

# 储能锂电池 用户手册说明

## User Manual for Energy Storage Lithium Batteries





户用储能应用场景

Application scenarios of household energy storage



太阳能板  
Solar panels



逆变器 inverter



通信基站



储能家庭负载

Communication base station

Energy storage household load

## 1. 产品描述 Product Description

磷酸铁锂电池属于自主设计开发的家用储能产品系列之一。它具有循环寿命长、安全标准高的BMS软件保护和坚固的外壳、精致的外观和易于安装等特点。它广泛应用于离网逆变器、并网逆变器和混合逆变器的储能系统中。

Lithium iron phosphate batteries are one of the independently designed and developed series of household energy storage products. It features long cycle life, high safety standards for BMS software protection, sturdy casing, exquisite appearance, and easy installation. It is widely used in energy storage systems for off grid inverters, grid connected inverters, and hybrid inverters



| NO. | 名称 Name                              | 功能 Function   |
|-----|--------------------------------------|---|
| 1   | 电池正极<br>Positive battery terminal    | 电池输出正极<br>Battery output positive pole  |
| 2   | 电池负极<br>Negative battery terminal    | 电池输出负极<br>Battery output negative pole  |
| 3   | 空气开关<br>Air Switch                   | 控制电池的打开和关闭<br>Control the on and off of the battery   |
| 4   | 电源键<br>Power switch                  | 系统电源开关<br>System power switch   |
| 5   | SOC                                  | 灯的数量表示电量的百分比<br>The number of lights represents the percentage of battery life                                |
| 6   | ALM/RUN                              | 报警指示灯/正常运行指示灯<br>Alarm indicator/normal operation indicator   |
| 7   | ADD                                  | 通信拨号号码<br>Communication dialing number  |
| 8   | RST                                  | 复位按键(需在专业指导下操作)<br>Reset button (to be operated under professional guidance)                                  |
| 9   | RS232                                | 选配, 只预留物理接口<br>Optional, only physical interfaces reserved  |
| 10  | RS485                                | 支持与逆变器通讯(485协议)和上位机通讯<br>Support communication with inverters (485 protocol) and upper computer communication |
| 11  | CAN                                  | 逆变器CAN通讯接口<br>Inverter CAN communication interface  |
| 12  | RS485A/B                             | 电池并机通讯接口<br>Battery parallel communication interface  |
| 13  | DRY                                  | 干接点<br>dry contact  |
| 14  | WIFI                                 | WIFI接口, 安装WiFi后查看WiFi部分说明<br>WIFI interface, check the WiFi section instructions after installing WiFi        |
| 15  | LED触摸显示屏<br>LED touch screen display | 触摸液晶显示屏实时显示电池状态<br>Real time display of battery status on touch LCD screen                                    |

## 2. 产品功能说明 Product Description

### 2.1 产品规格 Product Specification

| 项目 Items                                  |              | 状态 Condition   |  |         |         |         |         |         |         |         |          |
|---|--------------|--|--|---------|---------|---------|---------|---------|---------|---------|----------|
| 标称容量 Standard Capacity                    |              | 标准充电/放电 Standard Charge/discharge                      | 200.0Ah                                | 230.0Ah | 300.0Ah | 314.0Ah | 400.0Ah | 460.0Ah | 600.0Ah | 900.0Ah | 1000.0Ah |
| 标称电压 Standard Voltage                     |              | 正常 Normal  | 51.2V                                  | 51.2V   | 51.2V   | 51.2V   | 51.2V   | 51.2V   | 51.2V   | 51.2V   | 51.2V    |
| 充电电压 Charge voltage                       |              | /  | 58.4V                                  | 58.4V   | 58.4V   | 58.4V   | 58.4V   | 58.4V   | 58.4V   | 58.4V   | 58.4V    |
| 最大持续充电电流 Nominal Capacity                 |              | 25±3°C   | 100.0A                                 | 100.0A  | 100.0A  | 100.0A  | 100.0A  | 100.0A  | 100.0A  | 100.0A  | 100.0A   |
| 最低放电电压 minimum discharging voltage        |              | 恒流端电压 (切断) Constant current terminal voltage (cut-off) | 42V                                    | 42V     | 42V     | 42V     | 42V     | 42V     | 42V     | 42V     | 42V      |
| 最大连续放电电流 Max Continuous Discharge Current |              | 25±3°C   | 200.0A                                 | 200.0A  | 200.0A  | 200.0A  | 200.0A  | 200.0A  | 200.0A  | 200.0A  | 200.0A   |
| 最大输出功率 MAX Output Power Rate              |              | 25±3°C   | 10240Wh                                | 11776Wh | 15360Wh | 16076Wh | 20480Wh | 23552Wh | 30720Wh | 46080Wh | 51200Wh  |
| 工作温度                                      | 充电 Charge    | /  | 0°C~60°C                               |         |         |         |         |         |         |         |          |
| Operating Temperature                     | 放电 Discharge | /  | -20°C~60°C                             |         |         |         |         |         |         |         |          |
| 储存温度 Storage Temperature                  |              | 1个月 one month<br>3个月 Three months<br>6个月 Six months    | -20°C~45°C<br>-20°C~35°C<br>-20°C~25°C |         |         |         |         |         |         |         |          |
| 电力电缆终端 Power Cable Terminal               |              | /  | 环形端子 Ring Terminal                     |         |         |         |         |         |         |         |          |

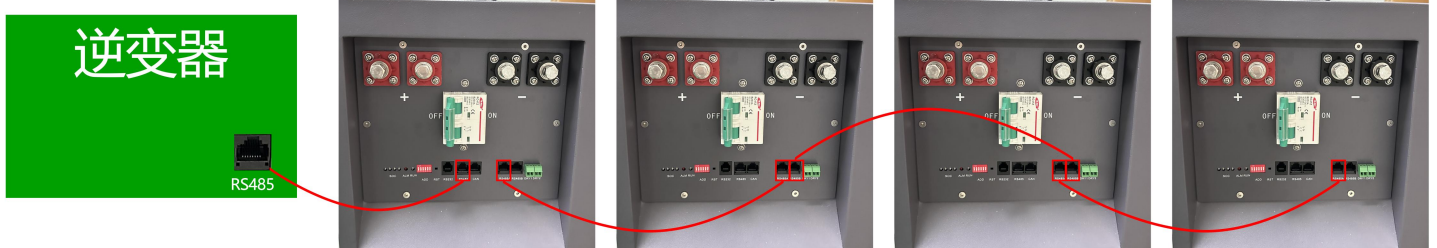
### 2.2 并联连接 Parallel Connection

并联电池时注意：禁止在电池正负极端子上直接汇流。两台或以上电池并联时禁止在正负极端子上直接汇流，应使用汇流排或主线汇流。尽量保持每条电源线到汇流排的长度一致，这样每台电池的电流才能平均。支持最大并联数量为16并，如下图所示：

Attention when parallel connecting batteries: It is forbidden to directly connect the positive and negative terminals of the battery. When two or more batteries are connected in parallel, it is prohibited to directly connect them to the positive and negative terminals. Instead, a busbar or main line should be used for connection. Try to keep the length of each power line to the busbar consistent so that the current of each battery can be evenly distributed. The maximum number of parallel connections supported is 16, as shown in the following figure:

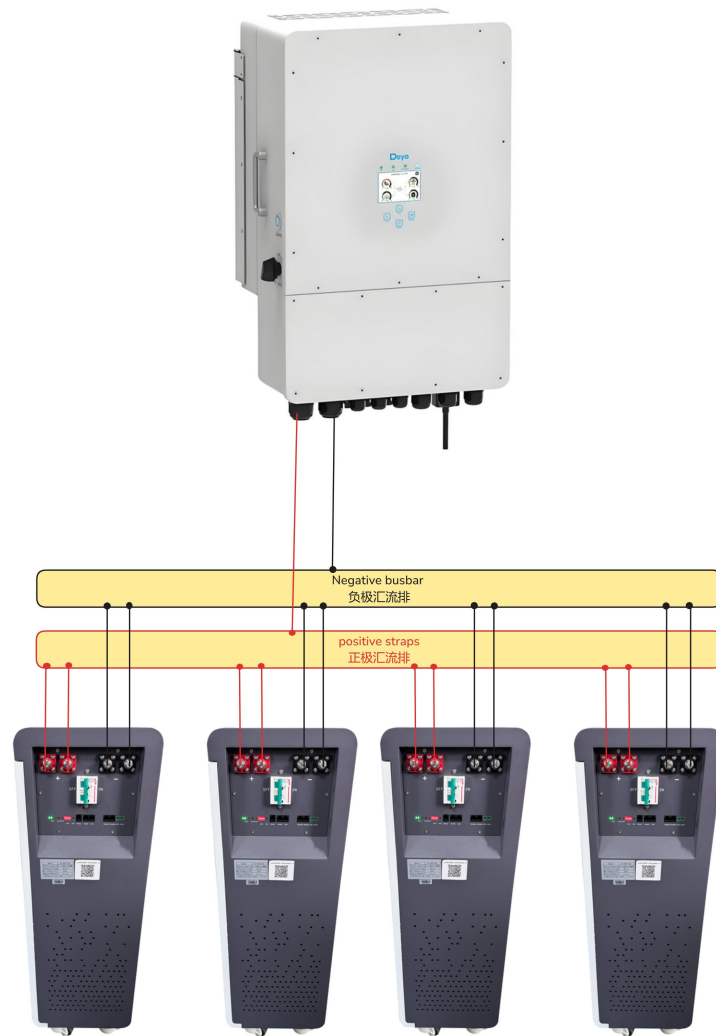
#### 多台电池通讯并机连接示意图：

#### Schematic diagram of multiple battery communication and parallel connection:



多台电池并机连接示意图：

Schematic diagram of parallel connection of multiple batteries:



最多并联16组  
up to 16 parallel group

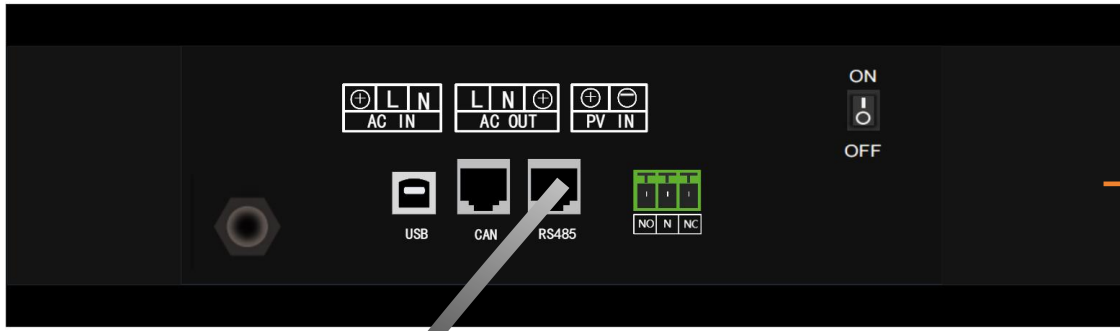
| 型号<br>Model | 容量<br>Capacity | 最大并联<br>Max Parallel | 最大容量<br>Max Capacity    |
|-------------|----------------|----------------------|-------------------------|
| 51.2V200Ah  | 10240Wh        | 16pcs                | 51.2V3200Ah 163.840Kwh  |
| 51.2V230Ah  | 11776Wh        | 16pcs                | 51.2V3680Ah 188.416Kwh  |
| 51.2V300Ah  | 15360Wh        | 16pcs                | 51.2V4800Ah 245.760Kwh  |
| 51.2V314Ah  | 16076Wh        | 16pcs                | 51.2V5024Ah 257.228Kwh  |
| 51.2V400Ah  | 20480Wh        | 16pcs                | 51.2V6400Ah 327.680Kwh  |
| 51.2V460Ah  | 23552Wh        | 16pcs                | 51.2V7360Ah 376.832Kwh  |
| 51.2V600Ah  | 30720Wh        | 16pcs                | 51.2V9600Ah 491.520Kwh  |
| 51.2V900Ah  | 46080Wh        | 16pcs                | 51.2V14400Ah 737.280Kwh |
| 51.2V1000Ah | 51200Wh        | 16pcs                | 51.2V16000Ah 819,200Kwh |

### 2.3 从机拨号方式及主机协议选择

#### Slave dialing method and host protocol selection

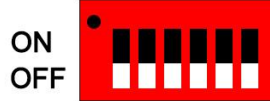
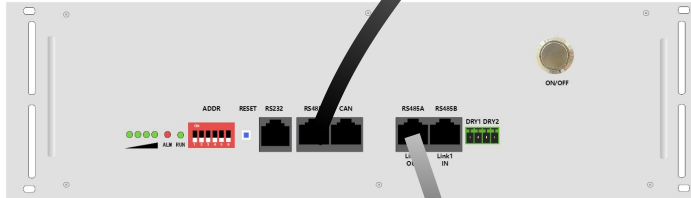
| Address<br>住址  | Dip switch address setting<br>拨码开关地址设置 |     |     |     | Protocol selection<br>协议选择 |     | Explain<br>解释  |
|--|--|-----|-----|-----|----------------------------|-----|--|
|  | #1                                     | #2  | #3  | #4  | #5                         | #6  |  |
| 0  | OFF                                    | OFF | OFF | OFF | OFF                        | OFF | ( Host ) Pack0   |
| 1  | ON                                     | OFF | OFF | OFF | OFF                        | OFF | ( slave ) Pack1  |
| 2  | OFF                                    | ON  | OFF | OFF | OFF                        | OFF | ( slave ) Pack2  |
| 3  | ON                                     | ON  | OFF | OFF | OFF                        | OFF | ( slave ) Pack3  |
| 4  | OFF                                    | OFF | ON  | OFF | OFF                        | OFF | ( slave ) Pack4  |
| 5  | ON                                     | OFF | ON  | OFF | OFF                        | OFF | ( slave ) Pack5  |
| 6  | OFF                                    | ON  | ON  | OFF | OFF                        | OFF | ( slave ) Pack6  |
| 7  | ON                                     | ON  | ON  | OFF | OFF                        | OFF | ( slave ) Pack7  |
| 8  | OFF                                    | OFF | OFF | ON  | OFF                        | OFF | ( slave ) Pack8  |
| 9  | ON                                     | OFF | OFF | ON  | OFF                        | OFF | ( slave ) Pack9  |
| 10   | OFF                                    | ON  | OFF | ON  | OFF                        | OFF | ( slave ) Pack10   |
| 11   | ON                                     | ON  | OFF | ON  | OFF                        | OFF | ( slave ) Pack11   |
| 12   | OFF                                    | OFF | ON  | ON  | OFF                        | OFF | ( slave ) Pack12   |
| 13   | ON                                     | OFF | ON  | ON  | OFF                        | OFF | ( slave ) Pack13   |
| 14   | OFF                                    | ON  | ON  | ON  | OFF                        | OFF | ( slave ) Pack14   |
| 15   | ON                                     | ON  | ON  | ON  | OFF                        | OFF | ( slave ) Pack15   |
| <b>Inverter communication protocol Select CAN communication (select by DIP 5 and 6 in host mode)</b><br>逆变器通信协议选择CAN通信 (在主机模式下通过DIP 5和6选择) |  |     |     |     |                            |     |  |
| 0  | OFF                                    | OFF | OFF | OFF | OFF                        | OFF | Support upper computer/display screen<br>Selection of inverter protocol<br>支持上位机/显示屏<br>逆变器协议的选择 |
| 16   | OFF                                    | OFF | OFF | OFF | ON                         | OFF | Victron SMA,SOFAR  |
| 32   | OFF                                    | OFF | OFF | OFF | OFF                        | ON  | Pylon,Deye   |
| 48   | OFF                                    | OFF | OFF | OFF | ON                         | ON  | Growatt  |
| <b>Inverter communication protocol RS485 communication (Select DIP 5 and 6 in host mode)</b><br>逆变器通信协议RS485通信 (在主机模式下选择DIP 5和6)           |  |     |     |     |                            |     |  |
| 0  | OFF                                    | OFF | OFF | OFF | OFF                        | OFF | Support upper computer/display screen<br>Selection of inverter protocol<br>支持上位机/显示屏<br>逆变器协议的选择 |
| 16   | OFF                                    | OFF | OFF | OFF | ON                         | OFF | SRNE   |
| 32   | OFF                                    | OFF | OFF | OFF | OFF                        | ON  | Voltronic  |
| 48   | OFF                                    | OFF | OFF | OFF | ON                         | ON  | Growatt  |

## 2.4 并机示例 Parallel example

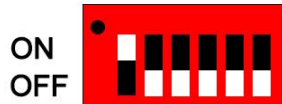
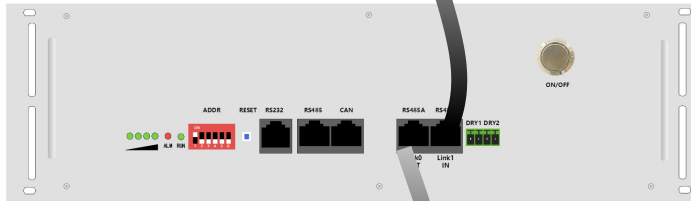


Growatt Inverter

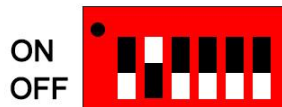
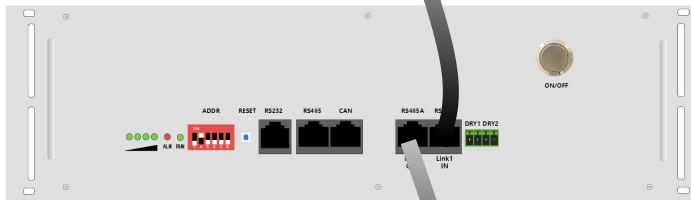
The DIP address complies with the ASIC code  
DIP地址符合ASIC代码



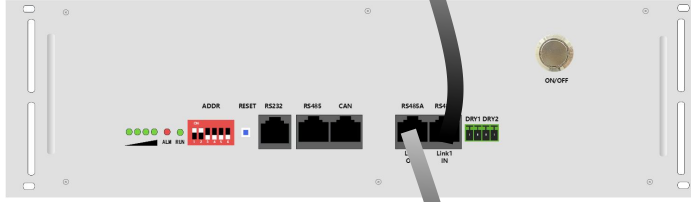
The address of the PACK0 host is 0, which means that all DIP codes are set to OFF  
PACK0主机的地址为0, 即DIP代码都设置为OFF



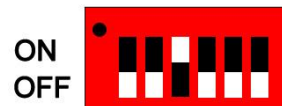
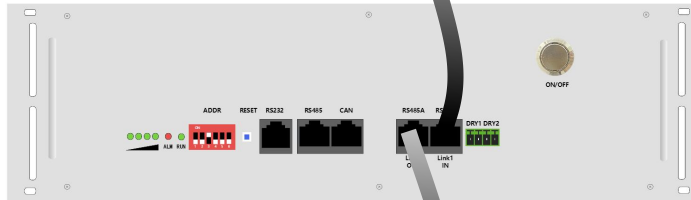
The address of PACK1 host is 1, which means DIP code 2/3/4/5 is set to OFF. DIP code 1 is used for protocol selection  
PACK1主机的地址为1, 即DIP代码2/3/4/5设置为OFF, DIP代码1用于协议选择



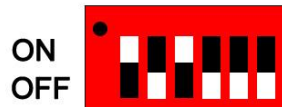
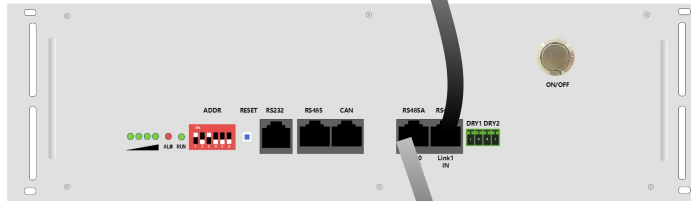
PACK2 slave IP address set to 2, DIP switch 2 set to ON  
PACK2从属IP地址设置为2, DIP开关2设置为ON



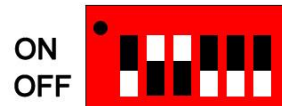
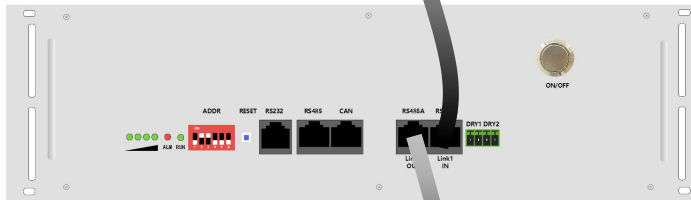
PACK3 slave IP address set to 3, DIP switch 1/2 set to ON  
PACK3从属IP地址设置为3, DIP开关1/2设置为ON



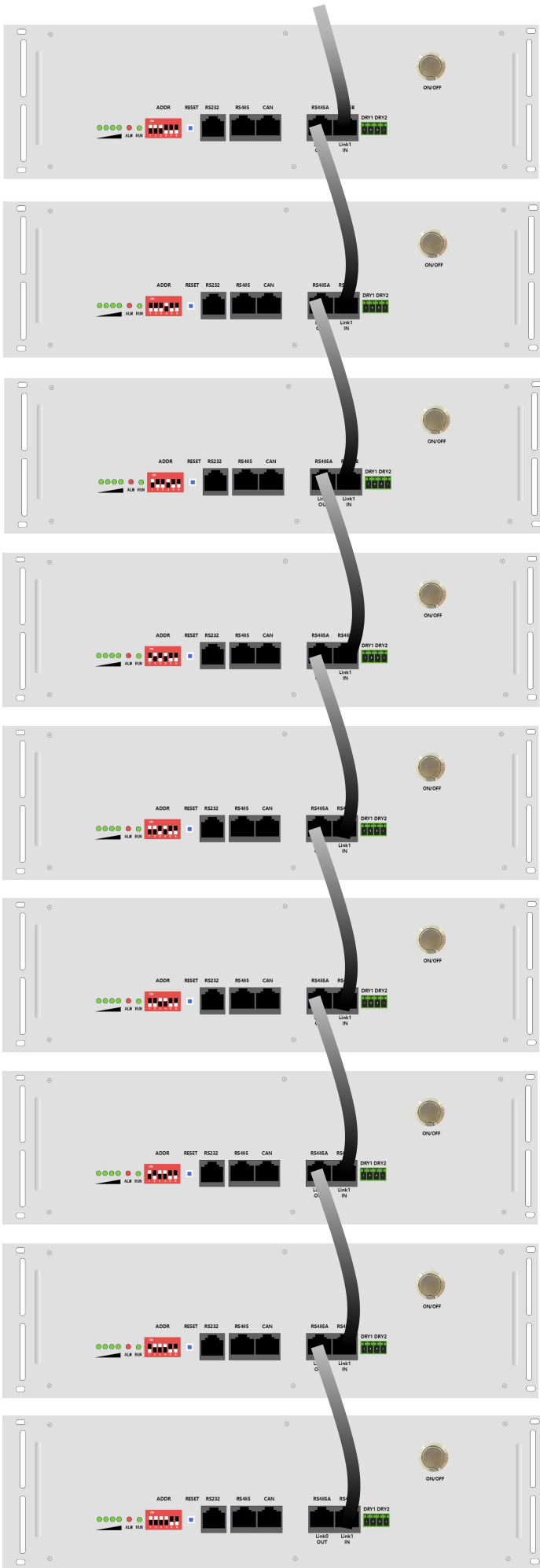
PACK4 slave IP address set to 4, DIP switch 3 set to ON  
PACK4从属IP地址设置为4, DIP开关3设置为ON

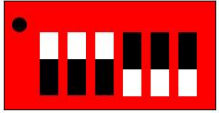


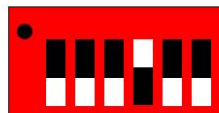
PACK5 slave IP address set to 5, DIP switch 1/3 set to ON  
PACK5从属IP地址设置为5, DIP开关1/3设置为ON

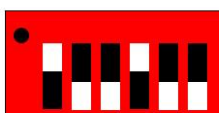


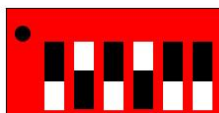
PACK6 slave IP address set to 6, DIP switch 2/3 set to ON  
PACK6从属IP地址设置为6, DIP开关2/3设置为ON




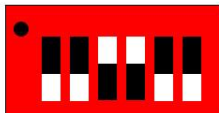
ON OFF  PACK7 slave IP address set to 7, DIP switch 1/2/3 set to ON  
PACK7从属IP地址设置为7, DIP开关1/2/3设置为ON

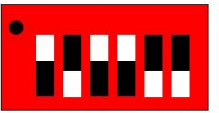
ON OFF  PACK8 slave IP address set to 8, DIP switch 4 set to ON  
PACK8从属IP地址设置为8, DIP开关4设置为ON

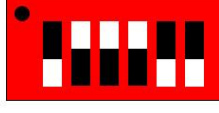
ON OFF  PACK9 slave IP address set to 9, DIP switch 1/ 4 set to ON  
PACK9从属IP地址设置为9, DIP开关1/4设置为ON

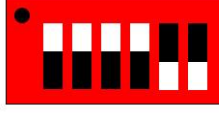
ON OFF  PACK10 slave IP address set to 10, DIP switch 2 / 4 set to ON  
PACK10从属IP地址设置为10, DIP开关2/4设置为ON

ON OFF  PACK11 slave IP address set to 11, DIP switch 1/2/4 set to ON  
PACK11从属IP地址设置为11, DIP开关1/2/4设置为ON

ON OFF  PACK12 slave IP address set to 12, DIP switch 3/4 set to ON  
PACK12从属IP地址设置为12, DIP开关3/4设置为ON

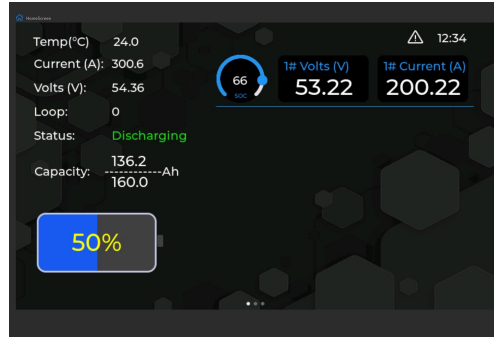
ON OFF  PACK13 slave IP address set to 13, DIP switch 1/3/4 set to ON  
PACK13从属IP地址设置为13, DIP开关1/3/4设置为ON

ON OFF  PACK14 slave IP address set to 14, DIP switch 2/3/4 set to ON  
PACK14从属IP地址设置为14, DIP开关2/3/4设置为ON

ON OFF  PACK15 slave IP address set to 15, DIP switch 1/2/3/4 set to ON  
PACK15从属IP地址设置为15, DIP开关1/2/3/4设置为ON

## 2.5 LED触摸显示屏介绍 Introduction to LED Touch Screen Display

### 2.5.1 实物图 (Physical drawing)



### 2.5.2 功能介绍 (Function introduction)

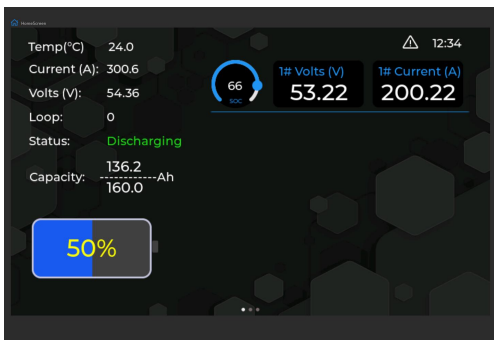
配套后备电源主板，可以通过液晶屏显示电池组采样信息及工作状态。

Equipped with backup power supply motherboard, the battery pack sampling information and working status can be displayed through the LCD screen.

### 2.5.3 开机显示界面 (Power-on display interface)



### 2.5.4 首页 (home page)



首页主要功能为显示电池集群概况，其信息区分为3部分：

The home page displays the overview of the battery cluster. The information is divided into three parts:

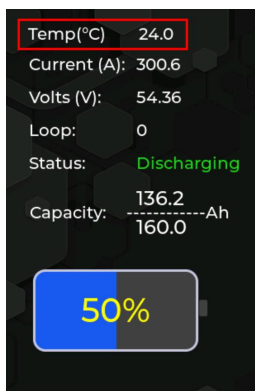
系统状态区 (System status area)

从机状态区 (Slave machine status area)

信息通知区 (Message notification area)

### 2.5.5 系统状态区内容介绍 (This section describes the system status area)

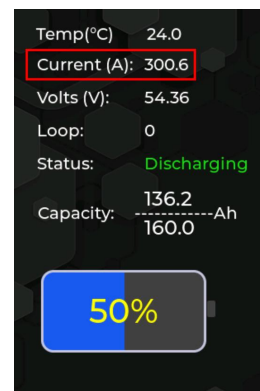
(1) 温度 (temperature) :



该温度为所有在线PACK的平均温度

This temperature is the average temperature of all online packs

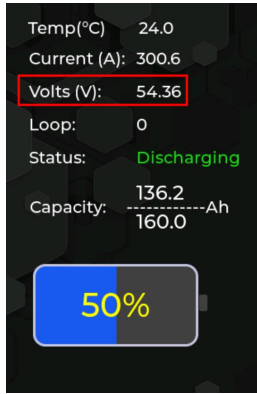
(2) 电流 (Electric current) :



该电流为所有在线PACK的汇总电流

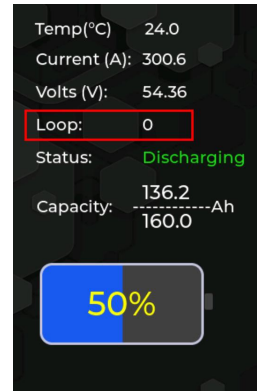
This current is the total current of all online PACKs

(3) 电压 (voltage) :



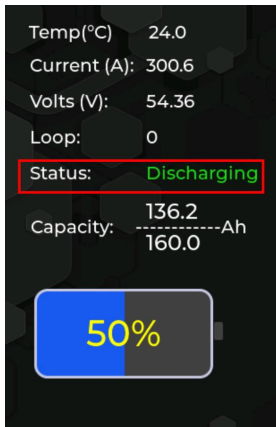
该电压为所有在线PACK的平均电压  
This voltage is the average voltage of all online packs

(4) 循环次数 (Cycle number) :



该循环次数为所有在线PACK的平均循环次数  
The number of cycles is the average number of cycles for all online packs

(5) 状态 (status) :



系统总体状态, 显示的状态有:  
The overall status of the system is displayed as follows:.

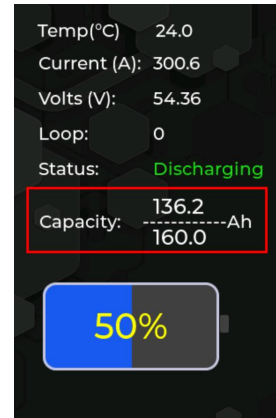
放电 (Discharging) 系统处于放电中 (The system is in discharge)

充电 (Charging) 系统处于充电中 (The system is charging)

空闲 (IDLE) 系统处于空闲状态 (System idle)

未连接 (COM FIN) 屏幕未连接BMS系统 (The screen is not connected to the BMS system)

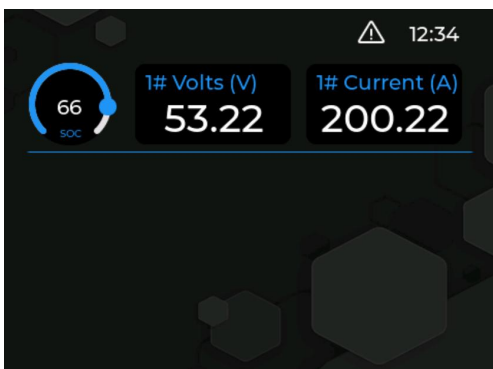
(6) 容量 (capacity) :



-----上方显示为系统剩余容量, 下方显示为系统  
满充容量,最下方为整个系统SOC情况。

----- The remaining system capacity is displayed in the upper part, full  
system capacity is displayed in the lower part, and system SOC is  
displayed in the lower part.

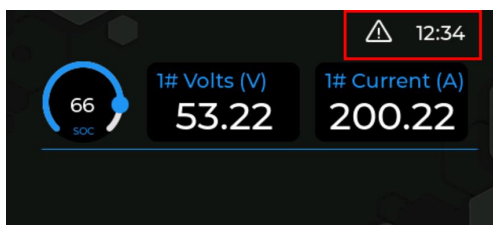
## 2.5.6 从机状态区内容介绍 (Description of the status area of the slave machine)



图中分别显示了地址0、地址1、地址2、地址3pack在线, 其会因为  
pack的上下线重新排序, 当上线pack数量区域超出显示器显示范围时,  
可以上下滑动此区域, 来平滑滚动显示其他数据。该状态区域显示每个  
PACK的实时SOC、电压、电流以及地址。

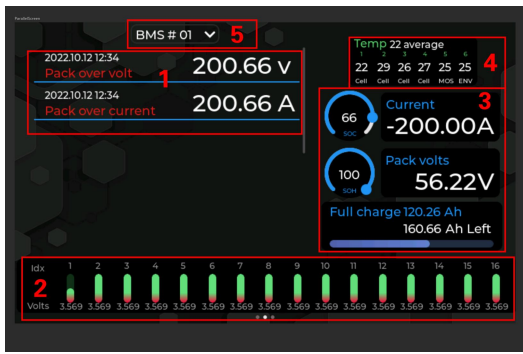
Figure shows that address 0, address 1, address 2, and address  
3pack are online respectively. They are reordered based on the upper  
and lower lines of packs. When the number of online packs exceeds  
the display range, you can slide this area up and down to display other  
data smoothly. This status area displays the real-time SOC, voltage,  
current, and address for each PACK

## 2.5.7 信息通知区 (Message notification area)



三角警示号: 代表并机电池组有告警或保护发生。  
时间: 为系统时间。显示屏与BMS连接成功后, 自动同步为BMS主机时  
间。  
Triangle warning sign: indicates that there is an alarm or protection  
occurring in the parallel battery pack.  
Time: is the system time. After the display screen is successfully  
connected to the BMS, it automatically synchronizes with the BMS host  
time.

## 2.5.8 并机页面 (Parallel page)



并机页面主要功能为显示对应地址的PACK信息，其分为5部分：  
The main function of the parallel page is to display the PACK information of the corresponding address, which is divided into five parts:

- 1、告警、保护以及故障信息 Alarm, protection, and fault information
- 2、单体电压信息 Cell voltage information
- 3、总体概况 General overview
- 4、pack温度 pack temperature
- 5、地址切换 Address switching

## 2.5.9 告警、保护以及故障信息 (Alarm, protection, and fault information)

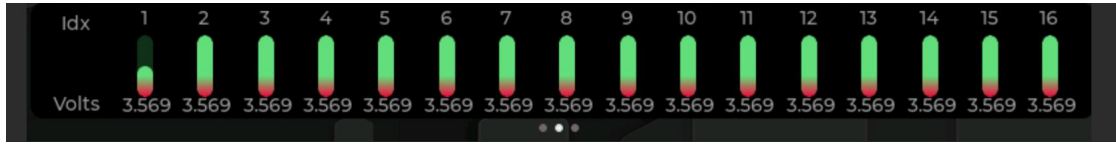


该区域显示的内容为所选地址的pack状态，当出现多个信息条时，按照保护、故障、告警顺序依次向下排列，超出屏幕的区域可以通过上下滑动此区域来查看信息，所记录的信息为触发保护、故障和告警的实时时间、类型、以及触发时对应的数值，具体类型如表格所示。

This area displays the pack status of the selected address. When multiple information bars appear, they are arranged downward according to the order of protection, fault, and alarm. You can swipe up and down the area beyond the screen to view the information. Table lists the specific types.

| 单体高压告警<br>Single high voltage alarm               | Cell OVA      | 单体高压保护<br>Single high voltage protection                   | Cell OVP      | AFE故障<br>AFE malfunction             | AFE FAIL          |
|---|---------------|--|---------------|--------------------------------------|-------------------|
| 单体低压告警<br>Single low voltage alarm                | Cell UVA      | 单体低压保护<br>Single low voltage protection                    | Cell UVP      | NTC故障<br>NTC malfunction             | NTC FAIL          |
| 总体高压告警<br>Overall high voltage alarm              | Pack OVA      | 总体高压保护<br>Overall high voltage protection                  | Pack OVP      | 限流故障<br>Current limiting fault       | LIMIT BOARD FAIL  |
| 总体低压告警<br>Overall low voltage alarm               | Pack UVA      | 总体低压保护<br>Overall low voltage protection                   | Pack UVP      | 电芯故障<br>Cell malfunction             | CELL FAIL         |
| 充电过流告警<br>Charging overcurrent alarm              | CHG OCA       | 充电过流保护<br>Charging overcurrent protection                  | CHG OCP       | 加热故障<br>Heating malfunction          | HEATING FILM FAIL |
| 放电过流告警<br>Discharge overcurrent alarm             | DSG OCA       | 放电过流保护<br>Discharge overcurrent protection                 | DSG OCP       | 充电MOS故障<br>Charging MOS fault        | CHG MOS FAIL      |
| 环境高温告警<br>Environmental high temperature alarm    | ENV OTA       | 短路 short circuit   | short circuit | 放电MOS故障<br>Discharge MOS fault       | DISCH MOS FAIL    |
| 环境低温告警<br>Environmental low temperature alarm     | ENV UTP       | 充电高温保护<br>Charging high temperature protection             | CHG OTP       | 采样故障<br>Sampling fault               | SAMPLING FAIL     |
| MOS高温告警<br>MOS high temperature alarm             | MOS OTA       | 充电低温保护<br>Low temperature protection for charging          | CHG UT        | 系统锁定<br>System Lock                  | SYSTEM LOCKED     |
| SOC低告警<br>SOC low alarm                           | SOC LOW_A     | 放电高温保护<br>Discharge high temperature protection            | DSG OTP       | 防盗锁定<br>Anti theft lock              | SYSTEM LOCKED     |
| 压差过大告警<br>Alarm for excessive pressure difference | Cell V_DIFF_A | 放电低温保护<br>Low temperature protection for discharge         | DSG UTP       | 脱扣器断开<br>Release device disconnected | SYSTEM LOCKED     |
| 充电高温告警<br>Charging high temperature alarm         | CHG OTA       | 压差过大保护<br>Protection against excessive pressure difference | Cell V_DIFF_P |                                      |                   |
| 充电低温告警<br>Charging low temperature alarm          | CHG UTA       | MOS高温保护<br>MOS high temperature protection                 | MOS OTP       |                                      |                   |
| 充电低温告警<br>Charging low temperature alarm          | DSG OTA       | 环境高温保护<br>Environmental high temperature protection        | ENV OTP       |                                      |                   |
| 放电低温告警<br>Low temperature discharge alarm         | DSG UTA       | 环境低温保护<br>Environmental low-temperature protection         | ENV UTP       |                                      |                   |

## 2.5.10 单体电压信息区 (Cell voltage information area)



该区域显示的是pack的单体电压状态，最下方的数值代表电压值，单位为V，中间的光柱与电压值线性对应，其上方1~16代表单体编号。当bms为非16节电池系统，无此编号的图组将会显示0，如上图为15S系统。

This area shows the voltage status of pack cells, the lowest value represents the voltage value, the unit is V, the light column in the middle corresponds to the voltage value linearly, and the upper 1~16 represents the cell number. When the bms is a non-16-battery system, the group without this number will display 0, as shown in the picture above for the 15S system.

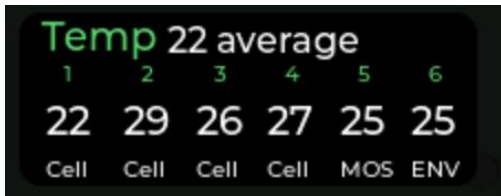
## 2.5.11 总体概况区 (General profile area)



该区域显示内容为pack的总压、实时总电流、SOC、SOH、满容量以及剩余容量。

This area displays the pack's total voltage, total real-time current, SOC, SOH, full charge capacity, and remaining capacity.

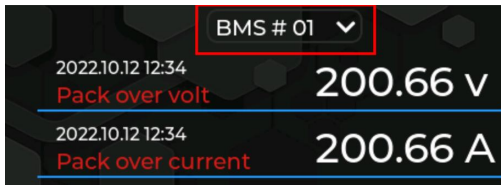
## 2.5.12 pack 温度区 (pack temperature zone)



该区域从左到右分别是第1个NTC温度、第2个NTC温度、第3个NTC温度、第4个NTC温度、MOS温度、ENV温度。

This area from left to right is the 1st NTC temperature, 2nd NTC temperature, 3rd NTC temperature, 4th NTC temperature, MOS temperature, and ENV temperature.

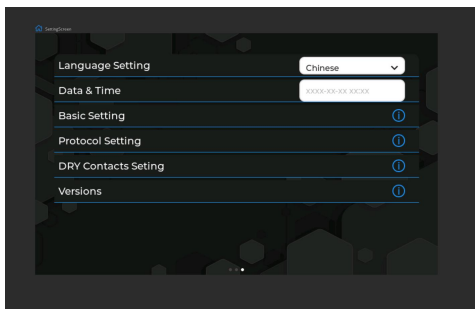
## 2.5.13 切换按钮 (toggle button)



该按钮用于切换和显示当前地址，例：#.04代表当前显示的是第4个pack信息。

This button is used to toggle and display the current address, foreexample: #.04 indicates that the fourth pack information is currently displayed.

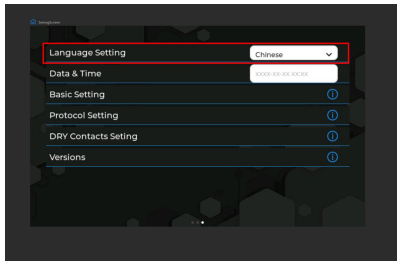
## 2.5.14 设置页面 (Setup page)



该页面的显示内容为设置内容，能够在此界面来设置需要的语言、时间、亮度、待机时间、协议选择以及查看版本信息。

The content displayed on this page is the setting content. You can set the required language, time, brightness, standby time, protocol selection, and view version information on this interface.

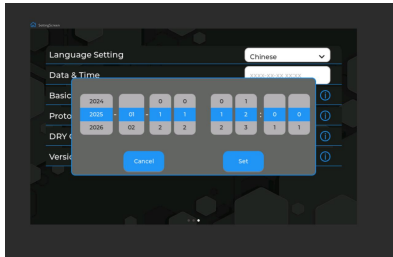
## 2.5.15 语言设置 (Language setting)



通过点击下拉框，会向下展开选项，点击选项即完成设置。

By clicking the drop-down box, the options will be expanded down, and the Settings will be completed by clicking the options.

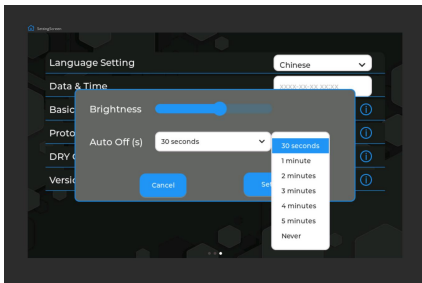
## 2.5.16 时间设置 (Time Settings)



点击白色时间输入框，将从下方弹出时间设置弹窗，通过滑动时间滚轮选择时间与日期，点击设置键完成设置。

Click the white time input box, the time setting pop-up window will pop up from the bottom, select the time and date by sliding the time wheel, and click the setting key to complete the setting.

## 2.5.17 亮度与休眠设置 (Brightness and sleep Settings)



通过点击基础设置最右方扩展按钮，展开设置弹窗。

亮度设置：拖动亮度设置进度条设置屏幕亮度。

休眠设置：点击休眠下拉选择框，选择需要设置的休眠时间，在此时间内屏幕连续无触摸，屏幕将会熄屏，有触摸时唤醒亮屏。

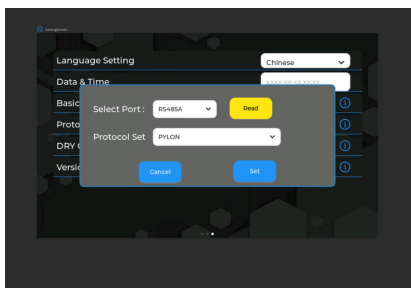
Expand the Settings popup window by clicking the extension button on the far right of basic Settings. Brightness

Settings: Drag the progress bar of brightness

Settings to set the screen brightness.

Hibernation setting: Click the hibernation drop-down box and select the hibernation time to be set. If there is no touch on the screen during this time, the screen will turn off and wake up when touched.

## 2.5.18 协议设置 (Protocol setting)



通过点击协议设置最右方扩展按钮，展开设置弹窗。

通讯协议设置：通过点击端口选择框，上下滑动并点击选择需要设置的通讯协议，点击一次“读”。

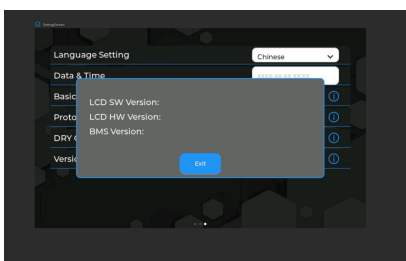
协议类型设置：通过点击协议选择框，上下滑动并点击选择需要设置的协议，最后点击确定就可以完成协议的选择。

Expand the Settings popup window by clicking the extension button on the far right of protocol Settings. Communication protocol

Settings: Click the port selection box, swipe up and down and click to select the communication protocol to be set, and click "Read" once.

Protocol type setting: Click the protocol selection box, swipe up and down and click to select the protocol to be set, and finally click set to complete the selection of the protocol.

## 2.5.19 获取版本信息 (Get version information)



通过点击版本最右方扩展按钮，展开弹窗，就很可能知道显示屏版本信息，以及BMS版本信息

By clicking the extension button on the far right of the version and expanding the popup window, you can know the display version information and BMS version information

### 3 通信说明. Communication specification

#### 3.1 232通讯接口 232 communication interface

功能为选配,只预留硬件接口  
The function is optional, with only hardware interfaces reserved

BMS 可以通过 RS232 接口与上位机进行通讯, 从而可通过上位机监控电池的各种信息, 包括电池电压、电流、温度、状态及电池生产信息等, 默认波特率为 9600bps。

BMS can communicate with the host computer through RS232 interface, so that various information of the battery can be monitored through the host computer, including battery voltage, current, temperature, status and battery production information, etc. The default baud rate is 9600bps

#### 3.2 CAN通信 CAN Communication

默认波特率 500K, 此接口用于与逆变器通信, 当此电池为主机时, 可汇总从机数据与逆变器通信。

The default baud rate is 500K, and this interface is used for communication with the inverter. When the battery is the host, it can summarize data from the slave and communicate with the inverter

#### 3.3 电池并机通讯接口 Battery parallel communication interface

用于电池并机通讯使用, 主机查询从机数据并上传至逆变器。

Used for battery parallel communication, the host queries data from the slave and uploads it to the inverter

#### 3.4 独立 RS485 通信 Independent RS485 Communication

默认波特率为 9600bps, 此接口用于与逆变器通信, 当此电池为主机时, 可汇总从机数据与逆变器通信或连接上位机通讯和升级。

The default baud rate is 9600bps. This interface is used for communication with the inverter. When the battery is the host, it can summarize data from the slave and communicate with the inverter or connect to the upper computer for communication and upgrading

#### 3.5 蓝牙模块 Bluetooth module

蓝牙模块为选配。选配蓝牙模块后可支持通过蓝牙APP查看电池数据, 读取电池历史数据, 修改参数, 系统设置等功能。

The Bluetooth module is optional. After selecting the Bluetooth module, it can support functions such as viewing battery data, reading battery history data, modifying parameters, system settings, etc. through the Bluetooth APP.

#### 3.6 WiFi 模块 WiFi module

连接WiFi模块后, 可通过APP对WiFi模块进行本地连接查看数据也可对WiFi模块配置网络后远程查看电池数据, 修改参数, 系统设置等功能

After connecting the WiFi module, you can view data locally through the APP or remotely view battery data, modify parameters, system settings, and other functions after configuring the network for the WiFi module

#### 3.7 WiFi模块配网操作说明

##### WiFi module distribution network operation instructions

APP下载 APP download

安卓版本 Android version

下载链接 Download Link: <https://www.pgyer.com/b8uo9upa>

扫码下载方式 Scan code to download:



IOS版本 IOS version

①App store 搜索"BMS Insight" Search for "BMS Insight" on the App Store



②扫描二维码跳转到App store下载

Scan the QR code to go to the App store to download



#### 3.8 本地连接 WiFi模块 Local WiFi connection module:

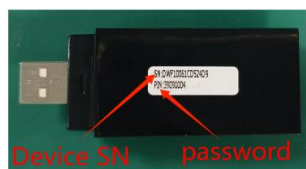
设备选择界面 Equipment selection interface

步骤 1: 点击蓝牙按钮打开蓝牙功能。

(注: 需同时打开手机蓝牙功能、定位功能, 并允许获取位置信息)

步骤 2: 进入APP后, 点击本地连接。搜索或查找到需连接的设备 SN。设备 SN 为外壳上粘贴的 SN 码。

(注: 如模块上电未搜索到设备, 请等待 4 分钟后再次搜索)



步骤 3: 点击需要连接的设备, 连接成功将自动跳转到监控界面。

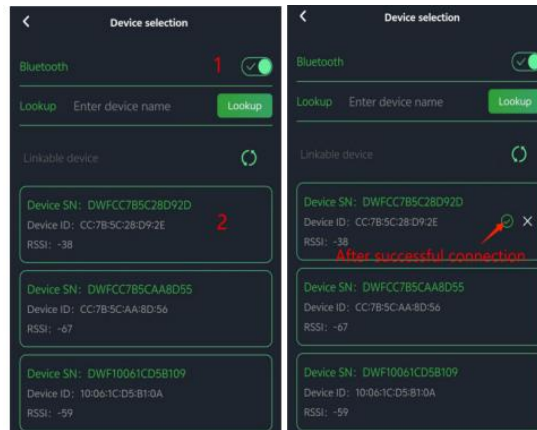
Step 1: Click the Bluetooth button to turn on the Bluetooth function.

(Note: The Bluetooth function and positioning function of the mobile phone must be turned on at the same time, and the location information must be allowed to be obtained)

Step 2: After entering the app, click on Local Connection. Search or find the device SN that needs to be connected. The device SN is the SN code pasted on the casing.

(Note: If the device cannot be found when the module is powered on, please wait for 4 minutes and search again)

Step 3: Click on the device that needs to be connected, and if the connection is successful, it will automatically jump to the monitoring interface.



### 3.9 WIFI 网络配置 WIFI network configuration

进入本地连接后WIFI模块可通过该界面配网。

①输入正确的路由器账号和密码（所配置的WIFI信号需为2.4G频段，即不带\_5G后缀）。

②点击配置。

③点击读取。上方显示当前配置的WIFI账号、密码及模块连接状态。

(注：①路由器账号与密码需为英文字符。②手机未连接路由器，则需手动输入路由器账号。手机已连接路由器，则会自动显示账号在账号输入框中。)

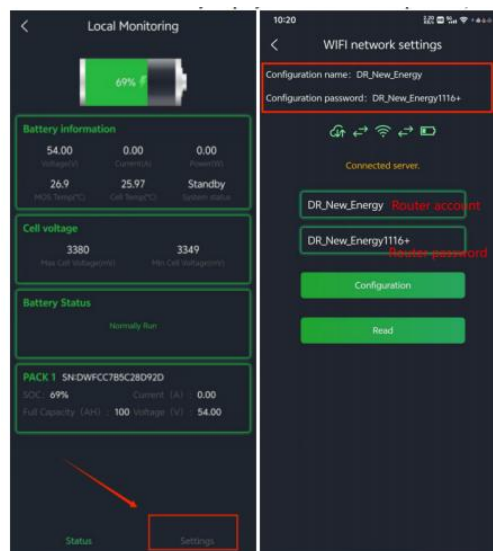
After entering the local connection, the WIFI module can configure the network through this interface.

① Enter the correct router account and password (the configured WIFI signal must be in the 2.4G frequency band, i.e. without the \_5G suffix).

② Click Configure.

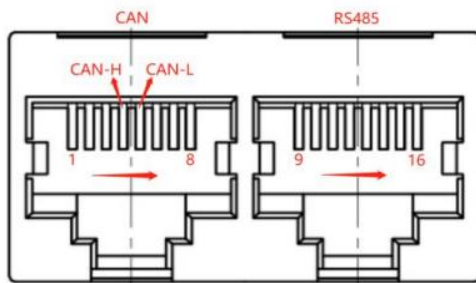
③ Click Read. The currently configured WIFI account, password and module connection status are displayed above.

(Note: ① The router account and password must be in English characters. ② If the phone is not connected to the router, you need to manually enter the router account. If the phone is connected to the router, the account will be automatically displayed in the account input box.)



## 4. 接口定义 Interface definition

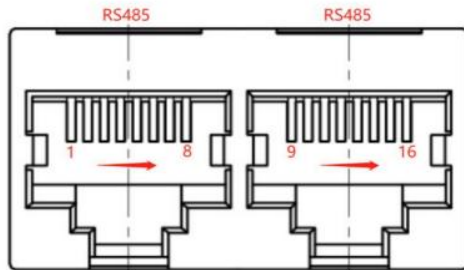
### 4.1 接口图示 Interface diagram



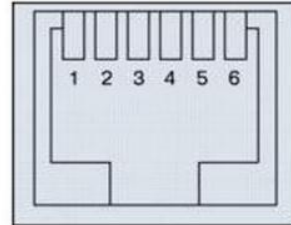
CAN 和 RS485 接口  
CAN and RS485 interfaces



干接点  
DRY CONTACT



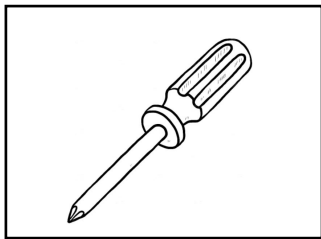
并联通讯端口  
Parallel communication port



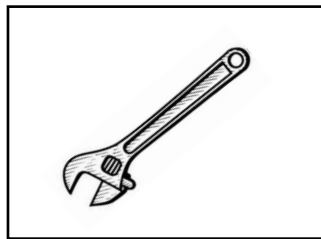
RS232 通讯接口  
RS232 communication interface

## 5. 工具 Tools

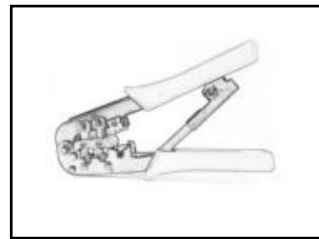
要安装电池组，可能需要以下工具：  
To install the battery pack, those following tools are probably required



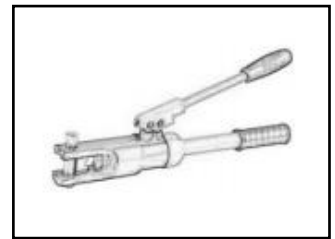
螺丝刀  
screwdriver



扳手  
wrench



电缆压接钳  
Cable crimping pliers



夹钳  
clamp



电压表  
voltmeter



电钻  
electric drill



平头螺丝刀  
Flat head screwdriver

为了保护操作员和安装人员的安全，请选择和使用经过精度和准确度认证的合适工具和测量仪器  
In order to protect operator and installer' s safety, please select and use suitable tools and measuring instruments that are certified for precision and accuracy.

### 5.1 安全仪器 Safety Instruments

处理电池时，应配备以下安全装置。安装人员必须符合IEC 60364或国内立法和其他相关国际标准的相关要求。  
When dealing with the battery, following safety gears should be equipped. Installers must meet the relevant requirements of IEC 60364 or the domestic legislation and other relevant international standards



隔热手套  
Oven Mitt



护目镜  
goggles



安全鞋  
Safety shoes

## 6 安全连接电线 Connection of the wires safely



带上安全手套，需要用绝缘胶带缠住正负极线  
防止正负极两端触碰短路  
Wear safety gloves and wrap the positive and negative wires with insulating tape  
Prevent short circuits caused by contact between the positive and negative terminals



绝缘胶带缠住正负极线两端完成状态  
The insulation tape is wrapped around both ends of the positive and negative wires to complete the state



用螺丝刀拧开正极螺丝  
Unscrew the positive screw with a screwdriver



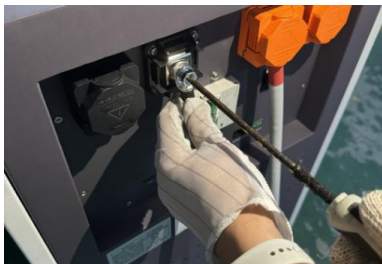
连接正极线  
Connect the positive wire



组装后用保护套盖住正极  
Cover the positive electrode with a protective cover after assembly



用螺丝刀拧开负极螺丝  
Unscrew the negative screw with a screwdriver



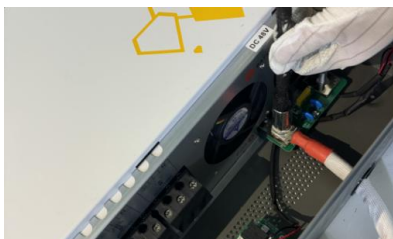
连接负极线  
Connect the negative wire



组装后用保护套盖住负极  
Cover the negative electrode with a protective cover after assembly



电池正负极安装完成状态  
Battery positive and negative pole installation completed status



连接逆变器正极线  
Connect the positive wire of the inverter



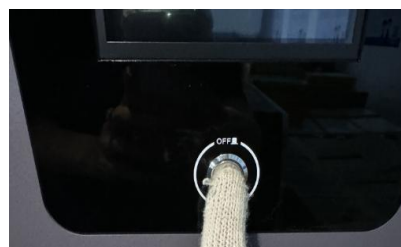
连接逆变器负极线  
Connect the negative wire of the inverter



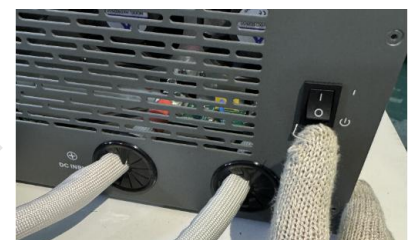
逆变器正负极安装完成状态  
Inverter positive and negative pole installation completed status



打开电池总开关  
Turn on the battery main switch



启动电池开关  
Activate battery switch

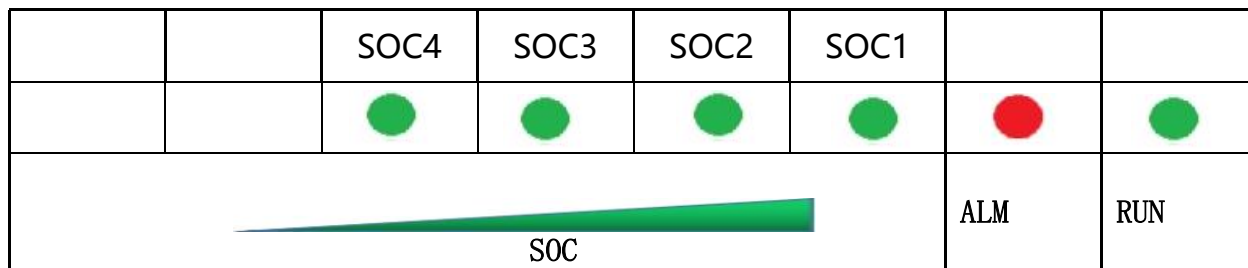


完成以上步骤，需等待一分钟后再启动逆变器开关  
To complete the above steps, wait for one minute before starting the inverter switch

## 7 LED指示灯定义 (LED indicator definition)

LED灯: 4个绿色容量指示灯, 一个红色告警指示灯, 一个绿色运行指示灯

LED lights: 4 green capacity indicators, one red alarm indicator, and one green running indicator



### 7.1 容量指示 (Capacity indication)

| 状态state                            | 充电charge          |        |        |        | 放电discharge         |        |        |        |
|------------------------------------|-------------------|--------|--------|--------|---------------------|--------|--------|--------|
| 容量指示灯<br>Capacity indicator        | SOC4 ●            | SOC3 ● | SOC2 ● | SOC1 ● | SOC4 ●              | SOC3 ● | SOC2 ● | SOC1 ● |
| 0 ~ 25%                            | Blink2            | Off    | Off    | Off    | On                  | Off    | Off    | Off    |
| 25 ~ 50%                           | On                | Blink2 | Off    | Off    | On                  | On     | Off    | Off    |
| 50 ~ 75%                           | On                | On     | Blink2 | Off    | On                  | On     | On     | Off    |
| 75 ~ 100%                          | On                | On     | On     | Blink2 | On                  | On     | On     | On     |
| 运行指示灯 ●<br>Running indicator light | 常亮<br>Stady light |        |        |        | 闪烁3<br>Blink 3 tims |        |        |        |

### 7.2 状态指示 (Status indication)

| 系统状态<br>System state | 异常事件<br>Abnormal event        | 电量 SOC LED  |   |   |   | ALM   | RUN   | 说明description  |
|----------------------|-------------------------------|---|---|---|---|---|---|--|
|                      |                               |  |  |  |  |  |  |  |
| 关机<br>Shut down      | 关机/休眠<br>Shut down/sleep mode | 全灭<br>All shut down   |   |   |   |   |   |  |
| 待机<br>standby        | 正常<br>normal                  | 依据电量指示<br>Indicator by SOC  |   |   |   | off   | blink1  | 待机时只有正常和告警, 保护和故障按充放电状态上报;告警包含以下几类, 压差大告警,容量低告警,单体电压低, 总体电压低, 所有的温度告警(电芯温度高、低, 环境温度高、低、MOS温度高)<br>When in standby mode, only normal and alarm are available, and protection and fault are reported according to the charging and discharging status; The alarms include the following categories: high voltage difference alarm, low capacity alarm, low individual voltage, low overall voltage, and all temperature alarms (high or low cell temperature, high or low ambient temperature, high MOS temperature) |
|                      | 告警<br>alarm                   |   |   |   |   | blink2  | blink1  |  |
| 充电<br>charge         | 正常<br>normal                  | 依据电量指示<br>Indicator by SOC<br>(电量最高指示LED闪烁2)<br>Highest indication with blink       |   |   |   | off   | on  |  |

| 系统状态<br>System state<br>em state | 异常事件<br>Abnormal event  | 电量 SOC LED  |   |   |   | ALM    | RUN    | 说明description  |
|----------------------------------|---|---|---|---|---|--------|--------|--|
|                                  |   | ●   | ● | ● | ● | ●      | ●      |  |
| 充电<br>charge                     | 正常<br>normal  | 依据电量指示<br>Indicator by SOC<br>(电量最高指示LED闪烁2)<br>Highest indication with blink   |   |   |   | off    | on     |  |
|                                  | 告警<br>alarm   |   |   |   |   | blink2 | on     | 告警包含以下几类，压差大告警，容量低告警，单体电压低，总体电压低，所有的温度告警(电芯温度高、低环境温度高、低，MOS温度高;过流告警)<br>The alarms include the following categories:<br>high voltage difference alarm, low capacity alarm, low individual voltage, low overall voltage, and all temperature alarms (high cell temperature, low ambient temperature, high/low, MOS temperature); Overcurrent alarm)                         |
|                                  | 单体/整体过压保护/满充保护<br>Unit \ overall overvoltage protection \ full charge protection  | 依据电量指示<br>Indicator by SOC  |   |   |   | off    | on     |  |
|                                  | 过流保护<br>(进入限流充)<br>Overcurrent protection<br>(Enter current limiting charge)  | 依据电量指示<br>(有充电电流时电量指示最高LED闪2)<br>Indicator by power(When there is charging current, the LED with the highest power indicator flashes 2) |   |   |   | off    | on     | 充过流保护后进入限流充电且有充电电流按正常状态显示;充过流保护后进入限流充电且无充电电流按故障状态显示，ALM常亮其它都灭。<br>After charging over current protection, it enters current limiting charging and the charging current is displayed in normal state; After overcurrent protection, it enters current limiting charging and no charging current is displayed according to fault state, ALM steady on and all others are off |
|                                  | 温度保护<br>Temperature protection  | 全灭<br>off   |   |   |   | on     | off    | 电芯、MOS、环境<br>Cell, MOS, environment  |
| 放电<br>discharge                  | 正常<br>normal  | 依据电量指示<br>Indicator by SOC  |   |   |   | off    | blink3 |  |
|                                  | 告警<br>alarm   | 依据电量指示<br>Indicator by SOC  |   |   |   | blink2 | blink3 | 告警包含以下几类，压差大告警，容量低告警，单体电压低，总体电压低，所有的温度告警(电芯温度高、低，环境温度高、低，MOS温度高;过流告警)<br>The alarms include the following categories:<br>high voltage difference alarm, low capacity alarm, low individual voltage, low overall voltage, and all temperature alarms (high or low cell temperature, high or low ambient temperature, high MOS temperature; overcurrent alarm)               |
|                                  | 单体/整体欠压保护<br>Monomer/whole Undervoltage protection  | 依据电量指示<br>Indicator by SOC  |   |   |   | blink2 | off    |  |
|                                  | 过流、短路保护<br>Overcurrent, short circuit protection  | off   |   |   |   | on     | off    |  |
| 故障<br>failure                    | NTC故障、MOS故障、反接、压差保护、超低压保护<br>NTC fault, MOS fault, reverse connection, differential pressure protection, ultra-low voltage protection | off   |   |   |   | on     | off    |  |

## 7.2 闪烁说明 (Blink indication)

| 闪动方式<br>Blink indication | 亮<br>on | 灭<br>off |
|--------------------------|---------|----------|
| blink1                   | 0.25 S  | 3.75 S   |
| Blink2                   | 0.5 S   | 0.5 S    |
| Blink3                   | 0.5 S   | 1.5 S    |

## 8 睡眠和唤醒

### 8.1 睡眠

当满足以下任一条件时，系统将进入低功耗模式：

- 1) 15分钟未解除欠压保护或总体欠压保护，进入欠压休眠。
  - 2) 按下按钮 (3-6S) 并松开。
  - 3) 最小电池电压低于休眠电压，持续时间达到休眠延迟时间，延时24小时进入待机休眠（同时满足无通信、无保护、无平衡、无电流的要求）。
  - 4) 通过上位机软件强制关机。
- 在进入睡眠模式之前，必须确保输入端子未连接到外部电压，否则将无法进入低功耗模式。

### 8.2 唤醒

当系统处于低功耗模式并满足以下任一条件时，系统将退出低功耗模式，进入正常运行模式：

- 1) 连接充电器，充电器的输出电压应大于48V。
- 2) 按下按钮 (3-6S) 并松开。

## 9. 产品寿命

该产品的设计寿命为10-15年。

## 10. 运输

运输过程中，请避免电池剧烈振动、撞击、过度暴露在阳光下和淋湿。

## 11. 储存

### 11.1 存储环境要求

温度为 $25\pm 3^{\circ}\text{C}$ ，相对湿度为45~85%。

### 11.2 储存期限

锂电池必须每三个月充电一次每六个月需要一个完整的充放电周期。

## 12. 注意事项

- \*安装调试应由专业电器人员操作。
- \*请勿将手或其他物体深入产品内部。
- \*请不要在没有专业人员的情况下打开产品。
- \*请不要机械损坏储能装置的电池模块机柜（穿孔、变形、剥落等）。
- \*请使用干粉灭火器作为灭火剂。
- \*请不要让蓄电池模块接触到异常金属或导体。
- \*电池出现短路请联系专业电器人员或者电池厂家检测解除短路保护后在使用。
- \*请不要将储能柜暴露在易燃或危险化学品或蒸汽中。

## 8 Sleep and Awakening

### 8.1 Sleep

- 1) If the undervoltage protection or overall undervoltage protection is not released for 15 minutes, enter undervoltage sleep mode.
- 2) Press button (3-6S) and release.
- 3) The minimum battery voltage is lower than the sleep voltage, and the duration reaches the sleep delay time. After a delay of 24 hours, it enters standby sleep mode (while meeting the requirements of no communication, no protection, no balance, and no current).
- 4) Force shutdown through the upper computer software. Before entering sleep mode, it is necessary to ensure that the input terminal is not connected to external voltage, otherwise it will not be able to enter low-power mode.

### 8.2 Awakening

When the system is in low-power mode and meets any of the following conditions, the system will exit low-power mode and enter normal operation mode:

- 1) Connect the charger, and the output voltage of the charger should be greater than 48V.
- 2) Press button (3-6S) and release.

## 9. Product lifespan

The design lifespan of this product is 10-15 years.

## 10. Transportation

During transportation, please avoid severe battery vibration, impact, excessive exposure to sunlight, and exposure to moisture.

## 11. Storage

### 11.1 Storage Environment Requirements

The temperature is  $25\pm 3^{\circ}\text{C}$  and the relative humidity is 45~85%.

### 11.2 Storage period

Lithium batteries must be charged every three months and require a complete charge and discharge cycle every six months.

## 12. Precautions

- \*Installation and debugging should be carried out by professional electrical personnel.
- \*Do not put your hands or other objects deep inside the product.
- \*Please do not open the product without professional personnel.
- \*Please do not mechanically damage the battery module cabinet of the energy storage device (perforation, deformation, peeling, etc.).
- \*Please use a dry powder fire extinguisher as the extinguishing agent.
- \*Please do not allow the battery module to come into contact with abnormal metals or conductors.
- \*If the battery has a short circuit, please contact professional electrical personnel or battery manufacturers to test and remove the short circuit protection before use.
- \*Please do not expose the energy storage cabinet to flammable or hazardous chemicals or vapors.

### 13 运输

- 1) 定制木箱包装和交付。在装卸和运输过程中，必须避免暴力振动和较大的外力冲击，禁止滚动、倒置、挤压和堆叠过高。
- 2) 运输过程中应防止下雨。
- 3) 运输前，确保电池或电池组已从充电设备上的负载上断开，并且没有任何类型的充电和放电行为。
- 4) 运输前，应固定和保护高压和低压线束，以避免线束损坏甚至在运输过程中因线束拉扯而导致的短路。
- 5) 如果在运输过程中发生坠落、进水等损坏，应将其放置分别由专业人员检查。

### 13 Transportation

- 1) Customized wooden crate packaging and delivery. During loading, unloading, and transportation, violent vibrations and significant external impacts must be avoided, and rolling, inversion, squeezing, and stacking too high are prohibited.
- 2) During transportation, rain should be avoided.
- 3) Before transportation, ensure that the battery or battery pack has been disconnected from the load on the charging device and there is no charging or discharging behavior of any kind.
- 4) Before transportation, the high and low voltage wiring harnesses should be fixed and protected to avoid damage to the harnesses or even short circuits caused by wire harness pulling during transportation.
- 5) If there is damage such as falling or water ingress during transportation, it should be placed separately and inspected by professionals.



### 15 包装清单 packing list

安装前检查设备。确保包装没有损坏。包装中应包括以下物品。  
Check the equipment before installation. Ensure that the packaging is not damaged. The packaging should include the following items.



①

②

③

④

⑤

- ① MC灰白移动式锂电池\*1  
MC gray white mobile lithium battery \* 1
- ② 上位机通讯线\*1  
Upper computer communication cable \* 1
- ③ 电池与逆变器通讯连接线\*1  
Battery and inverter communication connection cable \* 1
- ④ 电池与逆变器正极连接线\*1  
Battery and inverter positive connection wire \* 1
- ⑤ 电池与逆变器负极连接线\*1  
Battery and inverter negative connection wire \* 1

### 14 保修回复/更换

您的电池自零售购买之日起保修，保修期为有缺陷的材料或工艺。除此有限保证外，我们不作任何保证，并明确排除任何暗示保证，包括对间接损害的任何保证。此有限保修不可转让。  
卖方保证，如果按照所有适用说明使用，本产品在其保修期内不会出现材料和工艺方面的原始缺陷。如果产品在保修期内出现任何故障问题，卖方将根据故障情况自行决定维修或更换产品。

#### 有限保修

保存购买证明，如注明日期的收据。该装置的保修期延长至原始购买者或用户，可能涵盖材料和工艺缺陷。

对于自购买之日起六个月内因材料或工艺缺陷导致的故障，我们将在检查后自行决定维修或更换该设备。

如果发生以下任何一种情况，本保修无效，但不限于：

- 未遵守用户手册中的说明。
  - 意外或不合理使用、误用或处理不当、过度充电或装载，或正常磨损。
  - 延长存储时间，无需未经授权的人员进行充电或维修或修改。
- 本保证代替所有其他明示保证。蓝逆对间接或附带损害不承担责任。

### 14 Warranty Response/Replacement

Your battery is covered by warranty from the date of retail purchase for defective materials or workmanship.

Except for this limited warranty, we make no warranties and expressly exclude any implied warranties, including any warranties for consequential damages. This limited warranty is non transferable.

The seller guarantees that if used in accordance with all applicable instructions, this product will not have any original defects in materials and workmanship during the warranty period. If any malfunction occurs during the warranty period, the seller will decide to repair or replace the product based on the situation of the malfunction.

#### Limited Warranty

Save proof of purchase, such as a dated receipt. The warranty period of this device is extended to the original purchaser or user and may cover material and process defects.

For malfunctions caused by material or process defects within six months from the date of purchase, we will make our own decision to repair or replace the equipment after inspection.

If any of the following situations occur, this warranty is invalid, but not limited to: Not following the instructions in the user manual.

- Accidental or unreasonable use, misuse or improper handling, overcharging or loading, or normal wear and tear.

Extend storage time without the need for unauthorized personnel to charge, repair, or modify.

This warranty replaces all other express warranties. Blue Reverse shall not be liable for indirect or consequential damages.

### 保养记录

#### Maintenance records

尊敬的用户，感谢您选择我们的产品，请填写并保存保修卡，以获得更好的服务。

Dear user, thank you for choosing our product. Please fill out and save the warranty card for better service

联系人 contacts:

\_\_\_\_\_

产品型号PRODUCT MODEL:

\_\_\_\_\_

电话 phone:

\_\_\_\_\_

邮箱email:

\_\_\_\_\_

购买日期purchasing date:

\_\_\_\_\_

地址address:

\_\_\_\_\_

