

Jilipow Co., Ltd.

Specification of Battery System for Household ESS

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Model: JL-HVI-61

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Acronyms and abbreviations

BMS	Battery Management System
BOL	Begin of Life
SOC	State of Charge
SOE	State of Energy
SOP	State of Power
SOH	State of Health
EOL	End of Life
CC	Constant Current
CCCV	Constant Current Constant Voltage
CP	Constant Power
CPCV	Constant Power Constant Voltage

Definitions of symbols



Danger

This indicates that there are dangers during operation, and failure to comply with such warnings will directly lead to serious personal injury or accidents



Warning

This indicates that there are potential risks during operation, and failure to comply with such warnings may lead to personal injury or accidents



Caution

This indicates that there are potential risks during operation, and failure to comply with such warnings may lead to personal injury or accidents.

1. Product Overview

The purpose of this document is to specify the structure design, basic performance and product precaution of LFP battery system, which is mainly applied in ESS.

JILIPOW can provide diverse product according to demands of customers.



Figure1 Battery Pack (51.2V 100Ah)

2. Product Feature

- Compact size and easy installation
- Product diversification through series solutions, support max 12 pack in series.
- Long cycle life and high safety
- Certification: The design meets UN38.3, IEC62619, CE
- IP rating: IP20

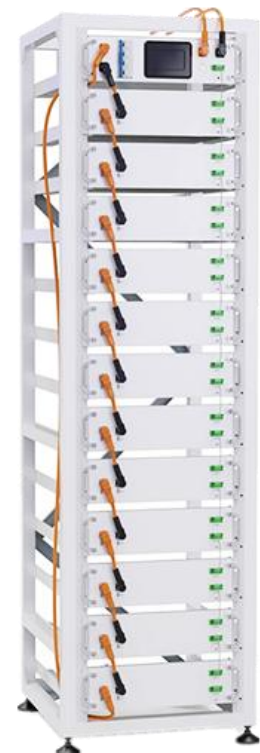


Figure 2 Battery System

3. Scope of Application

3.1. Technical Parameters (Cell)

The prismatic LFP battery cell LF100LA(3.2V 100Ah) which is independently developed and produced by JILiPOW, has the characteristics of high safety, longer cycle life, high consistency, excellent charge/discharge performance and green pollution-free.

The main technical parameters are as below:

Table 3 Technical parameters (cell)

No.	Item	Specification	Remark
1	Rated capacity	100Ah	25°C,0.2C
2	Rated voltage	3.2	V
3	Operating voltage	2.5~3.65	V
4	Dimension	160*50.1*118.5	mm
5	Weight	1.98±0.1	Kg
6	Energy density	162	Wh/kg



Figure 2 Battery cell: LF100LA

3.2. Technical Parameters (Battery Pack)

Table 4 Technical parameters (Pack)

No.	Item	Specification	Remark
1	Configuration	1P16S	
2	Rated capacity	100Ah	25±3℃,0.5C constant current discharge to cut-off voltage 43.2V
3	Rated voltage	51.2V	/
4	Rated energy	5.12KWh	/
5	Standard charge current	50A(0.5C)	/
6	Maximum charge current	100A(1C)	/
7	Charging cut-off voltage	56.8V	Cell :3.55V Pack :56.8V
8	Standard discharge current	50A(0.5C)	/
9	Maximum discharge current	100A(1C)	Cell :2.7V Pack :43.2V
10	Operating temperature of charge	0℃~60℃	/
11	Operating temperature of discharge	-20℃~60℃	/
12	Storage temperature	-20℃~45℃	Within 1 month
		0℃~35℃	Within 1 year
13	Internal resistance	≤30mΩ	30%SOC, AC 1KHz
14	Charge/discharge capacity efficiency	≥97%	Charge/discharge current
15	Dimension	L×W×H 420mm×442mm×131mm(tolerance± 2mm)	
16	Weight	41±2kg	Subject to actual conditions
17	Design life	10 Years	/
18	SOC when delivery	45%~55%SOC	/

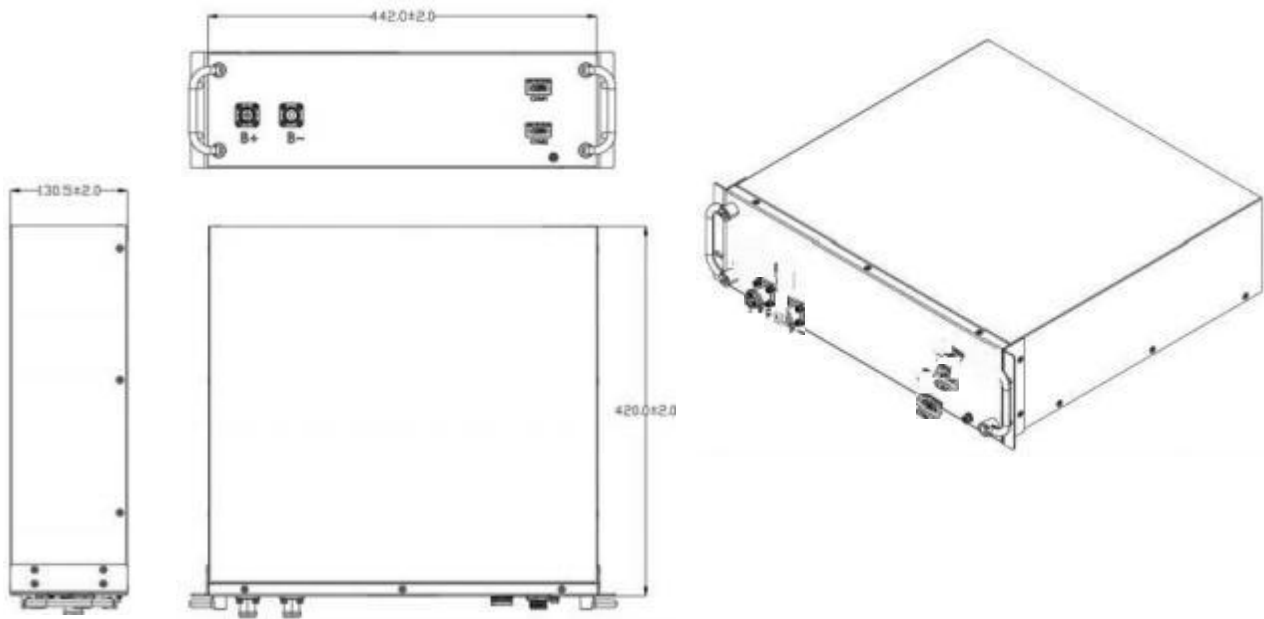
3.3. Technical Parameter(System)

Table 5 Technical parameters (System)

No.	Item	Specification	Remark
1	Rated voltage	614.4V	12packs in series
2	Rated capacity	100Ah	25℃,0.5C
3	Rated energy	61.44kWh	/
4	Standard charge current	50A(0.5C)	/
5	Max charge current	100A(1C)	
6	Charging cut-off voltage	681.6V	Cell :3.55V Pack :56.8V
7	Standard discharge current	50A(0.5C)	/
8	Maximum discharge current	100A(1C)	/
9	Discharging cut-off voltage	518.4V	Cell :2.7V Pack :43.2V
10	Operating temperature of charge	0℃~60℃	/
11	Operating temperature of discharge	-20 °℃~60℃	/
12	Storage temperature	-20℃~45℃	Within 1 month
		0℃~35℃	Within 1 year
13	High pressure box weight	13kg ±1kg	/
14	Dimension	L×W×H 600mm×600mm×2100mm (tolerance±5mm)not include foot of rack	
15	Design life	10 years	

4. Product Appearance and Structure

4.1. Dimension of Pack



4.2. Interface of Pack

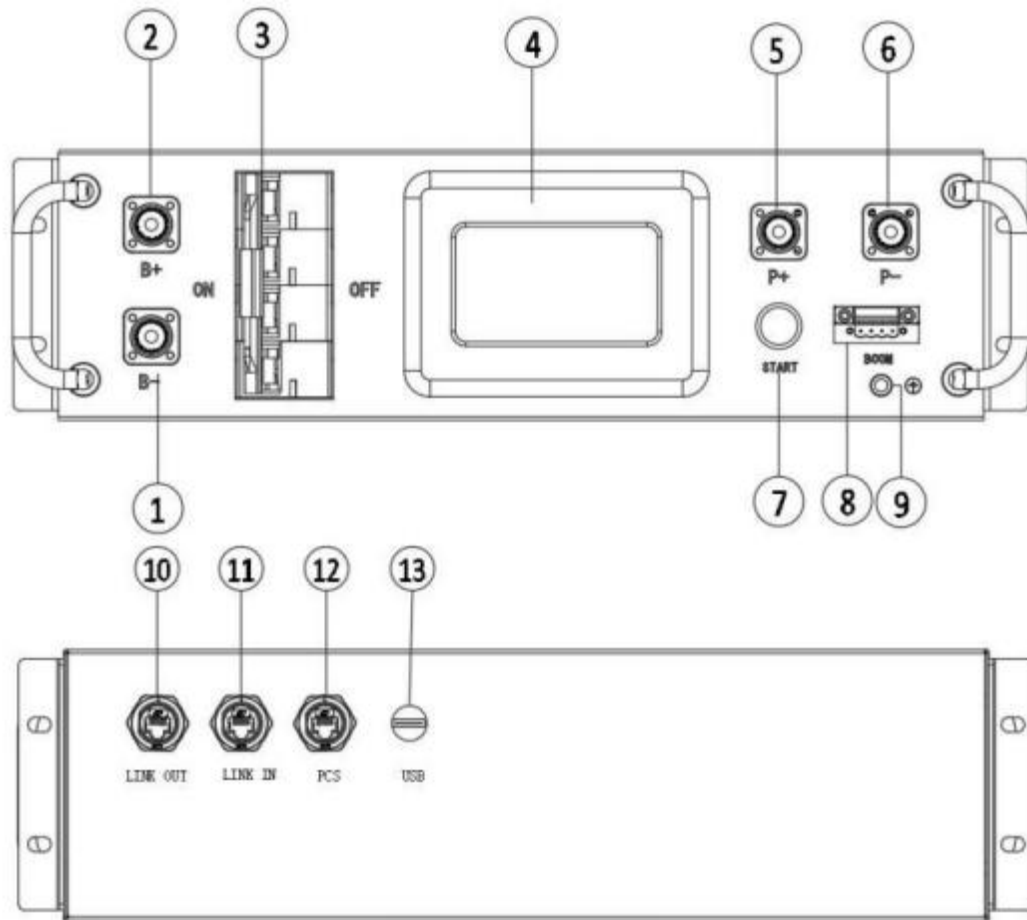


Finger 4 Interface of Pack

Table 6 Definition of pack power interface

No.	Name	Description
1	B+	Pack Positive socket (orange)
2	B-	Pack Negative socket (black)
3	COM1	Communication input
4	COM2	Communication Output

4.3. Interface definition of PDU



Finger 5 interface of PDL

Table 7 Definition of PDU interface

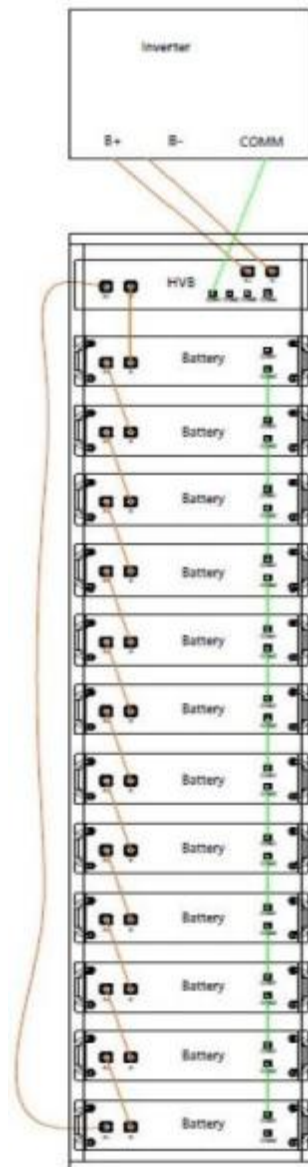
No.	Name	Description
1	B+	Pack Positive socket(orange
2	B-	Pack Negative socket(black)
3	Breaker	Used to manually control the connection between the battery rack and external devices.
4	HMI	Display some important battery information.
5	PCS+	Connection position of PCS positive pole (orange
6	PCS-	Connection position of PCS negative pole (black)
7	START	A start switch of 24VDC power inside the high-voltage control box (with RUN and ALRM light).
8	BCOM	Communicative connection with the first battery module.
9	Grounding	Connection to the battery rack and the ground point.
10	OUT COM	communication output.
11	IN COM	communication input
12	PCS COM	Connection Battery with Inverter.
13	USB	Used to upgrade the HMI

Invert communication by PCS interface, Pin Definition as follows

			
PIN	LINK OUT	LINK IN	PCS
	OUT COM	IN COM	PCS COM
1			
2	CANH R	CANH R	
3	CANH L	CANH L	
4	RACK CANH	RACK CANH	PCS CANH
5	RACK CANL	RACK CANL	PCS CANL
6	RACK DO	RACK DI	DO+
7	RACK GNC	RACK GNC	DO-
8			

Note: The figure shows the COM interface definition of PDU, and the panel design is subject to the actual delivery

4.4. System wiring diagram



Note:

The figure shows the wiring diagram of system (12 packs).

The position of interface,number of packs,and number of wiring harnesses are subject to actual conditions.

5. Storage and Transportation Requirements

Items		Requirement
Storage temperature	within 1 month	-20℃~ +45℃
	within 6 month	0℃~+35℃
Operation humidity		5~85%RH
Storage(store in warehouse)SOC		25~70%SOC
Application altitude		≤3000m
Transportation	Battery pack should be packed into boxes under less than 30%SOC for transportation,and should be prevented from violent vibration, impact or extrusion during transportation,to prevent sun and rain, above requirement apply for land and sea transportation.	

6. Packaging and Transportation Requirements

- 1) Packaging of a single Pack:The pack is packed in a carton,and the carton is filled with pearl cotton.The packaged pack does not shake,which is safe and reliable.
- 2) Packaging of PDU:The PDU is packed in a carton,and the carton is filled with pearl cotton.The packaged PDU does not shake,which is safe and reliable.
- 3) Packaging of Rack frame:winding film+pallet,fixed firmly without shaking,safe and reliable
- 4) Packing of whole system:winding film+paper angle bead +wooden pallet.

Note:

Battery pack should be packed into boxes under less than 30%SOC for transportation,and should be prevented from violent vibration,impact or extrusion during transportation,to prevent sun and rain,above requirement apply for land and sea transportation.

7. Components of Battery System

No.	Component	Model	Quantity
1	Battery pack	51.2V100Ah	12
2	Battery rack frame	600mm*600mm*2100mm	1
3	PDU	3U	1
4	Test report	/	1
5	Product certificate	/	1
6	Parallel power wires	plug-in terminal*2,EV wire,orange,210mm	11
7	Battery communication wires	plug-in terminal at both ends,130mm	12
8	Positive output wires from Pack to PDL	plug-in terminal*2,EV wire,orange,2250mm	1
9	Negative output wires from Pack to PDU	plug-in terminal*2,EV wire,orange,210mm	1
10	Positive output wires from Pack to PDU	OT8 terminal+plug-in terminal,EV wire orange,3000mm	1
11	Negative output wires from Pack to PDU	OT8 terminal+plug-in terminal,EV wire orange,3000mm	1
12	Communication wires from PDU to inverter	Double-ended RJ45 terminal,Cat.5e Shielded Twisted Pair,3000mm	1

8. Product Maintenance

- (1) When the battery pack not in use for a long time, it is recommended to maintain the SOC at 30%~50%.
- (2) When the battery pack is left unused or stored for a long time, it is recommended to recharge it every 3-6 months. The specific recharge method can be found in the technical agreement.

✧ Disclaimer:

These mentioned products shall be used within the scope specified in product specifications. The manufacturer shall be free from liability for any damages to people, animals or property caused by the improper operations in the process of installation, commissioning, maintenance, use, etc., or uses not in accordance with the terms and conditions specified in product specifications

9. Product Instructions

- (1) Please read the product instructions carefully before use, and be sure to use according to the specified charge and discharge parameters.
- (2) Do not disassemble or reassemble the battery; Do not knock, throw or step on the product.
- (3) Do not short circuits packs.
- (4) Do not place pack under sunlight or let pack work under sunlight, and avoid contact with corrosive substances and keep away from fire and heat sources.
- (5) Do not throw the battery into water.
- (6) Do not reversely charge or discharge the battery.
- (7) The battery pack must be operated within the specified environment conditions, since too high or too low ambient temperature will affect the battery performance.
- (8) Do not use the battery if there is corrosion, unpleasant smell or any abnormality during the first usage.
- (9) Battery packs can be used independently or in series. Battery packs cannot be used in parallel. The number of battery packs in parallel cannot exceed 12.
- (10) The battery pack must be operated within the specified charge conditions. Overcharge will lead the electrical performance, mechanical performance and safety performance of the battery pack to be decreased.
- (11) The battery packs shall not be used or stored in places with strong static electricity and strong magnetic fields to avoid potential safety hazards.
- (12) The product shall not be disassembled or modified without the permission of JILIPOW, otherwise the warranty will be terminated, and our company will not be responsible for any safety accidents.
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(14) The usage of the battery pack must strictly comply with the above requirements, otherwise the warranty will be terminated, and JILIPOW will not be responsible for any product performance damages or safety accidents.