Rensidential HESS User Manual

Customer Name		**Sales Name**	
Product Name	**LiFePO4 BATTERY HESS**	**Model No.**	**HESS JSLFP192V50AH**
Profile No.	**JSLFP19250 220820**	**Date VER1.0**	**2022/08/20**
VER	**VER1.0**	**PAGES**	**18 PAGES in Total**
CUSTOMER APPROVAL (Please sign back after confirmation. If there is no back sign, the following parameters will be regarded as invalid.)			
	杭州极速电子有限公司 **HANGZHOU SPEED ELECTRONICS CO., LTD**		

Edit **Technical Department**			**Market Center** **Director：** 潘赞明	**Approve** 蔡正波/齐云峰
Edit 黄林	**Audit** 陈 雪	**Confirm** 潘赞明		

Legal Notices

This product meets the design requirements of environmental protection and personal safety. The storage, use and disposal of the product shall be carried out in accordance with the provisions of the product manual, relevant contracts or relevant laws and regulations.

When the product or technology is updated, the user can timely check the relevant information on the website of Hangzhou Speed Electronics Co., Ltd.
Website: http://www.hzjslt.cn/ ; www.bluespeedbattery.com

Please note that modifications to the product without prior consent are prohibited.

Revision Remark

Revision	Revision Date	Revision Remark
1.0	2022/8/20	Initial Release

● Guidelines for Safe Handling of HESS Lithium Batteries

Before Connecting

- Please check the product and packing list after unpacking, if damaged or missing parts, please contact your local retailer timely;
- Before installation, be sure to cut off the power grid and ensure that the battery is turned off;
- Do not mistake the positive and negative wires, make sure there is no short-circuit connection to the external device;
- It is forbidden to connect the battery directly to the AC power supply;ı
- The battery system must be well grounded and the resistance must be less than 1Ω;
- Please ensure that the electrical parameters of the battery system are compatible with related equipment;

While in Use

- ıMust keep batteries away from water and fire;
- If the battery system needs to be moved or repaired, the power supply must be disconnected and the battery must be completely shut down;
- It is forbidden to connect the battery with a different type of battery (different battery model, different battery brand, different battery capacity etc.);l
- It is forbidden to operate the battery with a faulty or incompatible inverter;
- Disassembly of the battery is prohibited (warranty label is removed or damaged);
- In case of fire, only dry powder fire extinguishers can be used, liquid fire extinguishers are prohibited;

- Please must not open, repair, or disassemble the battery unless authorized by Swift staff. We do not accept any consequences or related liability arising from violations of safe operation or equipment safety standards.

Please Be Careful

- Please read the user manual (in the attachment) carefully;
- If the battery is stored for a long time, it needs to be charged every six
  months, and the SOC should not be lower than 80%;
- The battery needs to be charged within 12 hours, after it is fully discharged;
- Must not expose the cable;
- All battery terminals must be disconnected during maintenance;
- If there is any abnormality, please contact the supplier within 24 hours;
- Man-made direct or indirect damage caused by violation of the above items will not be arranged in the scope of warranty claims.

1 introduction

1.1. Overview

This series of high-voltage energy storage systems (HESS) is designed based on lithium iron phosphate batteries and is one of the new residential energy storage products developed and produced by Hangzhou Speed Electronics Co., Ltd. It can be used to support a reliable power supply for various household loads. Stacked HESS is especially suitable for applications with high power, limited installation space, limited load bearing, and requiring long cycle life.

1.2. Product Features

The entire module is non-toxic, non-polluting and environmentally friendly;

The negative electrode material is lithium iron phosphate with good safety performance and long cycle life;

The battery management system (BMS) has protection functions when over-discharge, over-charge, over-current, high and low temperature;

The system can automatically manage the charging and discharging status and balance the current and voltage of each cell;

Flexible configuration, multiple battery modules can be connected in series to expand voltage and capacity;

Adopt self-cooling method to quickly reduce the overall noise of the system;

The module has low self-consumption, and no charging for up to 6 months; no memory effect, excellent shallow charge and discharge performance;

The working temperature range is 0-50°C, with excellent discharge performance and cycle life;

Small size, light weight, easy installation and maintenance of standard modules;

1.3. Product Identification Definition

BLUE SPEED Rensidential HESS					
Item Model	JSLFP19250	JSLFP28850	JSLFP38450	JSLFP48050	JSLFP576500
Nominal Capacity / KWh	9.6	14.4	19.2	24	28.8
Nominal Voltage /V	192	288	384	480	576
Nominal Capacity /Ah	50	50	50	50	50
Using temp./ °C	0~50	0~50	0~50	0~50	0~50
Waterproof IP	54	54	54	54	54
Protection Level	I	I	I	I	I
www.hzjsdz.cn Hangzhou Speed Electronics Co., Ltd					

Pic 1-1 Nameplate of the HESS

	The battery voltage is higher than the safe voltage, and direct contact may cause electric shock
	Be careful your incorrect behavior and watch out for danger
	Please read the user manual carefully before use
	Scrap batteries cannot be thrown into the trash and must be recycled by professionals or institutions.
	After the battery life expires, the battery can continue to be used after being recycled by a professional recycling organization, please do not discard it at will
	This battery product complies with European regulations

Pic 1-2 Single Lithium Battery Module Labels

BLUE SPEED Residential HESS

Product Name: HESS-Module-JSLFP9650
Battery Module: Lithium iron phosphate battery
Capacity/Voltage: 50Ah/96V
KWh Capacity: 4.8KWh
Charging Voltage: 105-108V
Max Discharge Power: 4.8KW
Series Number: 6

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2 Product Specifications

2.1. System Performance Parameters

Table 2-1 BLUE SPEED HESS System Parameters

Item	JSLFP19250	JSLFP28850	JSLFP38450	JSLFP48050	JSLFP57650
Capacity KWh	9.6KWh	14.4KWh	19.2KWh	24KWh	28.8KWh
Nominal Capacity	50Ah	50Ah	50Ah	50Ah	50Ah
Nominal Voltage	192V	288V	384V	480V	576V
Standard Discharge Power	4.8KW	7.2KW	9.6KW	12KW	14.4KW
Net Weight	102kg	150Kg	198Kg	246Kg	294Kg
Dimension (L*W*H)	644*503*383	844*503*383	1044*503*383	1244*503*383	1444*503*383
Deep Cycles	6000Times @ 25°C@ 80%DOD				
Charging Temperature Range	0～45°C				
Disharging Temperature Range	-10～50°C				
Module Series Number	2	3	4	5	6
CAN Communication Protocol	CAN, RS485	CAN, RS485	CAN, RS485	CAN, RS485	CAN, RS485

Pic 2-1 BLUE SPEED HESS JSLFP19250 System Picture

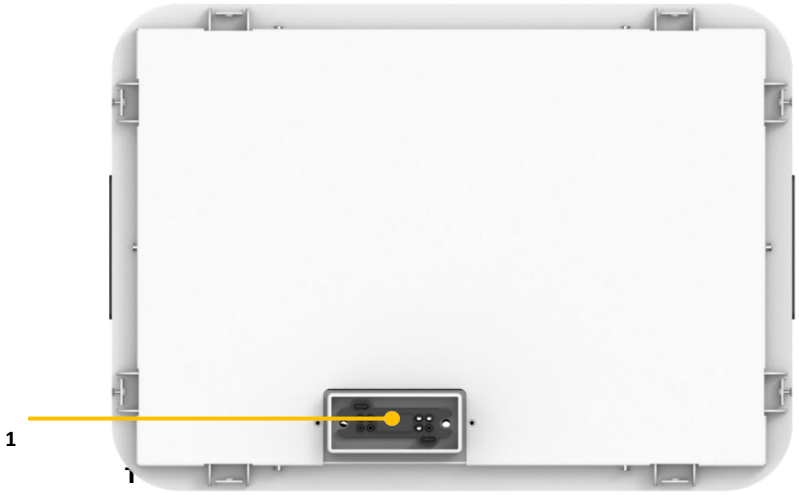
2.2. Single Lithium Module Battery Performance Parameters

Pic 2-2 Battery Module Picture

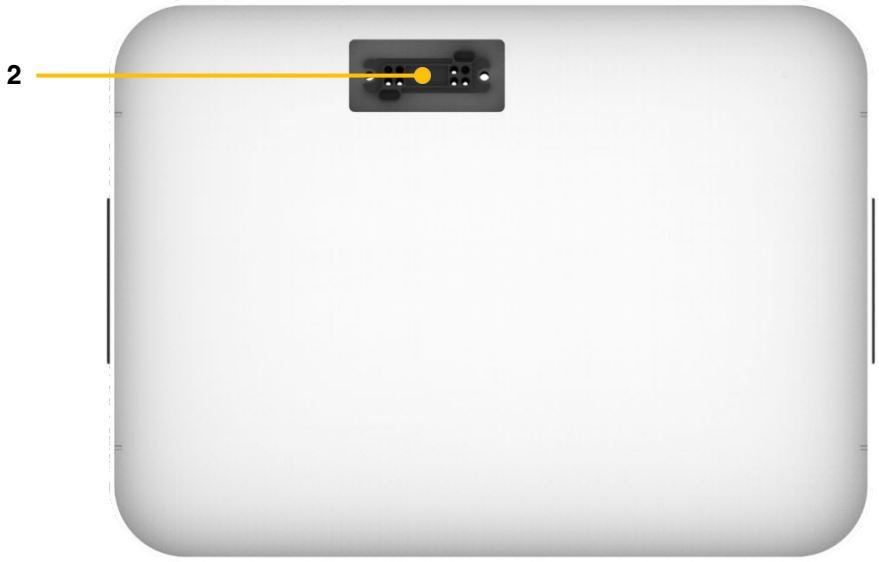
Table 2-2 Single Lithium Battery Module Parameters

Battery Module	JSLFP9650
Battery Material	Lithium Iron Phosphate (LiFePO4)
Single Module Battery Capacity (kWh)	4.8
Single Module Battery Voltage (Vdc)	96
Single Module Battery Capacity (Ah)	50
Single Module Battery Cells Number (Pcs)	30
Cell Capacity (Wh)	160
Cell Nominal Voltage (Vdc)	3.2
Cell Nominal Capacity (Ah)	50
Cell Number (Pcs)	30
Single Module Battery Charger Voltage (Vdc)	109.5
Single Module Battery Charge Current	10
Single Module Battery Charge Current (Normal	25
Single Module Battery Charge Current (Max)	50
Single Module Battery Discharge Min Voltage	84
Single Module Battery Discharge Current (Standard) [A]	10
Single Module Battery Discharge Current	25
Single Module Battery Discharge Current (Max)	50
Dimension (Height * Width * Height, mm)	644*503*383
CAN Communication Protocol	CAN,RS485
Pollution Degree (PD)	II
Operating Temperature Range (°C)	0~50
Waterproof IP Level	IP54
Weight(kg)	48

Pic 2-3 Battery Module JSLFP9650 Top Interface Picture

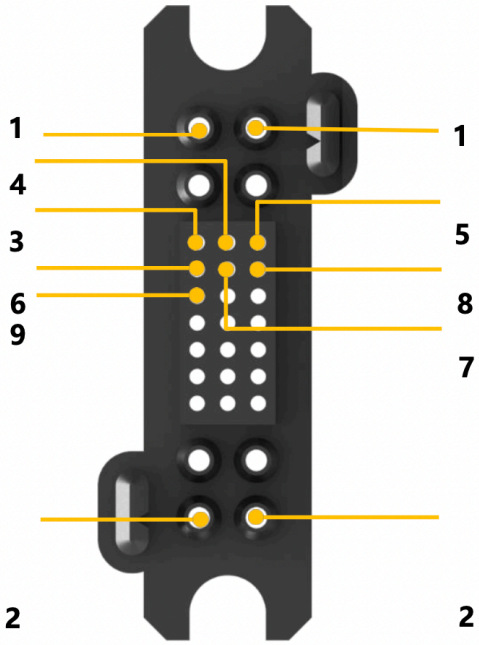


Pic 2-4 Battery Module JSLFP9650 Bottom Interface Picture

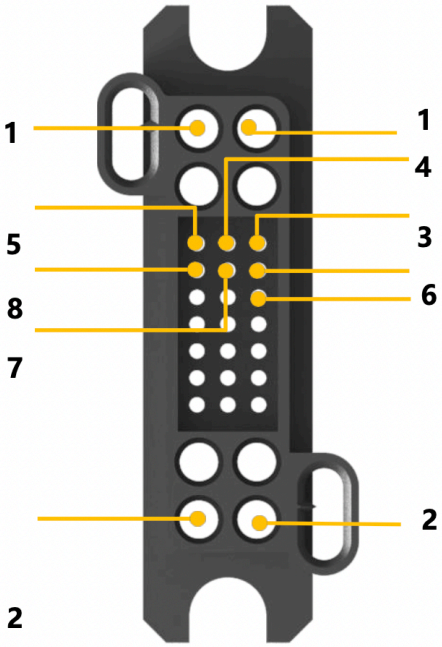


No.	Item Name	Instructions
1	Composite Connector - Plug	Battery module output and communication interface
2	Composite Connector- Socket	Battery module output and communication interface

Table 2-3 Definition of Battery Module Interface



Composite Connector - Plug



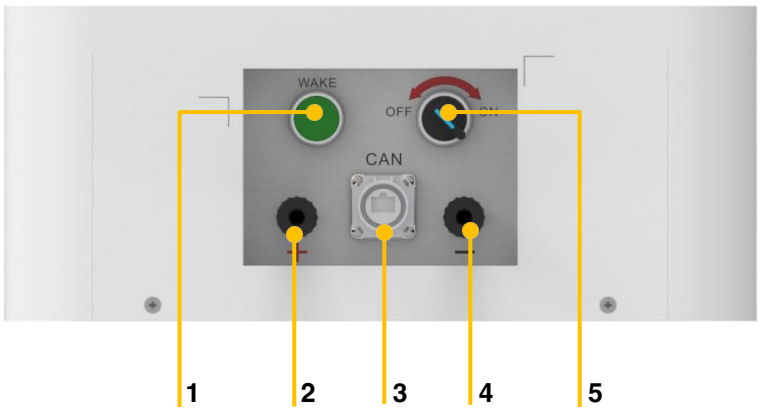
Composite Connector-Socket

Table 2-4 Definition of Battery Port

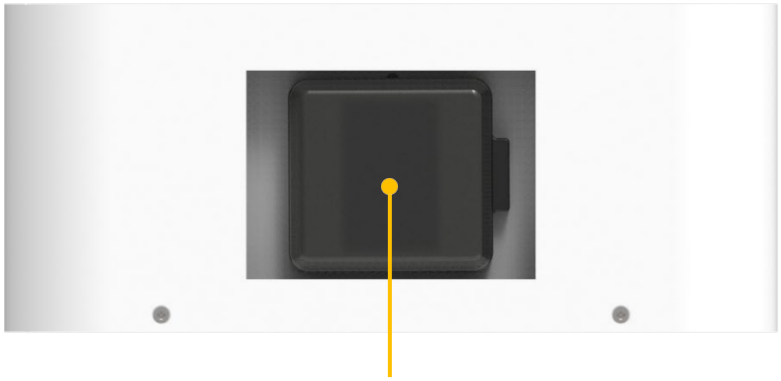
No.	Composite Connector - Plug	Composite Connector-Socket
1	negative output	negative output
2	module positive	module negative
3	wake	wake
4	scan gate	scan gate
5	scan L	scan L
6	scan H	scan H
7	24V-	24V-
8	24V+	24V+
9	scan input	scan output

2.3. Battery Controller Performance Parameters

BDU Right Interface



BDU Left Interface



B D U
B o t t o m
Interface

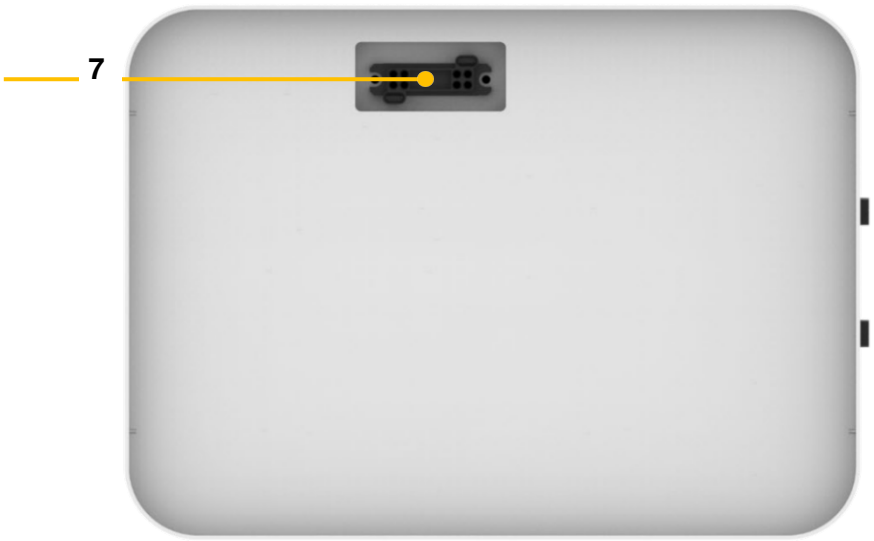
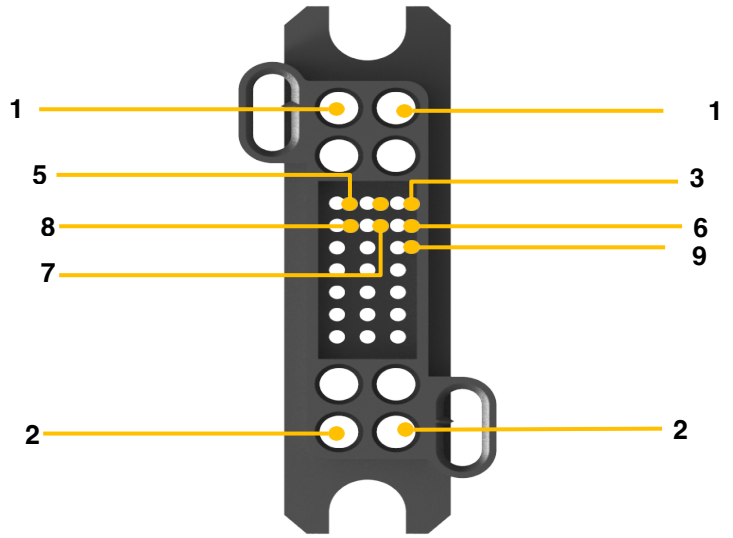


Table 2-5 Definition of Interface

No.	Item Name	Definition
1	power start button	press this button for long time to start the battery system
2	external positive socket	connect the battery system to the positive terminal of the inverter
3	EXT-CAN communication port	RJ45 communication port between battery system and inverter
4	external negative socket	connect the battery system to the negative pole of the inverter
5	switch on /off	turn on the switch to power the BMS system
6	DC circuit breaker	the main switch of the battery system, it must be turned on before the power-on and power-wake switches are turned on; short circuit protection
7	composite connector -socket	battery module output and CAN communication interface



No.	Definition
1	negative output
2	positive output
3	wake
4	wake up SG
5	wake up L
6	wake up H
7	24V-
8	24V+
9	scan output

3 Product Precautions

Note: When the DC circuit breaker trips due to overcurrent or short circuit, it must wait for 30 minutes before closing, otherwise the circuit breaker may be damaged.

Power-on button: generally in the power-on state, and cannot be turned off during normal operation.
DANGER: Make sure to turn on the power switch before waking up the battery. Otherwise, it will affect the automatic inspection process and cause danger.

Danger: Do not turn off the "power switch" in normal operation, only in emergency situations. Otherwise, the current of that battery pack will be surged by another battery pack.

4 Product Maintenance

4.1. Troubleshooting:

Danger: This product is a high voltage DC system battery and must be operated by professionals or authorized personnel.

DANGER: Before checking for faults, all cable connections must be checked. Whether the switch state is correct (refer to Section 3.5.4), and whether the battery system can be woken up normally.

Table 4-1 Failure Analysis

No.	Issue Performance	Issue Reasons	Solution
1	The battery has no voltage output and the "Power On" and "Power Wake" buttons have no lights	HV control unit DC circuit breaker not closed	Close the DC circuit breaker of the high voltage control unit
2		The "Power On" switch of the high voltage control unit is not turned on	Turn on the "Power On" button
3		Battery is sleeping	Press and hold the "Power Wake" button for about 3 seconds
4		Fuse failure in high voltage control unit	Replace the fuse
5		Battery goes into overdischarge protection	Charge the battery to release the protection state
6	The battery has no voltage output but the "Power On" and "Power Wake" buttons have indicators	Relay failure in high voltage control unit	Direct replacement of high pressure control unit
7	The DC circuit breaker automatically trips after the battery is connected to the inverter	There is a short in the circuit between the battery and the inverter	Check circuit between battery and inverter for short circuit and check whether the inverter is damaged or not
8	Communication failure between battery and inverter	Inverter model selection error	Choose the correct model

4.2. Battery Maintenance Details:

DANGER: This product is a high voltage DC system battery and must be operated by professionals or authorized personnel.
DANGER: During some maintenance projects, the battery system needs to be shut down first.

4.2.1. Voltage Detection

【Regular maintenance】 Use the detection software to detect the battery system voltage. Check whether the system voltage is normal. For example: Check whether the cell voltage is out of the rated range.

4.2.2. Voltage Detection

【Regular maintenance】Check the state of charge of the battery through the detection software. Check whether the battery pack state of charge is normal.

4.2.3. Line Check

【Regular maintenance】Appearance and visual inspection of all wires in the battery circuit. Check whether the cables are broken, aged or loose.

4.2.4. Cell Balance Maintenance

【Regular Maintenance】Not fully charged for a long time will cause the battery system to be unbalanced. Solution: Balance maintenance (full charge) every 3 months. Generally, this maintenance progress needs to be completed under the condition that the detection software, battery, inverter and other external devices communicate well.

4.2.5. Output Relay Check

【Regular maintenance】In the case of low load (small current), operate the close and open buttons of the output relay, if you can hear the relay having a clicking sound, it means that the relay is normal.

5 Product Storage Requirements

- For long-term storage (more than 3 months), the battery should be stored in an environment with a temperature range of 5~45°C, relative humidity <65%, and no corrosive gas.

- Battery modules should be stored in a dry, clean and well-ventilated environment at 5~45°C. The state of charge of the battery should be 50~55% before storage.

- It is recommended to activate the battery system (discharge and charge) every 3 months, and the maximum storage time without charge and discharge cannot exceed 6 months.

Note: The actual battery life and number of cycles will be greatly reduced if the above precautions are not stored.

6 Product Shipping Precautions

Battery modules are pre-charged to 50% state of charge before shipment or adjusted state of charge according to customer requirements. The remaining capacity of the battery is determined by the storage time after shipment and the specific environment.

- The battery module meets the UN38.3 certification standard.

- Please pay extra attention to the special rules on the transport of goods by road and the current dangerous goods law, especially the "International Regulations for the Road Transport of Dangerous Goods" and "European Railway Transport of Dangerous Goods".