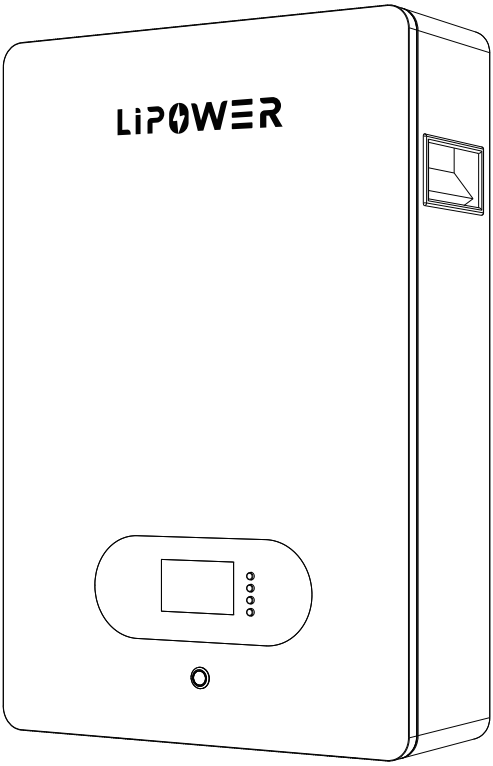
Lithium Battery Power Bank

Product-Manual



This manual introduces 51.2V DC series energy storage battery. Please read this manual before installing the battery and follow the instruction carefully during the installation. Any confusion, please contact manufacturer immediately for advice and clarification.

Contents

1. Reminding

a) It is very important and necessary to read the user manual carefully (in the accessories) before installing or using battery. Failure to do so or to follow any of the instructions or warnings in this document can result in electrical shock, serious injury, or death, or can damage battery, potential rendering it inoperable.

b) If the battery is stored for long time, it is required to charge them every six months, and the soc should be no less than 90%.

c) Battery needs to be recharged within 12 hours ,after fully discharged .

d) Do not expose cable outside.

e) All the battery terminals must be disconnected for maintenance.

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

g) Do not use cleaning solvents to clean battery.

h) Do not expose battery to flammable or harsh chemicals or vapors.

i) Do not paint any part of battery ,include any internal or external components

j) Do not connect battery with PV solar wiring directly.

k) The warranty claims are excluded for direct or indirect damage due to items above.

l) Any foreign object is prohibited to insert into any part of battery.

1.1 Before Connecting

a) After unpacking, please check product and packing list first, if products is damaged or lack of parts, please contact with the local retailer.

b) Before installation, be sure to cut off the grid power and make sure the battery is in the turned off mode.

c) Wiring must be correct, do not mistake the positive and negative cables, and ensure no short circuit with the external device.

d) It is prohibited to connect the battery and AC power directly.

e) The embedded BMS in the battery. The wall mounted case are not allowed to be used in series, in the communication state, a maximum of 15 parallel connections are allowed.

f) Please ensured the electrical parameters of battery system are compatible to related equipment.

g) Keep the battery away from water and fire.

1.2 In Using

a) If the battery system needs to be moved or repaired, the power must be cut off and the battery is completely shutdown.

b) It is prohibited to connect the battery with different type of battery.

c) It is prohibited to put the battery working with faulty or incompatible inverter.

d) It is prohibited to disassemble the battery (QC tab removed or damaged).

e) Please do not open, repair or disassemble the battery except staffs from manufacturer. We do not undertake any consequences or related responsibility which because of violation of safety operation or violating of design, production and equipment safety standards.

2. Product Introduction

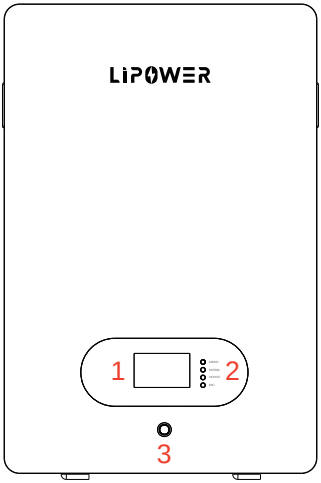
The capacity of the optional lithium battery should be higher than the solar inverter you want to connect.

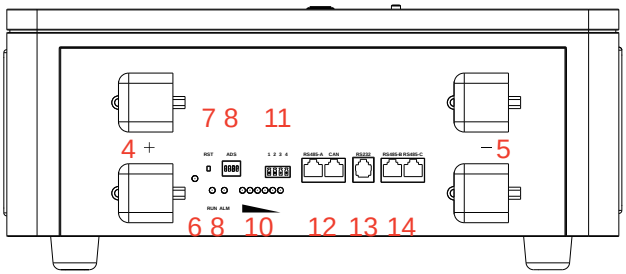
2.1 Features

- The whole module is non-toxic, non-polluting and environmentally friendly.
- Cathode material is made from LiFePO4 with safety performance and long cycle life.
- Battery management system (BMS) has protection functions including over-discharge, over-charge, over-current and high/low temperature.
- The system can automatically manage charge and discharge state and balance current and voltage of each cell.
- Flexible configuration,multiple battery modules can be in parallel for expanding capacity and Power.
- Adopted self-cooling mode rapidly reduced system entire noise. The module has less self-discharge, up to 6 months without charging it on shelf, no memory effect, excellent performance of shallow charge and discharge.
- Working temperature range is from -10℃ to 50℃, (charge 0℃~ 50℃, discharge -10℃~ 50℃) with excellent discharge performance and cycle life.

Single capacity	100AH
Rated voltage	51.2V
Rated Capacity	5120WH
Rated Current	100A
Charging current	100A
Display LCD	Single capacity
Communication	RS485、RS232、CAN
Working temperature	-10℃ ~ 50℃
Certification	UN38.3

2.3 Equipment Interface Instruction





1、LCD Display

Display page of working status data.

2、MENU Operation buttons

M E N U	Press the MENU key to return to the main menu page at any position.
E N T E R	Press ENTER to enter the corresponding page.
D O W N	Press the DOWN key to move the cursor position down.
E S C	Press the ESC key to return to the previous directory.

3、Power Switch

ON~Battery is turn on and the battery has output voltage.

OFF~Battery is turn off and the battery has no output voltage .

4、Battery positive+

Connect with inverter+

5、Battery negative-

Connect with inverter-

6、Power on indicator light

The light is on when it is turned on, and the light is off when it is turned off.

7、RST reset button

After reset, the parameters and functions set by the host computer are still retained, if you need to restore to the initial parameters, can be achieved through the host computer's “Restore Default Values”, but the relevant operation records and stored data remain unchanged (such as power, cycle times, protection records, etc.).

8、Operation Indicator, Fault Indicator

State	Nominal/Warning Protection	ON/OFF	RUN	ALM	Instruction
		●	●	●	
Shut down	Dormancy	OFF	OFF	OFF	ALL OFF
Standby	Nominal	ON	Flash 1	OFF	Standby
	Warning	ON	Flash 1	Flash 3	Battery at low voltage
Charge	Nominal	ON	ON	OFF	The LED Light of the highest capacity flashing（flash 2). When overcharge alarm, ALM does not flash
	Warning	ON	ON	Flash 3	
	Over discharge	ON	ON	OFF	If there is no mains power, the indicator light turns to standby.
	Over current,Over temperature	ON	OFF	ON	Stop charging
Discharge	Nominal	ON	Flash 3	OFF	
	Warning	ON	Flash 3	Flash 3	
	Under-voltage protection	ON	OFF	OFF	Stop discharging
	Temperature, over-current, short circuit, reverse polarity, failure protection	ON	OFF	ON	Stop discharging
Disable		OFF	OFF	ON	Stop charging and discharging

9、DIP switch

When 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. In parallel mode, the default DIP address is 1 for the host.

ADDRESS	DIP SWITCH 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

10、Battery Indicator

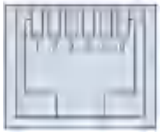
STATE		CHARGE						DISCHARGE					
Capacity indicator		L6 ●	L5 ●	L4 ●	L3 ●	L2 ●	L1 ●	L6 ●	L5 ●	L4 ●	L3 ●	L2 ●	L1 ●
Capacity(%)	0% ~ 17%	OFF	OFF	OFF	OFF	OFF	Flash 2	OFF	OFF	OFF	OFF	OFF	ON
	18% ~ 33%	OFF	OFF	OFF	OFF	Flash 2	ON	OFF	OFF	OFF	OFF	ON	ON
	34% ~ 50%	OFF	OFF	OFF	Flash 2	ON	ON	OFF	OFF	OFF	ON	ON	ON
	51% ~ 66%	OFF	OFF	Flash 2	ON	ON	ON	OFF	OFF	ON	ON	ON	ON
	67% ~ 83%	OFF	Flash 2	ON	ON	ON	ON	OFF	ON	ON	ON	ON	ON
	84% ~ 100%	Flash 2	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON	ON
Operation Indicator Light●		ON						Flashing (Flash 3)					

11、Dry contact

Dry contact 1-PIN1 to PIN2: Normally open, closed for fault protection.

Dry contact 2-PIN3 to PIN4: Normally open, low battery alarm closed.

12、RS485-A、CAN



CAN--Adopt 8P8C vertical RJ45 socket		RS485--Adopt 8P8C vertical RJ45 socket	
RJ45 PIN	Define	RJ45 PIN	Define
1、3、6、7、8	NC	9、16	RS485-B1
4	CAN-H	10、15	RS485-A1
5	CAN-L	11、14	GND
2	GND	12、13	NC

The default baud rate of RS485-A is 9600bps. This interface is used to communicate with the inverter. When the battery is the master, it can summarize the slave data and communicate with the inverter.

CAN communication interface, the default baud rate is 500K, this interface is used to communicate with the inverter, when the battery is the master, it can summarize the slave data and communicate with the inverter.

13、RS232

RS232--Adopt 6P6C vertical RJ11 socket	
RJ11 PIN	Define
2	NC
3	TX（single board）
4	RX（single board）
5	GND

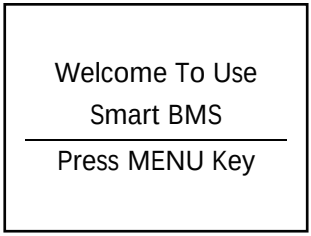
The BMS can communicate with the host computer through the RS232 interface, so that various information of the battery can be monitored through the host computer, including battery voltage, current, temperature, status and battery production information, etc. The default baud rate is 9600bps.

14、RS485-B

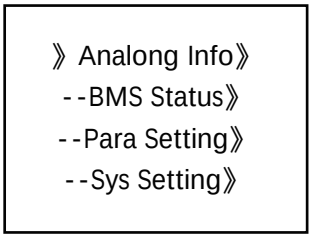
RS485--Adopt 8P8C vertical RJ45 socket			
RJ45 PIN	Define	RJ45 PIN	Define
1、8	RS485-B	9、16	RS485-B
2、7	RS485-A	10、15	RS485-A
3、6	GND	11、14	GND
4、5	NC	12、13	NC

With dual RS485 interface, you can view the information of PACK, the default baud rate is 9600bps. If you need to communicate with the monitoring device through RS485, the monitoring device acts as the host and polls data according to the address. The address setting range is 2~15.

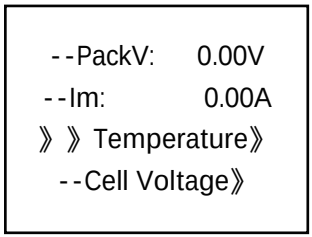
2.4 LCD display



default user interface



Battery parameter acquisition



peak voltage

battery current

Battery temperature detection

Cell Voltage

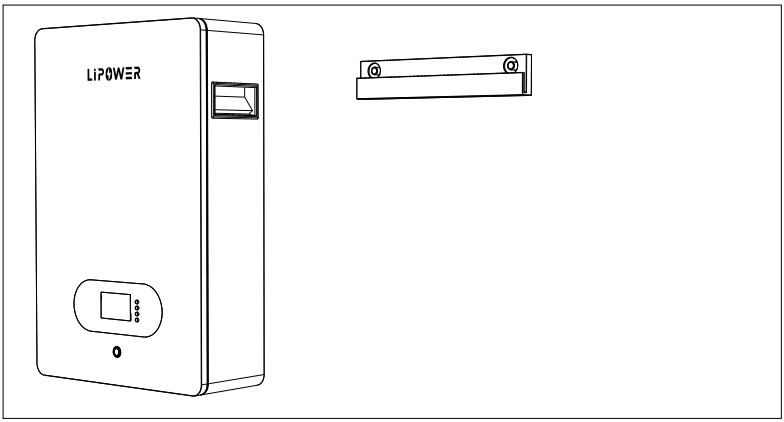
》CellCapacity》	Battery capacity information

3. Safe handing of lithium battery guide

3.1 Tools

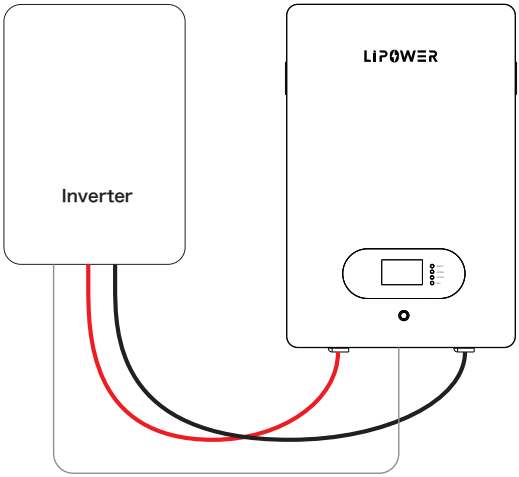
Use properly insulated tools to prevent accidental electric shock or short circuits

3.2 Installation location



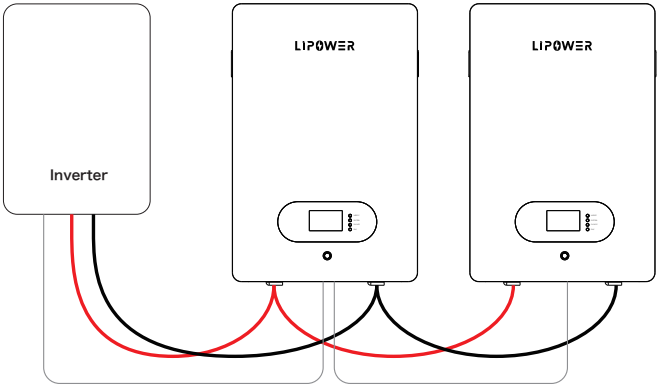
4. Installation

4.1 One set Lithium battery product connects to Inverter



- Use the RJ45 communication cable to connect the 485 communication port of the inverter to the RS485-A communication port of the lithium battery.
- Set the communication address of the lithium battery to 1.

4.2 Multiple sets of Lithium battery product connects to Inverter



- Use the RJ45 communication cable to connect the 485 communication port of the inverter to the RS485-A communication port of the lithium battery (1).
- Use the RJ45 communication line to connect the lithium battery to the RS485-B of the lithium battery.
- Set the communication address of the lithium battery to (1-15) (1 is the host).

4.3 Installation Location

Make sure that the installation location meets the following conditions.

- The area is completely water proof.
- The floor is flat and level.
- There are no flammable or explosive materials.
- The ambient temperature is within the range from 0℃ to 50℃.
- The temperature and humidity is maintained at a constant level.
- There is minimal dust and dirt in the area
- Use fitting screws to fix the box on the wall.

Note: If the ambient temperature is outside the operation range, the battery pack stops operation to protect itself. The optimal temperature range for the battery pack to operate is 0℃ to 50℃. Frequent exposure to harsh temperature may deteriorate the performance and life of the battery pack.

5. Trouble Shooting Steps

5.1 Problem determination based on:

- Whether the battery can be turned on or not.
- If battery is turned on, check the LED light is off, flashing or lighting.
- If the LED light is off, check whether the battery can be charge/discharge or not.

5.2 Preliminary determination steps:

a) Battery cannot turn on, switch on the lights are all no lighting or flashing.

If the battery external switch is on, the LED light is flashing, and the external power supply voltage is 48V or more, the battery still unable to turn on, please contact distributor.

b) The battery can be turned on, but red light is lighting, and cannot charge or discharge. If the

c)red light is lighting, that means system is abnormal, please check values as following:

i.Temperature: Above 50℃ or under -10℃, the battery could not work.

ii.Current: If current is greater than 150A, battery protection will turn on.

iii.High Voltage: If charging voltage above 58.4Vdc, battery protection will turn on.

iv. Low Voltage: When the battery discharges to 44.8Vdc or less, battery protection will turn on.

5.3 The battery cannot be charged or discharged

a)Cannot be charged:

Disconnect the power cables, measure voltage on power side, if the voltage is 51.2~54.0Vdc, restart the battery, connect the power cable and try again, if still not work, turn off battery and contact distributor.

b)Unable to discharge

Disconnect the power cables and measure voltage on battery side, if it is under 44.5V, please charge the battery. If voltage is above 48V and still cannot discharge, turn off battery and contact distributor.