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DATOU BOSS

USER MANUAL

LiFePO4 Battery System for Households

LiFePO4 Battery System for Households



58780-200-191(01)

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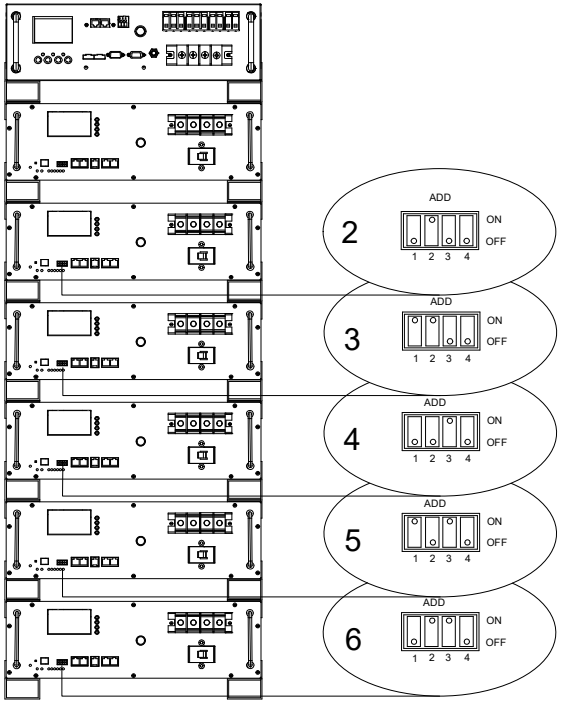
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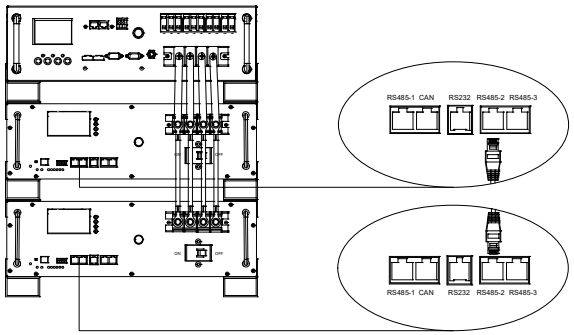
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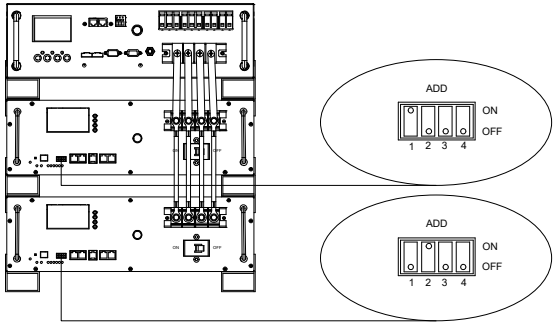
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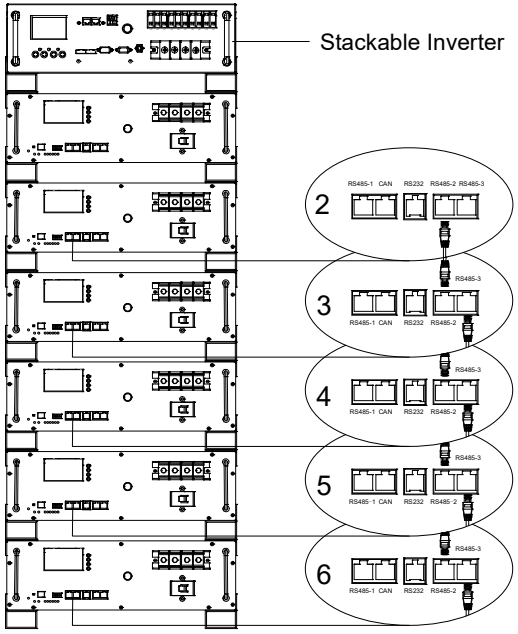
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1 ABOUT THIS MANUAL

1.1 Purpose

This manual describes the introduction, installation, operation and emergency situations of the battery bank. Please read this manual carefully before installations and operations. Keep this manual for future reference.

1.2 Scope

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

1.3 Safety Instructions

WARNING: This chapter contains important safety and operating instructions. Read and keep this. manual for future reference.

1.Before using the unit, read all instructions and cautionary markings on the unit, the batteries and all appropriate sections of this manual.

2. CAUTION --- To reduce risk of injury,damage,even burst. please use it following using manual. In case of causing personal.

3. Do not disassemble the battery. Take it to a qualified service center when service or repair is required. Incorrectre-assembly may resultin a risk of fire.

4. To reduce risk of electric shock, disconnect all wirings before attempting any maintenance or cleaning. Turning off the unit will not reduce this risk.

5. CAUTION -- Only qualified personnel can install this device with inverter.

6. For optimum operation of this batterv, please follow required spec to select appropriate cable size.

7. Be very cautious when working with metal tools on or around batteries. Apotential risk exists to drop a tool to spark or short circuit batteries or other electrical parts and could cause an explosion or fire.

8. Please strictly follow installation procedure.

9. To support full output load, When the inverter power is greater than the maximum output power of the lithium battery, the lithium battery needs to be connected in parallel to meet the power output connection.

10. **GROUNDING INSTRUCTIONS** - This System should be connected to a permanent grounded wiring system. Be sure to comply with localrequirements.

11. NEVER cause AC output and DC input short circuited. Do not connect to the mains when DC input short circuits.

12. Warning!! Only qualified service persons are able to service this device.

13. Battery should be installed indoor and kept awav from water, high temperature mechanical force and flames.

14. Do not install the battery in any environment of temperature below 0℃ or over 55℃,and humidity over 80%.

15. Do not put any heavy objects on the battery.

1.4 Can be connected in parallel

1. The batteries can be connected in parallel. Series connection is not allowed. Use in upright position only.

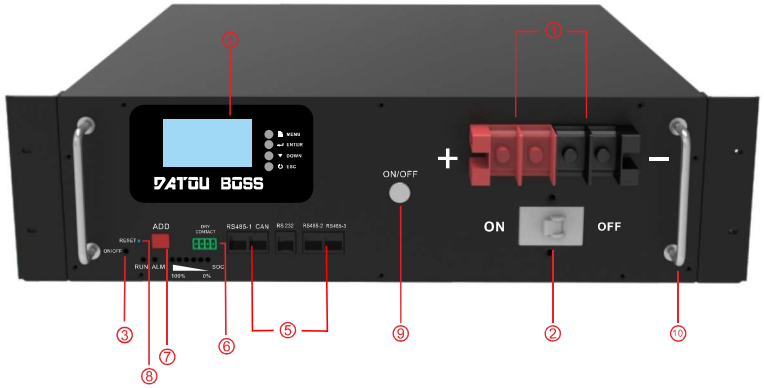
2. The batteries are not allowed to connected with PWM controller for charging. Special Attention: Due to the built-in protection board of the lithium battery pack is with over-discharge protection function, it is strongly recommended to stop using the load when the battery pack is over-discharged. The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

2.INTRODUCTION

2.1 Features

- Iron phosphate-lithium power battery
- Higher energy density, smaller volumn
- Support connected in parallel mode for expansion
- Photovoltaic system: This battery pack is designed for household photovoltaic systems.
- Battery management system (BMS): The battery packs built-in BMS monitors its operation and prevents the battery from operating outside design limitations.
- Expandability: This battery pack can be easily expanded by adding expansion battery packs in parallel connection.

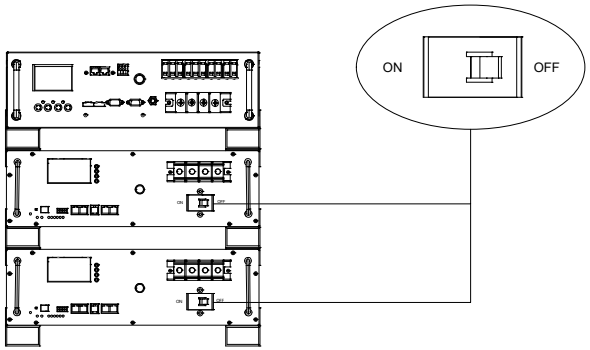
2.2 Product Overview



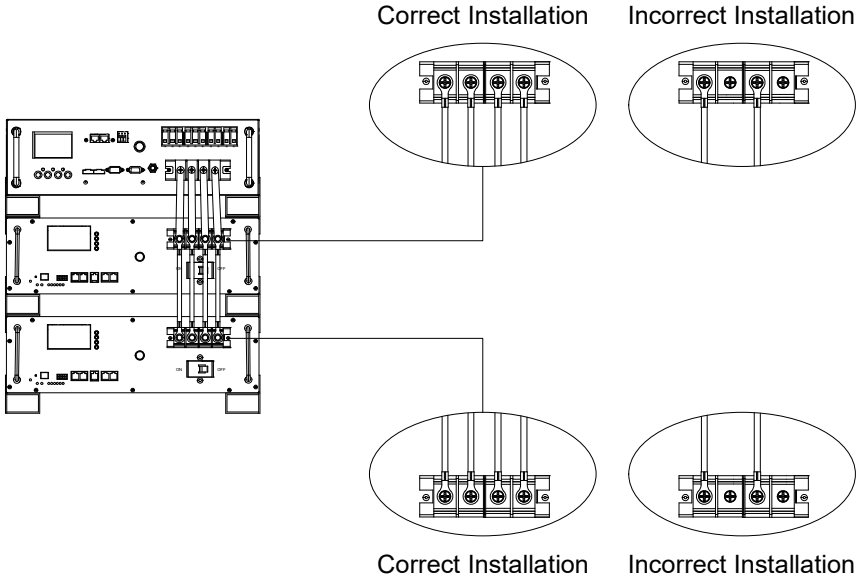
1.Battery Positive and Negative
2.Switch
3.Strip Light
4.Display
5.CAN232/485
6.Dry Contact
7.ADD
8.Reset
9.Switch
10.Handle

- Insert one end of the communication cable into the master battery's RS485-2 interface, and the other end into the slave battery's RS485-3 communication interface.
- Set the slave lithium battery ADD dip switch to 2, turn the air switch to the ON position to complete the communication setup between master and slave units and power on the equipment.
- Repeat steps 1-3 for multi-unit stacking installation. Up to 6 lithium batteries can be stacked. Set the ADD dip switches to corresponding addresses according to the lithium battery manual.

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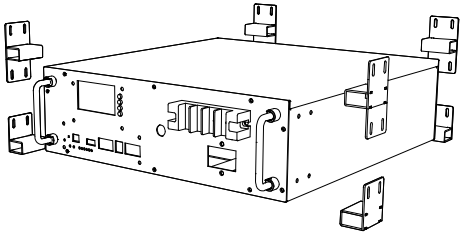
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8.STACKING INSTALLATION STEPS

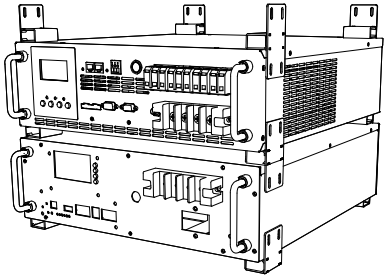
1. Bracket Installation

- Before installing the stacking brackets, first remove the four fixing screws on the back of the device
- Align both sides of the device accurately with the bracket slot positions
- Ensure the device is fully snapped into the brackets and properly installed in place
- Using the provided screws, securely fasten the brackets on both sides (using a Phillips screwdriver is recommended)



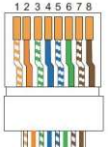
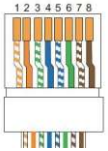
2. Equipment Stacking

- Ensure the bottom-layer device is securely installed on the bracket.
- Align the upper-layer device vertically with the stacking interface of the lower-layer device.
- Gently lower the upper-layer device, ensuring a complete fit without any wobbling.

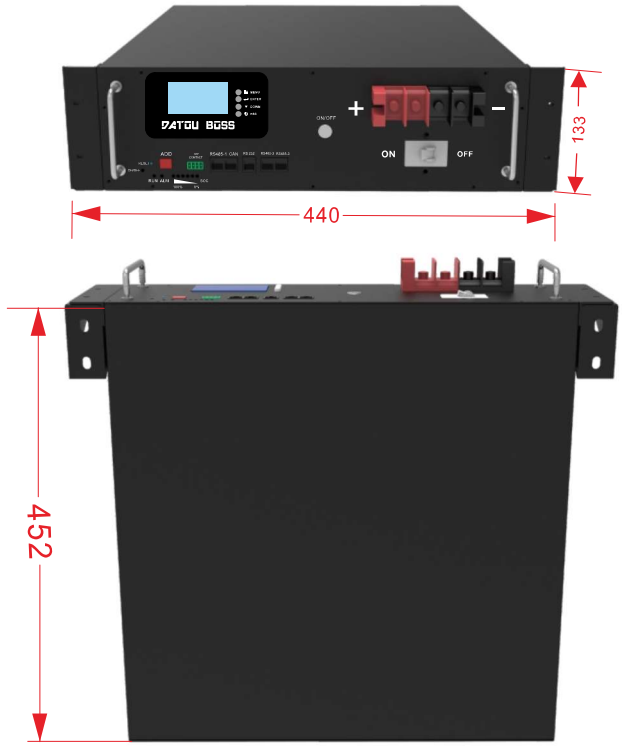


3. Parallel Stacking Installation of Lithium Batteries

- Turn the air switch to the OFF position.
- Install the positive and negative connection cables, ensuring the single-circuit dual-cable installation method is used. Incorrect installation of the wiring harness may easily cause equipment damage.

Communication	Interface Type	Picture	Instruction
RS485	RJ45		1-RS485-B 2-RS485-A 3-GND 6-GND 7-RS485-A 8-RS485-B
CAN	RJ45		4-CAN-H 5-CAN-L 7-GND
RS232	RJ11		3-RS232-TX 4-RS232-RX 5-GND

DT-3U-Z48100



2.3 Specifications

Model	DT-3U-Z48100
Usable Capacity	5120WH
Rated Voltage	51.2V
Voltage Range	43.2-58.4V
Max Continuous Charge Current	100A
Max Continuous Discharge Current	100A
Max Output Power	5120W
Recommend Output Power	2500W
Display Screen	LED Display
DOD	⩾95%
Modules Connection	1-15 in parallel
Communication	485/CAN
Ingress Protection	IP21
Cycle Life	⩾3000
Working Temperature Range	Discharge: -10℃to+50℃，Charge:+0℃to+60℃
Product Dimension(MM)	452x440x133
Package Dimension(MM)	575x535x205

Note: When using inverters on the market that do not support lithium battery activation, it is necessary to adjust the inverter lock voltage as follows: set 51.2V to 48V, Otherwise, the inverter will not be able to start charging the lithium battery.

2.4 Recommended Settings

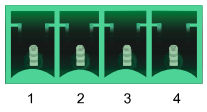
Lithium battery pack is not same as lead-acid battery, so for the devices which you connect with the battery pack for charging or discharging, such as inverters, MPPT charger controllers or UPS, please implement pre-settings as recommended settings as below before you launched them.

Setting	DT-3U-Z48100
Max. Charging Voltage	58.4V
Floating charging Voltage	57.6V
Max. Charging Current	100A
Cut-off voltage	43.2V

Notes:"N" means the number of battery packs connected in parallel.

7.TROUBLE SHOOTING

1	No output after open the carton before using.	Check the ON/OFF button on the front of lithium battery and turn on it.
2	No output after turn of the ON/OFF button	Check the display turn on or not. If display turn on but still no output, please check the air switch on the side of lithium battery and turn on it.
3	After connect inverter to lithium battery and turn on the battery. If battery shows red light and inverter can not be started	Turn off the inverter start switch and then turn off the side circular switch of the lithium battery system. Wait 1 minute and press the side circular switch of the lithium battery system again to enable the battery. If the red indicator of the lithium battery system is still on after 3 times trying. Please check whether the cable between the lithium battery and the inverter is correct.
4	After the lithium battery is started, connect to the inverter. The inverter cannot be started, and the measured terminal voltage of the lithium battery is lower than 24V or 48V.	1. Check the display: Analog Info: ● Cell Voltage:Single cell voltage,If the voltage of a single cell is lower than 3000mV, it is necessary to connect the inverter or charger matching the nominal voltage of the lithium battery system to charge, and it can be used normally after charging. 2.Check the display: Analog Info:● Cell Voltage:Single cell voltage, If there is a cell voltage difference of more than 200mV, it is necessary to contact professional engineer to fix it.
5	The lithium battery connects to the inverter and starts normally. When the load exceeds a certain value, the lithium battery suddenly turns off the output	Check whether the on-load power of the inverter is bigger than the maximum output power of the lithium battery. If the on-load power of the inverter is bigger than the maximum output power of the lithium battery, connect the lithium battery system in parallel to meet the on-load requirements.
6	Commnuication error between inverter and lithium battery	1. Turn the lithium battery Dip switch 1 on, restart inverter. 2. If connect lithium battery to othere brand inverter, pleasee check the protocol with professional engineer first.
7	Lithium battery can't charge to full	1. Check whether the inverter battery type is set to lithium battery, and connect the BMS communication cable to enable the inverter to communicate with the lithium battery. 2. If connect lithium battery to othere brand inverter, pleasee check the protocol with professional engineer first.
8	The lithium battery is connected to the inverter. If the lithium battery SOC is not used up, the inverter shuts down in advance	Check whether the SOC value of the inverter and the cut off voltage too high.
9	Alarm with red light after few time charging.	1. The lithium battery BMS communication cable is not connected, need to connect the BMS communication line to charge. 2. When connect the charger without BMS communication function need to adjust the charger charging current to the rated value.



DRY CONTACT
Definition: Dry contact 1-PIN1 to PIN2: Always on, when battery error turns off. Dry contact 2-PIN3 to PIN4: Always on, when battery low turns off.

6.EMERGENCYSITUATIONS

We cannot guarantee battery absolute safety.

6.1 Fire

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

- SCBA(self-contained breathing apparatus) and protective gear in compliance with the Directive on Personal Protective Equipment 89/686/EEC.
- NOVEC 1230,FM-200,or dioxide extinguisher

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

6.2 Leaking Batteries

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

- Inhalation: Evacuate the contaminated area, and seek medical attention.
- Contact with eyes: Rinse eyes with running water for 5 minutes, and seek medical attention.
- Contact with skin: Wash the affected area thoroughly with soap and water, and seek medical attention.
- Ingestion: Induce vomiting, and seek medical attention.

6.3 Wet Batteries

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

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

6.4 Warranty

Products that are operated strictly in accordance with the user manual are covered by the warranty. Any violation of this manual may void the warranty.

Limitation of Liability

Any product damage or property loss caused by the following conditions,Our company does not assume any direct or indirect liability.

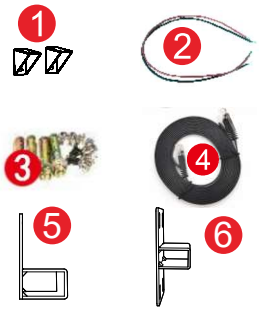
- Product modified, design changed or parts replaced.
- Changed, or attempted repairs and erasing of series number or seals;
- System design and installation are not in compliance with standards and regulations;
- The product has been improperly stored in end user's premises;
- Transport damage (including painting scratch caused by movement inside packaging during shipping).

A claim should be made directly to shipping or insurance company.

3.INSTALLATION

3.1 Unpacking and Inspection

Before installation, please inspect the unit. Be sure that nothing inside the package is damaged. You should have received the following items inside of package.

NO	NAME	SPECIFICATION	PICTURE
①	Wall mount	Wall mount bracket	
②	Cables (Optional accessories)	Used for battery parallel connection	
③	Screw	Mounting Screw	
④	Communication line	BMS communication or parallel communication	
⑤	Lower	Bracket × 4	
⑥	Upper	Bracket × 4	

*Cable maintenance optional accessories. If needed, please choose a set with cables

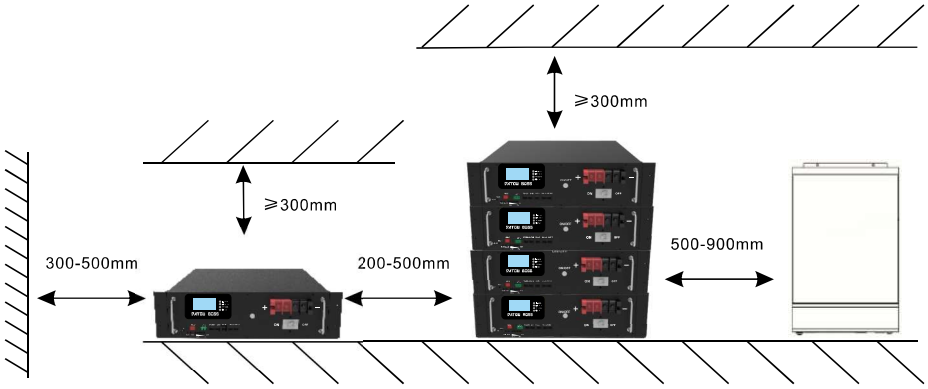
3.2 Mounting the Unit

Consider the following points before selecting where to install:

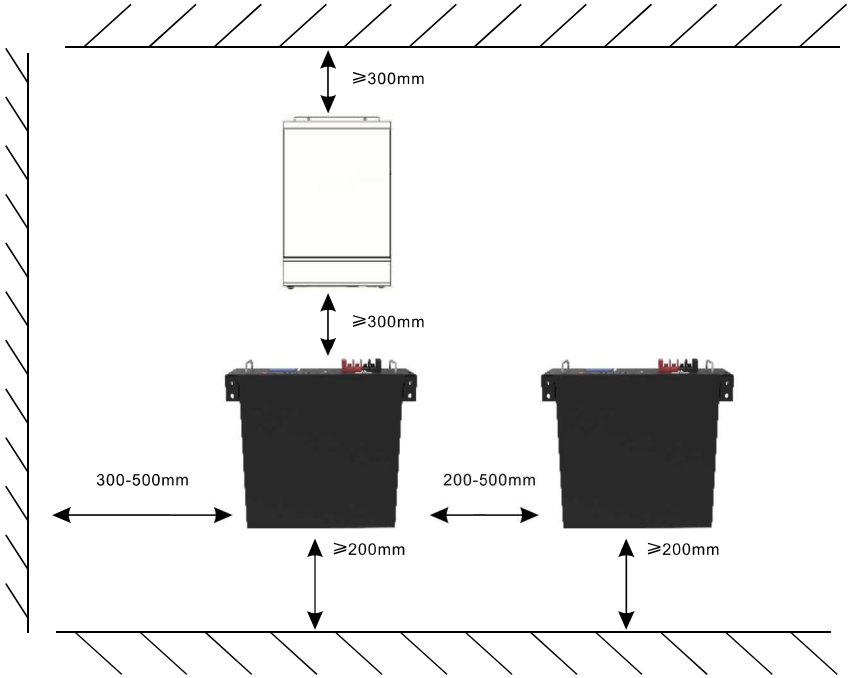
- Do not mount the battery on flammable construction materials.
- The ambient temperature should be between 0°C and 45°C to ensure optimal operation.
- The recommended installation position is to be adhered to the wall vertically.
- Be sure to keep other objects and surfaces as shown in the right diagram to guarantee sufficient heat dissipation and to have enough space for removing wires.

3.3 Installation Space Requirements

Floor Mount: The battery should be placed in the right position first, and the installation site should be smooth and the wall should be solid, The spacing between batteries should comply with the safe distance shown in the diagram.



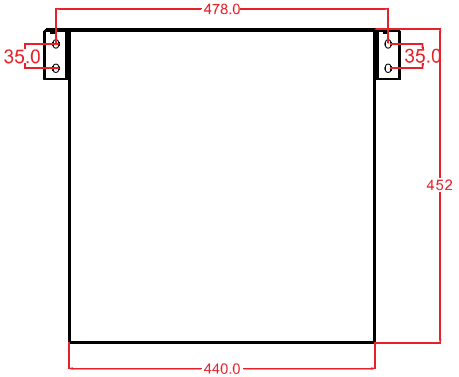
Wall mount: The battery should be placed in the right position first, and the installation site should be smooth and the wall should be solid, and the device is 200mm away from the ground,the distance between the batteries should be greater than 200-350mm.



3.4 Wall mount

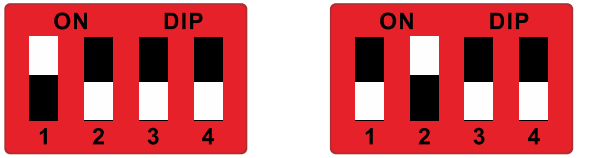
3.4.1 Installation Location Selection

Determine the installation position, put the installation auxiliary board in the proper position, and mark the place where the holes need to be punched.

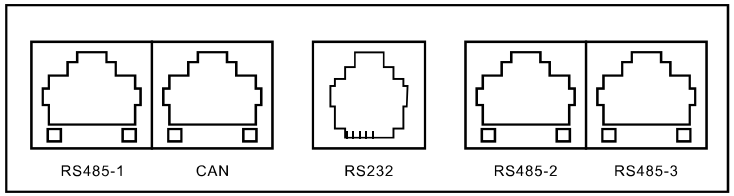


The communication steps between the master and slave batteries are as follows:

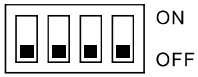
Step 1: When multiple lithium batteries are connected in parallel, find the red DIP switch on the battery. Take two batteries in parallel as an example. For the main battery, switch No. 1 need be on, and No. 2, 3, and 4 need off, so make it as master battery. For the second battery, No. 2 need be on, and No. 1, 3, and 4 need be off, so make it as slave battery. (as pictures)



Step 2: For the communication between these two battery, No.1 battery use port RS485-3, No.2 battery use port RS485-2.



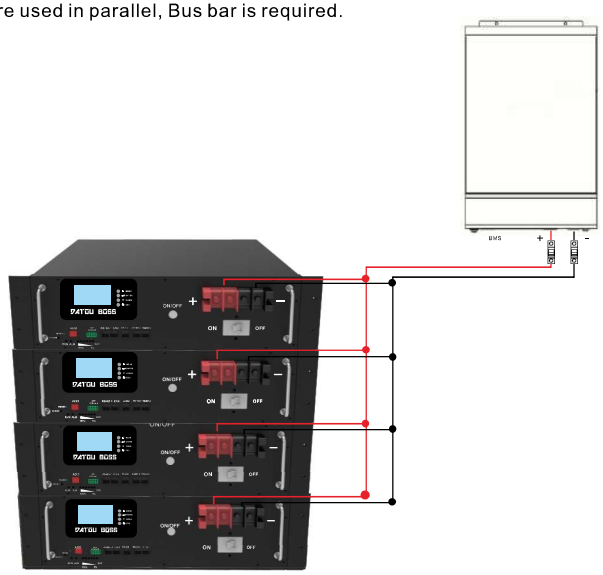
Attached table: DIP switch mode for multiple batteries in parallel. In parallel mode, the default code 1 is turned on for the master battery.



Address	DIP switch position			
	#1	#2	#3	#4
0	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON

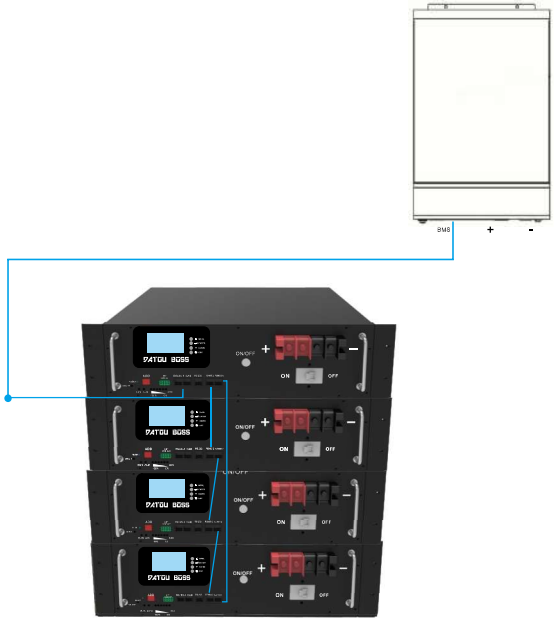
Between parallel batteries, the former battery uses RS485-3, the latter battery uses RS485-2, and so on.

If multiple batteries are used in parallel, Bus bar is required.



5.2 Connecting Signal Line

If there are multiple batteries, you need to connect the communication line of each battery.Battery and battery connection use RS485-Battery interface,battery and inverter connection need RS485-Inverter interface.

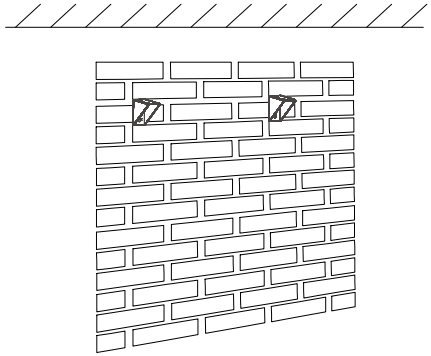


3.4.2 Install Expansion Bolts

DANGER! **In order to avoid electrical shock or other injury, inspect existing electronic or plumbing installations before drilling holes.**

CAUTION **Choose suitable firm wall with thickness greater than 80mm.**

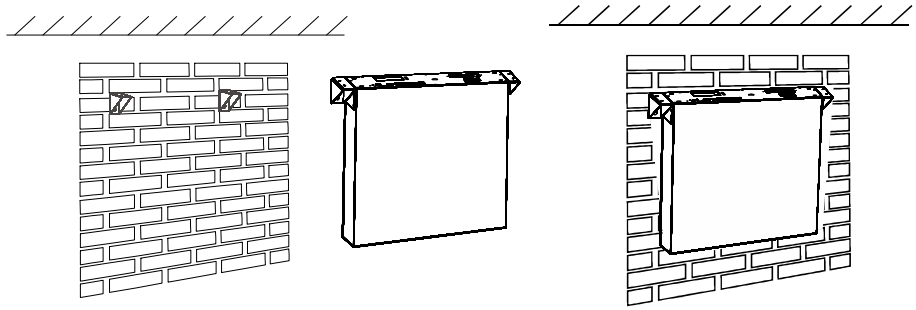
Drill 6 holes according to the hole position, it is Φ8 with depth of 45-50mm.Hammer the M8 screws to the above holes, and screw the nut.



3.4.3 Install Battery Pack

CAUTION The battery pack is very heavy, which requires multiple people to install.

Keep the battery balanced, and then slowly hang the battery on the frame through the match hooks.



4. DESCRIPTION FOR LED

The SOC of the battery is shown by the LED

○○○○○● SOC 100% 0%	○○○○●● SOC 100% 0%	○○○●●● SOC 100% 0%	○○●●●● SOC 100% 0%	○●●●●● SOC 100% 0%	●●●●●● SOC 100% 0%
0%~17%	18%~33%	34%~50%	51%~66%	67%~83%	84%~100%

Note: The battery need to be fully charged for at least once in one month to ensure the accurate SOC calculation

LED Working Status Indicator

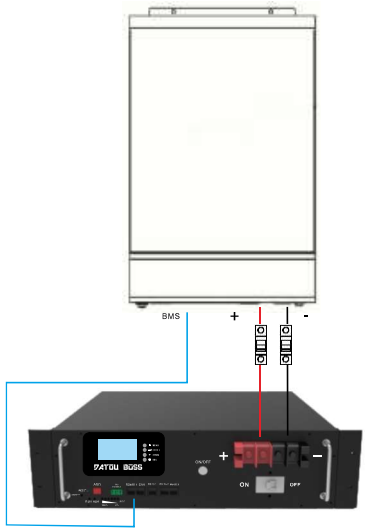
Indicator: ● Always on ★ Flashing ◇ Off

Status	Normal /Warning /Protection	ON/ OFF	RUN	ALM	Battery indicator LED						Description
					L6	L5	L4	L3	L2	L1	
		●	●	●	●	●	●	●	●	●	
Power off	Sleep	◇	◇	◇	◇	◇	◇	◇	◇	◇	All off
Standby	Normal	●	★1	◇	Indicator accordingly to battery capacity						Standby status
	Warning	●	★1	★3							Module low voltage
Charging	Normal	●	●	◇	Indicator accordingly to battery capacity (The maximum battery capacity, LED flashes 2)						The maximum battery capacity ,LED flashes 2 ALM does not flash when overcharge alarm occurs
	Warning	●	●	★3							
	Overcharge protection	●	●	◇	Always on	Always on	Always on	Always on	Always on	Always on	If there is no AC power, the indicator light turns to standby mode
	Temperature and over-current failure protection	●	◇	●	◇	◇	◇	◇	◇	◇	Stop charging
Discharging	Normal	●	★3	◇	Indicator accordingly to battery capacity						
	Warning	●	★3	★3							
	Under-voltage protection	●	◇	◇	◇	◇	◇	◇	◇	◇	Stop charging
	Over-current, short circuit temperature, reverse connection, failure protection	●	◇	●	◇	◇	◇	◇	◇	◇	Stop charging
Failure		◇	◇	●	◇	◇	◇	◇	◇	◇	Stop charging and discharging

5 ELECTRICAL CONNECTION

5.1 Connecting Power Cord

The signal line shall be used to connect RS485-Inverter interface for battery module and inverter.



If there are 2 batteries used in parallel, you need to connect the power cord of each battery.
Parallel connection cable of battery modules are optional products. If necessary, please contact your local dealer.

