



SUN-BATT-5.12 Ecco



USER MANUAL

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TECHNICAL DATA



Performance

Cell Technology	LFP (LiFePO4)
Nominal Voltage	51.2Vdc
Nominal Capacity	100Ah
Battery Usable Energy ^[1]	5.12kWh
Operating Voltage	44.8 ~ 56.16Vdc
Max. Charge and Discharge Current ^[2]	100A

Communication

Display	SOC status indicator, LED indicator
Communication	RS232 / RS485 / CAN

General Specification

Dimension (WxDxH)	450x150x533mm (17.7×5.9×21.0 inch)
Weight	46kg (101.4 lbs)
Installation	Floor stand or wall mounted
Operating Temperature ^[3]	Charge: 0 to 50°C (32 to 122°F) Discharge: -15 to 50°C (5 to 122°F)
Environmental Humidity	≤ 95%RH (No condensation)
Ingress Protection Rating	IP20
Cycle Life ^[4]	Min Performance 7,000 Half Cycle or 3,500 Full Cycle 5 Year Warranty @ 80% DoD
Scalability	Max. 15 batteries in parallel
Application	ON Grid / ON Grid + Backup / OFF grid
Compatible Inverters	Refer to compatible inverter list (Compatible with major PCS brands)

Standard Compliance

Certification

UN38.3 / IEC62619/ IEC61000
(More available upon request)

Ordering and Deliverable Part

Part

SUN-BATT-5.12 Ecco ecco Battery
SUN-BATT-5.12 Ecco ecco Parallel cable
SUN-BATT-5.12 Ecco ecco to PCS cable

^[1] Test conditions: 100% depth of discharge (DOD), 0.2C rate charge & discharge at 25°C.

^[2] There is 0.5C or 1C configurations optional in factory default.

^[3] Charge/discharge derating occurs when the temperature is below 0°C or above 45°C.

^[4] Please refer to the Warranty Letter for applicable conditions, the warranty is due whichever comes first.

PRODUCT OVERVIEW

Brief Introduction

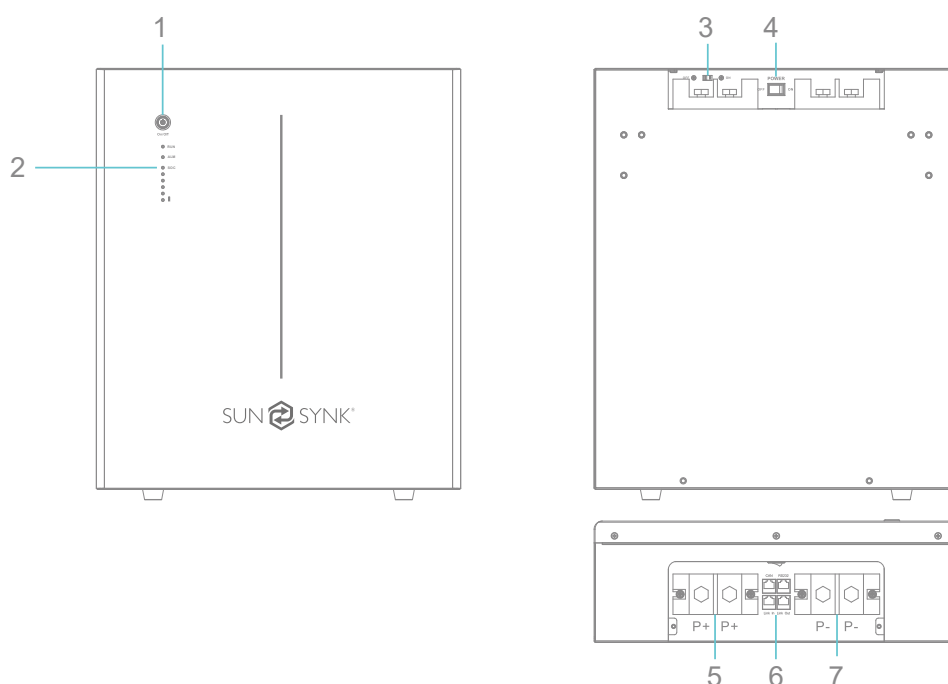
SUN-BATT-5.12 Ecco is a lithium Battery with an operating voltage range between 44.8~56.16V. It is designed for residential energy storage applications and works together with a 48v Battery hybrid inverter. SUN-BATT-5.12 Ecco is not suitable for supporting life-sustaining medical devices.

SUN-BATT-5.12 Ecco 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-dis-charge, over-charge, over-current and high/low temperature; the system can automatically manage charge state, discharge state and balance state.

Multiple SUN-BATT-5.12 Ecco can be connected in parallel to expand capacity and power, 15 SUN-BATT-5.12 Ecco can be connected in parallel at most.



Interface Introduction



Serial Number	Name	Description
1	ON / OFF button	Start-up switch
2	Status Indicator	Operation, alarm, and SOC status
3	Slide switch	BMS power supply switch
4	Rocker switch	BMS switch
5	Positive terminal	Total positive terminal
6	Communication port	Communication interface
7	Negative terminal	Total negative terminal

Switch ON/OFF

Switch ON

For single SUN-BATT-5.12 Ecco, switch ON rocker switch, then long press (more than 3 seconds) ON/OFF button on front panel, LED will flash, then Battery will operate normally. L1 to L6 shows Battery SoC, L7/L8 shows Battery status.

For multiple SUN-BATT-5.12 Ecco in parallel, switch ON rocker switch on all batteries, long press (more than 3 seconds) ON/OFF button of MASTER Battery, LED will flash, Battery system will automatically encode and assign ID to each slave Battery, then Battery system will operate normally.

Switch OFF

Press start button of 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 single SUN-BATT-5.12 Ecco, switch OFF rocker switch.

For multiple SUN-BATT-5.12 Ecco in parallel, switch OFF rocker switch on MASTER Battery first. Then switch OFF rocker switch on all slave batteries

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

Status		RUN	ALM	Battery Level Indicator						Discriptions
		L8	L7	L6	L5	L4	L3	L2	L1	
										
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
Dis-charge	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

CAN / RS485 Port

CAN / RS485 Communication Terminal (RJ45 port), connect to inverter, follow CAN / RS485 protocol.

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

RS232 Port

RS232 Communication Terminal (RJ45 port) follow RS232 protocol, for manufacturer or professional engineer to debug or service.

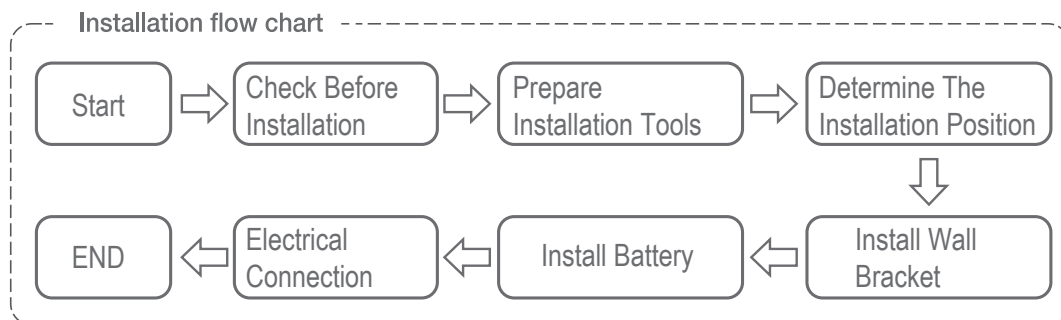
PIN	Definition
Pin 1, Pin 8	GND
Pin 2, Pin 7	RS232_TX
Pin 3, Pin 6	RS232_RX
Pin 4, Pin 5	NC

Protection Fault Indicators Instructions

Status	Charging							
	L8	L7	L6	L5	L4	L3	L2	L1
Battery Level Indicator								
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 Failure			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 Over-voltage Protection			Light	OFF	OFF	Light	OFF	OFF
Charging Overcurrent Protection			OFF	Light	OFF	Light	OFF	OFF
Discharge Cell Under-voltage Protection			Light	Light	OFF	Light	OFF	OFF
Discharge Overall Under-voltage 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

Note: In normal operation, the fault indicator lamp (ALM) remains off, and the SOC lamp functions as a power indicator. When a fault occurs, the ALM lamp lights up continuously, while the SOC lamp displays fault codes based on their priority, with lower-priority faults corresponding to dimmer lights. If multiple protection faults are present simultaneously, the RUN lamp will also remain lit continuously.

INSTALLATION GUIDE



Checking Before Installation

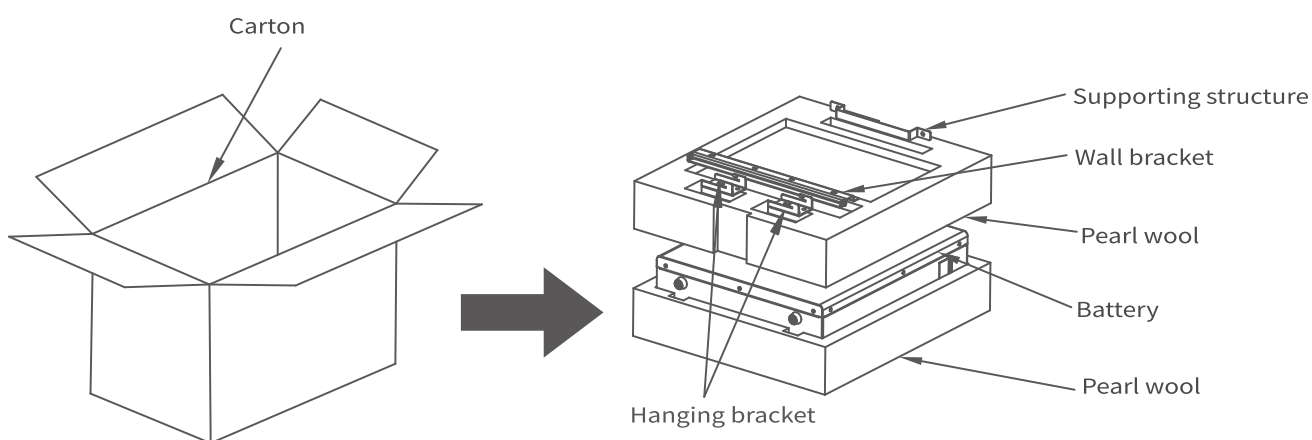
Checking Outer Packing Materials

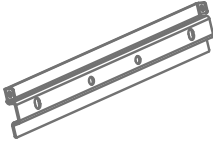
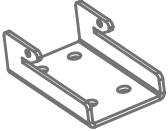
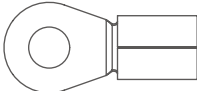
Packing materials and components may be damaged during transportation. Therefore, check the outer packing materials before installing the Battery. Checking the surface of packing materials for damage, such as holes and cracks. If any damage is found, do not unpack the Battery and contact the dealer as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

Checking Deliverables

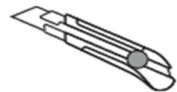
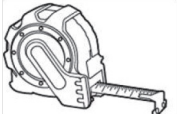
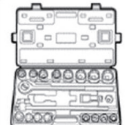
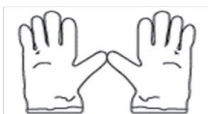
After unpacking the Battery, check whether deliverables are intact and complete. If any damage is found or any component is missed, contact the dealer.

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		2PCS	Hanging bracket
4		1PCS	Supporting Structure
5		4PCS	M8*60
6		8PCS	M6*16
7		2PCS	M4*20
8		1PCS	Manual
9		1PCS	Test report
10		1PCS	Certificate
11		4PCS	RNB22-6

Tools

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 		

Installation Requirements

Installation Environment Requirements

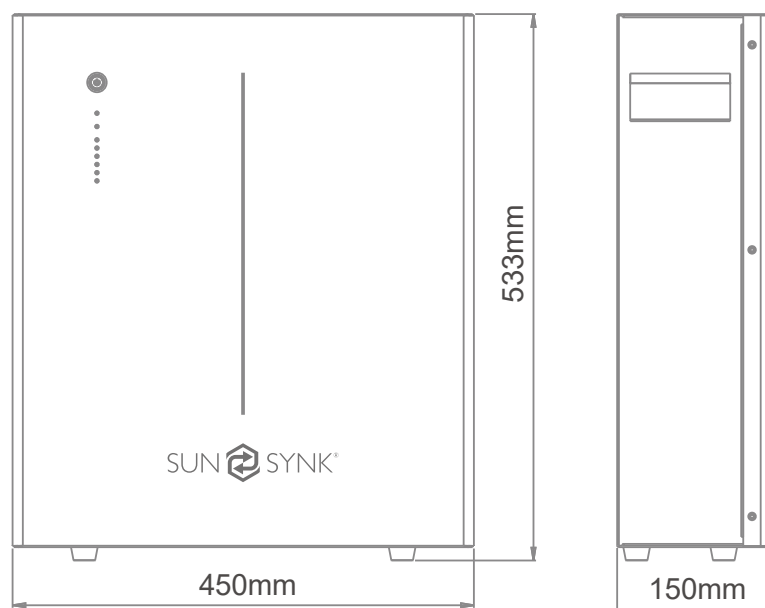
- Install the Battery in the indoor environment.
- Place Battery in secure location away from children and animals.
- Do not place the Battery near any heat sources and avoid sparks.
- Do not expose the Battery to moisture or liquids.
- Do not expose the Battery to direct sunlight.

Installation Carrier Requirements

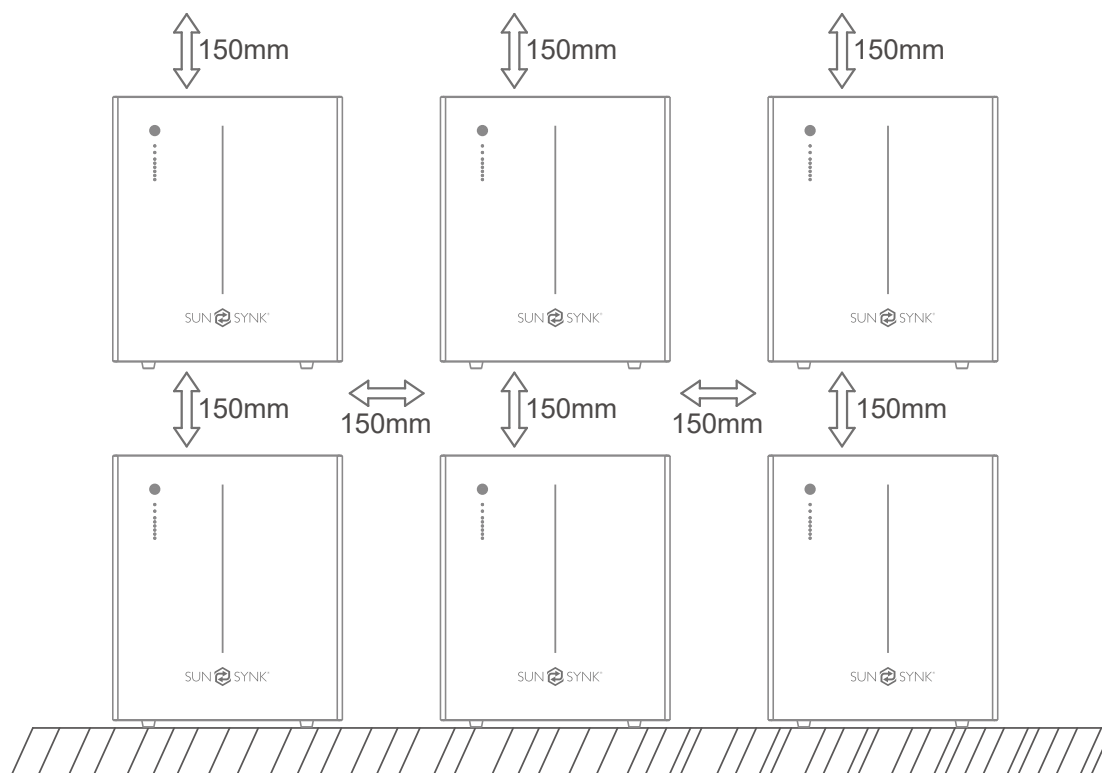
- Only mount Battery on fire resistant building. Do not install batteries on flammable buildings.
- Battery is quite heavy, make sure the wall/ground can meet the load bearing requirements.

Installation Instructions

Dimensions



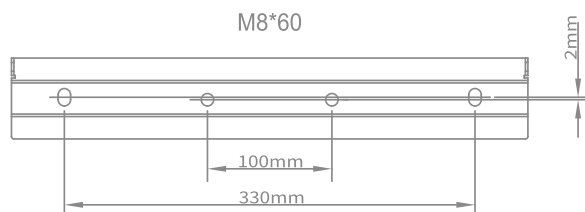
Minimum mounting distance between Battery pack and equipment:



Installation Procedure

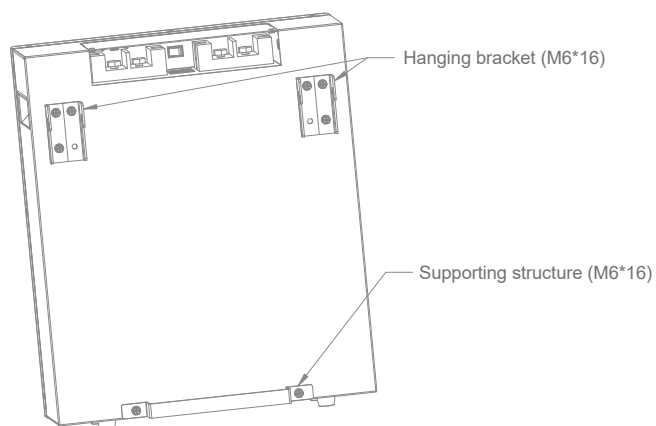
STEP 1

Drill the hole with an 10mm drill bit as follows and fix the wall bracket to the wall.



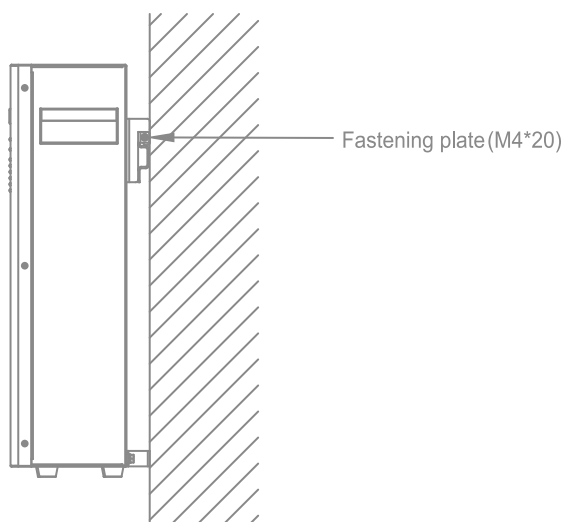
STEP 2

Install the hanging bracket.



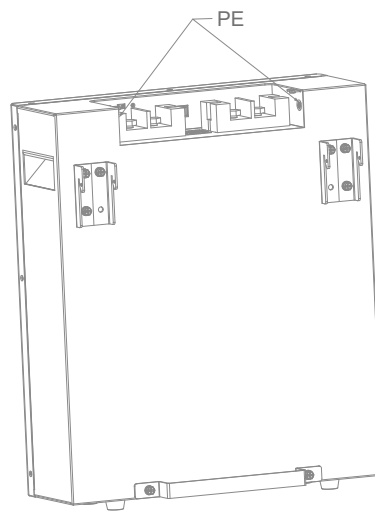
STEP 3

Hang SUN-BATT-5.12 Ecco on the wall bracket and tighten it.



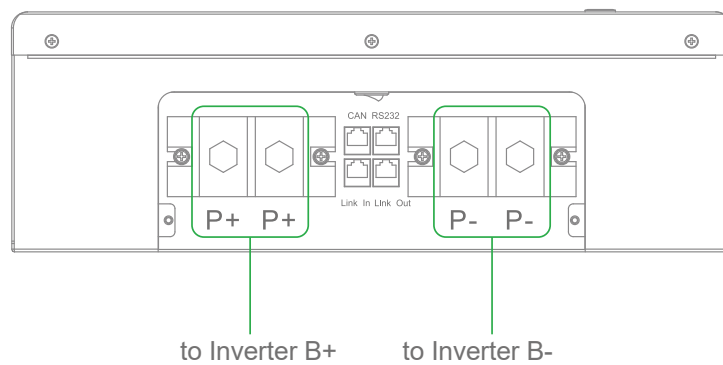
STEP 4

Connect to ground.



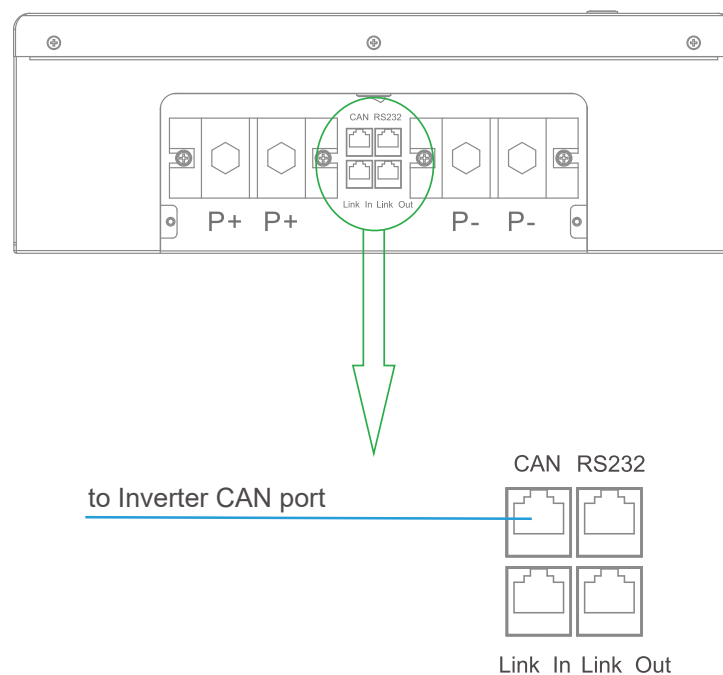
STEP 5

Connect power cable.



STEP 6

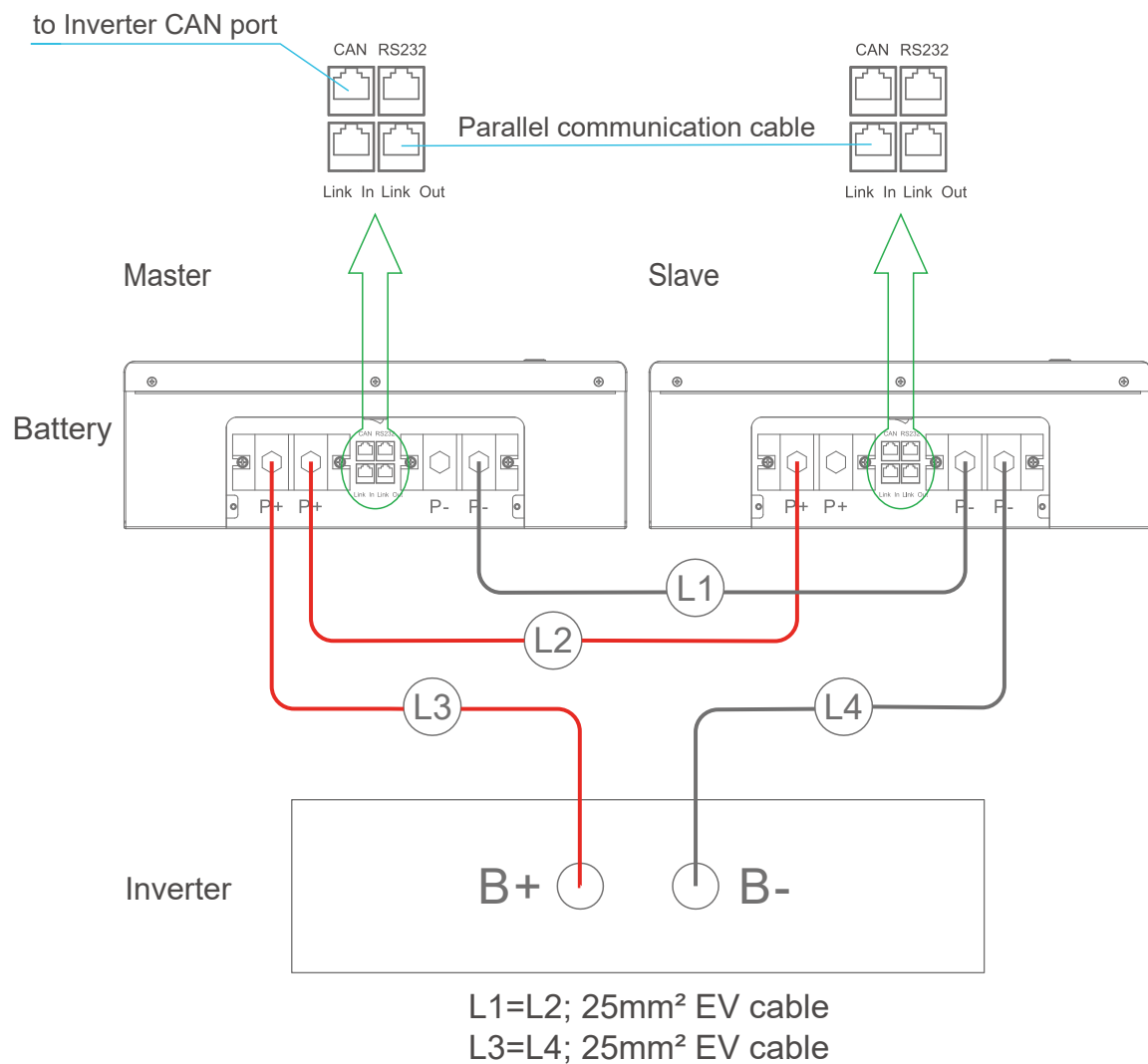
Connect communication cable.



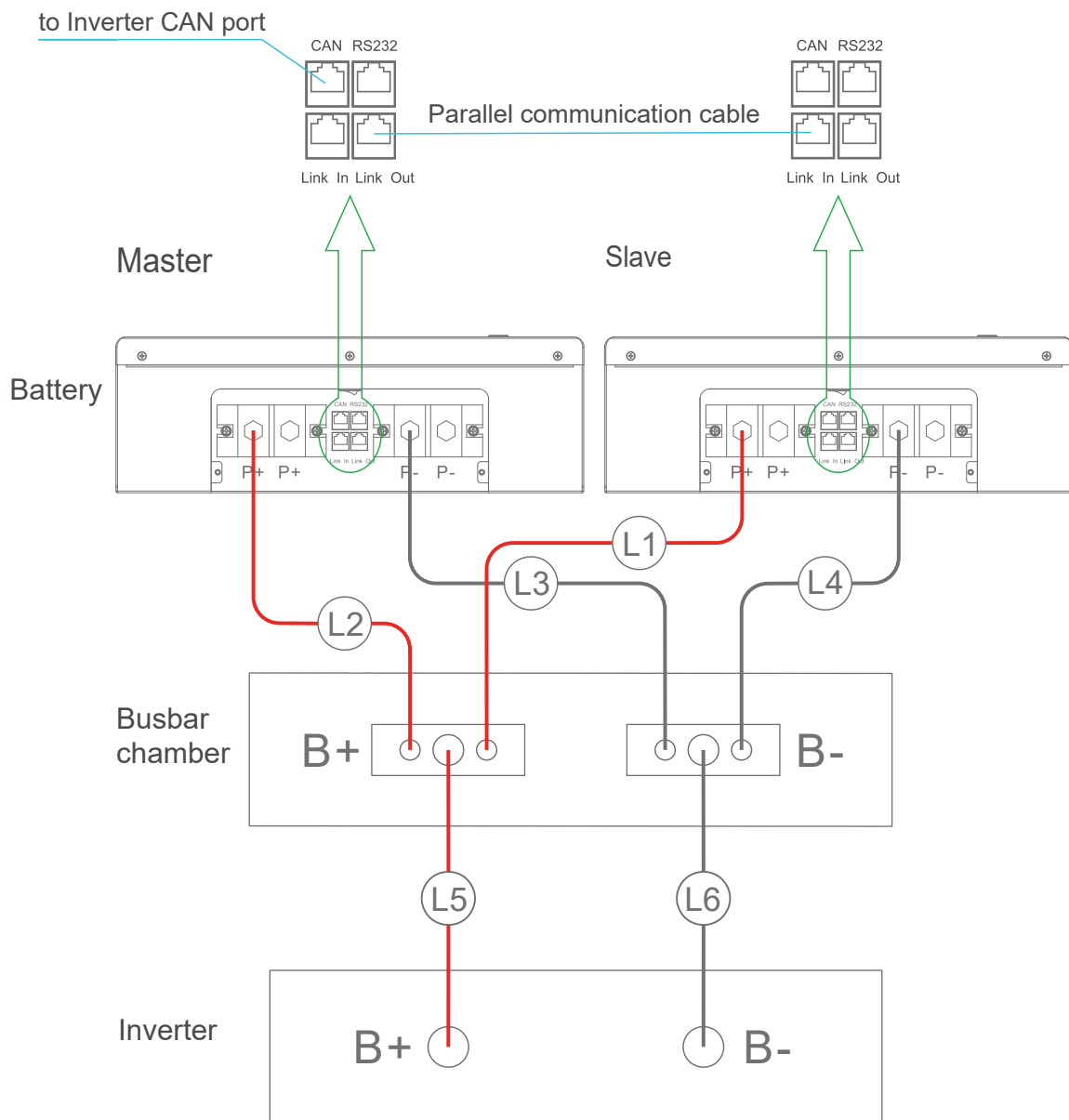
STEP 7

When multiple batteries are connected in parallel, follow the following wiring mode.

Scheme One (Inverter Power $\leq 5\text{KW}$)



Scheme Two (Inverter Power > 5KW)



L1=L2=L3=L4; 25mm² EV cable
L5=L6; 50mm² EV cable

MAINTENANCE

Recharge Requirements During Normal Storage

Battery should be stored in an environment with temperature range between -10°C ~ $+45^{\circ}\text{C}$, and maintained regularly according to following table with 0.5C (50A) current till 40% SoC after long storage time.

Recharge Conditions When In Storage			
Storage Environment Temperature	Relative Humidity of Storage Environment	Storage Time	SOC
Below -10°C	/	prohibit	/
$-10\sim 25^{\circ}\text{C}$	5%~70%	≤ 12 months	$30\%\leq \text{SOC}\leq 60\%$
$25\sim 35^{\circ}\text{C}$	5%~70%	≤ 6 months	$30\%\leq \text{SOC}\leq 60\%$
$35\sim 45^{\circ}\text{C}$	5%~70%	≤ 3 months	$30\%\leq \text{SOC}\leq 60\%$
Above 45°C	/	prohibit	/

Recharge Requirements When Over Discharged

Over discharged (90% DoD) Battery should be recharged according to following table, otherwise over discharged Battery will be damaged.

Recharge conditions when Battery is over discharged		
Storage Environment Temperature	Storage Time	Note
$-10\sim 25^{\circ}\text{C}$	≤ 15 days	Battery Pack disconnected from Inverter
$25\sim 35^{\circ}\text{C}$	≤ 7 days	
$35\sim 45^{\circ}\text{C}$	< 12 hours	Battery Pack connected to Inverter

BATTERY SYSTEM DISPOSAL

Disposal of the battery must comply with the local applicable disposal regulations for electronic waste and used batteries.

- Do not dispose of the battery system with your household waste.
- Avoid exposing the batteries to high temperatures or direct sunlight.
- Avoid exposing the batteries to high humidity or corrosive atmospheres.



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