



LPUS Series LiFePO₄ Lithium Pack

UP Standing Movable

LiFePO₄ Lithium Battery Pack
51.2V
280Ah/300Ah/320Ah/



User Manual

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.



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

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

Product specification:

The manual is applicable to the lithium iron phosphate household energy storage series products manufactured by our company.

Product Instructions:

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

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

Read before installation:

1. Battery needs to be recharged within 12 hours, after fully discharged
2. Do not install the product outdoors, avoid direct sunlight, and keep it away from water, flammable and explosive materials
3. Do not expose cable outside
4. Do not connect power terminal reversely.
5. All the battery terminals must be disconnected for maintenance
6. Please contact the supplier within 24 hours if there is something abnormal.
7. Do not use cleaning solvents to clean battery
8. Do not expose battery to flammable or harsh chemicals or vapors
9. Do not paint any part of battery, include any internal or external components
10. Do not connect battery with PV solar wiring directly
11. The warranty claims are excluded for direct or indirect damage due to items above.
12. Any foreign object is prohibited to insert into any part of battery

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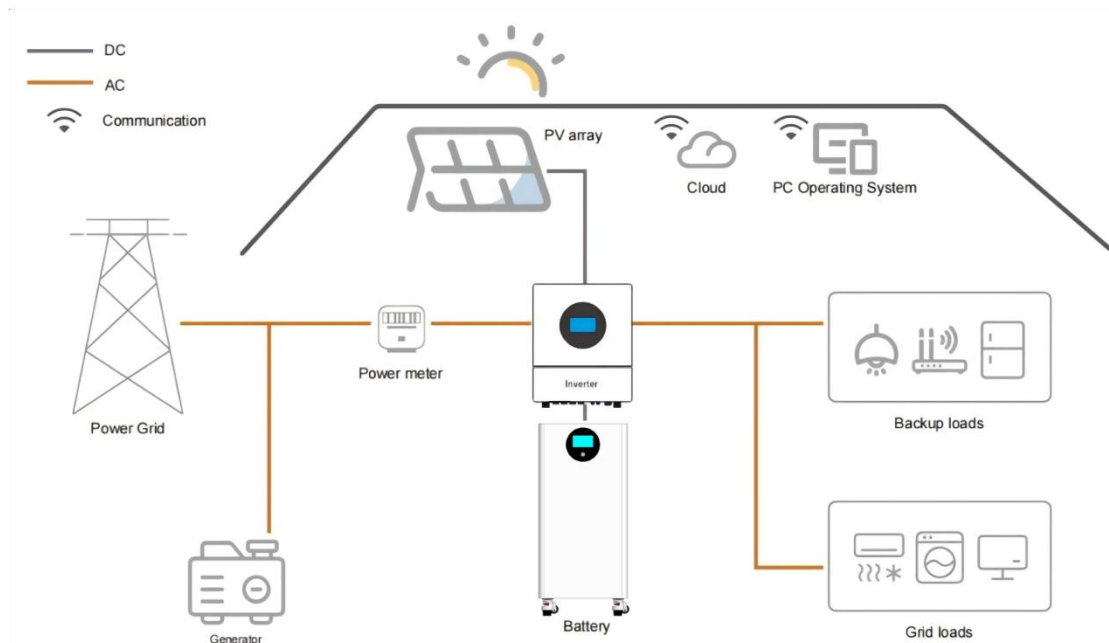
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1. Basic Specification

Items	Specifications		
Rated energy(kWh)	14.336KWh	15.36kWh	16.08kWh
Configuration	1P16S		
Nominal Voltage(V)	51.2V		
Working Voltage(V)	42V~58.4V		
Nominal Capacity(Ah)	280Ah	300Ah	314Ah
Rated charge/discharge Current(A)	100A @25± 2°C		
Maximum charging current	200A@25± 2°C		
Maximum discharge current	200A @25± 2°C		
Working Temperature	0-45°C(Charge) -20-60°C(Discharge)		
Humidity(%)	5~80%		
Altitude Limited(m)	0-3000m		
Weight(Kg)	111Kg± 3kg		
Dimension(mm)	897×416×237mm		
Storage temperature and humidity	0°C~40°C (Within one month of storage) 25± 2°C(Within three months of storage) 6%±25% RH		
cycle life	6000 cycles @25°C 100ACharge and discharge current 80%DOD	6000 cycles @25°C 100ACharge and discharge current 80%DOD	8000 cycles @25°C 100ACharge and discharge current 80%DOD
IP grade	IP21		
Communication mode	CAN/RS485/RS232		

2. About Battery Pack Applications

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.



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

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.

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.

3. Features & Functions

- The module is non-toxic, eco-friendly and pollution-free.
- Cathode material uses LiFePO₄ with high safety and long cycle life.
- Equipped with high-performance BMS with complete protection functions.
- Provides over-charge, over-discharge, over-current and abnormal temperature protection.
- Automatic charge/discharge management and single-cell balancing function.
- Intelligent design with integrated inspection module.
- In flexible configuration, multiple battery modules can be parallel to expand capacity and power.
- Flexible configuration: multiple battery modules can be connected in parallel for capacity expansion.
- Low self-discharge rate; recharge interval can be up to 10 months during storage.
- No memory effect, supports shallow charge and discharge.
- Compact and lightweight, standard module design for easy installation and maintenance.

BMS monitoring system of lithium battery pack:

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

Real time current, voltage and capacity usage.

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

Modify the functional parameters of lithium battery pack.

PBmsLVToolsV0.95

RealTimeMonitor

ParallerMonitor

SaveRecord

ExportRecord

ParamSetting

SystemSetting

Setting

Tools

BatteryInfo

TotalVoltage: 0 V

Current: 0 A

SOC: 0 %

SOH: 0 %

RemainCapacity: 0 mAh

FullCapacity: 0 mAh

CycleTimes: 0

IndV1: 0 V

IndC1: 0 A

CurrentPACK

PACK: 1

Host: 1

Serial: COM3

Adr: 1

OpenSerial

StartMonitor

Poll

Temperatures

Title	Temperature(°C)
TCell1	0.0
TCell2	0.0
TCell3	0.0
TCell4	0.0
MOS_T	0.0
ENV_T	0.0

SystemStatus(Only read)

CHGMOS

CHGCurValid

DSGCurValid

LimitCurrent

DSGMOS

Heating

ACIn

Fully

SingleBatteryVoltages

Number	Voltage(mV)	Balanced
1	0	
2	0	
3	0	
4	0	
5	0	
6	0	
7	0	
8	0	
9	0	
10	0	
11	0	
12	0	
13	0	
14	0	
15	0	
16	0	

MaxVolt: 0 mV

VoltDiff: 0 mV

MinVolt: 0 mV

WarningStatus

None

SwitchControl

CHG OFF

Alarm OFF

Limit OFF

DSG OFF

LED OFF

ForcedSleep

ProtectStatus

None

MalfunctionStatus

None

Password

05/15/2025 10:08:06 Firmware:

BMS S/N:

PACK S/N:

English

No Communication

PBmsLVToolsV0.95

RealTimeMonitor

ParallerMonitor

SaveRecord

ExportRecord

ParamSetting

SystemSetting

Setting

Tools

	Alarm(V/°C)	Protect(V/°)	ProtectRec(V/°C)	IsEnable	ProtectDelay(ms)
CellOverCHG	0.00	0.00	0.00	☐	0
CellOverDSG	0.00	0.00	0.00	☐	0
PackOverCHG	0.00	0.00	0.00	☐	0
PackOverDSG	0.00	0.00	0.00	☐	0

	Alarm(°C)	Protect(°C)	ProtectRec(°C)	IsEnable
CHG OT	0	0	0	☐
CHG UT	0	0	0	☐
DSG OT	0	0	0	☐
DSG UT	0	0	0	☐
MOS OT	0	0	0	☐
Amb OT	0	0	0	☐
Amb UT	0	0	0	☐

CHGCurrent

IsEnable

CHGCurrentWarning(A)

CHGCurrentProtect(A)

CHGCurrentProtectDelay(ms)

BatteryParameter

Cut Off Voltage(V)

Cut Off Current(mA)

Low Battery Warning(%)

DSGCurrent

IsEnable

DSGCurrentWarning(A)

DSGCurrentProtect1(A)

DSGCurrentProtectDelay1(ms)

DSGCurrentProtect2(A)

DSGCurrentProtectDelay2(ms)

ReadParameter

WriteParameter

ResetParameter

ClearParameter

Export

Import

05/15/2025 10:10:30 Firmware:

BMS S/N:

PACK S/N:

English

No Communication

BMS monitoring system

Bluetooth monitoring system:

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

Real time current, voltage and capacity usage

Obtain energy consumption data and alarm status record of lithium battery

pack Modify the functional parameters of lithium battery pack



User Manual

Scan the code to jump to the download address, and follow the instructions to complete the download and installation.

Attention: APP For operation details, please refer to the Bluetooth module user manual

(Due to different purchasing modes, the lithium battery pack you purchased may not have all the functions mentioned above)



(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.)

4. Product warning



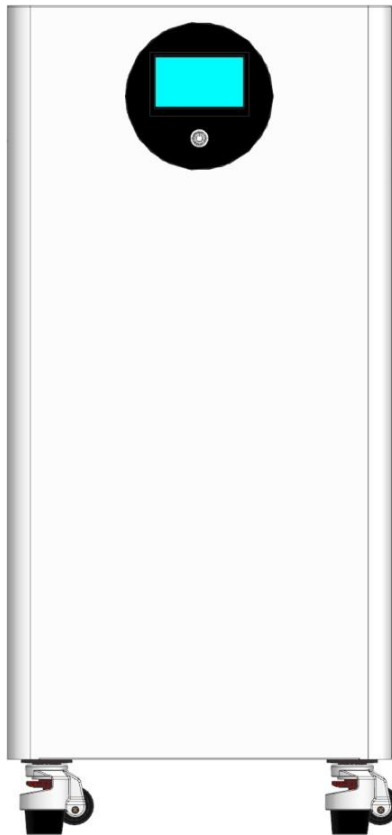
WARNING

INTERNAL DANGER/LOW DC VOLTAGE

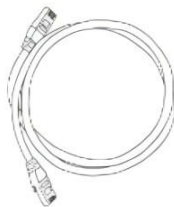
- Do not disconnect or disassemble by non professionals.
- Do not install this product in direct sunlight.
- Do not approach open flames or flammable materials.
- Do not place in a place that can be touched by children and pets.
- Do not touch leaked liquid.
- Do not use sharp objects, drops, impacts, 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.



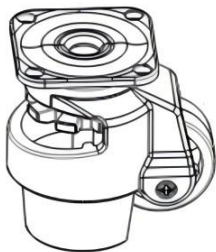
5. Goods list



Battery*1



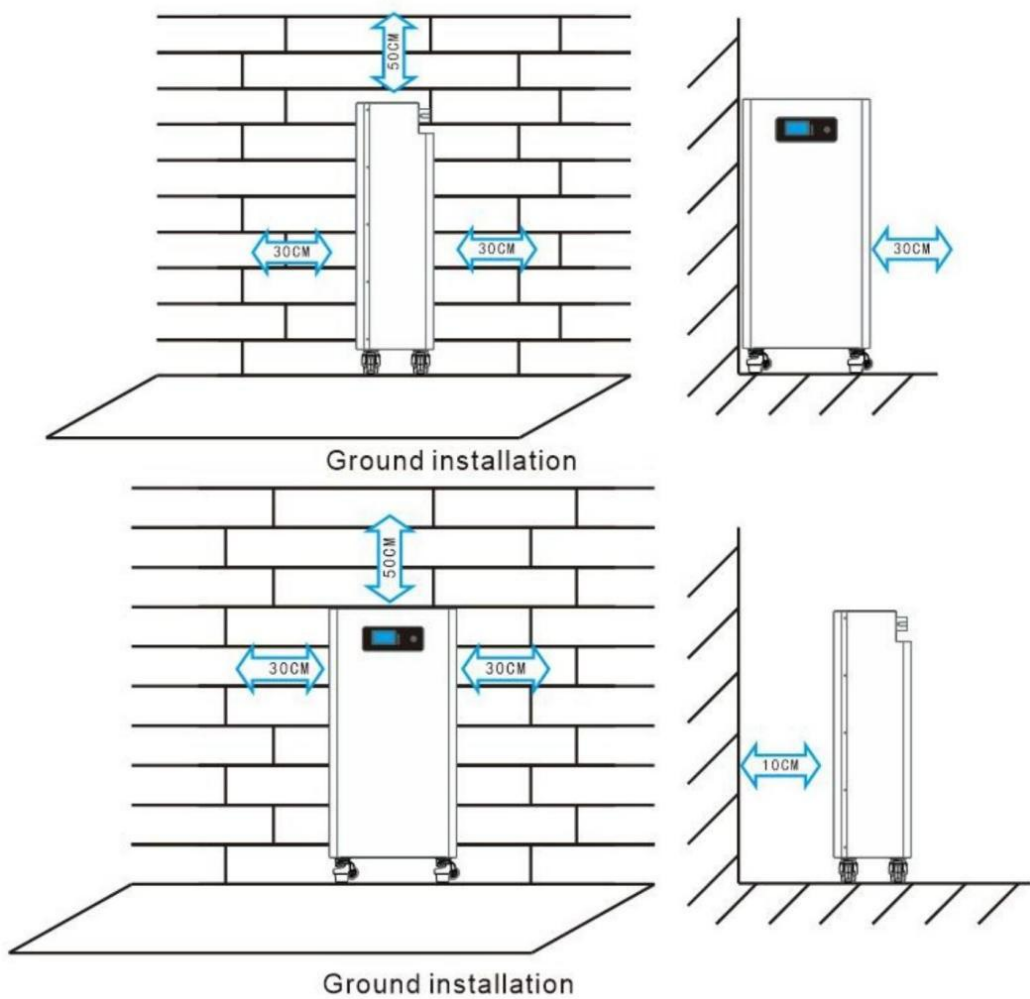
COM Cable*1



Universal Wheel* 4

Serial No	Project	Explain
1	Battery	Lithium iron phosphate battery pack
2	COM Cable	Communication serial port connecting line between battery pack and inverter
3	Universal Wheel	For ground installation

6. Installation method

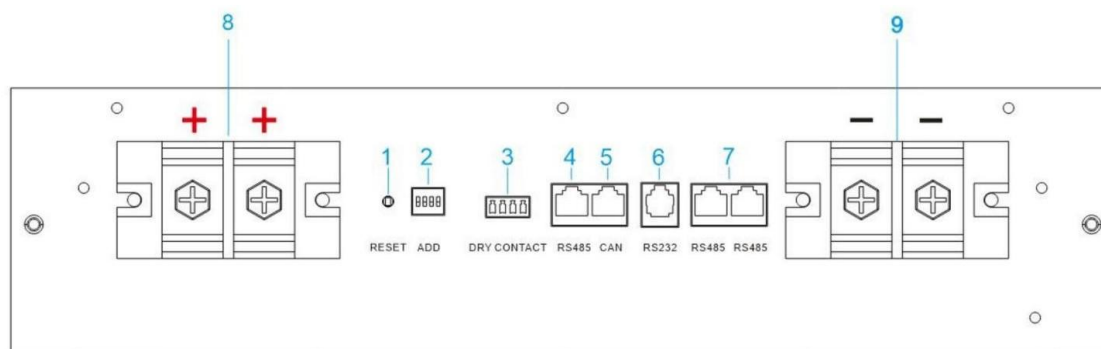


Direction	Minimum clearance (CM)
Above	50CM
Below	50CM
Sides	30CM
Front	30CM



As shown in the above figure, follow the minimum gap with walls, other batteries, or objects to ensure sufficient heat dissipation.

7. Port definition



Serial No	Name
1	Reset switch
2	Dial switch
3	Drycontact
4	RS485(Communication with inverter)
5	CAN(Communication with inverter)
6	RS232
7	Parallel485(Battery parallel communication)
8	Positive electrode
9	Negative electrode

8. Reset Switch Description

When the BMS is in sleep mode :

Press and hold the key for 3–6 seconds then release to wake up the battery pack; the RUN LED flashes for 0.5 seconds.

When the BMS is active:

Press and hold the key for 3–6 seconds then release to enter sleep mode; the lowest battery level LED lights up for 0.5 seconds.

Press and hold the key for 6–10 seconds then release to reset the battery pack; all LEDs turn on for 1.5 seconds.

9. Battery Pack Sleep and Wake up

dormancy

The system enters low-power sleep mode when any of the following conditions are met:

1. Cell or pack over-discharge protection is not cleared within 30 seconds.
2. Press and hold the key for 3–6 seconds then release.
3. Minimum cell voltage is below the sleep threshold for the set delay time (no communication, protection, balancing or current).
4. Standby time exceeds 24 hours (no communication, charge/discharge or mains power).
5. Forced shutdown via host computer software.

Before entering sleep mode, ensure the input terminal is disconnected from external voltage; otherwise, the system cannot enter low-power mode.

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.).

Awaken:

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. When connected to the charger, the output voltage of the charger shall be greater than 48V.
- 2. Press the key (3-6S) and release it.
- 3. Activated via RS232 port.

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.

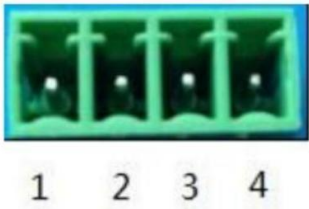
When the system defines that the recovery voltage is not reached after 2 days of standby (set value of standby time) after the end of charging, the charging is forced to resume until the end of recharging.

10. Description of DIP switch

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.

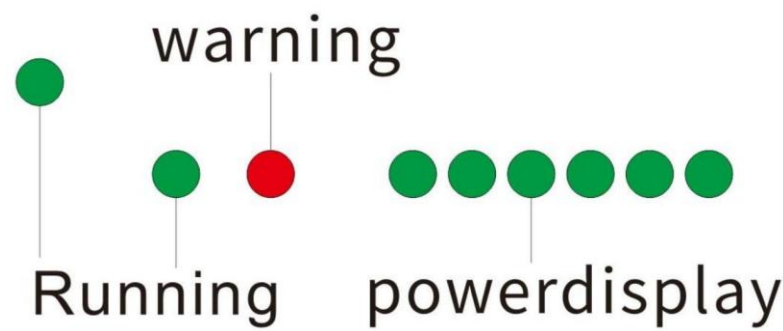
Example of parallel dialing				
 stand-alone	 1	 2	 3	 4
 5	 6	 7	 8	 9
 10	 11	 12	 13	 14
 15				

11. Dry contact



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

12. Running indicator



LED meter 1:

State		Charge						Discharge					
Capacity indicator		L6	L5	L4	L3	L2	L1	L6	L5	L4	L3	L2	L1
Power (%)	0~16.6%	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Flash 2	Extinguish	Extinguish	Extinguish	Extinguish	Extinguish	Always bright
	16.6~33.2%	Extinguish	Extinguish	Extinguish	Extinguish	Flash 2	Always bright	Extinguish	Extinguish	Extinguish	Extinguish	Always bright	Always bright
	33.2~49.8%	Extinguish	Extinguish	Extinguish	Flash 2	Always bright	Always bright	Extinguish	Extinguish	Extinguish	Always bright	Always bright	Always bright
	49.8~66.4%	Extinguish	Extinguish	Flash 2	Always bright	Always bright	Always bright	Extinguish	Extinguish	Always bright	Always bright	Always bright	Always bright
	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 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 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	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

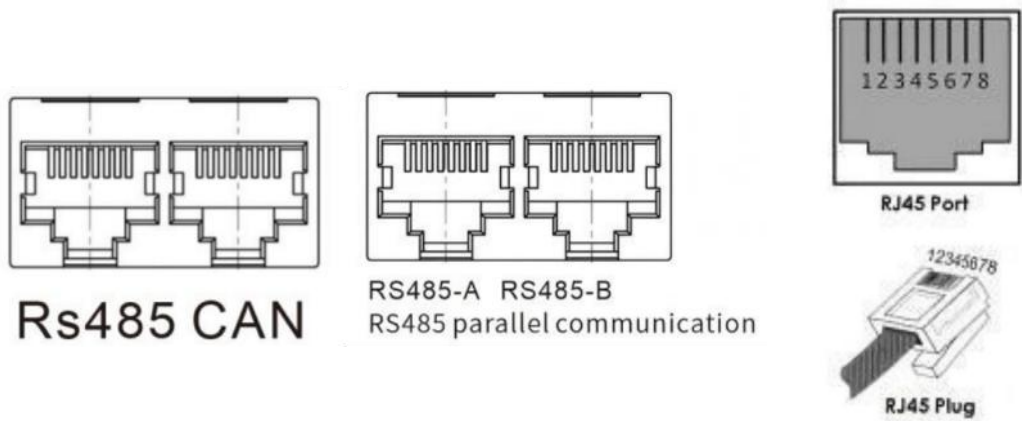
13. Communication description

RS485 communication

The battery communicates with the inverter through the RS485 interface and uploads various types of information about the battery, such as voltage, current, and temperature, including SOC, SOH, working status, and production information. The default baud rate is 9600 bps.

CAN communication

The battery communicates with the inverter via the CAN interface, transmitting various battery parameters including voltage, current, temperature, SOC, SOH, operating status, and production information. The default baud rate is 500 Kbps.



RS485 interface (communication with host computer or inverter)		CAN communication interface (only inverter communication)	
RS485—Use 8P8C vertical RJ45 socket		CAN—Use 8P8C vertical RJ45 socket	
RJ45 pin	Defined declaration	RJ45 pin	Defined declaration
1 、 8	RS485-B	4	CAN-H
2 、 7	RS485-A	5	CAN-L
3 、 6	GND	3 、 6	GND
4 、 5	NC	1 、 2 、 7 、 8	NC

 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.

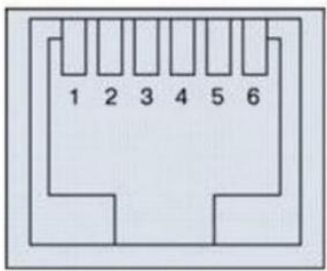
Dual RS485 communication

The RS485 parallel port supports a maximum of 15 battery strings simultaneously. The default baud rate is 9600bps.

RS485 interface Parallel communication port (for parallel only)			
RS485A—Use 8P8C vertical RJ45 socket		RS485B—Use 8P8C vertical RJ45 socket	
RJ45 pin	Defined declaration	RJ45 pin	Defined declaration
1 、 8	RS485-B	1 、 8	RS485-B
2 、 7	RS485-A	2 、 7	RS485-A
3 、 6	GND	3 、 6	GND
4 、 5	NC	4 、 5	NC

RS232 communication

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.



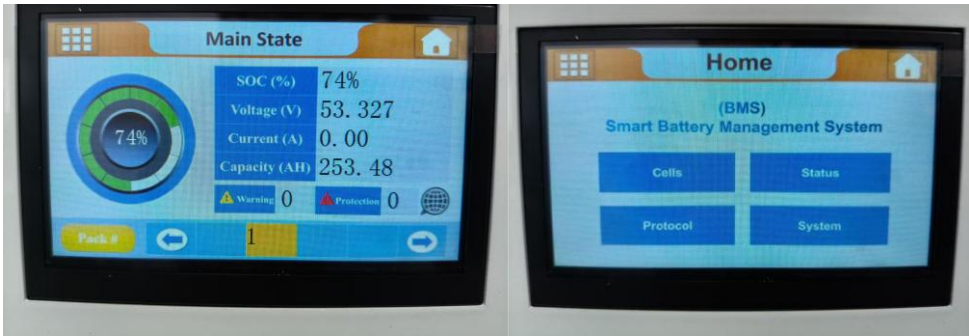
RS232-Adopt 6P6C vertical RJ11 socket	
RJ11 pin	Definition description
1、 2、 6	NC
3	TX(veneer)
4	RX(veneer)
5	GND

14. Weak current starting switch



Press the switch to activate BMS, start circuit output, reset the switch, turn off BMS circuit, no external output

15. Display screen operating instructions

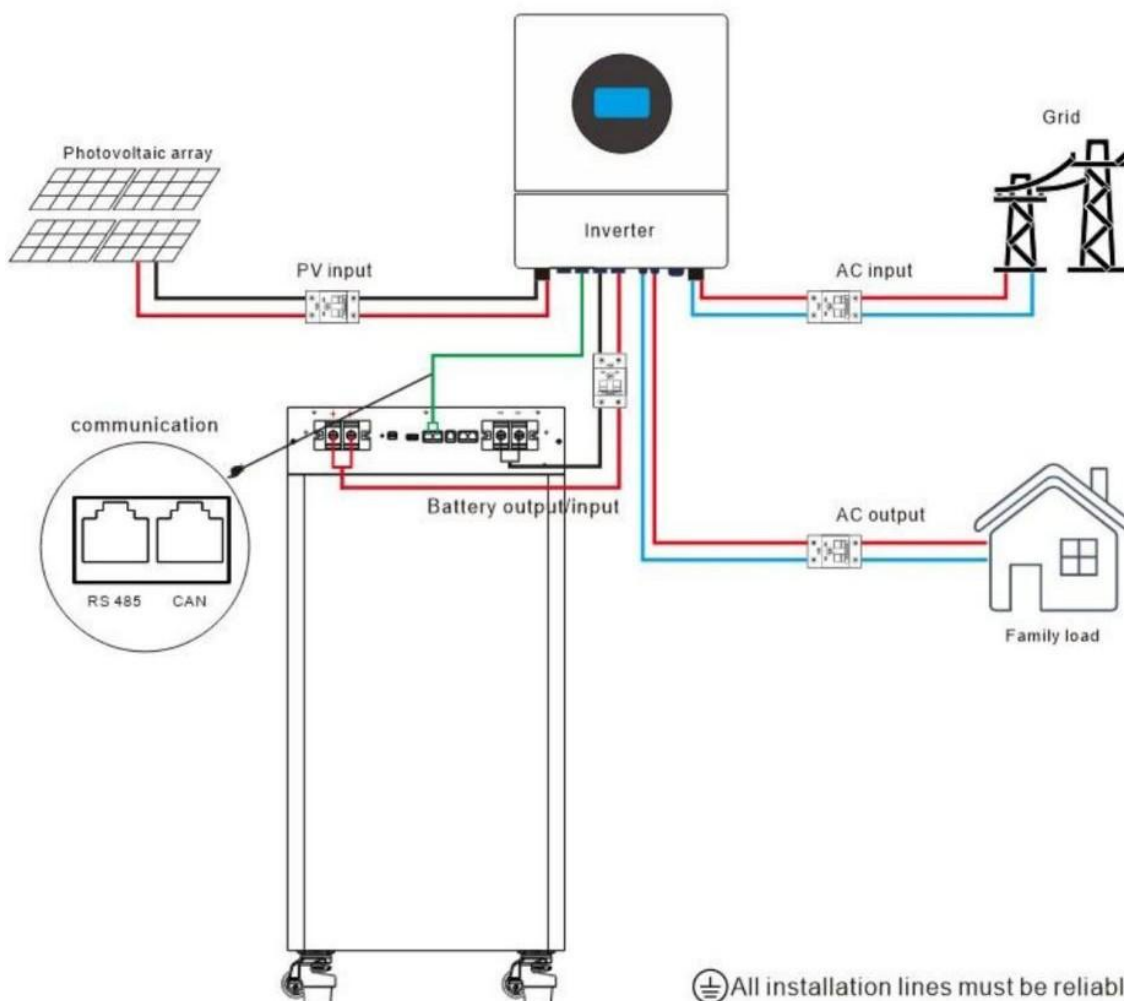


1. Picture 1 is the main status interface, which displays information such as the battery pack's SOC, Current, Voltage, warning, and protection.
2. The main menu button is located in the upper left corner. After entering, the style shown in Picture 2 will be displayed, allowing you to query cell data, status data, as well as select protocols and make system settings.
3. Under normal operation, if there is no key input for 3 minutes, the system will enter the sleep/shutdown state. In the sleep/shutdown state, clicking any position on the color screen will activate the display and enter the main interface. At the same time, the authorization will be reset.

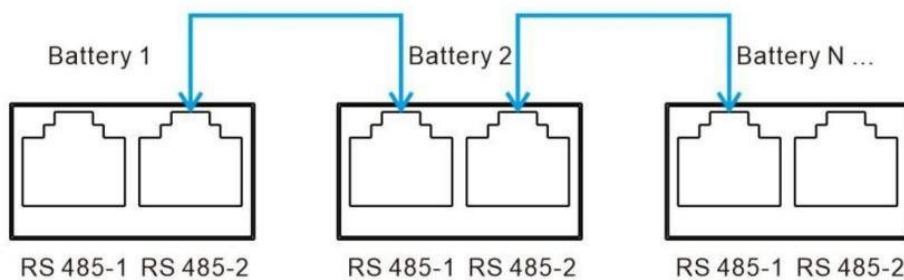
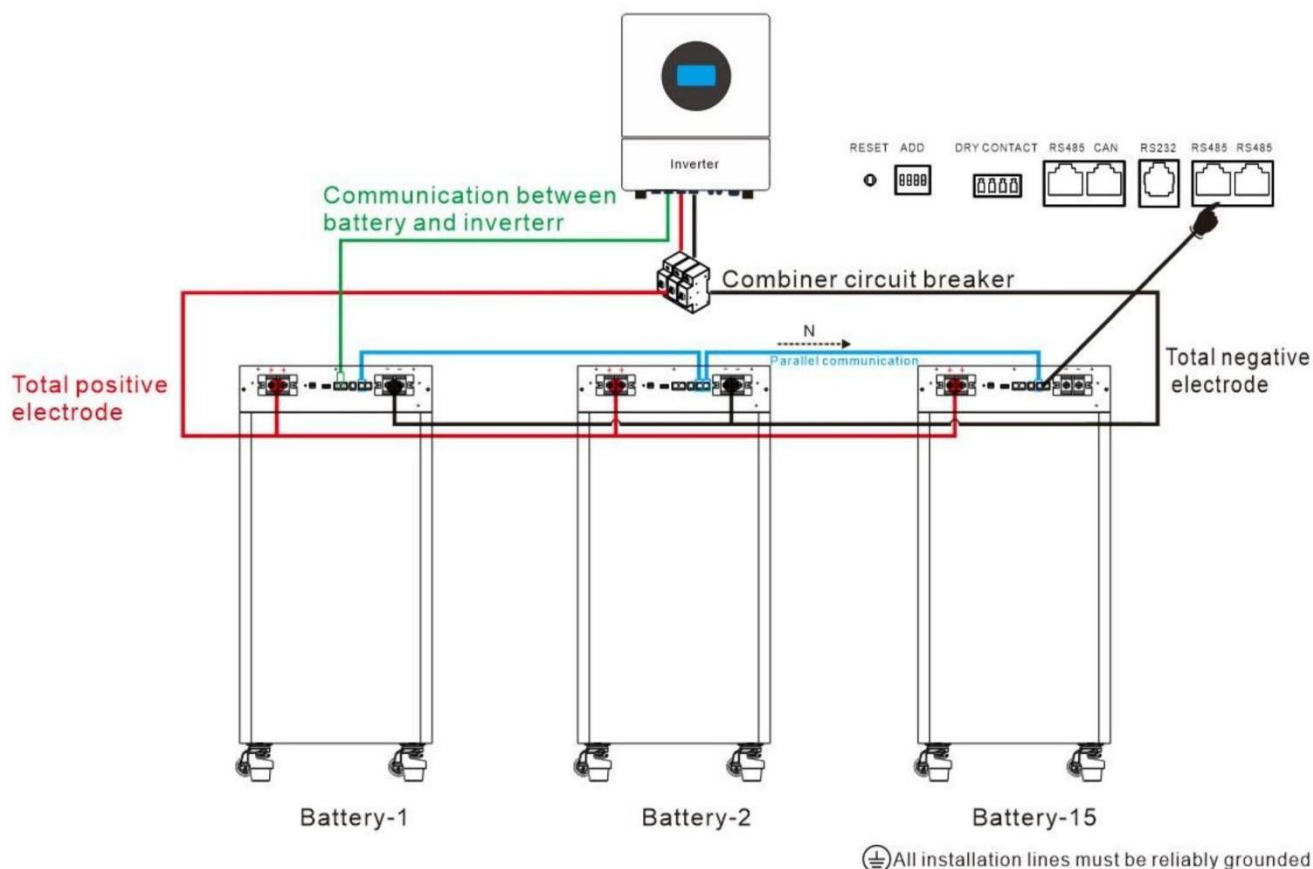
Attention : For details, please refer to the instructions for using the display screen

16. Battery Pack & Inverter Connection

System wiring diagram:



Parallel machine example:



Parallel Communication Diagram



Attention:

- For the battery address dip switch, please refer to the DIP switch instructions in item 9
- Please select the appropriate circuit breaker/cable specifications and models based on your actual installation configuration

tool:



Wire cutter



Crimping modular plier



Screwdriver

The following safety equipment is recommended for operation



Insulating gloves



Safety goggles



Safety shoes

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.

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

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

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

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

 **Warning:** The embedded BMS in the battery is designed for 48VDC, please DO NOT connect battery in series

 **Warning:** It is prohibited to connect the battery and AC power directly

17. System operation

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.



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

Troubleshooting

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



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



Warning: If the battery pack malfunctions and causes a shutdown that cannot be resolved in a timely manner, please report to our sales representative or authorized service partner in a timely manner. If the failure is not reported to our company or our authorized service partner within 2 weeks, the warranty will be invalid.

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

1. Check whether the battery pack is powered on and whether there is voltage output at the output terminal
2. 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. Close all input and output circuit breakers of the battery pack and inverter
4. Cut off all input and output circuit breakers in the distribution box
5. Reboot matching.



(Note: If the communication between the battery pack and the inverter does not match, please contact our company or authorized dealer for technical assistance)

18. Emergency Handling

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

1. Please contact the fire department or other emergency teams immediately.
2. Notify all people who may be affected to ensure that they can evacuate the area.



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

In case of fire:

1. Turn off the inverter.
2. Press the power button to turn off the battery pack.
3. Cut off all input and output circuit breakers in the distribution box.
4. Acceptable types of extinguishers include: water, carbon dioxide and ABC extinguishers.

 **Avoid using Type D (flammable metal) extinguishers.**

In case of flood:

- 1. If any part of the battery, inverter or electric wire is immersed in water, please keep away from water.
- 2. Turn off the inverter.
- 3. Press the power button to turn off the battery pack.
- 4. Cut off all input and output circuit breakers in the distribution box.
- 5. Make sure there is no electrical connection to the power box.
- 6. If possible, protect the system by finding and stopping the water source and pumping the water away.
- 7. Please contact our technical support or authorized dealer promptly for assistance.

19. Battery Pack Storage

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:

See the table below for storage requirements of power box.

Storage temperature	Short term storage	less than 1 month	-10°C~+45°C
	Long term storage	shall not exceed 3 months	0°C~+45°C

 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%.

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.

Prohibition of use of damaged cells:

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.