

FOSHAN XTRA POWER TECHNOLOGY CO., LTD.

User Manual

LITHIUM MODULES PULSAR AND QUASAR SERIES

For On / Off Hybrid Solar Storage System



1 . Safety Precautions

- It is very important and necessary to read the user manual carefully before installing or using the battery. Failure to follow any of the instructions or warnings in this document can result in electrical shock, serious injury, death, or may damage the battery and the whole system.
- If the battery is stored for a prolonged time, it is requirement that they are charged every three to six months, and the SOC should be no less than 80%.
- The battery needs to be recharged within 12 hours, after fully discharging.
- Do not expose cable outside.
- All battery terminals must be disconnected before maintenance.
- Do not use cleaning solvents to clean the battery.
- Do not expose the battery to flammable or harsh chemicals or vapors.
- Do not paint any part of the battery, include any internal or external components.
- Do not connect battery with PV solar wiring directly.
- Any foreign object is prohibited to be inserted into any part of the battery.
- Any warranty claims are excluded for direct or indirect damage due to items above.

1 . 1 . Before Connecting

- After unpacking, please check the battery and packing list first, if the battery is damaged or spare parts are missing, Please contact the dealer.
- 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 mix-connect the positive and negative cables, and ensure no short circuit with the external device;
- It is prohibited to connect the battery with AC power directly;
- The embedded BMS in the battery is designed for 48VDC, please DO NOT connect battery in series;
- It is prohibited to connect the battery with different type of battery;
- Please ensure the electrical parameters of battery system are compatible to inverter;
- Keep the battery away from fire or water.

1 . 2 . During operation

- If the battery system needs to be moved or repaired, the power must be cut off first and the battery is completely shutdown;
- It is prohibited to connect the battery with different type of battery;
- It is prohibited to put the batteries working with faulty or incompatible inverter;
- In case of fire, only dry powder fire extinguisher can be used, liquid fire extinguishers are prohibited;
- Please do not open, repair or disassemble the battery. We do not undertake any consequences or related responsibility due to violation of safety operation or violating of design, production and equipment safety standards.

2 . Battery Specification

Battery Specifications			
Model No	XT48100WM-PULSAR	XT48150WM-PULSAR	XT48200WM-PULSAR
Nominal Parameters			
Voltage	51.2V	51.2V	51.2V
Capacity	100Ah	150Ah	200Ah
Energy	5.12KwH	7.68KwH	10.24KwH
Dimensions (L x W x H)	730 x550 x230mm	730 x550 x230mm	1010x740x360mm
Weight	60.50kg	78.0 kg	105.5kg
Basic Parameters			
Life time(25°C)	10 years		
Life cycles(80% DOD, 25°C)	3500 Cycles		
Storage time / temperature	5 months @ 25°C; 3 months @ 35°C; 1 month @ 45°C		
Operation temperature	-20°C to 60°C @60+/-25% Relative Humidity		
Storage temperature	0°C to 45°C @60+/-25% Relative Humidity		
Lithium Battery Standard	IEC62619,UN38.3,ROHS,CE-EMC,UL1642,MSDS		
Enclosure protection rating	IP21		
Electrical Parameters			
Operation voltage	51.2 Vdc	51.2 Vdc	51.2 Vdc
Max. charging voltage	58 Vdc	58 Vdc	58 Vdc
Cut- off Discharge Voltage	44 Vdc	44 V dc	44 Vdc
Max. charging and discharging current	100A(5120W)	150A(7680W)	150A(7680W)

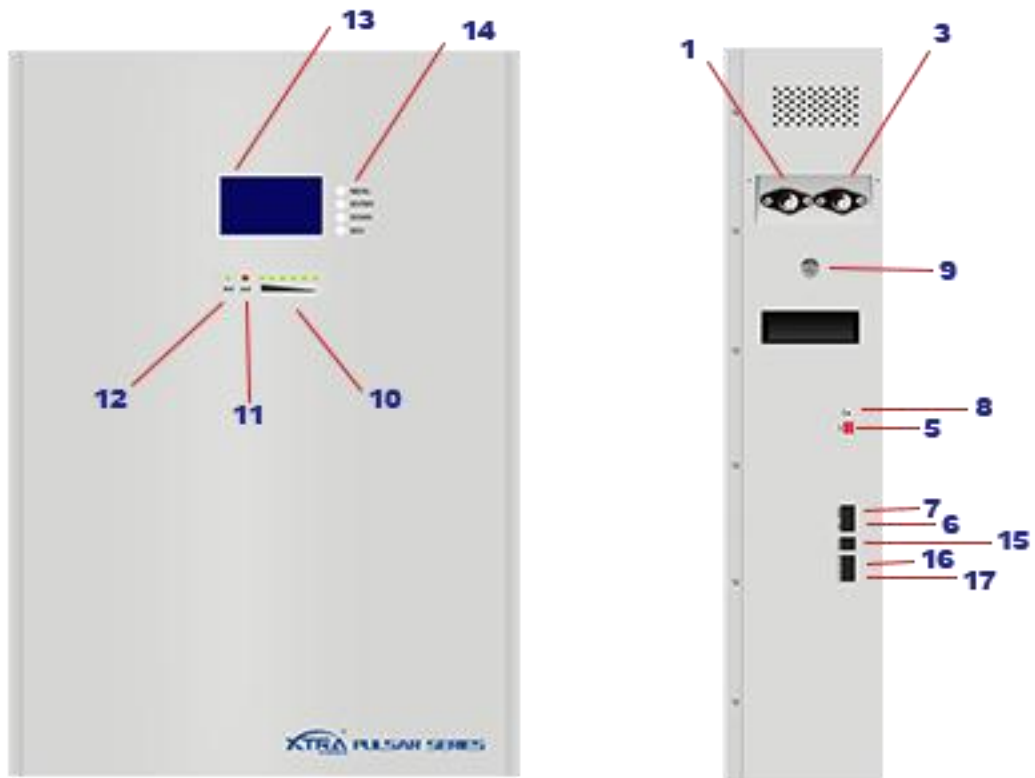
3 . Introduction to the battery

3 . 1 . Key Features

- LiFePO4 composition – provides exceptional safety and longevity
- High safety and reliability
- 3,500cycles/10 years service life
- Consistent performance over wide temperature range
- Wall-mounted, convenient installation
- Integrated state-of-the-art BMS to manage and monitor battery information including voltage, current and temperature as well as balance cell charging/discharging rates
- 3years warranty

3 . 2 . Interface Introduction

- This section details the interface functions of front and back panel..
- Front interface:









○No.	○Description	○Silk- screen	○Remark
○1	○UES0600	○P+ P+	○Output terminal
○3	○UES0600	○P- P-	○Output terminal
○5	○Dial switch	○ADS	○Set the address

06	0Canbus	0Canbus	0Canbus communication port
07	0RS485 port	0RS485	0RS485 communication port
08	0port Reset button	0RST	0For reset the batter
09	0Battery Switch	0On/ Off	0Turn On/Off
010	0LED	0CAPACITY	0Capacity indicator
011	0LED	0ALM	0Alarm indicator
012	0LED	0RUN	0Operation indicator
013	0LCD	0	0
014	0LCD Key	0	0
015	0Console	0RS232	0Computer Monitoring
016-17	0Batt Link 0-1	0RS485	0Battery Parallel Com.

3.3. SOC Indicator & Status Indicator Guides

0Chart 1: Battery Status

Status	Normal/ Warning/ Protection	RUN	ALM	Capacity LED				Description
								
Shut Down	Shut down	OFF	OFF	OFF	OFF	OFF	OFF	All OFF
Standby	Normal	Flash	OFF	OFF	OFF	OFF	OFF	Standby
Charge	Normal	ON	OFF	Based on capacity				
	Warning	ON	Flash					
	Protection	ON	ON					
Discharge	Normal	ON	OFF	Based on capacity				
	Warning	ON	Flash					
	Protection	OFF	ON	OFF	OFF	OFF	OFF	UVP, OCP...
Fault	Protection	OFF	ON	OFF	OFF	OFF	OFF	Stop charging or discharging

○Chart 2: Battery Capacity

Status		Charging				Discharging			
Capacity LED Indicator		● L4	● L3	● L2	● L1	● L4	● L3	● L2	● L1
Capacity	0~25%	OFF	OFF	OFF	Flash	OFF	OFF	OFF	NO
	25~50%	OFF	OFF	Flash	ON	OFF	OFF	NO	NO
	50~75%	OFF	Flash	ON	ON	OFF	NO	NO	NO
	75~100%	Flash	ON	ON	ON	NO	NO	NO	NO
RUN Status ●		NO				Flash			

3 . 4 . Connectors

Charge / Discharge connectors: to connect the positive pole (+) and negative pole (-) from the battery to the inverter via DC isolator.

Canbus/ RS485: Active communication portal between battery and inverter.

USB To RS232: to get dynamic monitoring data of the battery from upper computer.

Address: Reserved Address portal for multiple parallel connections.

3 . 5 . Wake Up button

○Battery On: When battery is shut down, press this RST button for 3 seconds. It is activated when the LED lights flicker from RUN light to the lowest capacity indicator.

○Battery off: When battery is activated, press this button for 3 seconds. It will be shut down when the LED lights flicker from lowest capacity indicator to RUN light.

3 . 6 . Display function instruction

3.6.1.Reference of real figure



3.6.2. Screen Display

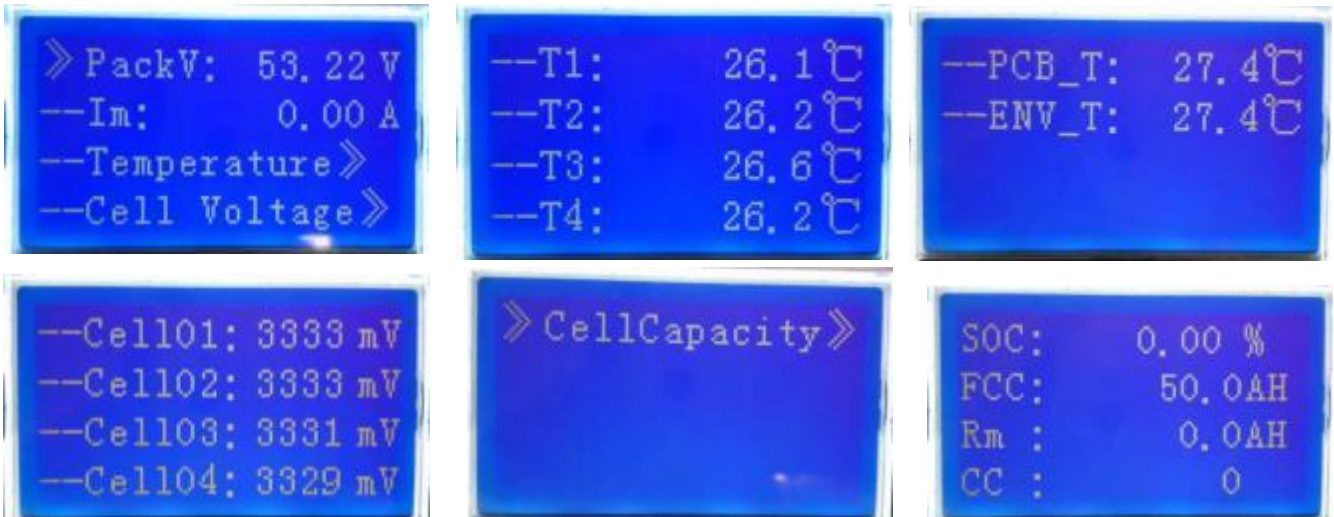


3.6.3. Functional Specifications

- Interface introduction
- Main menu page
- Electricity/dormancy activated, will show the welcome screen, press the MENU button to enter the main menu page. As shown in the figure below:



- Battery parameters collection page
- When the cursor“>” is point to “Battery Parameters Acquisition”, press ENTER key will enter into the page of“Battery Parameters Acquisition”, As shown in the figure below:



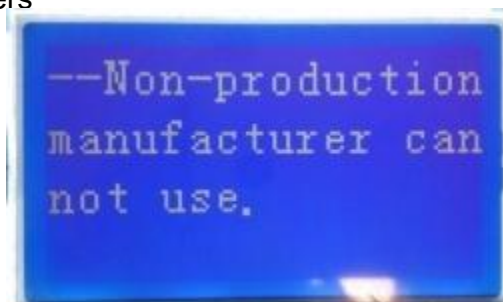
○Battery status page

When the cursor "»" is point to "Battery Status", press ENTER key will enter into the page of "Battery Status", As shown in the figure below:



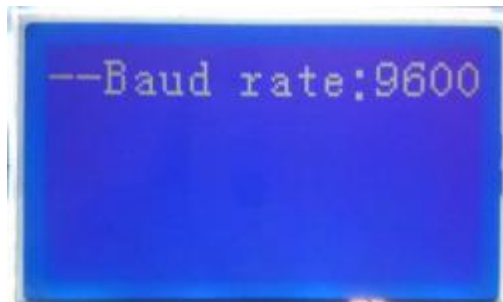
○Parameter Settings

Screen can not set up parameters



○System Settings Page

Baud Rate: 9600 do not set



○Key description

1) SW1---NEMU , SW2---ENTER , SW3---UP , SW4---DOWN, SW5---ESC.

2) Each item is “》” or “--” as a beginning , among them “》” shows the current cursor position, press UP or DOWN key can move the cursor position; with “》” end of the project , the content of the said project has not shown, press ENTER key can enter the corresponding page.

3) Press ESC key can be returned at the next higher level directory; In any position , press NEMU key can return to the main menu page.

4) In a dormant state, press any key, can activate the screen.

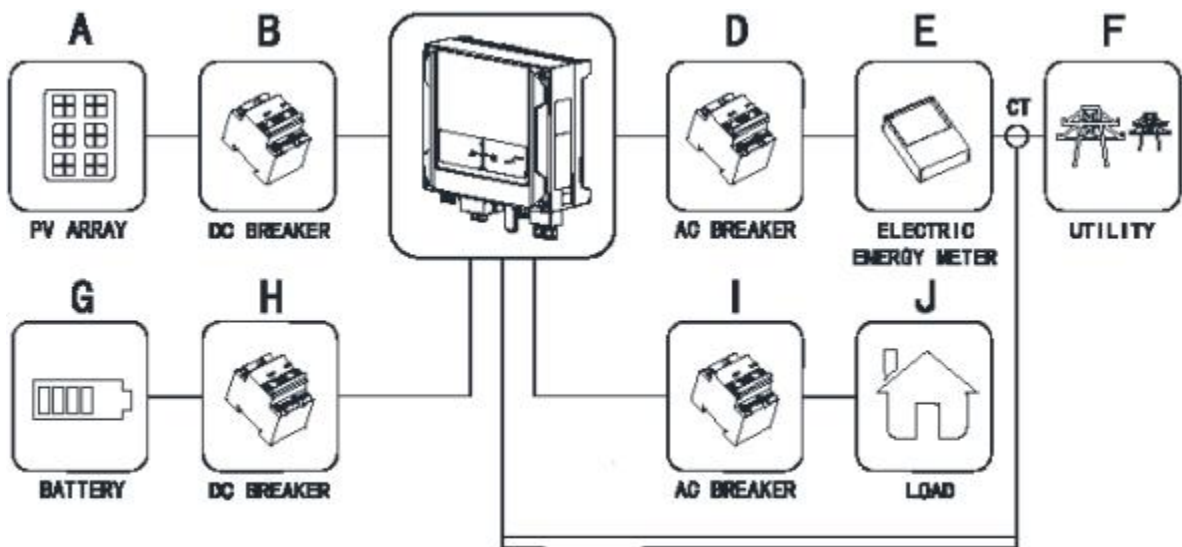
○Dormancy/shutdown

Under normal operation condition, with no keystrokes 1 minutes later, system will enter a state of dormancy/shutdown.

Shutdown/dormancy state, press any key , screen can be activated.

4 . Safe handling guide

4 . 1 . System Diagram



4 . 2 . Tools

The following tools are required to install the battery pack:

- Wire cutter
- Crimping Modular Plier
- Screw Driver

NOTE

- Use properly insulated tools to prevent accidental electric shock or short circuits.
- If insulated tools are not available, cover the entire exposed metal surfaces of the available tools, except their tips, with electrical tape.

4.3. Safety Gear

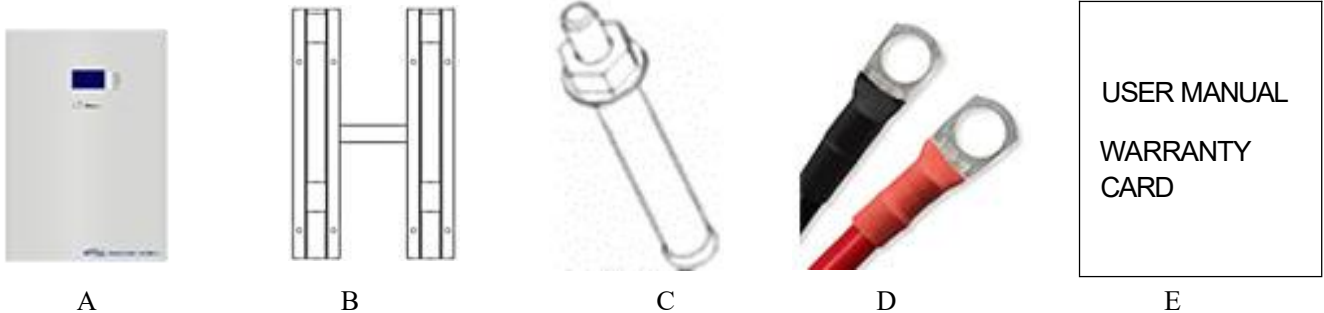
It is recommended to wear the following safety gear when dealing with the battery pack:

- Insulated gloves
- Safety goggles
- Safety shoes

5. Installation

5.1. Inventory of items

Thoroughly inspect the packaging upon receipt of goods. If there is any item missing or if there is any damage to the external packaging or to the unit itself upon unpacking, please contact us immediately.

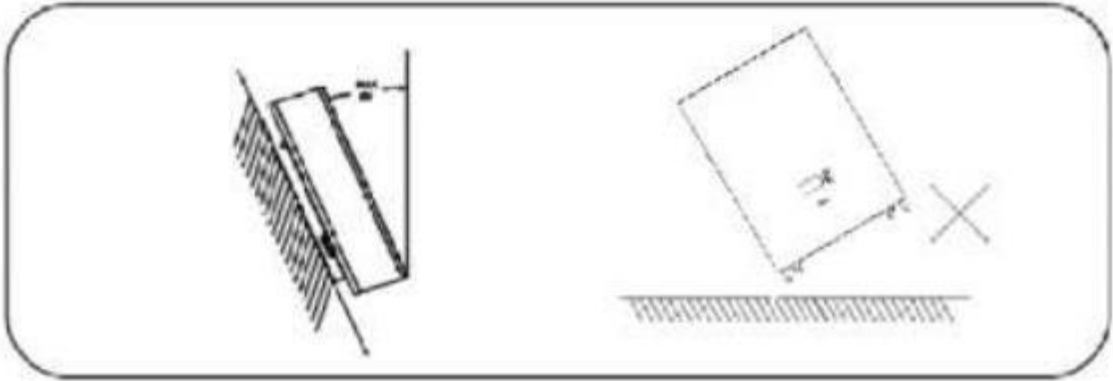


NO.	Item	Quantity	Specification
A	Battery Pack	1	4.8/7.2 / 9.6 KWh
B	Mounting frame	1	SPCC
C	Mounting frame screw	12	M8*60mm
D	Power Cable(50CM)	2	16M2 Wire
E	Instruction manual/Warranty Card	1	This document
Option	Parallel Power cable (1.0 M)	2	150A/1000V
Option	Parallel com cable (1.0 M)	1	RJ45

5.2. Installation Location

Make sure that the installation location meets the following conditions:

- The installation site must be suitable for the size and weight of the battery.
- Must be installed on a firm surface to sustain the weight of battery.
- The area is water proof.
- There are no flammable or explosive materials in proximity
- The ambient temperature is within the range from 0°C to 45°C.
- The temperature and humidity is maintained at a constant level.
- There is minimal dust and dirt in the area.
- Installation must be vertical or tilted backwards by maximum 15° - avoid forward or sideways tilt.



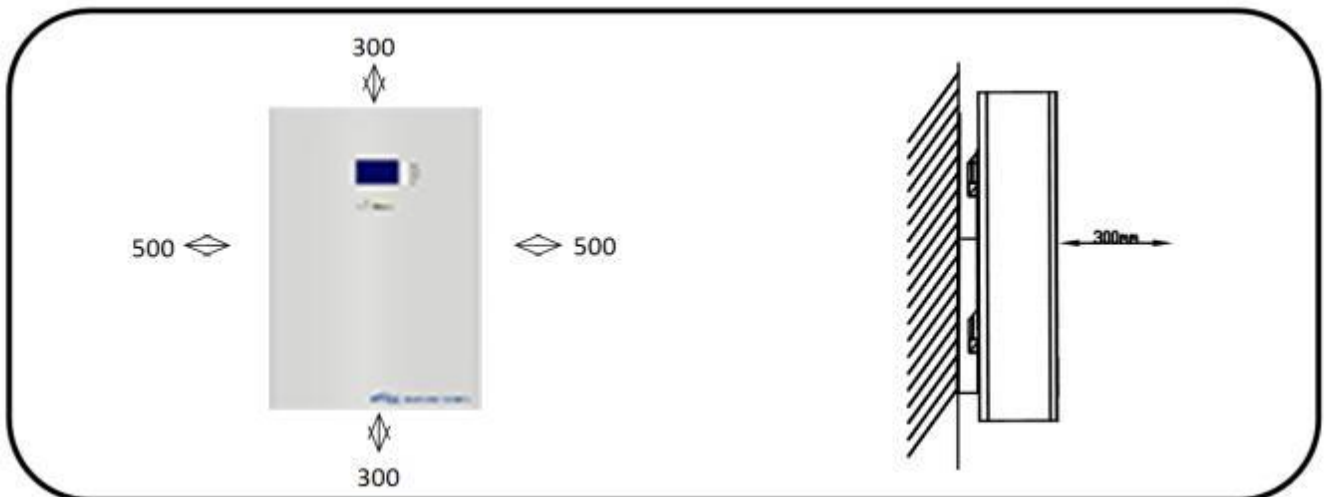
CAUTION

If the ambient temperature is outside the operating range, the battery pack stops operating to protect itself. The optimal temperature range for the battery pack to operate is 0°C to 45°C. Frequent exposure to harsh temperatures may deteriorate the performance and life of the battery pack.

5.2.1. Minimum clearances

Observe the minimum clearances to walls, other batteries or objects as shown in the diagram and picture below in order to guarantee sufficient heat dissipation

Direction	Minimum clearance (mm)
Above	300
Below	300
Sides	500
Front	300



5 . 3 . Installing the Battery Pack

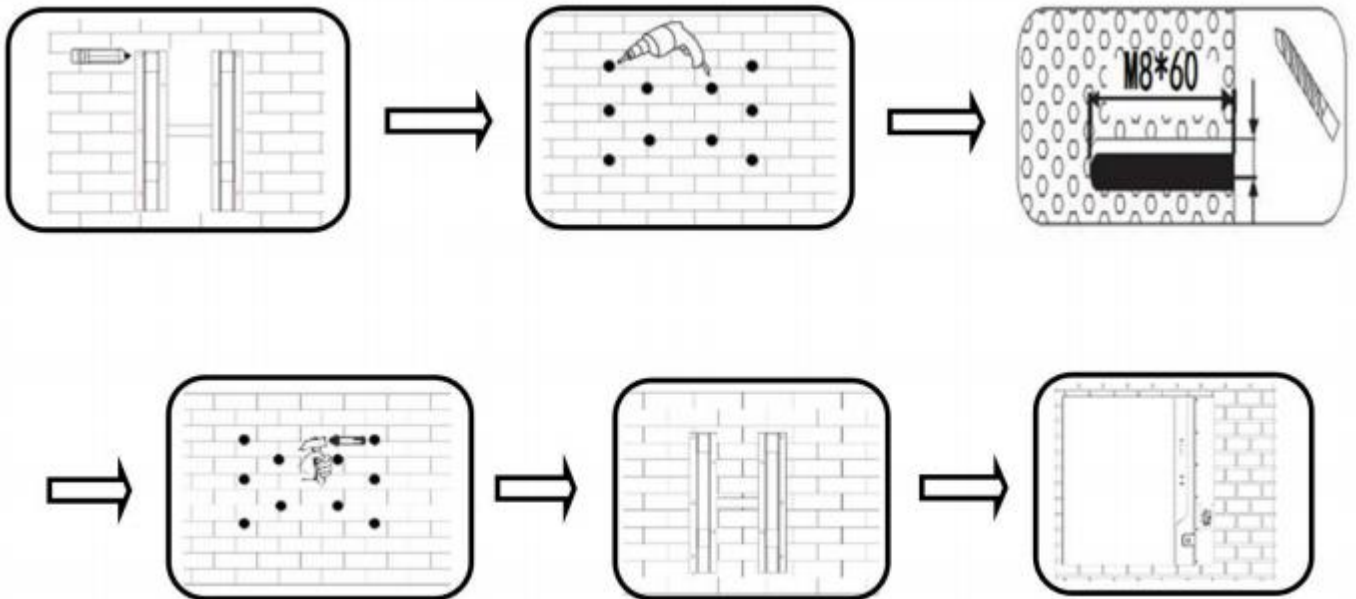
5.3.1.Mounting to a wall

WARNING

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

The battery is heavy, please handle with care to avoid damage to the product or injury to the installer.

- 1.Choose suitable firm wall with thickness greater than 80mm.
- 2.Use the mounting frame as a template, mark the hole position.
- 3.Drill 8 holes according to the hole position, it is $\varnothing 10$ with depth 60mm.
- 4.Hammer the M8 screws to the above holes, and screw the nut. Note: Do not position screws flush to the wall - leave 10 to 20 mm exposed.
- 5.Fix the mounting frame to the 8 screws.
- 6.Raise the battery a little higher than the mounting frame whilst maintaining the balance of the battery. Hang the battery on the frame through the match hooks.



WARNING

Falling equipment can cause serious or even fatal injury: never mount the inverter on the bracket unless you are sure that the mounting frame is firmly mounted on the wall after thorough checking.

5.4. Parallel use of battery

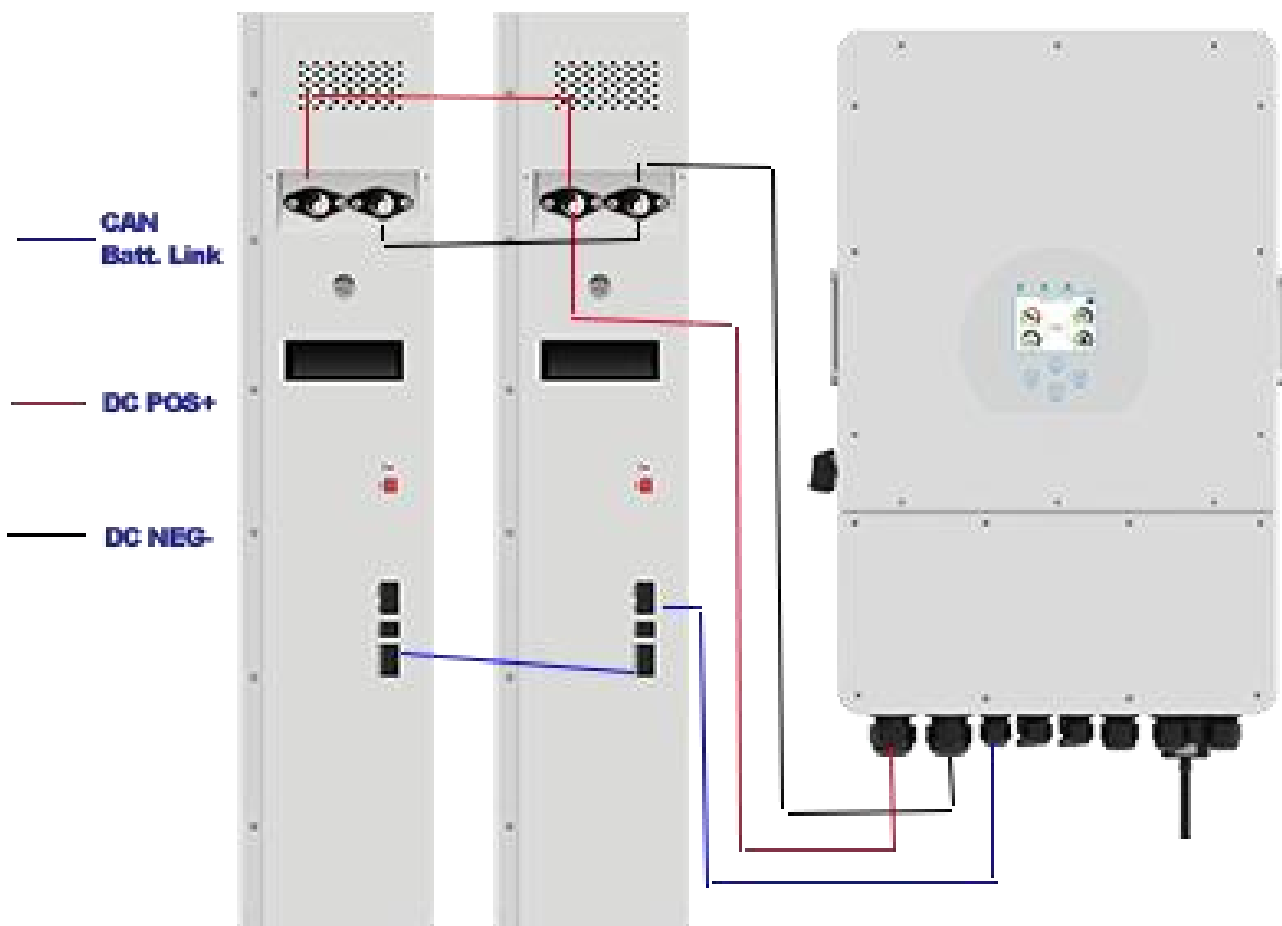
(All off grid solar inverters)

XTRA POWER lithium battery is a smart battery to match all off grid solar inverter (48VDC) types.

When the battery needs to be used in parallel, the maximum connection is 15 units, but we recommend 2-5 units according to application.

When connecting with off grid 48VDC solar inverters, it does not need to add Canbus/RS485 communication cables with inverters, if inverter brand factory does not have Canbus/RS485 port, just plug and play use by setting battery voltage in inverter side.

Deye connection diagram (Communication use CAN port , Inverter set : Batt. Mode : Lithium 00)

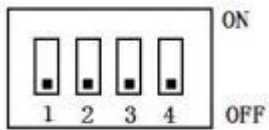


5.4.2. Canbus /RS485(Supported Brands Inverters)

Brand	Model No	Com Port	Cable Supply	Application	Installation
DEYE	All 48V Hybrid Inverter	CAN	RJ45	On/off-Grid	Wall- mounted
GROWATT	SPF ES SERIES 48V	RS485/CAN	RJ45	On/off-Grid	Wall- mounted
GOODWE	GW3648D-ES/GW5048D-ES/ BP/ SBP/ EM	CAN	RJ45	On/off-Grid	Wall- mounted
INFINI/ Voltronic/ Axpert	Infinisolar series 48 V/Axpert series 48 V	RS485	RJ45	On/off-Grid	Wall- mounted
To be continued..... ..					

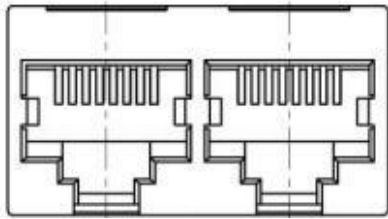
5.4.3. ADS guide Line

When the modules are used in parallel, different module can be distinguished by setting the address through the DIP switch on the BMS. It is necessary to avoid setting the same address. Refer to the following table for the definition of the BMS DIP switch.



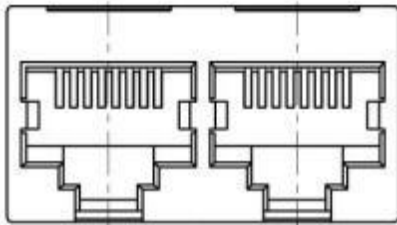
ADD	ADD LOCATION			
	#1	#2	#3	#4
0	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON

5.4.4. Battery Pins For Communication



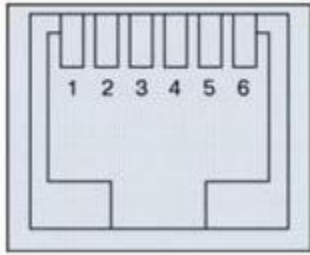
CAN AND RS 485 PORT

RS485-- 8P8C RJ45		RS485-- 8P8C RJ45	
RJ45	Destination	RJ45	Destination
1、 8	RS485-B1	9、 10、 11、 14、 16	NC
2、 7	RS485-A1	12	CANL
3、 6	GND	13	CANH
4、 5	NC	15	GND



Batt. Link 0-1 RS485 PORT

RS485--8P8C RJ45		RS485-- 8P8C RJ45	
RJ45	Destination	RJ45	Destination
1、 8	RS485-B	9、 16	RS485-B
2、 7	RS485-A	10、 15	RS485-A
3、 6	GND	11、 14	GND
4、 5	NC	12、 13	NC



RS232 Console Port

RS232-- 6P6C RJ11	
RJ11	Destination
2	NC
3	TX (single board)
4	RX (single board)
5	GND