INFINITE | ENERGY | STORAGE

INFINITE | ENERGY | STORAGE

IES-BATT-14.33

Product Description

CONTENTS

01

TECHNICAL DATA

NOTE

Operating current derating according to the cell voltage and battery temperature.

Performance	
Nominal Voltage	51.2 Vdc
Nominal Capacity	280 Ah
Battery Energy [1]	14336 Wh
Charge Voltage	56.16 Vdc
Discharge Voltage	44.8 Vdc
Nominal Charge / Discharge Current	140 A
Nominal Charge / Discharge Power	7000 W
Max Charge / Discharge Current	280 A
Max Charge / Discharge Power	14000 W
Short Circuit Current	450 A

Communication	
Display	SOC status indicator, LED indicator
Communication	CAN, RS485, RS232, Wi-Fi (optional)

General Specification	
Dimension(W×D×H mm)	800×250×839 mm
Weight (kg)	145 kg
Installation	Floor stand or Wall mounted
Working Temperature[2]	-20℃ ~ 60℃
Storage Temperature	≤25℃, 12 months; ≤35℃, 6 months; ≤45℃, 3 months
Operating / Storage / Humidity	≤95% RH
Max Operating Altitude	≤2000 m
IP Rating	IP20
Cell Technology	$LiFePO_4$, Lithium Iron Phosphate
Cycle life[3]	8000 Cycles or ten (10) years @ 80% DOD / 25℃ / 0.5C, 70% EOL
Scalability	Max 15 batteries in parallel

Standard Compliance	
	PACK: UN38.3, IEC 62619, IEC61000 CELL: UN38.3, IEC62619, UL1642, JET (more available upon request)

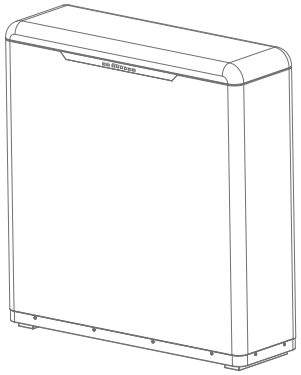
Ordering and Deliverable Part	
Product Ordering Part	IES-BATT-14.33 Battery IES-BATT-14.33 Parallel cable IES-BATT-14.33 to PCS cable

1. Test conditions: 100% depth of discharge (DoD), 0.2C rate charge & discharge at 25℃.
2. Charge/discharge derating occurs when the operating temperature from -10℃ to 5℃ & 45℃ to 55℃.
3. Please refer to the Warranty Letter for applicable conditions, the warranty is due whichever comes first.

02

PRODUCT OVERVIEW

2.1 Brief Introduction



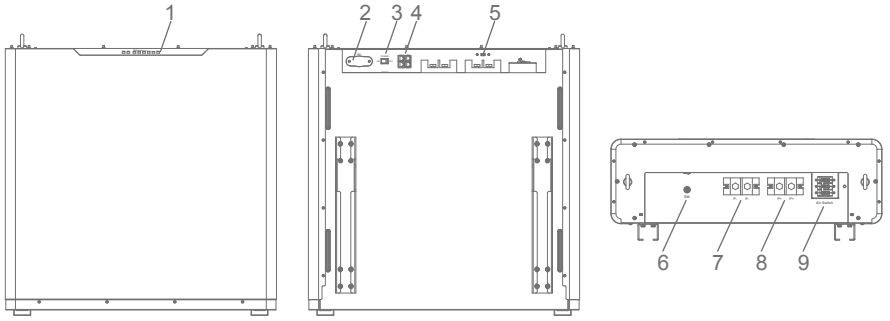
PRODUCT OVERVIEW

IES-BATT-14.33 is a lithium battery with an operating voltage range between 44.8~56.16V. it is designed for residential energy storage applications and works together with a 48V battery hybrid inverter. **IES-BATT-14.33 is not suitable for supporting life-sustaining medical devices.**

IES-BATT-14.33 has built-in BMS (Battery Management System), which can manage and monitor cells information including voltage, current and temperature. Besides that, BMS can balance cells charging to extend cycle life. BMS has protection functions including over-discharge, over-charge, over-current and high/low temperature; the system can automatically manage the charge state, discharge state and balance state.

Multiple IES-BATT-14.33 can be connected in parallel to expand capacity and power, and 15 IES-BATT-14.33 can be connected in parallel at most.

2.2 Interface Introduction



Operation interface description:

Serial Number	Name	Description
1	Status indicator	Operation, alarm, and SOC status
2	WiFi interface (Reserved)	Reversed port for WiFi
3	POWER	Weak current switch
4	Communication port	Communication interface
5	Slide switch	BMS power supply switch
6	SW	Reset switch
7	Negative terminal	Total negative terminal
8	Positive terminal	Total positive terminal
9	Air switch	Output switch

2.2.1 Switch ON / OFF

1.Switch ON

For a single IES-BATT-14.33, firstly, the Air switch (9), Slide switch (5) and POWER (3) are in the ON state, then long press (over 3 seconds) SW (6), LED will flash, and the battery will work normally. L1 to L6 shows battery SOC, and L7 / L8 shows battery status.

For multiple IES-BATT-14.33 in parallel, firstly, the Air switch (9), Slide switch (5) and POWER (3) of all batteries are in the ON state, long press (more than 3 seconds) SW button of the Master battery, LED will flash, and the battery system will automatically encode and assign ID to each slave battery, then the battery system will operate normally.

2.Switch OFF

Press the start button of the Master pack more than 3s and then release the button, the master pack will shut down after all slave packs shut down (sleep mode).

For a single IES-BATT-14.33, switch OFF POWER (3) and Air switch (9).

For multiple IES-BATT-14.33 in parallel, switch OFF POWER (3) and Air switch (9) on all slave batteries first. Then switch OFF POWER (3) and Air switch (9) on the Master battery.

2.2.2 LED Indicator Definition

Note:

flash 1 - 0.25s light / 3.75s off

flash 2 - 0.5s light / 0.5s off

flash 3 - 0.5s light / 1.5s off

LED Indicators Instructions

		RUN	ALM	Battery Level Indicator						
Status		L8	L7	L6	L5	L4	L3	L2	L1	Descriptions
Shut down		OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	All OFF
Standby		Flash 1	OFF	According to the battery level						Indicates Standby
Charging	Normal	Light	OFF	According to the battery level						The highest capacity indicator LED flashes(flash 2), others lighting
	Full Charged	Light	OFF	Light	Light	Light	Light	Light	Light	Turn to standby status when charger off
	Protection	OFF	Light	OFF	OFF	OFF	OFF	OFF	OFF	Stop charging
Discharge	Normal	Flash 3	OFF	According to the battery level						
	UVP	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	Stop charging
	Protection	OFF	Light	OFF	OFF	OFF	OFF	OFF	OFF	Stop discharge
Fault		OFF	Light	OFF	OFF	OFF	OFF	OFF	OFF	Stop charging and discharge

Charging Battery Level Indicators Instructions

Status		Charging							
Battery Level Indicator		L8	L7	L6	L5	L4	L3	L2	L1
Battery Level (%)	0～17%	Light	OFF	OFF	OFF	OFF	OFF	OFF	Flash 2
	18～33%			OFF	OFF	OFF	OFF	Flash 2	Light
	34～50%			OFF	OFF	OFF	Flash 2	Light	Light
	51～66%			OFF	OFF	Flash 2	Light	Light	Light
	67～83%			OFF	Flash 2	Light	Light	Light	Light
	84～100%			Flash 2	Light	Light	Light	Light	Light
	Full Charged			Light	Light	Light	Light	Light	Light

Discharging Battery Level Indicators Instructions

Status		Discharge							
Battery Level Indicator		L8	L7	L6	L5	L4	L3	L2	L1
Battery Level (%)	0~17%	Flash 3	OFF	OFF	OFF	OFF	OFF	OFF	Light
	18~33%			OFF	OFF	OFF	OFF	Light	Light
	34~50%			OFF	OFF	OFF	Light	Light	Light
	51~66%			OFF	OFF	Light	Light	Light	Light
	67~83%			OFF	Light	Light	Light	Light	Light
	84~100%			Light	Light	Light	Light	Light	Light

Protection Fault Indicators Instructions

Status		Protection Fault							
Status Battery Level Indicator		L8	L7	L6	L5	L4	L3	L2	L1
Battery Level(%)				84～100%	67～83%	51～66%	34～50%	18～33%	0～17%
Cell failure		OFF / Light	Light	OFF	OFF	OFF	OFF	OFF	OFF
NTC failure				Light	OFF	OFF	OFF	OFF	OFF
Precharge failure				OFF	Light	OFF	OFF	OFF	OFF
Short circuit fault				Light	Light	OFF	OFF	OFF	OFF
Charging MOS failure				OFF	OFF	Light	OFF	OFF	OFF
Discharge MOS fault				Light	OFF	Light	OFF	OFF	OFF
Precharge failure				OFF	Light	Light	OFF	OFF	OFF
Total negative contact failure				Light	Light	Light	OFF	OFF	OFF
Overvoltage protection of charging cells				OFF	OFF	OFF	Light	OFF	OFF
Overall charging overvoltage protection				Light	OFF	OFF	Light	OFF	OFF
Charging overcurrent protection				OFF	Light	OFF	Light	OFF	OFF
Discharge cell undervoltage protection				Light	Light	OFF	Light	OFF	OFF
Discharge overall undervoltage protection				OFF	OFF	Light	Light	OFF	OFF
Discharge overcurrent protection				Light	OFF	Light	Light	OFF	OFF
Charging high-temperature protection				OFF	Light	Light	Light	OFF	OFF
Charging low-temperature protection				Light	Light	Light	Light	OFF	OFF
High-temperature protection for discharge				OFF	OFF	OFF	OFF	Light	OFF
Discharge low-temperature protection				Light	OFF	OFF	OFF	Light	OFF
MOS tube high-temperature protection				OFF	Light	OFF	OFF	Light	OFF
Environmental low-temperature protection				Light	Light	OFF	OFF	Light	OFF
Ambient high-temperature protection				OFF	OFF	Light	OFF	Light	OFF

Notes: 1. The fault lamp ALM is not on in a normal state, at this time the SOC lamp is used as a power indication, the fault lamp ALM is always on when the fault occurs, and the SOC lamp is on according to the fault sequence number (priority sequence number from low light), if a variety of protection faults exist, the RUN lamp also needs to be on constantly.

2.2.3 CAN / RS485 Port

CAN / RS485 Communication Terminal (RJ45 port), connects to inverter, and follows CAN / RS485 protocol.

PIN	Definition
Pin 1, Pin 8	RS485-B (to PCS, reserved)
Pin 2, Pin 7	RS485-A (to PCS, reserved)
Pin 3	NC
Pin 4	CANH (to PCS)
Pin 5	CANL (to PCS)
Pin 6	GND

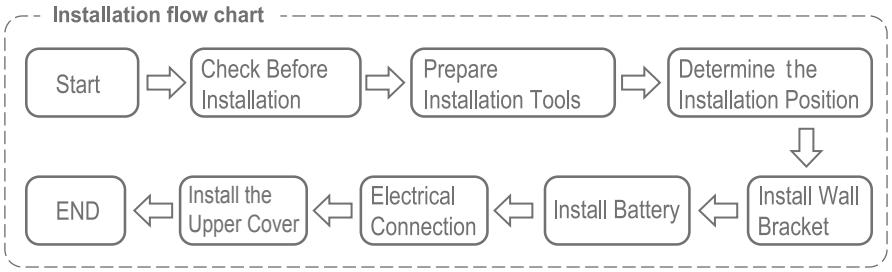
2.2.4 RS232 Port

RS232 Communication Terminal (RJ45 port) follows RS232 protocol, for manufacturers or professional engineers to debug or service.

PIN	Definition
Pin 1, Pin 8	GND
Pin 2, Pin 7	RS232_TX
Pin 3, Pin 6	RS232_RX
Pin 4, Pin 5	NC

03

INSTALLATION GUIDE



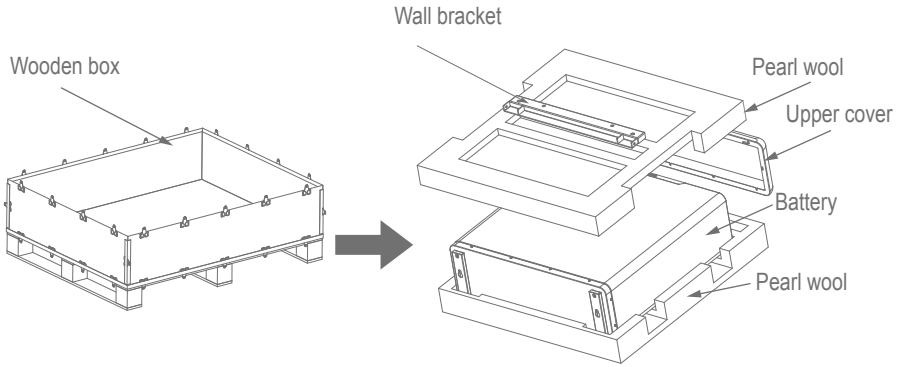
3.1 Checking Before Installation

3.1.1 Checking Outer Packing Materials

Packing materials and components may be damaged during transportation. Therefore, check the outer packing materials before installing the battery. Checking the surface of packing materials for damage, such as holes and cracks. If any damage is found, do not unpack the battery and contact the dealer as soon as possible. You are advised to remove the packing materials within 24 hours before installing the battery.

3.1.2 Checking Deliverables

After unpacking the battery, check whether deliverables are intact and complete. If any damage is found or any component is missed, contact the dealer.
The below table shows the components and mechanical parts that should be delivered.



NO.	Pictures	Quantity	Description
1		1PCS	Battery
2		1PCS	Wall bracket
3		1PCS	Upper cover
4		4PCS	M10*80
5		2PCS	M4*20
6		1PCS	Manual
7		1PCS	Test report
8		1PCS	Certificate

3.2 Tools

Model	Tools		
Installation	Knife 	Measuring tape 	Socket wrench (10/16mm) 
	Rubber mallet 	Cross screwdriver 	Hammer drill (8mm) 
Protection	ESD gloves 	Safety goggles 	Anti-dust respirator 
	Safety shoes 		

3.3 Installation Requirements

3.3.1 Installation Environment Requirements

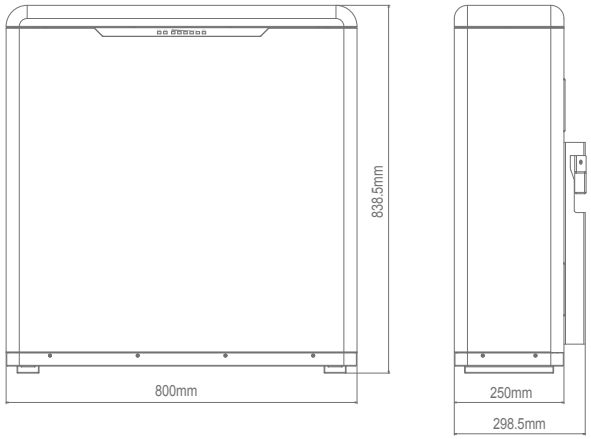
- Install the battery in the indoor environment.
- Place the battery in a secure location away from children and animals.
- Do not place the battery near any heat sources and avoid sparks.
- Do not expose the battery to moisture or liquids.
- Do not expose the battery to direct sunlight.

3.3.2 Installation Carrier Requirements

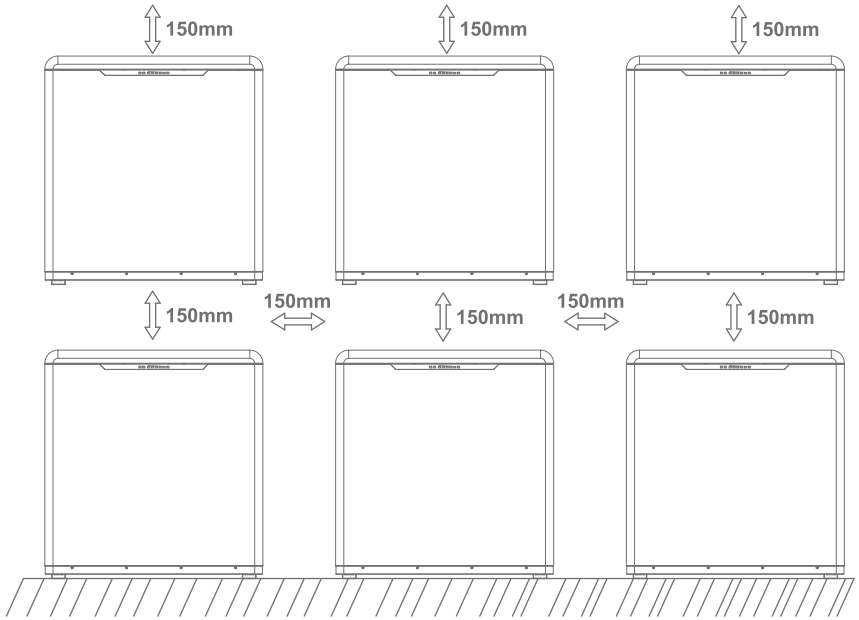
- Only mount batteries on fire-resistant buildings. Do not install batteries on tammable buildings.
- Due to the quite heavy battery, make sure the wall / ground can meet the load bearing requirements.

3.4 Installation Instructions

3.4.1 Dimensions



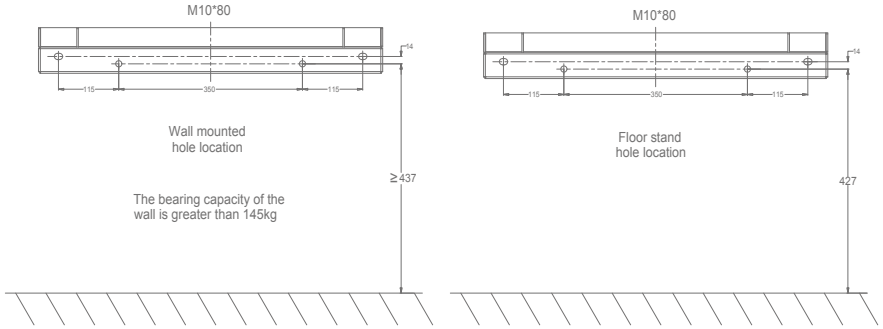
Minimum mounting distance between battery pack and equipment:



3.4.2 Installation Procedure

STEP 1

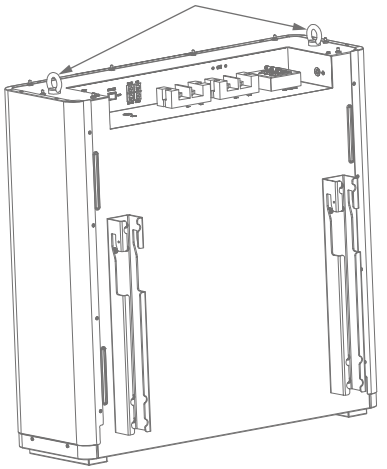
Drill the hole with a 12mm drill bit as follows and fix the wall bracket to the wall.

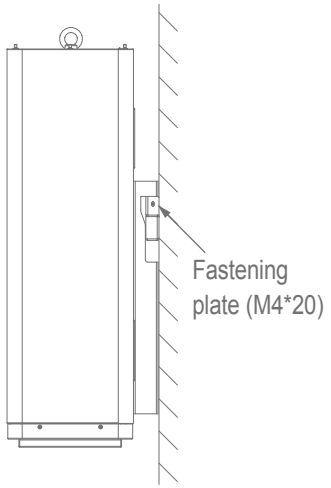


STEP 2

Use a crane to lift the ring on the battery pack and attach it to the wall bracket.

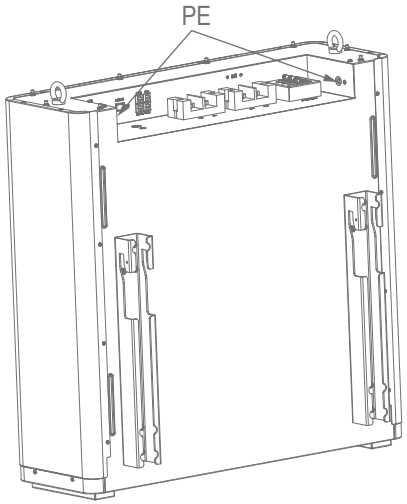
Lift the battery pack by crane





STEP 3

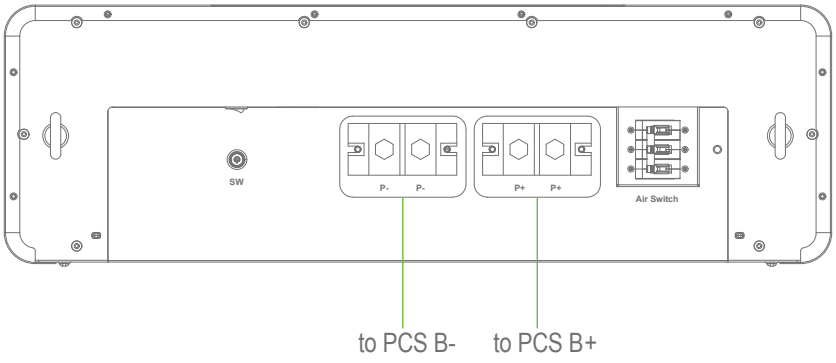
Connect to the ground.



STEP 4

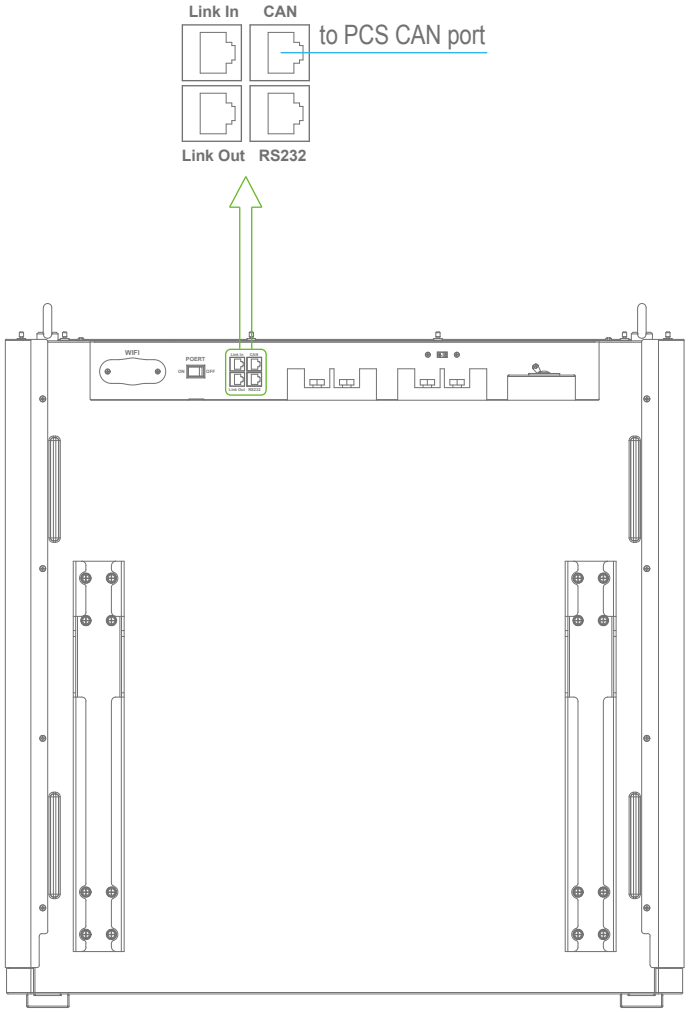
Connect the power cable.

Note that all switches are OFF before wiring.



STEP 5

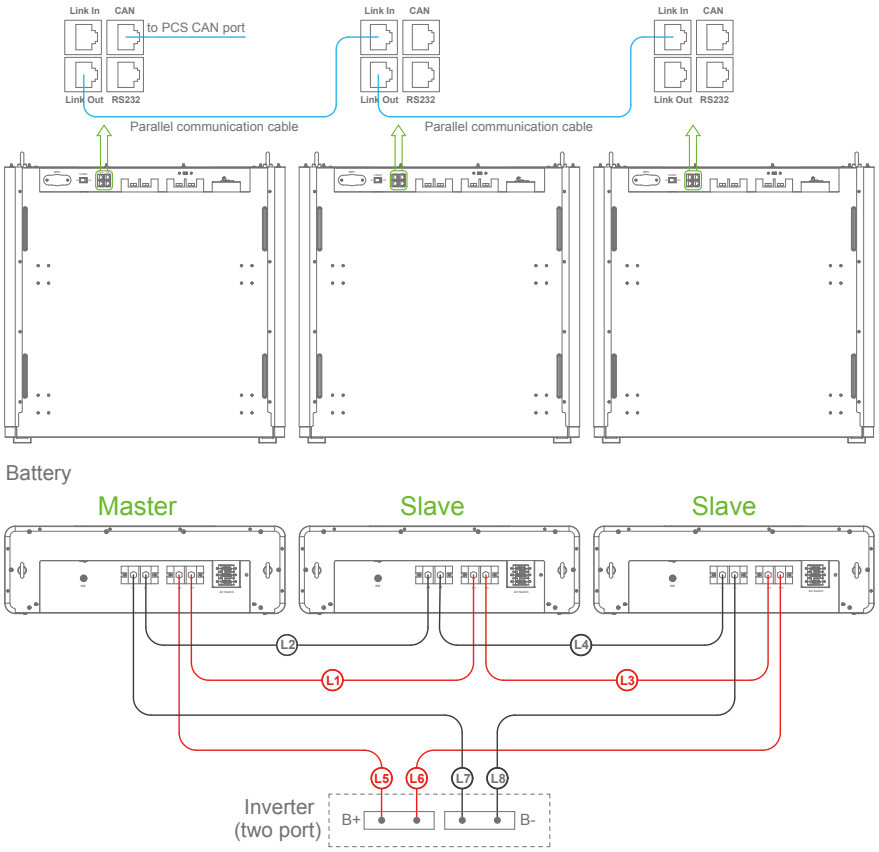
Connect the communication cable.



STEP 6

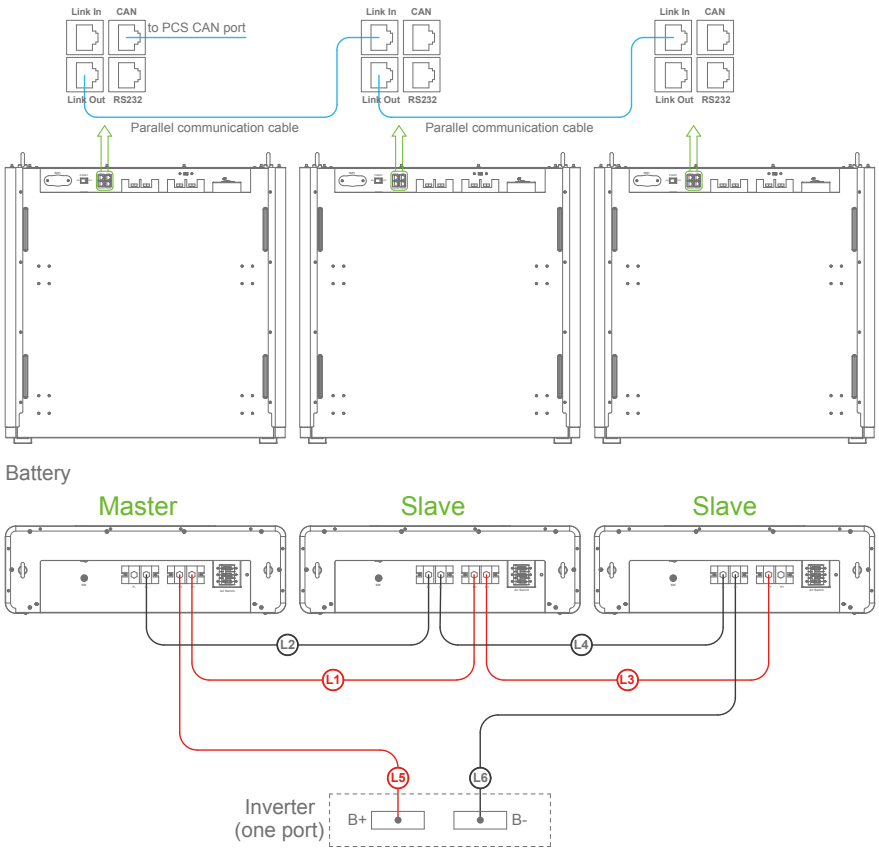
When multiple batteries are connected in parallel, follow the following wiring mode.
Parallel cables' length is 1200mm; power cables' leghth is 1700mm.

Scheme One



Parallel cables:L1=L2=L3=L4≥1200mm:70mm² EV cable
Power cables:L5=L6=L7=L8≥1700mm:35mm² EV cable

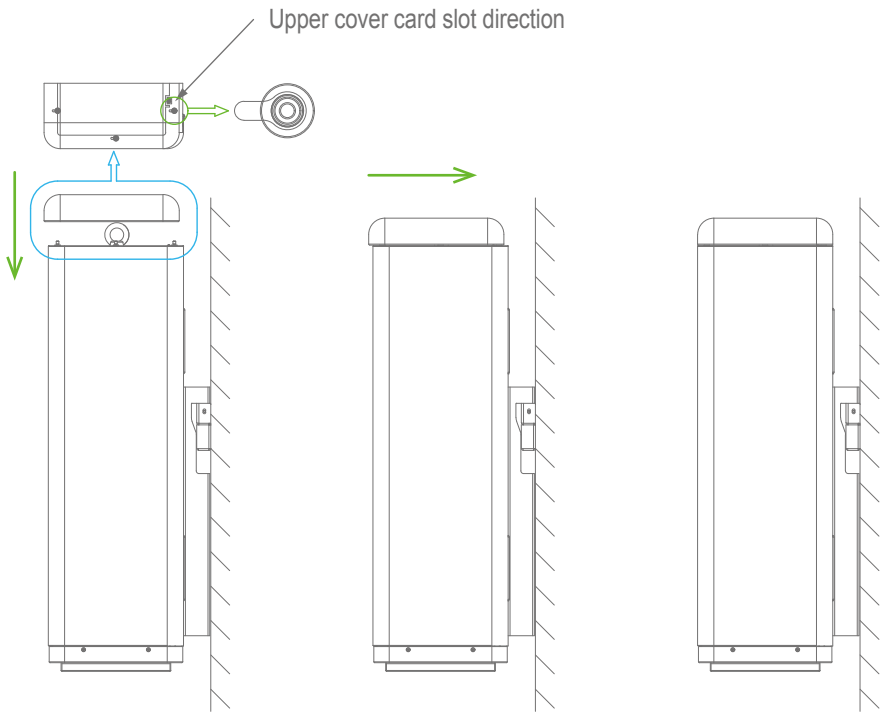
Scheme Two



Parallel cables:L1=L2=L3=L4≥1200mm:70mm² EV cable
Power cables:L5=L6≥1700mm:70mm² EV cable

STEP 7

Install the upper cover.



1. Align the mounting holes of the upper cover with the positioning pins of the box and lower it.

2.Push the upper cover in the direction of the arrow until it is flush with the box body and make the upper cover stuck.

3. This is the installed state.

04

MAINTENANCE

4.1 Recharge Requirements During Normal Storage

Battery should be stored in an environment with temperature range between -10°C ~ +45°C, and maintained regularly according to the following table with 0.5C (140 A) current till 40%SOC after a long storage time.

Recharge Conditions When in Storage

Storage Environment Temperature	Relative Humidity of Storage Environment	Storage Time	SOC
Below -10℃	/	prohibit	/
-10~25℃	5%~70%	≤12 months	30%≤SOC≤60%
25~35℃	5%~70%	≤6 months	30%≤SOC≤60%
35~45℃	5%~70%	≤3 months	30%≤SOC≤60%
Above 45℃	/	prohibit	/

4.2 Recharge Requirements When Over Discharged

The over-discharged (90% DoD) battery should be recharged according to the following table, otherwise the over-discharged battery wil be damaged.

Recharge Conditions When Battery is Over Discharged

Storage Environment Temperature	Storage Time	Note
-10~25℃	≤15 days	Battery Pack disconnected from PCS
25~35℃	≤7 days	
-10~45℃	<12 hours	Battery Pack connected to PCS