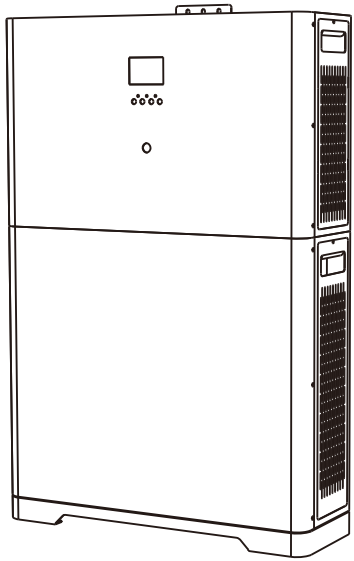
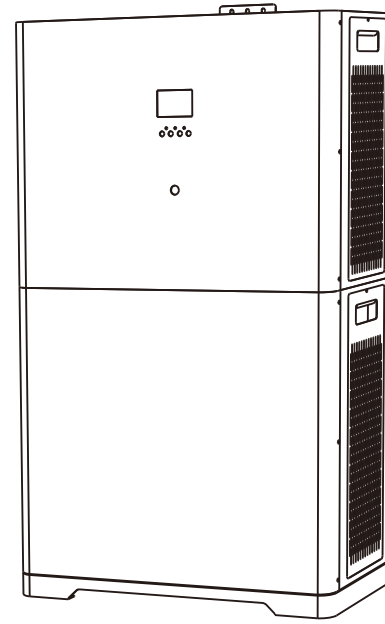
USER GUIDE

LiFepO4 Battery System for Households





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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, The load is greater than the maximum output power of a single lithium battery, and two lithium batteries are needed.

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.

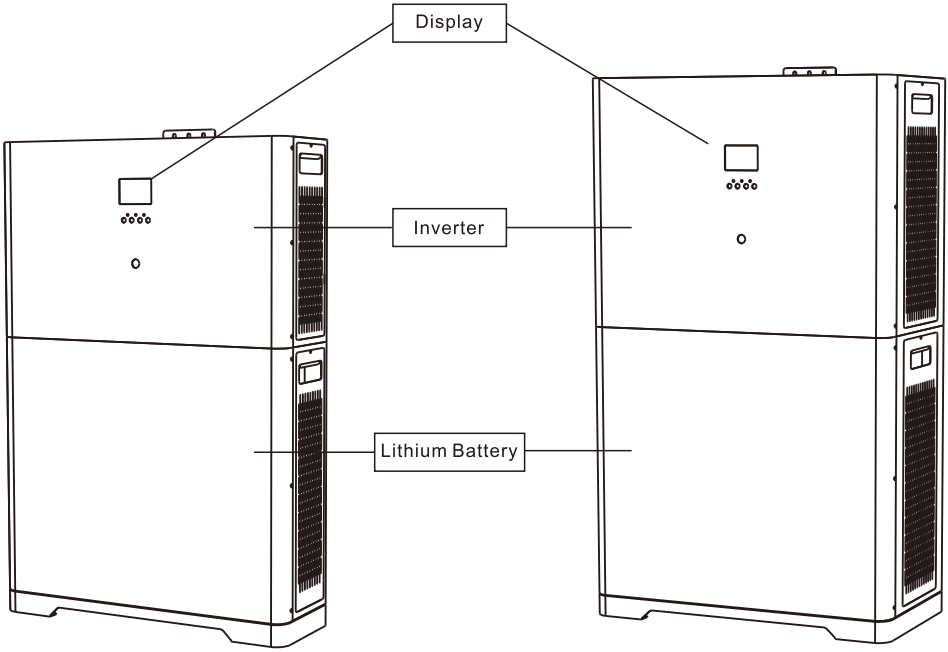
2. The batteries are not allowed to connected with PWM controller for charging. Special Attention: Due to the built-in protection board of the lithium battery pack is with over-discharge protection function, it is strongly recommended to stop using the load when the battery pack is over-discharged. The 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

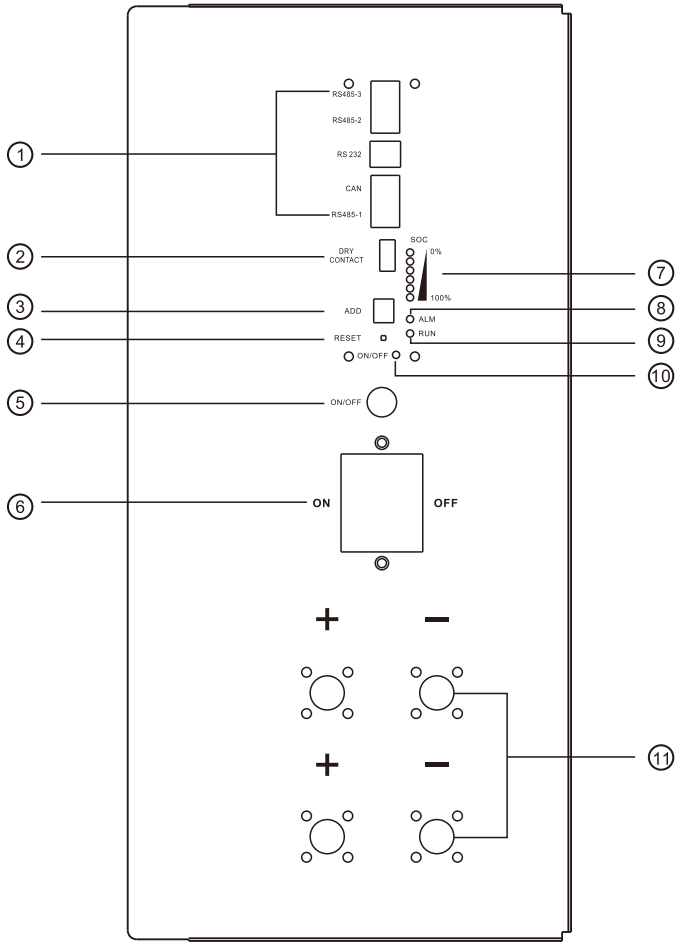
- Iron phosphate-lithium power battery
- Higher energy density, smaller volumn for household.
- Support connected in parallel mode for expansion
- Photovoltaic system: This battery pack is designed for household photovoltaic systems.
- Battery management system (BMS): The battery packs built-in BMS monitors 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



LN100AH/51.2V LN230AH/51.2V

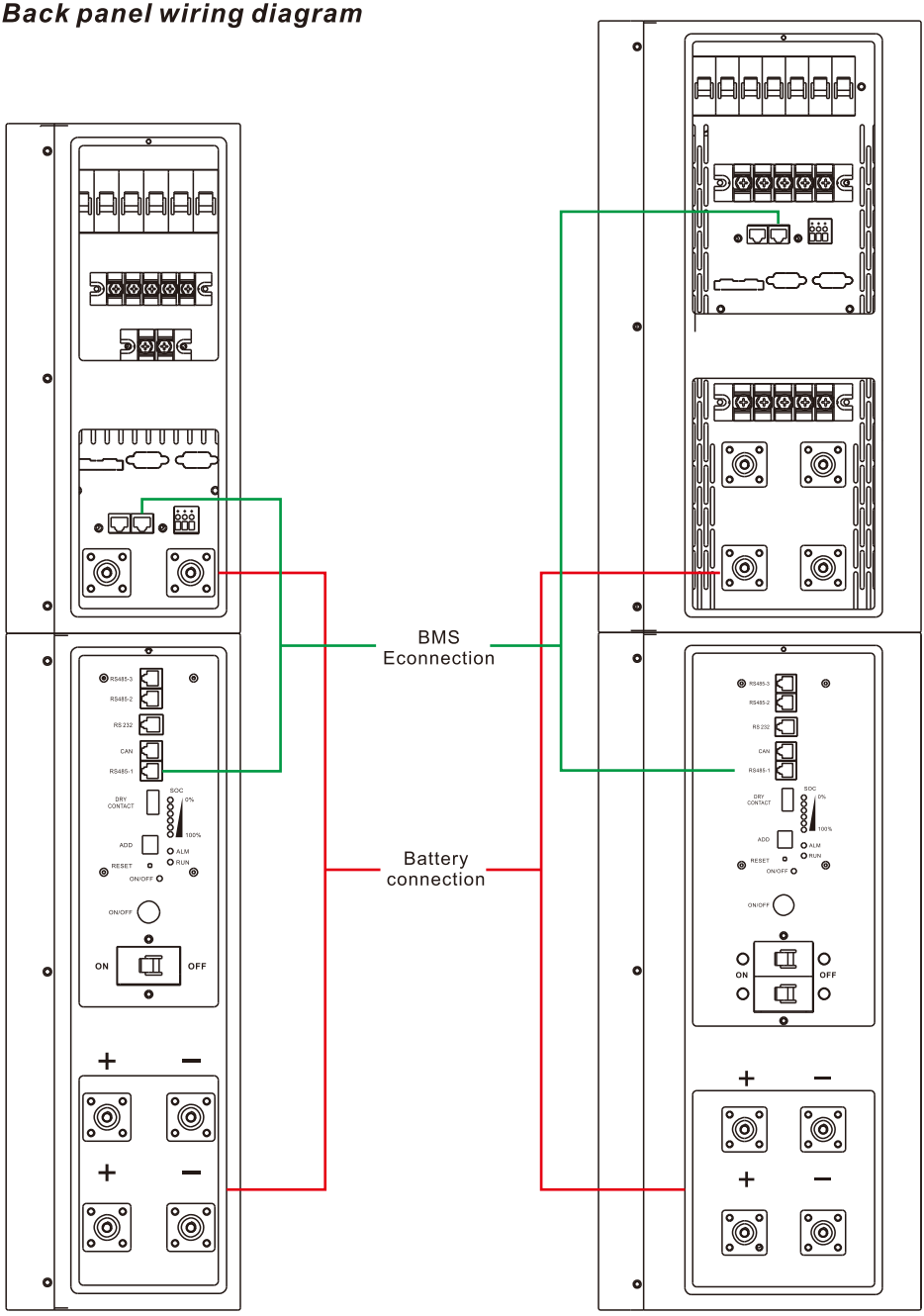
Note: The diagram is for reference only. This package only contains lithium battery, the inverter needs to be purchased separately.



1.CAN232/485
2.Dry Contact
3.ADD
4.Reset
5.Switch
6.Circuit Breakers

7.Battery Indicator
8.ALM
9.RUN
10.Switch indicator light
11.Battery Positive and Negative

Back panel wiring diagram



LN100AH/51.2V

LN230AH/51.2V

2.3 Specifications

Model	LN100AH/51.2V	LN230AH/51.2V
Usable Capacity	5120WH	11776WH
Rated Voltage	51.2V	51.2V
Voltage Range	43.2-59.2	43.2-59.2
Max Continuous Charge Current	100A	200A
Max Continuous Discharge Current	100A	200A
Max Output Power	5120W	10240W
Recommend Output Power	2500W	5000W
Display Screen	LED Display	LED Display
DOD	≥95%	≥95%
Modules Connection	1-15 in parallel	1-15 in parallel
Communication	485/CAN	485/CAN
Ingress Protection	IP21	IP21
Cycle Life	≥6000	≥6000
Working Temperature Range	Discharge: -10°Cto+50°C, Charge:+0°Cto+60°C	
Product Dimension(MM)	610x491x170	630x525x250
Package Dimension(MM)	705X620X275	690x630x420

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	LN100AH/51.2V	LN230AH/51.2V
Max. Charging Voltage	58.4V	58.4V
Floating charging Voltage	57.6V	57.6V
Max. Charging Current	100A	200A
Cut-off voltage	43.2V	43.2V

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

2.5 DC Wiring Size

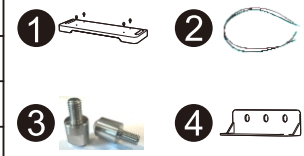
It is important to use the correct sized DC wire to achieve maximum efficiency from the system and to reduce fire hazards associated with overheating. Always keep your wire runs as short as practical to prevent low voltage shutdowns and to keep the DC breaker from nuisance tripping (or open fuses) because of increased current draw. The correct minimum DC wire size (and corresponding over current device) is required in order to reduce stress on the inverter minimize voltage drops. increase system efficiency and ensure the inverter's ability to surge heavy loads.

Battery capacity	Connection wire diameter
100AH	25mm^2
230AH	50mm^2

3.INSTALLATION

3.1 Unpacking and Inspection

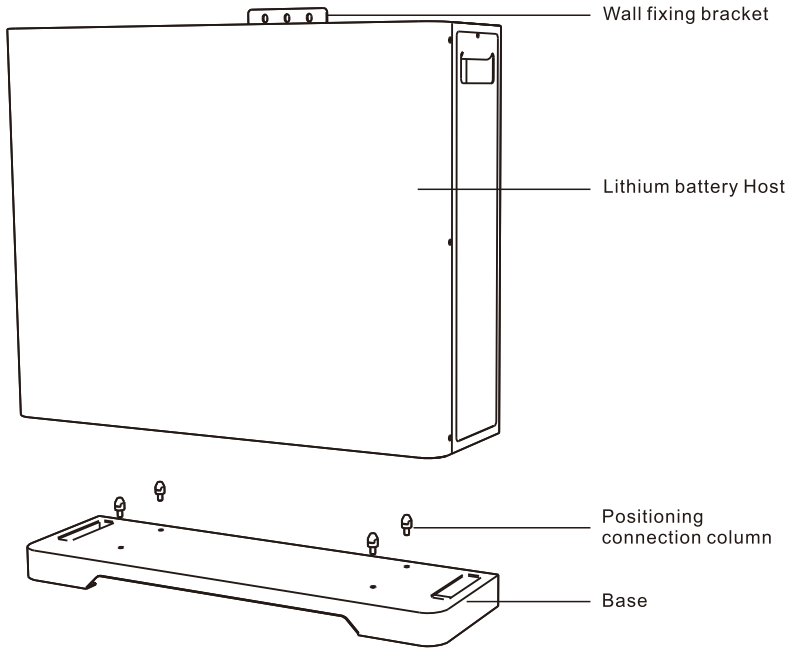
Before installation, please inspect the unit. Be sure that nothing inside the package is damaged. You should have received the following items inside of package.

NO	NAME	SPECIFICATION	PICTURE
①	Base	Machine base	
②	Cables	Used for battery parallel connection	
③	Positioning connection column	Machine stacking positioning	
④	Wall fixing bracket	Machine wall fixing	

3.2 Mounting the Unit

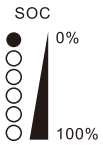
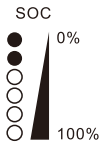
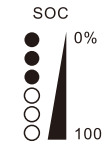
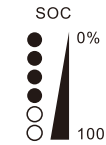
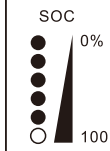
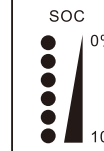
Consider the following points before selecting where to install:

- 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.



4. DESCRIPTION FOR LED

The SOC of the battery is shown by the LED

					
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.

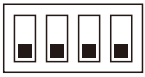
LED Working Status Indicator

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 ALM does not flash when overcharge alarm occurs
	Warning	●	●	★3	(The maximum battery capacity, LED flashes 2)						
	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

6. DIP SWITCH SETTING

When PACK is used in parallel, the address can be set by the DIP switch on the BMS to distinguish different PACKs. It is necessary to avoid setting the same address. In the BMS parallel mode, the definition of the DIP switch refers to the table below. The default DIP address 1 is the host when in parallel mode.



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

5.EMERGENCYSITUATIONS

We cannot guarantee battery absolute safety.

5.1 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.

5.2 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.

5.3 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.

5.4 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.

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