

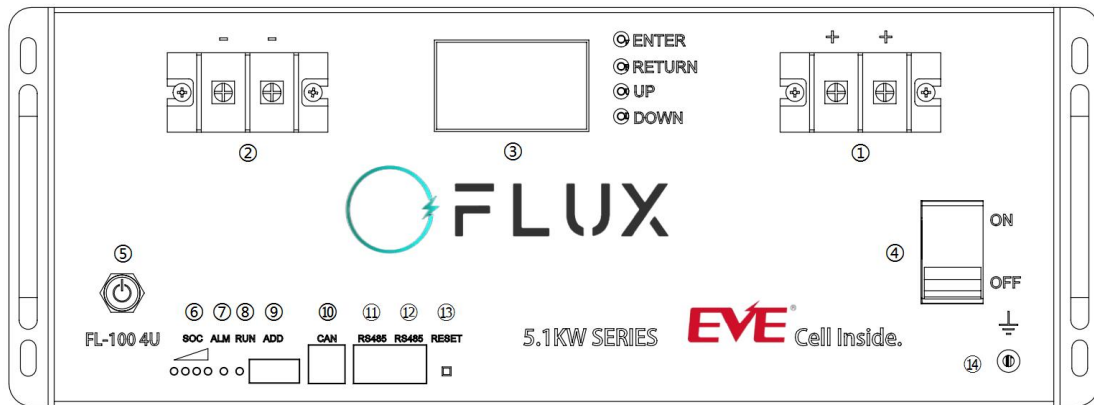
# **Standard energy storage battery pack Use and installation instructions**

V1.1

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## 1. Panel structure of battery pack



No.	Item	Functional Description	Remark
1	Battery +	Positive terminal	
2	Battery -	Negative terminal	
3	Display	Display battery information	
4	MCB	DC output protection for equipment	
5	POWER	Power Button	
6	CAPACITY	Capacity volume indicator	Display the battery's capacity
7	ALM	ALM alarm indicator light	Red-trouble-light on
8	RUN	Working indicator light	Display state information
9	ADS	Battery address dialer	Display connection address
10	CAN or RM485	CAN or RM485 communication interface	Communicate with the inverter, the default is CAN
11	RS485	RS485 communication interface	Parallel communication ports between battery packs
12	RS485	RS485 communication interface	
13	RST	On/OFF /Reset button	
14	Grounded	Ground hole	

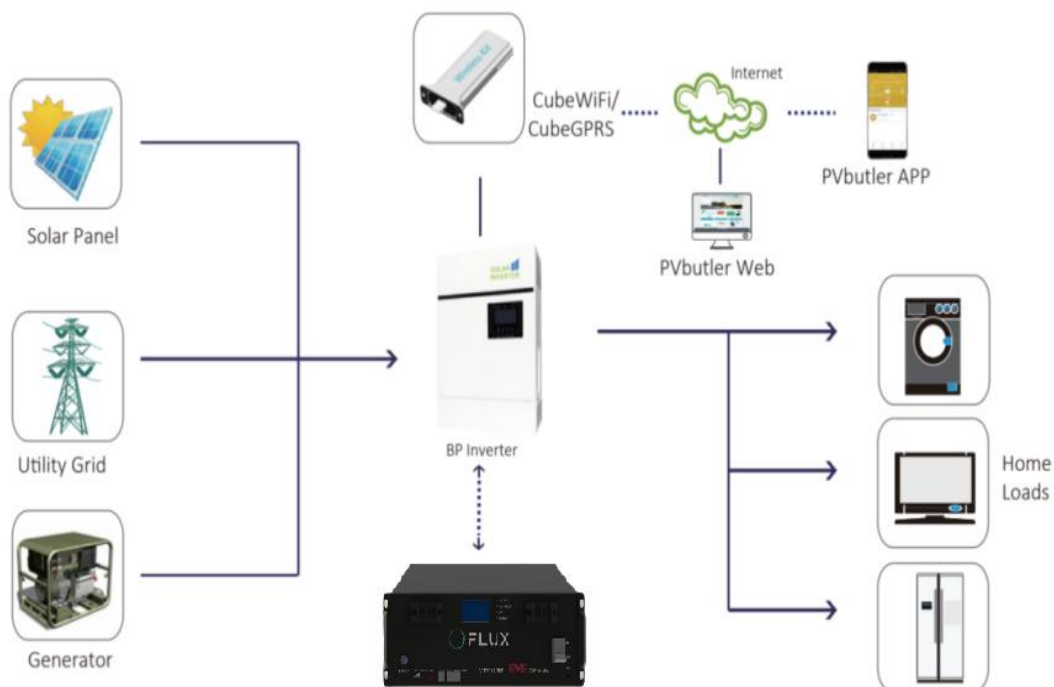
**Special reminder:** Since the conversion efficiency of each inverter is different, the actual maximum current that each group of batteries can continue to work on is subject to the specification. Do not exceed the maximum operating current, otherwise it will cause protection or damage to the BMS!

## 2. Operation Instruction for Installation

- Prior to installation, unpacking to check the quantity of the parts and battery appearance.
- Before wiring, it is necessary to check whether the indicator display is normal, as follows: Press the power button on the front panel to start.

During startup, 4 capacity indicator lights on the front panel, ALM alarm indicator light (red) and RUN running indicator lights up, then the ALM alarm indicator light goes out, the RUN running indicator light lights up and the capacity indicator light lights up according to the capacity. If the ALM alarm indicator light flashes after startup, it means that the battery has an alarm. The newly installed battery seldom has alarm. The common alarm is the battery undervoltage alarm (This is due to low power). Such case may be removed after the battery is charged for 30min; if the alarm may not be removed, please press the reset key RST for 10S, until all LEDs light up for reset, execute the battery reset operation and confirm whether the alarm is removed. If the alarm is removed, the battery may be used normally. Otherwise the battery shall be reworked.

- Before the battery is connected with the externally connected equipment. Press the power button to shut down the battery. make the equipment in a disconnected state, check whether the connecting polarity of the battery and total voltage are correct.

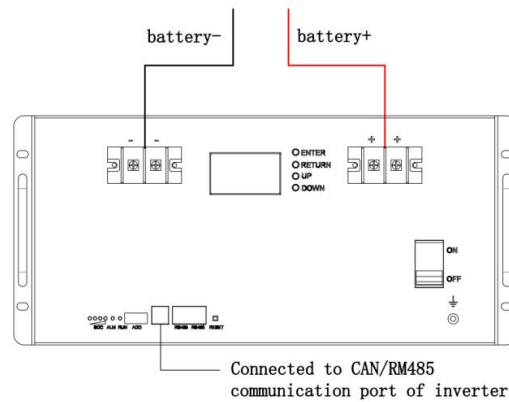


- Installation and wiring of single lithium battery.

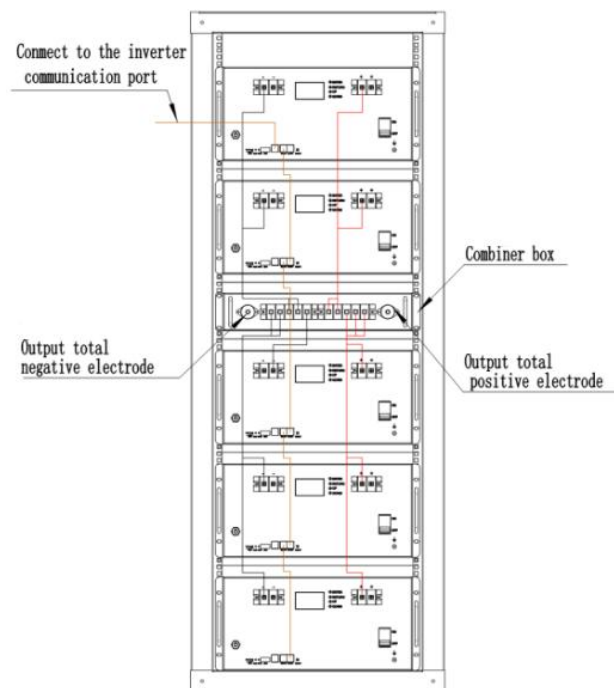
Turn off the battery pack and install the battery pack in the battery

cabinet;

Connect the positive and negative poles of the battery pack to the inverter respectively according to the wiring diagram (please note that the inverter should be disconnected from AC)



- Parallel installation and wiring of multiple groups of lithium batteries.
- Turn off the battery pack and install all battery packs on each tray in the battery cabinet;
- Connect the positive and negative poles of the battery pack in parallel to the parallel copper bar according to the wiring diagram;



- Connect the positive pole and negative pole of the battery pack in parallel with the inverter according to the wiring diagram (please note

that the inverter should be disconnected from AC).

- press the power button of each battery pack in turn, and the whole high-capacity battery pack enters the working state. Then, the AC power supply is applied to the inverter and other power equipment to make the whole standby system run.

Notes: The product is shipped without a battery cable by default, **25mm<sup>2</sup> conductor is recommended, the user can choose according to the load power.**

### **3.Installation Precautions**

- Make sure the mains wire and breakers in the building are in compliance with the standard of rated capacity of battery to avoid the hazards of electric shock or fire.
- Do not use the wall receptacle as the input power source for the battery, as its rated current is less than the battery's maximum input current. Otherwise the receptacle may be burned and destroyed.
- Switch off the mains switch in the building before installation.
- Turn off all the connected devices before connecting to the battery.
- Set the battery pack breaker in "OFF" position and then install the battery pack.
- During handling and placement, the battery must be handled gently. No dropping or impacting. The battery shall not be thrown or beaten to avoid damaging the battery or resulting in potential safety hazard.
- During battery connection, please wear the protective gloves. When using such metal tools as torque wrench, please perform insulating packaging for them and two end of the metal tools such as torque wrench shall not contact the positive and negative terminals of the battery at the same time to avoid battery short-circuit.
- Do not disassemble the battery box without authorization.
- Do not put any article made of the metal conductive material together

with the battery.

- Installation and wiring must be performed in accordance with the local electric laws/regulations and execute the following instructions by professional personnel.

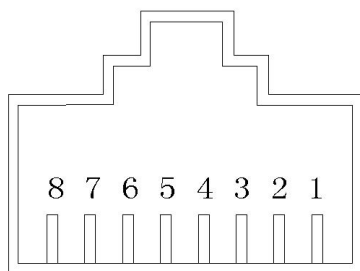
## 4. Communication description

### 4.1 CAN and RM485 Communication

BMS has the CAN communication function for uploading battery packs, with a baud rate of 500K. The CAN communication interface adopts 8 P8 C network cable connector. CAN interface CAN communicate with inverter or CAN TEST. When the battery pack is assembled, the battery pack data, status and information are uploaded to PCS through RS485 communication. BMS.

The BMS has the function of uploading the RM485 communication of the battery pack, and the baud rate is 9600bps. RM485 communication interface adopts 8P8C network cable interface. When the battery pack is assembled, connect through RS485 communication, and finally upload the battery pack data, status, and information to PCS or inverter through RM485 communication.

The CAN and RM485 communication interface are defined as follows:



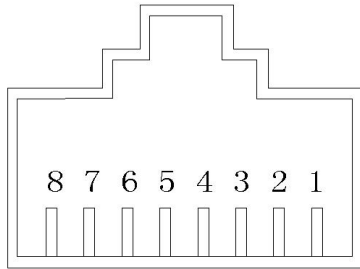
Pin	Definition description
1、2、7、8	NC ( Suspended)
4	CAN-H/RM485-A
5	CAN-L/RM485-B
3、6	Ground

### 4.2 RS485 Communication

BMS has RS485 communication of battery pack assembly, with baud rate of 19200bps. RS485 communication interface adopts 8 P8 C

network cable connector.

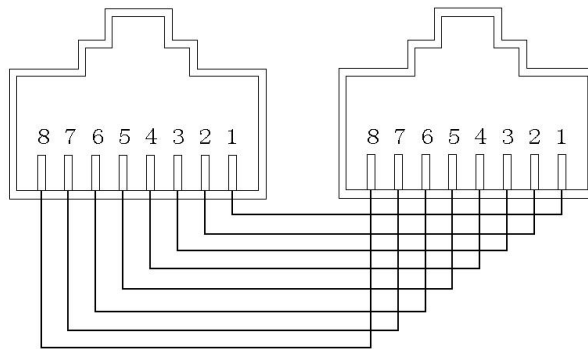
The RS485 communication interface is defined as follows:



Pin	Definition description
1、 8	RS485-B
2、 7	RS485-A
3、 6	Ground
4、 5	NC (Suspended)

### 4.3 Parallel communication

When multiple machines are connected in parallel, RS485 interface is used as the parallel communication interface, and CAN interface is used as the uplink communication interface. The terminal device CAN read the sum of battery data of all parallel packs through the CAN interface. When multiple machines are connected in parallel, the RS485 interface connection is shown in the following figure:



### 4.4 Address description of dial switch

Definition of parallel dial switch: for multi machine communication when the battery pack is connected in parallel, the dial switch is used to distinguish different pack addresses, and the hardware address can be set through the dial switch on the board.

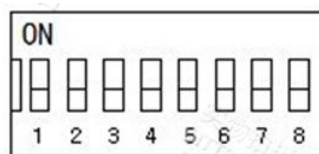


Definition of dial switches Bit1 to bit8: Bit1 to bit4 are used to set the address, and bit5 to bit8 are used for the number of slaves.

Host settings: Bit1 to bit4 are 0, the host address is fixed to 0, and bit5 to bit8 are set according to the number of slaves in parallel.

Slave setting: Bit1 to bit4 are set according to the equipment order, and the slave address range is 1 to 15. Bit5 to bit8 are fixed to 0.

Parallel use address setting: refer to the following table for the definition of dial switch:



Host settings

Parrale II QTY	dial switch location								note
	#1	#2	#3	#4	#5	#6	#7	#8	
2	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	2 Parralell
3	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	3Parralell
4	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	4Parralell
5	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	5Parralell
6	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF	6Parralell
7	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF	7Parralell
8	OFF	OFF	OFF	OFF	ON	ON	ON	OFF	8Parralell
9	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON	9Parralell
10	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON	10Parralell
11	OFF	OFF	OFF	OFF	OFF	ON	OFF	ON	11Parralell
12	OFF	OFF	OFF	OFF	ON	ON	OFF	ON	12Parralell
13	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	13Parralell
14	OFF	OFF	OFF	OFF	ON	OFF	ON	ON	14Parralell
15	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	15Parralell

Slave setting

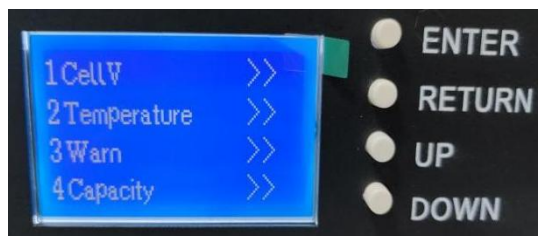
address	dial switch location								note
	#1	#2	#3	#4	#5	#6	#7	#8	
1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Pack1
2	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	Pack2
3	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	Pack3

4	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	Pack4
5	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	Pack5
6	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	Pack6
7	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	Pack7
8	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	Pack8
9	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	Pack9
10	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF	Pack10
11	ON	ON	OFF	ON	OFF	OFF	OFF	OFF	Pack11
12	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF	Pack12
13	ON	OFF	ON	ON	OFF	OFF	OFF	OFF	Pack13
14	OFF	ON	ON	ON	OFF	OFF	OFF	OFF	Pack14
15	ON	ON	ON	ON	OFF	OFF	OFF	OFF	Pack15

## 5.LCD and Bluetooth

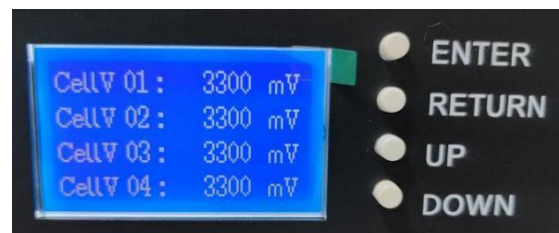
### 5.1 LCD

1.After battery starting up, the main interface of the LCD will display relevant information. Press and hold the ENTER key to switch between Chinese and English.



2.UP or DOWN key to switch subdirectories, ENTER to enter and view, RETURN to exit.

3.Enter CellV and check cell information.



4.Enter Temperature and check temperature information.

5. Enter Warn and check warns.



6. Enter Capacity and check capacity.

### 5.2 Bluetooth APP connection

1. Mobile phone download and install Bluetooth APP software.

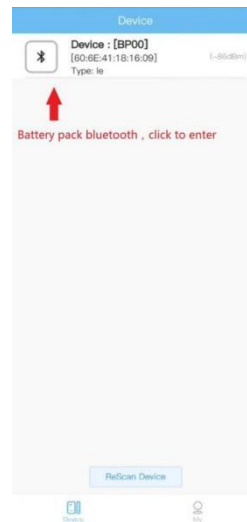


2. Open software, enter the account.

Account: admin password: 111111



3. Click and enter



4. Viewing battery information, You can select the CAN protocol.



## 6. Common faults and Solutions

### 6.1 The ALM alarm indicator flashes

**Cause analysis:** The battery pack may have temperature alarm, overload current alarm, low power alarm, etc.

**Solutions:** Connect the upper computer to check the specific causes of the alarm. For low power needs charging, excessive load needs to reduce the load power, and the temperature alarm needs to be controlled to an appropriate temperature.

### 6.2 ALM alarm indicator is always on

**Cause analysis:** The battery pack may have temperature protection, current protection caused by overload use, and over discharge protection caused by low power.

**Solutions:** Connect the upper computer to check the specific protection reasons: for low power over discharge protection, it needs to be charged in time, for overload over-current protection, it needs to reduce the load power, and for temperature protection, it needs to control the service temperature.

### 6.3 The battery pack cannot be turned on

**Cause analysis:**

- ① The sampling line is loose or falls off
- ② No normal output at charging terminal

- ③ Internal cell failure
- ④ The protective plate is damaged

**Solutions:**

① Check whether the charging terminal is normal. It is necessary to check whether the charging terminal of the inverter to the battery is normal and whether there is output voltage.

② If the above two methods cannot be started, it is necessary to disassemble the box, remove the protection board, measure whether the voltage of the battery module is normal. When the voltage of the battery module is normal, rewire to see whether it can return to normal (it must be operated according to the disassembly sequence of the given video). If there is still no response, it is speculated that the protection board is faulty.