BSLBATT®
Best Solution Lithium Battery

BSL NEW ENERGY TECHNOLOGY CO., LTD

User Manual

B-LFP48-100E PRO

LV LiFePO4 Solar Battery
2-in-1

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Catalogue

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01 Safety Instructions

1.1 Safety Symbol Description

When installing, operating and maintaining the equipment, please read this manual first and follow all safety precautions marked on the equipment and in the manual.

To ensure that users can better use this product and protect personal and property safety, please read the following symbols carefully.

Danger: Indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.

Warning: Indicates a situation with a moderately hazardous situation which, if not avoided, could result in death or serious injury.

Caution: Indicates a situation with a low risk of hazard which, if not avoided, may result in moderate or minor injury.

Illustration: Emphasis and supplementation of content may also provide tips for optimal use of the product.

1.2 Scope

This manual provides safety and installation guidelines as well as information on tools and wiring.

1.3 Safety Instructions

Warning:

This equipment should be used in an environment that meets the design specification requirements. Otherwise, it may cause equipment failure, and the resulting equipment malfunction or component damage, personal safety accidents, property losses, etc. are not within the scope of equipment quality guarantee. During installation, operation, and maintenance of the equipment, local laws, regulations, and norms should be followed. The safety precautions in the manual are only supplementary to local laws, regulations, and norms. In the event of any of the following situations, the company will not be held responsible.

1. The installation and usage environment exceeds the stipulations in relevant international, national and regional standards.
2. The equipment is not operated under the conditions described in this manual.

3. Unauthorized disassembly, modification of the product or alteration of the software code.
4. Failure to operate in accordance with the operation instructions and safety warnings provided in the product and documentation.
5. Equipment damage caused by abnormal natural environments (acts of nature such as earthquakes, fires, storms, floods, mudslides, etc.).
6. Damages caused by the customer's failure to follow the transportation and installation requirements.
7. Damages resulting from storage conditions not meeting the requirements specified in the product documentation.
8. Damage to the hardware or data of the equipment due to the customer's negligence, incorrect operation, or intentional damage.
9. System damage caused by reasons other than the customer, including relocation and installation of the system that does not comply with this manual, as well as adjustments, changes, or removal of identification marks that do not comply with this manual, etc.
10. Defects, failures, or damages caused by actions, events, negligence, or accidents beyond the reasonable control of the seller, including power outages or electrical failures, theft, war, riots, civil unrest, terrorism, intentional or malicious damage, etc.

1.4 Grounding requirements

1. The equipment must be permanently connected to the protective ground wire. Before operation, confirm that the grounding is reliable.
2. Do not operate the equipment without installing the grounding conductor. It is strictly prohibited to damage the grounding conductor.
3. The grounding impedance must meet the local electrical standards. Regularly test the grounding reliability.
4. For three-core socket equipment, ensure that the grounding terminal is connected to the protective ground; for large contact current equipment, ground first before connecting the power supply.

1.5Can be connected in parallel

1. The batteries can be connected in parallel.Series connection is not allowed.
2. The batteries are not allowed to connected with PWM controller for charging.

Caution:

Due to the built-in protection board of the lithium battery pack is with over-discharge protection function, it is strongly recommended to stop using the load when the battery pack is over-discharged.The battery pack cannot be repeatedly activated for discharge.Or the battery may be failed to be activated by the AC or PV activation cable
(It requires a special charging activation method), so cannot be charged.Therefore, when the battery pack is low power, please charge the battery as soon as possible when main power or solar energy is available.

02 Product Introduction

2.1 Product Overview

The upgraded BSLBATT residential solar battery features a standard 51.2V, 100Ah architecture and an innovative 2-in-1 integrated design. This approach simplifies installation while maximizing space efficiency and overall system value.

2.2 Product Appearance

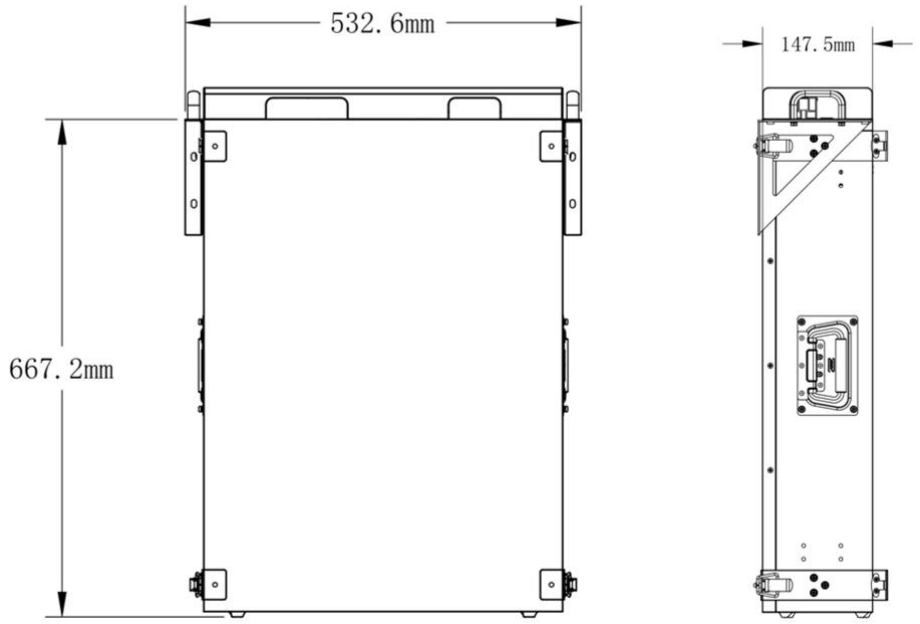
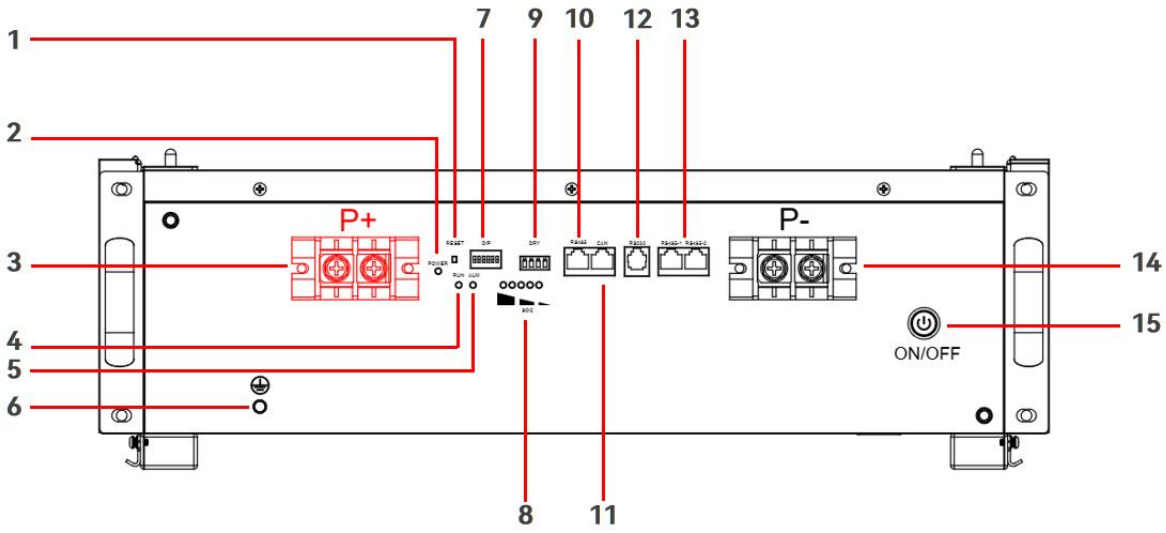


Figure 2.2

2.3 Product Details

B-LFP48-100E PRO:



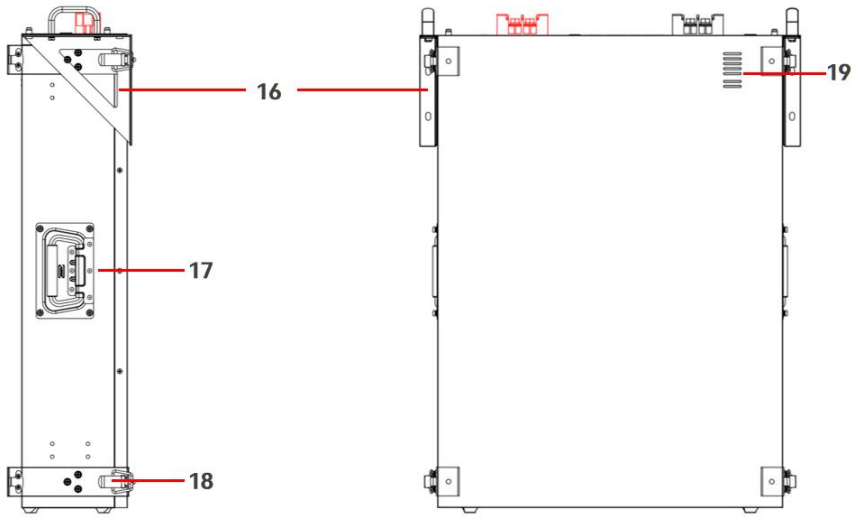


Figure 2.3

No.	Illustration	Silk-screen	Remark
1	Reset hole	RESET	Reset Battery
2	Power Light	POWER	The green light remains on after startup
3	Battery Positive Terminal post	P+	Positive Output
4	Operation Indicator Light	RUN	The green light starts to flash after startup
5	Fault Indicator Light	ALM	Red light indicates a fault
6	Ground Wire Interface	⏚	Prevent leakage of electricity
7	Dial Switch	DIP	Address settings (range 2 to 15)
8	Capacity Indicator Light	SOC	Display detailed battery capacity
9	Dry Connection Point	DRY	**Definition: (default disconnected)** 1. When there is protection (excluding single-section overvoltage/overall overvoltage protection), dry contact 1 will conduct when activated; 2. When there is a fault (NTC fault, MOS fault, single-cell sampling fault) or in standby (non-full charge protection state),
10	RS485A Interface	RS485	Communication port for the monitoring equipment
11	CAN Bus Interface	CAN	The communication port connected to the inverter
12	RS232 Port	RS232	RS232 Communication port
13	RS485-1/2 Port	RS485-1/2	RS485 And connect the communication ports
14	Battery Negative Terminal Post	P-	negative output
15	Switch	ON/OFF	Button activation BMS
16	Back support brace	-	For battery wall-mounted fixation
17	Battery handle	-	Convenient for battery transportation
18	Simple support structure	-	For battery stack installation
19	Battery level display screen	-	Display detailed battery capacity

Table 2.3

2.4 Specifications

Model	B-LFP48-100E PRO
Battery Type	LiFePO4
Nominal Voltage（V)	51.2
Cell&Method	16S2P
Depth Of Discharge(DOD)	95%
Nominal Capacity (Wh)	5120
Charge Voltage (V)	55
Discharge Cut-off Voltage (V)	47
Rate Charge Current	80A/4.09kW
Peak Charge Current	120A/6.14kW,1s
Rate Discharge Current	100A/5.12kW
Peak Discharge Current	120A/6.14kW,1s
General parameters	
Expansion	Up to 63 units in parallel
Communication	RS232, RS485, CAN, WIFI(Optional), Bluetooth(Optional)
Cooling Method	Nature
Protection Level	IP20
Self-discharge	≤3%/month
Altitude(m)	< 3000
Charge working Temperature	0~55℃
Discharge working Temperature	-20~55℃
Storage Temperature	0~35℃
Storage Humidity	10~60%ROH(NoCondensation)
Dimension(W*D*H,mm)	667*147*532（±5）
Weight(kg)	50（±3%）
Cycle Life	> 6000 cycles, (25℃,0.5C)90%DOD

Table 2.4

Illustration: Due to differences in production batches, the cycle life, dimensions, and weight may vary. The actual product shall prevail.

03 Product Installation

3.1 Unpacking and Inspection

Configuration List Table

Name	Qty	Remarks
Battery Pack	1 set	Includes wall-mounted bracket
User's Manual	1 copy	Electronic version
Matching accessories	1 set	Includes power cable and communication cable
Expansion Screws M6*50mm	1 set	6 pieces in total,only when the wall-mounted battery is selected will the configuration be available.

Table 3.1

3.2 Pre-installation inspection

1. Outer packaging inspection: Verify whether the outer packaging is intact, including checking for any deformations, holes, cracks or other signs that may cause damage to the internal equipment.

2. Equipment model and delivery item inspection: Confirm that the equipment model matches the order; verify that the type and quantity of the delivery items are correct, and check for any damage to the appearance.

3.3 Prepare tools

Installation tool list

No.	Tool Name	Legend
1	Insulating gloves	
2	Protective goggles	
3	Insulating shoes	

4	Work uniform	
5	Safety helmet	
6	Screwdriver	
7	Pliers for stripping wires	
8	Hydraulic clamp	
9	Hot air gun	
10	Multimeter	
11	Torque wrench	
12	Marker pen	

Table 3.3

Illustration: This table is for reference only. The actual tools should be in accordance with the local installation standards.

3.4 Mechanical Installation

For the B-LFP48-100E PRO, our company offers two installation methods.

Method 1: Use a simple bracket to stack and install the batteries.

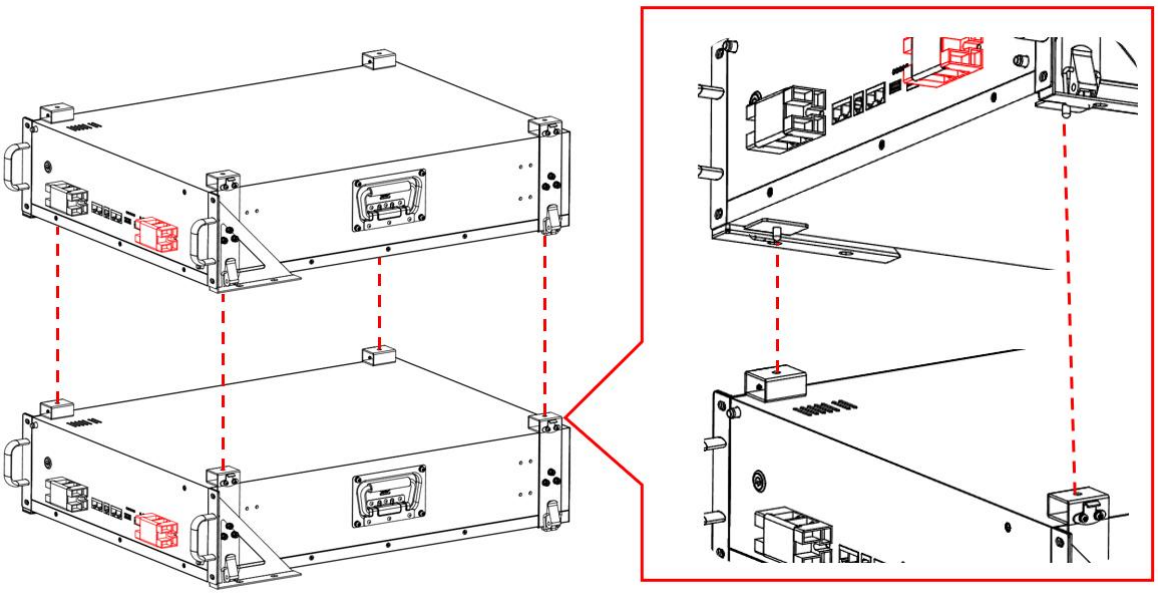


Figure 3.4-1

Method 2: Install using a battery backplate bracket and hang it on the wall.

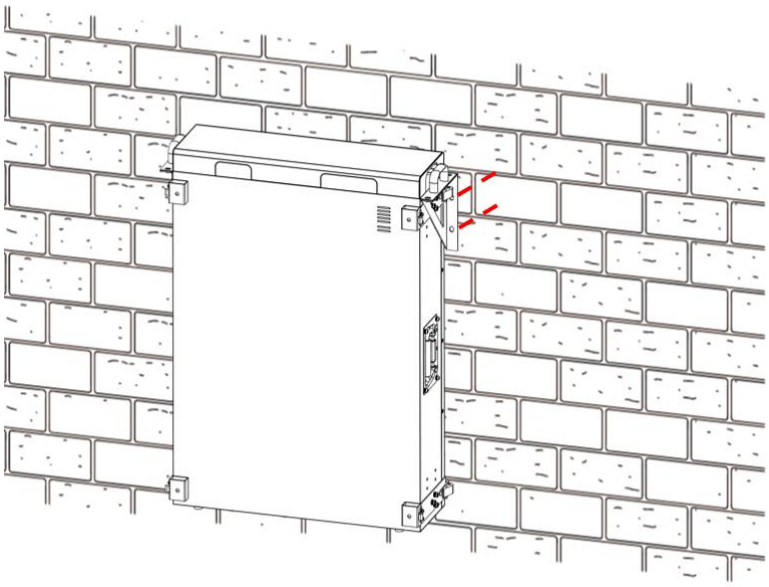


Figure 3.4-2

Illustration: The model 100E PRO, the installation method supports floor-standing and wall-mounted installation.

Danger:

Considering the weight of the battery, it requires at least two people to move the device. Please strictly follow the installation steps. The company shall not be held responsible for any injuries or damages caused by improper assembly or operation.

3.5 Protection ground wire connection

Before the electrical installation of the battery, the protective ground wire should be connected first to ensure safety. And when removing the battery system, the protective ground wire should be removed as the last step.

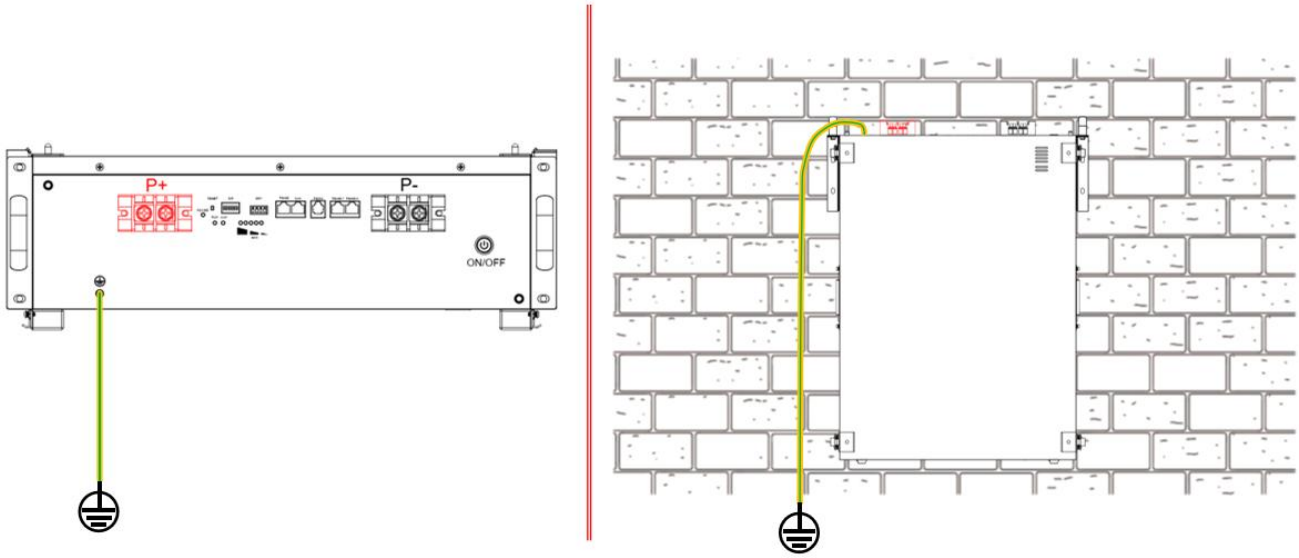


Figure 3.5

Note:

1. Protective ground wire, recommended specification: Type: Outdoor single-core copper wire, Conductor cross-sectional area: 10mm^2;
2. Please ensure that the cable is securely fixed after the crimping process and does not loosen.

3.6 Electrical Connection

Slow insertion version power line:

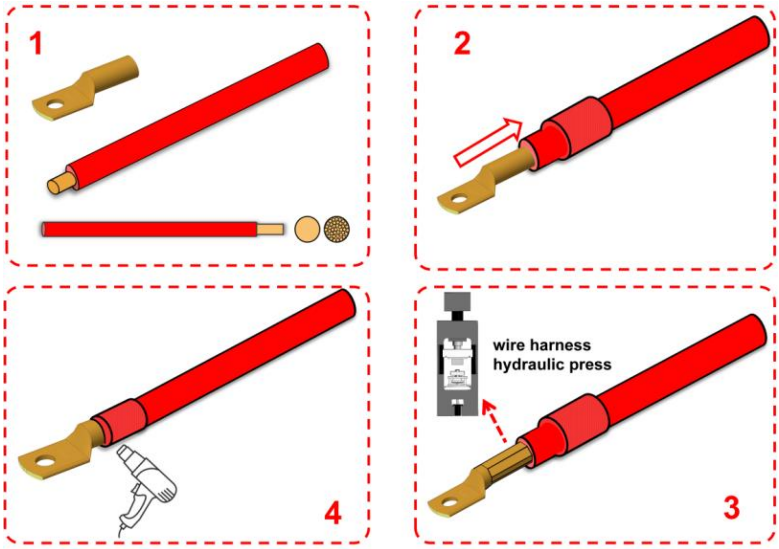


Figure 3.6-1

Cable selection:

Item	Specification	Figure
Power cable-positive	51.2V/100Ah	Red/25mm²/L300mm
Power cable-negative	51.2V/100Ah	Black/25mm²/L300mm
Power cable-positive	51.2V/200Ah	Red/35mm²/L300mm
Power cable-negative	51.2V/200Ah	Black/35mm²/L300mm
Power cable-positive	51.2V/300Ah	Red/50mm²/L300mm
Power cable-negative	51.2V/300Ah	Black/50mm²/L300mm

Table 3.6-1

3.6.1 Connection steps

Remove the protective cover on the top of the equipment panel

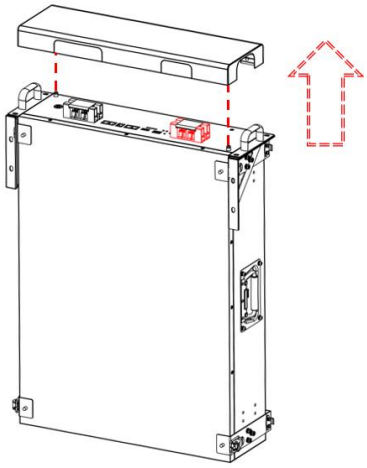


Figure 3.6.1-1

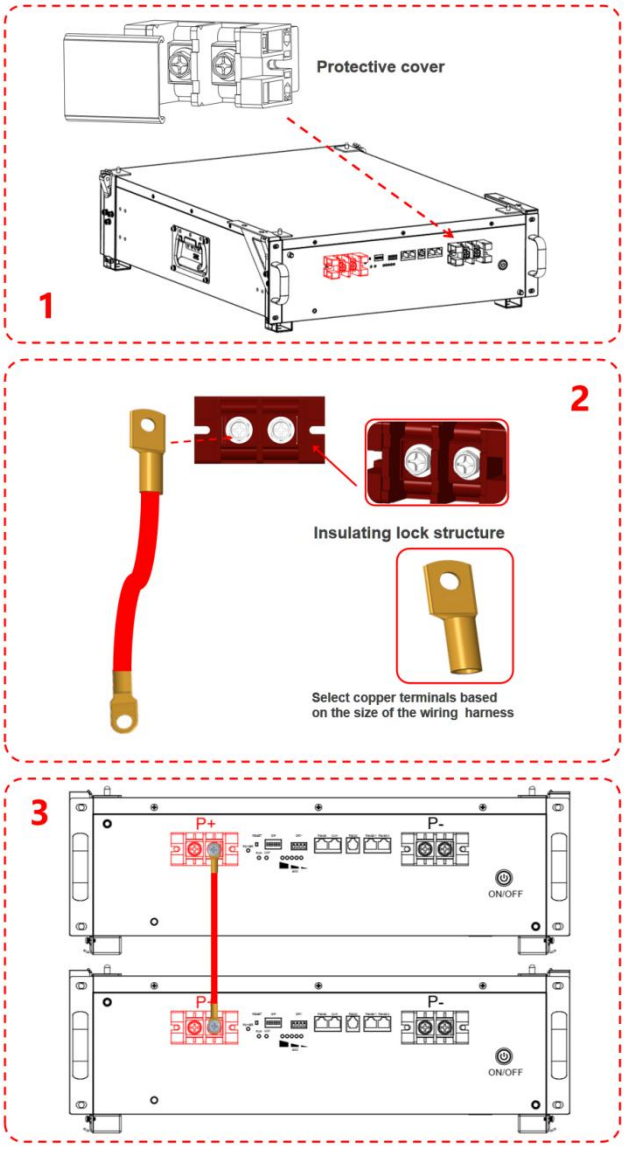


Figure 3.6.1-2

Illustration: When connecting the power cord: Align the positive/negative terminals with the battery power port and secure them using screws to ensure a firm connection. The opposite end features cold-press terminals for user connection to inverters.

3.6.2 Connect to the inverter

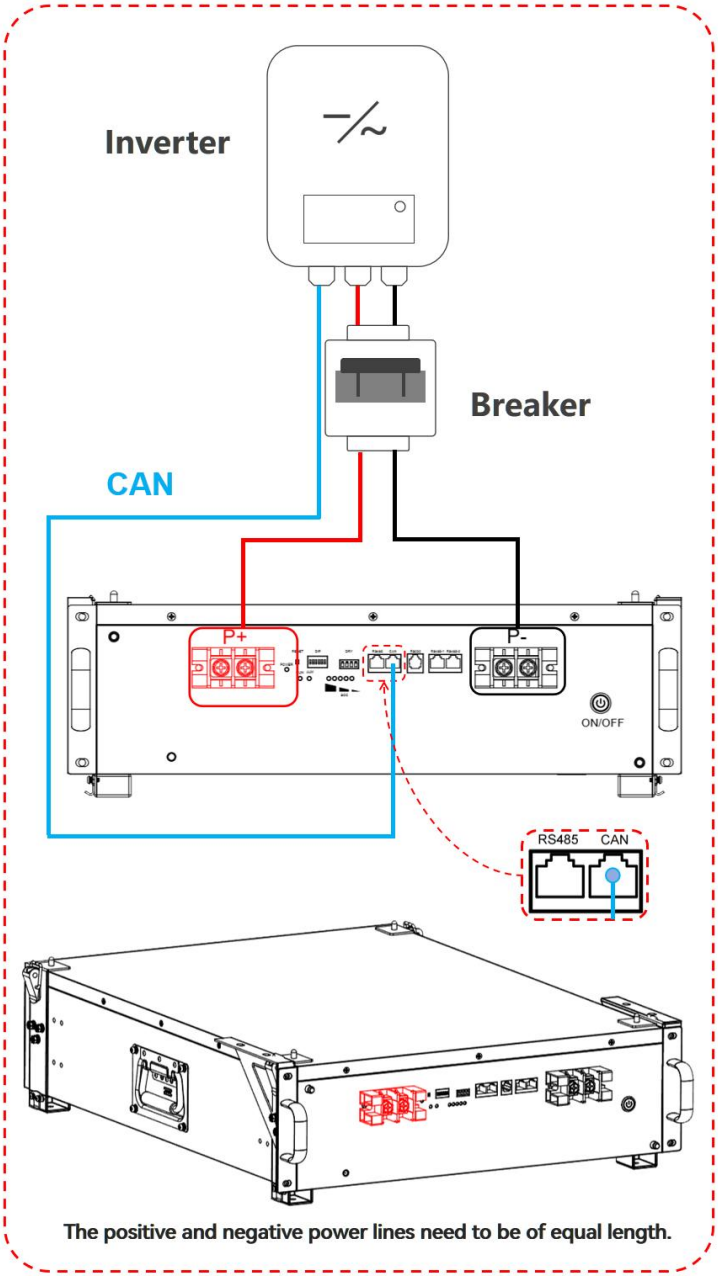


Figure 3.6.2

Illustration : When multiple batteries are connected in parallel, they are interconnected internally through the RS485-1/2 hardware interface and communicate with the inverter via the RS485/CAN bus. This product supports the operation of up to 32 devices in parallel.

04 Operation and Maintenance

Danger:

Please use special protective gear and specialized insulation tools to prevent electric shock injuries or short-circuit faults.

Caution: 1. During the power-on process, one should observe while powering on. If any abnormal phenomenon is detected, immediately power off the battery and identify the cause. After resolving the issue, continue the power-on process.

2. After the battery installation and adjustment is completed, or after the battery discharge is finished, please promptly recharge the battery. Otherwise, it may be damaged due to over-discharge.

4.1 Switch On/Off

After the battery is connected, please follow the following steps to start:

1.Close the air circuit breaker between the battery and the inverter to establish the power connection between the battery and the inverter.

2.Switch on:press On/Off button to switch on the battery, then the battery will do self-inspection before enable output.The LED will show the SOC.

3.Switch off:press and hold On/Off button for 3 seconds, the battery will shut down directly.

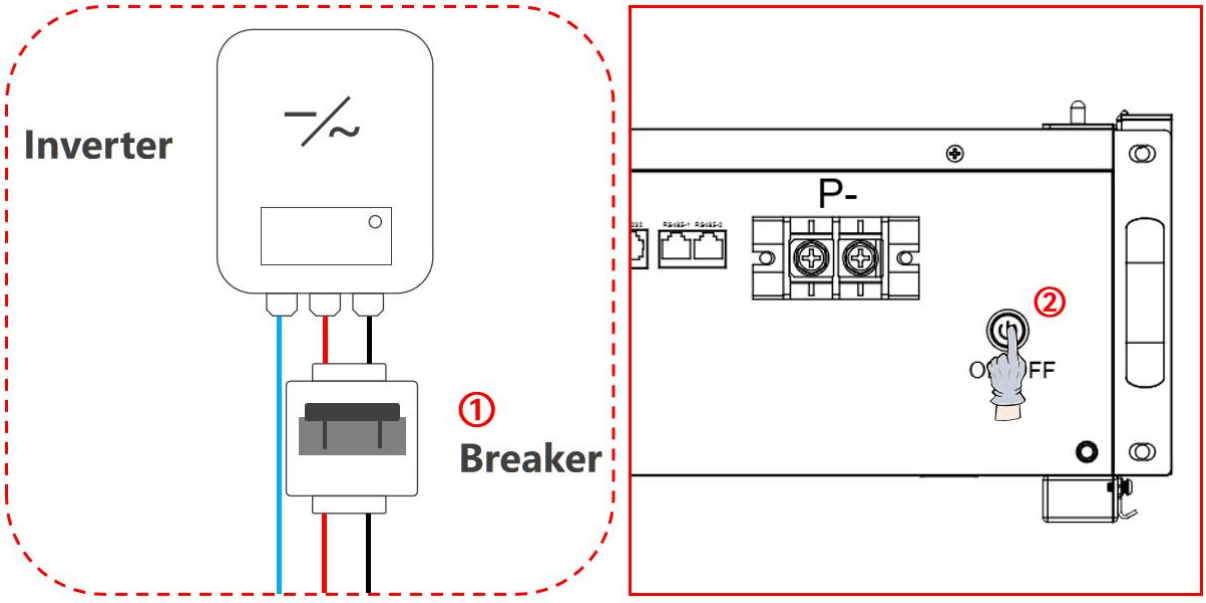


Figure 4.1

4.2 Description for Communication port

Independent RS485 Communication:

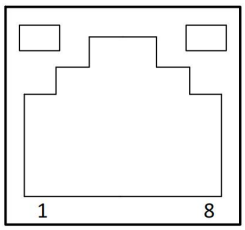
Picture	PIN	Description
	1	RS485-B1
	2	RS485-A1
	3	GND
	4	NC
	5	NC
	6	GND
	7	RS485-A1
	8	RS485-B1

Table 4.2-1

CAN Communication:

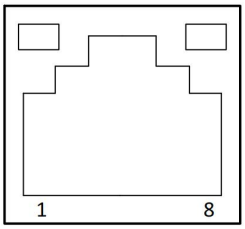
Picture	PIN	Description
	1	NC
	2	NC
	3	GND
	4	CANH
	5	CANL
	6	GND
	7	NC
	8	NC

Table 4.2-2

RS485-1:

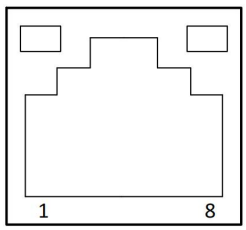
Picture	PIN	Description
	1	RS485-B
	2	RS485-A
	3	GND
	4	GND
	5	DO (Reserved)
	6	GND
	7	RS485-A
	8	RS485-B

Table 4.2-3

RS485-2:

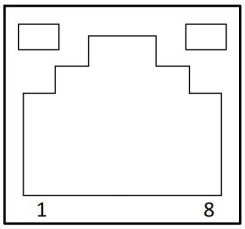
Picture	PIN	Description
	9	RS485-B
	10	RS485-A
	11	GND
	12	GND
	13	DI (Reserved)
	14	GND
	15	RS485-A
	16	RS485-B

Table 4.2-4

RS232 Communication:

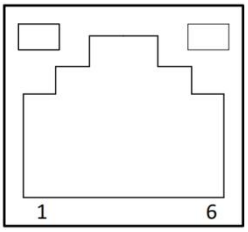
Picture	PIN	Description
	1	NC
	2	NC
	3	TX
	4	RX
	5	GND
	6	NC

Table 4.2-5

4.3 DIP switch SW1-SW6 Description

When PACKs are used in parallel, different PACK addresses can be distinguished through hardware jumpers. Moreover, each PACK in the entire battery pack has a unique address. The following is how the hardware addresses are set through the jumpers, as shown in the table below.

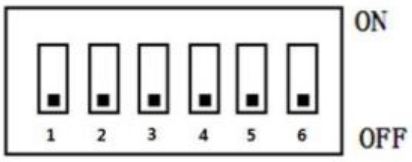


Figure 4.3

Set the address of pack Table							
Address	Dip switch position				Reserve	Host	illustrate
	#1	#2	#3	#4	#5	#6	

0	OFF	OFF	OFF	OFF	OFF	OFF	(Host)
1	ON	OFF	OFF	OFF	OFF	OFF	(Slave) Pack1
2	OFF	ON	OFF	OFF	OFF	OFF	(Slave) Pack2
3	ON	ON	OFF	OFF	OFF	OFF	(Slave) Pack3
4	OFF	OFF	ON	OFF	OFF	OFF	(Slave) Pack4
5	OFF	OFF	OFF	OFF	ON	OFF	(Slave) Pack5
6	OFF	ON	ON	OFF	OFF	OFF	(Slave) Pack6
7	ON	ON	ON	OFF	OFF	OFF	(Slave) Pack7
8	OFF	OFF	OFF	ON	OFF	OFF	(Slave) Pack8
9	ON	OFF	OFF	ON	OFF	OFF	(Slave) Pack9
10	OFF	ON	OFF	ON	OFF	OFF	(Slave) Pack10
11	ON	ON	OFF	ON	OFF	OFF	(Slave) Pack11
12	OFF	OFF	ON	ON	OFF	OFF	(Slave) Pack12
13	ON	OFF	ON	ON	OFF	OFF	(Slave) Pack13
14	OFF	ON	ON	ON	OFF	OFF	(Slave) Pack14
15	ON	ON	ON	ON	OFF	OFF	(Slave) Pack15
16	OFF	OFF	OFF	OFF	ON	OFF	(Slave) Pack16
17	ON	OFF	OFF	OFF	ON	OFF	(Slave) Pack17
18	OFF	ON	OFF	OFF	ON	OFF	(Slave) Pack18
19	ON	ON	OFF	OFF	ON	OFF	(Slave) Pack19
20	OFF	OFF	ON	OFF	ON	OFF	(Slave) Pack20
21	ON	OFF	ON	OFF	ON	OFF	(Slave) Pack21
22	OFF	ON	ON	OFF	ON	OFF	(Slave) Pack22
23	ON	ON	ON	OFF	ON	OFF	(Slave) Pack23
24	OFF	OFF	OFF	ON	ON	OFF	(Slave) Pack24
25	ON	OFF	OFF	ON	ON	OFF	(Slave) Pack25
26	OFF	ON	OFF	ON	ON	OFF	(Slave) Pack26
27	ON	ON	OFF	ON	ON	OFF	(Slave) Pack27
28	OFF	OFF	ON	ON	ON	OFF	(Slave) Pack28
29	ON	OFF	ON	ON	ON	OFF	(Slave) Pack29
30	OFF	ON	ON	ON	ON	OFF	(Slave) Pack30
31	ON	ON	ON	ON	ON	OFF	(Slave) Pack31
32	OFF	OFF	OFF	OFF	OFF	ON	(Slave) Pack32
33	ON	OFF	OFF	OFF	OFF	ON	(Slave) Pack33
34	OFF	ON	OFF	OFF	OFF	ON	(Slave) Pack34
35	ON	ON	OFF	OFF	OFF	ON	(Slave) Pack35
36	OFF	OFF	ON	OFF	OFF	ON	(Slave) Pack36
37	ON	OFF	OFF	ON	OFF	ON	(Slave) Pack37
38	OFF	ON	OFF	ON	OFF	ON	(Slave) Pack38
39	ON	ON	ON	OFF	OFF	ON	(Slave) Pack39

40	OFF	OFF	OFF	ON	OFF	ON	(Slave) Pack40
41	ON	OFF	OFF	ON	OFF	ON	(Slave) Pack41
42	OFF	ON	OFF	ON	OFF	ON	(Slave) Pack42
43	ON	ON	OFF	ON	OFF	ON	(Slave) Pack43
44	OFF	OFF	ON	ON	OFF	ON	(Slave) Pack44
45	ON	OFF	ON	ON	OFF	ON	(Slave) Pack45
46	OFF	ON	ON	ON	OFF	ON	(Slave) Pack46
47	ON	ON	ON	ON	OFF	ON	(Slave) Pack47
48	OFF	OFF	OFF	OFF	ON	ON	(Slave) Pack48
49	ON	OFF	OFF	OFF	ON	ON	(Slave) Pack49
50	OFF	ON	OFF	OFF	ON	ON	(Slave) Pack50
51	ON	ON	OFF	OFF	ON	ON	(Slave) Pack51
52	OFF	OFF	ON	OFF	ON	ON	(Slave) Pack52
53	ON	OFF	ON	OFF	ON	ON	(Slave) Pack53
54	OFF	ON	ON	OFF	ON	ON	(Slave) Pack54
55	ON	ON	ON	OFF	ON	ON	(Slave) Pack55
56	OFF	OFF	OFF	ON	ON	ON	(Slave) Pack56
57	ON	OFF	OFF	ON	ON	ON	(Slave) Pack57
58	OFF	ON	OFF	ON	ON	ON	(Slave) Pack58
59	ON	ON	OFF	ON	ON	ON	(Slave) Pack59
60	OFF	OFF	ON	ON	ON	ON	(Slave) Pack60
61	OFF	OFF	ON	ON	ON	ON	(Slave) Pack61
62	ON	OFF	ON	ON	ON	ON	(Slave) Pack62
63	ON	ON	ON	ON	ON	ON	(Slave) Pack63

Table 4.3

4.4 Supervisory computer monitoring

Caution:Before initiating the upgrade, ensure that the BMS (Battery Management System) and the battery are in standby mode, the load switch and charger switch are turned off, and the RS232-USB cable is correctly connected as follows.

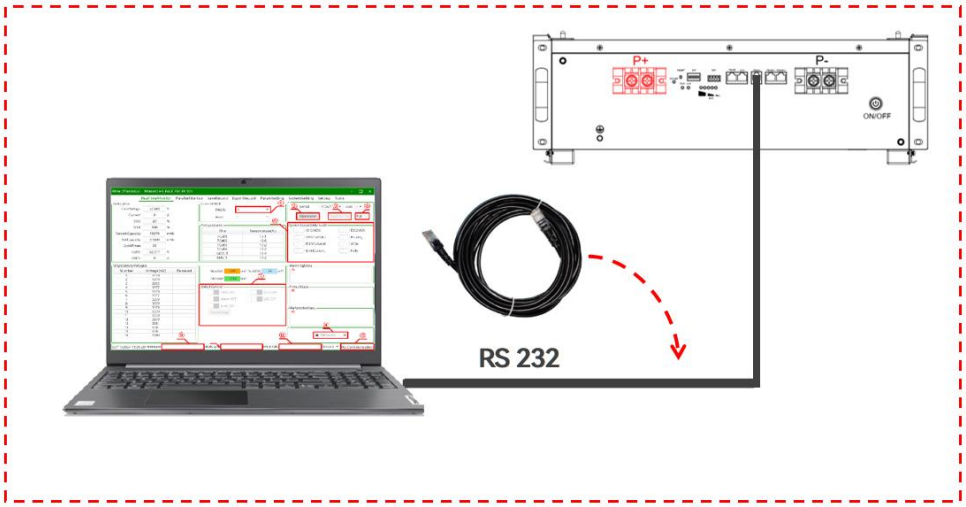


Figure 4.4

05 Emergency Situations

5.1 Fire

In case of fires, make sure that the following equipment is available near the system.

· SCBA (self -contained breathing apparatus) and protective gear in compliance with the Directive on Personal Protective Equipment 89/686/EEC.

· NOVEC 1230, FM-200,or dioxide extinguisher

Batteries may explode when heated above 150℃. KEEP FAR AWAY from the battery if it catches fire.

5.2 Leaking Batteries

If the battery pack leaks electrolyte, avoid contact with the leaking liquid or gas .If one is exposed the leaked substance, immediately perform the cations described below.

· Inhalation: Evacuate the contaminated area, and seek medical attention.

· Contact with eyes: Rinse eyes with running water for 5 minutes, and seek medical attention.

· Contact with skin: Wash the affected area thoroughly with soap and water, and seek medical attention.

· Ingestion: Induce vomiting, and seek medical attention.

5.3 Wet Batteries

If the battery pack is wet or submerged in water, do not let people access it, and contact your supplier for help.

Damaged batteries are not fit for use and are dangerous and must be handled with the utmost care.It may leak electrolyte or produce flammable gas. If the battery pack seems to be damaged, pack it in its original container, and then return it to your supplier.

06 Warranty service

6.1 Warranty Period

Under the condition of proper use of the product, the warranty period shall be subject to the agreement in the commercial contract.

6.2 Scope of Warranty

Within the warranty period, if the product malfunctions due to its own quality issues, our company will provide customers with free repair or replacement of the product. Customers shall reserve a reasonable response time for our company's maintenance, and the replaced products shall be handled by our company. Customers are required to present relevant proof of product purchase and ensure that the product trademark is clearly visible; otherwise, our company reserves the right not to provide warranty services.

6.3 Disclaimer

Our company reserves the right not to provide quality assurance in the following cases, but may still provide paid maintenance services:

1.The warranty period has expired;

2.Relevant proof of product purchase cannot be provided;

3.Damage caused during transportation or loading/unloading;

4.Damage caused by incorrect installation, modification, or repair by unauthorized personnel;

5.Damage caused by operation under abnormal usage conditions or environments;

6.Machine failure or damage caused by using non-Naton components or software;

7.Failures caused by force majeure factors such as fire, earthquake, flood, etc.