



Only qualified and trained electrical technicians are allowed to install the device.

FUSION™
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Powerbank-A User Manual

Version:V1.0

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Preface

This users manual describes the Powerbox-A in terms of basic specification, installation, electrical connections, functions, maintenance, and troubleshooting. Please read this document through before installing and operating it.

● NOTE





Depending on different contract, product version and market region, details may appear slightly different.

⚠ WARNING

Only qualified and trained electrical technicians are allowed to install the device.

Symbol Conventions

Please pay particular attention to the information provided by the following symbol.

Symbol	Description
	Indicates a hazardous situation which, if not avoided, could result in injury or death
	Indicates a hazardous situation which, if not avoided, could result in minor injury or damage to the equipment
	Indicates potentially hazardous situations which, if not avoided, could cause damage to the battery, loss of data, or impairment of performance. NOTICE is used to address practices not related to personal injury
	Indicates important supplements that leads to the best result, but is not safety or damage related

1.SAFETY INSTRUCTIONS

Reminded

WARNING

Do not expose cable outside.

CAUTION

- Do not connect Powerbank-A with PV solar wiring directly.
- Do not use cleaning solvents to clean the Powerbank-A.

NOTICE

- If the Powerbank-A is stored for long time , it is required to charge them every six months, and the SOC should be no less than 80%.
- Powerbank-A needs to be recharged within 12 hours, after fully discharged.

NOTE

Please contact the supplier within 24 hours if there is something abnormal.

Before Connecting

WARNING

It is prohibited to connect the Powerbank-A and AC power directly.

CAUTION

- The embedded BMS in the battery is designed for 48VDC, please DO NOT connect battery in series.
- Before installation, be sure to cut off the grid power and make sure the battery is in the turned-off mode.
- Wiring must be correct, do not mistake the positive and negative cables, and ensure no short circuit with the external device.

NOTICE

- It is prohibited to connect the battery with different type of battery.
- Keep the battery away from water and fire.

NOTE

- After unpacking, please check product and packing list first, if product is damaged or lack of parts, please contact with the local retailer.
- Please ensure the electrical parameters of battery system are compatible to related equipment.

In Using

WARNING

In case of fire, only dry powder fire extinguisher can be used, liquid fire extinguishers are prohibited.

CAUTION

If the Powerbank-A needs to be moved or repaired, the power must be cut off and the Powerbank-A is completely turned off.

2.PRODUCT OVERVIEW

2.1 Brief Introduction

Powerbank-A is specially tailored for energy storage system, it offers a greater efficiency, higher reliability, intelligent battery management system, intelligent battery monitoring system, long lifespan to your solar energy backup.

Powerbank-A is ideal for off-grid and hybrid applications, offering a solution that's built for the long run and has the ability to be deployed and used in a variety of scenarios, for instance, residential, farm, factory, data room, holiday hotel, etc.

2.2 Features

- ▶ Lithium iron phosphate chemical material, which endows battery safer performance, longer service life and superior energy density.
- ▶ The fully intelligent battery management system (BMS) protects battery pack and cells from over-current, under-voltage, over-voltage, impulse current, short circuit, and severe temperature damage, which further increases the safety performance of battery.
- ▶ The intelligent monitoring system allows you to monitor and download real time data of your battery in on your computer.
- ▶ The cell balancing function greatly extends the service life of the battery pack.
- ▶ Without any memory effect, you can deep charge and release your battery.
- ▶ With tiny self-discharge consumption, the battery will automatically enter low power consumption mode if you don't use it for more than 24 hours.
- ▶ Environmentally friendly. No heavy metals and no harmful substances, battery meets ROHS requirements.
- ▶ Scalability. Multiple battery packs can be used in parallel, which is suitable for any scenario that requires greater power backup.
- ▶ Maintenance-free. Battery requires no active maintenance, a one-time purchase guarantees longevity (assuming you're using a properly fitted battery and following usage guidelines).
- ▶ Comply with CE, ROHS, UN38.3 requirements.
- ▶ Flexible configurations allow parallel of multi battery for longer standby time.

2.3. Specifications Performance

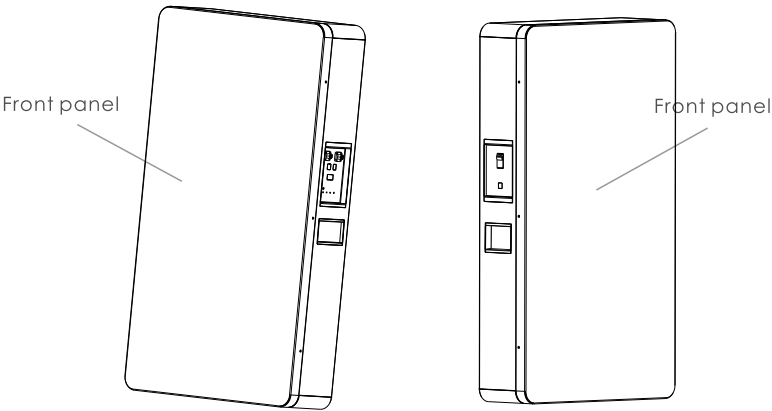
2.3.1 Powerbank-A Parameters

Table 2-1 Powerbank-A Parameters

Model	YL-Powerbank-A				
Battery Type	LiFePO4				
Nominal Voltage[V]	48				
Nominal Capacity[Ah]	50	75	100	150	200
Nominal Energy[kWh]	2.4	3.6	4.8	7.2	9.6
Max. output Power[kW]	2.4	3.6	4.8		
Net Weight[kg]	75	85	95	135	145
Dimension [mm]W*D*H	635*1170*210				
Working Voltage[V]	40~54				
Operating Temperature Charging[°C]	0~55				
Operating Temperature Discharging[°C]	-20~60				
Max. Charge Current[A]	50	75	100		
Max. Discharge Current[A]	50	75	100		
Recommend Charge Current[A]	10	15	20	30	40
Charge Mode	CC-CV				
Communication	CAN/RS485/RS232				
IP Level	IP30				
Temperature & Period Storage[°C]	Less than 6 Month@-10°C~35°C				
	Less than 3 Month@-10°C~45°C				
	Less than 1 Month@-20°C~45°C				

2.3.2.Interface Definition

a) The Powerbank-A appearance is shown in below figure as a reference



b) The Powerbank-A dimension is shown in below figure as a reference

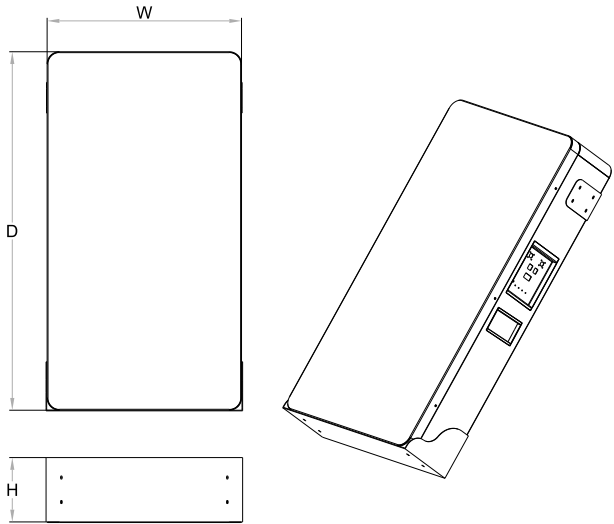


Table 2-2 Powerbank-A Dimensions

POWERBANK	
Series	POWERBANK-A
Energy[kWh]	2.4/3.6/4.8/7.2/9.6
Width[mm]	635
Height[mm]	210
Depth[mm]	1170

c) Bottom area and all the interfaces is shown in below figure as reference

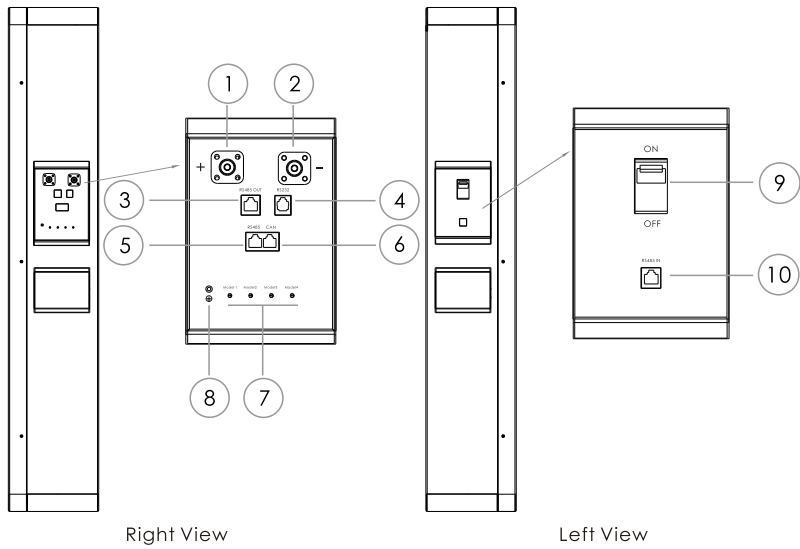


Table 2-3 Powerbank-A Interface Definition

No.	Items	Description
①	+ Power Terminal	The battery DC output positive pole, which is connected to the positive pole of the inverter through the cable
②	- Power Terminal	The battery DC output negative pole, which is connected to the negative pole of the inverter through the cable
③	Rs485 OUT	RJ45 Port,Used for communication in parallel and connecting to the next POWERBANK-A
④	RS232	RJ11 Port,used battery condition monitoring or manufacturer to debug or service
⑤	RS485	RJ45 Port,used to connect to the inverter's RS485 port
⑥	CAN	RJ45 Port,used to connect to the inverter's CAN port
⑦	Status Indicator Light	Indicate build-in different battery module status. Green light on: battery in normal status. Red light on: battery in alarm or protection status
⑧	Grounding Point	Safety
⑨	MCB	125A Breaker,ON/OFF,Protective circuit
⑩	RS485 IN	RJ45 Port,Used for communication in parallel and connecting to the previous Powerbank-A

Table 2-4 Powerbank-A LED Indicators Status(Install 4 batteries as an example)

Battery Status	Powerbank-A LED Indicators Status				Description
	Model 1	Model 2	Model 3	Model 4	
Shutdown	OFF	OFF	OFF	OFF	Batterirs&MCB OFF
Standby	OFF	OFF	OFF	OFF	MCB OFF
Nominal	●	●	●	●	Batterirs&MCB ON
Alarm	●	●	●	●	Alarm status
Protection	●	●	●	●	Protection status

● NOTE


Each indicator corresponds to the build-in battery.

Table 2-5 BMS Alarm&Protection List

Alarm	Protection
Cell Over-charge Voltage	Cell Over-charge Voltage
Cell Over-discharge Voltage	Cell Over-discharge Voltage
Pack Over-charge Voltage	Pack Over-charge Voltage
Pack Over-discharge Voltage	Pack Over-discharge Voltage
Over-current Charge	Over-current Discharge
Over-current Discharge	Over-current Discharge
Mos Over Temperature	Mos Over Temperature
Cell Charge Low Temperature	Cell Charge Low Temperature
Cell Charge Over Temperature	Cell Charge Over Temperature
Cell Discharge Low Temperature	Cell Discharge Low Temperature
Cell Discharge Over Temperature	Cell Discharge Over Temperature
Environment Low Temperature	Environment Low Temperature
Environment Over Temperature	Environment Over Temperature
	Short Circuit Protection
	Fault Protection

2.4 Label Description

2.4.1 Warning Nameplate





WARNING


CAUTION: Please read all safety precautions and users manuals before use or operation.


WARNING: Risk of Fire explosion or burns:


- High voltage, KEEP OUT.
- DO NOT short the battery terminals.
- DO NOT incinerate crush or disassemble.
- DO NOT over charge or over discharge.
- DO NOT reverse connections(polarity) from charge to battery.
- DO NOT operate battery beyond published voltage current and temperature limits.
























Table 2-6 Label Symbol

Symbol	Symbol Name	Symbol Description
	Warning	Be careful with your actions and be aware of the dangers
	Anti-electric Shock Warning	Powerbank-A voltage is higher than safe voltage, direct contact with electric shock hazard
	Beware Of Fire	Serious improper operation will cause Powerbank-A failure and cause fire
	View Manual	Read the user manual before using
	No Burning	Strictly prohibit all sources of fire
	Recyclable	After the Powerbank-A life is terminated, the battery can continue to be used after it recycled by the professional recycling organization and do not discard it at will
	Don't Throw Into The Trash Can	The scrapped battery cannot be put into the garbage can and must be professionally recycled

2.4.2 Technical parameter nameplate

1

2

3

Rechargeable Li-ion Battery System

Type

Powerbank-A-2.4



Powerbank-A-4.8

Powerbank-A-7.2



Powerbank-A-9.6

Nominal Energy	2.4kWh	4.8kWh	7.2kWh	9.6kWh
Nominal Voltage	48V	48V	48V	48V
Working Voltage	40-54V	40-54V	40-54V	40-54V
Charge Current	0-50A	0-100A	0-100A	0-100A
Discharge Current	0-50A	0-100A	0-100A	0-100A
Charge Temperature	0-55°C	0-55°C	0-55°C	0-55°C
Discharge Temperature	-20-60°C	-20-60°C	-20-60°C	-20-60°C

Certification & Safety Standard:CE/UN38.3/IEC62619/EN61000-3/EN61000-6/ROHS/MSDS

 UN 38.3  CE IEC62619

No.	Description
1	Trademark and product type
2	Important technical parameters of the product
3	Identification of the certification system that the product complies with

Symbol	Symbol Name	Symbol Description
	ROHS	The battery product meets Restriction of Hazardous Substances
UN 38.3	UN38.3	The battery product meets United Nations Manual of Tests and Standards for Transport of Dangerous Goods
	MSDS	The battery product meets Material Safety Data Sheet
CE	CE	The battery product meets European directive requirements
IEC62619	IEC62619	The battery product meets IEC requirements

3. INSTALLATION(9.6kwh as an example)

⚠ WARNING

Only qualified and trained electrical technicians are allowed to install the device.

3. 1 Checking Before Installation

3.1.1Accessories Checking

- When the equipment arrives at the installation site, loading and unloading should be carried out according to the rules and regulations, so as to prevent from being exposed to sun and rain.
- Before unpacking, the total number of packages shall be indicated according to the shipping list attached to each package, and the case shall be checked for good condition.
- In the process of unpacking, handle with care and protect the surface coating of the object.
- Open the package, the installation personnel should read the technical documents, verify the list, according to the configuration table and packing list, ensure objects are complete and intact, if the internal packing is damaged, should be examined and recorded in detail.

● NOTE

Some accessories are in Powerbank-A and need to be unpacked for inspection.


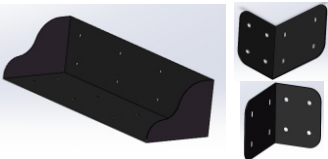




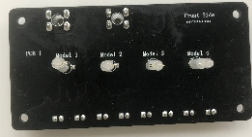









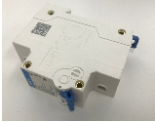

● NOTE

Please read all manual before installation and operation.

Table 3-1 Accessories needed in the R48100 battery crate

 <p>R48100 Battery X2 --9.6 kwh in parallel</p>	 <p>Power cable - X1 --Black cable,Length 1500mm (Connect mast battery B- with negative bus connector)</p>	 <p>Power cable + X1 --Red cable,Length 950mm (Need to be cut into 0.95m and 0.55m)</p>
 <p>Battery parallel power cable X2 --Red Cable*1,Length 900mm (Connector terminals at both ends) --Black Cable*1,Length 900mm (Connector terminals at both ends)</p>	 <p>Parallel communication cable X1 --Length 1000mm,RJ45 connector</p>	 <p>R48100 user manual X1</p>


Table 3-2 Accessories needed in the Powerbank-A crate

	 <p>Powerbank-A X1: --Powerbank-A cabinet*1; --Bottom bracket*1 --Upper bracket*2</p>	 <p>Bus connectorsX2: --Positive connector (Red)*1 --Negative connector(Black)*1</p>
 <p>M4*12mm flat head bolts X8: --Fix connector bolts</p>	 <p>M5*20mm combined screws X2: --Fix the battery power cable with connector screws</p>	 <p>PCB 1 Power Supply CableX2: --Black cable*1, Length 200mm (Connect PCB1 B- with negative bus connector) --Red Cable*1, Length 900mm (Connect PCB1 B+ and MCB ON)</p>
 <p>PCB 1 X1: --4 LED display lights, showing the status of the 4 module batteries</p>	 <p>PCB 2 X1: --Battery communication transfer PCB (4 communication ports on the front and reverse)</p>	 <p>PCB 3 X1: --most battery RS485 IN communication transfer PCB (1 communication port on the front and reverse)</p>
 <p>Dry contact communication line X2: --Length 1000mm(One end is connected to the battery dry contact, and the other end is connected to the socket on the reverse of PCB 1)</p>	 <p>Ground cables X2: --Length 600mm(One end is connected to the battery grounding port, and the other end is connected to the Powerbank-A grounding port)</p>	 <p>M3*8mm combined screws X10: --Fix PCB screws (PCB 1 X 4; PCB 2 X 4; PCB 3 X 2)</p>
 <p>M3*6mm combined screws X2: --Fix PCB 1 B+/B- Screws (PCB 1 reverse side B+/B-)</p>	 <p>Protective ringX 5: --Φ 25mmX 4 (internal baffle); --Φ 10mmX 1 (internal baffle)</p>	 <p>M5*16mm combined screw X 1: --Fix ground screw</p>
 <p>Yellow Epoxy Board X2: --440*485*0.5mm (Placed at the bottom of the Powerbank-A)</p>	 <p>Micro Circuit Breaker X 1: --125A</p>	 <p>M3*30mm bolts X 2: --Fix the MCB bolts</p>

 <p>Battery communication cables X5: --RS232,length 1000mm --RS485 IN,length 500mm --CAN,length 1000mm --RS485,length 1000mm --RS485 OUT,length 1000mm,</p>	 <p>M4*10mm combined screws X6: --Fix hold-down strip screws</p>	 <p>M3*8 bolts X10: --Fasten the upper and lower covers bolts</p>
 <p>Nylon cable ties X10: --Length 150mm(Fix cable)</p>	 <p>Rubber feet X4: --Black,Used for floor installation</p>	 <p>M10*30mm bolts X4: --Fix rubber feet bolts</p>
 <p>M10*20mm combined screws X4: --Fix bottom bracket screws</p>	 <p>Positioning cardboard X1: --Positioning expansion bolt</p>	 <p>M6*14mm combined screws X8: --Fix upper bracket screws</p>
 <p>M8*60mm expansion screws X16: --8 PCS used to fix the upper bracket with the wall) --8 PCS used to fix the bottom bracket with the wall)</p>	 <p>Powerbank-A user manual X1</p>	 <p>Spare Bolts: --Expansion screws M8*60mmX4 --Fix rubber feet M10*30mmX2 --Fix connector M4*12mmX2 --Fix PCB M3*8mmX2 --Fix PCB 1 M3*6mmX1</p>

3. 1.2 Tools Needed

Table 3-3 Tools and meters that may be used

 <p>Tape measure</p>	 <p>Cable cutters</p>	 <p>Mark pen</p>
 <p>Electric screwdriver</p>	 <p>Screwdriver</p>	 <p>Socket wrench</p>
 <p>Scissors</p>	 <p>Multimeter</p>	 <p>Impact drill</p>
 <p>Insulating tape</p>	 <p>Hammer</p>	

3.2 Safety Requirement

The system can only be installed by personnel who have been trained in the power supply system and have sufficient knowledge of the power system; The safety regulations and local safety regulations including but not limited should always be followed during the installation.

- All circuits connected to this power system with an external voltage of less than 48V must meet the SELV requirements defined in the IEC60950 standard.
- During operation, make sure the power system is not charged and the battery should be turned off.
- Distribution cable wiring should be reasonable and has the protective measures to avoid touching these cables while operating power equipment.
- The Powerbank-A&batteries may cause electric shock and high short-circuit current,before installation,please remove all watches,rings and other metal personal belongings,only use tools with insulated handles for installation.
- When installing the Powerbank-A, must wear the protective items below:



Insulated gloves



Safety goggles

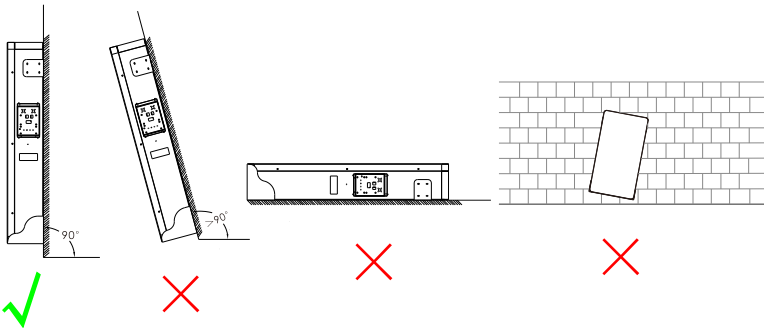


Safety shoes



Mask

- The Powerbank-A should be installed vertically on the wall.Please refer to below figure:



- Fire fighting equipment should be provided near the equipment, such as portable dry powder fire extinguisher.
- Automatic fire fighting system shall be provided for the case where necessary.
- No flammable, explosive and other dangerous articles are placed beside the Powerbank-A.

➤ Make sure the batteries is turned off before installation.

➤ Make sure the MCB is turned off before installation.

3.3 Electronic Checking

➤ Check the inverter connected with batteries are right and in good conditions.

➤ Check the position of the inverter interface, check and confirm that the output voltage is within the range shown in Table 2-1.

➤ Check the maximum operating current of the inverter and ensure that the current is less than the maximum discharge current of the product shown in Table 2-1.

3.4 Environmental Requirements

➤ Working temperature: $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$.

Charging temperature range is $0^{\circ}\text{C} \sim +55^{\circ}\text{C}$;

Discharging temperature range is $-20^{\circ}\text{C} \sim +60^{\circ}\text{C}$

➤ Storage temperature: $-10^{\circ}\text{C} \sim +45^{\circ}\text{C}$.

➤ Relative humidity: 5% ~ 85%RH.

➤ Elevation: no more than 4000m.

➤ Operating environment: no conductive dust and corrosive gas sites.

➤ Installation location should be away from the sea to avoid brine and high humidity environment.

➤ The ground is flat and level.

➤ There is no flammable explosive near to the installation places.

➤ The optimal ambient temperature is $15^{\circ}\text{C} \sim 35^{\circ}\text{C}$.

➤ Keep away from the dust and messy zones.

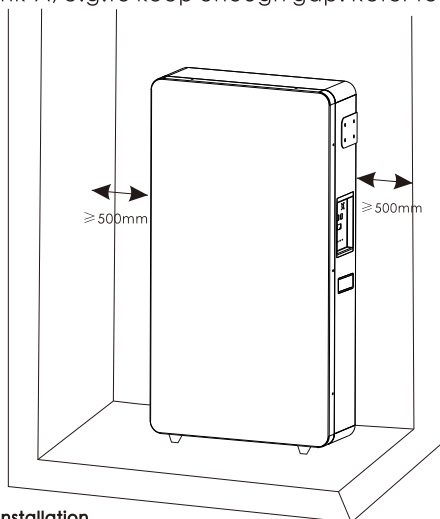
➤ Keep away from the area children can reach.

⚠ NOTICE

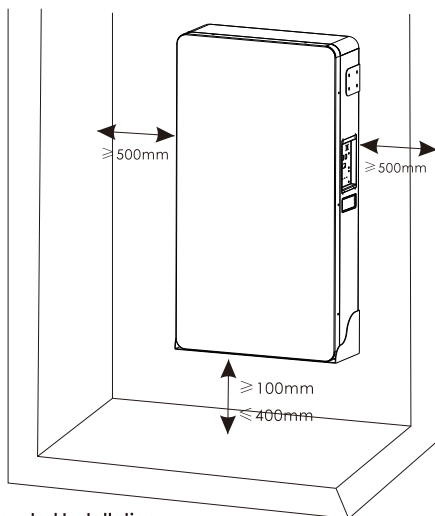
If the ambient temperature is out of the operating range, it will trigger the battery temperature protection function to turn off working. The optimal temperature range for the battery pack to operate is 15°C to 35°C . Frequent exposure to harsh temperatures may deteriorate the performance and life of the battery pack.

3.5 Space Requirements

Clearance Requirements: To ensure Powerbank-A working normally and easy to operate, there are requirements on available spaces of the Powerbank-A, e.g. to keep enough gap. Refer to below figure:



Floor Installation



Wall Mounted Installation

WARNING

- Please install the Powerbank-A out of the reach of children.
- Please make sure the wall thickness is over 80mm.

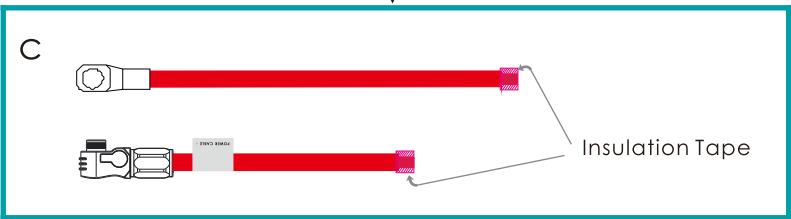
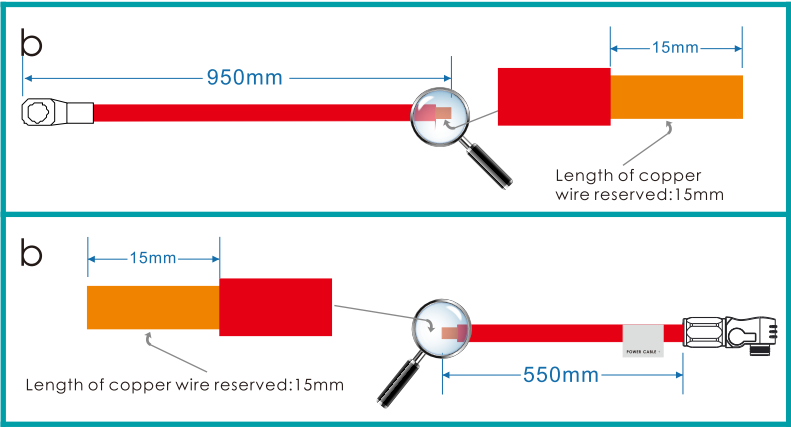
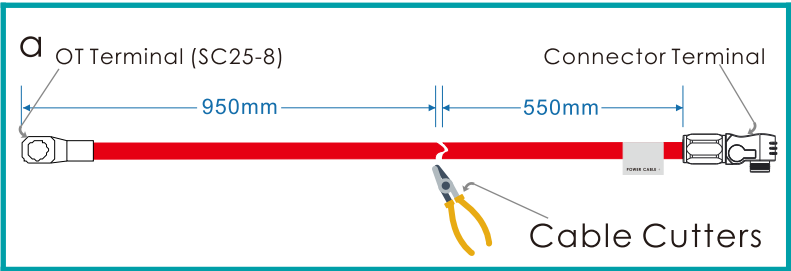
NOTICE

For easier installation, you can use Powerbank-A cabinet without batteries for trial installation.

3.6 Battery Installation(9.6kWh as an example)

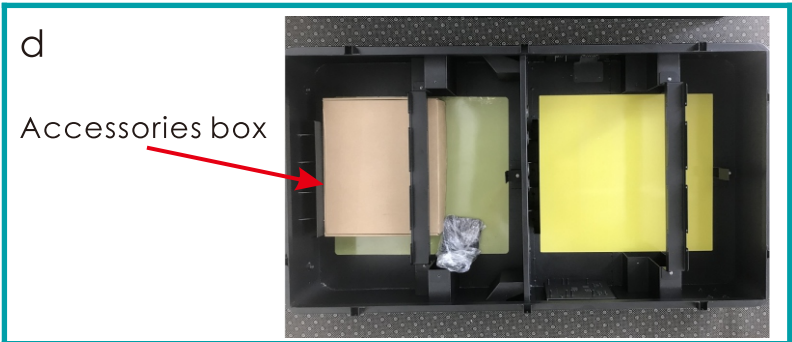
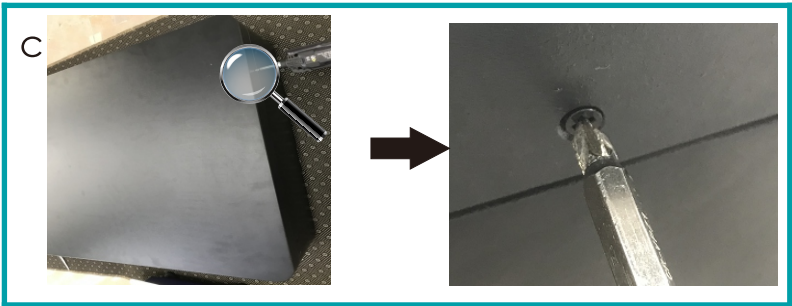
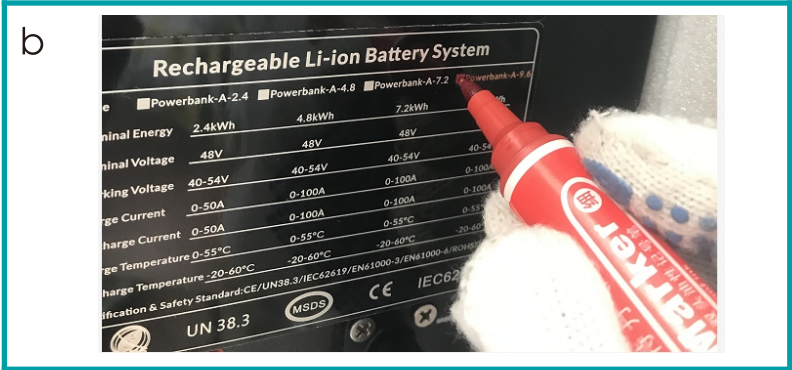
3.6.1 Cable Processing

- a) Take out the 1.5m red power cable + in the R48100 battery crate, mark it from OT terminal to 950mm with tape measure, and cut the cable at the mark with cable cutters.
- b) After obtaining two cables of different lengths, peel off the cable skin with wire clippers and reserve a copper wire length of 15mm.
- c) Cover the exposed copper wire with insulating tape and to be well kept.



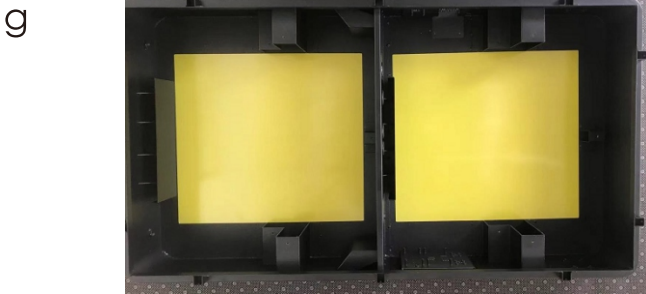
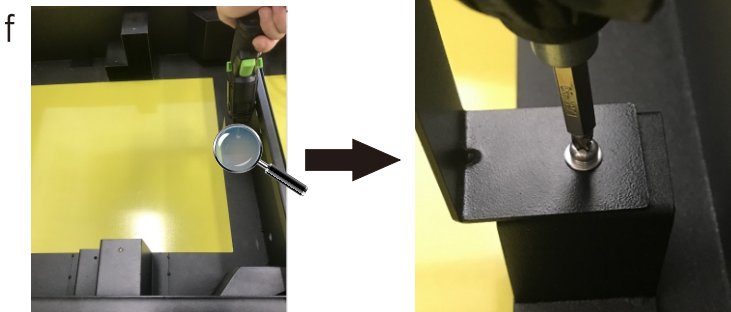
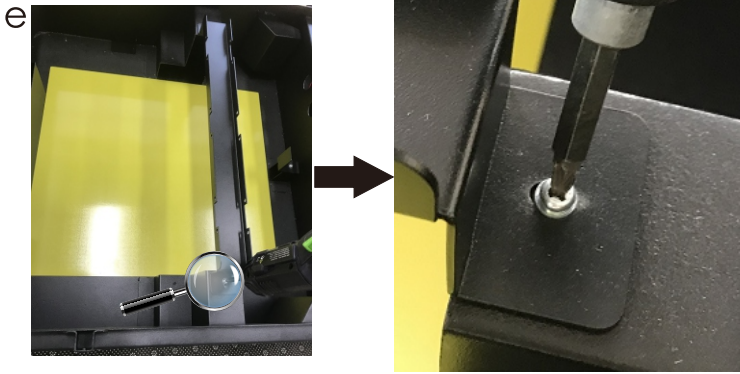
3.6.2 Disassembling the Powerbank-A

- a) After unpacking the carton, the bottom bracket & positioning cardboard & Powerbank-A need to be well kepted .
- b) Before disassembling the Powerbank-A, use a marker to fill in the nameplate type on the side of the Powerbank-A,as shown in Figure b.
- c) Use an electric screwdriver to unscrew the 10 bolts that fasten the upper and lower covers of the Powerbank-A,as shown in Figure c.
- d) Open the front panel of Powerbank-A. There are accessories box and other accessories in the Powerbank-A,as shown in Figure d.



NOTICE
All the accessories removed need to be well kepted and will be used later.

- e) Use an electric screwdriver to remove the 4 bolts used to fix the pressure strip,as shown in Figure e.
- f) Use an electric screwdriver to screw out the 2 bolts used for the fixing frame,as shown in Figur f.
- g) Take the accessories box and other accessories out of the box, leaving the yellow epoxy board,as shown in Figure g.



NOTICE

All the accessories removed need to be well kepted and will be used later.

3.6.3 Accessories installation

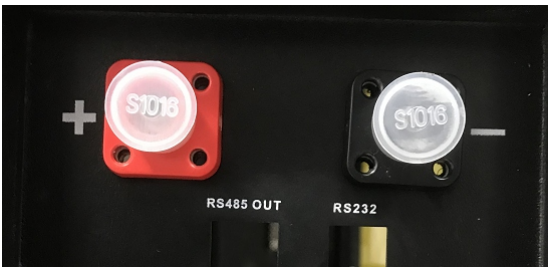
a) Install the positive and negative connectors.

The accessories used are as follows:

		
--Positive connector (Red)X1 --Negative connector(Black)X1	--M4*12mm Flat head bolts X8	--M5*20mm combined screws X2
		
--Black cable*1, length 200mm (Connect PCB1 B- and negative bus connector)	-- Black power cable -*1, length 1500mm(Connect battery B- and negative connector busbar)	--Red power cable+*1, length 950mm (Connect positive connector busbar and MCB ON)

The installation steps are as follows:

Step 1: Installation the positive and negative connectors at the corresponding panel holes, and pay attention to the placement direction of the back, as shown in the figure below:



Step 2: Use an electric screwdriver to fasten the M4 * 12mm flat head screw on the connectors, as shown in the figure below:



⚠ WARNING
The positive and negative connectors cannot be reversed.

⚠ NOTICE
The bolts need to be tightened.

Step 3: Connect the black power cable - OT terminal and black PCB 1 power supply cable OT terminal to the negative bus connector with M5*20mm combined screws, and tighten the screws, as shown in the figure below:



Step 4: Connect the red power cable + OT terminal to the positive bus connector with M5*20mm combined screws, and tighten the screws, as shown in the figure below:



WARNING

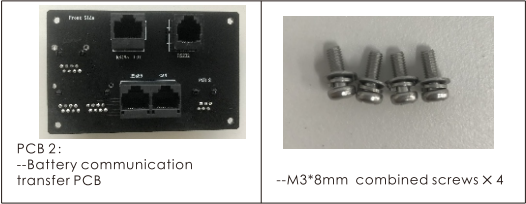
Please identify the cables carefully to avoid wrong connection.

NOTICE

The bolts need to be tightened.

b) Install the PCB 2.

The accessories used are as follows:

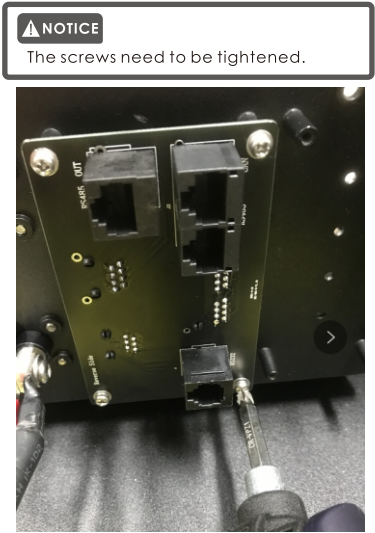


The installation steps are as follows:

Step 1: Confirm the front and reverse sides of PCB 2, with the front side on the outside of the Powerbank-A panel, as shown in the figure below;

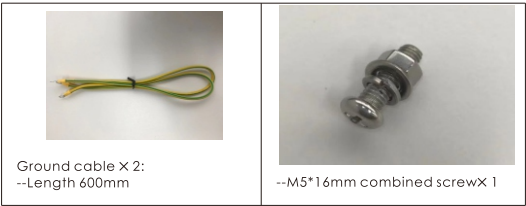


Step 2: Use an electric screwdriver to fasten the M3*8mm combined screws on the PCB 2, as shown in the figure below:



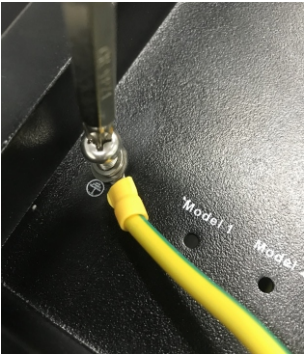
c) Install the ground cable.

The accessories used are as follows:

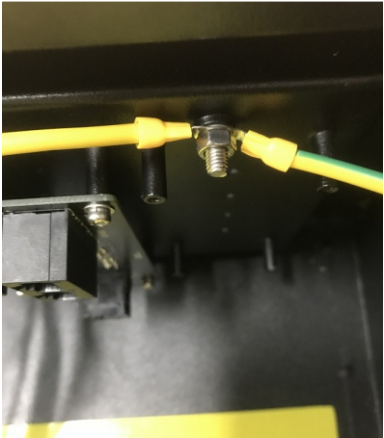


 The installation steps are as follows:

Step 1: Use an electric screwdriver connect the home grounding bus to the panel with M5*16 combination screws, as shown in the figure below;



Step 2: Use a socket wrench to fasten the two 600mm ground cable with a nut, as shown in the figure below:

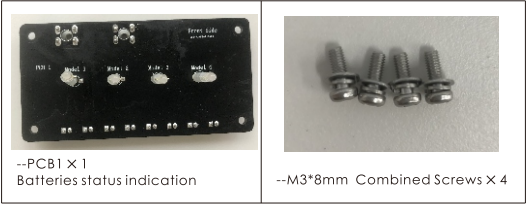


NOTICE

The screws need to be tightened.

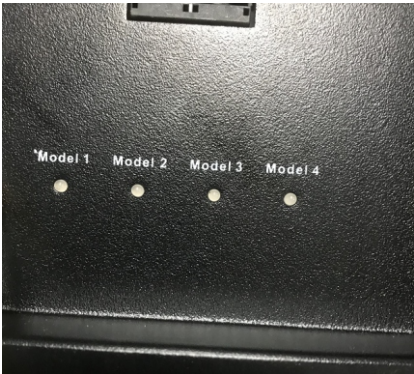
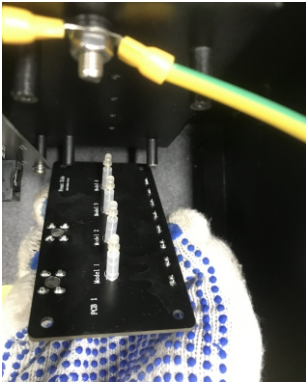
d) Install the PCB 1.

The accessories used are as follows:



The installation steps are as follows:

Step 1: Confirm the front and reverse sides of PCB 1, with the front side on the outside of the Powerbank-A panel, as shown in the figure below;



Step 2: Use an electric screwdriver to fasten the M3*8mm combined screws on the PCB 1, as shown in the figure below:

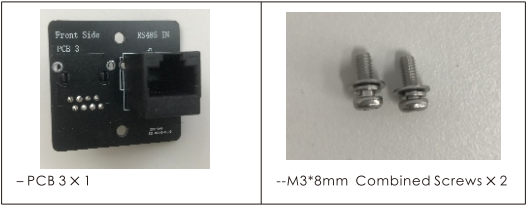


NOTICE

The screws need to be tightened.

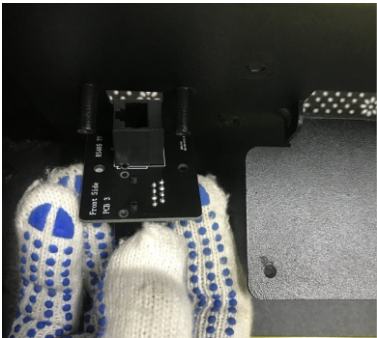
e) Install the PCB 3.

The accessories used are as follows:

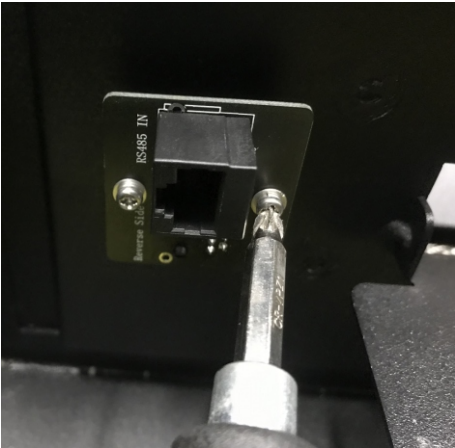


The installation steps are as follows:

Step 1: Confirm the front and reverse sides of PCB 3, with the front side on the outside of the Powerbank-A panel, as shown in the figure below;



Step 2: Use an electric screwdriver to fasten the M3*8mm combined screws on the PCB 3, as shown in the figure below:




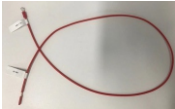


NOTICE

The screws need to be tightened.

f) Install the MCB.

The accessories used are as follows:

	
--125A MCBX 1	--M3*30mm bolts X 2
	
--Red Power Cable +*1,Length 550mm (Connect Battery B+ and MCB OFF)	--PCB1 Power supply Red Cable*1,Length 900mm (It was installed in the previous step)

The installation steps are as follows:

Step 1: Install 950mm red power cable + and reserved copper wire end of 900mm red cable into MCB ON, as shown in the figure below;



Step 2: Use an electric screwdriver to crimp the copper wire to MCB ON,as shown in the figure below:



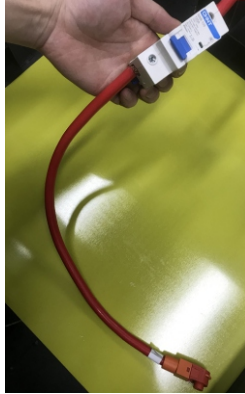
WARNING

- Please check that MCB is off before installation.
- Please confirm that the cable is correctly connected to the MCB ON port.

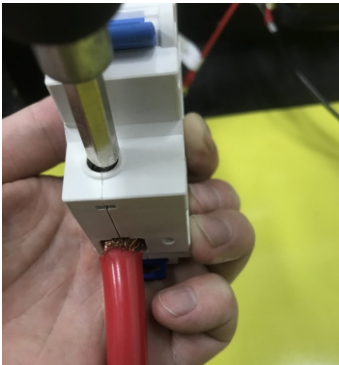
NOTICE

The screws need to be tightened.

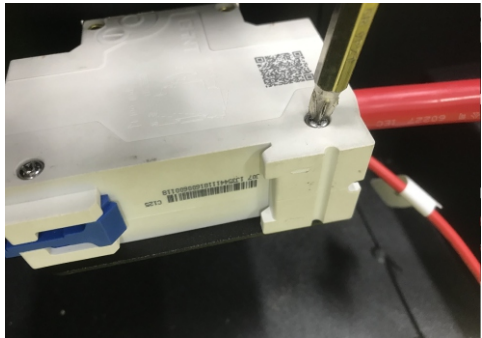
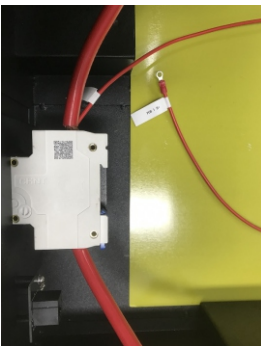
Step 3: Install 550mm red power cable + reserved copper wire end to MCB OFF, as shown in the figure below:



Step 4: Use an electric screwdriver to crimp the copper wire to MCB OFF, and place the MCB on the Powerbank-A panel correctly, please pay attention to the MCB ON/OFF position, as shown in the figure below:



Step 5: Use an electric screwdriver to fasten the M3*30mm bolts on the MCB, as shown in the figure below:







WARNING

- Please confirm that the cable is correctly connected to the MCB OFF port.
- Please pay attention to the MCB ON/OFF position.

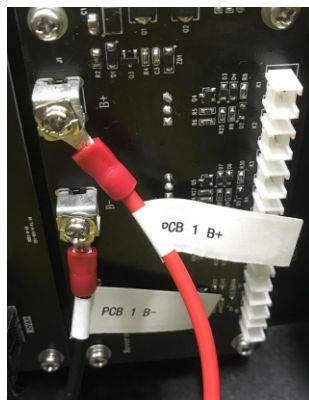
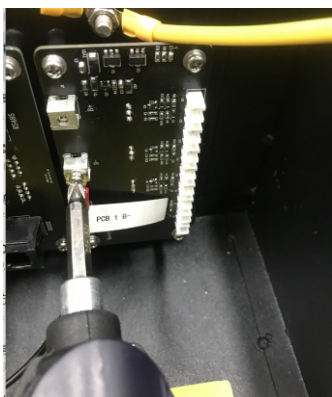
g) Install the PCB 1 B+/B-&Protective Ring.

The accessories used are as follows:

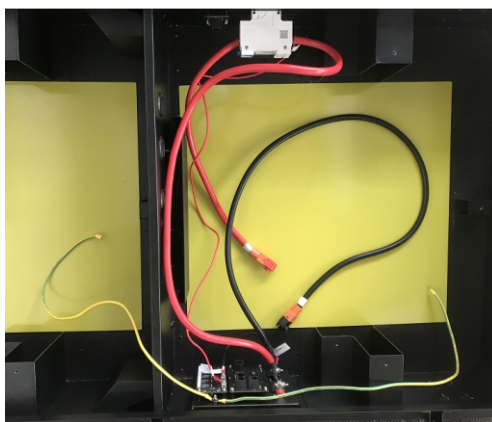
			
--M3*6mm combined screws X 2(LED PCB 1 reverse side B+/B-)	--Red cable*1,length 900mm(PCB1 B+ Port)	--Red cable*1,length 900mm(PCB1 B- Port)	Protective ring: --Φ 25mmX 4(internal baffle); --Φ 10mmX 1(internal baffle)

The installation steps are as follows:

Step 1: Use an electric screwdriver to fasten the M3*6mm combined screws on the PCB 1 B-/B+ port,as shown in the figure below:



Step 2: Install the protective ring on the baffle in the Powerank-A,then check all the connected cables,as shown in the figure below:



WARNING

Please confirm that the cables is correctly connected to PCB 1 B- / B+ port.









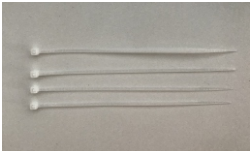
NOTICE

The screws need to be tightened.

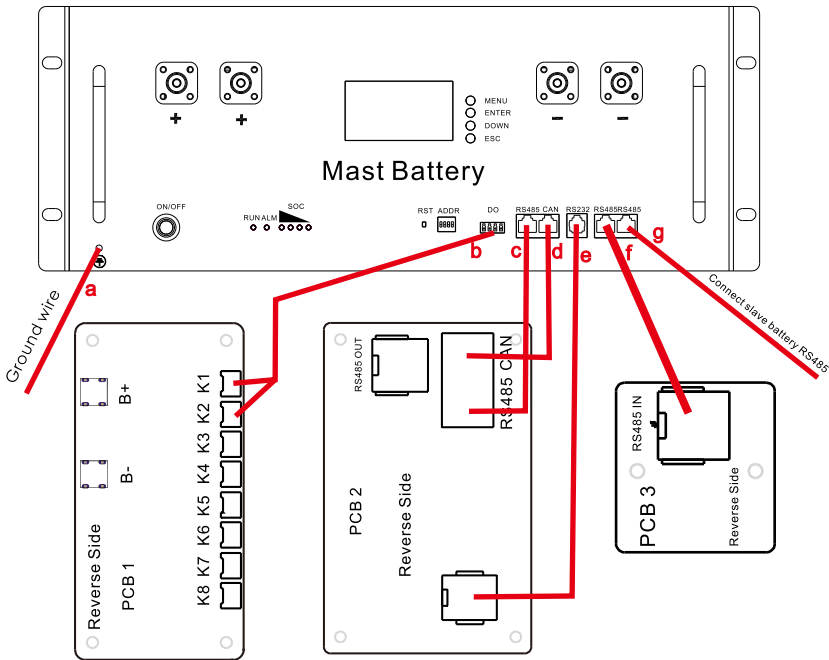
3.6.4 Batteries installation(9.6kWh as an example)

a) Install the mast battery.

The accessories used are as follows :

 --R481008 Battery X1	 a--Ground cable X1 (It was installed in the previous step)	 b--Dry contact communication lineX 1 (DO Model 1)
 c--RS485 communication transmission cable X1,length 1000mm,RJ45 connector	 d--CAN communication transmission cable X1,length 1000mm,RJ45 connector	 e--RS232 communication transmission cable X1,length 1000mm,RJ11 connector
 f--RS485 IN communication transmission cable X1,length 500mm,RJ45 connector	 g--Parallel communication cable X1 (In the wooden box) : length 1000mm,RJ45 connector	 Nylon cable ties X4

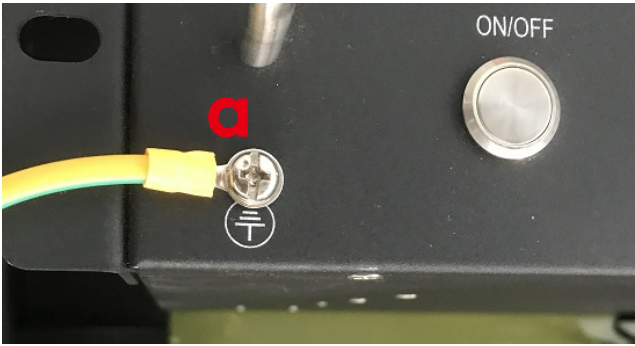
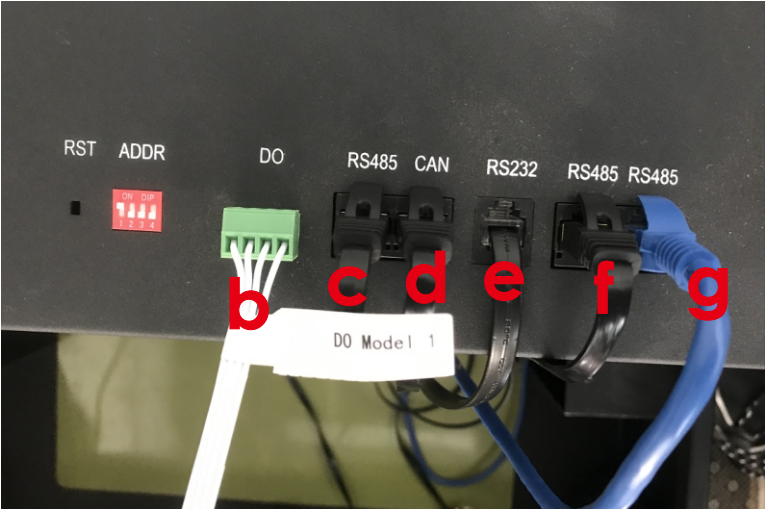
Schematic diagram of cable connection :



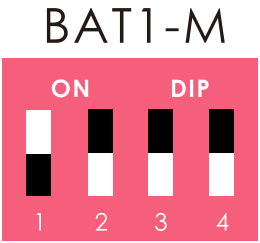
😊 The installation steps are as follows:

Step 1: Connect the a/b/c/d/e/f/ g cables to the corresponding port of the mast battery panel (c/d/e/f/g without label port),as shown in the figure below:

NOTICE
The cables should be connected correctly to avoid communication failure.



Step 2: Dial 1 at ADDR to make it the mast battery, as shown in the figure below:



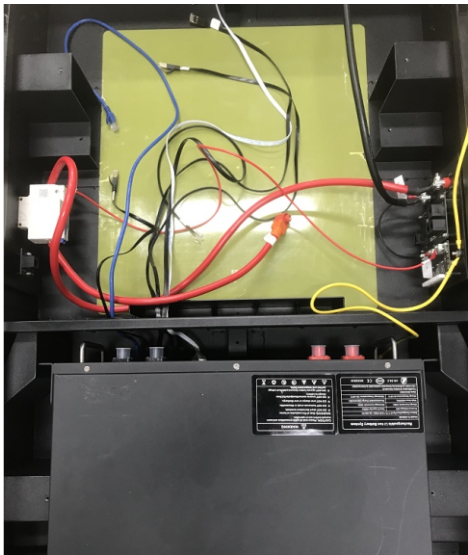
Step 3: Pass the marked connectors of b/c/d/e/f/g cables through the baffle hole,as shown in the figure below:



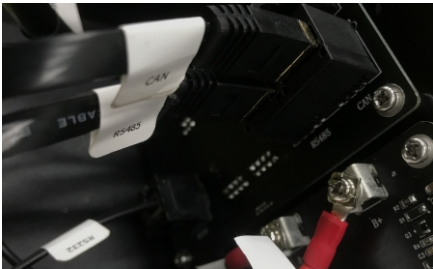
Step 4: Install the mast battery in Powerbank-A, then arrange the cables,as shown in the figure below:

CAUTION

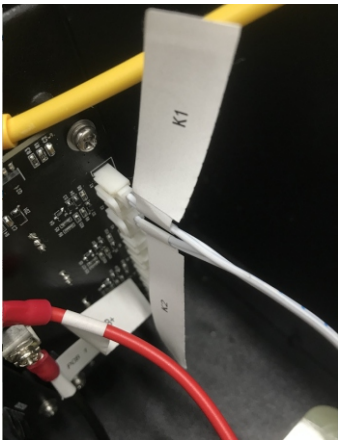
- The weight of the battery is about 46kg,Please pay attention when placing it in Powerbank-A.
- Be careful not to press the cable when installing the mast battery.
- Pay attention to the installation direction of the battery.



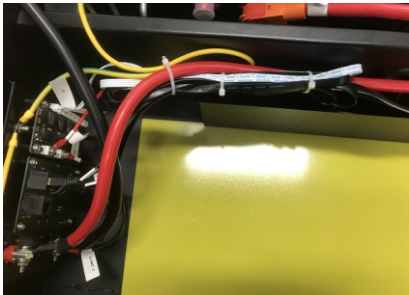
Step 5: Connect the f-cable RS485 IN connector to the reverse side port of PCB 3, similarly, connect the cables RS232/RS485/CAN connectors to the corresponding port on the reverse side of PCB 2, as shown in the figure below:



Step 6: Connect the cables K1/K2 connectors to the corresponding ports on the reverse side of PCB 1, then connect the power cable B+ connector port to the mast battery B+ port, as shown in the figure below:



Step 7: Use nylon ties to arrange the cables, as shown in the figure below:



CAUTION

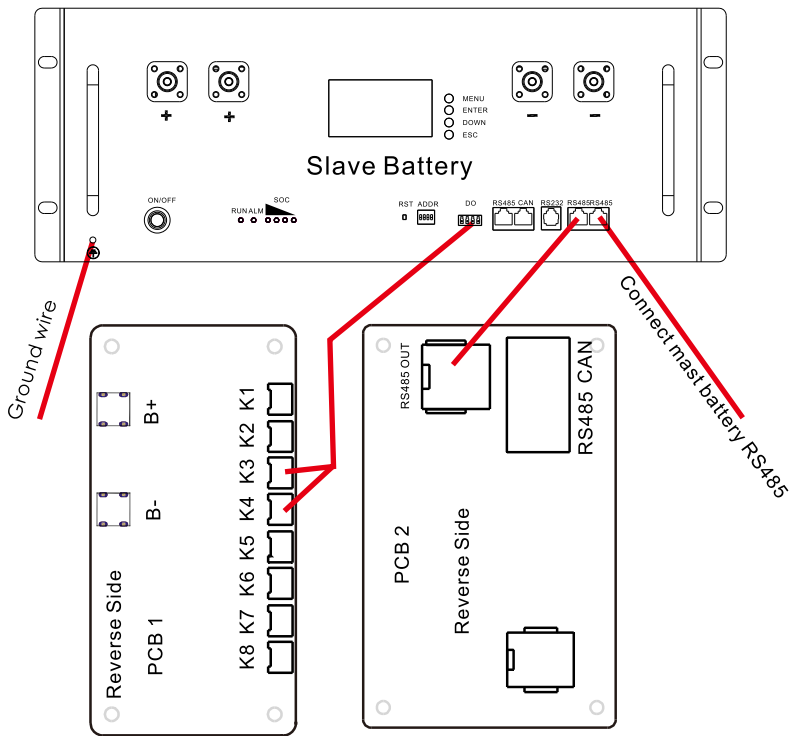
- When connecting the cable connectors, please pay attention to the corresponding identification to prevent connection errors.
- Please be careful not to cut the cables when cutting off the excess part of the nylon cable tie.

b) Install the slave battery.

The accessories used are as follows:

 <p>--R48100 Battery X1</p>		 <p>--Ground cable X1 (It was installed in the previous step)</p>
 <p>--Dry Contact Communication line X1 (DO Model 2)</p>	 <p>--Rs485 OUT communication transmission cableX1,length 1000mm,RJ45 connector</p>	 <p>--Parallel communication cable X 1 (It was installed in the previous step)</p>

Schematic diagram of cable connection:



🧑‍🔧 The installation steps are as follows:

Step 1: Connect the K3/K4 plug to the corresponding socket on the reverse side of PCB 1, similarly, connect the cable RS485 OUT port to the corresponding port on the reverse side of PCB 2, as shown in the figure below:



Step 2: Move the slave battery into Powerbank-A, connect the ground cable & Do Model 2 & RS485 OUT & RS485 parallel cables to the corresponding port of the slave battery panel, as shown in the figure below:



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⚠ CAUTION

- The weight of the battery is about 46kg. Please pay attention when install it in Powerbank-A.
- Be careful not to press the cables when installing the mast battery.

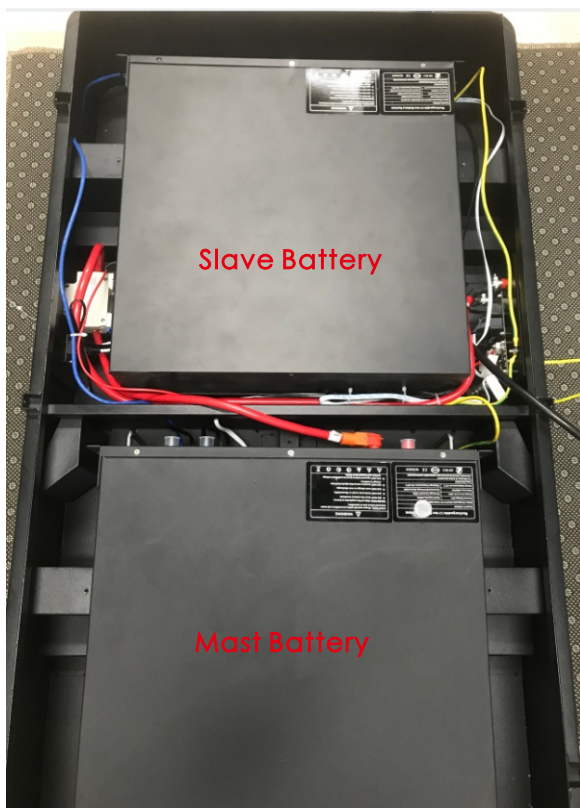
⚠ NOTICE

The cables shall be connected correctly and checked after installation to avoid communication failure.

Step 3: Dial 2 at ADDR to make it the slave battery, as shown in the figure below:



Step 4: Install the slave battery in Powerbank-A, as shown in the figure below:



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CAUTION

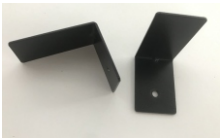


- The weight of the battery is about 46kg. Please pay attention when placing it in powerbank.
- Be careful not to press the cable when installing the mast battery.
- Pay attention to the installation direction of the battery.

NOTICE

The cables shall be connected correctly and checked after installation to avoid communication failure.

c) Install the fixed batteries blocks

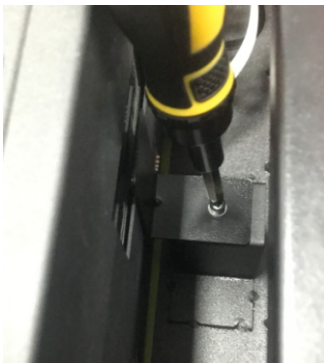
The accessories used are as follows:

		
--Battery fixing block x1	--Battery pressure strip x2	--M4*10mm combined screws x6

The installation steps are as follows:

Step 1:Use an screwdriver to fasten the M4*10mm combined screws on the battery fixing block, as shown in the figure below:

Step 2:Use an electric screwdriver to fix the M4 * 10 combination screw to the pressure strip of the battery ,as shown in the figure below:

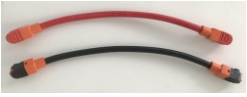




NOTICE

The screws need to be tightened.

3.6.5 Electrical installation (power cable connection)

The accessories used are as follows:

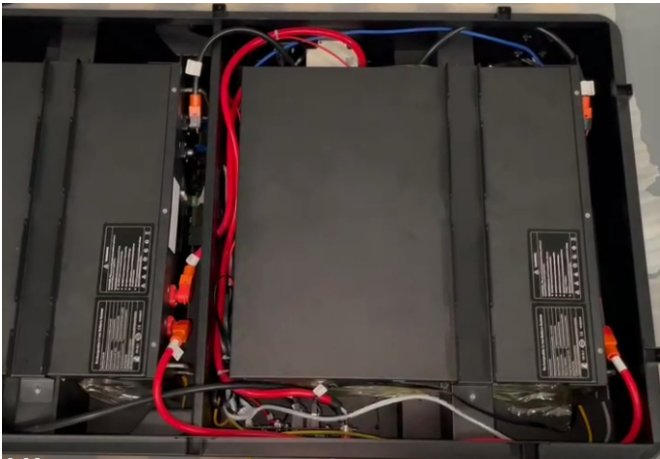
		
Battery parallel power cables X2 --Red Cable*1,Length 900mm --Black Cable*1,Length 900mm	--Nylon Cable ties X6	--M3*8mm bolts x10

🧑‍🔧 The installation steps are as follows:

Step 1: Turn on the power switch of the batteries, as shown in the figure below:



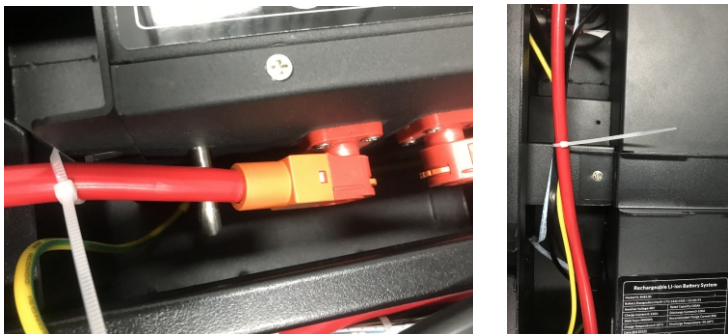
Step 2: Use the red parallel power cable to connect the positive poles of the two batteries. Similarly, connect the negative poles of the two batteries with a black parallel power cable, as shown in the figure below:



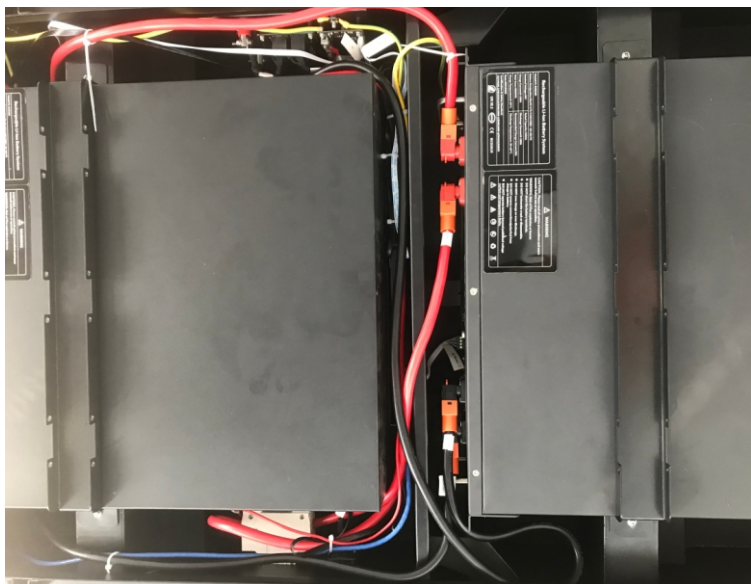
WARNING

Please identify the cables carefully to avoid wrong connection.

Step 3: Use nylon ties to fix the parallel power cables, as shown in the figure below:



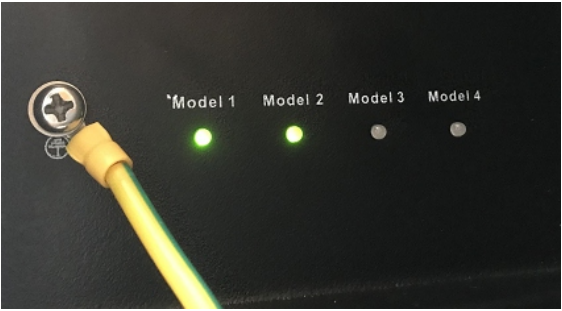
Step 4: Connect the power cable B - to the negative connector of the mast battery, and then clean it with nylon ties, as shown in the figure below:



WARNING

Please identify the cables carefully to avoid wrong connection.

Step 5: Check that the cables are connected correctly, turn on the MCB, and then check whether the indicator lights of model 1 and model 2 are on, as shown in the figure below:



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Step 6: Use a multimeter to measure the voltage at both ends of the positive and negative connectors (normal voltage range 48-51 V), as shown in the figure below:



Step 7:After checking that the screws and cables are not loose,close the top cover of Powerbank-A, as shown in the figure below:



Step 8:Use an electric screwdriver to tighten the 10 pcs M3*8 bolts that secure the upper and lower covers of the Powerbank-A,as shown in the figure below:



NOTICE

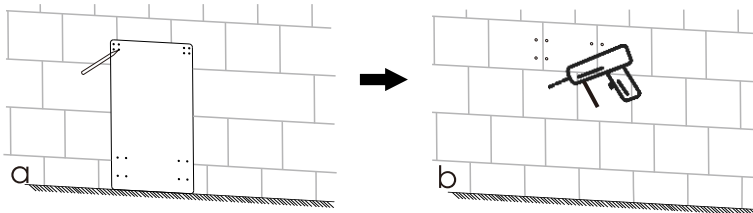
The screws need to be tightened.

3.7 Floor Installation

3.7.1 Install The Upper Bracket

a) Use the positioning plate provided to mark the opening position of the 8 screws on the wall. (The bottom of board must be good connection with the ground level while drawing the holes.)

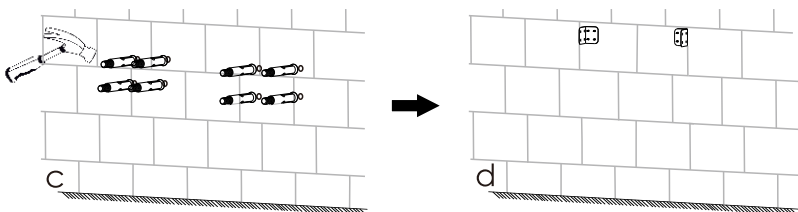
b) 8 holes with diameter of 10mm shall be opened on the wall with electric drill according to the marked position, and the hole depth shall be 60mm to fit the expansion bolts of M8.



c) Use a hammer to fix the expansion bolt M8 in the hole on the wall.

d) The bracket is fixed on the wall with M8 bolts, and then the nuts are tightened to control the torque of 10N.M.

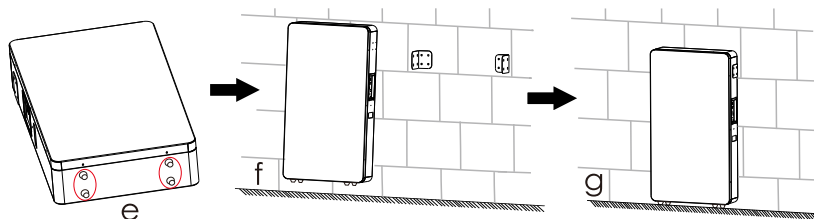
40



3.7.2 Install The Powerbank-A On The Upper Bracket

e) Fix the 4 black rubber foot on the bottom of the Powerbank-A with M10 bolts.

f/g) Carry the Powerbank-A to the installation site. Place the Powerbank-A 10 mm away from the wall while maintaining the balance of the powerbank-A, fixing the hanger and the upper part of the Powerbank-A with M6 bolts.



⚠ WARNING

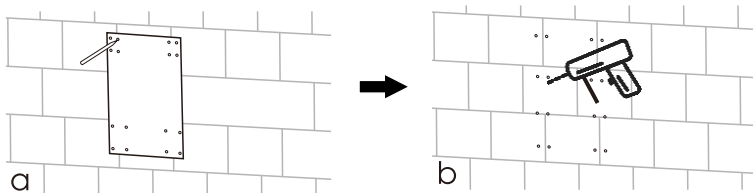
In order to prevent any electric shocks or other injuries, please make sure there are no electricity, plumbing or gas pipeline in the wall where selected to drilling holes for installation.

3.8 Wall Mounted Installation

3.8.1 Install The Wall-mounting Bracket

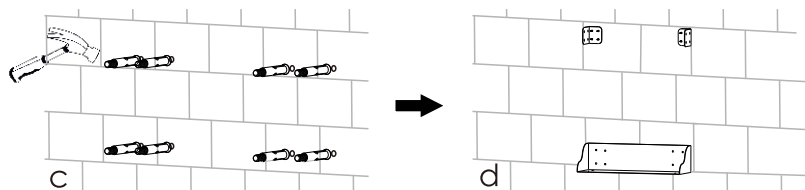
a) Use the positioning board provided to draw the opening position of the screw with a marker on the wall.

b) 16 holes with diameter of 10mm shall be opened on the wall with electric drill according to the marked position, and the hole depth shall be greater than 50mm to fit the expansion bolts of M8.



c) Use a hammer to fix the expansion bolt M8 in the hole on the wall.

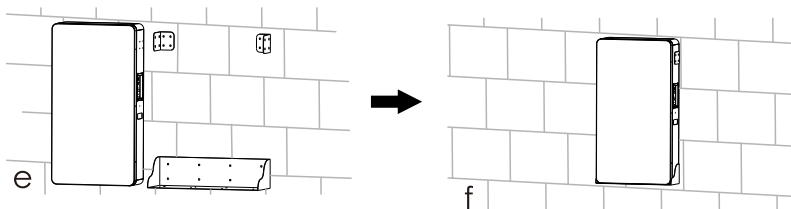
d) The bracket is fixed on the wall with M8 bolts, and then the nuts are tightened to control the torque of 10N.M.



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3.8.2 Install The Powerbank-A On The Wall-mounting Bracket

Raise the Powerbank-A a little higher than the mounting frame while maintaining the balance of the Powerbak-A. Hang the Powerbank-A on the frame through the match hooks.

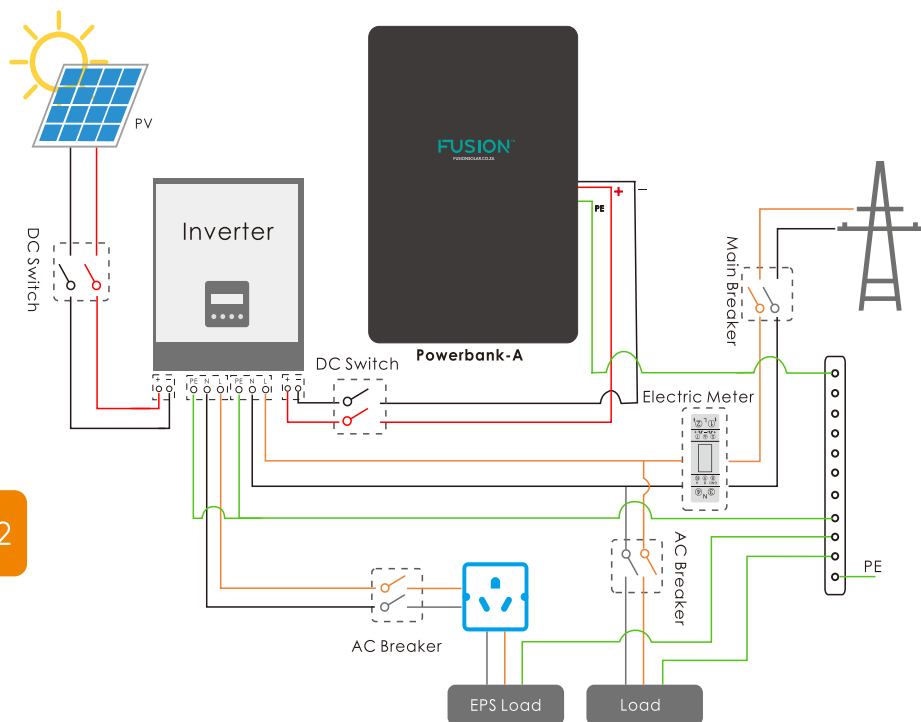


⚠ WARNING






In order to prevent any electric shocks or other injuries, please make sure there are no electricity, plumbing or gas pipeline in the wall where selected to drilling holes for installation.

4. OPERATION

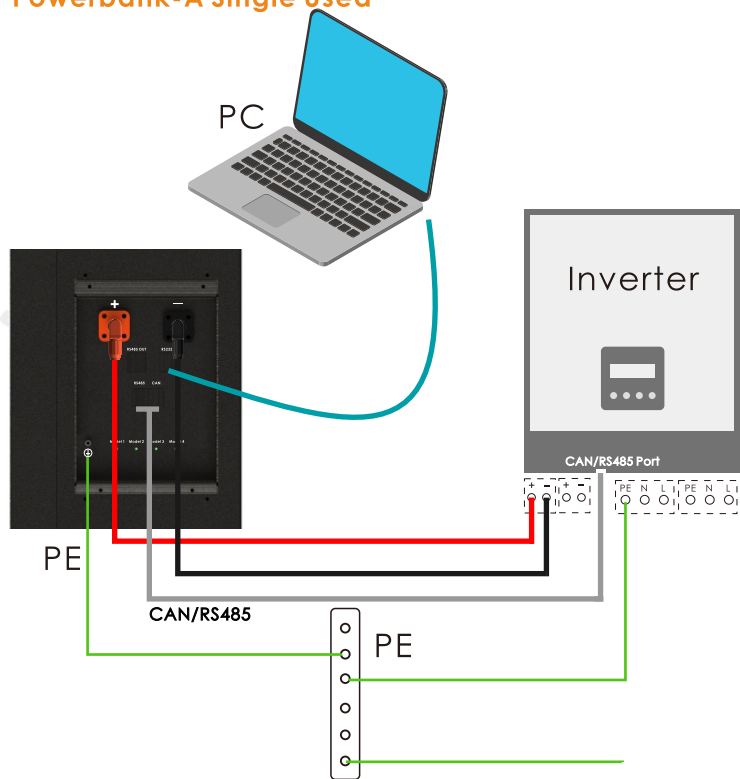
4. 1 System Connection Diagram








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Cable Color	Description	Cable Color	Description
	Positive power cable		Live wire
	Negative power cable		Neutral wire
	Ground wire		

4. 2 Powerbank-A Single Used



Cable Color	Description	Cable Color	Description
	Positive Power Cable		Ground Wire
	Negative Power Cable		The Communication Cable connecting The Powerbank-A with The PC
	Communication Cable Connecting Powerbank-A with Inverter		

NOTICE

Before connection, the positive and negative pole of the inverter input interface and the Powerbank-A output interface should be confirmed. The red power line is connected to the positive pole and the black power line is connected to the negative pole.

NOTE

Only when you need to monitoring the battery status, connecting battery with PC is necessary.

5. CARE AND MAINTENANCE

5.1 Care

Before storing, make sure that the battery SOC is 80%-90%. Insulate it and store it in a cool and dry place. The recommended long-term storage temperature is 20°C -30°C. During storage, please charge the battery according to the following table:

Storage Temperature	Recharge Frequency	SOC
20~30°C	Every 6 Months	80%~90%

5.2 Maintenance

▲ NOTICE

When replace the battery, install the same number and same type of battery.

▲ WARNING

When the Powerbank-A operates with hazardous voltages. Repairs must be carried out only by qualified maintenance personnel.

▲ CAUTION

Even after the unit is disconnected from the power supply, the internal components are still connected to the battery cells, which is potentially dangerous.

▲ CAUTION

Before carrying out any kind of service and/or maintenance, disconnect the Powerbank-A and make sure that no current and hazardous voltage exists in the terminals.

▲ CAUTION

Only those who are fully familiar with battery and have the required precaution may replace the battery and supervise operations. Unauthorized personnel are strictly prohibited to disassemble the battery.

▲ CAUTION

Verify that there is no voltage between the Powerbank-A terminals and the ground before maintenance or repair. In this product, the battery circuit is not isolated from the input voltage. Hazardous voltages may occur between the Powerbank-A terminals and the ground.

▲ CAUTION

Battery may cause electric shock and have a high short-circuit current. Please remove all wristwatches, rings and other metal personal objects before maintenance or repair, and only use tools with insulated grips and handles for maintaining or repairing.

6. TROUBLESHOOTING

6.1 Troubleshooting

Analysis and treatment of common faults.

Fault Phenomenon	Reason Analysis	Solution
The indicator does not respond after the power on	MCB is broken	Check the MCB
Red light is lighting, and cannot charge or discharge	System protection	Change power parameters; Charge the Powerbank-A immediately(When over discharge protection)
DC power supply time is too short	Powerbank-A capacity become smaller	Storage battery replacement
The power cable sparks once power on and ALM light RED	Power cable connection short-circuit	Turn off the Powerbank-A, check the cause of the short circuit
Abnormal communication	PC cannot read device information	Whether the device is turned on; Is the PC software used correctly; Whether the PC software correctly reads the serial port; Signal line wiring and address are correct.

