

Energy Storage Battery User Manual

(General Edition)

安全注意事项 Safety precautions

● 运输 Transportation

电池搬运过程应注意以下方面：

The following aspects should be noted during battery handling:

- (1) 应轻拿轻放，避免电池受到剧烈撞击；

The battery should be handled with care to avoid severe impact;

- (2) 禁止倒置、翻滚、摔撞电池，避免破坏电池外观或者损伤电池内部引起短路起火事故；

Do not invert, roll or drop the battery to avoid damaging the battery appearance or damaging the battery interior, which may cause a short circuit or fire.

- (3) 电池应避免暴晒、雨淋，禁止直接将电池整体淹入水中；

The battery should be kept away from direct sunlight and rain, and it is forbidden to immerse the entire battery in water.

- (4) 禁止电池正负极短路。

Short circuiting the positive and negative poles of the battery is prohibited.

● 储存 Store

- (1) 电池存放在干燥、通风、无腐蚀气体环境中，要远离火源、避免暴晒，存储环境温度-10° ~40° ；

The battery should be stored in a dry, ventilated environment without corrosive gases. It should be kept away from fire and exposure to sunlight. The storage temperature should be between -10° and 40° .

- (2) 电池超过3~6个月不使用时，应该对电池进行电量检查，如果电量低于30%，应该对电池进行充电。

When the battery is not used for more than 3 to 6 months, the battery power should be checked. If the battery power is less than 30%, the battery should be charged.

● 安装注意事项 Installation Notes

- (1) 安装前拆箱、检查配件是否齐全，电池取出后，先进行一次开关机检查一下电池是否正常运行再进行安装；

Before installation, unpack and check whether all accessories are complete. After removing the battery, turn the machine on and off to check whether the battery is operating normally before installation.

- (2) 壁挂电池安装膨胀螺丝前，应该确认墙面承重是否足够，再进行安装；

Before installing the expansion screws on the wall-mounted battery, you should confirm whether the wall is load-bearing enough before installing it;

- (3) 电池输出正负极连接时，注意不能接反，在电池连接过程中，金属工具注意不要同时搭到电池正负极，避免电池短路，造成人员伤害；

When connecting the positive and negative poles of the battery output, be careful not to connect them in reverse. During the battery connection process, be careful not to use metal tools to touch the positive and negative poles of the battery at the same time to avoid battery short circuit and personal injury;

- (4) 电池跟逆变器连接时，电池要处于关机状态，电池开机前，要确认电池跟逆变器的连接线接线端子已经锁紧、牢固。

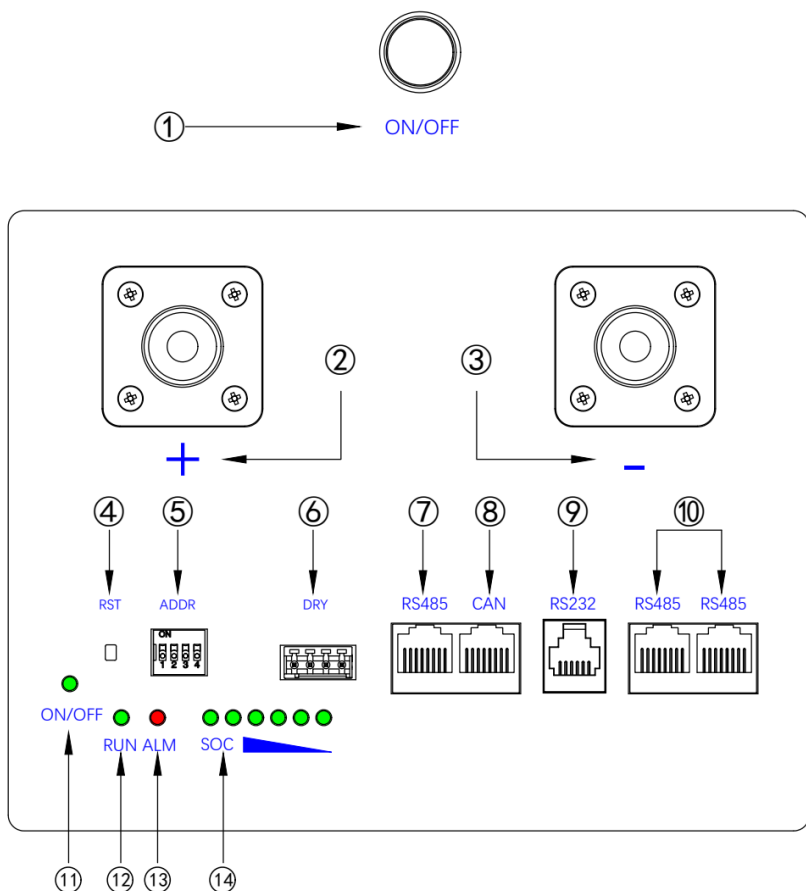
When connecting the battery to the inverter, the battery must be in the off state. Before turning on the battery, make sure that the connection terminals between the battery and the inverter are locked and secure.

● 电池面板功能介绍 Battery panel function

introduction

(注：由于本公司电池产品外观多样化，本说明只选取其中一款产品面板进行介绍，外观不同的产品，面板接口相同，不再复述。)

(Note: Due to the diverse appearance of our company's battery products, this description only selects one product panel for introduction. Products with different appearances have the same panel interface and will not be repeated.)



① 电池总开关：当开关按下时，电池开启，指示灯从 RUN 依次亮灯，大

约 10 秒左右，电池有电压输出，再次按下开关，电池关机，输出关闭。

Battery main switch: When the switch is pressed, the battery is turned on, and the indicator lights light up from RUN in sequence. After about 10 seconds, the battery has voltage output. Press the switch again, the battery is turned off and the output is closed.

② 电池输出正极：对应连接设备的正极。

Battery output positive pole: corresponds to the positive pole of the connected device.

③：电池输出负极，对应连接设备的负极。

Battery output negative pole, corresponds to the negative pole of the connected device.

④ 电池复位开关：当电池死机或者不能开机时，可以通过长按此键约 10S 左右进行系统复位。

Battery reset switch: When the battery is dead or the device cannot be powered on, you can reset the system by pressing and holding this button for about 10 seconds.

⑤ 拨码开关：当电池多台并联时，可以通过硬件地址区分不同的 PAKC，且整个电池中的每个 PACK 的硬件地址是唯一的，硬件地址可通过板上的拨码开关进行一次设置，开关的定义如下：

Dip switch: When multiple batteries are connected in parallel, different PACKs can be distinguished by hardware addresses, and the hardware address of each PACK in the entire battery is unique. The hardware address can be set once through the dip switch on the

board. The definition of the switch is as follows:



地址 address	拨码开关位置 Dip switch position				说明 illustrate
	#1	#2	#3	#4	
0	OFF	OFF	OFF	OFF	无级联，单机使用 No cascading, single machine use
1	ON	OFF	OFF	OFF	设置为 Pack1（主） (Set to Pack1 (Master))
2	OFF	ON	OFF	OFF	设置为 Pack2（Set to Pack2)
3	ON	ON	OFF	OFF	设置为 Pack3（Set to Pack3)
4	OFF	OFF	ON	OFF	设置为 Pack4（Set to Pack4)
5	ON	OFF	ON	OFF	设置为 Pack5（Set to Pack5)
6	OFF	ON	ON	OFF	设置为 Pack6（Set to Pack6)
7	ON	ON	ON	OFF	设置为 Pack7（Set to Pack7)
8	OFF	OFF	OFF	ON	设置为 Pack8（Set to Pack8)
9	ON	OFF	OFF	ON	设置为 Pack9（Set to Pack9)

10	OFF	ON	OFF	ON	设置为 Pack10 (Set to Pack10)
11	ON	ON	OFF	ON	设置为 Pack11 (Set to Pack11)
12	OFF	OFF	ON	ON	设置为 Pack12 (Set to Pack12)
13	ON	OFF	ON	ON	设置为 Pack13 (Set to Pack13)
14	OFF	ON	ON	ON	设置为 Pack14 (Set to Pack14)
15	ON	ON	ON	ON	设置为 Pack15 (Set to Pack15)

⑥干接点：外部备用接口。

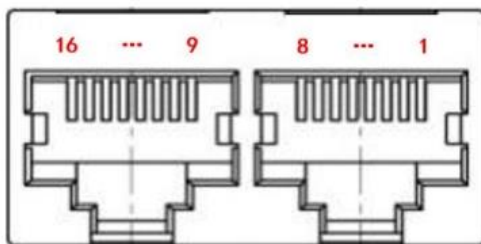
Dry contact: external backup interface.

⑦RS485 接口：电池跟外部设备通讯；

RS485 interface: battery communicates with external devices;

⑧：CAN 接口，电池跟外部设备通讯，两个接口定义相同，接口定义如下图：

CAN interface, the battery communicates with external devices, the two interfaces have the same definition, the interface definition is as follows:



CAN 与 RS485 接口 CAN and RS485 interface

RS485--采用 8P8C 立式 RJ45 插座 (RS485--Using 8P8C vertical RJ45 socket)		CAN--采用 8P8C 立式 RJ45 插座 (CAN--Using 8P8C vertical RJ45 socket)	
RJ45 引脚 (RJ45 Pinout)	定义说明 (Definition)	RJ45 引脚 (RJ45 Pinout)	定义说明 (Definition)
1、8	RS485-B1	9、16	RS485-B1
2、7	RS485-A1	10	RS485-A1
3、6	GND	11、14、15	GND
4	CANL	12	CANL
5	CANH	13	CANH

⑨RS232 通讯接口：用来跟电脑连接主板的上位机，通过电脑上位机查看更改电池参数设置，接口定义如下：

RS232 communication interface: used to connect the host computer of the motherboard to view and change the battery parameter settings through the host computer. The interface definition is as follows:

RS232--采用 6P6C 立式 RJ11 插座 (RS232--Using 6P6C vertical RJ11 socket)	
RJ11 引脚	定义说明

(RJ11 Pinout)	(Definition)
1、2、6	NC
3	TX (单板) (TX (single board))
4	RX (单板) RX (single board)
5	GND
NC-NC-TX-RX-GND-NC	

⑩RS485 并联通讯口：电池与电池之间并联时候的通讯接口，接口定义如下：

RS485 parallel communication port: Communication interface when batteries are connected in parallel. The interface definition is as follows:

RS485--采用 8P8C 立式 RJ45 插座 (RS485--Using 8P8C vertical RJ45 socket)		RS485--采用 8P8C 立式 RJ45 插座 (RS485--Using 8P8C vertical RJ45 socket)	
RJ45 引脚 (RJ45 Pinout)	定义说明 (Definition)	RJ45 引脚 (RJ45 Pinout)	定义说明 (Definition)
1、8	RS485-B	9、16	RS485-B
2、7	RS485-A	10、15	RS485-A
3、6	GND	11、14、	GND
4	自动拨码上级输入 IN_DP+ (Automatic dial code upper input IN_DP+)	12	自动拨码下级输出 ON_DP+ (Automatic dial lower output ON_DP+)
5	自动拨码上级输入	13	自动拨码下级输出

	IN_DP- (Automatic dial code upper input IN_DP-)		ON_DP- (Automatic dial code lower level output ON_DP-)
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- ⑪电源开关指示灯：电池开机正常运行之后，电源指示灯常亮。
Power switch indicator light: After the battery is turned on and the machine is running normally, the power indicator light will be on.
- ⑫运行指示灯：电池开机正常运行后，指示灯闪烁。
Operation indicator light: After the battery is turned on and the machine is operating normally, the indicator light flashes.
- ⑬故障告警灯：当电池出现问题故障时，该指示灯亮起为红色。
Fault warning light: When there is a problem with the battery, the indicator light lights up red.
- ⑭电池电量显示灯：显示当前电池的剩余电量，六个灯从右往左根据电池的剩余电量亮起。
Battery power indicator light: Displays the current remaining battery power. Six lights light up from right to left according to the remaining battery power.

附 LED 指示灯状态显示表：

Attached LED indicator status display table:

表 1 LED 工作状态指示 Table 1 LED working status indication

状	正常/报	RUN	ALM	电量指示 LED	说明
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态 state	警/保护 (Normal/Alarm/Protection)			(Battery indicator LED)						illustrate
										
关机 (Shut down)	休眠 (Hibernation)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	全灭 (All Shut down)
待机	正常 (normal)	闪1 (Flash 1)	灭 (Shut down)	依据电量指示 (According to the power indicator)						待机状态 (Stand by mode)
	报警 (alarm)	闪1 (Flash 1)	闪3 (Flash 3)							模块低压 (Module low voltage)
充电 (Charge)	正常 (normal)	常亮 (Always on)	灭 (Shut down)	依据电量指示 (电量指示最高 LED 闪2) (According to the power indicator (The maximum power indicator LED flashes 2 times))						最高电量 LED 闪动 (闪2), 过充报警 ALM 不闪烁 (The maximum power LED flashes
	报警 (alarm)	常亮 (Always on)	闪3 (Flash 3)							flashes

										(2 flashes), and the overchar ge alarm ALM does not flash)
	过充保护 (Overc harge protectio n)	常亮 (Alwa ys on)	灭 (Shu t down)	常亮 (Alw ays on)	常亮 (Alwa ys on)	常亮 (Alwa ys on)	常亮 (Alwa ys on)	常亮 (Alwa ys on)	常亮 (Alwa ys on)	若无市 电，指示 灯为待机 状态 (If there is no mains power, the indicator light is in standby mode.)
	温度、过 流、失效 保护 (Tempe rature, overcurr ent,	灭 (Shu t down)	常亮 (Alw ays on)	灭 (Sh ut down)	灭 (Shu t down)	灭 (Shu t down)	灭 (Shu t down)	灭 (Shut down)	灭 (Shut down)	停止充电 (Stop charging)

	failure protection)									
放电 (Discharge)	正常 (normal)	闪3 (Flash 3)	灭 (Shut down)	依据电量指示 (According to the power indicator)						
	报警 (alarm)	闪3 (Flash 3)	闪3 (Flash 3)							
	欠压保护 (Under voltage protection)	灭 (Shut down)	常亮 (Always on)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	停止放电 (Stop discharge)
	温度、过流、短路、反接、失效保护 (Temperature, over current, short circuit, reverse connection,	灭 (Shut down)	常亮 (Always on)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	停止放电 (Stop discharge)

	failure protectio n)									
失效 (Invalidation)		灭 (Shut down)	常亮 (Always on)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	停止充、 放电 (Stop charging and dischargi ng)

表 2 容量指示说明 Table 2 Capacity Indication

状态 (state)		充电 (Charge)						放电 (Discharge)					
容量指示灯		L6 ●	L5 ●	L4 ●	L3 ●	L2 ●	L1 ●	L6 ●	L5 ●	L4 ●	L3 ●	L2 ●	L1 ●
电 量 (%)	0~ 16. 7%	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	Flash 2	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	常亮 (Always on)
	16. 7~ 33. 3%	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	Flash 2	常亮 (Always on)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	常亮 (Always on)	常亮 (Always on)
	33. 3~ 50%	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	Flash 2	常亮 (Always on)	常亮 (Always on)	灭 (Shut down)	灭 (Shut down)	灭 (Shut down)	常亮 (Always on)	常亮 (Always on)	常亮 (Always on)
	50 ~ 66. 7%	灭 (Shut down)	灭 (Shut down)	Flash 2	常亮 (Always on)	常亮 (Always on)	常亮 (Always on)	灭 (Shut down)	灭 (Shut down)	常亮 (Always on)	常亮 (Always on)	常亮 (Always on)	常亮 (Always on)

		dow n)	down)					down)	down)				
	66. 7~ 83. 4%	灭 (S hut dow n)		常亮 (Alw ays on)	常亮 (Alw ays on)	常亮 (Alw ays on)	常亮 (Alw ays on)	灭 (Sh ut down)	常亮 (Alw ays on)	常亮 (Alw ays on)	常亮 (Always on)	常亮 (Alwa ys on)	常亮 (Alway s on)
	83. 4~ 100 %		常亮 (Alw ays on)	常亮 (Alw ays on)	常亮 (Alw ays on)	常亮 (Alw ays on)	常亮 (Alw ays on)	常亮 (Alw ays on)	常亮 (Alw ays on)	常亮 (Alw ays on)	常亮 (Always on)	常亮 (Alwa ys on)	常亮 (Alway s on)
运行指示灯 ●Running indicator light●		常亮 (Always on)						闪烁(闪 3) (Flash (Flash 3))					

表 3 LED 闪动说明 Table 3 LED flashing description

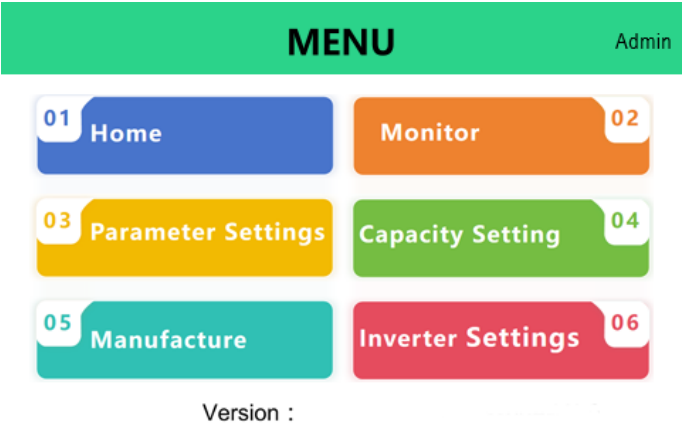
闪动方式 (Flashing mode)	亮 (On)	灭 (Shut down)
闪1 (Flash1)	0.25S	3.75S
闪2 (Flash2)	0.5S	0.5S
闪3 (Flash3)	0.5S	1.5S

● 电 池 触 摸 屏 使 用 说 明 Battery Touch Screen

Instructions

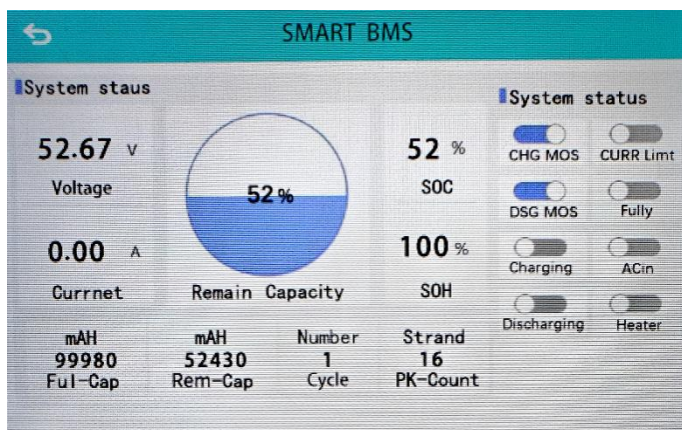
当电池开机后，屏幕亮起，屏幕显示界面如下图:(默认“访客模式”，访客模式下只能查看数据，无法操作,输入密码后可以切换到“管理员模式”（右上角图标变绿），切换后可以进行参数配置操作.)

When the battery is turned on, the screen lights up and the screen display interface is as follows: (The default is "Guest Mode". In Guest Mode, you can only view data but cannot operate. After entering the password, you can switch to "Administrator Mode" (the icon in the upper right corner turns green). After switching, you can perform parameter configuration operations.)



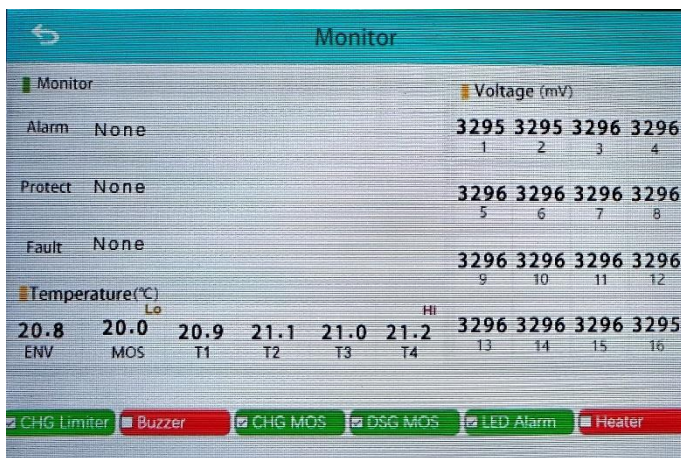
①Home: 点击进到这个界面后,电池能显示当前运行总电压、充放电流、电池剩余容量, 设计容量以及循环次数等信息, 如下图:

Home: After clicking into this interface, the battery can display the current total operating voltage, charge and discharge current, remaining battery capacity, design capacity, number of cycles and other information, as shown below:



②Monitor: 点击进到这个界面后，电池可以显示 BMS 产品的告警状态信息，单体高压、单体低压、总体高压、总体低压、充电过流、放电过流、电芯充电高温、电芯放电高温、电芯充电低温、电芯放电低温、电量低、环境 (PCB) 高温、环境 (PCB) 低温、功率管高温等，如果没有则显示“None”。该界面还可显示环境温度、MOS 温度等，右侧是 16 个单体电池的电压情况，最底部是可控制的系统状态，如下图：

After clicking into this interface, the battery can display the alarm status information of the BMS product, including single cell high voltage, single cell low voltage, overall high voltage, overall low voltage, charging overcurrent, discharging overcurrent, battery cell charging high temperature, battery cell discharging high temperature, battery cell charging low temperature, battery cell discharging low temperature, low power, environment (PCB) high temperature, environment (PCB) low temperature, power tube high temperature, etc. If there is none, "None" will be displayed. This interface can also display the ambient temperature, MOS temperature, etc. The right side shows the voltage of 16 single cells, and the bottom is the controllable system status, as shown in the figure below:



③Parameter Settings: 参数配置功能，支持 BMS 运行参数配置，参数包括总体过充、单体过充、总体过放、单体过放、充电过流、放电过流、短路保护、充电高温、放电高温、充电低温、放电低温、环境低温、环境高温、MOS 高温的告警、保护、恢复以及均衡开启单体休眠、满充判断、待机休眠延时等等参数。Read All 用于读取参数信息，Write All 在登录后用于更改配置，Reset Setting 用于恢复默认值，右上角的箭头用于切换画面，如下图：

Parameter Settings: Parameter configuration function supports BMS operation parameter configuration, including overall overcharge, single cell overcharge, overall overdischarge, single cell overdischarge, charge overcurrent, discharge overcurrent, short circuit protection, charge high temperature, discharge high temperature, charge low temperature, discharge low temperature, ambient low temperature, ambient high temperature, MOS high temperature alarm, protection, recovery, balanced single cell sleep, full charge judgment, standby sleep delay and other parameters. Read All is used to read parameter information, Write All is used to change the configuration after logging in, Reset

Setting is used to restore the default value, and the arrow in the upper right corner is used to switch the screen, as shown below:

		Read All		Write All		Reset Setting			
Pack OV Alarm(V)		57.60		Pack UV Alarm(V)		44.80			
Protect(V)		59.20		Protect(V)		43.20			
Release(V)		54.00		Release(V)		47.20			
Delay Time(mS)		1000		Delay Time(mS)		1000			
Cell OV Alarm(V)		3.60		Cell UV Alarm(V)		2.80			
Protect(V)		3.70		Protect(V)		2.70			
Release(V)		3.38		Release(V)		2.95			
Delay Time(mS)		1000		Delay Time(mS)		1000			

④Capacity Setting: 该界面用于显示保护板当前设置的总电量、当前剩余电量、满充电量。Read 用于读取参数，Write 用于修改配置。在登录前参数只能读取，登录后参数信息可读可写,如下图：

Capacity Setting: This interface is used to display the total power, current remaining power, and full charge of the protection board. Read is used to read parameters, and Write is used to modify configurations. Before logging in, parameters can only be read, and after logging in, parameter information can be read and written, as shown below:

The screenshot shows a user interface titled "Capacity (mAh)" with a back arrow icon. It contains three input fields for capacity values and two action buttons.

Field Name	Value
DesignCapacity	100000
RemainCapacity	52430
FullCapacity	99980

Below the input fields are two buttons: "Read" and "Write".

⑤Manufacture: 界面用于显示一些 BMS 信息，如 BMS SN (BMS 生产信息)、Pack SN (PACK 生产信息)，Read 用于读取信息，Write 在登录之后用于更改信息，Clear 则用于删除方框中的信息，右边的下拉框用于设置显示的信息个数。最下方的方框用于配置触摸屏待机时间，待机时间在登录之后可更改，如下图：

Manufacture: The interface is used to display some BMS information, such as BMS SN (BMS production information), Pack SN (PACK production information), Read is used to read information, Write is used to change information after logging in, Clear is used to delete the information in the box, and the drop-down box on the right is used to set the number of displayed

information. The box at the bottom is used to configure the touch screen standby time, which can be changed after logging in, as shown below:

Manufacture Information

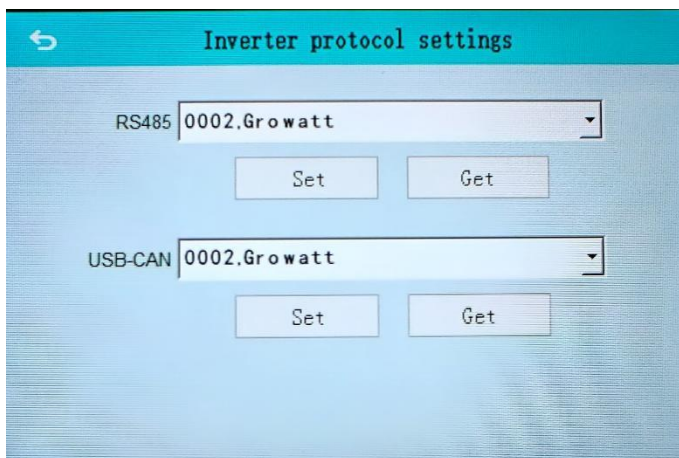
BMS SN

Pack SN

Screen Shutdown settings DS2003-V1.0

⑥InverterSettings: 界面用于查看和设置 BMS 系统的协议，Get 用于获取当前的协议（RS485 协议、USB-CAN 协议），Set 则用于设置协议，在登录之后可打开下拉框选择协议，点击 Set 之后，就可更改配置协议，如下图：

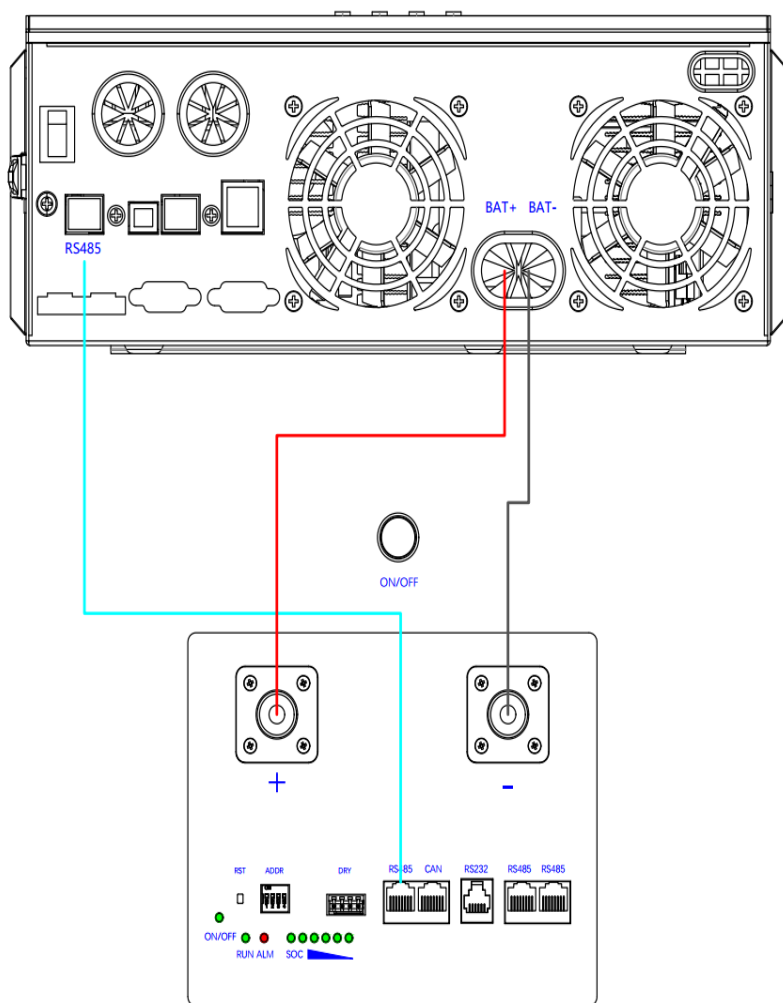
InverterSettings: The interface is used to view and set the protocol of the BMS system. Get is used to obtain the current protocol (RS485 protocol, USB-CAN protocol), and Set is used to set the protocol. After logging in, you can open the drop-down box to select the protocol. After clicking Set, you can change the configuration protocol, as shown below:



● 电池连接示意图 Battery connection diagram

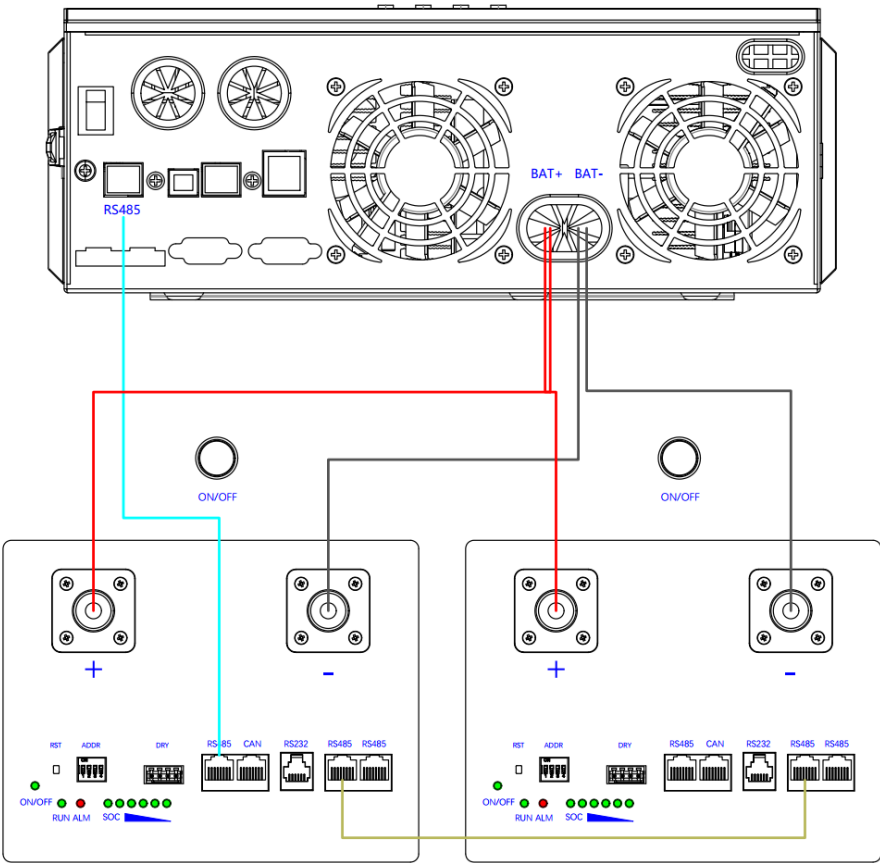
①当一台电池连接一台逆变器时，电池连接示意图如下：

When one battery is connected to one inverter, the battery connection diagram is as follows:



②当两台电池连接一台逆变器时，电池连接示意图如下：

When two batteries are connected to one inverter, the battery connection diagram is as follows:

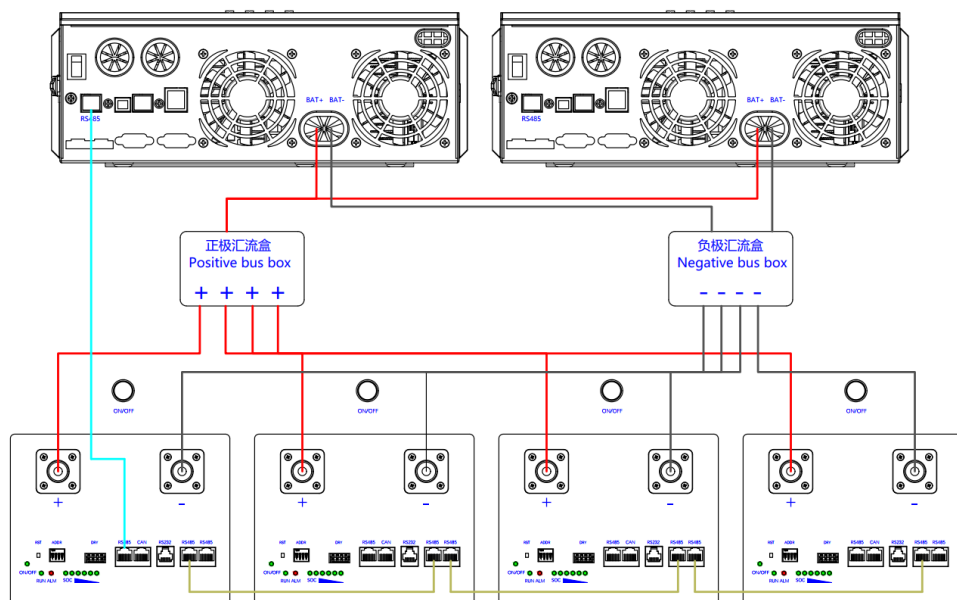


(注: 当多台电池并机时, 电池需要拨码, 拨码顺序请参考拨码开关说明)

(Note: When multiple batteries are connected in parallel, the batteries need to be dialed. Please refer to the dial switch instructions for the dial sequence.)

③当多台电池连接多台逆变器时，电池连接示意图如下：

When multiple batteries are connected to multiple inverter rooms, the battery connection diagram is as follows:



(注：当多台电池并联时，电池需要拨码，拨码顺序请参考拨码开关说明，电池并联时，对应的电流也会增加，汇流盒到逆变器端需要根据实际电流大小选用承受更大电流的电线)

(Note: When multiple batteries are connected in parallel, the batteries need to be dialed. Please refer to the dial switch instructions for the dial sequence. When the batteries are connected in parallel, the corresponding current will also increase. The junction box to the inverter end needs to use wires that can withstand a larger current according to the actual current size)