USER MANUAL

LW SERIES LIFEPO4 BATTERY

WALL Mounted

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IMPORTANT SAFETY INSTRUCTIONS, PRECAUTIONS

ATTENTION!

1. **It is important and necessary to read this user manual carefully before installing or using this battery.**
2. **The safety precautions mentioned in this manual do not represent all safety matters to be considered and only serve to complement standard safety precautions.**
3. **When installing, operating, and maintaining equipment, local safety and installation regulations shall be observed.**
4. **Do not wear any conductive objects such as watches, bracelets, and rings when installing, operating and maintaining equipment.**
5. **If the battery must be stored for an extended period of time, it needs to be charged and discharged every six months, and the battery state of charge shall not be less than 70%.**
6. **After the battery is fully discharged, it should be charged within 12 hours.**
7. **Before maintenance, batteries and equipment need to be switched off and isolated.**
8. **Do not use cleaning solvents to clean batteries.**
9. **Do not expose batteries to flammable or corrosive chemicals or vapors.**
10. **Do not connect cells directly to photovoltaic (solar) panel wiring.**
11. **Our company is not responsible for any loss caused by violation of the requirements for general safe operation or violation of design, production, and use of equipment safety standards.**

1.1 BEFORE INSTALLATION

WARNING!

1.1.1 After unpacking, please check the product and packing list first, if the product is damaged or missing parts, please contact the local retailer.
1.1.2 Before installation, cut off the power supply and ensure that the battery is switched off.
1.1.3 Wiring must be correct, do not reverse positive and negative cables, and ensure that external devices are not short-circuited.
1.1.4 Direct connection of batteries and AC power is prohibited.
1.1.5 The battery management system is designed for 48VDC, Batteries must not be connected in series.
1.1.6 Please ensure that the electrical parameters of the battery system are compatible with the connected equipment.
1.1.7 Do not expose the battery to open flames or moisture.

1.2. USE

1.2.1 If the battery system needs to be moved or repaired, the power must be cut off and the battery completely switched off.
1.2.2 Batteries can only be connected to batteries of the same make and model.
1.2.3 Batteries must never be connected to faulty or incompatible devices.
1.2.4 If the fire occurs, only dry powder fire extinguishers can be used, liquid fire extinguishers are prohibited.
1.2.5 To avoid personal injury, users should not disassemble the battery by themselves. For maintenance, please contact professional maintenance personnel.

2. INTRODUCTION

This wall mounted energy storage battery can be used in photovoltaic energy storage systems or backup systems. The built-in BMS battery management system manages the battery parameters to protect equipment and ensure the longevity of the battery. Multiple battery packs can be connected in parallel to expand capacity and power to match the user's application.

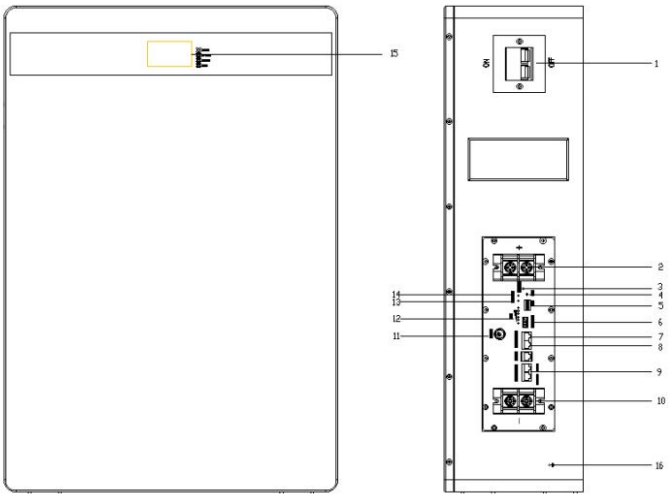
3.FEATURES & BENEFITES

- **Safety: the core cathode material of the battery module is made of LiFePO4, for good safety, performance and long service life.**
- **Protection function: The battery management system can protect the battery module against over discharge, over charge, over current and high/ low temperature.**
- **Balancing function: The battery management system incorporates passive cell balancing.**
- **Expansion: Flexible configuration, multiple battery modules can be connected in parallel to match different standby time requirements.**
- **Low power consumption: When no equipment is connected, the battery will enter a low power state automatically and reduce self-discharge.**
- **No memory: No memory effect, shallow charge and discharge performance is excellent.**

4. PARAMETER SPECIFICATION

Model	LW-2.5K	LW-5K	LW-10K	LW-15K
Nominal voltage	25.6VDC	51.2VDC	51.2VDC	51.2VDC
Nominal capacity	100Ah（2560Wh）	100Ah（5120Wh）	200Ah（10240Wh）	300Ah(15360Wh)
Dimensions (mm)	450*360*140	600*510*154	715*415*250	650*650*255
Net Weight	27 kg	52 kg	90kg	125kg
Working voltage	21.6-29.2V	43.2-58.4V	43.2-58.4V	43.2-58.4V
Charging voltage	29.2V	58.4V	58.4V	58.4V
Installing form	WALL Mount type	WALL Mount type	WALL Mount type	mobile
Standard charging current	50A		100A	
Max. cont. charging current	100A		200A	
Standard discharge current	50A		100A	
Max. cont. discharge current	100A		200A	
Charging ambient temperature	0~55℃			
Discharge ambient temperature	-20~60℃			
Storage ambient temperature	0~45℃			
Working environment	Humidity:≤95; Altitude:≤4000			
Communication ports	RS485 CAN			
Power display mode	LED light/LCD			
Additional function	Bluetooth APP/WiFi			

5. INTERFACE DEFINITION & DESCRIPTION



Object	Function	Description	Object	Function	Description
1	ON/OFF	Battery switch	2	+	Positive pole
3	ON/OFF	BMS working indicator light	4	RESET	Reset Switch
5	ADDR	Address setting DIP switch	6	Dry Contact	DRY CONTACT
7	RS485-1	RS485-1- Inverter communication port	8	CAN-1	Inverter communication port
9	CAN2&RS485-2	CAN2&RS485-2 Parallel communication	10	—	Negative pole
11	ON/OFF	Power switch	12	SOC	Battery Status indicator
13	ALM	Alarm indicator light	14	RUN	Operation indicator (Run)
15	LCD	LCD display screen	16	⏚	Grounding

5.1 BMS RESET

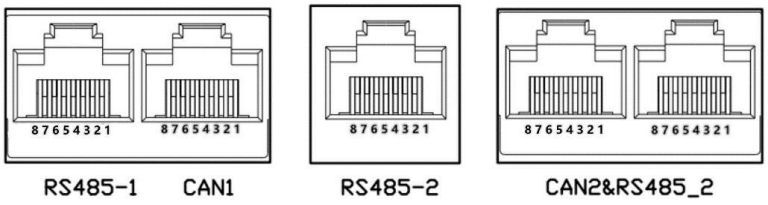
- When the BMS is in hibernation mode, press the button 1S and release it, the BMS is activated, and the LED indicator lights on for 0.5 seconds from "LED1" .
- When the BMS is active, press the button 3 to 6S, and the LED indicator will turn on for 0.5 seconds from the lowest power indicator. When released, the system will go to sleep.
- When the BMS is in the active model, press the button 6-10s and release it, the BMS is reset, and the LED indicator is showing the present power capacity.
- After the BMS is reset, the parameters and functions set through the host computer are still retained. Reset to factory parameters can be achieved through the management software on the host computer. The relevant running records and storage data remain unchanged (such as Energy throughput, cycle times, protection records, etc.).

5.2 Description of the self-locking switch

- When the BMS is in hibernation model, after turn off the self-lock, the BMS is powered on, and the LED indicator lights on for 0.5 seconds from "LED1".

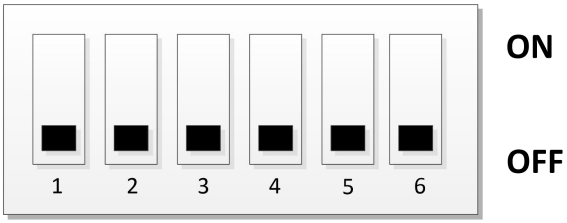
- When the BMS is active, turn off the self-locking switch and wait for 1S~3S before the system enters the power-off state.

5.3 Communication interface description



Connector	RS485-1		CAN1		RS485-2		CAN2&RS485-2			
Function	Connect PC/PCS		Connected PCS		Parallel communication		Parallel communication			
Socket type	Upright RJ45-8P8C									
Pin Specification	PIN	Description	PIN	Description	PIN	Description	PIN	Description	PIN	Description
	1、8	RS485-B1	1、8	NC	1、8	RS485-B2	1、8	RS485-B2	1、8	RS485-B2
	2、7	RS485-A1	2、7	NC	2、7	RS485-B2	2、7	RS485-A2	2、7	RS485-A2
	4	NC	4	CANH1	4	NC	4	CANH2	4	CANH2
	5	NC	5	CANL1	5	NC	5	CANL2	5	CANL2
	3、6	GND	3、6	GND	3、6	GND	6	GND	`6`	GND
							3	IN	3	OUT

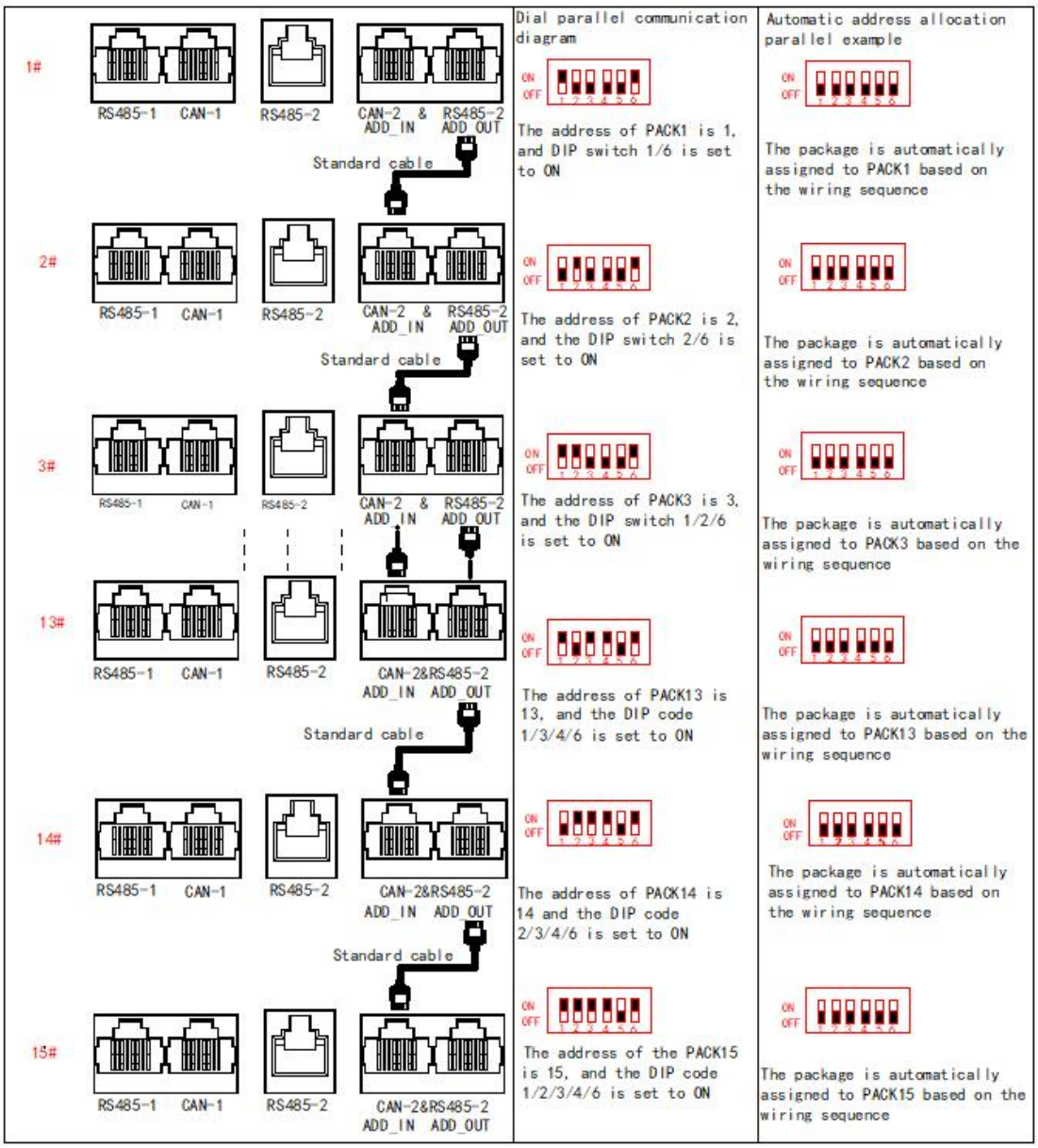
5.4 ADDRESS SETTING DIP SWITCH



When packs are connected in parallel, use the DIP address function when DIP 6 is connected to ON. Otherwise, use the default automatic addressing function. Use the DIP switch on the BMS to set the address to distinguish different packs.

Address bit (binary)	Explain				
	4	3	2	1	
0001(1)	OFF	OFF	OFF	ON	Set PACK1 to be used by a host or single machine
0010(2)	OFF	OFF	ON	OFF	PACK2 (Set PACK2)
0011(3)	OFF	OFF	ON	ON	PACK3 (Set PACK3)
0100(4)	OFF	ON	OFF	OFF	PACK4 (Set PACK4)
0101(5)	OFF	ON	OFF	ON	PACK5 (Set PACK5)
0110(6)	OFF	ON	ON	OFF	PACK6 (Set PACK6)
0111(7)	OFF	ON	ON	ON	PACK7 (Set PACK7)
1000(8)	ON	OFF	OFF	OFF	PACK8 (Set PACK8)
1001(9)	ON	OFF	OFF	ON	PACK9 (Set PACK9)
1010(10)	ON	OFF	ON	OFF	PACK10 (Set PACK10)
1011(11)	ON	OFF	ON	ON	PACK11 (Set PACK11)
1100(12)	ON	ON	OFF	OFF	PACK12 (Set PACK12)
1101(13)	ON	ON	OFF	ON	PACK13 (Set PACK13)
1110(14)	ON	ON	ON	OFF	PACK14 (Set PACK14)
1111(15)	ON	ON	ON	ON	PACK15(Set PACK15)

5.5 COMMUNICATION CONNECTION



5.6 BATTERY STATUS INDICATOR

TABLE 1-LED WORKING STATUS INDICATORS

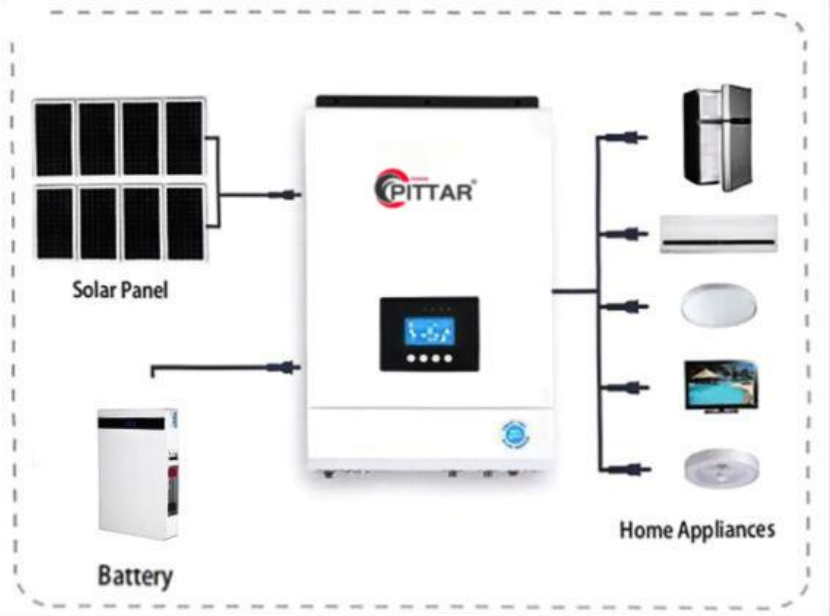
State of system	Event	ON/OFF LED9	Run LED8	Alarm LED7	SOC(LED6~1)						explain
					LED 6	LED 5	LED 4	LED 3	LED 2	LED 1	
		●	●	●	●	●	●	●	●	●	
Power off	Sleep	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	All LEDs turn off
static state	Normal	ON	Flash1	OFF	Refer to table(2)						/
	Alarm	ON	Flash1	Flash3							/
Charging	Normal	ON	ON	OFF							/
	Alarm	ON	ON	Flash3							The over-voltage alarm does not flash
	OV protect)	ON	ON	OFF	ON	ON	ON	ON	ON	ON	/
	Temperature, Over-current, fail-safe	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	/
Discharging	Normal	ON	Flash 3	OFF	Refer to table(2)						/
	Alarm	ON	Flash 3	Flash 3							/
	UV protect	OFF	Flash2	OFF	OFF	OFF	OFF	OFF	OFF	OFF	
	Over-current, short circuit, temperature, fail-protection	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	/

TABLE 2- DESCRIPTION OF CAPACITY INDICATORS

State		Charging					
LED		LED6 ●	LED5 ●	LED4 ●	LED3 ●	LED2 ●	LED1 ●
SOC(%)	0~16.6%	OFF	OFF	OFF	OFF	OFF	Flash2
	16.6~33.2%	OFF	OFF	OFF	OFF	Flash2	ON
	33.2~49.8%	OFF	OFF	OFF	Flash2	ON	ON
	49.8~66.4%	OFF	OFF	Flash2	ON	ON	ON
	66.4~83.0%	OFF	Flash2	ON	ON	ON	ON
	83%~100%	Flash2	ON	ON	ON	ON	ON
RUN LED ●		ON					
State		Discharging					
LED		LED6 ●	LED5 ●	LED4 ●	LED3 ●	LED2 ●	LED1 ●
SOC(%)	0~16.6%	OFF	OFF	OFF	OFF	OFF	ON
	16.6~33.2%	OFF	OFF	OFF	OFF	ON	ON
	33.2~49.8%	OFF	OFF	OFF	ON	ON	ON
	49.8~66.4%	OFF	OFF	ON	ON	ON	ON
	66.4~83.0%	OFF	ON	ON	ON	ON	ON
	83%~100%	ON	ON	ON	ON	ON	ON
RUN LED ●		Flash3					

6. INSTALLATION AND OPERATION

APPLICATION SCHEMATIC



6.1.PARALL CONNECTION OF BATTERY PACKS

Note: when connecting the equipment, the battery output positive and negative terminal should be taken from the first group and the last group of batteries,

6.2. USE THE NETWORK CABLE TO CONNECT THE OF BATTERY COMMUNICATION INTERFACE

Note:The battery communicates with the inverter through the "RS485A&CAN" communication port on the machine.

6.3 OPERATING TOOLS

Use insulated tools to prevent accidental electric shock or short circuit.

6.4 SAFETY EQUIPMENT

When connecting and handling the battery pack, it is recommended to wear the following safety equipment.

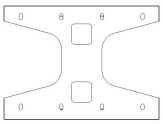
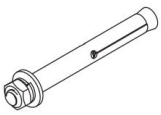
Insulating gloves

Goggles

Protective shoes

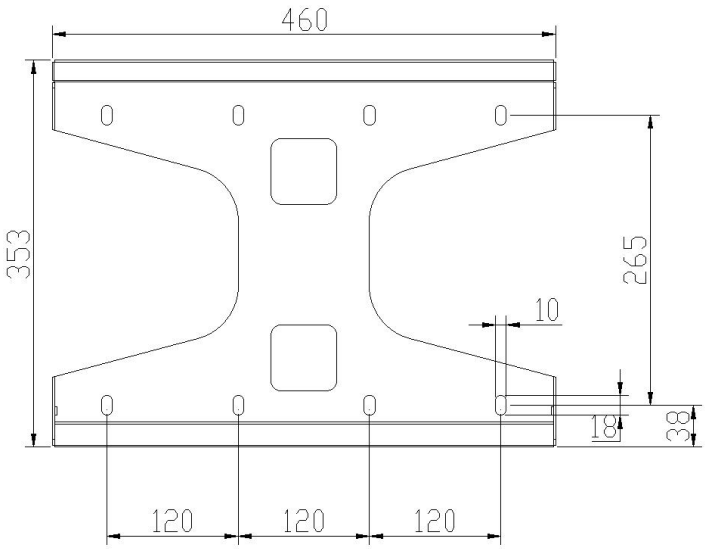
7. INSTALLATION

INSTALLATION ACCESSORIES

Picture	Description	Quantity
	**Battery cable(black)**	**1PCS**
	**Battery cable(red)**	**1PCS**
	**BMS cable**	**1PCS**
	**Bracket**	**1PCS**
	**Screw M8-80**	**6PCS**

7.2 WALL MOUNTED INSTALLATION INSTRUCTIONS

When installing screws, please note that the hole size in the wall is M8*60mm. The following figure is only for illustration, the specific installation size please refer to the product size.



7.3 INSTALLATION PRECAUTIONS

Ensure that the installation location meets the following conditions:

- **The area is completely waterproof.**
- **No flammable and explosive items.**
- **Ambient temperature is between 0°c and 50°c, the temperature and humidity remain constant.**
- **This area has little dust and dirt.**
- **Multiple people should work together when connecting the battery box to avoid product damage or personal injury.**

8. MAINTENANCE PRECAUTIONS

ATTENTION!

If the ambient temperature is out of the working range, the battery pack will stop working. The optimal operating temperature of the battery pack ranges from Oto 50 degrees Celsius. If the battery pack is constantly exposed to harsh temperatures, it may affect battery pack performance and lifetime.

Because of its maintenance-free characteristics, Periodic maintenance periods can be extended. The following checks must be carried out at least every three months.

- **Check whether the terminals of lithium iron phosphate battery are loose, damaged, deformed or corroded, and whether the battery shell is damaged or deformed.**
- **Observe the state of the battery pack indicator LEDs. Refer to the table above for explanation of the status indications.**
- **When there is a failure, the red ALM LED light will be flashing. Refer to the table above for explanation of the status indications. Then press the RST reset key to see if the alarm is cleared. After the battery restarts, if the alarm is not cleared, please contact the manufacturer to assist, do not open the battery housing.**
- **For a multi-pack parallel application scenario, if one of the packs needs to be replaced, make sure that the voltage difference between the newly replaced battery pack and the other battery packs in the parallel system is within 2V.**

9. TROUBLESHOOTING

9.1 UNDERVOLTAGE ALARM

Failure Mode: ALM alarm indicator lights flicker, RUN operation indicator is off. Cause analysis:

(1) Battery is over discharged

(2) BMS failure.

Solution: Charge the battery. BMS will reconnect when charging voltage is applied to the battery. If the BMS has failed, please contact the manufacturer.

9.2 DISCHARGE OVERCURRENT PROTECTION

(1) The load current has exceeded the battery discharge protection value.

(2) BMS failure.

9.3 TEMPERATURE PROTECTION

Failure Mode: ALM alarm indicator lights flicker, RUN operation indicator is off.

Cause analysis: Ambient temperature may be too high or too low.

Solution: When the battery temperature returns to normal, the BMS recovers from the temperature protection state and the red indicator lamp goes out.

9.4 BATTERY WITHOUT VOLTAGE OUTPUT

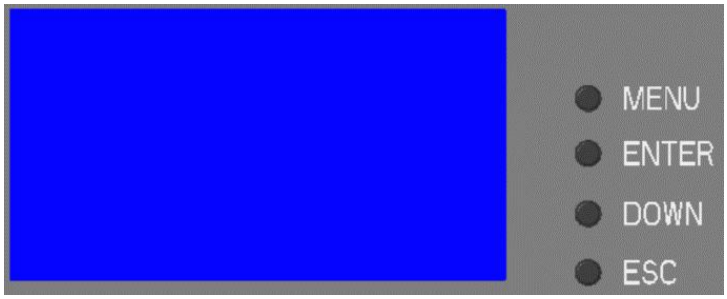
Failure Mode: the power indicator LED turns off, the voltage at terminals is measured 0V.

Cause analysis: The battery is not activated, or the battery management system is abnormal.

Solution: Activate the battery or reset the battery through the reset key on the battery panel. If there is still no voltage output, contact the manufacturer for assistance.

10. COMMUNICATION PROTOCOL.

10.1 Display function description



Number	button	nction	explain
1	Button 1	Main menu	Start the screen or get back into the main page
2	Button 2	Enter	Select and get into the page
3	Button 3	Down	Move the selection down
4	Button 4	Esc	Back to last page

name	Definition
Pack Info	This page allows you to view voltage, current, temperature, and other data
Pack Status	This page allows you to view the protection status, protection times, and protection flags.
Pack Para	This page can set some protection parameters and is currently not open.
Pack Set	This page allows you to set the host RS485 protocol or CAN protocol for BMS

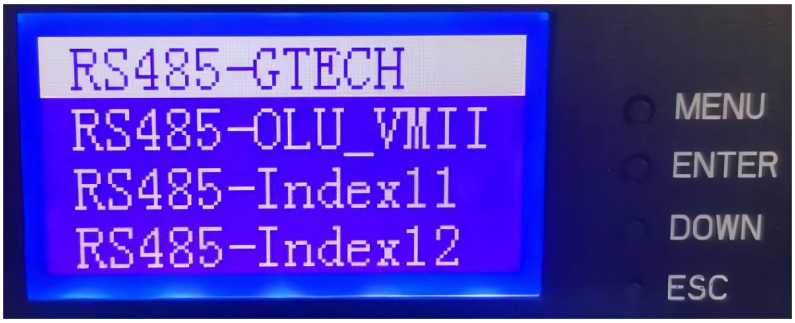
10.2 CHOOSE COMMUNICATION PROTOCOL VIA RS485.

1.Press MENU, you can see the main interface.

2.Press DOWN to"PackSet", then ENTER.

3.Choose RS485, then press ENTER, you can see communication protocol via RS485.

4.For example, we choose RS485-GTECH, then press ENTER, it will be ok.



5.If you want to choose via CAN, press ESC back to step 2

11. Bluetooth Quick Installation Guide

1. Download the Bluetooth APP, with your mobile phone to scan the QR code below to download the APP, support Android, ISO system;
2. Download the APP.
3. Open the APP and register then log in;
4. After successful login in, the APP will automatically jump to the (Device list) screen. On this screen, select the corresponding battery string serial number to connect. Then you will check the battery situation by your phone.

Scan with WeChat to download the lithium battery APP

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