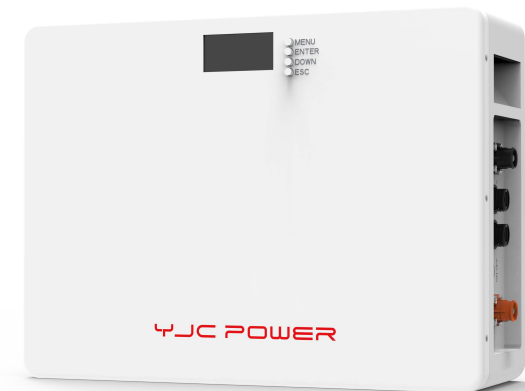


YJC-HES-L-W-25.6V100AH-P1-SE

USER MANUALS



WARNING & REMINDER



WARNING

- It is strictly forbidden to place the battery in water or fire to avoid explosion or other hazards that could endanger personal safety.
- Do not reverse the positive and negative terminals when installing the battery; do not connect the positive and negative terminals directly with conductors (e.g. wires) to avoid short-circuiting the battery.
- Do not prick the battery with a needle, hit it with a hammer, step on it hard or otherwise impact it;
- During use, the system must be completely disconnected and completely switched off when it is moved or rewired, otherwise there is a risk of electric shock.
- In the event of a fire, use a dry powder extinguisher to extinguish the fire; the use of a liquid extinguisher may pose a secondary risk.
- Under no circumstances should any part of the system be disassembled by anyone other than us or our authorised technicians to prevent danger or injury to your personal safety, and any resulting failure of the equipment is not covered by the warranty.



REMINDER

- The product has been strictly checked before shipment, if you find that the product you have purchased has a bulging casing and other abnormal phenomena, please contact us;
- To ensure safety and the normal use of the product, the equipment should be reliably earthed before use.
- In order not to affect normal use, please ensure that the electrical parameters of the relevant equipment are compatible with each other before use.
- Do not mix batteries of different manufacturers or of different types or models, as well as old and new batteries;
- The environment and storage methods have an impact on the service life and reliability of this product, so environmental factors must be taken into account before installation and use to ensure that the system works in a suitable environment.
- For long-term storage, the battery should be replenished every 6 months with a charge of more than 80% of the rated capacity
- After the battery has been discharged to termination and over-discharge protection has been activated, charging of the battery should be resumed within 18 hours.

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INTRODUCTION

Introduction

The YJC-HES-L-W-25.6V100Ah-P1-SE Lithium Iron Phosphate system is a standard battery system unit that allows the customer to select a certain number of YJC-HES-L-W-25.6V100Ah-P1-SE to be connected in parallel to form a larger capacity battery pack to meet the user's long term power requirements. The product is particularly suitable for applications with high operating temperatures, limited installation space and long service life requirements.

Product features

The YJC-HES-L-W-25.6V100Ah-P1-SE battery system uses Lithium Iron Phosphate as the battery cathode material and is equipped with a high performance BMS for effective cell management:

- Compliant with European ROHS regulations, SGS certified, with non-toxic, non-polluting and best environmental friendly batteries;
- The positive electrode of the battery is made of lithium iron phosphate (LiFePO₄) material, with good safety performance and long cycle life;
- High-performance battery management mode with over-discharge, over-charge, over-current and temperature protection functions;
- Automatic charge and discharge management and single cell equalisation;
- Fully intelligent design, with a centralised monitoring module and three remote control functions (telemetry, telematics and remote control);

- Flexibility in configuration, with multiple system units connected in parallel to extend the duration of power supply to the system;
- The use of self-cooling and the extremely low noise level of the entire system;
- Low self-discharge, up to 6 months replenishment cycle during storage; no memory effect, shallow charging and discharging;
- Battery Discharge temperature range of -20°C to 60°C
- Small and lightweight battery

Definition of product marking

	Battery voltage is higher than the safety voltage, direct contact with the risk of electric shock
	Operate with caution and be aware of the dangers
	Please read the user manual before use
	End-of-life batteries can not be put into the trash, subject to professional recycling
	After the end of battery life, it can be recycled by professional recycling institutions, please do not throw away
	This battery product meets the requirements of the European Directive

PRODUCT SPECIFICATIONS

Size and weight

Table 2-1 Dimensions of the YJC-HES-L-W-25.6V100Ah-P1-SE

Product range	Rated voltage	Rated capacity	Dimensions	Weight
YJC-HES-L-W-25.6V100Ah-P1-SE	DC25.6V	100Ah	430x320x159.5mm	≈25kg

Performance parameters

Table 2-2 Table of YJC-HES-L-W-25.6V100Ah-P1-SE performance parameters

Technical specifications Technical parameters	Nominal voltage Rated voltage	25.6V
	Nominal capacity Rated Capacity	100AH
	Combination Pack system	1P8S
	Rated charging current	100A
	Rated discharge current	100A
	Efficiency	94%
	Self-discharge rate	≤2%/M
	Communication	RS485/CAN/RS232

Working environment Environment	Charging: 0-50°C Discharge: -20°C to 60°C
Weight	≈25kg
Humidity	95%RH
Factory state of charge	30%-50%
Storage ambient temperature	The maximum storage interval allowed for LiFePO4 modules at different temperature conditions after delivery After leaving the factory, the iron-lithium battery module allows the longest storage and non-charging interval under different temperature conditions 1) ≤12M @25°C 2) ≤6M @35°C 3) ≤ 3M @45°C

Interface definitions

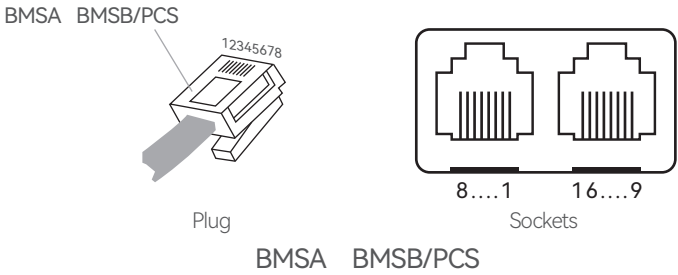
YJC-HES-L-W-25.6V100Ah-P1-SE product panel interface configuration and functions. This section details the functions of each interface on the front panel of the device.

BMSA BMSB/PCS interface definition

Figure 2-3 Schematic diagram of the YJC-HES-L-W-25.6V100Ah-P1-SE interface



Name	Logo Sign	Function DescriptionFunction
RJ45-1	BMSA	RS485/RS32 communication
RJ45-2	BMSB/PCS	RS485/CAN communication
BMS switch	ON/OFF	BMS system switch
Positive terminal	+	Positive
Negative terminal	-	Negative
Ground terminal		Ground terminal



RS485-using 8P8C vertical RJ45 socket	
RJ45 Pin Port	Definition Description
1,9	485-B2
2,10	485-A2
3	OUT(R)
4,12	ISO-VSS
5,6,7,8	NC
11	IN(L)
13	CAN-H
14	CAN-L
15	485-B1
16	485-A1

INTRODUCTION TO SCREEN FUNCTIONS

Interface Introduction

1. Main Menu Page

After powering on/hibernating activation, a welcome interface will be displayed, and press the MENU key to enter the main menu page. As shown in the following figure:

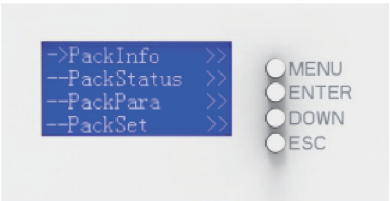
```
->PackInfo  >>  
--PackStatus >>  
--PackPara  >>  
--PackSet   >>
```

2. Battery parameter collection page

When the cursor " >> " points to "Battery Parameter Collection", press the ENTER key to enter the "Battery Parameter Collection" page, as shown in the following figure:

```
->PackInfo  >>  
--PackStatus >>  
--PackPara  >>  
--PackSet   >>
```

Key Description



1. SW1-- MENU, SW2-- ENTER, SW3-- DOWN, SW4-- ESC.
2. Each item starts with " >> " or "--", where " >> " represents the current position of the cursor. Press the DOWN key to move the cursor down; A project that ends with " >> " indicates that there is content that is not displayed in the project. Press the ENTER key to enter the corresponding page.
3. Press ESC to return to the previous level directory; At any location, press the MENU key to return to the main menu page.
4. In sleep mode, press any button to activate the display screen.

Battery Management Systems (BMS)

Voltage protection function

Discharge low voltage protection:

When discharging, when the voltage of any single cell is below the protection value, the over-discharge protection battery buzzer alarm is activated and the battery stops supplying external power. The protection is lifted when all single cell voltages are restored to within the rated return value.

Charging overvoltage protection:

During charging, the system stops charging when the total battery pack voltage or the voltage of any individual cell reaches the protection value. When both the total and individual cell voltages return to within the rated return value, the protection is removed.

Current protection function

Charging overcurrent protection:

When discharging, when the voltage of any single cell is below the protection value, the over-discharge protection battery buzzer alarm is activated and the battery stops supplying external power. The protection is lifted when all single cell voltages are restored to within the rated return value.

Discharge overcurrent protection:

When the discharge current is greater than the protection value, the battery buzzer alarms and the system stops discharging. The system delays for the rated time and then releases the protection.



Note: The buzzer alarm setting can be turned off manually on the host computer, shipping is on by default

Temperature protection function

Charge under/over temperature protection:

When the battery temperature exceeds the range of $-0^{\circ}\text{C}\sim+50^{\circ}\text{C}$ in the charging state, the system starts charging temperature protection, stops charging and the protection is lifted when the rated return difference value is restored.

Discharge undertemperature/overtemperature protection:

In the discharge state, when the battery temperature exceeds the range of $-20^{\circ}\text{C}\sim+60^{\circ}\text{C}$, the system starts the discharge temperature protection, stops the external power supply, and the protection is solved after restoring the rated return value range;

Other protection features

Short circuit protection:

If a short circuit occurs when the battery is activated from the off state, the system activates short circuit protection for 30 seconds.

Automatic switch-off:

Automatic switch-off after 72 hours without external load and power supply.



Note: The buzzer alarm setting can be turned off manually on the host computer, shipping is on by default

INSTALLATION AND CONFIGURATION

PREPARATION FOR INSTALLATION

Safety regulations

This system should only be installed by persons who have received training and have sufficient knowledge of the power supply system. The safety regulations listed below and the local safety regulations should always be observed during installation.

- All circuits connected to this power supply system with an external voltage of 24V or less must meet SELV requirements as defined in the IEC60950 standard.
- If operating inside the power system cabinet, ensure that the power system is not powered. The battery equipment should also be left switched off.
- Distribution cables should be wired appropriately and protected so that they are not touched when operating power supply equipment.
- When installing the battery system, the following protective items must be worn:



Environmental requirements

Operating temperature: -20°C to +60°C
Storage temperature: -10°C to +35°C
Relative humidity: 5% to 90% RH
Altitude: not exceeding 4000m
Working environment: Indoor installation, protected from sunlight, windless, free from conductive dust and corrosive gases, and meeting the following conditions:

- Installation site away from the sea
- Avoid salt water and high humidity environments
- The floor is flat and level
- No flammable or explosive substances in the vicinity of the installation site
- The ideal ambient temperature is 15-30°C
- Stay away from sandy and dirty areas

Tools and materials

Tools and materials
The tools and instruments that may be used are shown in 3-1:

Table 3-1 Tool gauges

Name	
Screwdrivers (I, Cross)	million Use Table
Torque wrench	Clamp Flow Table
Slant Mouth Pliers	Insulation tape
Pointed pliers Pliers	Temperature Temperature Meter
Clip Wire Pliers	Anti-static bracelets
Stripping Wire Pliers	Ties Strap
Electric Drill	Volume ruler

Electrical interface check

The device directly connected to the battery can be a user device, power supply or other power supply device.

- Verify that the customer's photovoltaic power generation equipment, power supply or other power supply equipment has a DC output interface and measure whether the DC interface output voltage meets the voltage range requirements in the performance parameter table.
- Confirm that the maximum discharge current capacity of the DC interface of the user's photovoltaic power generation equipment, power supply or other power supply equipment should be greater than the maximum charging current of the product used in the performance parameter table; if the maximum discharge capacity of the DC interface of the user's photovoltaic power generation equipment is less than the maximum charging current of the product used in the performance parameter table, the DC interface of the user's photovoltaic power generation equipment should have a current limiting function to ensure the normal operation of the user's equipment as a priority.
- Confirm that the maximum operating current of the user equipment (inverter DC input) supplied by the Schein cell should be less than the maximum discharge current of the product used in the performance data sheet.

Security checks

It is strictly forbidden to place flammable, explosive or other dangerous items next to the battery. Fire-fighting equipment, e.g. portable dry powder fire extinguishers, should be available in the vicinity of the equipment. Where necessary, automatic fire-fighting systems should be provided.

Open the box to inspect the goods

- When the equipment arrives at the installation site, it should be loaded and unloaded in accordance with the regulations and protected from the sun and rain. Before unpacking, the total number of pieces should be counted according to the freight list attached to each box and the appearance of the box should be checked for completeness;
- Take care to protect the surface coating of the object by handling it gently during opening;
- When opening the box, the installer should first read the technical documentation, verify the list, check whether the items are complete and intact according to the configuration table and packing list, and if there is any damage to the internal packaging, check it in detail and record it. The packing list is as follows:

Configuration	Subject	specifications	number	Attached Figures
Standard	battery	25.6V100Ah 430x320x159.5mm	1	



Note: Parallel cable are not standard accessories, if needed, you need to place a separate order.

Engineering coordination

The following should be noted prior to construction:

○ Power Cord Specifications

The specification of the power cable should meet the maximum discharge current requirements for each product;

○ Installation space and load-bearing capacity

Ensure that there is sufficient space for the battery to be installed and that the case and bracket in which the battery is installed have sufficient load-bearing capacity.

○ Cabling

Ensure that the power and earth wires are properly routed. Not prone to short circuits, water and corrosion.

EQUIPMENT INSTALLATION

Table 3-2 Installation steps

Step 1	Preparation for installation	1. Make sure the ON/OFF switch on the chassis is the "OFF" state ensures that no power is applied to the operation.
Step 2	Mechanical installation	1. Positioning of the cabinet
		2. top harness pre-assembly
		3. Battery module installation
Step 3	Electrical installation	1. Grounding cable installation
		2. Battery module parallel cable installation
		3. Battery module general positive cable installation
		4. Battery module main negative cable installation
		5. Internal CAN communication interface connection
Step 4	Battery system self-test	Press the ON/OFF switch to "ON".
		2. BMS system power-up activation
		3. Check the system output voltage
		4. Shutting down the system
Step 5	Connecting the inverter	1. Installation of the total positive and negative cables from the battery system to the inverter
		2. Connect the external CAN communication cable to the inverter

Preparation for installation

1. Prepare equipment and tools for installation;
2. Check the chassis to ensure that the ON/OFF switch is "OFF" and that it is not operating with power.

Electrical installation

Before connecting the power and earth cables it is recommended to use a multimeter to measure the cables for on/off, short circuits and to confirm positive and negative terminals, and to label the cables properly.

Measurement method:

○ Cable on/off:

Select the multimeter buzzer setting and use the probe to measure both ends of the same colour cable, if the buzzer beeps, the cable is available.

○ Short circuit judgement:

select the multimeter resistance file, use the probe to measure the same end positive and negative, if the resistance shows infinity, it means the cable is available.

○ Positive and Negative:

After visual inspection of the power cable connection, the positive and negative battery terminals should be connected to the positive and negative terminals of the opposite end of the device respectively.

≡ INSTALLATION AND MAINTENANCE CONSIDERATIONS

INSTALLATION NOTES

1. Unpacking, checking the number of accessories and the appearance of the battery before installation.
2. Install the lugs and handle and measure the battery voltage with a multimeter, generally between 24.5V – 26.5V at the factory;
3. Check the positive and negative terminals of the battery before wiring, it is strictly forbidden to press the positive and negative terminals in reverse when installing the battery.

4. Please wear protective gloves during battery connection, and when using metal tools such as torque spanners, please pack the metal tools with insulation to absolutely avoid both ends of metal tools such as torque spanners touching the positive and negative terminals of the battery at the same time, causing a short circuit;

5. Before connecting to an external device, leave the device disconnected and check again that the battery polarity and total voltage are correct. Then connect the positive terminal of the battery to the positive terminal of the device and the negative terminal of the battery to the negative terminal of the device, and fasten the connection wires.

6. Batteries must be handled and placed gently, no dropping, no impact, no throwing, no knocking, in order to avoid damage to the battery or cause safety hazards;

7. It is forbidden to use sharp parts of the tool to come into contact with the surface of the battery compartment and scratch or damage it.

8. It is forbidden to place any metal or electrically conductive objects on the same net as the battery or to assemble them together in the battery compartment.

Maintenance considerations

Our lithium iron phosphate battery products have the advantages of low self-discharge rate, long service life, high reliability and maintenance-free, and integrated intelligent BMS battery management system, which replaces the manual detection link, automatically detects the single cell voltage, total voltage and total current, etc. to prevent overcharge and overdischarge, greatly reducing the failure rate of the battery pack. The BMS has high efficiency battery equalisation management technology, which greatly improves the consistency of the battery cells, maximises the performance of the battery and extends its service life.

Simple maintenance checks can be carried out on the product during use, recommended maintenance interval: once every 3 months.

○ Check whether the poles and connecting wires of lithium iron phosphate batteries are loose, damaged, degenerated and corroded, and whether the battery casing is damaged or deformed;

○ Observe the status of the battery pack operation indicator, the normal state is green light, when the battery SOC light is only the last one left flashing, it indicates that the battery power is low and the battery is about to be discharged dry to shut down the output;

If there is a fault, the battery pack ALM red light will flash and issue a warning, please check if the battery is connected correctly or if there is an overcurrent situation; afterwards press the RST reset button and see if the fault is eliminated after the battery is restarted, if it cannot be eliminated please contact the manufacturer to deal with it, please do not open the battery pack case without permission;

○ For the application scenario of multiple batteries in parallel, if one of the batteries fails and needs to be replaced, please ensure that the voltage difference between the new battery pack and the other battery packs to be connected in parallel is within 2V, if the voltage difference is larger, it will happen that the battery pack with high voltage will charge the battery pack with low voltage with high current, and the battery pack with low voltage will be over-current protected, resulting in failure to charge;

≡ INSTRUCTIONS FOR THE USE AND OPERATION OF THE BATTERY SYSTEM

~~ALARM DESCRIPTION AND HANDLING~~

In case of protection action or fault, an alarm signal will be given through the front panel working status indicator, and the specific alarm category can be checked through the network manager.

Table 4-2 Main alarms and protection

Status	Alarm category	Alarm indication	Processing
Charging status	Single cell overvoltage	ALM red light always on	Stop charging and find the cause of the fault
	Charging overcurrent	ALM red light always on	Stop charging and find the cause of the fault
	Charging temperature alarm	ALM red light always on	Stop charging
Discharge state	Discharge overcurrent alarm	ALM red light always on	Stop the discharge and find the cause of the fault
	Discharge temperature alarm	ALM red light always on	Stop discharge

	Total voltage undervoltage alarm	ALM red light always on	Charging
	Individual voltage undervoltage alarms	ALM red light always on	Charging

~~COMMON FAULT ANALYSIS AND HANDLING~~

Serial number	Failure phenomena	Cause Analysis	Exclusion methods
1	No light response after power on	Bad power switch	Power switch
2	No DC output red light on	Abnormal battery data status	Webmaster connection to read battery information in the background
3	DC supply time too short	Smaller battery capacity	Changing batteries
4	Battery not fully charged	Charging voltage too low	Adjust charging voltage at 29.2V
5	Power on instantly with sparking from the power cable port and red light on	Short circuit in the power supply wiring	Turn the battery off, check the cause of the short circuit and remove it

Instructions for Battery Disposal

When energy storage batteries reach the end of their useful life, it is imperative to follow proper disposal procedures.

Ensuring the batteries are discarded through professional and environmentally-friendly channels is crucial to prevent harm to the environment and human health. Avoiding casual disposal is essential, as it can lead to contamination and potential health risks.

Let us collaborate in safeguarding our green planet and contribute to sustainable development by responsibly disposing of energy storage batteries.