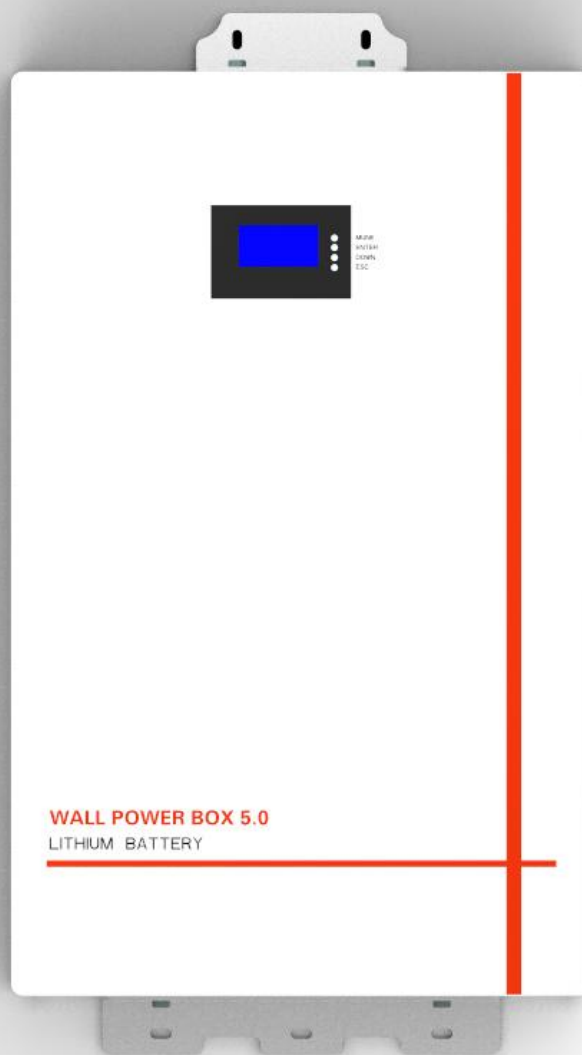


- **锂电池储能系统**  
**Lithium battery energy storage system**

- **用户手册**

**User Manual**



声明：当在使用安装电池组时，请认真阅览、遵守本操作手册，如有操作不当，造成人为损害，则保修索赔无效。

Disclaimer: When using and installing the battery pack, please read and abide by the operating instructions carefully. If improper operation causes man-made damage, the warranty claim will be invalid.



**警告：** 在安装或使用电池组之前，请阅读完整文档。

**WARNING:** Please read the complete documentation before installing or using the battery pack.

如果不这样做或不遵循本文档中的任何说明或警告，可能在电击下会严重受伤，或死亡，或可能损坏电池组

If you do not do this or do not follow any instructions or warnings in this document, you may be seriously injured or killed by electric shock, or the battery pack may be damaged

## 产品规格：

### Product specification:

本手册适用于科恒新能源（东莞）有限公司所制造的磷酸铁锂家庭储能系列产品。

This manual is applicable to lithium iron phosphate family energy storage products manufactured by Keheng New Energy (Dongguan) Co., Ltd.

## 产品须知：

### Product Instructions:

本文件中所包含的所有规范和说明在打印时都被证实是准确的。但是，由于持续改进是科恒的目标，我们保留在任何时候进行产品修改的权利。

All specifications and instructions contained in this document have been verified to be accurate at the time of printing. However, since continuous improvement is Keheng's goal, we reserve the right to make product modifications at any time.

本文档中提供的图像仅供演示目的使用。根据产品版本的不同，细节可能会略有不同。

The images provided in this document are for demonstration purposes only. The details may vary slightly depending on the product version.

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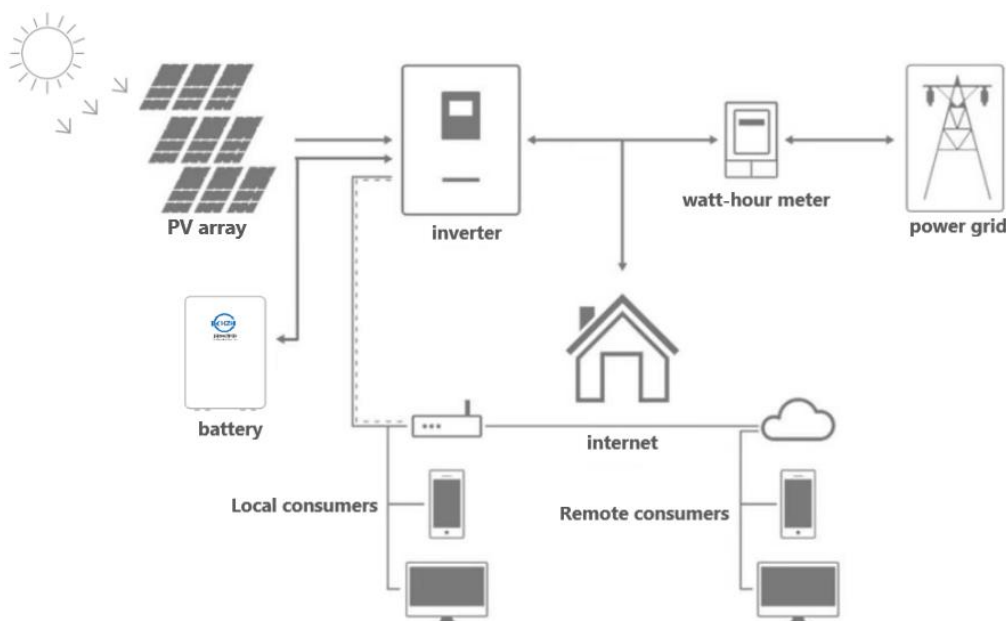
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## 1.关于电池组的应用

### About Battery Pack Applications

本产品主要与逆变器、光伏（PV）及相关配件相结合，建设住宅储能系统。该系统用于将光伏发电产生的电力存储到所连接的电池中，并转换由光伏发电产生的直流电（DC）将电池连接成交流电（AC），并将其提供给家庭电网。

This product is mainly combined with inverter, photovoltaic (PV) and related accessories to build residential energy storage system. The system is used to store the power generated by photovoltaic power generation into the connected battery, convert the DC generated by photovoltaic power generation, connect the battery to the transaction current (AC), and provide it to the home grid.



（注：实际住宅 ESS 也可包括配电箱、计量表等电气设备）

(Note: the actual residential ESS can also include electrical equipment such as power distribution box and meter)

电池组是一种锂离子电池，可以存储电能和输出直流电流。电池组只与逆变器保持电气连接。光伏产生的电能由逆变器直流转换为直流，并存储在所连接的电源箱中。当需要电源箱时，电源箱的电能通过逆变器直流电转换为交流电，传输到家庭电网，为家用电器供电。

The battery pack is a lithium ion battery, which can store electric energy and output DC current. The battery pack is only electrically connected to the inverter. The electric energy generated by photovoltaic is converted into DC by the inverter and stored in the connected power box. When the power box is needed, the electric energy of the power box is converted into AC through the inverter DC, and transmitted to the home grid to supply power for household appliances.

家用储能系统的主要功能依赖于逆变器、锂电池组是一种储存电能的设备。

The main function of the home energy storage system depends on the inverter, and the lithium battery pack is a device that stores electrical energy.

## 2.家庭储能系统的特点与功能:

### Features and functions of household energy storage system:

- 自主生产和销售电能

#### Self production and sales of electric energy

使用太阳能和锂电池组来减少对电网的依赖性与存储电能的难度

Use solar and lithium battery packs to reduce dependence on the grid and difficulty in storing electric energy

白天存储电能，可在夜间用电

Electric energy can be stored during the day and used at night

- 备用电源

#### emergency power supply

当电网断电时，可以无缝切换到锂电池组供电

When the power grid is cut off, it can be seamlessly switched to the lithium battery pack for power supply

- 销售电能

#### Sales of electric energy

由光伏阵列产生的电能可以存储在一个连接的电池组中或卖给能源供应公司

The electricity generated by photovoltaic arrays can be stored in a connected battery pack or sold to energy supply companies.

- 离网供电

#### Off grid power supply

离网供电该系统可连接到柴油发电机上，以确保电源不间断

Off grid power supply The system can be connected to the diesel generator to ensure uninterrupted power supply

在没有城市电力的地区（如岛屿和偏远的山区）提供供应

Provide supply in areas without urban power, such as islands and remote mountain areas

（注：系统电能调度管理依赖于逆变器，锂电池组是效力于被兼容的各种逆变器。您使用的逆变器不一定包含上述所有功能）

(Note: The system electric energy dispatching management depends on the inverter, and the lithium battery pack is valid for all compatible inverters. The inverter you use does not necessarily include all the above functions)

## 锂电池组 BMS 监控系统:

### BMS monitoring system of lithium battery pack:

使用该应用程序，您可以从您的移动设备上监控系统操作，包括接下来的：

With this application, you can monitor system operations from your mobile device, including the following

实时电流、电压、容量使用情况

Real time current, voltage and capacity usage  
获取锂电池组能量消耗数据与报警状态记录

Obtain energy consumption data and alarm status record of lithium battery pack  
修改锂电池组各项功能参数

Modify the functional parameters of lithium battery pack



BMS monitoring system

蓝牙监控系统:

Bluetooth monitoring system:

下载本产品手机 APP，通过移动设备上监控系统操作，包括接下来的:

Download the mobile APP of this product and operate it through thmonitoring system on the mobile device, including the following:

实时电流、电压、容量使用情况

Real time current, voltage and capacity usage

获取锂电池组能量消耗数据与报警状态记录

Obtain energy consumption data and alarm status record of lithium battery pack

修改锂电池组各项功能参数

Modify the functional parameters of lithium battery pack

以上所述应用程序与 APP，请跟 KH 或当地经销商获取

Please contact KH or local dealers for the above applications and APPs

(因出货型号需求不同，您购买的锂电池组不一定有上述所有功能)

(Due to different shipping models, the lithium battery pack you purchased may not have all the above functions)



(注：BMS 与蓝牙监控的参数修改权限，必须与本公司或当地经销商获取修改权限，安排相关人员进行技术指导，任何未经授权允许，而对参数进行修改，导致产品性能出现不稳定性、或损坏的，则保修索赔无效)

(Note: For the parameter modification authority of BMS and Bluetooth monitoring, we must obtain the modification authority with our company or local dealers and arrange relevant personnel for technical guidance. If any parameter modification without authorization results in instability or damage of product performance, the warranty claim is invalid)

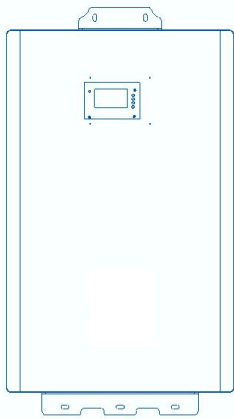
### 3.产品警告：

Product warning:

**WARN**  
**INTERNAL DANGER/LOW DC VOLTAGE**

- .Do not disconnect or disassemble by non professionals.
- .Do not install this product in direct sunlight.
- .Do not approach open flames or flammable materials.
- .Do not place in a place that can be touched by children and pets.
- .Do not touch leaked liquid.
- .Do not use sharp objects, drops, impacts, cuts, or punctures
- .Do not sit or place heavy objects on the battery.
- .Keep this product away from moisture or liquids.
- .If leaking, fire, wet or damaged, switch off the breaker on DC side and stay away from the product.
- .Contact your supplier within 24 hour if anything failure happens.

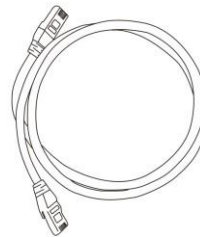
4.货物清单：  
Goods list:



电池 Battery



电源线 power cord\*2



COM Cable\*1



手册 usermanual

序号 Serial No	项目 project	说明 explain

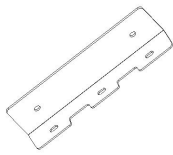


1	电池 Battery	磷酸铁锂电池组 Lithium iron phosphate battery pack
2	电源线 power cord	电池组与逆变器的连接线 Connecting line between battery pack and inverter
3	COM Cable	电池组与逆变器的通信串口连接线 Communication serial port connecting line between battery pack and inverter
4	手册 usermanual	用户使用手册 User Manual

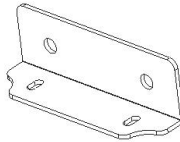
5. 安装配件：  
Mounting accessories:



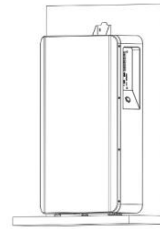
定位纸板  
Positioning cardboard



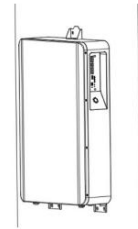
支撑板 Support plate-1



支撑板 Support plate-1

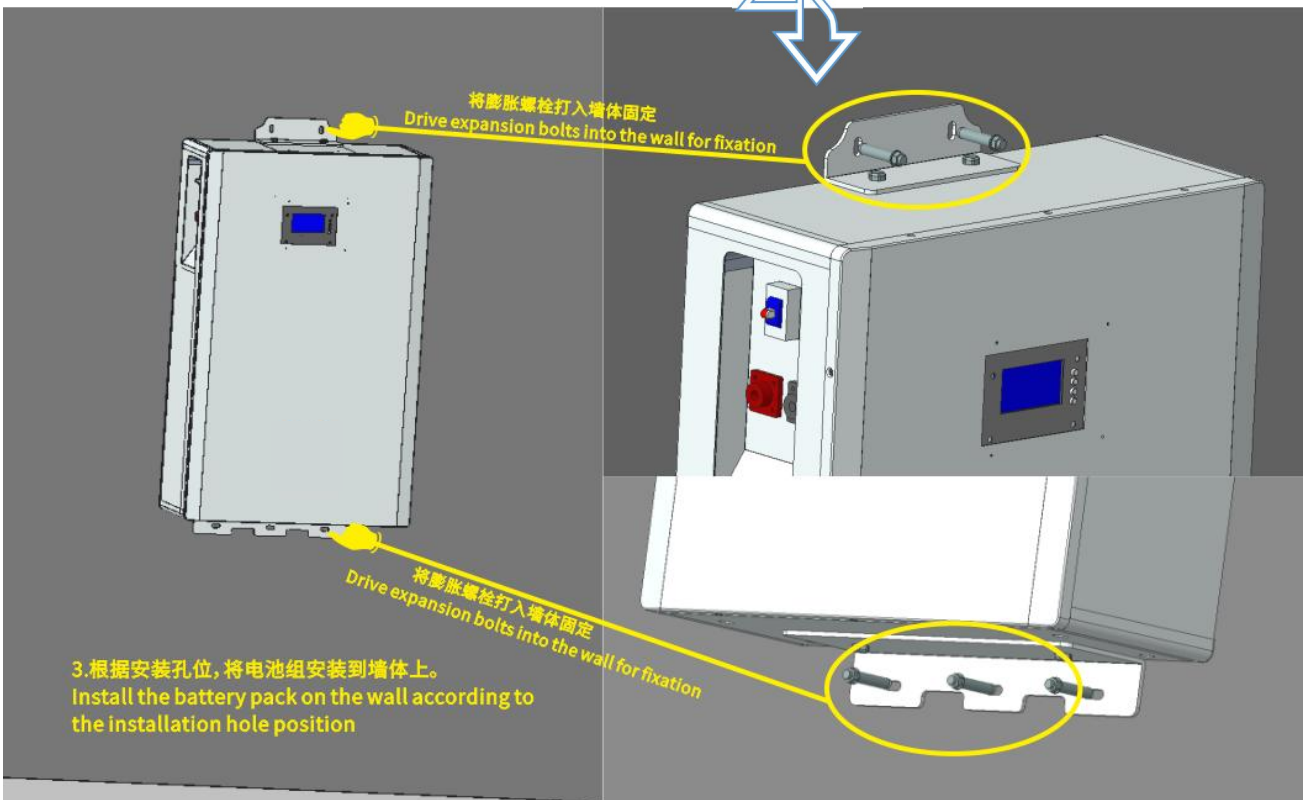
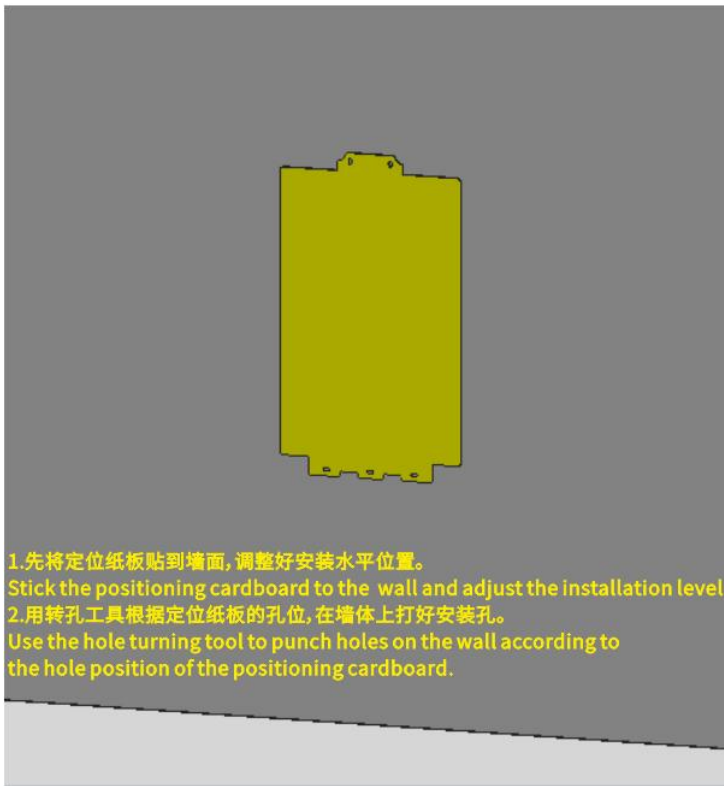


地板安装  
Floor installation

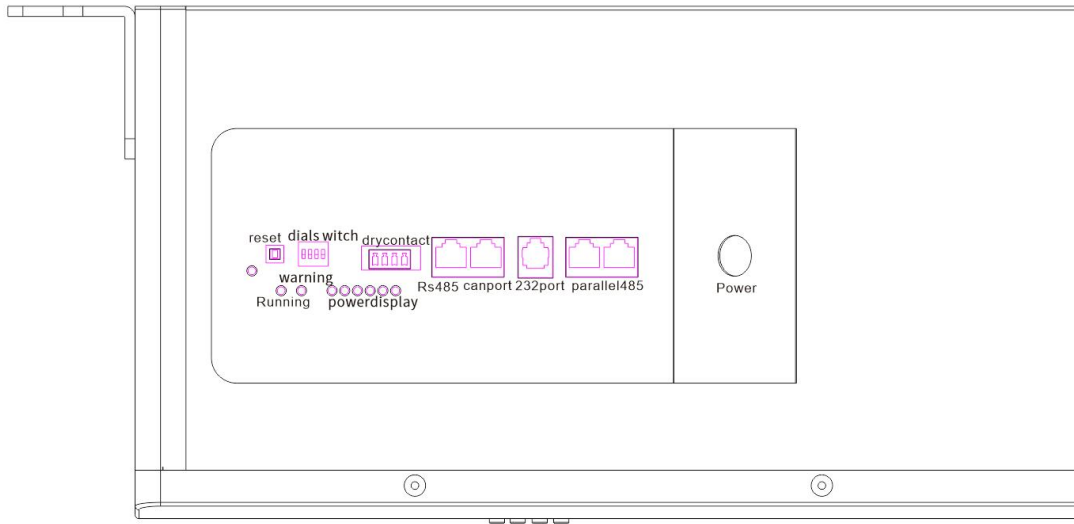


挂墙安装  
Wall mounted installation

安装步骤 Installation steps



6.端口定义:  
Port definition:



序号 Serial No	名称 name
1	复位开关 reset
2	拨码开关 Dial switch
3	干接点 drycontact
4	运行指示灯 Running
5	警告 warning
6	电量显示灯 powerdisplay
7	Rs485 主机端口 Host port
8	Can port
9	232 port
10	Parallel485 并机端口
11	弱电开关 Power

## 7. 复位开关说明:

### scription of reset switch:

BMS 处于休眠状态时，按下按键（3~6S）后松开，电池组被激活，LED 指示灯从“RUN”开始依次点亮 0.5 秒。

When the BMS is in the sleep state, press the key (3~6S) and release it, the battery pack is activated, and the LED indicator lights up for 0.5 seconds from "RUN".

BMS 处于激活状态时，按下按键（3~6S）后松开，电池组被休眠，LED 指示灯从最低电量灯开始依次点亮 0.5 秒。

When the BMS is active, press the key (3-6S) and release it. The battery pack is dormant. The LED indicator lights up for 0.5 seconds from the lowest battery level.

BMS 处于激活状态时，按下按键（6~10S）后松开，电池组被复位，LED 灯全部同时点亮 1.5 秒。

When the BMS is in the active state, press the key (6~10S) and release it, the battery pack is reset, and all LED lights are on for 1.5 seconds at the same time.

## 8. 电池组休眠与唤醒:

### Battery Pack Sleep and Wake up:

#### 休眠 dormancy

当满足以下任意一条件时，系统进入低功耗模式:

When any of the following conditions is met, the system enters the low power consumption mode:

1) 单体或总体过放保护 30 秒内仍未解除。

The single or overall over discharge protection has not been removed within 30 seconds.

2) 按下按键（3~6S），松开按键后。

Press the key (3-6S) and release it.

3) 最低单体电压低于休眠电压，并且持续时间达到休眠延迟时间（同时满足无通信、无保护、无均衡、无电流）。

The minimum monomer voltage is lower than the sleep voltage, and the duration reaches the sleep delay time (no communication, no protection, no balance, no current).

4) 待机时间超过 24 小时（无通信、无充放电，无市电）。

The standby time exceeds 24 hours (no communication, no charge and discharge, no mains power).

5) 通过上位机软件强制关机。

Forced shutdown through the upper computer software.

进入休眼前，需确保输入端未接入外部电压，否则将无法进入低功耗模式。

Before entering the sleep mode, make sure that the input terminal is not connected to the external voltage, otherwise it will be unable to enter the low power consumption mode.

BMS 被复位后仍保留通过上位机设置的参数和功能, 如果需要恢复到初始参数可以通过上位机的“恢复默认值”来实现, 但相关运行记录和存储数据保持不变 (如电量、循环次数、保护记录等)。

After the BMS is reset, it still retains the parameters and functions set by the upper computer. If it needs to restore to the initial parameters, it can be achieved through the "restore default value" of the upper computer, but the relevant operation records and stored data remain unchanged (such as electricity, cycle times, protection records, etc.).

### 唤醒 awaken

当系统处于低功耗模式, 满足以下任意一条件时, 系统将退出低功耗模式, 进入正常运行模式:

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

1) 接入充电器, 充电器输出电压需大于 48V。

When connected to the charger, the output voltage of the charger shall be greater than 48V.

2) 按下按键 (3~6S), 松开按键后。

Press the key (3-6S) and release it.

3) 通过 RS232 端口激活。

Activated via RS232 port.

备注: 单体或总体过放保护后进入低功耗模式, 每 4 个小时定时唤醒一次, 开启充放电 MOS。如可以充电, 将退出休眠状态进入正常充电; 如果连续 10 次自动唤醒无法充电, 将不再自动唤醒。

Note: After the single or overall overdischarge protection, it enters the low power consumption mode, wakes up regularly every 4 hours, and starts the charging and discharging MOS. If it can be charged, it will exit the sleep state and enter into normal charging; If automatic wake-up fails to charge for 10 consecutive times, it will not automatically wake up again.

当系统定义为充电结束后, 待机 2 天 (待机时间设定值) 后仍未达到恢复电压, 强制恢复充电至再次充电结束。

When the system defines that the recovery voltage is not reached after 2 days of standby (set value of standby time) after the end of charging, the charging is forced to resume until the end of recharging.

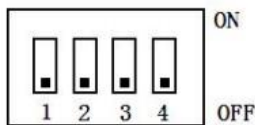
### 9. 拨码开关说明:

#### Description of DIP switch:

当电池组作并联使用时，可通过 BMS 上的拨码开关设置地址区分不同的电池组，需避免地址设为相同，BMS 拨码开关的定义参照下表

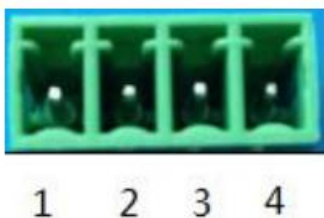
When the battery packs are used in parallel, the addresses of different battery packs can be distinguished by setting the dialer switch on the BMS. It is necessary to avoid setting the addresses to the same. Refer to the following table for the definition of the BMS dialer switch

geology	Dial switch position			
	#1	#2	#3	#4
0	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON



### 10. 干接点:

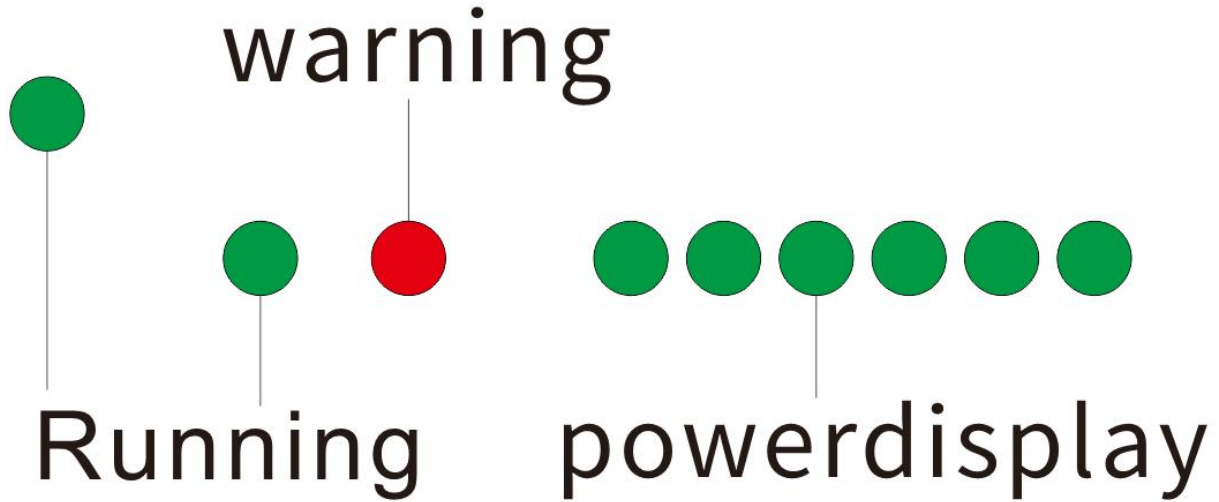
#### Dry contact:



BMS 可提供一路干接点信号，干接点信号均为无源开关，不分极性

BMS can provide one way of dry contact signals, which are all passive switches, regardless of polarity

11.运行指示灯：  
Running indicator



LED 表 1LED meter I:

state		charge						discharge					
		L6	L5	L4	L3	L2	L1	L6	L5	L4	L3	L2	L1
Capacity indicator		●	●	●	●	●	●	●	●	●	●	●	●
Power (%)	0~16.6%	Exti ngu ish	Exti ngu ish	Exti ngu ish	Exti ngu ish	Exti ngu ish	Flash 2	Exti ngu ish	Exti ngu ish	Exti ngu ish	Exti ngu ish	Exti ngu ish	Alway s bright
	16.6~33.2%	Exti ngu ish	Exti ngu ish	Exti ngu ish	Exti ngu ish	Flash 2	Alway s bright	Exti ngu ish	Exti ngu ish	Exti ngu ish	Exti ngu ish	Alway s bright	Alway s bright
	33.2~49.8%	Exti ngu ish	Exti ngu ish	Exti ngu ish	Flash 2	Alway s bright	Alway s bright	Exti ngu ish	Exti ngu ish	Exti ngu ish	Alway s bright	Alway s bright	Alway s bright
	49.8~66.4%	Exti ngu ish	Exti ngu ish	Flash 2	Alway s bright	Alway s bright	Alway s bright	Exti ngu ish	Exti ngu ish	Alway s bright	Alway s bright	Alway s bright	Alway s bright



磷酸铁锂家庭储能系列  
Lithium iron phosphate family energy storage series

	66.4~83.0%	Extinguish	Flash 2	Always bright	Always bright	Always bright	Always bright	Extinguish	Always bright	Always bright	Always bright	Always bright	Always bright
	83.0~100%	Flash 2	Always bright	Always bright	Always bright	Always bright	Always bright	Always bright	Always bright	Always bright	Always bright	Always bright	Always bright
Running indicator ●	Always bright							twinkle(Flash3)					

LED 表 2LED meter 2:



state	Normal / alarm / protection	ON/OFF	RUN	ALM	Battery Indicator LED						explain	
		●	●	●	●	●	●	●	●	●		
Shut down	dormancy	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Total extinction
Standby	normal	Often bright	Flash 1	Extinguish	Indications according to electricity quantity						position in readiness	
	give an alarm	Often bright	Flash 1	Flash 3							Module low voltage	
charge	normal	Often bright	Often bright	Extinguish	Indications according to electricity quantity (The maximum LED of the battery indicator flashes 2)						The maximum power LED flashes (flashes 2), and ALM does not flash in case of overcharge alarm	
	give an alarm	Often bright	Often bright	Flash 3								
	Overcharge protection	Often bright	Often bright	Extinguish	Often bright	Often bright	Often bright	Often bright	Often bright	Often bright	If there is no mains power, the indicator light will turn to standby mode	
	Temperature, overcurrent and failure protection	Often bright	Extinguish	Often bright	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Stop charging
discharge	normal	Often bright	Flash 3	Extinguish	Indications according to electricity quantity							
	give an alarm	Often bright	Flash 3	Flash 3								
	Undervoltage protection	Often bright	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Stop discharging
	Temperature, overcurrent, short circuit, reverse connection, failure protection	Often bright	Extinguish	Often bright	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Stop discharging
invalid		Extinguish	Extinguish	Often bright	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Stop charging and discharging

## 12. 通信说明:

### Communication description:

### RS485 通信

#### RS485 communication

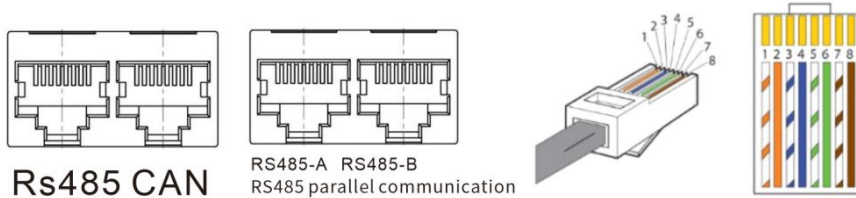
具有双 RS485 接口, 可以查看 电池组 的信息, 默认波特率为 9600bps。如需通过 RS485 与监控设备通信, 监控设备作为主机, 依据地址轮询数据, 地址设置范围为 2~15。

With dual RS485 interfaces, you can view the battery pack information. The default baud rate is 9600bps. If it is necessary to communicate with the monitoring equipment through RS485, the monitoring equipment, as the host, polls data according to the address, and the address setting range is 2~15.

### CAN 通信

#### CAN communication

CAN communication, baud rate 500K.



RS485 -- 8P8C vertical RJ45 socket		CAN -- 8P8C vertical RJ45 socket	
RJ45 Pin	Definition description	RJ45 Pin	Definition description
1、 8	RS485-B1	1、 2、 3、 6、 8	NC
2、 7	RS485-A1	4	CANH
3、 6	GND	5	CANL
4、 5	NC	7	GND

#### 引脚定义Pin Definition

RS485 -- 8P8C vertical RJ45 socket		RS485 -- 8P8C vertical RJ45 socket	
RJ45 Pin	Definition description	RJ45 Pin	Definition description
1、 8	RS485-B1	1、 8	RS485-B1
2、 7	RS485-A1	2、 7	RS485-A1
3、 6	GND	3、 6	GND
4、 5	NC	4、 5	NC

#### Rs485 parallel communication pin definition

#### RS48并机通信引脚定义

### RS232 通信:


#### RS232 communication

电池组可以通过 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。

The battery pack can communicate with the upper computer through the RS232 interface, so that the upper computer can monitor various battery information, including battery voltage, current, temperature, status and battery production information. The default baud rate is 9600bps.

RS232 -- 6P6C vertical RJ11 socket	
RJ11 Pin	Definition description
2	NC
3	TX (Single board)
4	RX (Single board)
5	GND

Rs232 Communication

 CAN 和 RS485 接口都负责与逆变器的通信,这是根据可适应的逆变器来确定的。请参见 CAN/RS485 接口定义表。

Both CAN and RS485 interfaces are responsible for communication with the inverter, which is determined according to the adaptive inverter. See CAN/RS485 interface definition table.

### 13.弱电开关:

#### Weak current switch



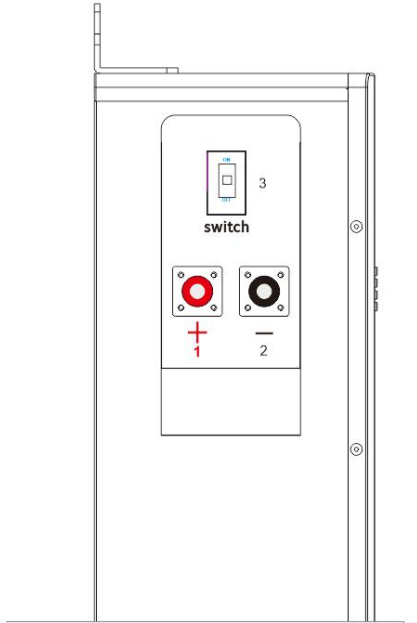
**POWER**

开关按下,电池组有电压输出,开关复位,电池组无电压输出。

When the switch is pressed, the battery pack has voltage output, the switch is reset, and the battery pack has no voltage output.

**14.正负极性说明:**

**Description of positive and negative polarity:**



1	电池组正极 Battery pack positive
2	电池组负极 Negative pole of battery pack
3	空气开关 air switch

**15.显示屏操作说明:**

**Display screen operating instructions:**



1) SW1----MENU, SW2----ENTER, SW4----DOWN, SW5----ESC。

2) 每项都以“》”或“--”作为开头，其中“》”表示当前光标的位置，按 DOWN 键可向下移动光标位置；以“》”结束的项目，表示该项目有未显示的内容，按 ENTER 键可进入相应的页面。

Each item starts with "》" or "--", where "》" represents the current cursor position. Press DOWN Key to move the cursor down; The item ending with "》" indicates that the item has content that is not displayed, Press ENTER to enter the corresponding page.

3) 按 ESC 键可返回上一级目录；在任何位置，按 MENU 键可返回主菜单页面。  
Press ESC to return to the previous directory; At any position, press the MENU key to return to the main menu page.

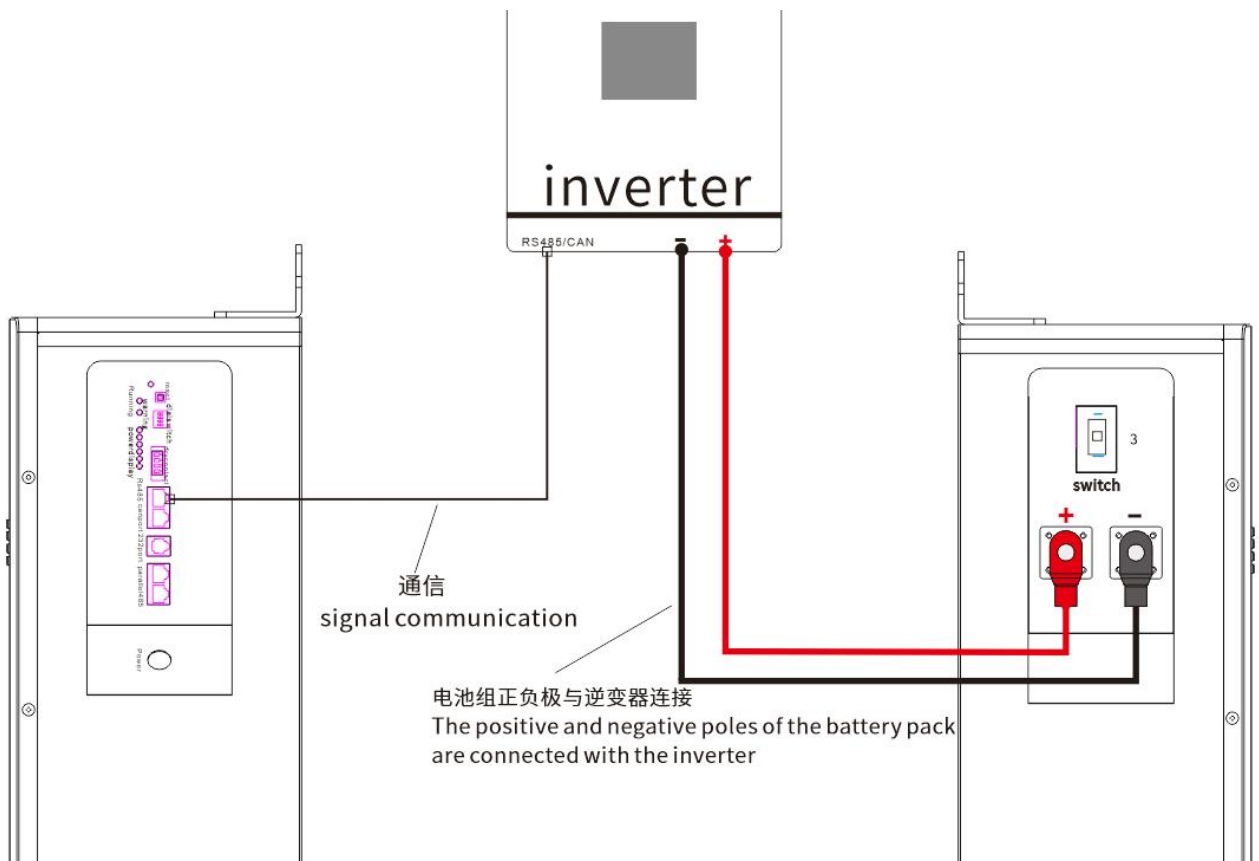
4) 在休眠状态下，按任意按键，可激活显示屏。  
In the sleep state, press any key to activate the display screen.

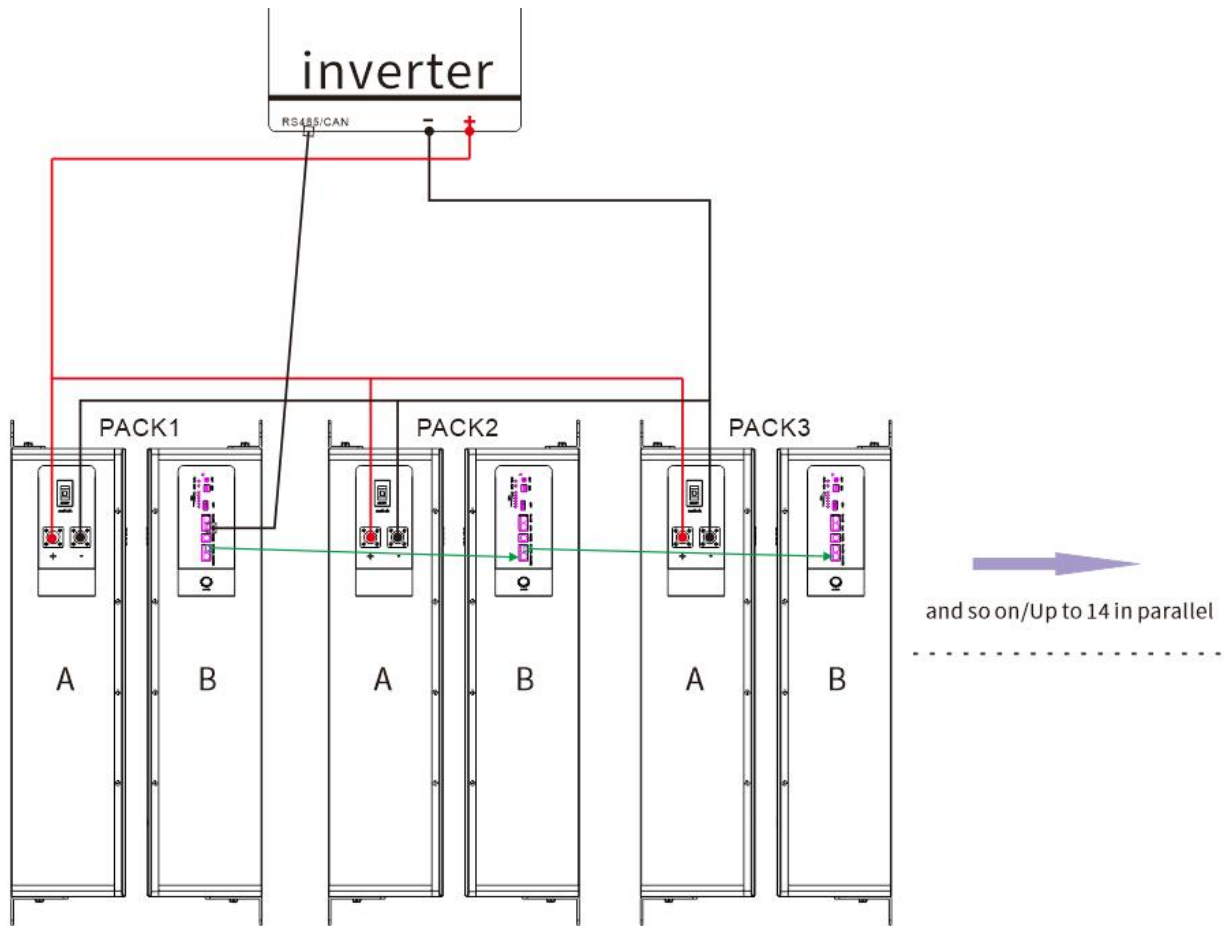
### 16. 电池组与逆变器连接:

#### Connection between battery pack and inverter:

简单连接原理图:

Simple connection schematic diagram:





Parallel machine diagram

### Example of parallel dialing

 stand-alone	 1	 2	 3	 4
 5	 6	 7	 8	 9
 10	 11	 12	 13	 14

**工具 tool:**



Wire cutter



Crimping modular plier



Screwdriver

建议佩戴以下安全装备进行操作:

The following safety equipment is recommended for operation



Insulating gloves



Safety goggles



Safety shoes

电池组电缆通过一个环形端子与逆变器连接, 安装人员戴防护手套时可直接连接到产品的正负极。

The battery pack cable is connected to the inverter through a ring terminal, and the installer can directly connect to the positive and negative poles of the product when wearing protective gloves.

**电源电缆连接步骤:**

**Power cable connection steps:**

①确认逆变器电源线打开, 光伏线路打开。确认电源箱已关闭。

Confirm that the inverter mains line is open and the PV line is open. Confirm that Power Box is shut down.

②接线电缆的环端子连接到逆变器直流端子的正负极。

The ring terminal of the wiring cable is connected to the positive and negative poles of the inverter DC terminal.

③另一端负极环形端子快速连接到电源盒的负极端口。

The negative ring terminal at the other end is quickly connected to the negative port of the power box.

④另一端正极环形端子快速连接到电源盒的正极端口。

The positive ring terminal at the other end is quickly connected to the positive port of the power box.



**警告: 在安装电源电缆前, 必须先关闭电源箱和逆变器。**

**Warning: The power box and inverter must be turned off before installing the power cable.**

### 电源电缆断开步骤:

#### Procedure for disconnecting the power cable:

①确保电源线打开，PV 线打开。

Make sure the mains line is open, and the PV line is open.

②关闭逆变器开关。

Turn off the inverter switch.

③按下电源按钮以关闭电源盒。

Press the power button to turn off the battery pack.

④卸下负极电源线的环形端子。

Remove the ring terminal of the negative power cord.

⑤卸下正极电源线的环形端子。

Remove the ring terminal of the positive power cord.

⑥拆卸电源电缆的连接环形端子。

Remove the connecting ring terminal of the power cable.



**警告：**请严格遵循这些步骤。并确保接口接触良好。

**Warning:** Follow the steps strictly. And make sure the interface is in good contact.



**警告：**接线电缆的安装和断开应由合格的安装人员操作，用户不得私自操作。

**Warning:** The installation and disconnection of the wiring cables should be operated by qualified installers, and the user must not operate in private.



**警告：**电源电缆可能传输大电流。请确保儿童不能接触电源线。

**Warning:** The power cables may transmit large currents. Please make sure that the children cannot touch the power Cable.



**警告：**电池组弱电开关按钮的开机和关机操作不是安全事件的紧急操作。如果家用储能系统存在安全问题，请及时断开漏电开关和隔离开关（配电箱中）。（需要确认）。

**Warning:** The power-on and power-off actions of the POWER button are not emergency operations for security incidents. If there is a safety problem in the home energy storage system, please disconnect the leakage switch and isolation switch (in the distribution box) in time. (Confirmation required).

### 17.系统运行:

#### System operation

逆变器通过应用程序提供控制和监控功能。在正常运行期间，电池组由逆变器控制，电池组的电源按钮应保持打开。



The inverter provides control and monitoring functions through application programs. During normal operation, the battery pack is controlled by the inverter, and the power button of the battery pack shall be kept open.



**警告：请勿尝试使用第三方工具和诊断工具在电源箱和逆变器之间与电源箱通信。**

**Warning: Do not try to use third-party tools and diagnostic tools to communicate with Power Box between Power Box and the inverter.**

故障排除

Troubleshooting

如果系统工作不正常，请执行以下步骤：

If the system is not working properly, please perform the following steps:



**警告：电池组和逆变器不能由用户进行维修，必须由经过认证的安装人员进行维修。**

**Warning: The battery pack and inverter cannot be repaired by users, but must be repaired by certified installers.**



**警告：如果电池组故障导致停机，无法及时解决，请及时向科恒或科恒授权的服务合作伙伴报告。如果在失败后 2 周内未报告给 KH 或 KH 授权的服务合作伙伴，则保修无效。**

**Warning: If the failure of the battery pack causes the shutdown and cannot be solved in time, please report to KH or its authorized service partner in time. If it is not reported to KH or its authorized service partner within 2 weeks after the failure, the warranty is invalid.**

● 如果电池组与逆变器连接均没有响应

**If the connection between the battery pack and the inverter does not respond**

1. 检测电池组是否开机、输出端有无电压输出。

Check whether the battery pack is powered on and whether there is voltage output at the output terminal

2. 电池组运行指示灯是否正常、如有警报，参照 LED 运行表查看警报类型。

Whether the battery pack operation indicator is normal. If there is an alarm, refer to the LED operation table to check the alarm type

3. 关闭电池组与逆变器所有输入和输出断路器。

Close all input and output circuit breakers of the battery pack and inverter

4. 切断配电箱内的所有输入和输出断路器。

Cut off all input and output circuit breakers in the distribution box

5. 重新开机匹配。

Reboot matching.



（注：如果是电池组与逆变器通信匹配不上，请联系 KE 或 KH 授权经销商进行技术帮助）  
(Note: If the communication between the battery pack and the inverter does not match, please contact KE or KH authorized dealer for technical assistance)

## 18.技术支持:

### technical support:

[如果您需要进一步的帮助，请通过您所在地区的支持电话联系 KH 服务团队](#)

[If you need further help, please contact the KH service team through the support phone in your region](#)

在联系 KH 时，请提供以下信息：

Please provide the following information when contacting KH

- 客户姓名

Customer Name

- 你的有效方式（电话、移动电话或电子邮件）可以让 KH 联系。

Your effective way (phone, mobile phone or email) can let KH contact you.

- 电池组的规格型号

Specification and model of battery pack

- 对这个问题的简要概述

A brief overview of the problem

## 19.如何处理紧急情况:

### How to deal with emergencies:

如果您的健康或安全受到威胁，请在处理以下其他建议之前，先从以下两步开始：

If your health or safety is threatened, please start from the following two steps before handling the following other suggestions:

1. 请立即联系消防部门或其他应急小组。

Please contact the fire department or other emergency teams immediately.

2. 通知所有可能受到影响的人，以确保他们能够撤离该地区。

Notify all people who may be affected to ensure that they can evacuate the area.



**以下建议的操作只能在安全条件下执行。**

**The following recommended actions can only be performed under safe conditions.**

发生火灾时：

In case of fire:

1. 关闭逆变器。

Turn off the inverter.

2. 按下电源按钮，关闭电池组。

Press the power button to turn off the battery pack.

3. 切断配电箱内的所有输入和输出断路器。

Cut off all input and output circuit breakers in the distribution box.

4. 可接受的灭火器类型包括：水、二氧化碳和 ABC 灭火器。  
Acceptable types of extinguishers include: water, carbon dioxide and ABC extinguishers.

**i** 避免使用 D 型（易燃金属）灭火器。  
**Avoid using Type D (flammable metal) extinguishers.**

发生水灾时：

**In case of flood:**

1. 如果电池和逆变器或电线的任何部分被浸没在水中，请远离水。  
If any part of the battery, inverter or electric wire is immersed in water, please keep away from water.
2. 关闭逆变器。  
Turn off the inverter.
3. 按下电源按钮，关闭电池组。  
Press the power button to turn off the battery pack.
3. 切断配电箱内的所有输入和输出断路器。  
Cut off all input and output circuit breakers in the distribution box.
4. 确保与电源箱没有电气连接。  
Make sure there is no electrical connection to the power box.
5. 如果可能，通过查找并停止水源和抽水来保护系统把水带走。  
If possible, protect the system by finding and stopping the water source and pumping the water away.
6. 请及时联系 KH 技术支持或 KH 授权经销商以寻求帮助。  
Please contact KH technical support or KH authorized dealer for assistance.

**20. 当电池组不使用时：**

**When the battery pack is not in use:**

电池组是一种锂离子电池的产品，不应长期储存。无论该产品被关闭和不使用的原因如何，请注意：

The battery pack is a lithium ion battery product and should not be stored for a long time. No matter why the product is closed or not used, please note:

电源箱的存储要求见下表。

See the table below for storage requirements of power box.

储存温度 Storage temperature	短期储存少于 1 个月 Short term storage less than 1 month	-10°C~+45°C
	长期储存不超过 3 个月 Long term storage shall not exceed 3	0°C~+45°C

**i** 在产品储存过期前，对电池进行全充放电，最终充电 SOC 保持在 50% 左右。  
Before the expiration of product storage, the battery shall be fully charged and discharged, and

the final charging SOC shall be kept at about 50%.

如长时间储存，建议每三个月充一次电以防止电池过放电。

If the battery is stored for a long time, it is recommended to charge it every three months to prevent over discharge of the battery.

## **21.Handling of Cells （电池操作注意事项）**

不要焚毁电池，否则会致电池爆炸，这个很危险，必须禁止。

**Prohibition of cells immersion into liquid such as water （禁止浸泡电池）**

The cells shall never be soaked with liquids such as water, seawater, drinks such as soft drinks, juices, coffee or others.

请不要把电池浸泡在液体当中，像清水、海水，及非酒精饮料、果汁、咖啡或者其它的饮料。

**Prohibition of use of damaged cells （禁止使用损坏的电池）**

The cells might be damaged during shipping by shock. If any abnormal features of the cells are found such as damages in a plastic envelop of the cell, deformation of the cell package, smelling of an electrolyte, an electrolyte leakage and others, the cells shall never be used any more.

The Cells with a smell of the electrolyte or a leakage shall be placed away from fire to avoid firing or explosion.

电池可能在出货途中碰撞而受损。如果发现电池有异常，例如包装损坏、电池包裹变形，有电解液的味道、发现漏液等等，不要再使用这些电池。

电池如果有电解液的味道或者出现漏液，电池放置应该远离火源避免起火及爆炸。

禁止将电池正负极短接，否则会导致电池组内部短路，对电池组造成损伤。

It is forbidden to short circuit the positive and negative poles of the battery, otherwise it will cause short circuit inside the battery pack and damage the battery pack.