

Rack Mounted And Floor Standing Lithium Battery

CCS And Active Balancing function added

User Manual



51.2V 200Ah LiFePO4

About 51.2V 200Ah Rack Mounted And Floor Standing Battery

The 51.2V 200Ah Rack Mounted And Floor Standing Battery can be installed in Parallel mode, more attention should be paid for the DIP and address selection following with part5.2.2.

About This Manual

This manual is intended for the 51.2V 200Ah Rack Mounted And Floor Standing Battery, but the hybrid inverter and any other equipment is not included.

Declaration

We declare that this 51.2V 200Ah Rack Mounted And Floor Standing Battery is compliance with the essential requirements.

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1. Safety Introduction

1.1 Important Safety Instructions








This manual contains important instructions for:

51.2V 200Ah Rack Mounted And Floor Standing Battery energy storage product and this manual must be followed when installing and using this product.

To reduce the risk of personal injury and ensure the safe installation and operation of the product, you must carefully read and follow all instructions, cautions and warnings in this manual.

1.2 Warnings in This Document

A warning describes a hazard to equipment or personnel. It calls attention to a procedure or practice, which, if not correctly performed or adhered to, could result in damage to or destruction of part or all of the equipment and/or other equipment connected to the equipment or personal injury.

Symbol	Description
	Caution, risk of electric shock
	Heavy enough may cause severe injury
	Keep the battery away from open flame or ignition sources
	Keep the battery away from children
	Do not dispose of the product with household waste
	Recycling
	Read this manual before installation and operation

For safety reasons, installers are responsible for familiarizing themselves with the contents of this manual and all warnings before performing installation.

1.3 Battery Handling Guide

- Use the battery pack only as directed.
- If the battery defective, appears cracked, broken or otherwise damaged, or fails to operate, contact the distributor immediately.
- Do not attempt to open, disassemble, repair, tamper with, or modify the battery.

- To protect the battery and its components from damage when transporting, handle with care.
- Do not subject it to any strong force.
- Do not insert foreign objects into any part of the battery pack.
- Do not use cleaning solvents to clean the battery.

1.4 Response to Emergency Situations

The 51.2V 200Ah Rack Mounted And Floor Standing Battery is designed with multiple safety strategies to prevent hazards resulting from failures. However, we cannot guarantee their absolute safety for uncertain situations.

1.4.1 Leaking batteries

If the battery pack leaks electrolyte, avoid contact with the leaking liquid or gas. Electrolyte is corrosive and contact may cause skin irritation and chemical burns. If one is exposed to the leaked substance, do these actions:

Inhalation: Evacuate the contaminated area, and seek medical attention immediately. **Eyes contact:** Rinse eyes with flowing water for minutes, and seek medical attention immediately.

Skin contact: Wash the affected area thoroughly with soap and water, and seek medical attention immediately.

Ingestion: Induce vomiting as soon as possible, and seek medical attention immediately.

1.4.2 Fire

In case of a fire, make sure that an ABC or carbon dioxide extinguisher is nearby and does not use water to extinguish the fire.

WARNING

The battery pack may catch fire when heated above 130°C.
If a fire breaks out where the battery is installed, do these actions:

1. Extinguish the fire before the battery catches fire.
2. If the battery has caught fire, do not try to extinguish the fire. Evacuate people immediately.



WARNING

If the battery catches fire, it will produce poisonous gases. Do not approach

1.4.3 Wet battery

If the battery is wet or submerged in water, do not try to access it. Contact distributor or your distributor for technical assistance.

1.4.4 Damaged battery

If the battery damaged, please contract distributor or your distributor for help as soon as possible, because damaged battery is dangerous and must be handled with extreme caution. Damaged battery is not suit for use and may pose a danger to people or property. If the battery seems to be damaged, return it to your distributor.

CAUTION

Damaged battery might export electrolyte or flammable gas, so contact for advice and information immediately we will deal with it within 48h

1.5 Installers

The 51.2V 200Ah Rack Mounted And Floor Standing Battery is suggested installing by skilled worker or electrician. A skilled worker is defined as a people who had been trained and qualified electrician or had all of the following skills and experience:

- Knowledge of the functional principles and operation of on-grid Energy Storage systems.
- Knowledge of the dangers and risks associated with installing and using electrical devices and acceptable mitigation methods.
- Knowledge of the installation of electrical devices
- Knowledge of and adherence to this manual and all safety precautions and best practices.

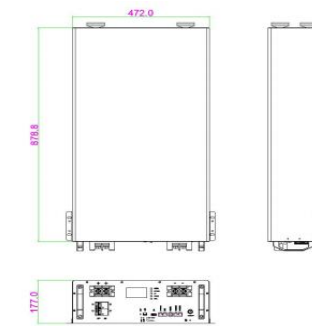
1.6 Scrap Battery

For scrap battery(-ies), please treat with local laws or regulations to recycle or scrap.

2.Product Introduction



OUTLINE DIMENSION



L mm(″)	W mm(″)	H mm(″)
472(18.58)	177 (6.9)	880(34.6)

ELECTRICAL PERFORMANCE

Nominal Voltage	51.2 V
Nominal Capacity	200Ah
Energy	10240Wh
Communication	CAN/RS232/RS485
Resistance	$\leq 45 \text{ m}\Omega$ @ 50% SOC
Efficiency	>96%
Module Parallel	Up to 15 packs

MECHANICAL PERFORMANCE

Dimension (L x W x H)	472*177*880mm 18.58 x 7 x 34.6″
Approx. Weight	264.5lbs(120Kg)
Terminal Type	Quick connector
Terminal Torque	80 ~ 100 in-lbs (9 ~ 11 N-m)
Case Material	SPCC
Enclosure Protection	IP21

CHARGE PERFORMANCE

Recommended Charge Current	75A
Maximum Charge Current	150A
Recommended Charge Voltage	57.6V
BMS Charge Cut-Off Voltage	58.4 V (3.65V/Cell)
Reconnect Voltage	>53.6 V (3.35V/Cell)
Balancing Starting Voltage	3.4V/Cell

TEMPERATURE PERFORMANCE

Discharge Temperature	-4 ~ 140 °F (-20 ~ 60 °C)
Charge Temperature	-4 ~ 113 °F (0 ~ 45 °C)
Storage Temperature	50 ~ 122 °F (10 ~ 50 °C)
BMS High Temperature Cut-Off	149 °F (65 °C)
Reconnect Temperature	131 °F (55 °C)

DISCHARGE PERFORMANCE

Maximum Continuous Discharge Current	150 A
Peak Discharge Current	160 A (1s)
BMS Discharge Cut-Off Current	200 A (500ms)
Recommended Low Voltage Disconnect	48V (3V/Cell)
BMS Discharge Cut-Off Voltage	43.2V (1s) (2.7V/Cell)
Reconnect Voltage	>48 V (3V/Cell)
Short Circuit Protection	>350A

COMPLIANCE

Certifications	CE (battery) UN38.3 (battery)
Shipping Classification	UN 38.3, MSDS, CLASS 9

Testing conditions based on temperature 25°C±2°C , humidity: 65±20%RH

3. Guidance for Disconnection of Batteries During Shipment

3.1 Cartons that have been crushed, punctured, or torn in such a way that contents are revealed shall be set aside in an isolated area and inspected by a skilled person. If the package is deemed to be not shippable, the contents shall be promptly collected, segregated, and either the consignor or consignee contacted.

3.2 The DC circuit of 51.2V 200Ah Rack Mounted Lithium Battery has been disconnected before outgoing.

3.3 A precautionary label had been affixed to the shipping carton to alert individuals as to the battery within the package have been disconnected; otherwise, the battery should not be transported.

3.4 We have conducted comprehensive tests to ensure the equipment they distribute around the world is safe for shipping transport. These products shall be handled with care and immediately inspected if visibly damaged. If the cartoon visibly damaged, please contract with distributor to confirm whether the battery could be used safely or not.



4. Installation Prerequisites

4.1 Installation Location

Make sure that the installation location meets the following conditions:

- The building is designed to withstand earthquakes, and the floor is flat and level.
- Far away from the sea to avoid salt water and humidity.
- The installed location should not be access by pet and children.
- No flammable or explosive materials nearby, at least 2.5m far away from combustible.
- Minimal dust and dirt in the area.
- No corrosive gases present, including ammonia and acid vapor.

The battery optimal operate temperature is 15°C to 30°C. Frequent exposure to severe operating condition would exacerbate the performance and lifetime of the battery.

4.2 Installation Requirements

For safety used of battery, please notice following notes when install:

- The installation shall be in a restricted access location/ room or in a cabinet where provides a barriers for the battery terminal.
- The maximum number of batteries shall be not over 15 PCS.
- DVC class specification: DVC-C for battery terminal, DVC-A2 for all communication terminals.

4.3 Installation Process

The battery should be installed according to the following steps

1. Check the transportation damage, if no damage, follow step 2. if had damage, please contact the shipping courier.
2. Read this Manual.
3. Install the battery.
4. Check if it is running well, if yes. Accept the battery. If the battery doesn't work. Please contact us.

4.4 Installation Materials

Following installation materials should be prepared by installers.

- Power cable
- Data cable
- Earth cable
- Ground wire
- Bipolar external isolator, when two or more battery systems in parallel, each of them shall have a bipolar isolator. Meanwhile, the isolator shall have ability to break the full load current.

NOTICE



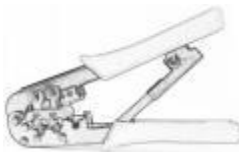





Make sure that the cross-sectional area of charging cables is 25 to 35 mm².

NOTICE

A breaker between battery and inverter was recommended to install, and the breaker's min. current should be over 120A or following with local regulations.

4.5 Tools

To install the battery pack, those following tools are probably required:

			
Phillips screwdriver	Torque wrench	Cable crimper	Wire clamp
			
Voltmeter	Tape measure	Drill	Flat-head screwdriver

In order to protect operator and installer's safety, please select and use suitable tools and measuring instruments that are certified for precision and accuracy.

4.6 Safety Instruments

When dealing with the battery, following safety gears should be equipped. Installers must meet the relevant requirements of IEC 60364 or the domestic legislation and other relevant international standards.



Insulated glove

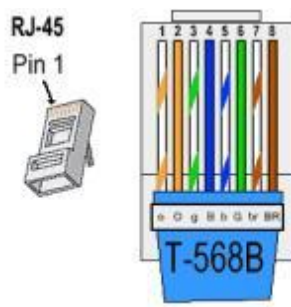


Safety goggles

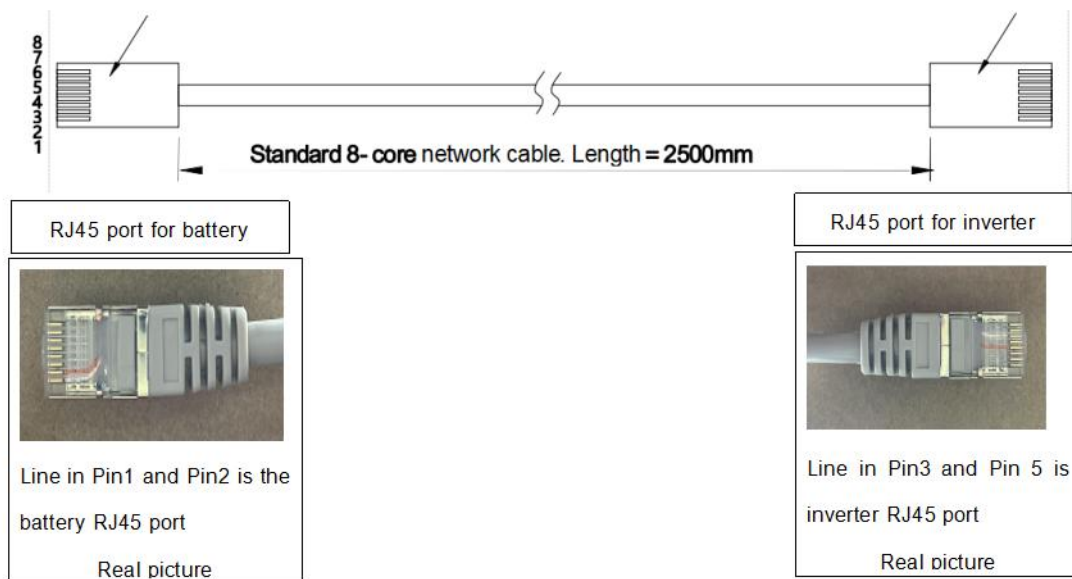


Safety shoes

4.7 Network Cable



If needed, the network cable should be made like that diagram. But the cable should be made following the definition on battery side. If available, use a LAN cable tester to check whether the cable is faulty.



Remark: The RJ45 plug only presses 2 wire cores, Pin 1 for Battery connect to Pin 3 for Inverter . Pin 2 for battery connect to Pin5 for inverter ,there is no line of other PIN.

RS485--adopt 8-position 8-contact vertical RJ45 socket	
RJ45Pin	Inverter' s communication port
1	RS485-B
2	RS485-A

RS485 Pin sequence for battery

	Definition
PIN 1	RS232TX
PIN 2	RS232RX
PIN 3	RS485B
PIN 4	NC
PIN 5	RS485A
PIN 6	CANH
PIN 7	CANL
PIN 8	GND

Pin sequence for Voltronic power 5600w

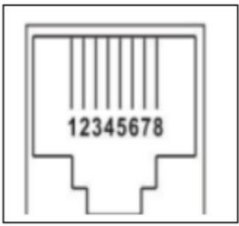
Above connection is for Voltronic power 5600w, if your inverter is another brand, please check your inverter's Pin Assignment for BMS Communication Port.

Remark:If the pin matching is not the same as that of this inverter, please remove the crystal head on the inverter side, then press the required communication line according to the pin sequence in the inverter manual.

CAN--adopt 8-position 8-contact vertical RJ45 socket	
RJ45 Pin	Inverter's communication port
5	CANL
4	CANH

Our CAN cables are 8 lines. Please use PIN5 and PIN4 to connect to inverter's CANL and CANH

	Definition
PIN 1	/
PIN 2	/
PIN 3	/
PIN 4	CANH
PIN 5	CANL
PIN 6	/
PIN 7	/
PIN 8	/



Pin sequence for Soroups REVO2 inverter

Above connection is for Soroups REVO2 inverter, if your inverter is another brand, please check your inverter's Pin Assignment for BMS Communication Port.

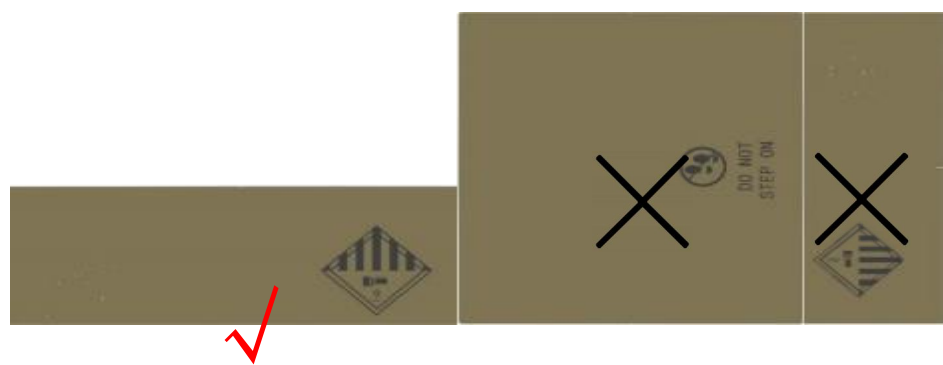
Remark:If the pin matching is not the same as that of this inverter, please remove the crystal head on the inverter side, and then press the required communication line according to the pin sequence in the inverter manual.

4.8 Storage

If the battery is not to be installed immediately, or removed from operation and needs to be stored for a long period, please choose an appropriate location to store it. Instructions for storage are:

- The temperature of battery stored recommended in the range of -20°C to 25°C.
- Do not expose to water.

The battery box should be upright as shown in the following figure and not stacked upside down when storing the battery box.



If the battery needs to be stored over 3 months, the DC circuit of battery suggests to be disconnecting. Otherwise, the battery would discharge at a minimum rate and capacity degrades depended on storage time, the battery self-consumption less than 5w. And, if the battery stored over 6 months, it is suggested to connect the battery with inverter and commission the system.

5. Battery Installation

5.1 Checks Before Installation

There are a few things to check before installing the battery to ensure that it has no defects.

Check item 1: Check the battery voltage.

WARNING

If this checking process is executed for any reason after the battery is fully installed, make sure that the inverter is turned off or break the connection between battery and inverter while checking the battery.

Press and hold the panel button and then release it, measure the voltage at the terminal interface with a voltmeter. If the voltage is lower than 48 V, do not use the battery and contact distributor or your distributor.

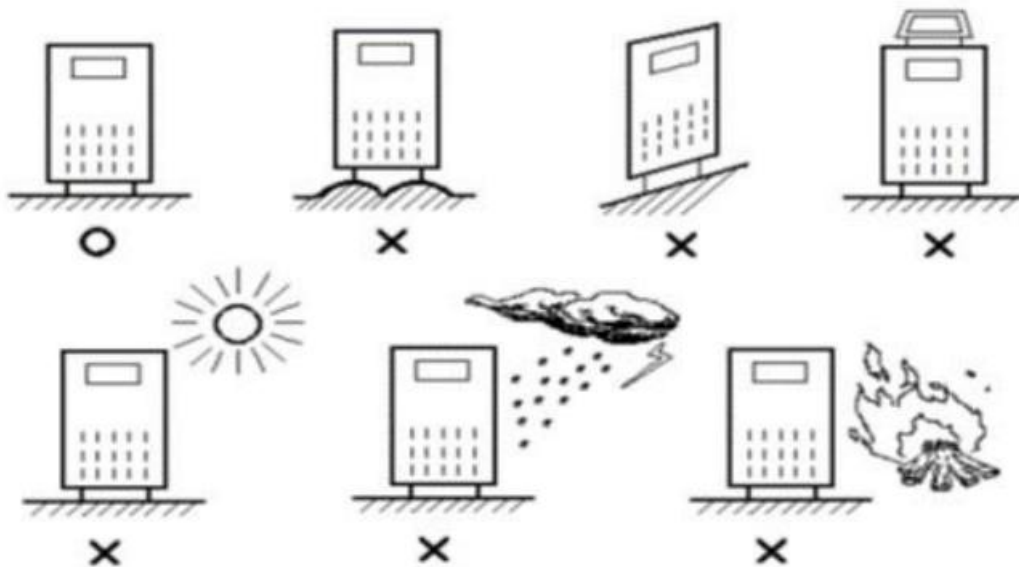
5.2 Installation the Battery

NOTICE

If the battery is installed above the floor or on a platform, make sure that the wall or platform is capable of supporting the battery's weight.

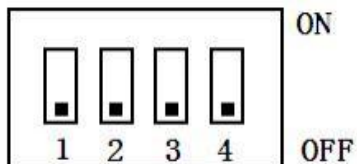
5.2.1 Installation requirements

Installation should be carried out as shown below in order to avoid possible risks. Put the lithium battery on the ground (to avoid tilt, uneven ground). Avoid placing in the sunlight, rain or wet surfaces.



5.2.2 Dial setting

When the PACKs are used in parallel, different PACKs can be distinguished by setting the address through the DIP switch on the BMS. It is necessary to avoid setting the same address. For the definition of the BMS DIP switch, refer to the table below.

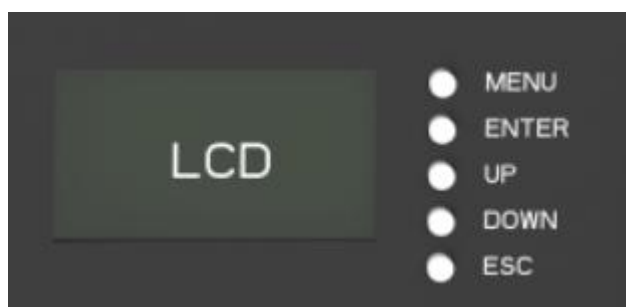


Pack ID	Dial setting			
	#1	#2	#3	#4
0	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON

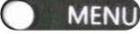
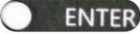

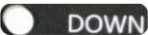
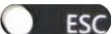
NOTICE

Before two or more batteries installed in parallel, please check the voltage of each battery and make sure the voltage different less than 2.0V.

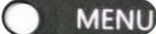
5.2.3 The commonly used button functions



Display function of the buttons are as shown below
Button function description

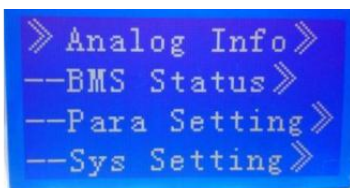
 MENU	Main menu
 ENTER	Confirm, enter
 UP	Page up
 DOWN	Page down
 ESC	Return, launch

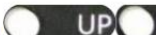
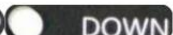

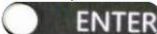

5.2.4 Interface operation procedures

- 1) Press  once, the LCD display screen lights up, then the welcome interface will be shown.



- 2) Followed by the prompt and then click once to enter the main menu bar.



- 3) Scroll page up and page down  , Enter the Menu screen, when the  points to the corresponding bar, press Enter  to confirm.
- 4) Go back on the menu bar, click .

5.2.5 Interface operation procedures

SCP: Short-circuit protection

O/UTP: Under temperature protection

OCP: Overcurrent protection

UVP: Over-discharge protection

OVP: Overvoltage protection

OT: Over temperature alarm










OTP: Over-temperature protection

UV: Under voltage alarm

OC: Overcharge current

OCP: Overcharge protection

5.2.6 LED working status indication

state	Normal/Alarm/Protection	ON/OFF	RUN	ALM	Battery indicator LED						Note
											
shutdown	sleep	off	off	off	off	off	off	off	off	off	wipe out
standby	normal	always on	Flash 1	off	According to the battery indicator						standby mode
	alarm	always on	Flash 1	Flash 3							module low voltage
Charge	normal	always on	always on	off	According to the battery indicator (Battery indicator LED flashes 2 at the highest level)						The highest battery LED is flashing (flashing 2), ALM when overcharge alarm not flashing
	alarm	always on	always on	Flash 3							
	overcharge protection	always on	always on	off	always on	always on	always on	always on	always on	always on	If there is no mains power, the indicator light turns to standby machine state
	temperature, over current, failure Protect	always on	off	always on	off	off	off	off	off	off	stop charging
discharge	normal	always on	Flash 3	off	According to the battery indicator						
	alarm	always on	Flash 3	Flash 3							
	Under voltage protection	always on	off	off	off	off	off	off	off	off	Stop discharging
	temperature, over current, short circuit, reverse connection, failure protection protect	always on	off	always on	off	off	off	off	off	off	Stop discharging
fail		off	off	always on	off	off	off	off	off	off	Stop charging and discharging

5.2.7 LED working status indication

state		Charge						discharge					
capacity indicator		L6 ●	L5 ●	L4 ●	L3 ●	L2 ●	L1 ●	L6 ●	L5 ●	L4 ●	L3 ●	L2 ●	L1 ●
Power (%)	0~16.6%	off	off	off	off	off	Flash 2	off	off	off	off	off	always on
	16.6~33.2%	off	off	off	off	Flash 2	always on	off	off	off	off	always on	always on
	33.2~49.8%	off	off	off	Flash 2	always on	always on	off	off	off	always on	always on	always on
	49.8~66.4%	off	off	Flash 2	always on	always on	always on	off	off	always on	always on	always on	always on
	66.4~83.0%	off	Flash 2	always on	always on	always on	always on	off	always on	always on	always on	always on	always on
	83.0~100%	Flash 2	always on	always on	always on	always on	always on	always on	always on	always on	always on	always on	always on
Running indicator		always on						Blink (3 flashes)					
state		Charge						discharge					

6 Commissioning

6.1 Commissioning Battery

If there is only one battery installed, use the following steps to put it in operation:

1. Press the panel button, after the indicator lights on, release the panel button.
2. Make sure that the Run light is on. If it stays off, do not use the battery and contact your distributor.
3. Turn the inverter on, and wait for the start-up sequence to complete fully.

When there are two or more batteries connected with parallel mode, after the charging cable and the data cable has been connected correctly, follow these steps to put them in operation:

1. Check battery voltage level is above 48V
 - a) If battery voltage is under 45V contact your distributor for help.
2. Release the panel button, after few seconds the indicator lights off.
3. Before Commission the system, please pay attention on following tips:
 - a) For all batteries, make sure that the Run light is on.
 - b) Make sure the maximum voltage different between batteries less than 1.5V.

- c) If not, the installer should balance the battery voltage and then parallel connect batteries together.
- d) Set the DIP switches like **5.2.2**.

4. Turn the inverter on, and wait for the start-up sequence to complete fully.

6.2 Shutting Down Battery

Shut down the battery only when the battery under standby status.

1. Release the Panel Button, after few seconds the battery will turn off itself.
2. Make sure that every light on the battery is off.

7 Contact us

We hope that this user manual has clearly demonstrated the product. If you still have any doubts or something not clear about it in the specifications, feel free contact to us please. we will do our best to support you!

