SUN 🔁 SYNK®

SUN-BATT-5.32

USER MANUAL

WallMounted

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1. TECHNICAL DATA

Performance	
Nominal Voltage	51.2 Vdc
Nominal Capacity	104Ah
Battery Energy1	5320 Wh
Charge Voltage	55.68~56.16Vdc
Discharge Voltage	45.6-56.16 Vdc
Nominal Charge/Discharge Current	50A
Nominal Charge/Discharge Power	2500W
Max Charge / Discharge Current	100A
Max Charge / Discharge Power	5000W
Short Circuit Current	350A
Communication	
Display	SOC status indicator, LED indicator
Communication	RS232, RS485, CAN
General Specification	
Dimension(W×D×H mm)	450×150×533mm
Weight (Kg)	45kg
Installation	Floor stand or Wall mounted
Working Temperature2	-20°C ~ 60°C
Storage Temperature	≤25°C, 12 months
	≤35°C, 6 months
	≤45°C, 3 months

General Specification	
Operating / Storage / humidity	≤ 95%RH
Max Operating Altitude	≤2000m
IP Rating	IP20
Cell Technology	LiFePO$_4$, Lithium-iron Phosphate
Cycle life3	6000 Cycles @ 80% DOD / 25ºC / 0.5C, 60% EOL
Scalability	Max 8 batteries in parallel
Standard Compliance	
Certification	PACK:UN38.3, IEC62619, IEC61000, CELL:UN38.3, IEC62619, UL 1642, JET (more available upon request)
Ordering and Deliverable Part	
Product ordering part	SUN-BATT-5.32 battery SUN-BATT-5.32 parallel cable SUN-BATT-5.32 to PCS cable

PLEASE NOTE

Operating current derating according to cell voltage and battery temperature.

1. Test conditions: 100% depth of discharge (DoD), 0.2C rate charge & discharge at 25ºC;

2. Charge/discharge derating occurs when the operating temperature from -10ºC to 5 ºC & 45ºC to 55ºC.

3. Condition apply. Refer to SUN-BATT-5.32 Warranty Letter

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2. PRODUCT OVERVIEW

2.1. Brief Introduction
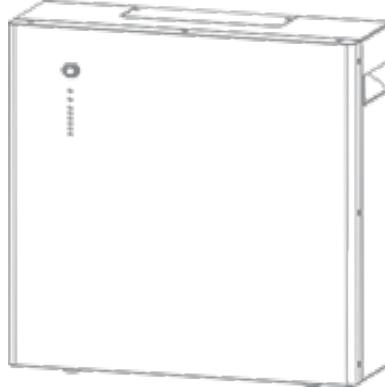
SUN-BATT-5.32 is a lithium battery with an operating voltage range between 45.6~56.16V. It is designed for residential energy storage applications and works together with a 48v battery hybrid inverter. SUN-BATT-5.32 is not suitable for supporting life-sustaining medical devices.

SUN-BATT-5.32 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-5.32 can be connected in parallel to expand capacity and power, 8 SUN-BATT-5.32 can be connected in parallel at most.

2.2. Interface Introduction

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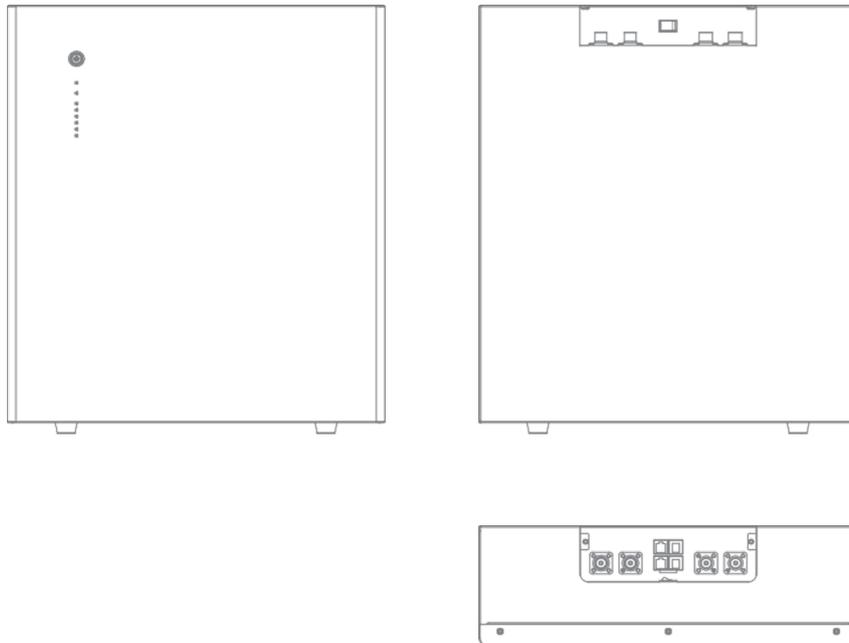
2.2.1. Switch ON/OFF

Switch ON

For single SUN-BATT-5.32, 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-5.32 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-5.32, switch OFF rocker switch.

For multiple SUN-BATT-5.32 in parallel, switch OFF rocker switch on MASTER battery first. Then switch OFF rocker switch on all slave batteries

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

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

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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

2.2.3. 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 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) 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

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3. INSTALLATION GUIDE

Installation flow chart

Start → Check Before Installation → Prepare Installation Tools → Determine The Installation Position → Install Wall Bracket → Install Battery → Electrical Connection → END
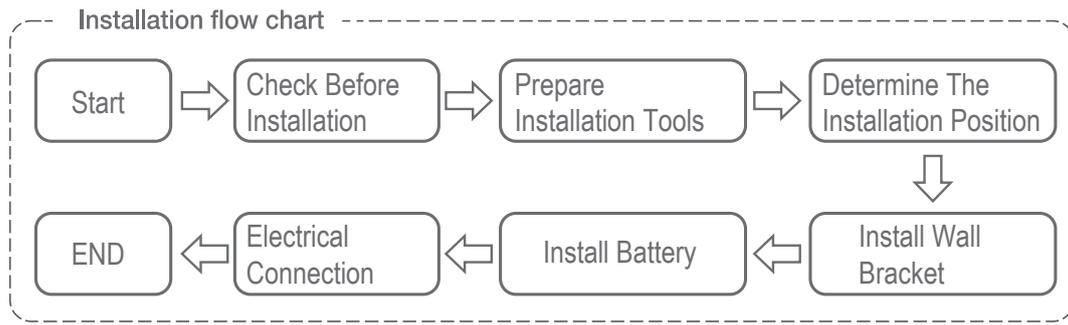
## 3.1. Checking Before Installation

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.

3.2. 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.

Carton

Hanging bracket

1 Hanging bracket

2W all bracket

Pearl wool

Battery

Pearl wool

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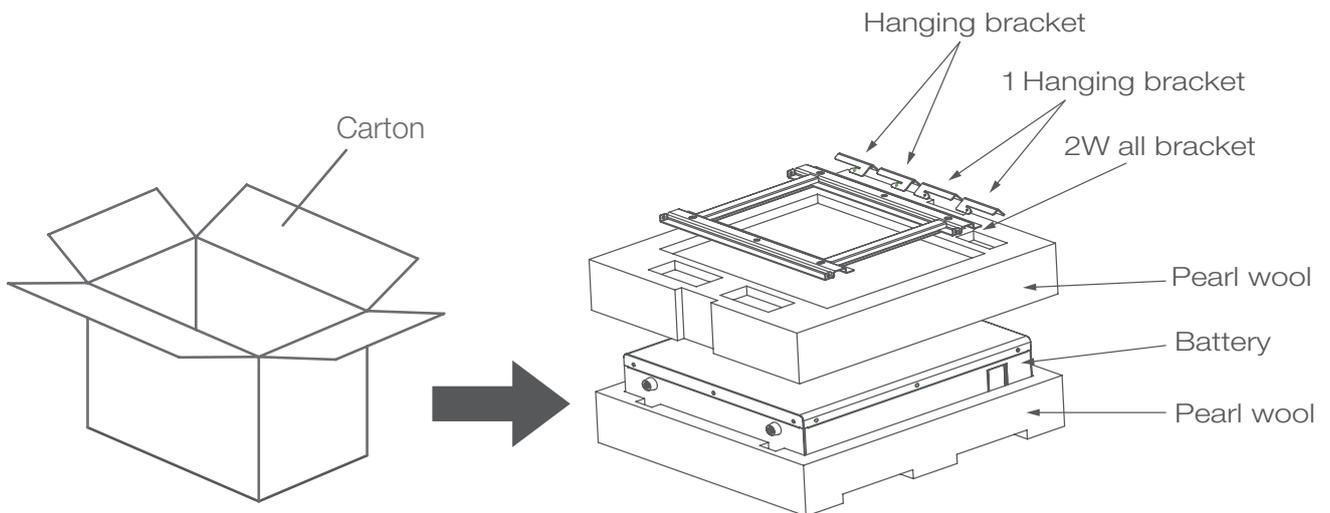
NO.	Pictures	Quantity	Description
1		1PCS	Battery
2		1PCS	Wall bracket
3		2PCS	Hanging bracket 1
4		2PCS	Hanging bracket 2
5		6PCS	M8*60
6		8PCS	M6*16
7		4PCS	M4*20
8		1PCS	M4*20
9		1PCS	Manual
10		1PCS	Test report
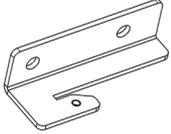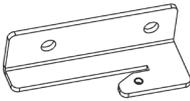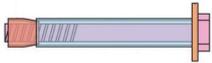
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3.3. Tools

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		
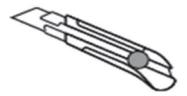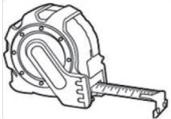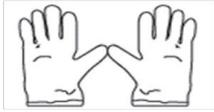
3.4. Installation Requirements

3.4.1. 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.

3.4.2. 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.

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3.5. Installation Instructions

3.5.1. Dimensions
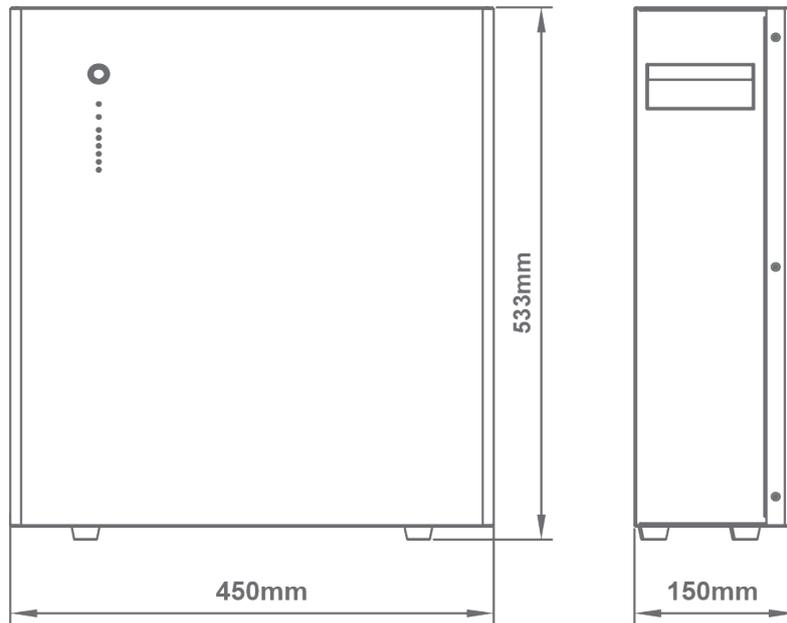
Minimum mounting distance between battery pack and equipment:
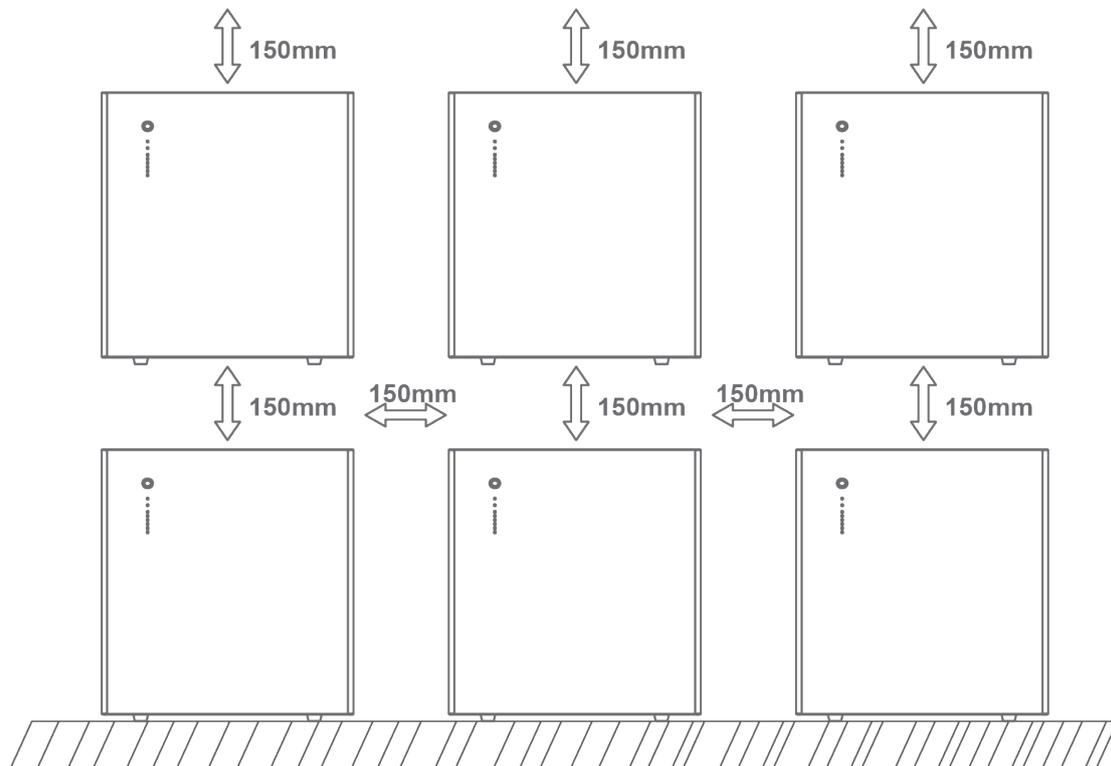
3.5.2. Installation Procedure

STEP 1

Drill the hole with an 10mm drill bit as follows and fix the wall bracket to the wall.
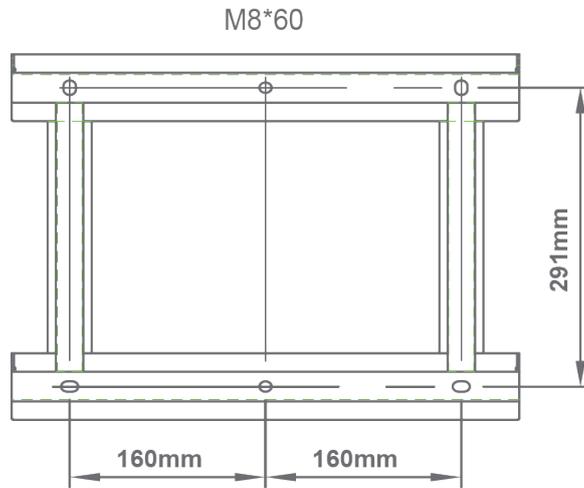
**STEP 2**

Install the hanging bracket.
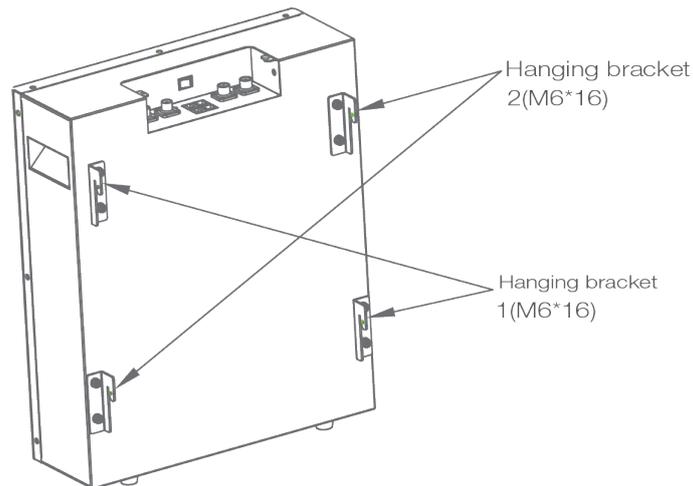
STEP 3

Hang SUN-BATT-5.32 on the wall bracket and tighten it.

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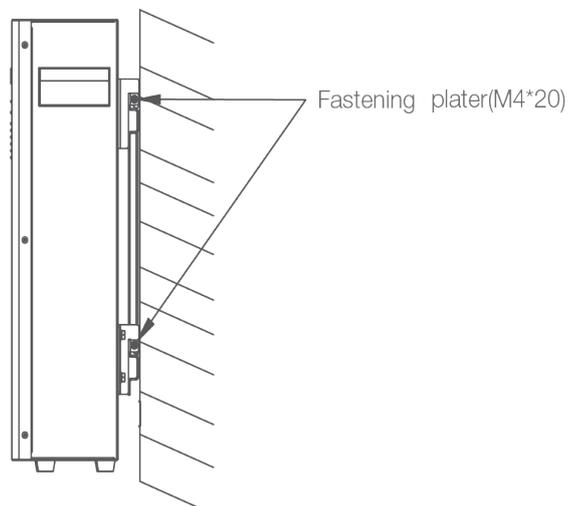
STEP 4

Connect to ground.

PE
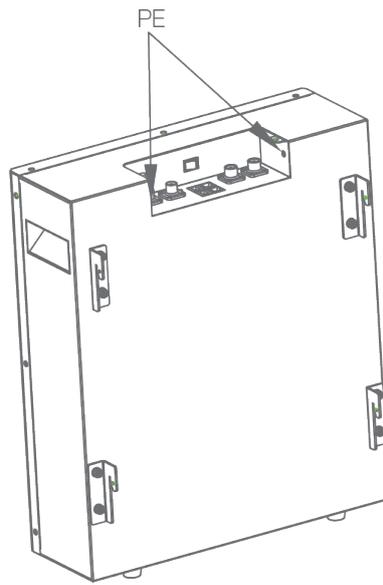
STEP 5

Connect power cable.

to isolate device

STEP 6

Connect communication cable.

to communication port

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STEP 7

Connect communication cable.

MASTER   to communication port   SLAVE

to isolate device   to isolate device

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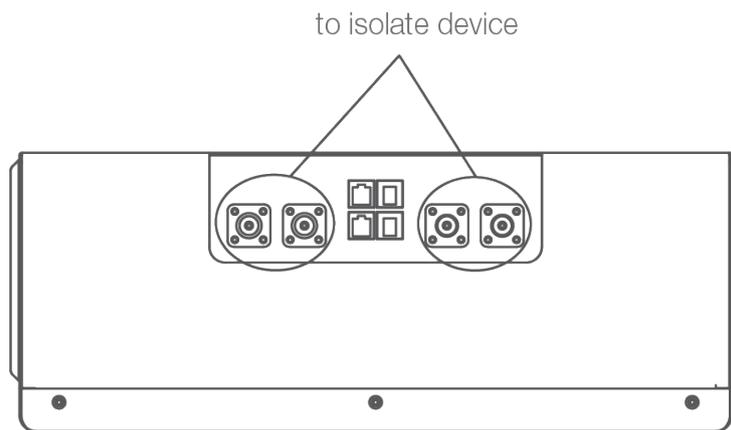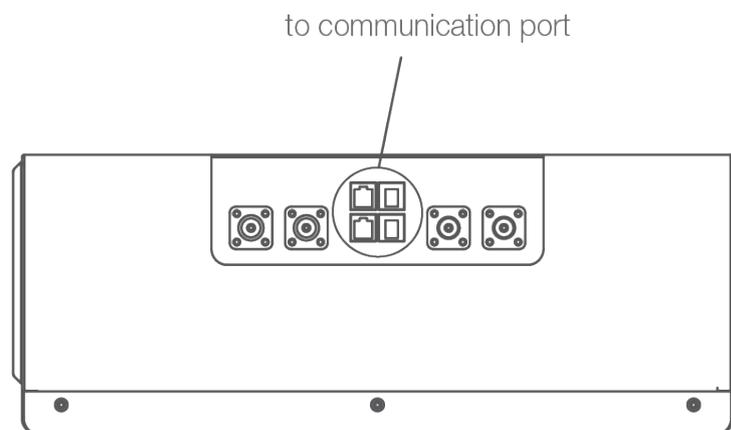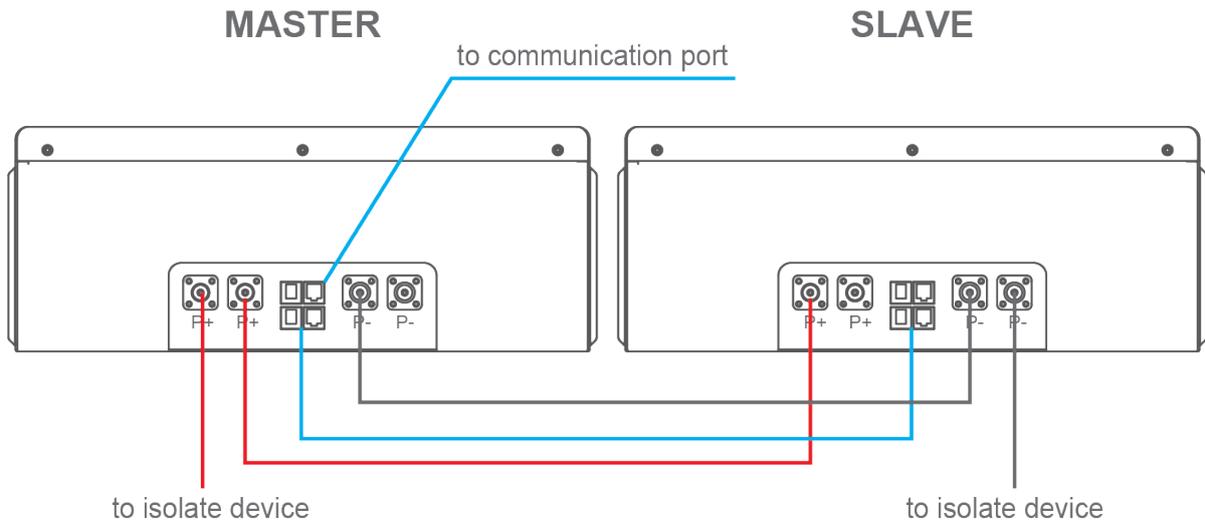
4. BATTERY POWER AND COMMUNICATION CONNECTIONS

4.1. Parallel Cascade Connection

Applicable scenario:

- PCS with 100A charge/discharge current connect to SUN-BATT-5.32.

4.1.1. Power Cable Wiring Instructions

Each SUN-BATT-5.32 has two pairs of power cable terminals, two P+, and two P-. The connec- tion terminals of each pair have the same function.

Single Module

In a single module application, any of the terminals of each pair can be used.

Parallel System

Multiple batteries can be connected in parallel to expand the capacity and power. When using multiple bat- teries in parallel, one will operate as a master and the others as slaves. One of the **Master** pack P+ terminals should connect to the PCS, and the other should connect to another battery for capacity expansion.

One of the P- terminals of the last **Slave** pack should connect to PCS, and the other should connect to another battery for capacity expansion.

For the other **Slave** packs, each P terminal should be connected to another battery's terminal.

PLEASE NOTE

The connection to the protection devices should use the P+ terminal from the Master pack and the P- terminal from the last Slave pack.
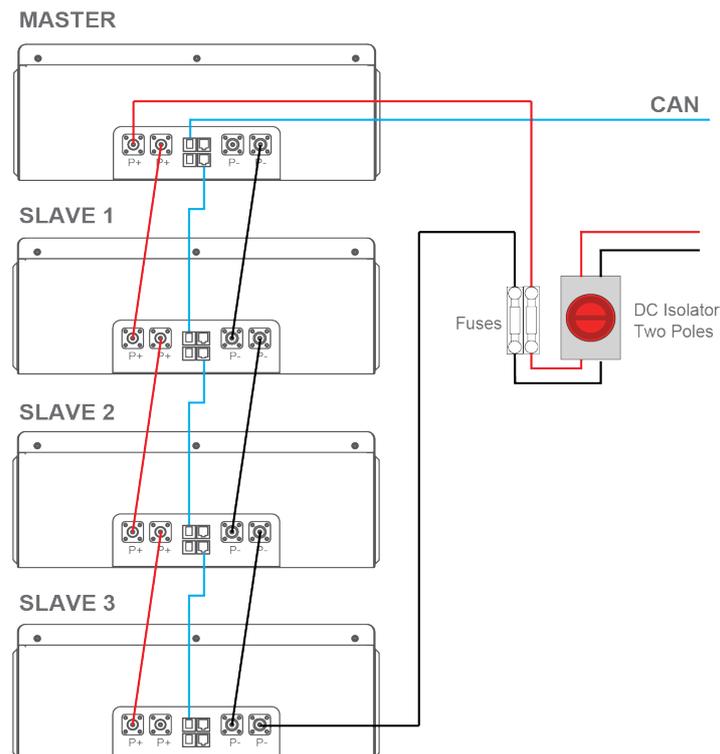
4.1.2. Communication Cable Connections

The Master battery can automatically identify the Slaves batteries connected in parallel using its internal software control. The communication terminals Port In and Port Out (RJ45 port) are integrated with the signal for automatic coding function.

PLEASE NOTE

All parallel power cables should be of the same length.

The following describes the connections of a system with four batteries packs, one Master, and three Slaves.

- The **CAN** communication port of the **Master pack should connect to PCS**;
- Port In from the Master pack should not be connected;
- The Port Out from the master PACK should connect the Port In of the first slave PACK using a parallel communication wire;
- The Port Out of the first Slave pack should connect to the Port In of the second Slave PACK;
- Following the same pattern, the Port Out of the second Slave pack should connect to the Port In of the third Slave PACK;
- The Port Out of the third and last slave PACK should not be connected.

4.2. Busbar Connection

Applicable scenario:

- PCS with 200A charge/discharge current connect to SUN-BATT-5.32.

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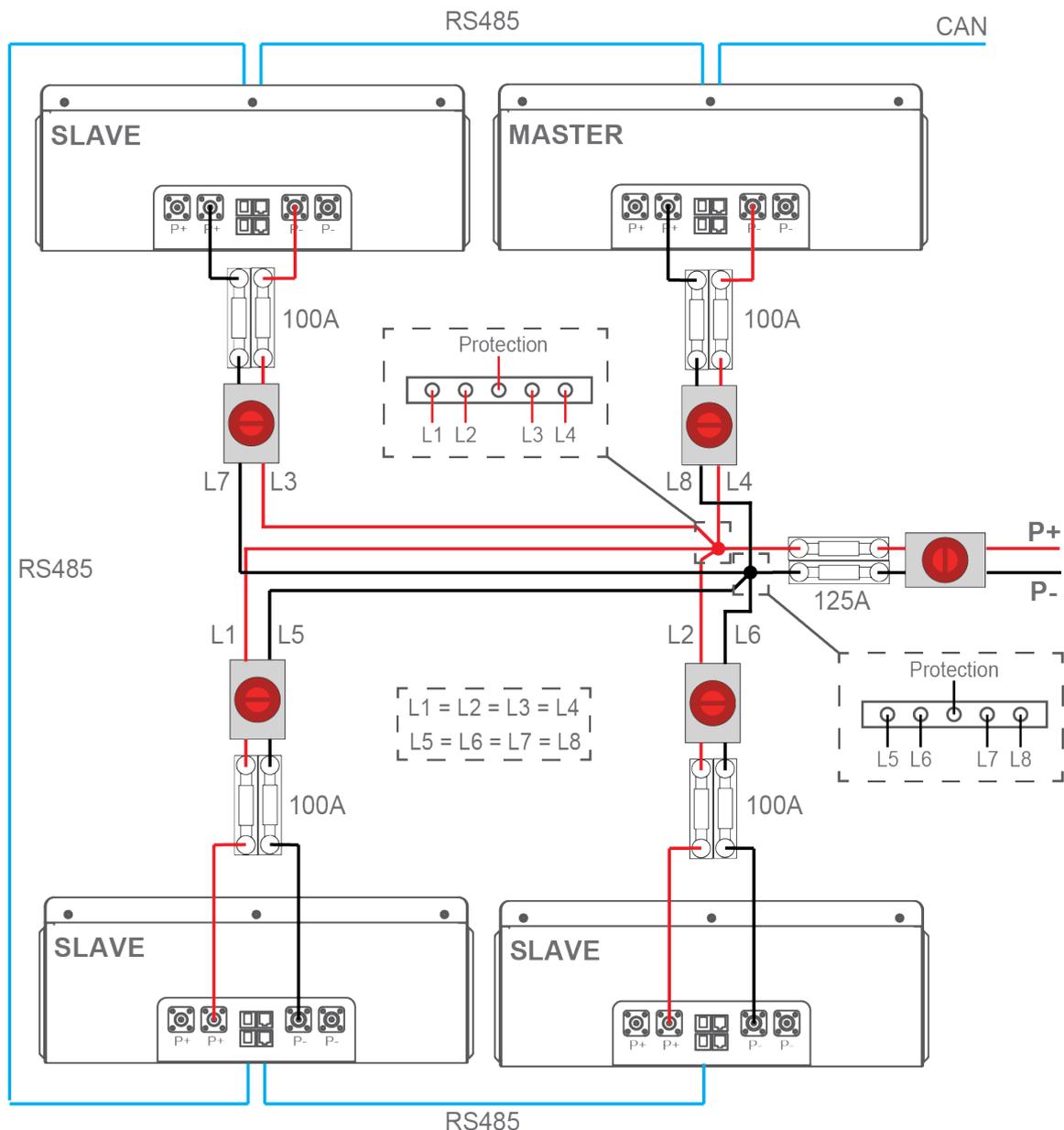
PLEASE NOTE

All parallel power cables should be of the same length:

(L1 = L2 = L3 = L4 = L5 = L6 = L7 = L8)

- You are advised to use the EV power cables with minimal size of 25 mm2 or 3AWG (600V, 125A) and length min.1500mm.

- The P+ and P- power line between the busbar and the PCS should be able to support 200A rated current, You are advised to use the EV power cable with size min. 50 mm2 or 0AWG (600V, 210A).

- Before assembling Power cable, label the cable polarities correctly to ensure correct cable connections and identification.

- The power cables installation and connection must be carried out by trained professionals.

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5. MAINTENANCE

5.1. 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 following table with 0.5C (25A) 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	/
-10~25°C	5%~70%	≤12 months	30%≤SOC≤60%
25~35°C	5%~70%	≤6 months	30%≤SOC≤60%
35~45°C	5%~70%	≤3 months	30%≤SOC≤60%
Above 45°C	/	prohibit	/

5.2. 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
-10~25°C	≤15 days	Battery Pack disconnected from PCS
25~35°C	≤7 days	Battery Pack disconnected from PCS
35~45°C	<12 hours	Battery Pack connected to PCS

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