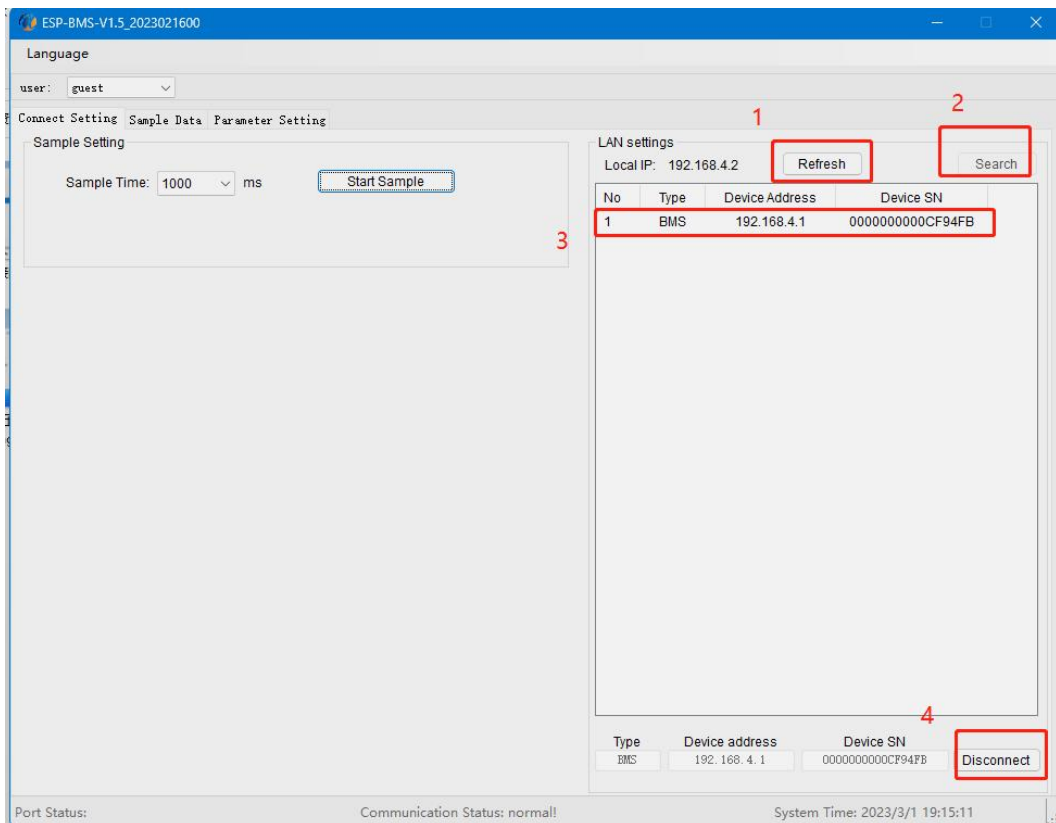
5.2 ; Extract Files, extract it into a single folder.



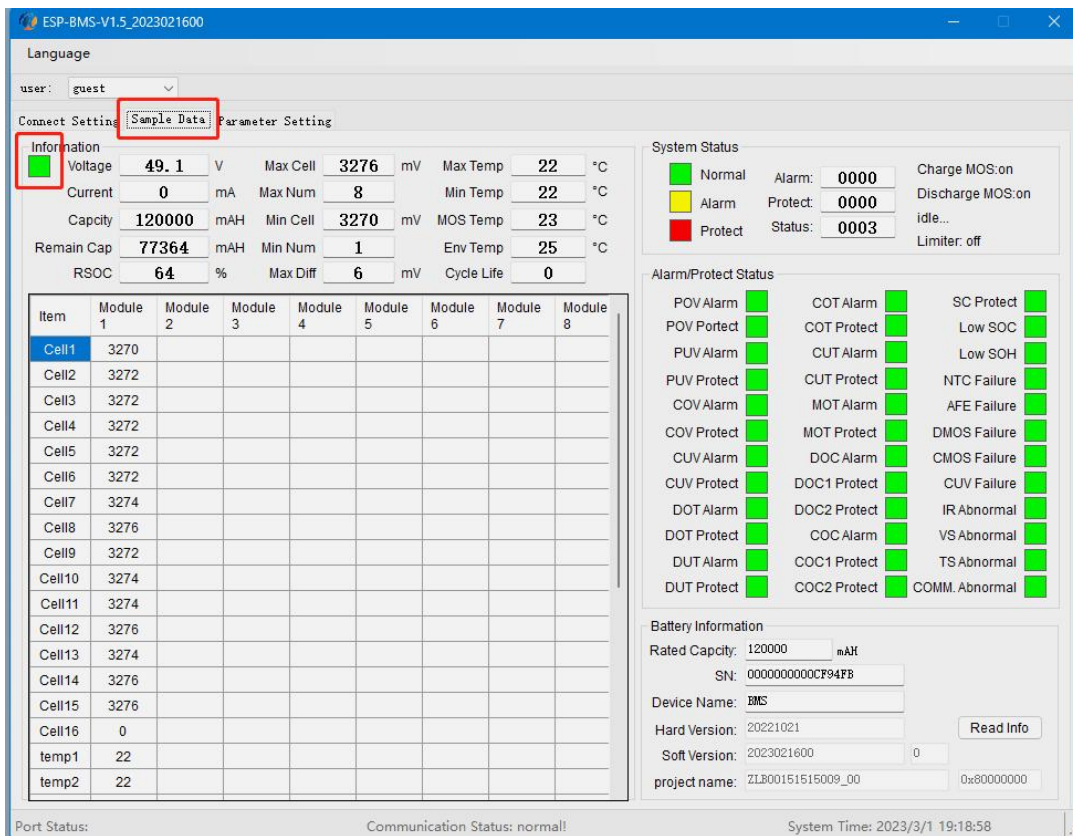
5.3; Open the Folder , Then right-click ESP-BMS-V1.5 to run as administrator.



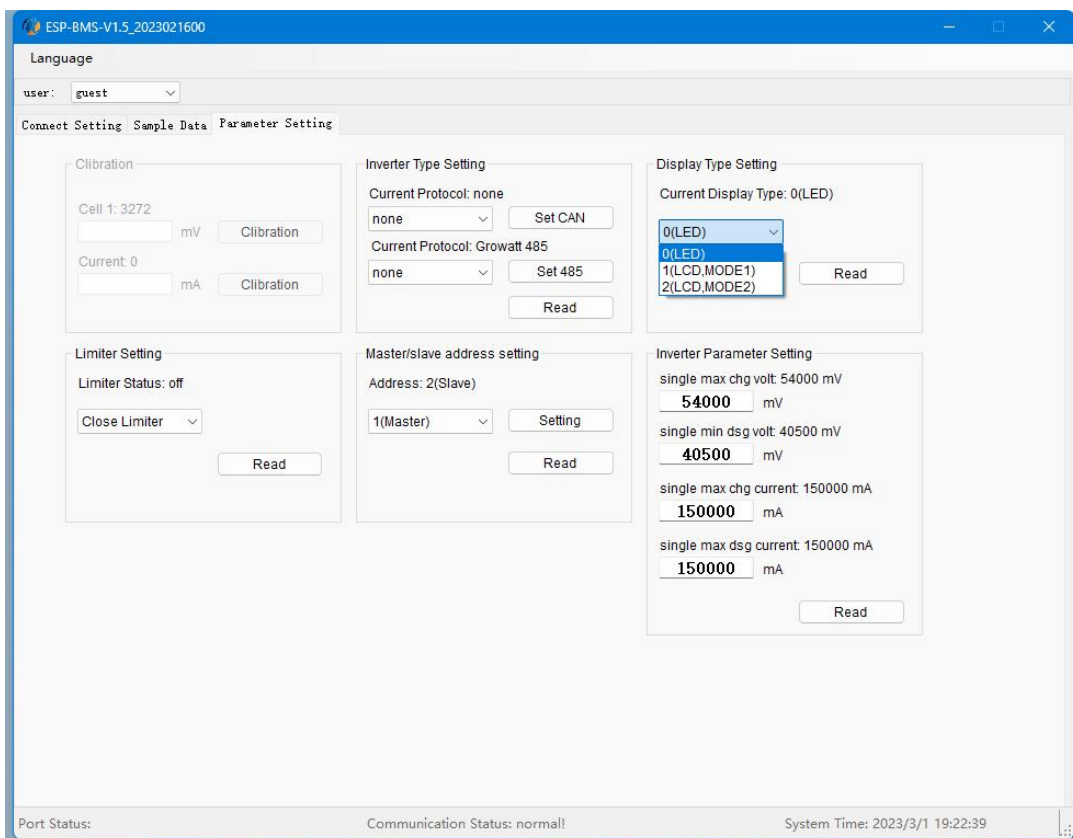
5.4 ;Click according to the below pictures in order to link the battery through the WIFI hotspot



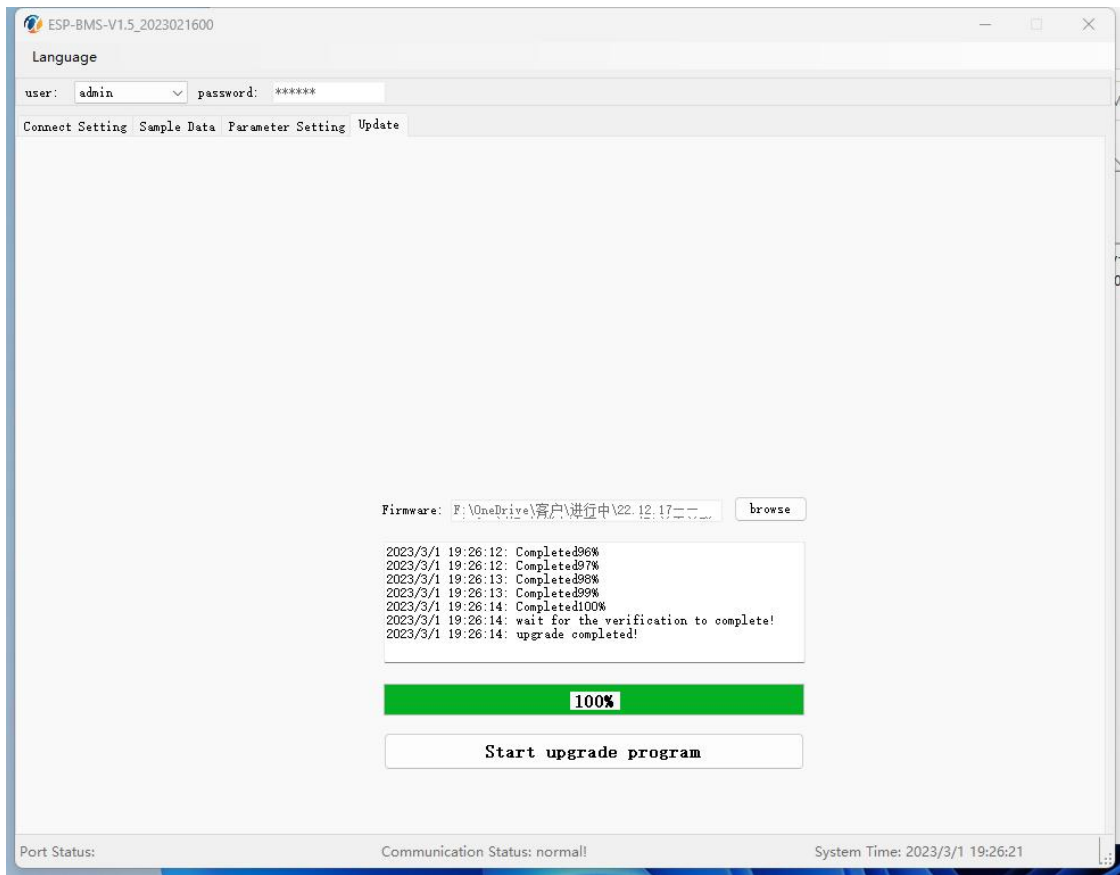
5.5 ;Click Sample Data to view the real-time data of the battery, the green flashing block under "information" indicates that the link is successful.



5.6 Click Parameter Setting to enter the inverter protocol type setting interface, where you can set the inverter type and parallel battery address. In the parallel line, the battery of the link inverter is set to Master.



5.7;Select User: Admin to enter administrator mode to upgrade the firmware of the battery, in which you can upgrade the newly supported inverter protocol.



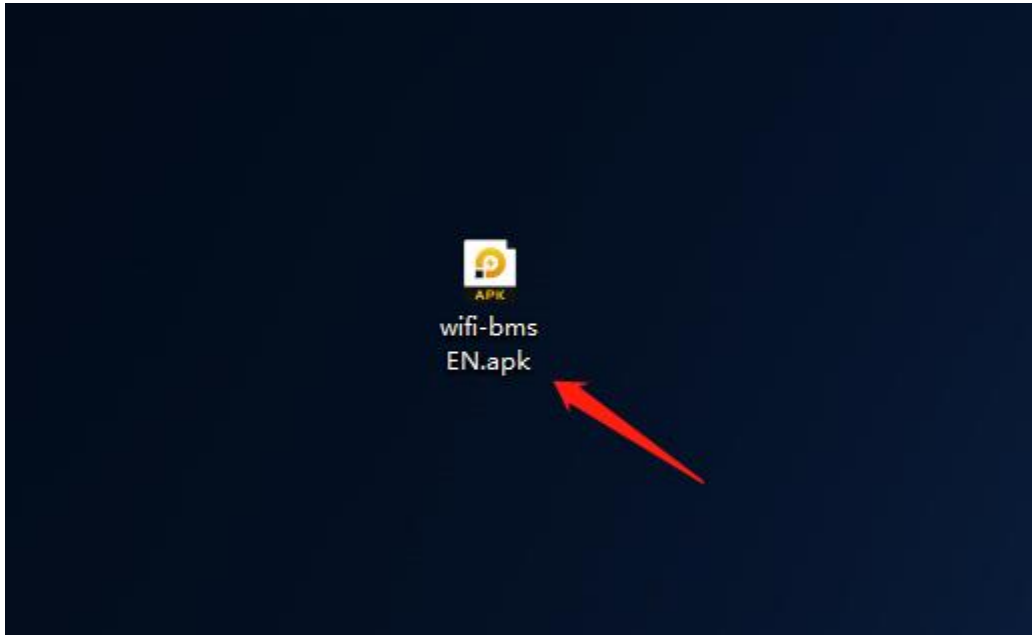
- **Suggested computer operating system:**

Windows 11 is recommended.

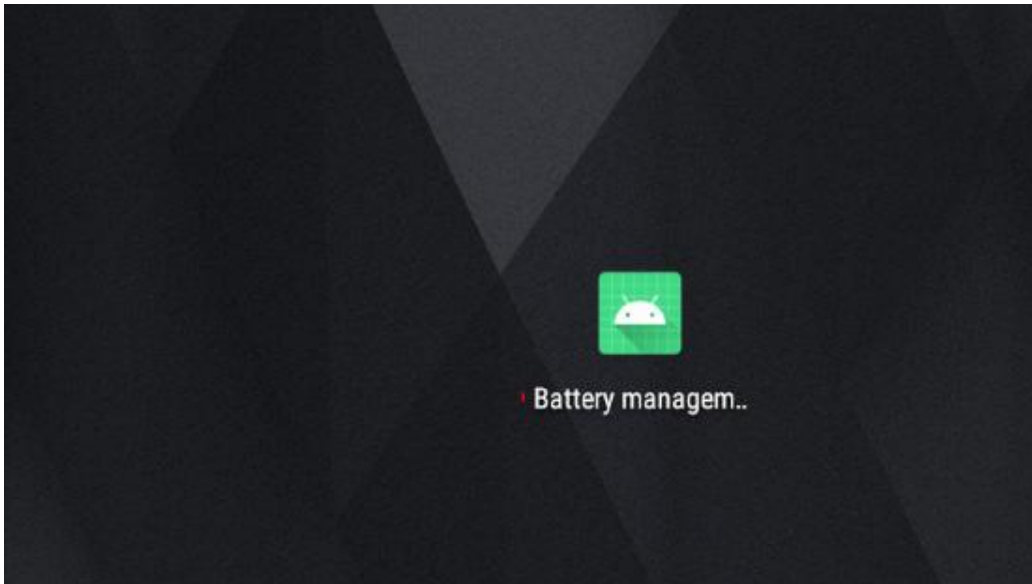
The Connected computer software depends on .NET Framework 4.8 architecture running, if you encounter a bit machine running open error, please update the system. NET Framework to 4.8 or later.

5.2. Android APP Bluetooth link

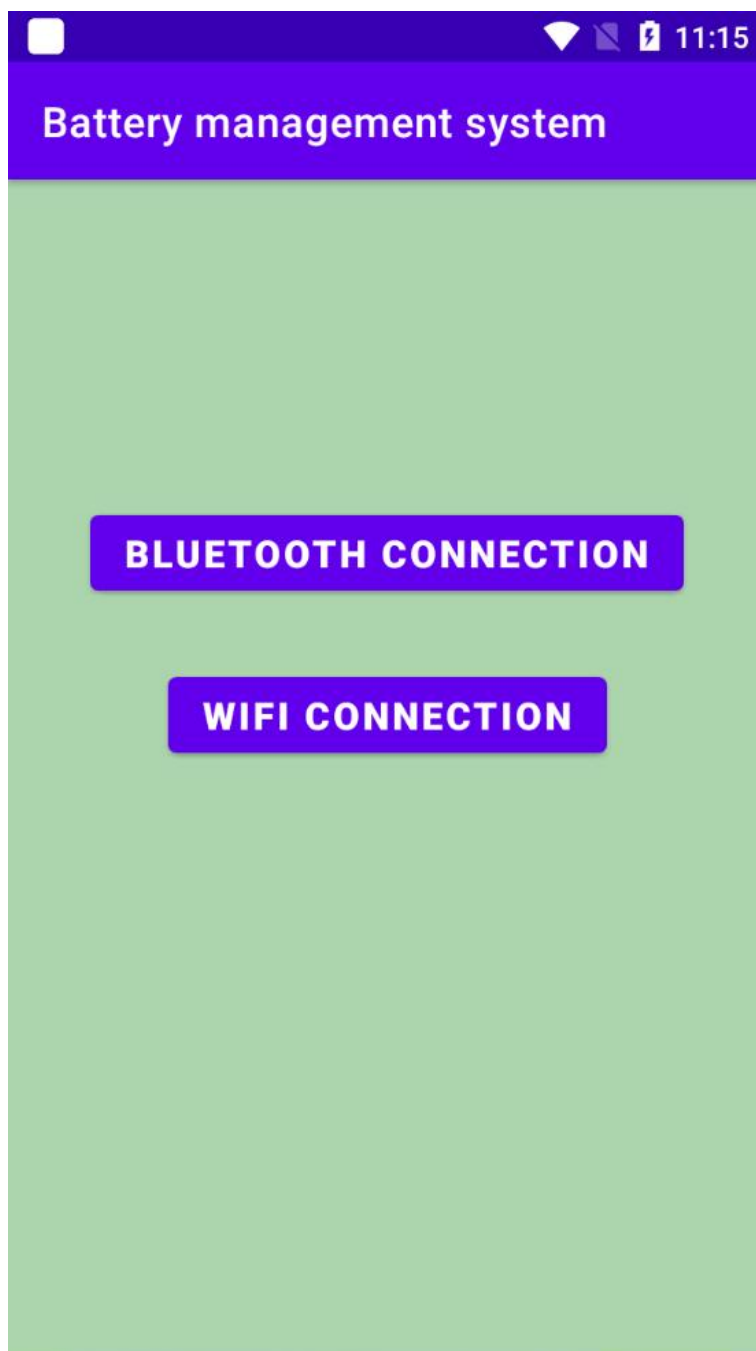
Install the Wi-Fi-BMS file on your Android phone.



After installation, open the Battery management system application on your Android phone.



Connect the battery via Bluetooth or Wi-Fi on your phone.



- **Key points :**

If you have suggestions and requirements, please contact your supplier. We are glad to receive your suggestion. We will continue to optimize and upgrade our products to the the best of our abilities. through collaboration with end users and installers we can always get one step closer to perfection.

6. Warning

It is especially important and necessary to read the user manual carefully before installing or using the battery.

Failure to follow any of the instructions or warnings in this document can result in electrical shock, severe injury, death, or may damage the battery and the entire system.

- (1) Do not short circuit positive and negative with wire or metal objects.
- (2) If the battery is stored for a prolonged time, it is requirement that they be charged every three to six months, and the SOC should be no less than 60%.
- (3) The battery needs to be recharged within 12 hours, after fully discharging.
- (4) Do not leave exposed cable and utilize the correct insulation.
- (5) All battery terminals must be disconnected before maintenance.
- (6) Do not use cleaning solvents to clean the battery.
- (7) Do not expose the battery to flammable or harsh chemicals or vapors.
- (8) Do not paint any part of the battery, including any internal or external components.
- (9) Do not connect battery to PV directly.
- (10) Any foreign object is prohibited to be inserted into any part of the battery.
- (11) Any warranty claims are excluded for direct or indirect damage due to items above.

6.1. Before Connecting

After unpacking, please check the battery and packing list first, if the battery is damaged or spare parts are missing, please contact the dealer.

Before installation, be sure to cut off the grid power and make sure the battery is in the turned- off mode; Wiring must be correct, do not mix polarity when connect the positive and negative cables, and ensure there is no short circuit.

with the external device.

It is prohibited to connect the battery with AC power directly.

The embedded BMS in the battery is designed for 48 VDC, please Do not connect battery in series.

It is prohibited to connect the battery with different types of battery.

Please ensure the electrical parameters of battery system are compatible to inverter.

Keep the battery away from fire or water.

6.2. During operation

If the battery system needs to be moved or repaired, the power must be cut off first and the battery needs to be completely shut down.

It is prohibited to connect the battery with different type of battery.

It is prohibited to put the batteries working with faulty or incompatible inverters.

In case of fire, only dry powder fire extinguisher can be used, liquid fire extinguishers are not safe to use on the batteries.

Please do not open, repair or disassemble the battery. We do not undertake any consequences or related responsibility due to violation of safety operation or violations of the design, production and equipment safety standards .

7. Product warranty

7.1. Factory Warranty Scope

The factory warranty does not cover damages caused by following reasons:

- (1) Breaking the product seal (the casing opened)
- (2) Transport damage
- (3) Incorrect installation or commissioning
- (4) Failure to observe the user manual, quick installation instructions
- (5) Incorrect usage or inappropriate operation
- (6) Insufficient ventilation of the device
- (7) Failure to observe the applicable safety regulations
- (8) Force majeure
- (9) Cosmetic defects which do not influence the product
- (10) lack of fuse protection between the battery and the inverter
- (11) Installation by unqualified persons

Please register your product via our website <https://www.evo-energy.co.za/product-registration> in the event of a warranty claim fill in the below warranty card, send a photo of the installation and copy of the installation COC to warranty@evo-energy.co.za for service and support feel free to email us at www.support@evo-energy.co.za.

Warranty Card

User Information

Company/Username:

Address:

Telephone:

Email:

Project installation

Battery Model:

Serial No:

Invoice Number:

Purchase Date:

Dealer:

Commission date:

Fault/Error Description: