



# SEPLUS Mason 314-L Instruction Manual

—Simple version



## 1. Guidance Purpose

The core purpose of this commissioning guide is to systematically, standardizedly, and safely guide technicians through the process of connecting a vertical 280Ah battery to a host computer and inverter, as well as explaining common faults. Its specific objectives cover the following aspects:

**Ensure absolute safety and prevent major risks:** The primary goal is to minimize serious safety accidents such as short circuits, arcing, overcharging and over-discharging caused by improper operation through rigorous inspection procedures (such as insulation testing, voltage polarity verification, and connection reliability confirmation) and safety regulations, thereby ensuring the safety of personnel and equipment.

**Standardize operating procedures to ensure debugging quality:** Provide customers with a set of clear, complete and followable operating procedures.

## 2. Precautions before use

- Do not use the battery if it is significantly impacted or deformed.
- Do not install batteries in multiple layers.
- Pay attention to the polarity of the power supply and input terminals.
- Ensure good equipment insulation and use tools and instruments correctly.
- The battery installation site should be away from fire sources and flammable objects, and the installation site should be kept ventilated and dry.
- It is strictly forbidden to plug or unplug the plug-in while the product is running.
- It is strictly forbidden for non-professional technical personnel of our company to open various functional modules, and the consequences will be at their own risk.
- Before using a new battery or using the battery for a long time, please fully charge the battery with a dedicated charger.
- Do not modify or insert any foreign objects into the battery.
- Do not immerse or expose the product to water, fresh water, or other liquids. Keep away from fire, explosive substances, or other hazards
- Do not short-circuit the battery and do not allow metal or other conductors to come into contact with the battery contact terminals.
- Do not disassemble the battery under any circumstances. This may cause an internal short

circuit, or even lead to fire or other problems.

- Do not burn the battery or dispose of it in fire under any circumstances. Otherwise, the battery may burn.

### 3.Host computer/connect to Bluetooth APP

#### 3.1.Connect to BMSstudio

(1) Prepare SEPLoS RS485 adapter, network cable, laptop, and computer as shown below

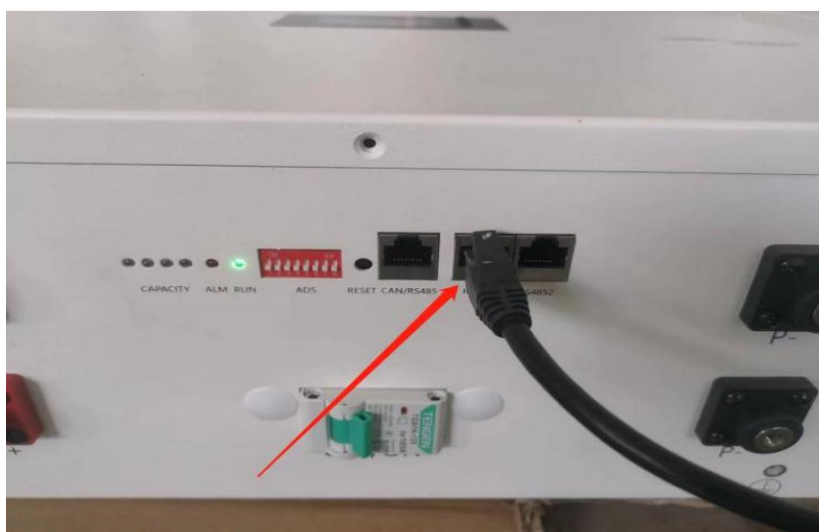


(SEPLoS RS485 adapter)

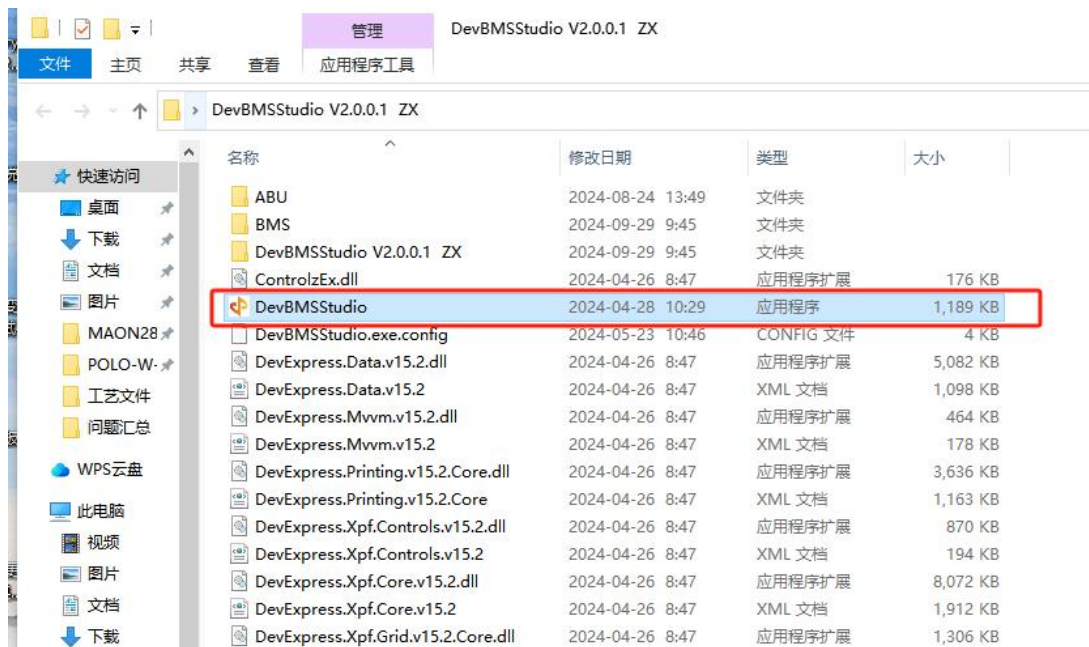
(network cable)

(laptop)

(2) Use an Ethernet cable to connect to the adapter and the 485-1 port of the BMS/battery, and the other end to the USB port of the computer. (As shown below)

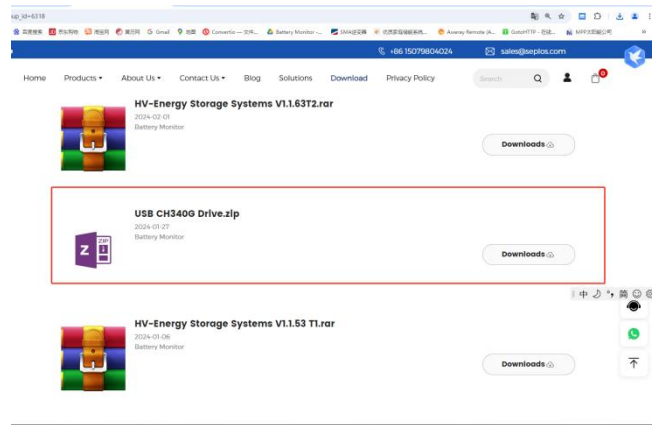


(3) Open the Devbmsstudio compressed package, unzip it to the desktop, open BMSstudio, and select BMS as the protected version type.



(4) Install the adapter driver.

Find the driver for CH341SG on the SEPLoS official website ([https://www.seplos.com/download.html?group\\_id=6318](https://www.seplos.com/download.html?group_id=6318))



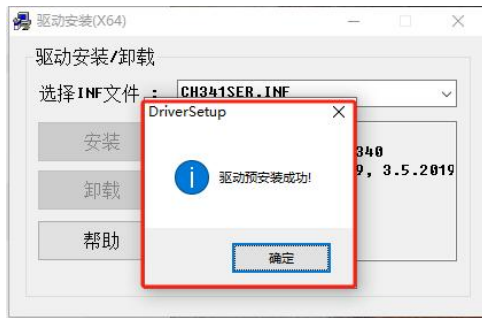
名称	修改日期	类型	大小
CH340G Drive	2016-04-14 14:27	文件夹	
sscom serial port assistant	2016-04-14 14:35	文件夹	
The lite system may be missing files	2016-04-14 14:27	文件夹	



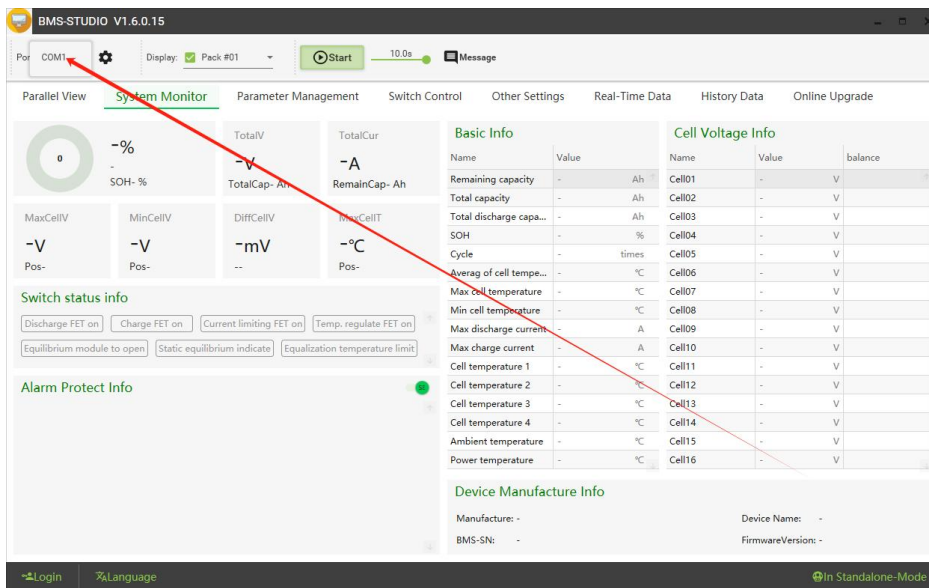
Click to install driver



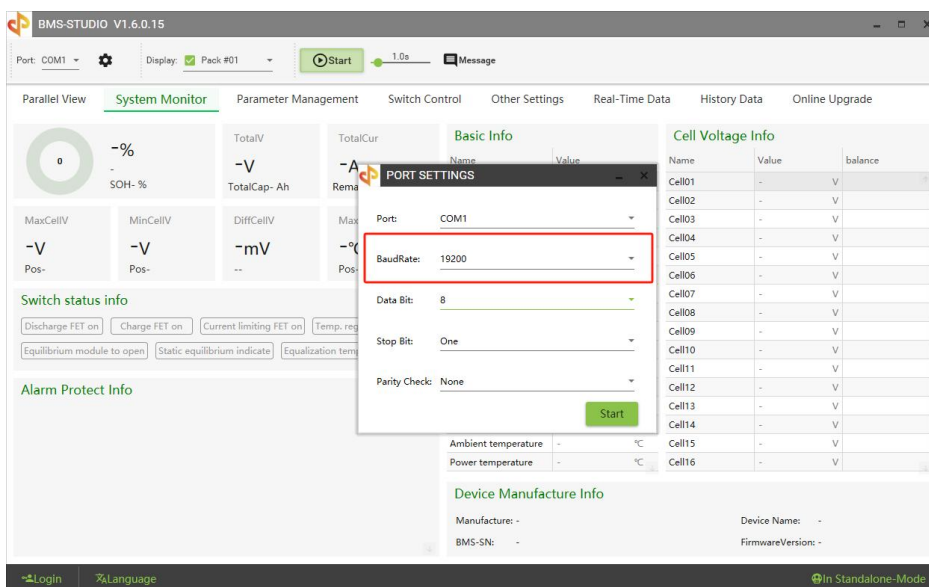
Driver installation successful



After the driver is installed, open the BMSstudio software and you will see the port.

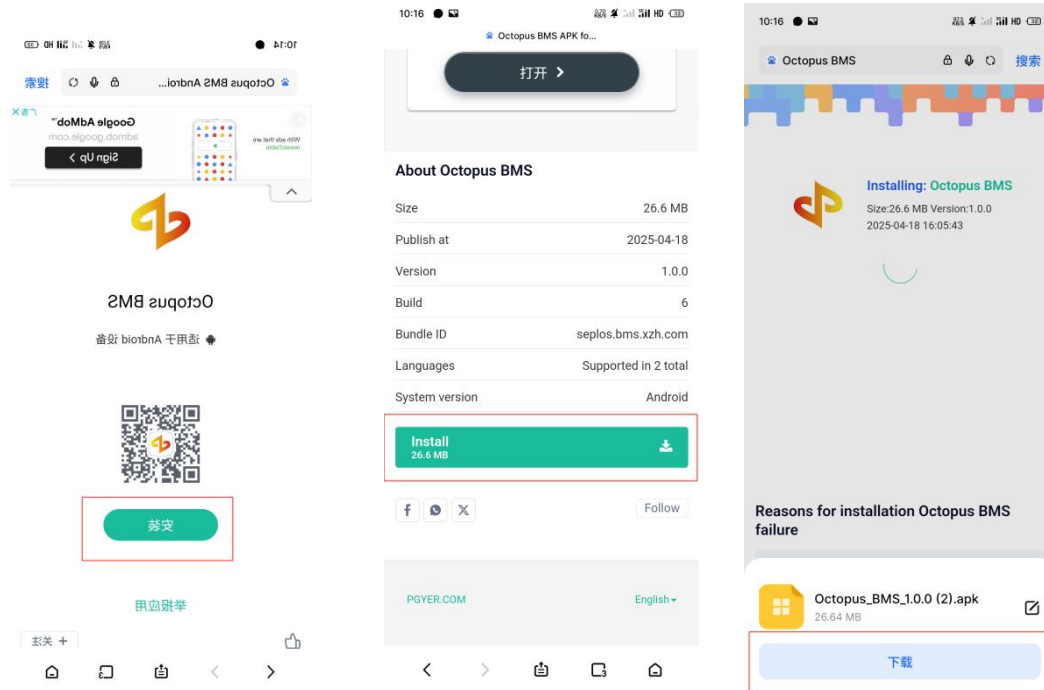


(5) After opening BMSstudio, select the correct port, set the baud rate to 19200, and click Start; the host computer connection part is completed.

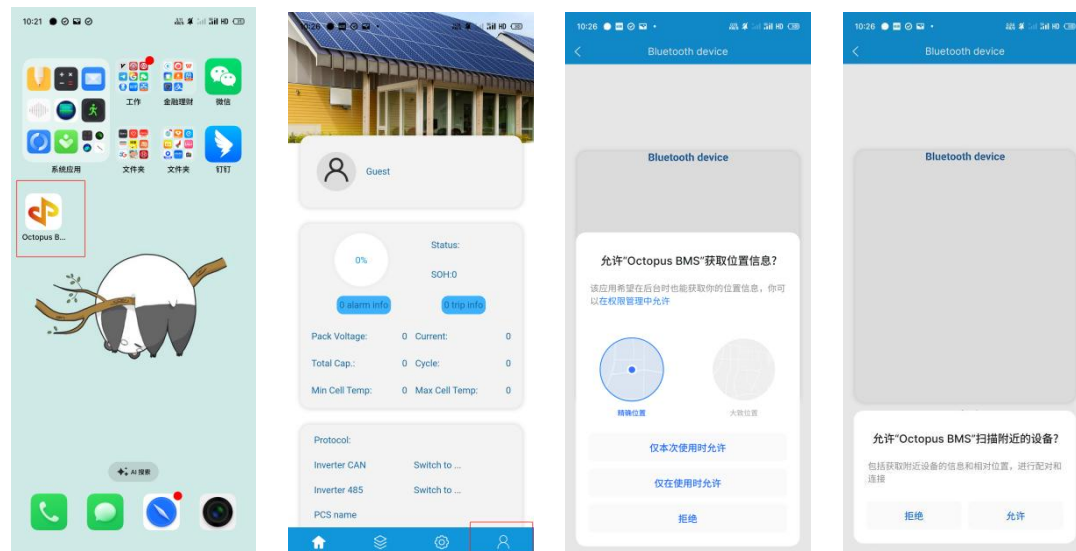


## 3.2.Connect to Bluetooth APP

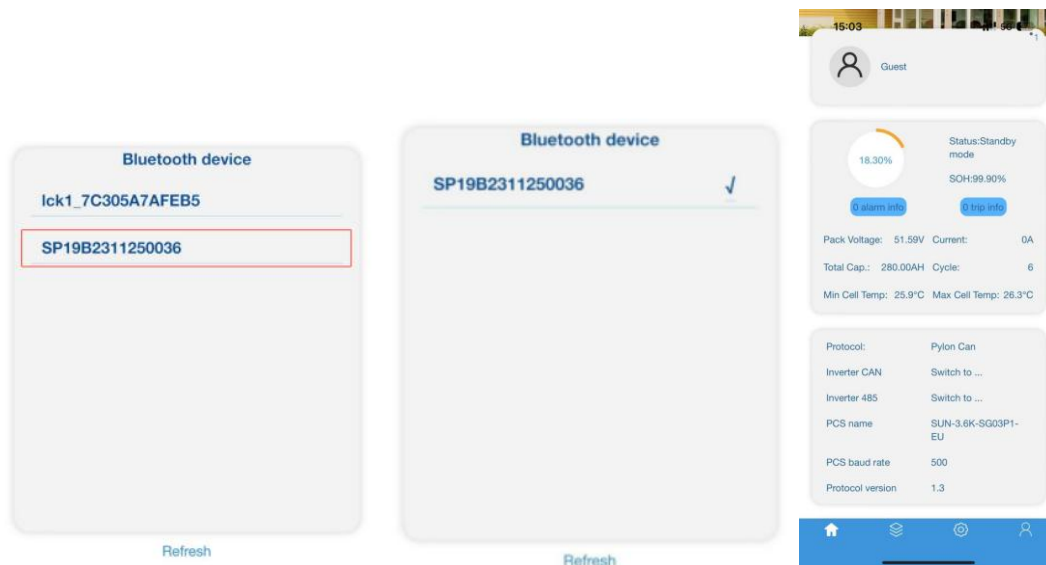
(1) Open this link <https://www.pgyer.com/be91fs> in a browser (for iOS devices, search for Octopus BMS in the App Store), click Install, and download the App.



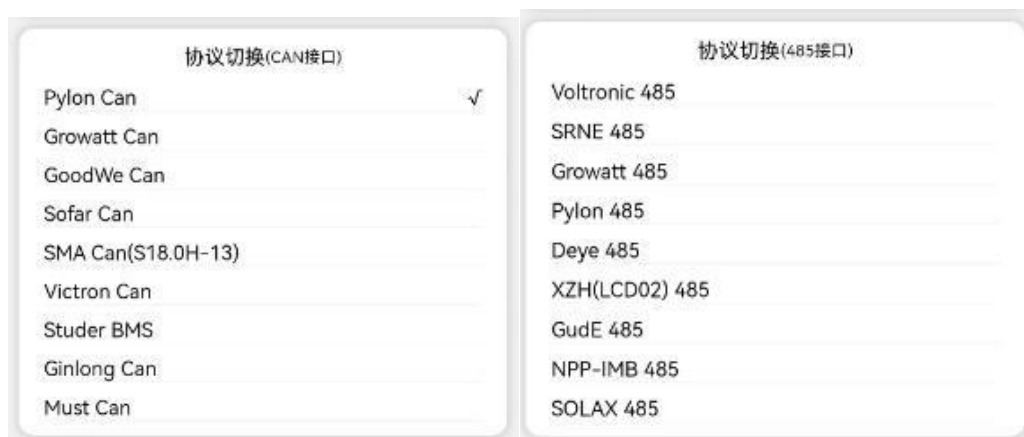
(2) After installation, return to the desktop and open Octopus BMS; and turn on Bluetooth and location functions (otherwise the Bluetooth APP will not be able to recognize the battery serial number)



(3) Select the serial number of the BMS you want to view (the serial number of the BMS is consistent with the SN code of the host computer) and click the serial number until the connection is successful. Then you can return to the main page of the Bluetooth APP to view the detailed information of the BMS.



Switch the inverter communication protocol through the main interface (the protocol can be switched for both single and parallel operation)



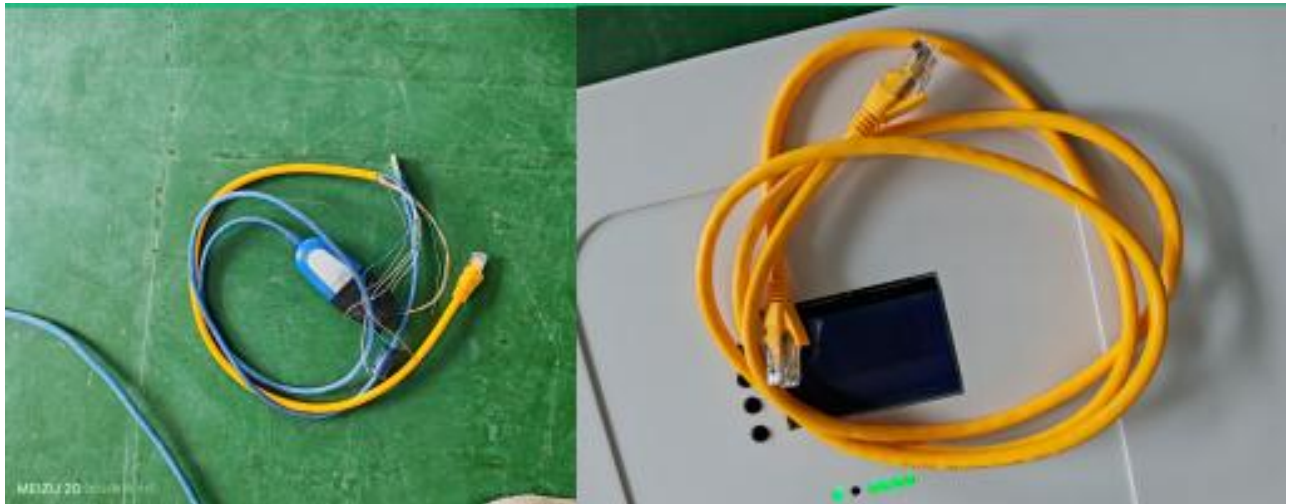
(4) BMS parameters can be changed in standalone mode (the password only needs to be entered for the first time, password 000000/88888888), and the modified parameters can be saved directly. Parameter changes are not allowed in parallel mode (parameter changes require communication with technical personnel before operation, and non-professionals may make mistakes when changing parameters)



## 4. Batteries in parallel

### 4.1 Battery internal communication parallel connection

Prepare items (network cable, power cable)



Use a network cable to connect the 485-2 interface of the first battery, and the other end to the 485-1 interface of the second battery. Connect the 485-2 interface of the second battery to the 485-1 interface of the third battery, and so on until the 16th battery is connected.

Use the power line to connect the positive pole of the battery's output interface to the positive pole of another battery, and the negative pole to the negative pole of another battery. The power line connection of the parallel batteries is completed.

(As shown below)



BMS-STUDIO V1.6.0.16

Port: COM1 [Start] [Message]

Parallel View System Monitor Real-Time Data

Pack #01

SOH: -%

TotalV - TotalCur -  
TotalCap - RemainCap -  
MaxCellV - MinCellV -  
MaxCellI - MinCellI -

Pack #02

SOH: -%

TotalV - TotalCur -  
TotalCap - RemainCap -  
MaxCellV - MinCellV -  
MaxCellI - MinCellI -

Pack #03

SOH: -%

TotalV - TotalCur -  
TotalCap - RemainCap -  
MaxCellV - MinCellV -  
MaxCellI - MinCellI -

Pack #04

SOH: -%

TotalV - TotalCur -  
TotalCap - RemainCap -  
MaxCellV - MinCellV -  
MaxCellI - MinCellI -

Pack #05

SOH: -%

TotalV - TotalCur -  
TotalCap - RemainCap -  
MaxCellV - MinCellV -  
MaxCellI - MinCellI -

Pack #06

SOH: -%

TotalV - TotalCur -  
TotalCap - RemainCap -  
MaxCellV - MinCellV -  
MaxCellI - MinCellI -

Pack #07

SOH: -%

TotalV - TotalCur -  
TotalCap - RemainCap -  
MaxCellV - MinCellV -  
MaxCellI - MinCellI -

Pack #08

SOH: -%

TotalV - TotalCur -  
TotalCap - RemainCap -  
MaxCellV - MinCellV -  
MaxCellI - MinCellI -

Pack #09

SOH: -%

TotalV - TotalCur -  
TotalCap - RemainCap -  
MaxCellV - MinCellV -  
MaxCellI - MinCellI -

Pack #10

SOH: -%

TotalV - TotalCur -  
TotalCap - RemainCap -  
MaxCellV - MinCellV -  
MaxCellI - MinCellI -

Pack #11

SOH: -%

TotalV - TotalCur -  
TotalCap - RemainCap -  
MaxCellV - MinCellV -  
MaxCellI - MinCellI -

Pack #12

SOH: -%

TotalV - TotalCur -  
TotalCap - RemainCap -  
MaxCellV - MinCellV -  
MaxCellI - MinCellI -

Pack #13

SOH: -%

TotalV - TotalCur -  
TotalCap - RemainCap -  
MaxCellV - MinCellV -  
MaxCellI - MinCellI -

Pack #14

SOH: -%

TotalV - TotalCur -  
TotalCap - RemainCap -  
MaxCellV - MinCellV -  
MaxCellI - MinCellI -

Pack #15

SOH: -%

TotalV - TotalCur -  
TotalCap - RemainCap -  
MaxCellV - MinCellV -  
MaxCellI - MinCellI -

Pack #16

SOH: -%

TotalV - TotalCur -  
TotalCap - RemainCap -  
MaxCellV - MinCellV -  
MaxCellI - MinCellI -

~Login %Language In Parallel-Mode

BMS-STUDIO V1.6.0.11

端口: COM3 [停止] [报文]

并机概览 系统监控 实时数据

Pack #01

98.5% 充电

健康度 100.0 %

总电压 54.70 V 充放电电流 49.24 A  
总容量 100.00 Ah 剩余容量 98.50 Ah  
单体最高 3.424 mV 单体最低 3.411 mV  
温度最高 36.5 °C 温度最低 36.1 °C

Pack #02

98.5% 充电

健康度 100.0 %

总电压 54.68 V 充放电电流 49.48 A  
总容量 100.00 Ah 剩余容量 98.50 Ah  
单体最高 3.423 mV 单体最低 3.412 mV  
温度最高 37.3 °C 温度最低 37.2 °C

Pack #03

98.5% 充电

健康度 100.0 %

总电压 54.61 V 充放电电流 49.53 A  
总容量 100.00 Ah 剩余容量 98.50 Ah  
单体最高 3.422 mV 单体最低 3.410 mV  
温度最高 36.9 °C 温度最低 36.5 °C

Pack #04

98.5% 充电

健康度 100.0 %

总电压 54.66 V 充放电电流 49.63 A  
总容量 100.00 Ah 剩余容量 98.50 Ah  
单体最高 3.421 mV 单体最低 3.411 mV  
温度最高 35.9 °C 温度最低 35.7 °C

Pack #05

98.5% 充电

健康度 100.0 %

总电压 54.76 V 充放电电流 49.30 A  
总容量 100.00 Ah 剩余容量 98.50 Ah  
单体最高 3.432 mV 单体最低 3.415 mV  
温度最高 36.9 °C 温度最低 35.8 °C

Pack #06 双击查看详情信息

98.5% 充电

健康度 100.0 %

总电压 54.75 V 充放电电流 49.33 A  
总容量 100.00 Ah 剩余容量 98.50 Ah  
单体最高 3.427 mV 单体最低 3.417 mV  
温度最高 37.4 °C 温度最低 37.4 °C

Pack #07

98.5% 充电

健康度 100.0 %

总电压 54.72 V 充放电电流 49.40 A  
总容量 100.00 Ah 剩余容量 98.50 Ah  
单体最高 3.425 mV 单体最低 3.415 mV  
温度最高 37.8 °C 温度最低 37.2 °C

Pack #08

98.5% 充电

健康度 100.0 %

总电压 54.62 V 充放电电流 49.54 A  
总容量 100.00 Ah 剩余容量 98.50 Ah  
单体最高 3.421 mV 单体最低 3.410 mV  
温度最高 36.7 °C 温度最低 36.7 °C

Pack #09

98.5% 充电

健康度 100.0 %

Pack #10

98.5% 充电

健康度 100.0 %

Pack #11

98.5% 充电

健康度 100.0 %

Pack #12

98.5% 充电

健康度 100.0 %

~登陆 %语言 并机模式中

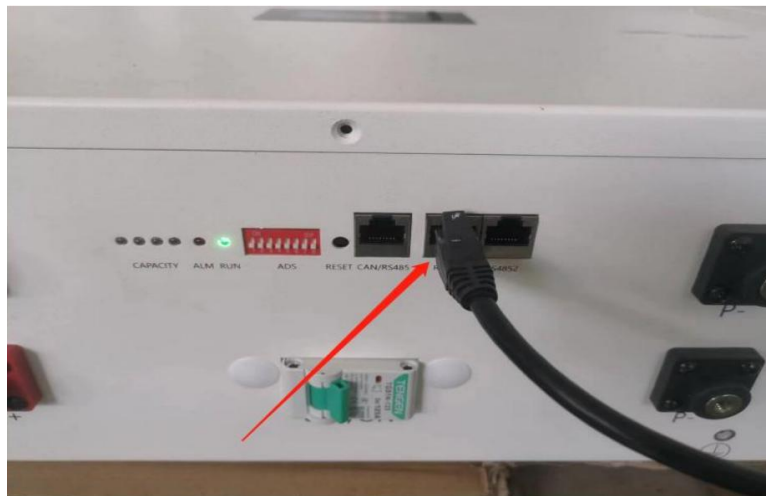
## 5.BMS/Battery update firmware.

Requirements for upgrading BMS/battery

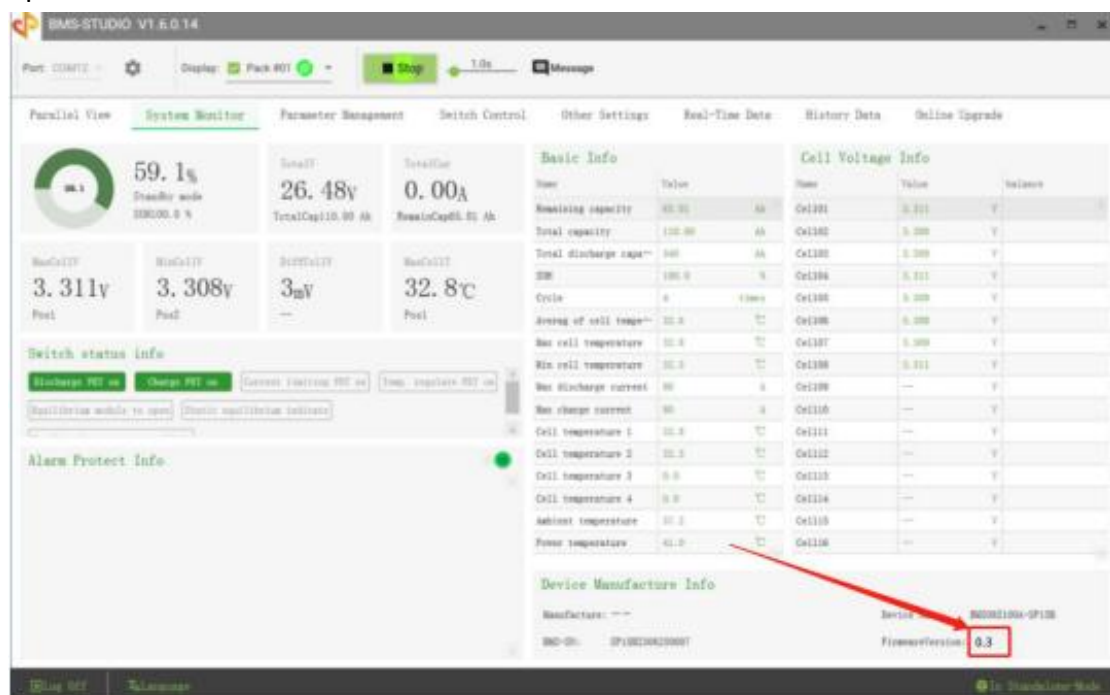
- Computer/laptop supports Windos7-Win10 system
- Dedicated RS485 converter
- Need to connect to RS485-1 port

**Note:The firmware needs to be upgraded. During the upgrade process, pay attention to the power-on status of the BMS. Do not shut down, pause, or cancel the update.**

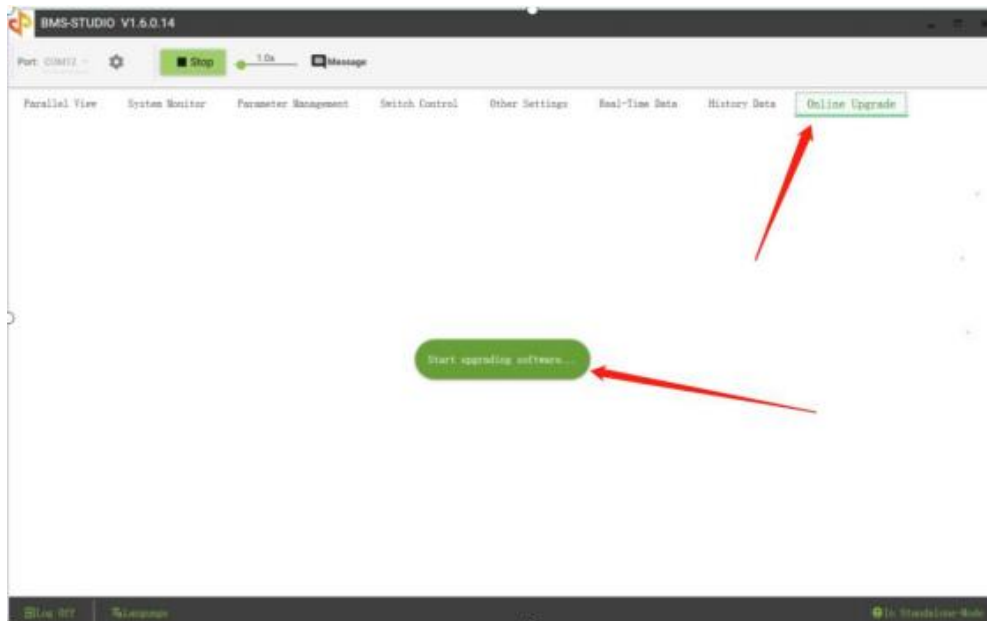
Use an RS485 adapter to connect to the RS485-1 network port



Connect to the host computer and check whether the firmware version needs to be updated

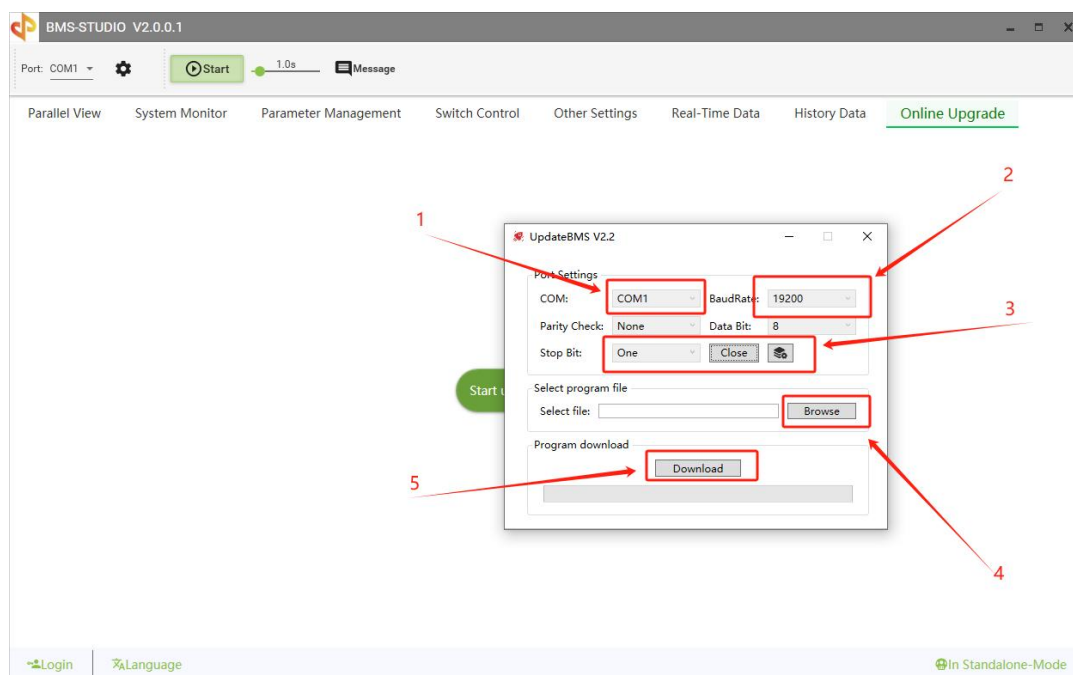


Open the firmware upgrade page and select Firmware Upgrade

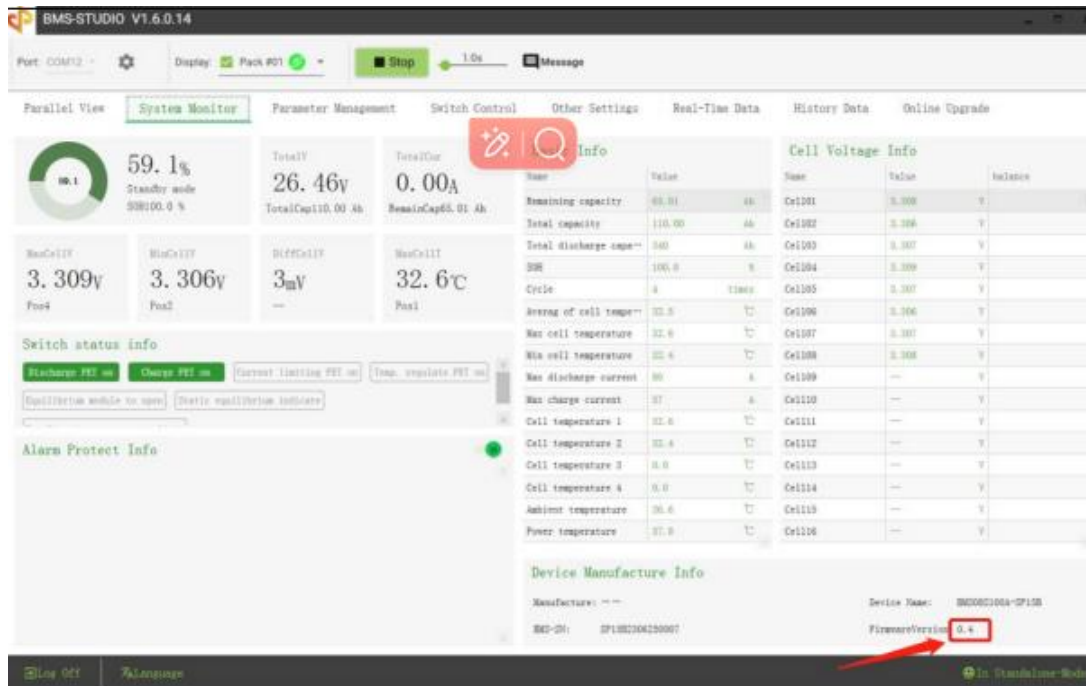


Open the upgrade window:

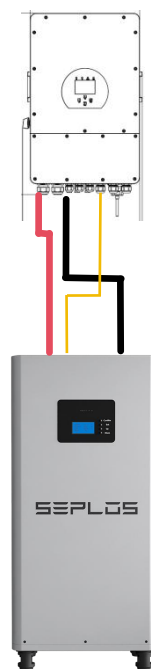
- Step 1: select the correct COM port
- Step 2: confirm the baud rate is 19200
- Step 3: open the serial port channel
- Step 4: Select the upgrade file
- Step 5: Confirm the upgrade



Check whether the firmware version upgrade is complete. After the upgrade is complete, the firmware version will be displayed in the version number of the upgrade program.

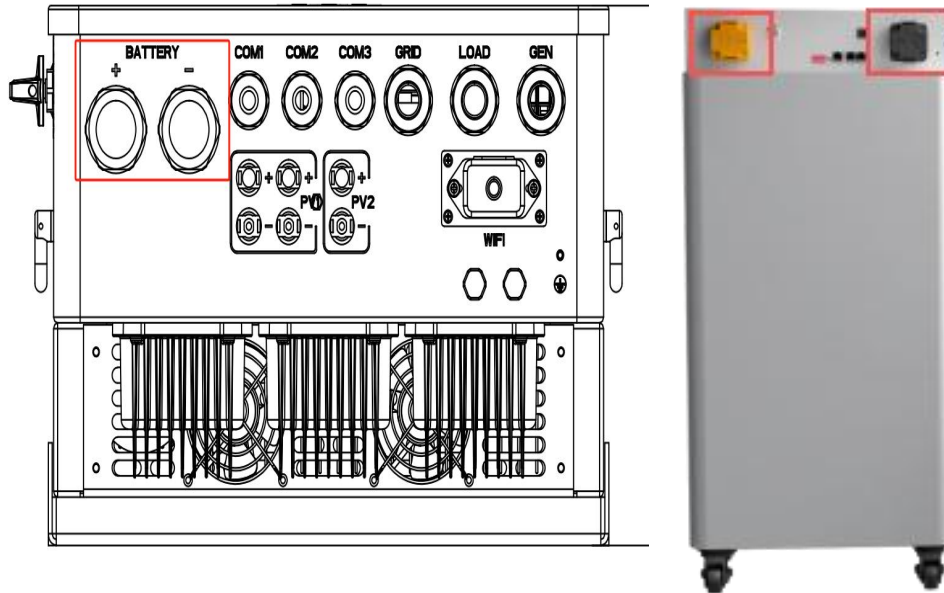


## 6. Battery connected to inverter - Deye inverter



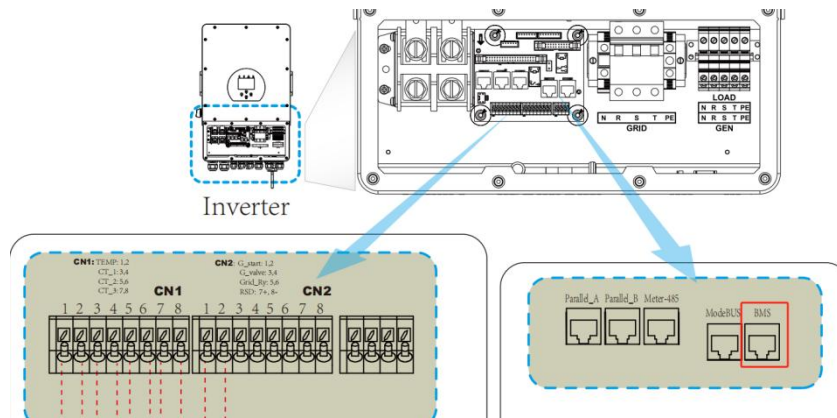
## 6.1 Power line connection between battery and inverter

Find a pair of power cables and connect them to the P+P- of the battery and the BAT+BAT- interface of the inverter.



## 6.2 Communication line connection between battery and inverter

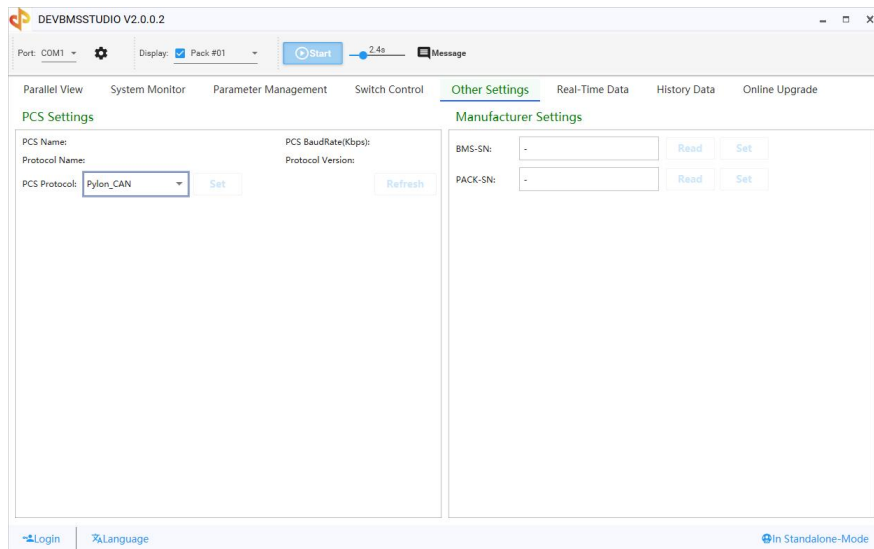
Find an Ethernet cable and connect it to the BMS interface of the inverter and the CAN/485 interface of the battery



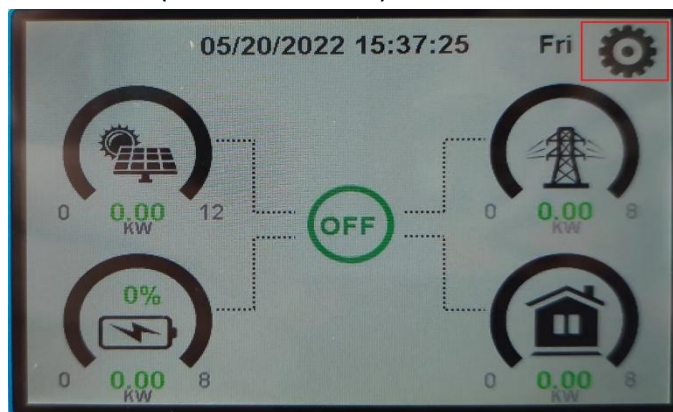


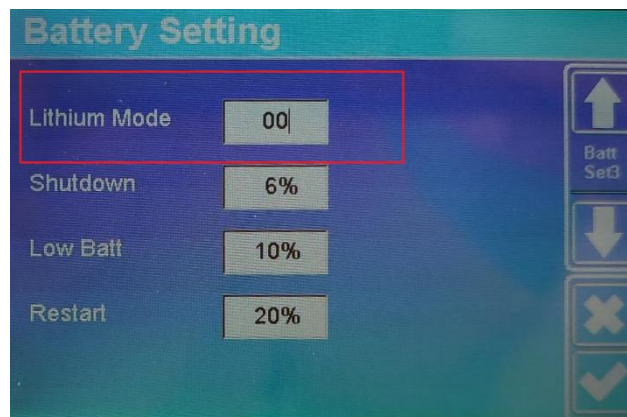
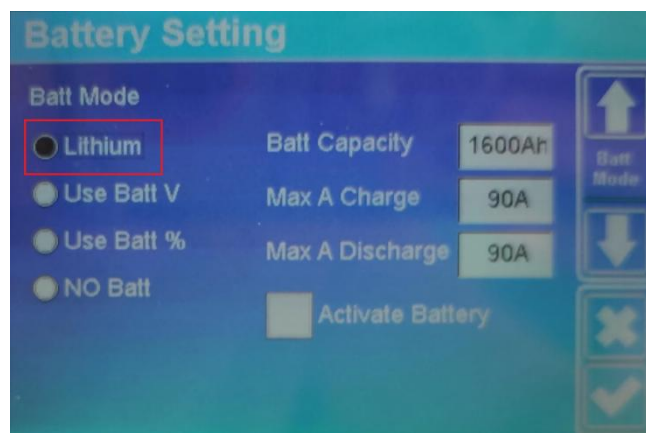
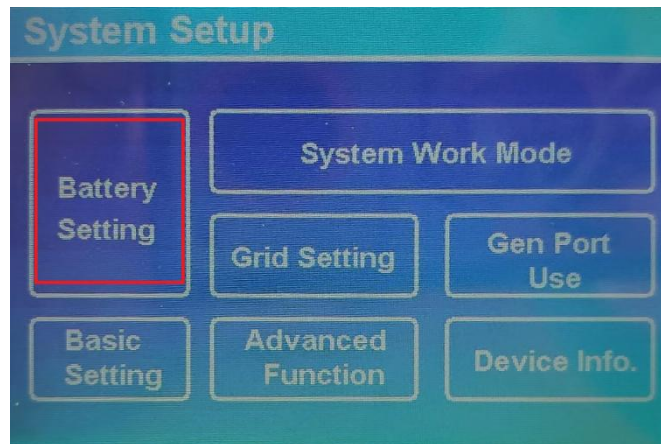
### 6.3 Battery and inverter settings and protocol selection.

(1) The battery protocol selects Pylon CAN protocol



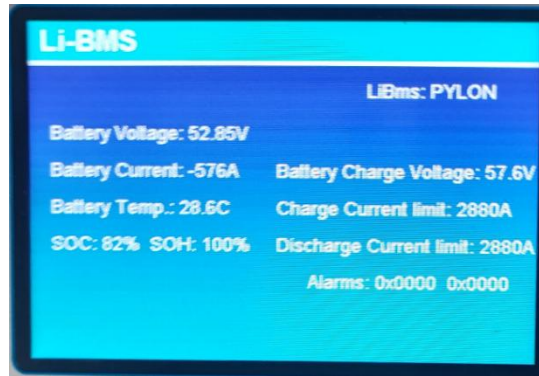
(2) The inverter needs to select lithium battery mode and the protocol number needs to be switched to 00. (As shown below)





#### 6.4 How to confirm whether the inverter is communicating with the battery

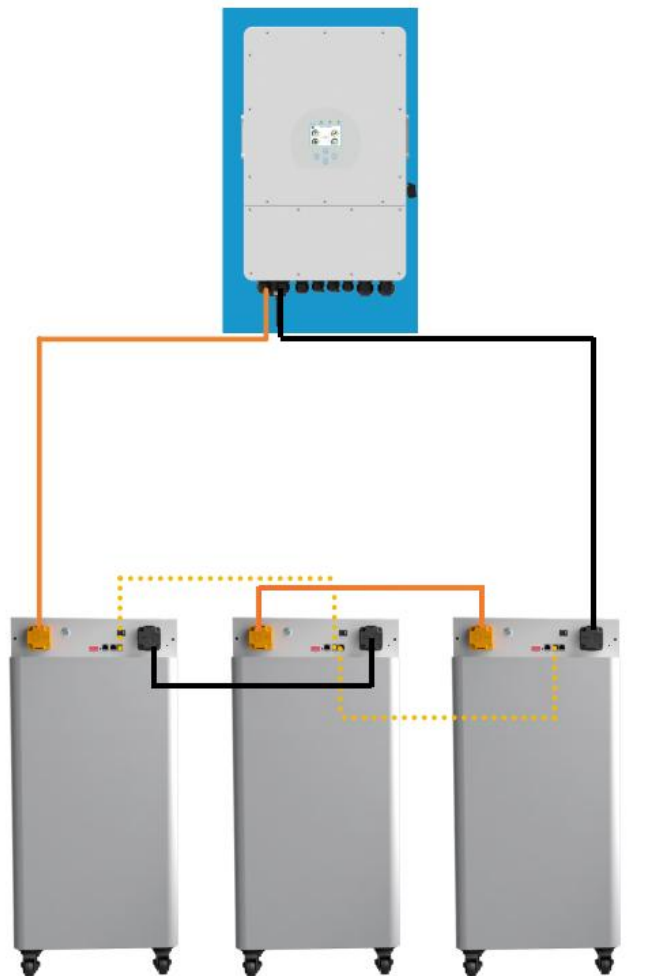
Return to the main page and click the battery icon. If you can see that the battery SOC is consistent with that displayed on the inverter, it means that the battery and inverter are communicating well.



## 6.5 Multiple battery parallel inverters

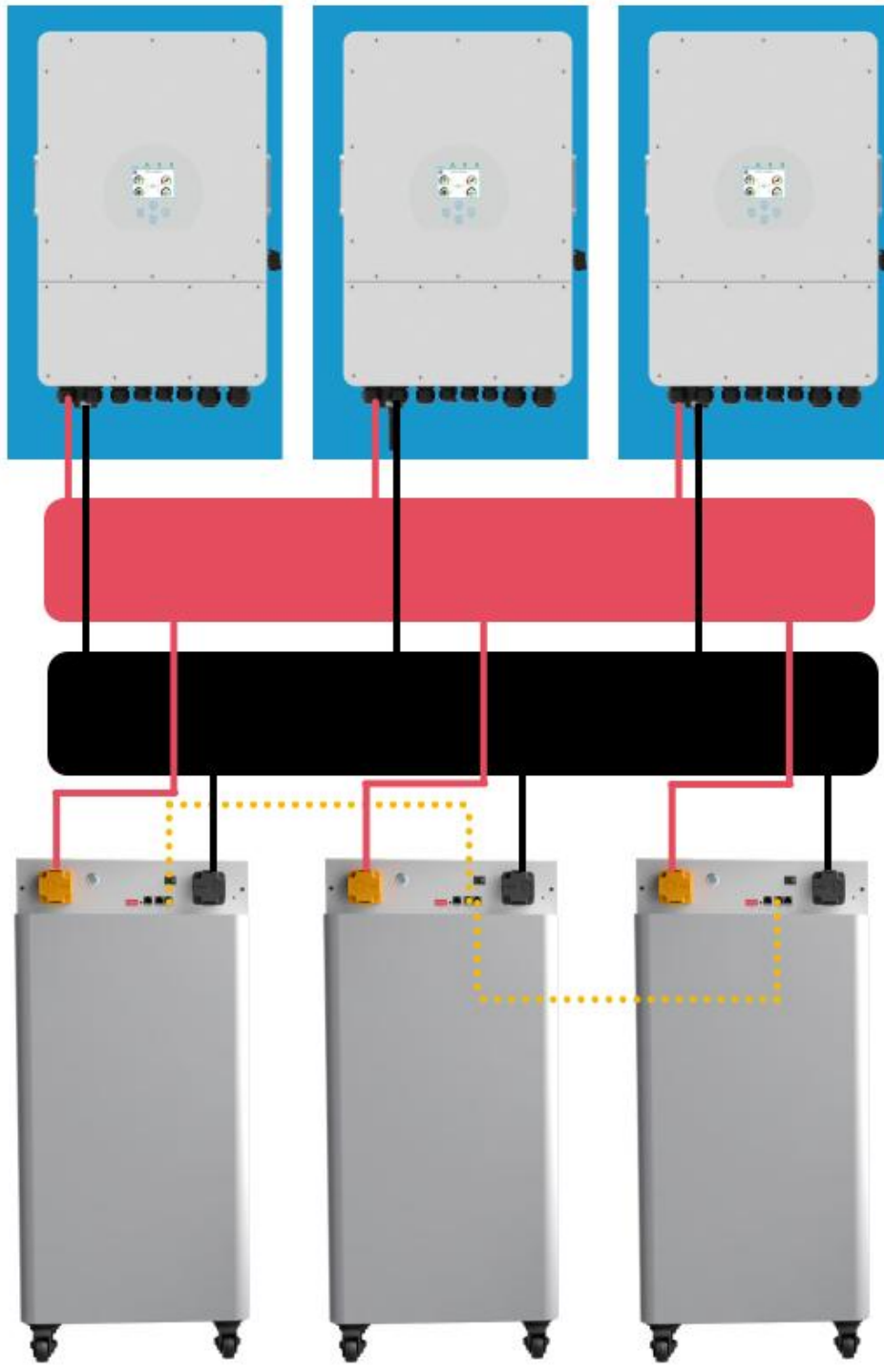
(1) Multiple batteries connected to one inverter

Just connect the battery's parallel network line and parallel power line according to the figure below.



(2) Multiple batteries connected to multiple inverters — — Positive and negative busbars are required.

Just connect the battery's parallel network cable and parallel power cable according to the diagram below.



## **7.A quick guide to battery care and storage**

### **7.1 Daily maintenance points**

(1) Perform a basic monthly inspection: Check the battery case for deformation, bulging, or electrolyte leakage, check the wiring harness for looseness or oxidation, and check the heat dissipation holes for blockage. Use an insulated tool to inspect the connectors; if oxidation is present, wipe with anhydrous alcohol.

(2) Monitor core data weekly on the LCD screen: Cell voltages must be balanced, with the difference between the highest and lowest voltages  $\leq 50\text{mV}$ . If this limit is exceeded, initiate active balancing (press the balancing panel button until the light stays on) until the voltage difference is  $\leq 30\text{mV}$ . The temperature must be within the normal range (charging -  $10\sim 55^{\circ}\text{C}$ , discharging -  $15\sim 60^{\circ}\text{C}$ ), with no high or low temperature alarms. It is recommended that the SOC be maintained between 20% and 80%. If it falls below 20%, charge immediately to avoid triggering undervoltage protection.

(3) Ensure the balancing function is effective every three months. Passive balancing requires a cell voltage  $\geq 3.4\text{V}$  and an ambient temperature of  $0\sim 50^{\circ}\text{C}$ . It will automatically shut down after 10 hours. Active balancing can charge four low-voltage cells simultaneously and must be operated in standby mode. Check the firmware version every six months using BMSstudio to confirm that core parameters (such as 16 cells in series and a rated capacity of 280Ah) have not been modified. Parameter adjustments require technical authorization.

### **7.2 Long-term storage specifications**

(1) Before storage, charge the battery to 50%-60% SOC, disconnect all power and communication cables, and turn off the external switch to put the battery into sleep mode (all LEDs off).

(2) The storage environment must be ventilated and dry, with a temperature of  $5\sim 25^{\circ}\text{C}$  and a humidity of  $\leq 85\%$ . Keep away from fire, heat sources, and flammable and explosive materials. Stacking is prohibited and an insulating pad must be placed on the bottom.

(3) Check every 3 months: Power on and check the SOC. If it is below 30%, use a dedicated charger to charge it to 50%-60%. Confirm that there are no abnormal alarms such as undervoltage and low temperature, and the single cell voltage difference is  $\leq 50\text{mV}$ .

## 8. Note

(1)Core protection functions (overvoltage, overcurrent, temperature protection, etc.) must not be turned off. Parameter modifications require confirmation by technical personnel. Protection parameters are the bottom line for safety.

(2)Before resuming use, you need to measure the insulation resistance ( $\geq 100\text{M}\Omega$ ), calibrate the polarity (P+ to the positive pole), and perform one low-current charge and discharge cycle to calibrate the SOC.

(3)Non-professionals are strictly prohibited from disassembling batteries or plugging or unplugging wires while they are powered. Wear insulating gloves during maintenance to avoid metal-to-metal contact with terminals and short circuits. Maintenance records must be archived for easy fault tracing.